TUTORIAL PROJECT

Django Tutorial–Build a Travel Blog with Goorm IDE and Bootstrap 4

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Preface

A student came to me when I was teaching software programming. Learning computer software (SW) became a burden to this student not only because of the poverty under which students live but also because of the expensive education fees. Moreover it was hard to study just by himself.

The use of software is part of our every days life (internet, word etc …) therefore software programming should be easy to approach. Of course, it is not easy to find solutions as a professional SW education administrator however learning should not be a burden to students who just want to reach their dreams .

It should also be easy to learn. Thick and complicated books are not always the best choice for a beginner.
Those tutorials series are quick to read and you will improve your skills a lot , all by yourself.
Everyone can enjoy a great education with our tutorial, even someone with a poor background. So that you could enjoy learning and have the pleasure of solving problems. We will do our best to help you.

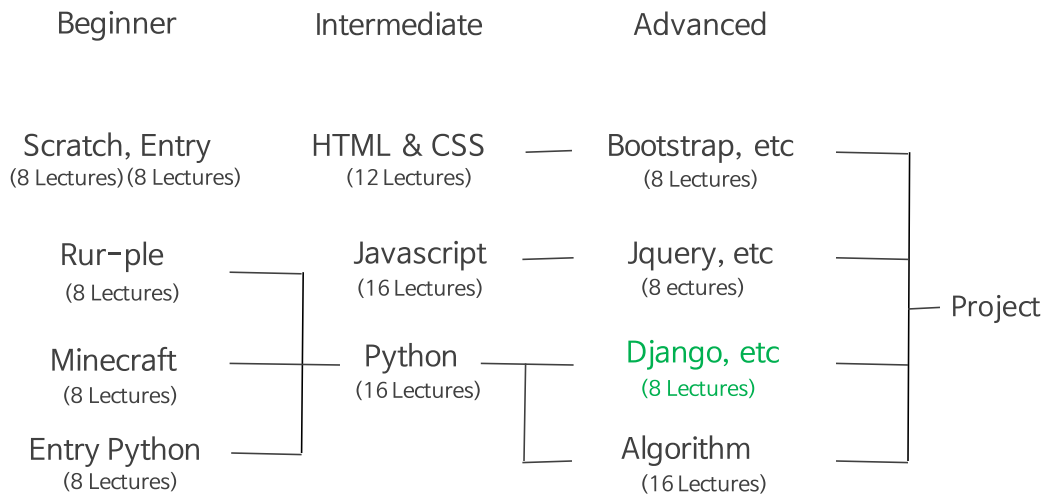
1. Check our lecture road map out on the next page and choose the one for you
2. Watch the video of the road map on our website to know what you need to learn (http://paullab.co.kr/curriculum.html)
3. Step through the tutorial project.

I hope that going through this steps will help you to reduce the ambiguity of software programming and reach your dreams.

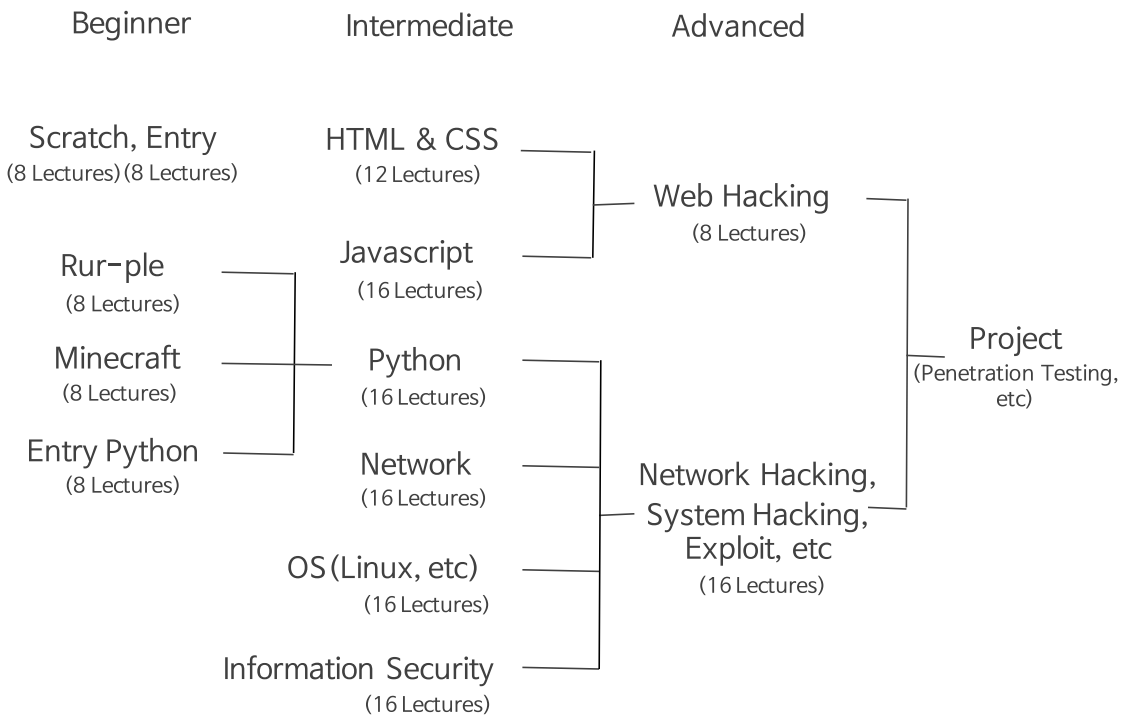
Hojun Lee

Road Map

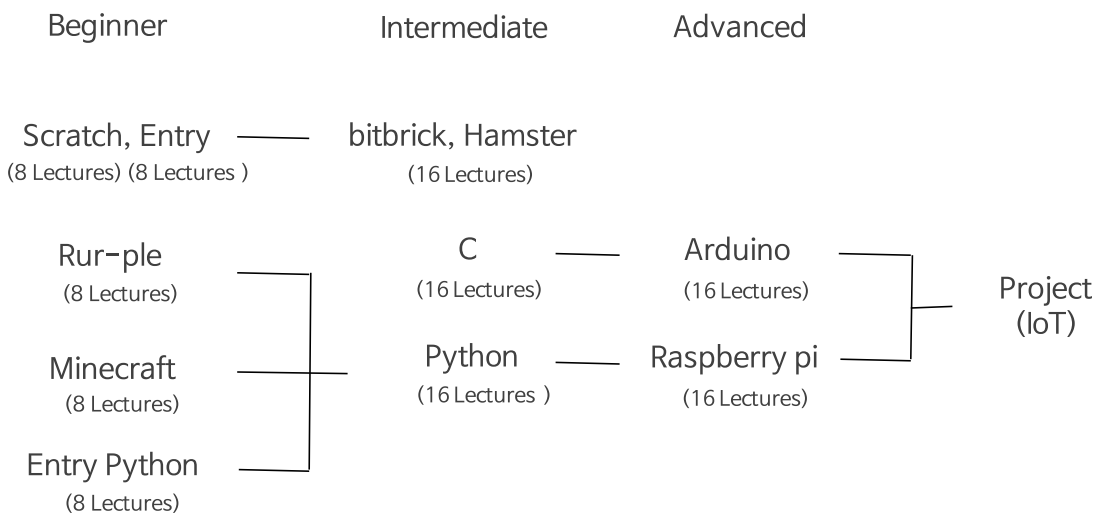
1. Web development(Front-end & Back-end : Full-Stack)



2. Information Security



3. Physical Computing



4. Advanced class

4.1 Big data Analysis in Python(8 Lectures)

4.2 Self Driving Car with Python(8 Lectures)

4.3 Information Security in Python(8 Lectures)

4.4 PyQt with Python GUI Programming(8 Lectures)

4.5 TensorFlow Tutorial(8 Lectures)

4.6 Django Tutorial(8 Lectures)

4.7 Android App Development(22 Lectures – Include java class)

4.8 Advanced Front-end programming (16 Lectures)

4.9 Advanced Back-end programming(16 Lectures)

Who should read this book

This book is recommended for those who want to program with Django. Django is a very popular framework among Python programmers. We hope it will be a good opportunity to expend your perspectives on web development

About the Book

This book is a tutorial on Django that you will teach you to use it while creating a simple travel blog with Python. So instead of learning with Django in details,
We focused on a simple way (step by step) to create a web service.
If you just follow along, you will be able to create a web service. You will be able to download source code example files of each examples that you will use.
The front-end programming part of this tutorial is from the Bootstrap section of the 'Travel Blog Tutorial'.

* Download templates sources from the paullab.co.kr/templates.zip

Next steps after the tutorial?

After learning Python and Django with us, you will be able to start creating an actual web service in the real world. When you're fixing an error, check the parts that you did not know and take a note of the solution.

If you are interested in Python itself, you may want to study about data analysis, visualization, and artificial intelligence.

Contents

Chapter 1

Environment setting with Goorm IDE

1.1 Introduction

1.2 Environment setting with Goorm IDE

TUTORIAL 1
Introduction

Django is a free and open source web application framework written in Python which is used by Instagram, NASA, Disqus and etc.

A Framework is a supporting structure around which web services can be developed in a faster and easier way using a collection of given components.

Django started as a free and open source framework in 2005, and Django 2.0 released in December of 2017, and there is no Django 2.0 tutorial book in Korea yet. **In this tutorial, we will build a simple blog in order to understand the whole process of website development**.

If you want to know about django in detail refer to the documentation on the official website.

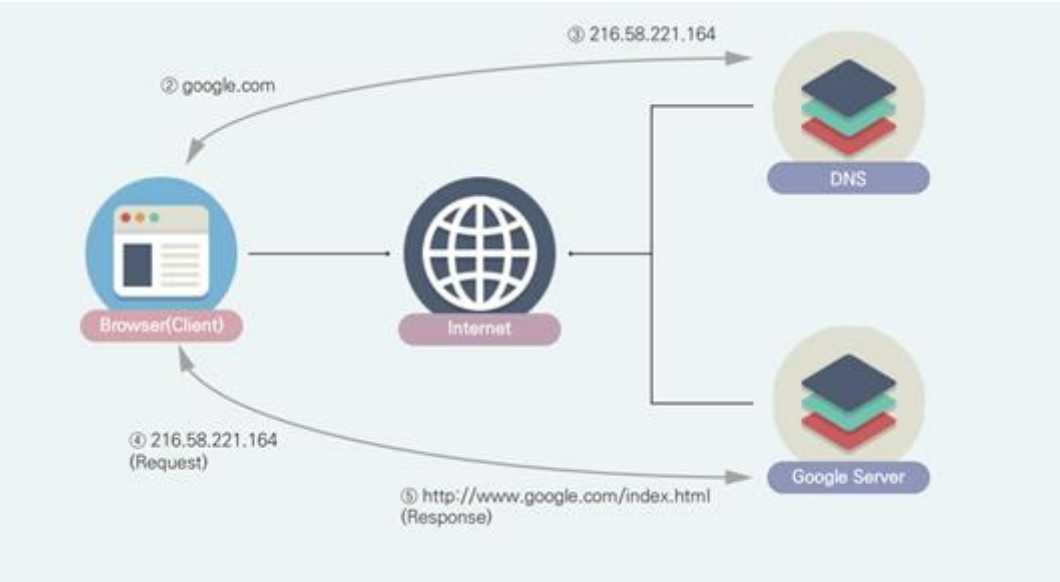
https://www.djangoproject.com/ The official homepage provides an introduction to django, downloads, and supporting documentation.

*https://media.readthedocs.org/pdf/django/2.0.x/django.pdf

1.1 Django installation & Environment setting(cont.)

Here is the description of how the internet works.
Below is a summary of the steps that internet is going through when you type "google" into your browser.

The web site we are going to create will work that way. We'll be using different languages such as HTML, CSS, JavaScript, Python, and we'll use the Bootstrap library on Django framework.



0. You type www.google.com into your browser
1. The Web browser gets the domain name (www.google.com) from the clients (you)
2. The Web browser looks for the IP address of the domain through the domain name server (DNS)
3. The Web brower requests a page to the web server through the IP address
4. The web server sends the requested page back to The web browser
5. The Web browser displays the page

1.1 Django installation & Environment setting(cont.)

We will use the Goorm IDE cloud service.
It is Linux based and it uses Ubuntu 14.

Most of you are used to use the mouse in the graphical GUI (graphic user interface) environment. (windows, mac)

Therefore the Linux CLI environment (command-line interface) might be unfamiliar to you as you command everything on a black screen. (no mouse)
Around the world The Linux server's market share represent at least 90% . That's the reason why we recommend to use it.

Now let's compare three different cloud service models:

The Cloud IDE we will use is PaaS model.

1. **SaaS (Software as a Service):** SaaS is the most user-friendly service and it is a service that allows you to take advantage of application functions over the network.

2. **Platform as a Service (PaaS):** PaaS is a cloud service that comes with Windows and Linux-like operating systems and a development platform.

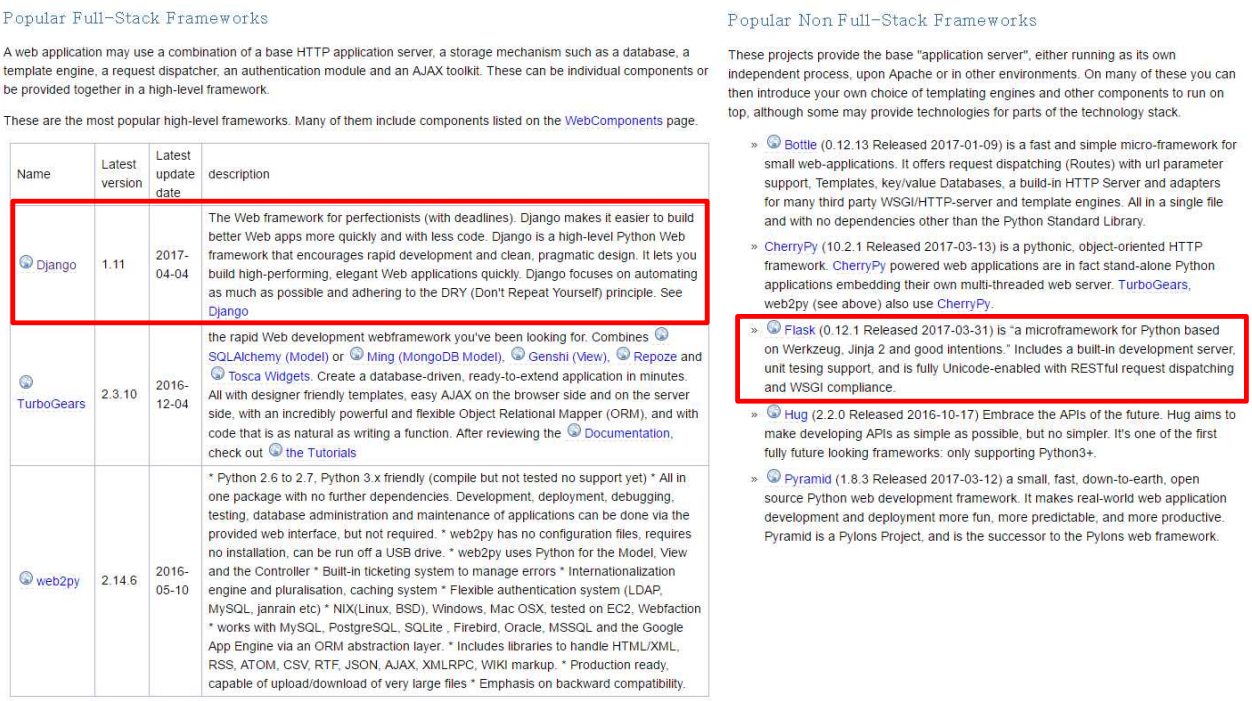
3. **IaaS (infrastructure as a service):** IaaS is a cloud infrastructure service. It is mostly used professionally.

1.1 Django installation & Environment setting(cont.)

I think the reason why you've chosen this tutorial is because you are fascinated by Python's powerful library, intuitive and excellent extensibility. So, now python is one of the most popular programming language.

Then what about framework? Below is a description of the python framework from Wikipedia. In addition to Django, there are some popular frameworks like Flask. Django is a full-stack web framework , whereas Flask is lightweight and extensible.

Depending on your project ,make the right choice among those frameworks.



Popular Full-Stack Frameworks

A web application may use a combination of a base HTTP application server, a storage mechanism such as a database, a template engine, a request dispatcher, an authentication module and an AJAX toolkit. These can be individual components or be provided together in a high-level framework.

These are the most popular high-level frameworks. Many of them include components listed on the WebComponents page.

Name	Latest version	Latest update date	description
Django	1.11	2017-04-04	The Web framework for perfectionists (with deadlines). Django makes it easier to build better Web apps more quickly and with less code. Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design. It lets you build high-performing, elegant Web applications quickly. Django focuses on automating as much as possible and adhering to the DRY (Don't Repeat Yourself) principle. See Django
TurboGears	2.3.10	2016-12-04	the rapid Web development webframework you've been looking for. Combines SQLAlchemy (Model) or Ming (MongoDB Model), Genshi (View), Repoze and Tosca Widgets. Create a database-driven, ready-to-extend application in minutes. All with designer friendly templates, easy AJAX on the browser side and on the server side, with an incredibly powerful and flexible Object Relational Mapper (ORM), and with code that is as natural as writing a function. After reviewing the Documentation, check out the Tutorials
web2py	2.14.6	2016-05-10	* Python 2.6 to 2.7, Python 3.x friendly (compile but not tested no support yet) * All in one package with no further dependencies. Development, deployment, debugging, testing, database administration and maintenance of applications can be done via the provided web interface, but not required. * web2py has no configuration files, requires no installation, can be run off a USB drive. * web2py uses Python for the Model, View and the Controller * Built-in ticketing system to manage errors * Internationalization engine and pluralisation, caching system * Flexible authentication system (LDAP, MySQL, janrain etc) * NIX(Linux, BSD), Windows, Mac OSX, tested on EC2, Webfaction * works with MySQL, PostgreSQL, SQLite , Firebird, Oracle, MSSQL and the Google App Engine via an ORM abstraction layer. * Includes libraries to handle HTML/XML, RSS, ATOM, CSV, RTF, JSON, AJAX, XMLRPC, WIKI markup. * Production ready, capable of upload/download of very large files * Emphasis on backward compatibility.

Popular Non Full-Stack Frameworks

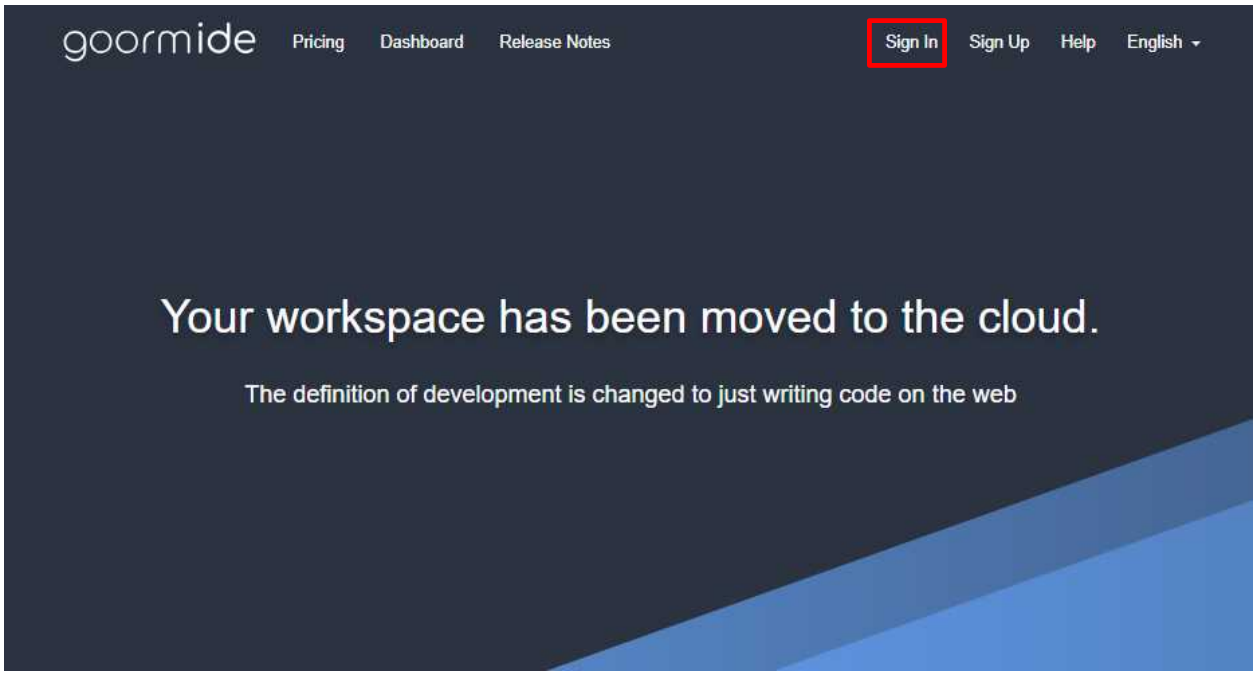
These projects provide the base "application server", either running as its own independent process, upon Apache or in other environments. On many of these you can then introduce your own choice of templating engines and other components to run on top, although some may provide technologies for parts of the technology stack.

- Bottle (0.12.13 Released 2017-01-09) is a fast and simple micro-framework for small web-applications. It offers request dispatching (Routes) with url parameter support, Templates, key/value Databases, a build-in HTTP Server and adapters for many third party WSGI/HTTP-server and template engines. All in a single file and with no dependencies other than the Python Standard Library.
- CherryPy (10.2.1 Released 2017-03-13) is a pythonic, object-oriented HTTP framework. CherryPy powered web applications are in fact stand-alone Python applications embedding their own multi-threaded web server. TurboGears, web2py (see above) also use CherryPy.
- Flask (0.12.1 Released 2017-03-31) is "a microframework for Python based on Werkzeug, Jinja 2 and good intentions." Includes a built-in development server, unit tesing support, and is fully Unicode-enabled with RESTful request dispatching and WSGI compliance.
- Hug (2.2.0 Released 2016-10-17) Embrace the APIs of the future. Hug aims to make developing APIs as simple as possible, but no simpler. It's one of the first fully future looking frameworks: only supporting Python3+.
- Pyramid (1.8.3 Released 2017-03-12) a small, fast, down-to-earth, open source Python web development framework. It makes real-world web application development and deployment more fun, more predictable, and more productive. Pyramid is a Pylons Project, and is the successor to the Pylons web framework.

https://wiki.python.org/moin/WebFrameworks

TUTORIAL 1.2
Environment setting with IDE

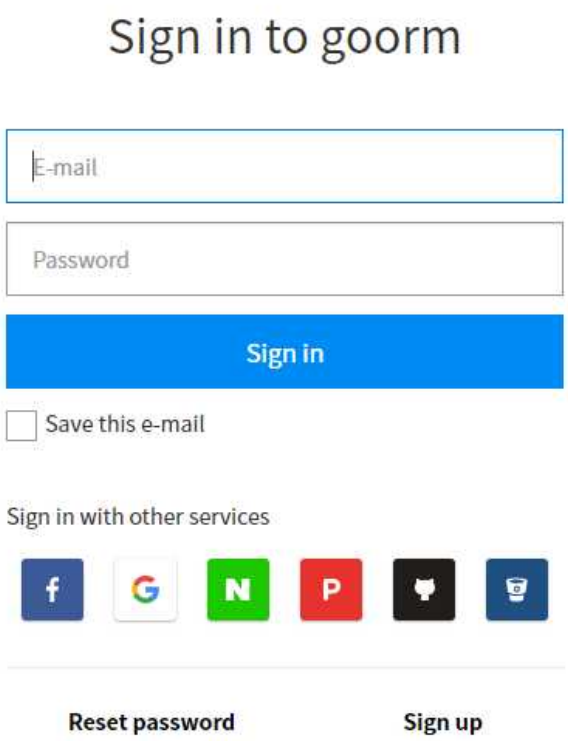
Let's try setting the Goorm IDE environment. Just follow the red square with us.



https://ide.Goorm.io/

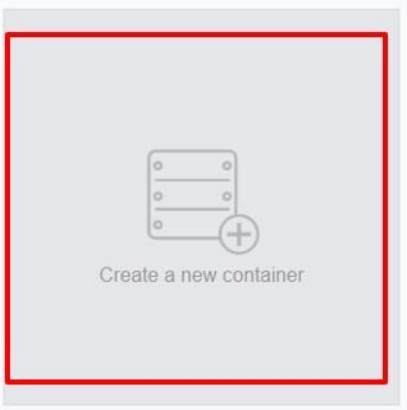
1.2 Environment setting with Goorm IDE(cont.)

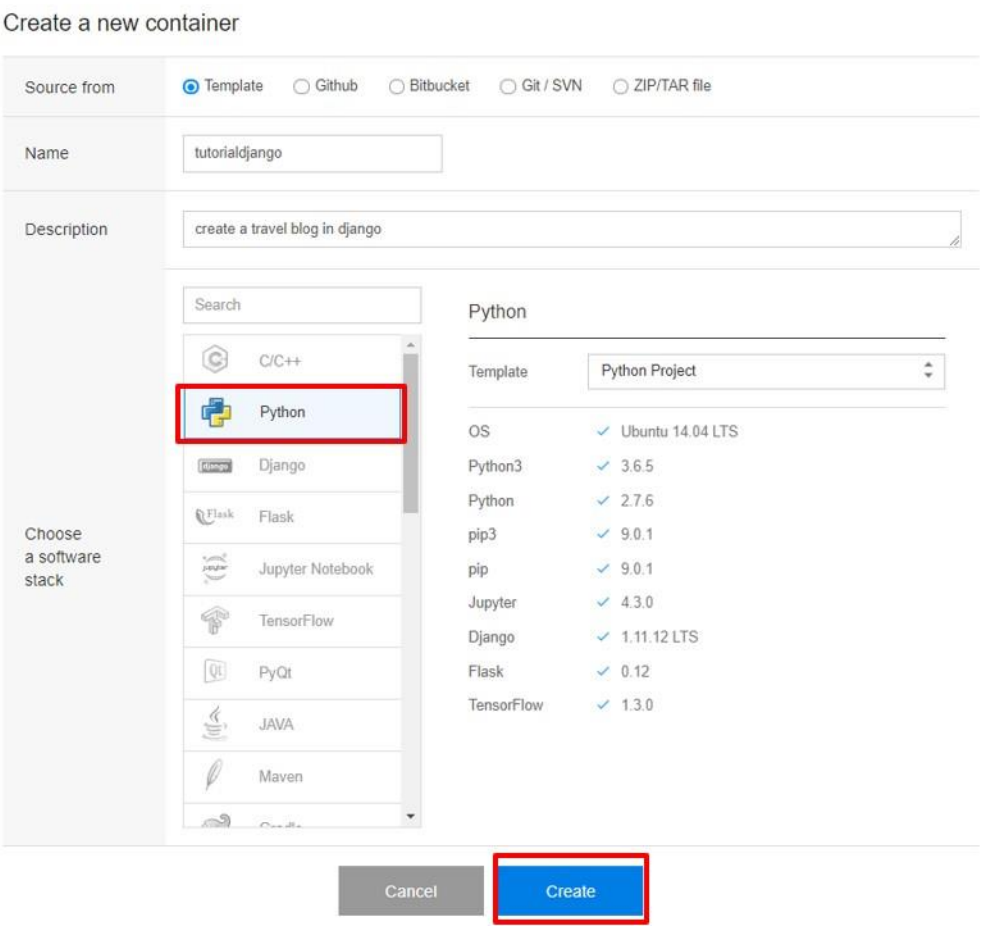
Sign up for Goorm IDE first. A free account is also a powerful service that allows you to use five containers. When you register, you will enter the dashboard automatically. If you are on the main page, click Dashboard.



1.2 Environment setting with Goorm IDE(cont.)

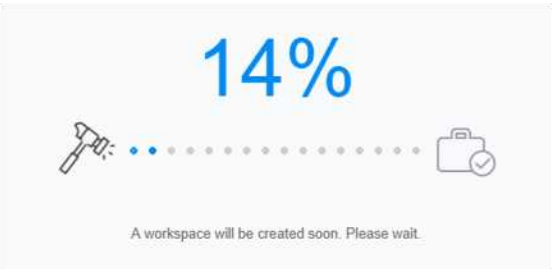
Here is the dashboard page. A container is like setting one computer. Select Python and click Create New Container to create the container.

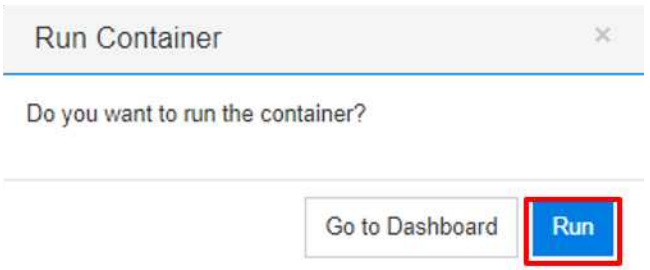


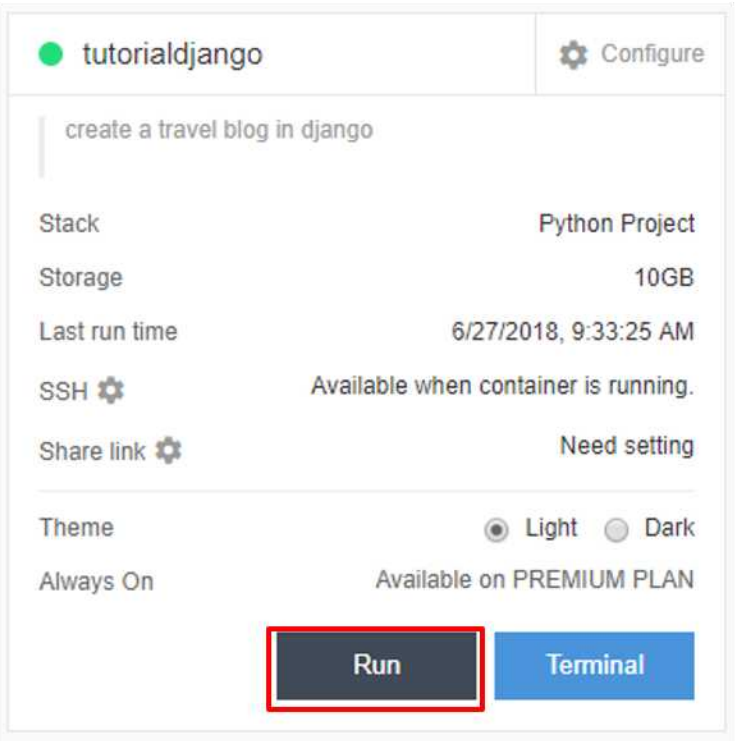


1.2 Environment setting with goorm IDE(cont.)

You will see that the container is being created and soon you will see that the container creation is complete. Click “Run Container” to enter the container.

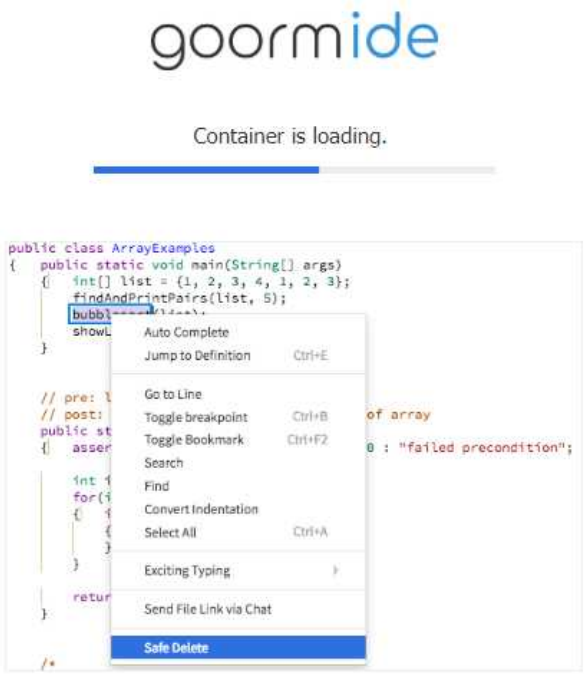






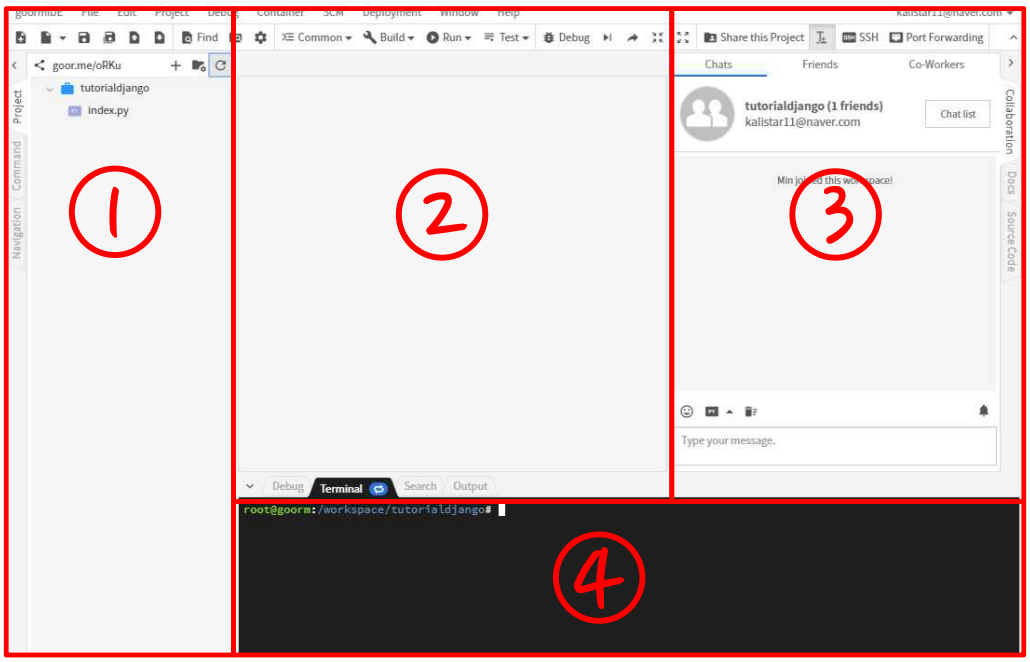
1.2 Environment setting with Goorm IDE(cont.)

This is the screen on which the container is loaded. Usually this page shows you coding tips or famous people while it's loading.



Before deleting a variable or a function,
you can confirm that the variable or function is being used by the 'Right Click > Safe Delete'.

1.2 Environment setting with Goorm IDE(cont.)



1. This space shows you the folder structure. In the top right corner there is a refresh button. If you have done something and can not see it, refresh it with this command.

2. txt, html, py files, and etc

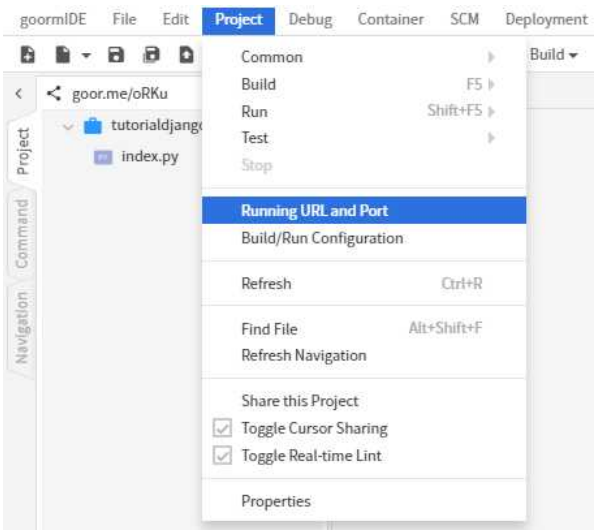
3. Here is a space for collaboration, chat, etc. We are not going to use this options

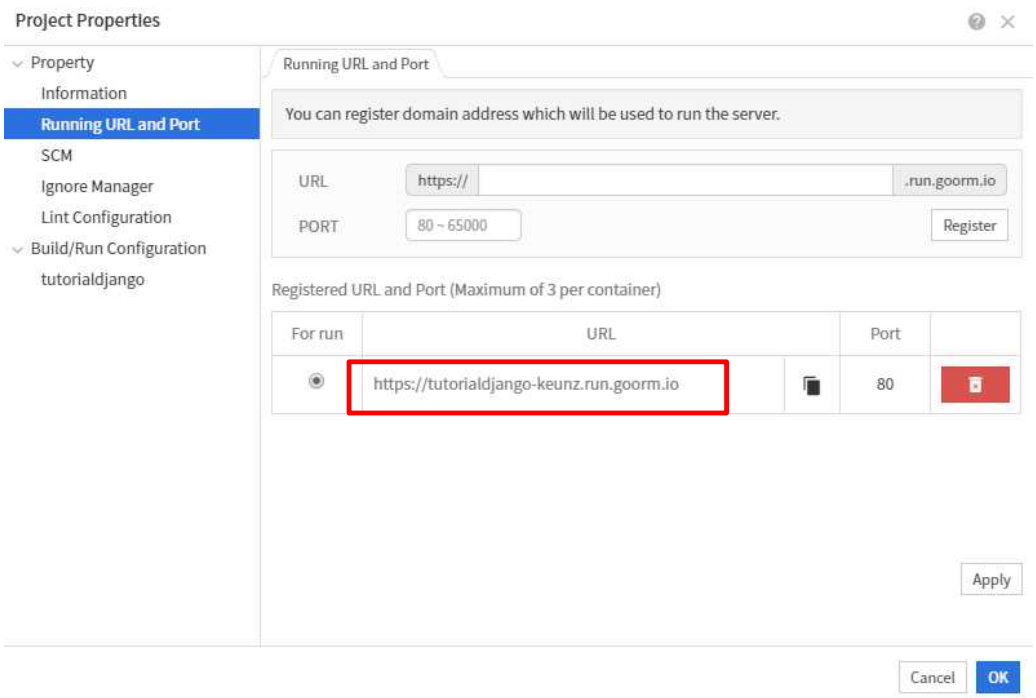
4. Console window. We will enter most of the commands here.

1.2 Environment setting with Goorm IDE(cont.)

Click on the project and click Run URL and Port. The red squares below are the URLs we will use later. It will not run yet.

* If you are not registered, enter the URL you want below, and set the PORT to 80.





1.2 Environment setting with Goorm IDE(cont.)

The first thing to do is planning a website. This tutorial does not cover planning steps (Please refer to the tutorial " Bootstrap Tutorial: Learn how to create Travel Blog using Bootstrap")

Let's take a look at the site structure.

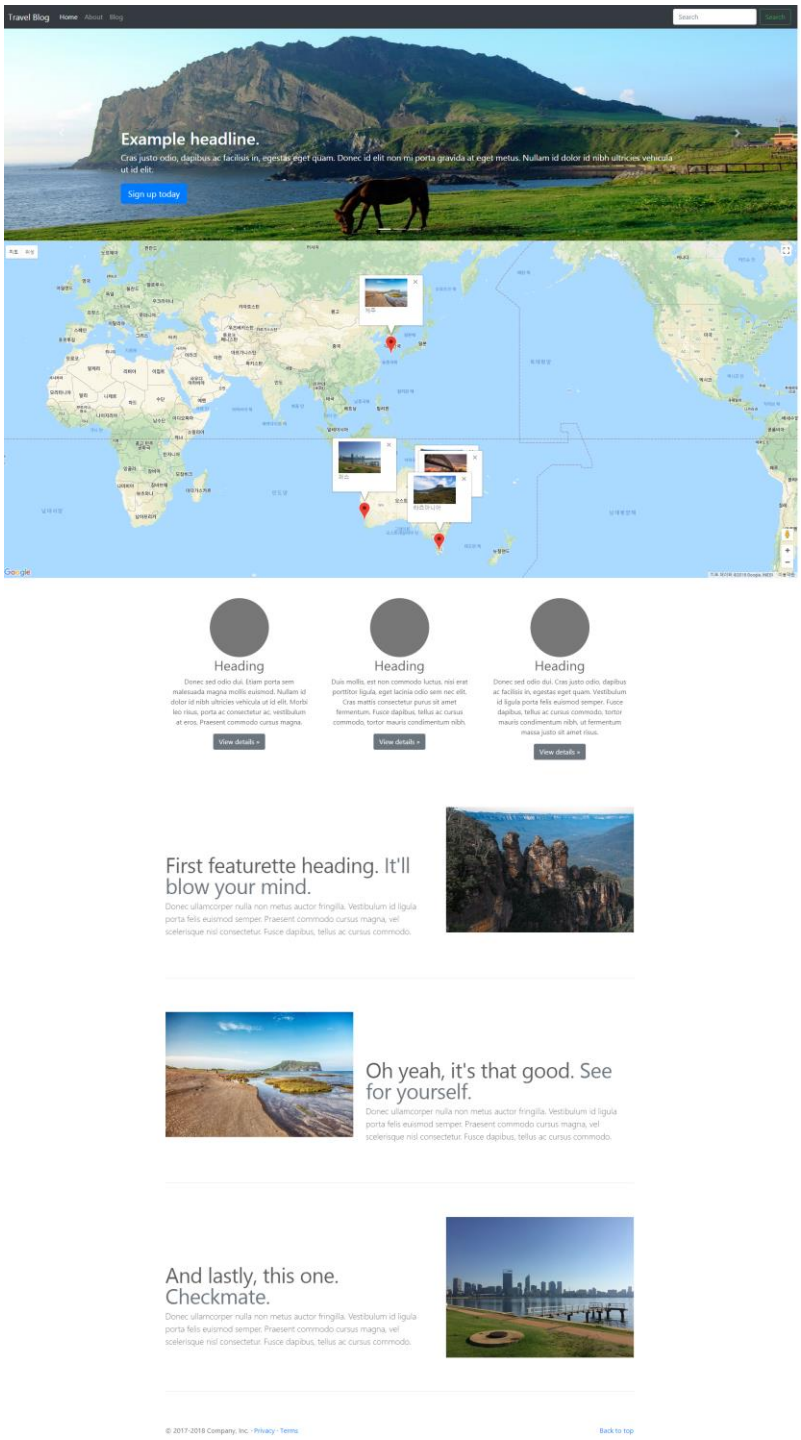
1. - main page https: // user_specified_domain .run.Goorm.io /
   - main page, service introduction, google map api, recent post introduction
   - Template: index.html

2. - blog page https: // user_specific_domain .run.Goorm.io / blog
   - Go to the main page when you click blog, post List page
   - Template: blog.html

3. - poset page https: // user_specified_domain .run.Goorm.io / post number
   - Move when you click post on blog page
   - Template: contents.html

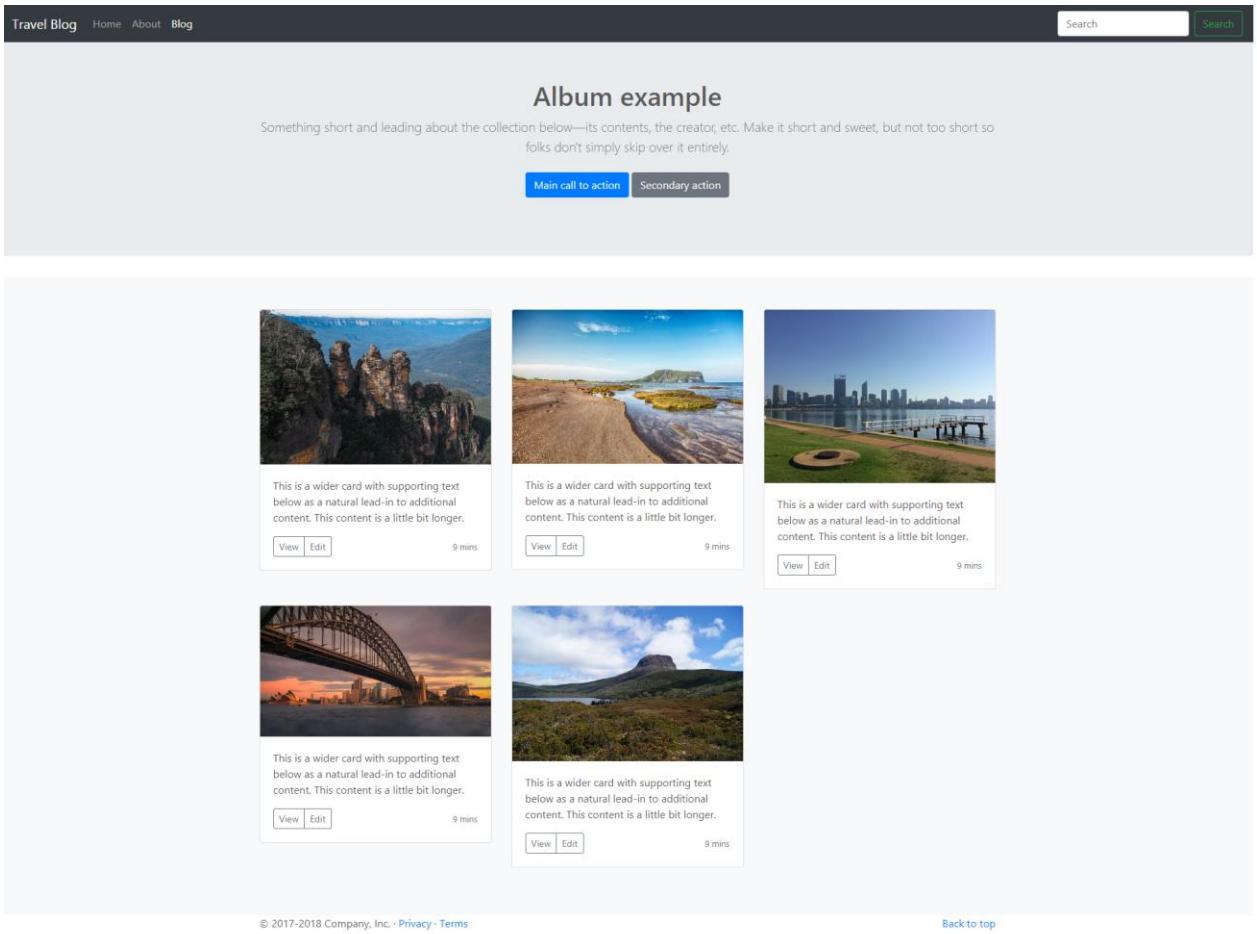
1.2 Environment setting with Goorm IDE(cont.)

Here is the Main page. We did put lorem ipsum dummy text in paragraphs.



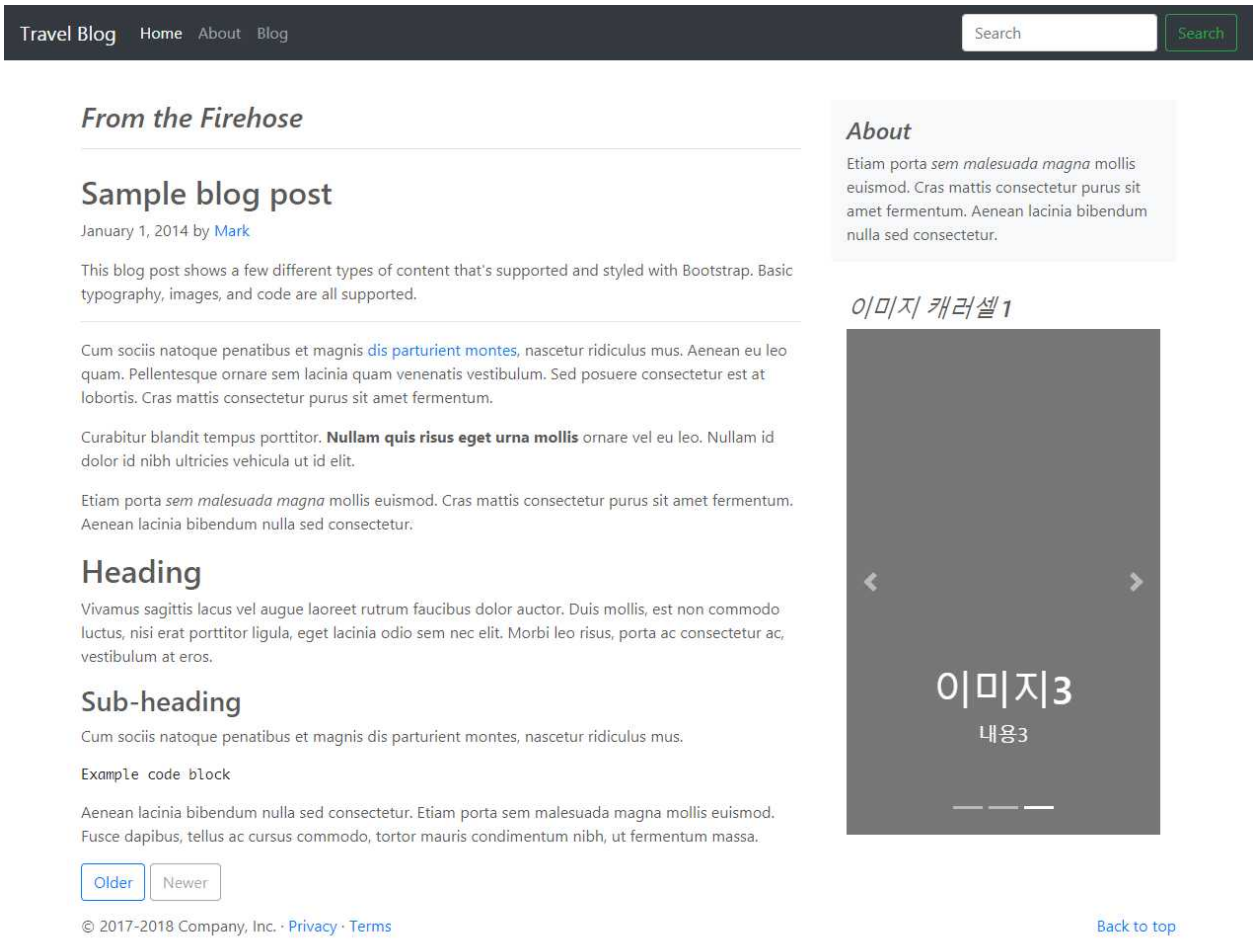
1.2 Environment setting with Goorm IDE(cont.)

Here is the Blog page.



1.2 Environment setting with Goorm IDE(cont.)

Here is the Post page . We did put lorem ipsum dummy text in paragraphs.



1.2 Environment setting with Goorm IDE(cont.)

Let's get started. Type commands as below step by step in the console window.

```
root@Goorm /workspace/tutorialdjango# mkdir mysite

root@Goorm /workspace/tutorialdjango # cd mysite

root@Goorm /workspace/tutorialdjango/mysite#

apt-get install python-virtualenv

root@Goorm /workspace/tutorialdjango/mysite#

virtualenv --python=python3.4 myvenv

root@Goorm /workspace/ tutorialdjango /mysite# source myvenv/bin/activate

(myvenv)root@Goorm /workspace/ tutorialdjango /mysite#

pip install django whitenoise

(myvenv)root@Goorm /workspace/ tutorialdjango /mysite#

django-admin startproject tutorialdjango .

(myvenv)root@Goorm /workspace/ tutorialdjango /mysite#

python manage.py migrate
```

- Please be careful '.' is followed by 'startproject container name'
- Please type your container name instead of tutorialdjango

1.2 Environment setting with Goorm IDE(cont.)

```
root@goorm:/workspace/tutorialdjango# mkdir mysite
root@goorm:/workspace/tutorialdjango# cd mysite/
root@goorm:/workspace/tutorialdjango/mysite# apt-get install python-virtualenv
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다
상태 정보를 읽는 중입니다... 완료
다음 새 패키지를 설치할 것입니다:
  python-virtualenv
0개 업그레이드, 1개 새로 설치, 0개 제거 및 118개 업그레이드 안 함.
```

```
root@goorm:/workspace/tutorialdjango/mysite# virtualenv --python=python3.4 myvenv
Running virtualenv with interpreter /usr/bin/python3.4
Using base prefix '/usr'                                    New python executa
ble in myvenv/bin/python3.4
Also creating executable in myvenv/bin/python
Installing setuptools, pip...done.
```

```
root@goorm:/workspace/tutorialdjango/mysite# source myvenv/bin/activate
(myvenv)root@goorm:/workspace/tutorialdjango/mysite#
```

```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# pip install django whitenoise
Downloading/unpacking django
  Downloading Django-2.0.6-py3-none-any.whl (7.1MB): 7.1MB downloaded
Downloading/unpacking whitenoise
  Downloading whitenoise-3.3.1-py2.py3-none-any.whl
Downloading/unpacking pytz (from django)
  Downloading pytz-2018.4-py2.py3-none-any.whl (510kB): 510kB downloaded
Installing collected packages: django, whitenoise, pytz
Successfully installed django whitenoise pytz
Cleaning up...
```

```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# django-admin startproject tutorialdjango .
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, sessions
Running migrations:
  Applying contenttypes.0001_initial... OK
  Applying auth.0001_initial... OK
  Applying admin.0001_initial... OK
  Applying admin.0002_logentry_remove_auto_add... OK
  Applying contenttypes.0002_remove_content_type_name... OK
  Applying auth.0002_alter_permission_name_max_length... OK
  Applying auth.0003_alter_user_email_max_length... OK
  Applying auth.0004_alter_user_username_opts... OK
  Applying auth.0005_alter_user_last_login_null... OK
  Applying auth.0006_require_contenttypes_0002... OK
  Applying auth.0007_alter_validators_add_error_messages... OK
  Applying auth.0008_alter_user_username_max_length... OK
  Applying auth.0009_alter_user_last_name_max_length... OK
  Applying sessions.0001_initial... OK
```

1.2 Environment setting with Goorm IDE(cont.)

Here is the brief descriptions of the commands you typed before

root@Goorm:/workspace/container name# python --virsion

Check the version of Python. Is it 2.x version? We will develop to version 3.4

root@Goorm:/workspace/ container name # mkdir mysite

mkdir is a command that creates a directory. We create a folder named mysite.

root@Goorm:/workspace/ container name # cd mysite

The cd command is the change directory command. Go to the folder mysite.

root@Goorm:/workspace/ container name /mysite#
apt-get install python-virtualenv

It is a command for setting virtual environment that makes it run as 3.X version in the environment that is currently running as 2.x version.

root@Goorm:/workspace/ container name /mysite#
virtualenv --python=python3.4 myvenv

We will use python 3.4version as a virtual environment

1.2 Environment setting with Goorm IDE(cont.)

root@Goorm:/workspace/ container name /mysite# source myvenv/bin/activate

Activate virtual environment
This command should be run every time you use the cloud IDE container again.

(myvenv)root@Goorm:/workspace/ container name /mysite#
pip install django whitenoise

It is a command to install up to the package. You can install only Django.

(myvenv)root@Goorm:/workspace/ container name /mysite#
django-admin startproject ‘container_name’.

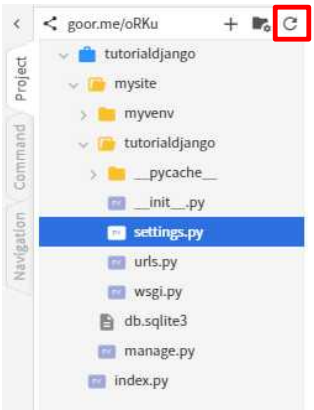
This is the command to start the project in the current folder.

(myvenv)root@Goorm:/workspace/ container name /mysite# python manage.py migrate

The Migrate command will be explained later. In a nutshell, put values into DB.

1.2 Environment setting with Goorm IDE(cont.)

Now go to the settings.py file and modify the 28th line as shown below. Then type the following command into the console window.

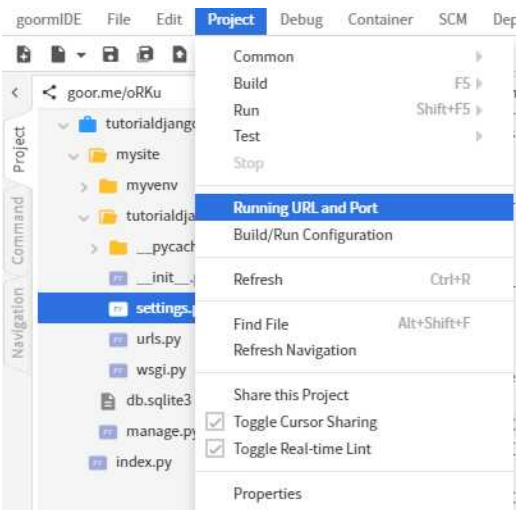



```
28  ALLOWED_HOSTS = ['*']
```

Go to Settings.py file and type the value to '*' on 28th line. It will allow all users to approach.

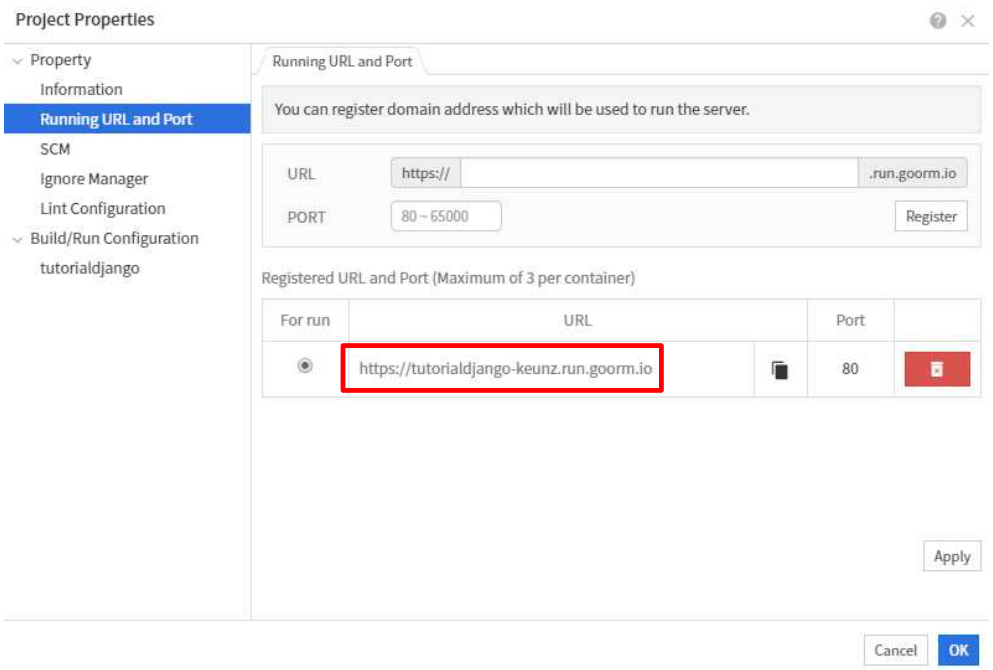
(myvenv)root@Goorm:/workspace/container name/mysite#
python manage.py runserver 0:80

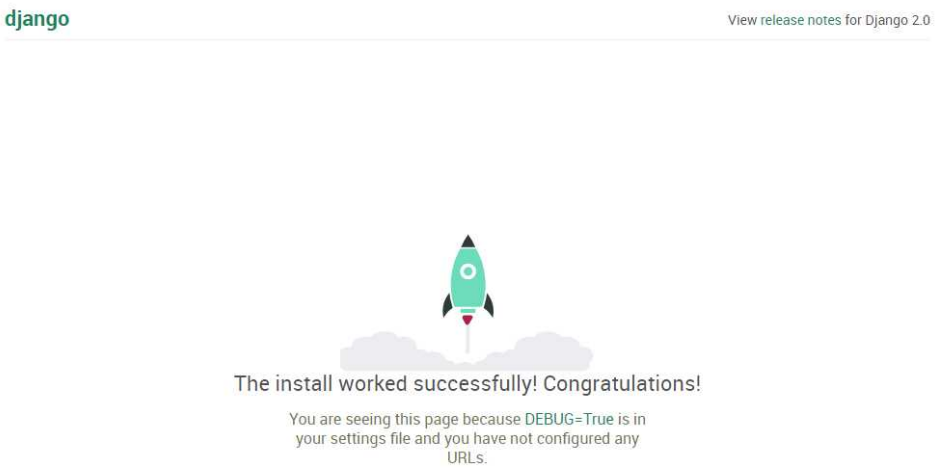
```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py runserver 0:80
Performing system checks...

System check identified no issues (0 silenced).
June 27, 2018 - 01:41:32
Django version 2.0.6, using settings 'tutorialdjango.settings'
Starting development server at http://0:80/
Quit the server with CONTROL-C.
```



1.2 Environment setting with Goorm IDE(cont.)

If you click on the url in the red square, the following page will appear. Your first website is running now!





Chapter 2

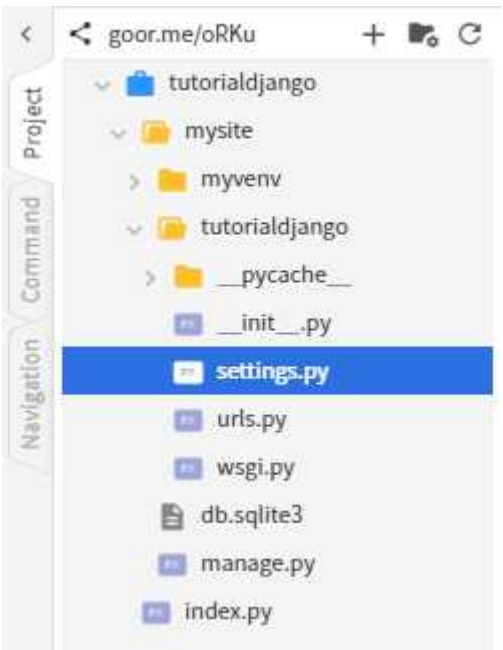
Create Main page on Django

2. Create main page(cont.)

With Django you can create and assemble multiple apps at the same time. Because we are making a simple project, we will create only one app called “main”. To create an application you need to run the command below in the console window . If you do not do this, the app will not start.

root@Goorm:/workspace/container name/mysite# python manage.py startapp main

```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py startapp main
(myvenv)root@goorm:/workspace/tutorialdjango/mysite#
```




```
33  INSTALLED_APPS = [
34      'django.contrib.admin',
35      'django.contrib.auth',
36      'django.contrib.contenttypes',
37      'django.contrib.sessions',
38      'django.contrib.messages',
39      'django.contrib.staticfiles',
40      'main',
41  ]
```

Then find INSTALLED_APPS and add a line like above in the file settings.py to register the application.

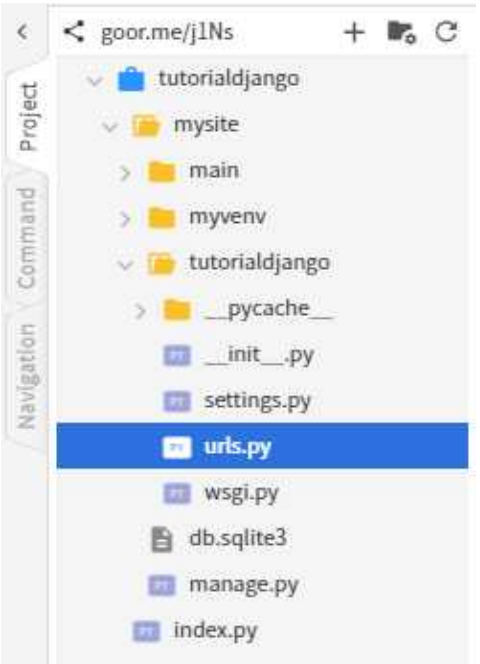
* Please check that there is a comma after “main”.

2. Create main page(cont.)

Now we are going to add lines in the urls.py file to map pages and a urls.

First, let's add 'main.view import index' line which means we will use the index function from the view.py file in main folder. We did not declare index function in the view.py file yet, so an error will occurred.

And path(' ', index),
means Django will now redirect everything that comes into '(your web site url/domain address)' to the index and we are going to connect the index function to the index.html file on the next page.




```
16  from django.contrib import admin
17  from django.urls import path
18  from main.views import index
19
20  urlpatterns = [
21      path('admin/', admin.site.urls),
22      path('', index)
23  ]
24
```

mysite 〉tutorialdjango 〉urls.py

2. Create main page(cont.)

Now, open the mysite〉product〉views.py file to create a function called index. As you can see, when you call the function it will return “render” which will render the main/index.html template.

mysite 〉product 〉views.py

```
1  from django.shortcuts import render
2
3  def index(request):
4      return render(request, 'main/index.html')
```

2. Create main page(cont.)

In the process of connecting Template, Please make **mysite〉main〉templates〉main〉index.html** structure.
And then, Please paste codes below to the index.html file to check page loading.

```
<html>
<head>
    <title>Django!</title>
</head>
<body>
    <h1>Test!</h1>
<body>
<html>
```

2. Create main page(cont.)

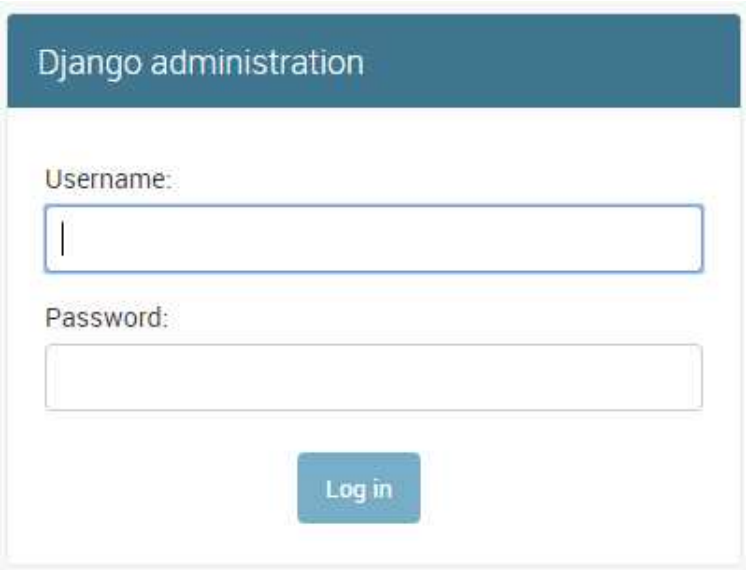
When the web server is running check your website and see how the index.html page looks like.

(myvenv)root@Goorm:/workspace/container name/mysite#
python manage.py runserver 0:80

```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py runserver 0:80
Performing system checks...

System check identified no issues (0 silenced).
June 27, 2018 - 03:00:38
Django version 2.0.6, using settings 'tutorialdjango.settings'
Starting development server at http://0:80/
Quit the server with CONTROL-C.
```

2. Create main page(cont.)

This time, add '/admin' at the end of your url then press enter, you can see the admin page . You can post, edit, or delete posts here and manage your users as well. But now, you can not log in because you have not created a superuser yet. The 'admin/' part you saw in the urls.py file before is this page. For security reasons, we recommend that you do not leave the admin page open on the web service later.

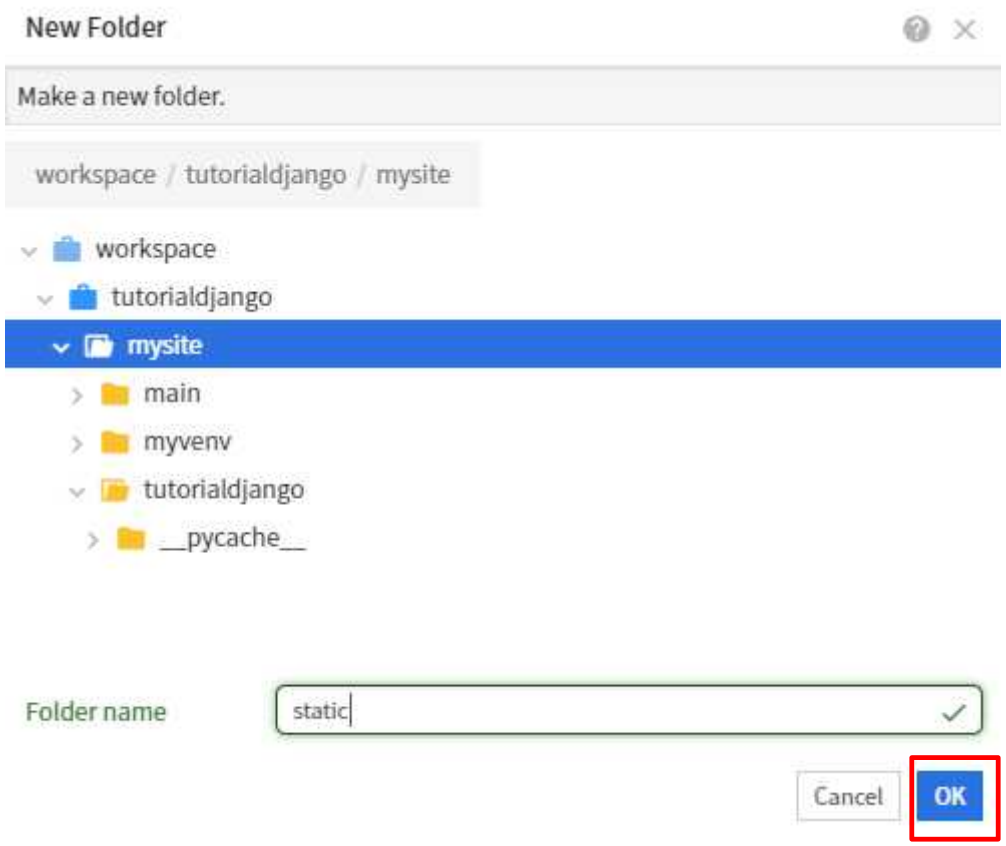


https://yourURL/admin

2. Create main page(cont.)

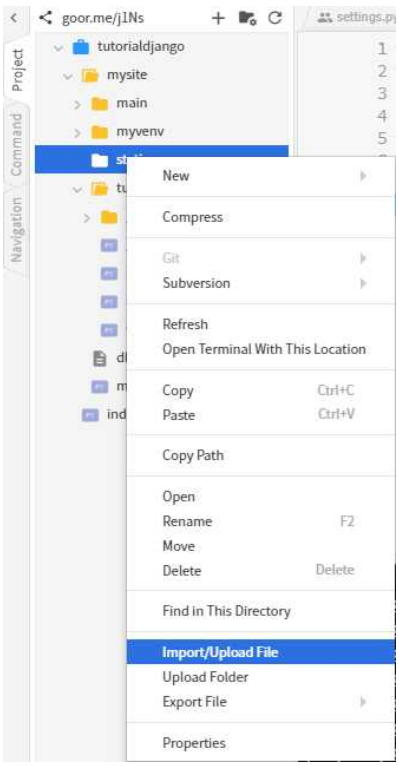
Next, I'll show you how to load images on the main page. Django does not support relative directory that HTML and CSS do support. Let's create a subfolder named 'static' in 'mysite' folder to store static files.

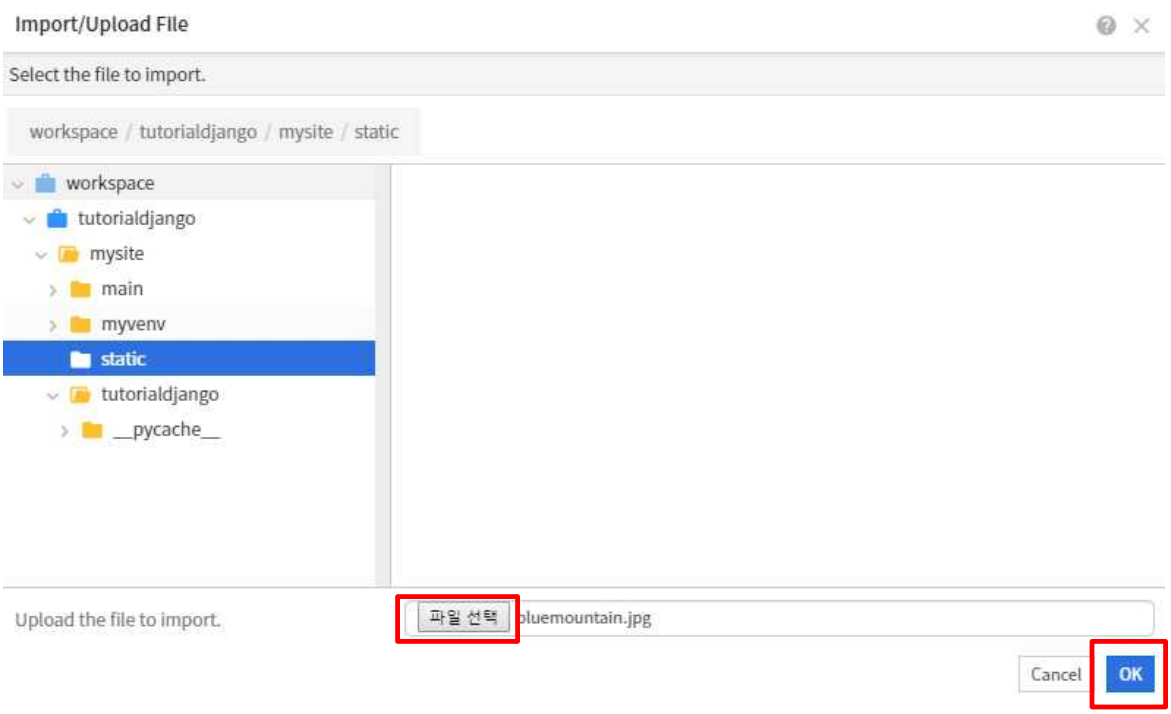
1) Create a new folder



2. Create main page(cont.)

2) File upload

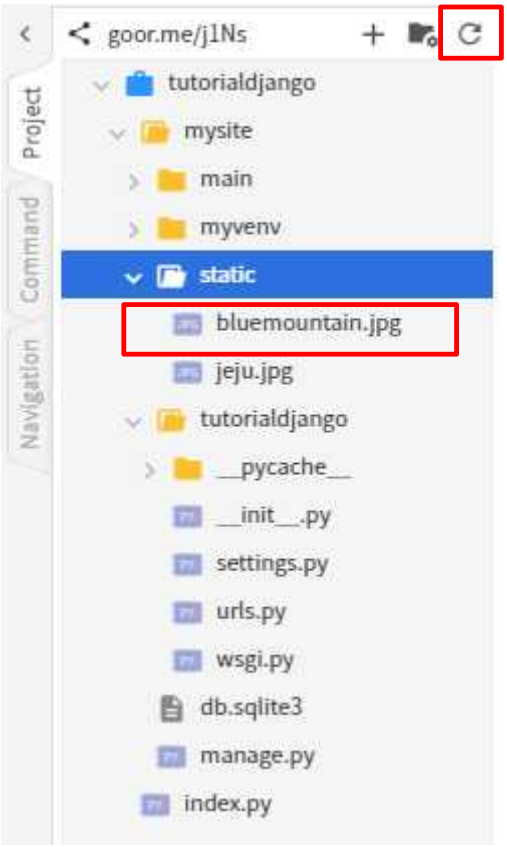




2. Create main page(cont.)

3) File upload confirmation

If the image does not appear, please click Refresh symbol.



2. Create main page(cont.)

The next step is to define a list of directories in the settings.py file. Add codes as below. Please make sure to type a comma at the end.

```
121  STATIC_URL = '/static/'
122  STATICFILES_DIRS = (
123      os.path.join(BASE_DIR, 'static'),
124  )
```

2. Create main page(cont.)

Now open the index.html file and type the code to calls the static file. The {% %} notation is called a template tag.

For more information, please refer Django official document (https://docs.djangoproject.com/en/2.0/ref/templates/builtins/).

```
1  <html>
2      <head>
3          <title>Django!</title>
4      </head>
5      <body>
6          <h1>Test!</h1>
7          {% load staticfiles %}
8          <img src="{% static 'bluemountain.jpg'%}">
9      </body>
10 </html>
```

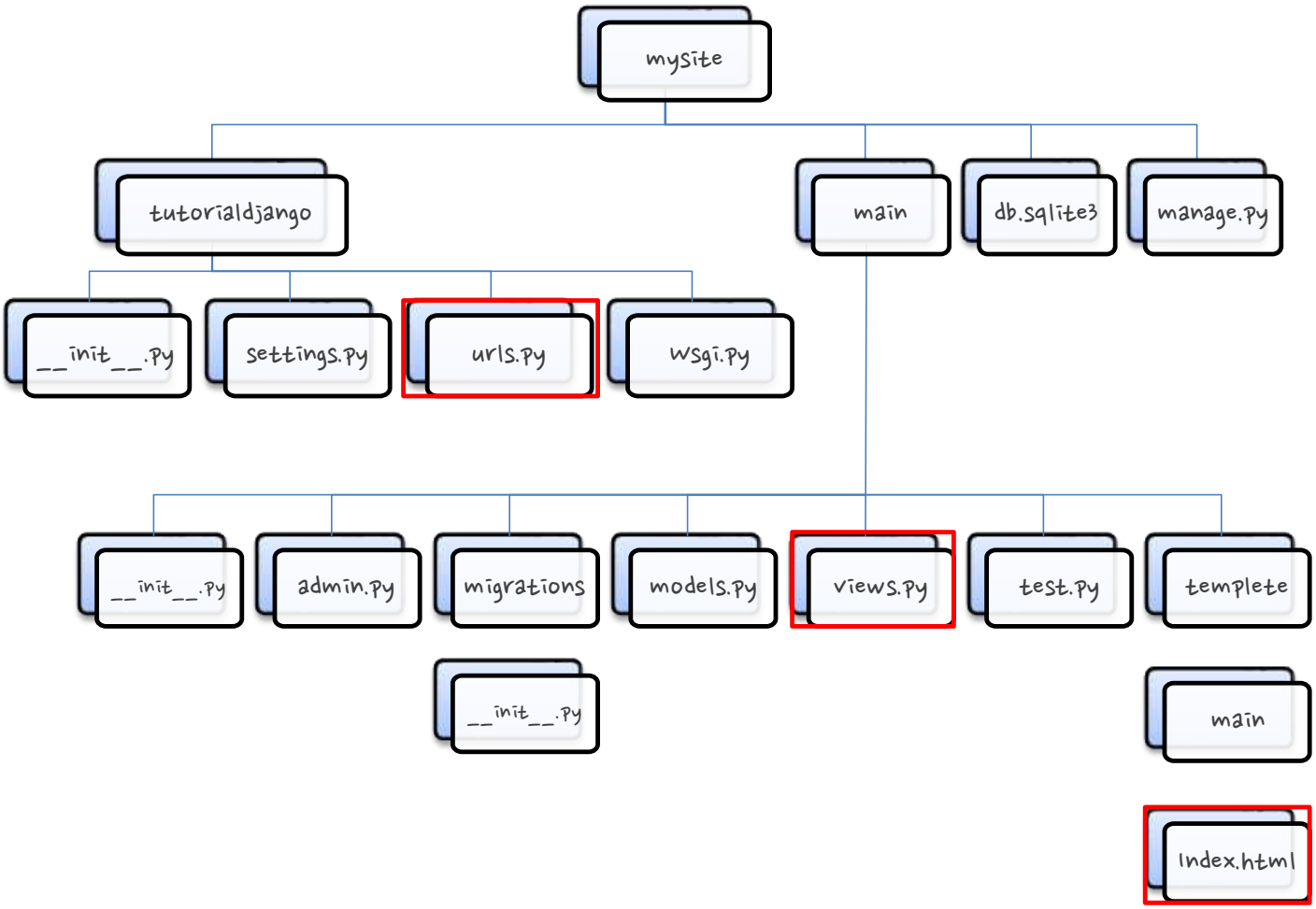
tutorialdjango/mysite/main/templates/main/index.html

2. Create main page(cont.)

If the server is not running please type **manage.py runserver 0:80** in the console window, press enter and go to **Project〉 Running URL and Port** menu, then click on your URL. It works!

2. Create main page(cont.)

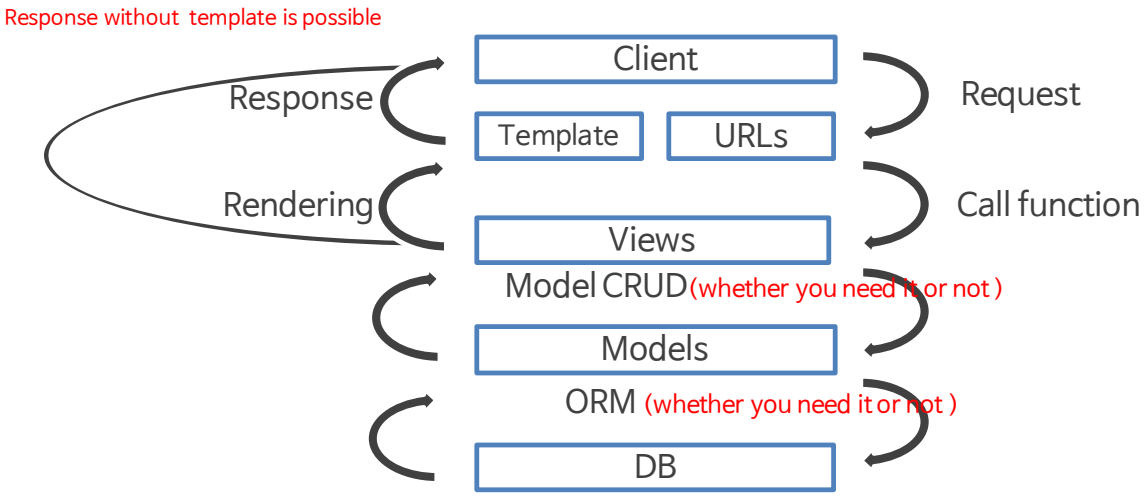
This is the file structure of our project. The red squares files are what we modified.



2. Create main page(cont.)

Django calls the MVC model to MTV. The terminology has changed, but the basic concept is the same. The table below is a diagram of how Django works. Chapter 8 covers this in more detail.

MTV



Model - Python Class connected Data Base

Template - Client View

View - Send data to Django Templates

CRUD refers to the basic data processing functions of most computer software: It stands for Create, Read, Update, and Delete.

Operation	SQL	HTTP	RESTful WS	DDS
Create	INSERT	PUT / POST	POST	write
Read (Retrieve)	SELECT	GET	GET	read / take
Update (Modify)	UPDATE	PUT / POST / PATCH	PUT	write
Delete (Destroy)	DELETE	DELETE	DELETE	dispose

https://en.wikipedia.org/wiki/Create,_read,_update_and_delete

Chapter 3

Create Blog page on Django

3. Create Blog page(cont.)

Now, let's create a blog page that contains postings. First, edit the urls.py file and edit the views.py file as below.

```
16  from django.contrib import admin
17  from django.urls import path
18  from main.views import index, blog
19
20  urlpatterns = [
21      path('admin/', admin.site.urls),
22      path('', index),
23      path('blog/', blog),
24  ]
```

tutorialdjango/mysite/tutorialdjango/urls.py

```
3  def index(request):
4      return render(request, 'main/index.html')
5
6  def blog(request):
7      return render(request, 'main/blog.html')
```

tutorialdjango/mysite/main/views.py

3. Create Blog page(cont.)

Let's create the blog.html file in the **mysite/main/templates/main/blog.html** directory. Please type the codes in the file as below

```
<html>
<head>
    <title>Django!</title>
</head>
<body>
    <h1>Blog Page!</h1>
<body>
<html>
```

/mysite/main/templates/main/blog.html

3. Create Blog page(cont.)

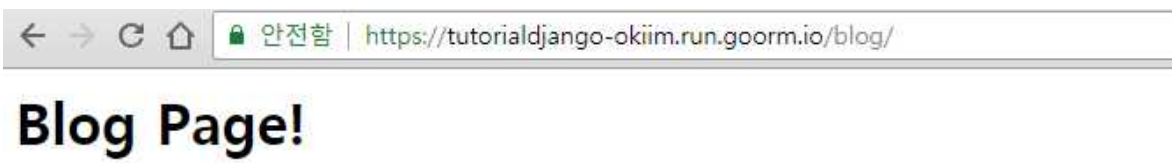
Enter the command below to connect the server in the console window

python manage.py runserver 0:80

Go to the **Project 〉 Running URL and Port** in the menu and then click the URL to see if it's working.

```
root@goorm:/workspace/tutorialdjango# cd mysite/
root@goorm:/workspace/tutorialdjango/mysite# source myvenv/bin/activate
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py runserver 0:80
Performing system checks...

System check identified no issues (0 silenced).
July 18, 2018 - 02:30:17
Django version 2.0.6, using settings 'tutorialdjango.settings'
Starting development server at http://0:80/
Quit the server with CONTROL-C.
```

Executed page(https://tutorialdjango-bcrpr.run.Goorm.io/blog/)



3. Create Blog page(cont.)

Now we are going to create some text fields for each posting. First, create a post name field and a contents field.

tutorialdjango/mysite/main/models.py

```
1  from django.db import models
2
3  class Post(models.Model):
4      postname = models.CharField(max_length=50)
5      contents = models.TextField()
```

In order to add new model in your database, you need to stop the web server first by pressing the Ctrl + C keys and then type these two commands in.

(myvenv)root@Goorm:/workspace/container name/mysite#
python manage.py makemigrations main

(myvenv)root@Goorm:/workspace/container name/mysite#
python manage.py migrate

```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py makemigrations main
Migrations for 'main':
  main/migrations/0001_initial.py
    - Create model Post
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, main, sessions
Running migrations:
  Applying main.0001_initial... OK
```

3. Create Blog page(cont.)

Now we must open the admin.py file and activate the admin page. Then you can change options if needed.

tutorialdjango/mysite/main/admin.py

```
1  from django.contrib import admin
2  from .models import Post
3
4  admin.site.register(Post)
```

3. Create Blog page(cont.)

Now, create a *superuser account* to log in the admin page. *superusers* can delete, edit, and save posts, and manage other users. Go to the console window and type the command "python manage.py createsuperuser".

(myvenv)root@Goorm:/workspace/container name/mysite#
python manage.py createsuperuser

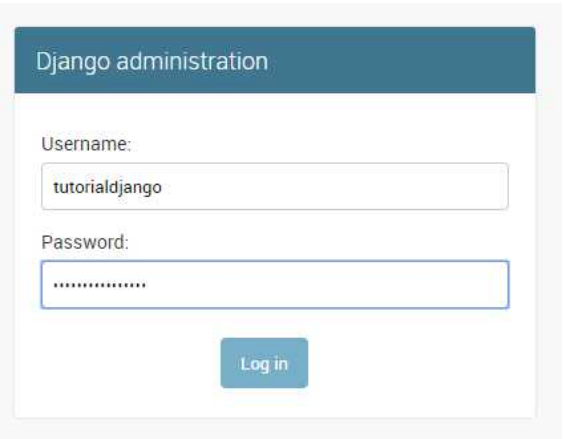
```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py createsuperuser
Username (leave blank to use 'root'): tutorialdjango
Email address: tutorialdjango@gmail.com
Password:
Password (again):
Superuser created successfully.
```

↑ I will create an admin user account.
You can't see the password when you are typing it in the console window.
Then let's start the server over again with this command.

python manage.py runserver 0:80

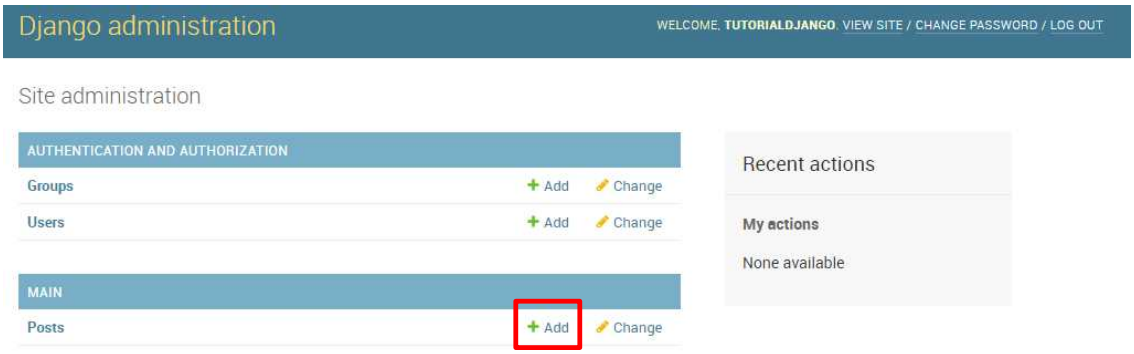
Can you see the admin dashboard when you log in?

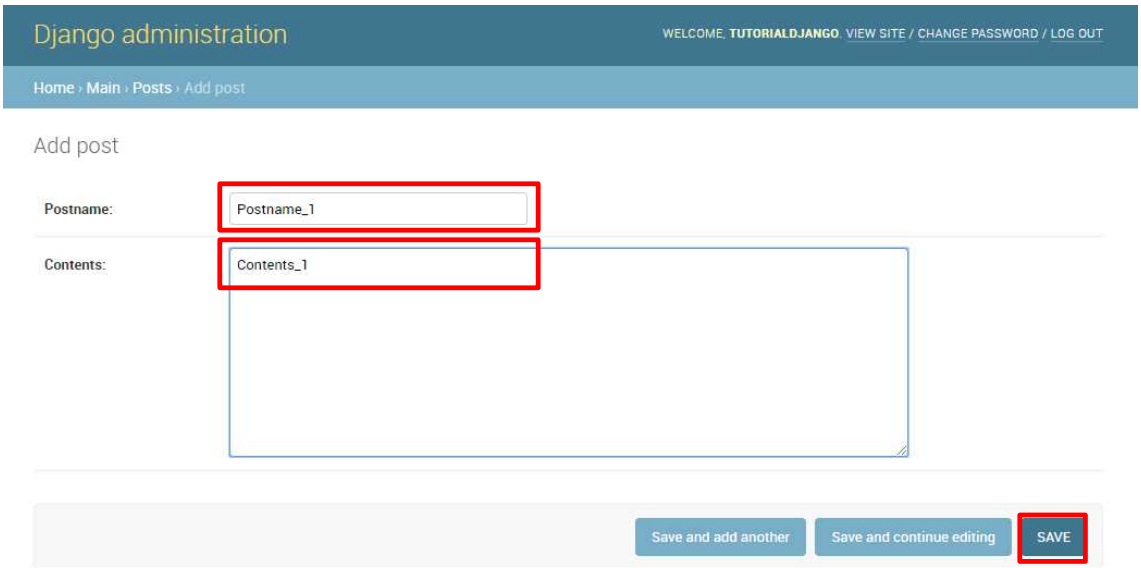
https://tutorialdjango-bcrpr.run.Goorm.io/admin/



3. Create Blog page(cont.)

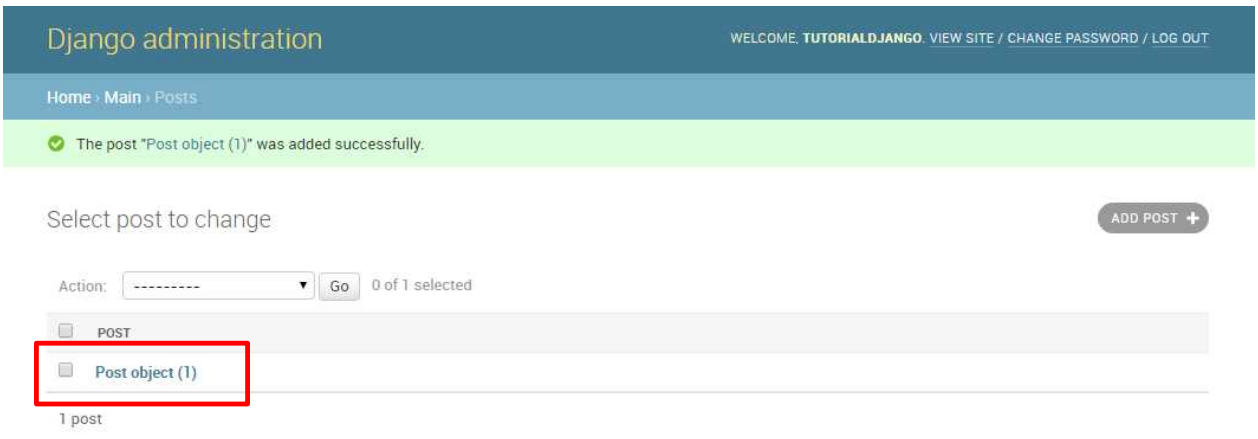
When you are on the dashboard try to add a post like this.





3. Create Blog page(cont.)

If you click on the SAVE button, the title is not shown as what we wrote earlier(postname_1). That is because we didn't define that "postname" is the title. Therefore let's do it: Go to the models.py file and add those codes.

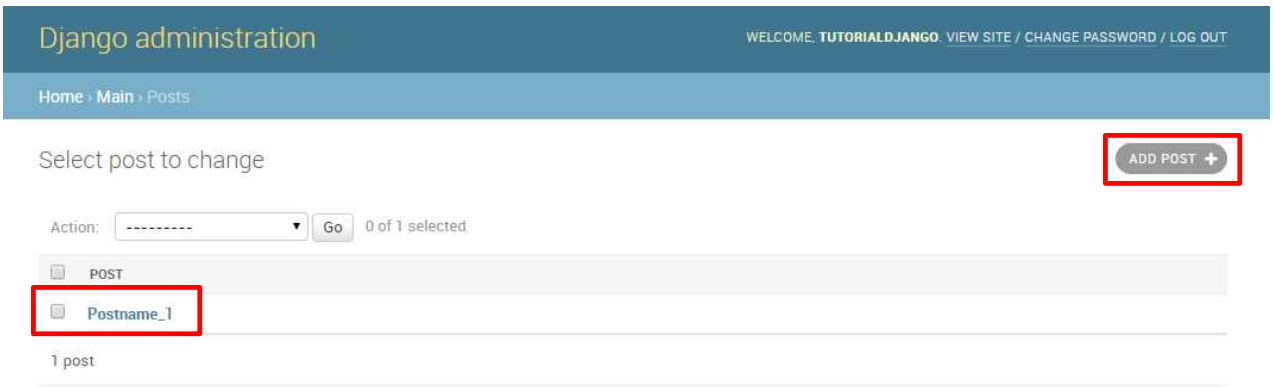


mysite/product/models.py

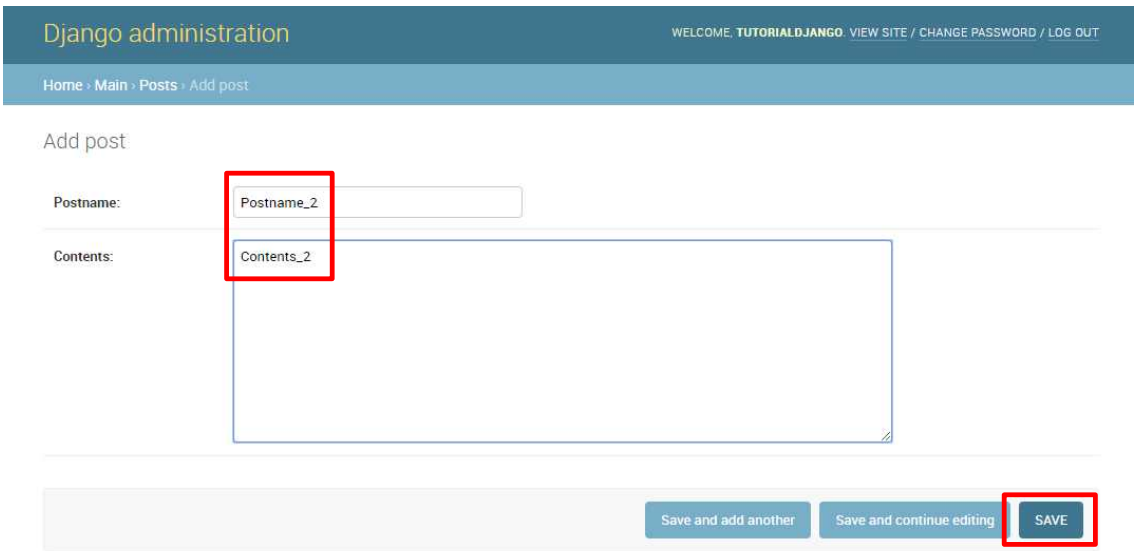
```
1  from django.db import models
2
3  class Post(models.Model):
4      postname = models.CharField(max_length=50)
5      contents = models.TextField()
6
7      def __str__(self):
8          return self.postname
```

3. Create Blog page(cont.)

If you refresh the browser window, you will see the new title that you defined. Now let's create some new postings (posts will be deleted later).

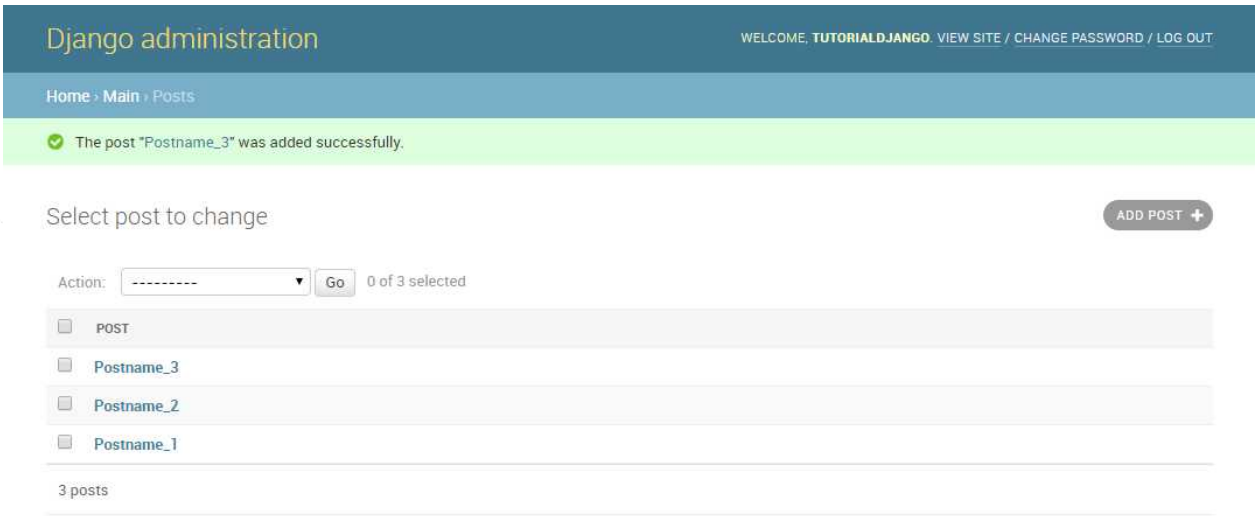


Add Post



3. Create Blog page(cont.)

I created three posts. Now, let's put these posts on the blog page. Please modify the views.py file as shown below.



tutorialdjango/mysite/main/views.py

```
1  from django.shortcuts import render
2  from .models import Post
3
4  def index(request):
5      return render(request, 'main/index.html')
6
7  def blog(request):
8      postlist = Post.objects.all()
9      return render(request, 'main/blog.html', {'postlist':postlist})
```

3. Create Blog page(cont.)

We use the template tag { } to get all the inserted data from database.

For more information on template tags and language please refer here

* Django documentation: https://docs.djangoproject.com/en/2.0/
* Templates language :
  https://docs.djangoproject.com/en/2.0/ref/templates/language/

```
<html>
<head>
    <title>Django!</title>
</head>
<body>
    <h1>Blog Page!</h1>
    <table>
    {% for list in postlist %}
    <tr>
        <td>{{list.postname}}</td>
        <td>{{list.contents}}</td>
    </tr>
    {% endfor %}
    </table>
<body>
<html>
```

- Executed page -

3. Create Blog page(cont.)

When you check the source code with chrome development mode(F12), we can not see the template language that we created. Because it is shown to the user as a html format.

- Source code -

Chapter 4

Create Post page with Django

4. Create Post page(cont.)

Every time you come back to work on this project, you'll need to run the command below to make sure you're running the version of Python installed under myvenv/ rather than your system Python. You can tell it's using this because your shell prompt will be prefixed with (myvenv)

```
root@Goorm:/workspace/container name# cd mysite

root@Goorm:/workspace/container name/mysite# source myvenv/bin/activate

(myvenv)root@Goorm:/workspace/container name/mysite#
```

If you have been following the command without myvenv, we recommend you delete the container now and start over again.

with (myvenv) prefix or without is a completely different environment.

4. Create Post page(cont.)

Now, We are going to create a detailed posting page for each post that are shown on the blog page.

3. http: // username.run.Goorm.io / post number
   - On the blog page, click on your post to open it.
   - Template: postdetails.html

```
16  from django.contrib import admin
17  from django.urls import path
18  from main.views import index, blog, postdetails
19
20  urlpatterns = [
21      path('admin/', admin.site.urls),
22      path('', index),
23      path('blog/', blog),
24      path('blog/<int:pk>/', postdetails),
25  ]
```

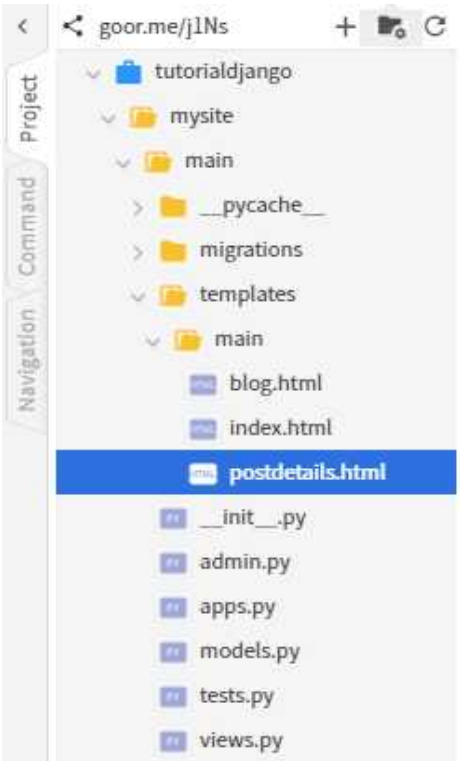
tutorialdjango/mysite/tutorialdjango/urls.py

```
1   from django.shortcuts import render
2   from .models import Post
3
4   def index(request):
5       return render(request, 'main/index.html')
6
7   def blog(request):
8       postlist = Post.objects.all()
9       return render(request, 'main/blog.html', {'postlist':postlist})
10
11  def postdetails(request, pk):
12      postlist = Post.objects.get(pk=pk)
13      return render(request, 'main/postdetails.html', {'postlist':postlist})
```

tutorialdjango/mysite/main/views.py

4. Create Post page(cont.)

As shown in the screen capture below, there are three templates in the main folder. This is the last template. (Designing blog with Bootstrap will be covered in Chapter 7.)




```
1  <html>
2  <head>
3      <title>Django!</title>
4  </head>
5  <body>
6      <h1>Postdetails Page!</h1>
7      <p>{{postlist.postname}}</p>
8      <p>{{postlist.contents}}</p>
9  <body>
10 <html>
```

tutorialdjango/mysite/main/templates/main/postdetails.html

4. Create Post page(cont.)

Add the post number at the end of the url as below, it will show you the page like the following image.

https://tutorialdjango-okiim.run.Goorm.io/blog/1

- Executed page -

4. Create Post page(cont.)

We're going to use the onclick event to move to the post detail pages when you click on the post title or contents on the blog page

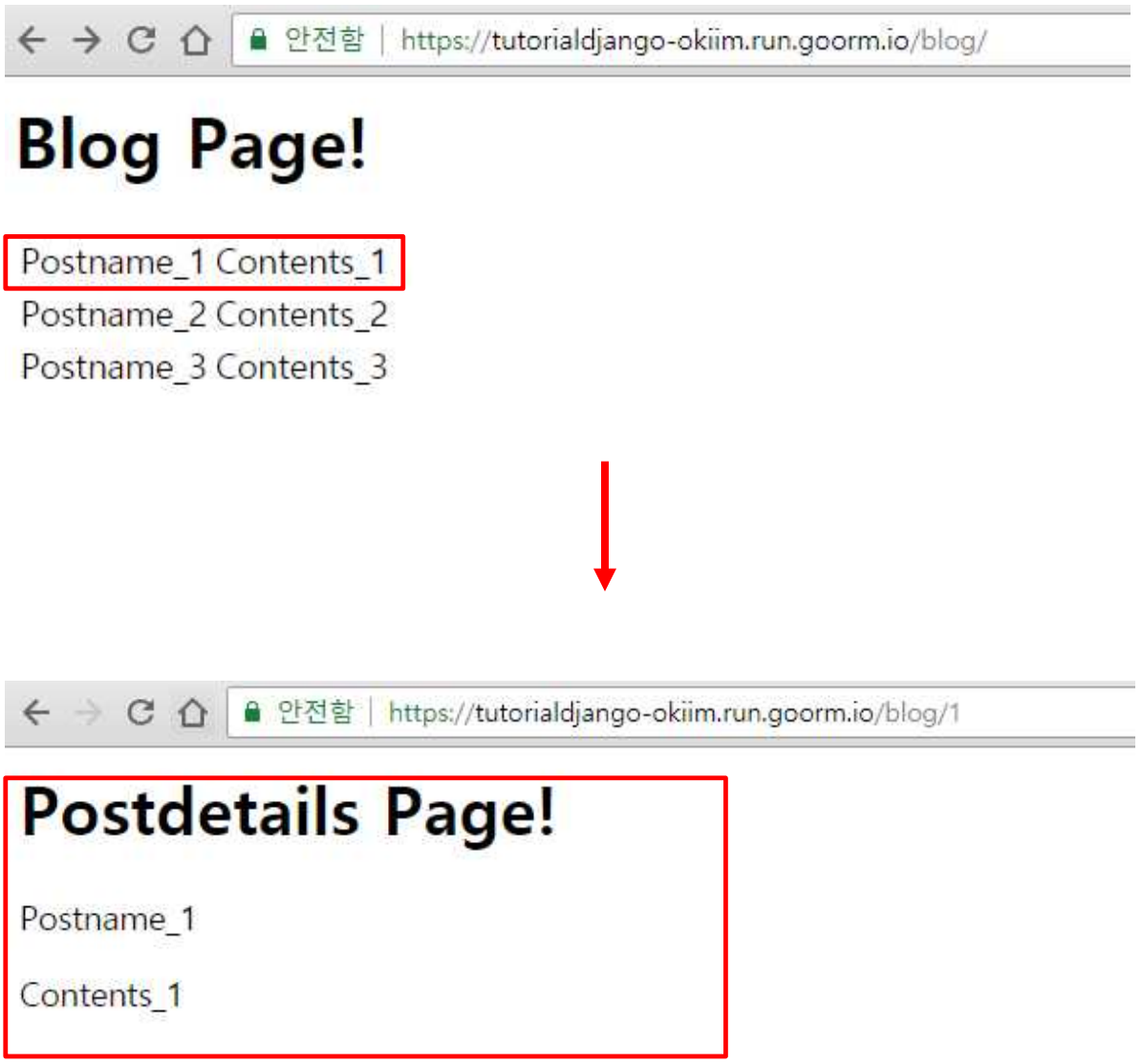
'https://tutorialdjango-bcrpr.run.Goorm.io/' Please replace this part with your URL

tutorialdjango/mysite/main/templates/main/blog.html

```
<html>
<head>
    <title>Django!</title>
</head>
<body>
    <h1>Blog Page!</h1>
    <table>
    {% for list in postlist %}
    <tr onclick="location.href='https://tutorialdjango-bcrpr.run.goorm.io/blog/{{ list.pk }}/'">
        <td>{{list.postname}}</td>
        <td>{{list.contents}}</td>
    </tr>
    {% endfor %}
    </table>
<body>
<html>
```

4. Create Post page(cont.)

Click on the post title and contents to go to the post as shown below.



4. Create Post page(cont.)

Let's create a button that moves from post detail pages to the post list page.
Please add anchor tag “⟨a⟩⟨/a⟩” with url like this in the postdetails.html file.

Container name/mysite/main/templates/main/productdetails.html

```
<html>
    <head>
        <title>Django!</title>
    </head>
    <body>
        <h1>Postdetails Page!</h1>
        <p>{{postlist.postname}}</p>
        <p>{{postlist.contents}}</p>
        <a href='https://tutorialdjango-okiim.run.goorm.io/blog/'>List(Go back)</a>
     </body>
</html>
```

4. Create Post page(cont.)

Now let's set ImageField to upload photos in the post.
Go to the tutorialdjango〉mysite〉main 〉directory and open the models.py file. If you set null=True here, the board posts will be null.

tutorialdjango/mysite/main/models.py

```
1  from django.db import models
2
3  class Post(models.Model):
4      postname = models.CharField(max_length=50)
5      mainphoto = models.ImageField(blank=True, null=True)
6      contents = models.TextField()
7
8      def __str__(self):
9          return self.postname
```

4. Create Post page(cont.)

Now that you've made the changes above, you should install a library that can process your photos. It is called Pillow and can be installed as follows.

```
(myvenv)root@Goorm:/workspace/container name/mysite#
pip install pillow==2.9.0
(myvenv)root@Goorm:/workspace/container name/mysite#
python manage.py makemigrations
(myvenv)root@Goorm:/workspace/container name/mysite#
python manage.py migrate
(myvenv)root@Goorm:/workspace/container name/mysite#
python manage.py runserver 0:80
```

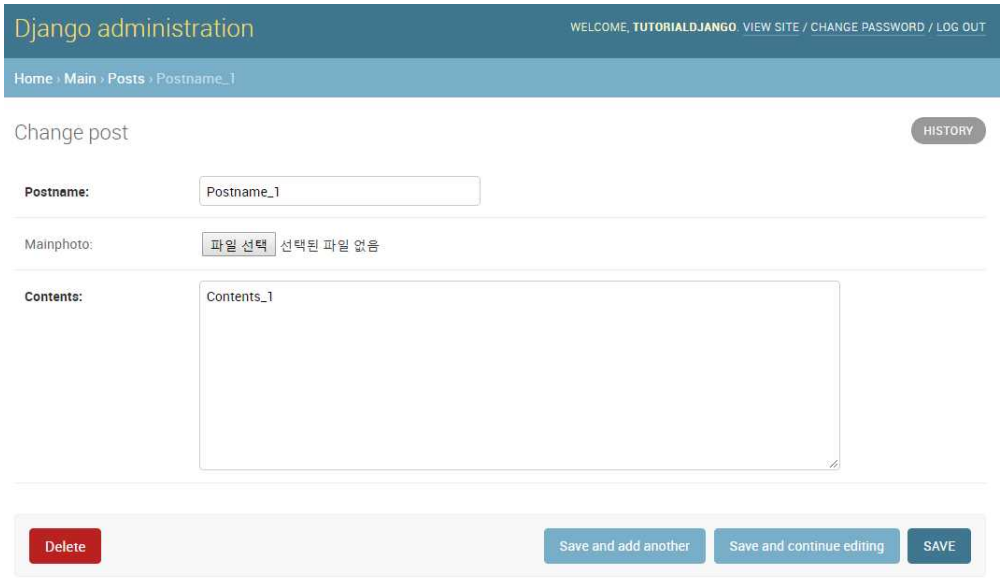
```
^C(myvenv)root@goorm:/workspace/tutorialdjango/mysite# pip install pillow==2.9.0
Downloading/unpacking pillow==2.9.0
  Downloading Pillow-2.9.0.tar.gz (9.3MB): 9.3MB downloaded
  Running setup.py (path:/workspace/tutorialdjango/mysite/myvenv/build/pillow/setup.py) egg_info for package pillow

Installing collected packages: pillow
  Running setup.py install for pillow
```

```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py makemigrations
Migrations for 'main':
  main/migrations/0002_post_mainphoto.py
    - Add field mainphoto to post
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, main, sessions
Running migrations:
  Applying main.0002_post_mainphoto... OK
(myvenv)root@goorm:/workspace/tutorialdjango/mysite#
```

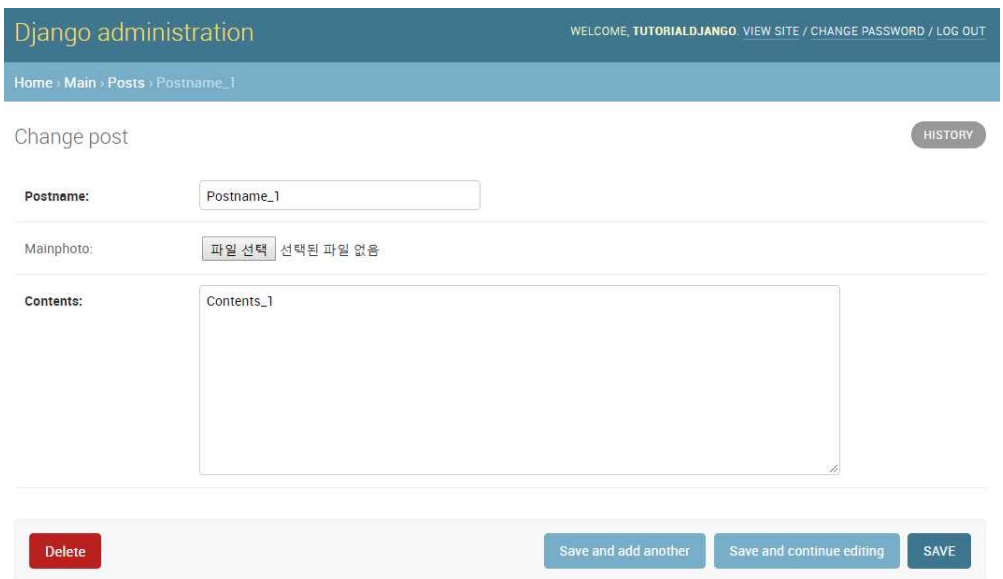
```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py runserver 0:80
Performing system checks...

System check identified no issues (0 silenced).
May 02, 2018 - 07:38:06
Django version 2.0.4, using settings 'tutorialdjango.settings'
Starting development server at http://0:80/
Quit the server with CONTROL-C.
```

4. Create Post page(cont.)

* Change post



* Add post



4. Create Post page(cont.)

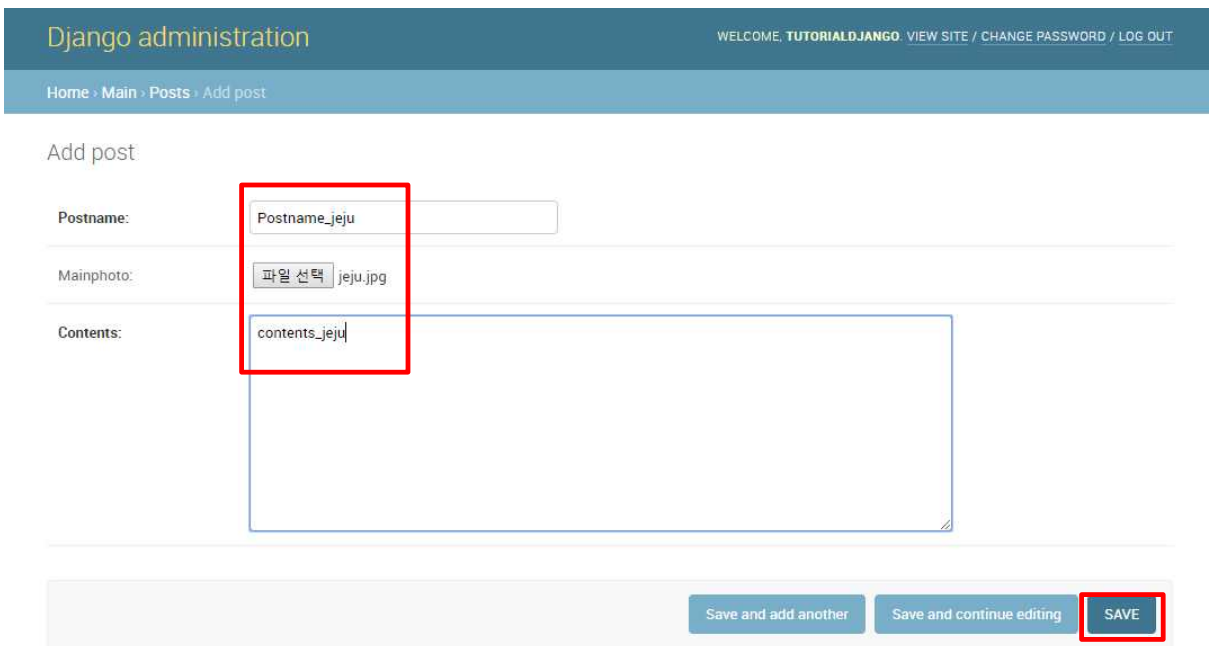
Now let's set the path where the photos will be saved. If you do not do this, the file will be saved directly in the mysite directory when you upload photos.

tutorialdjango/mysite/tutorialdjango/settings.py

```
126 MEDIA_ROOT = os.path.join(BASE_DIR, 'media')
127 MEDIA_URL = '/media/'
```

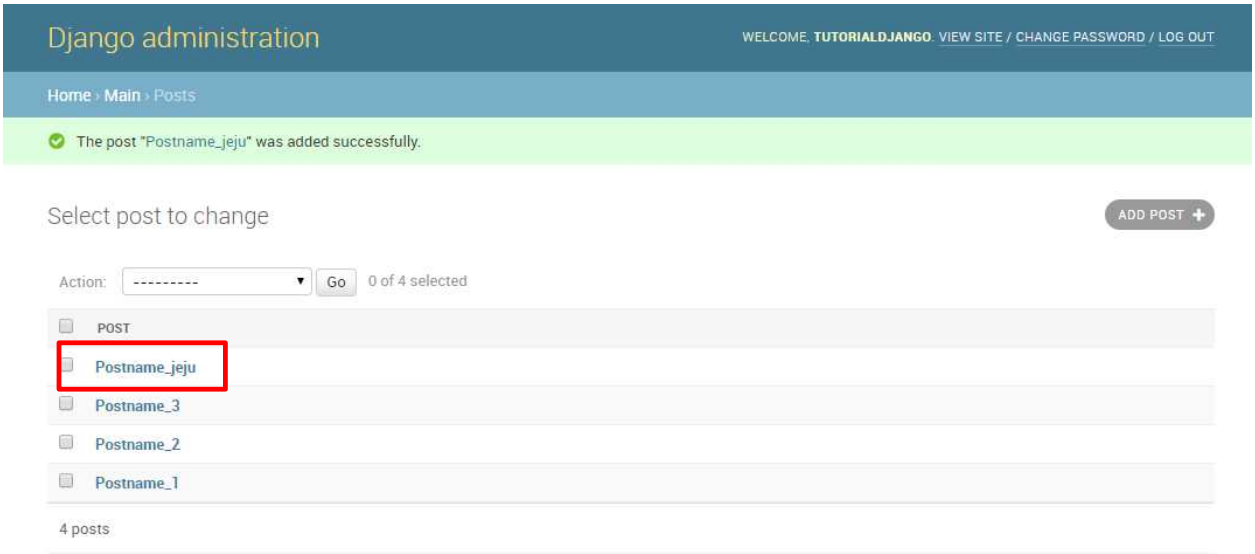
Let's upload 5 Image as below

Fist of all, we well post jeju



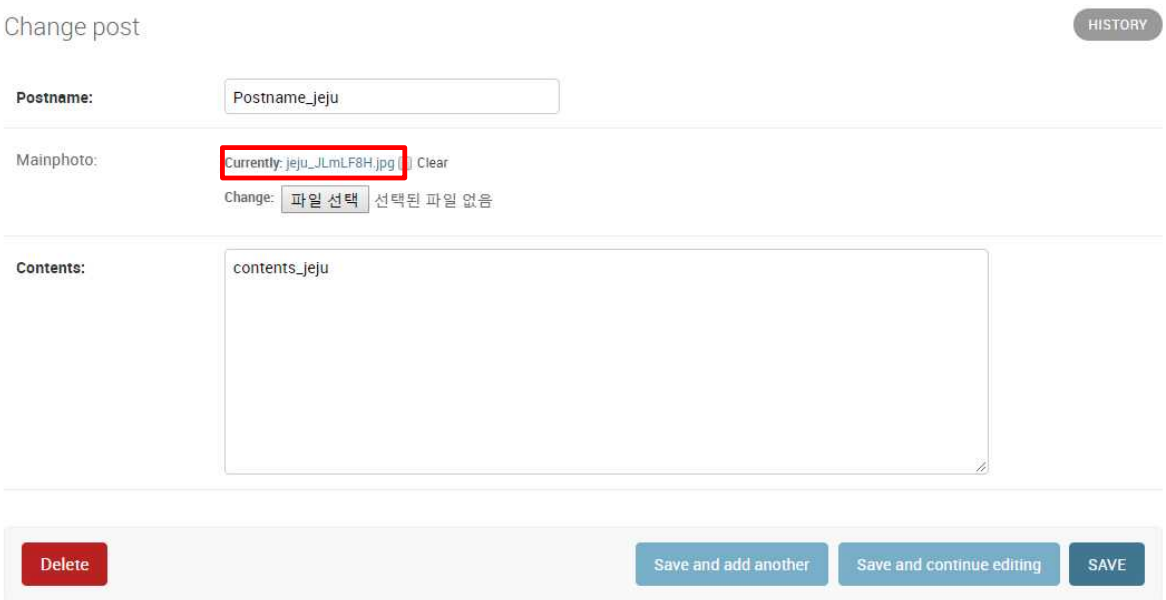
4. Create Post page(cont.)

First, I uploaded a photo of JEJU. Click on the post to check the uploaded photo.



4. Create Post page(cont.)

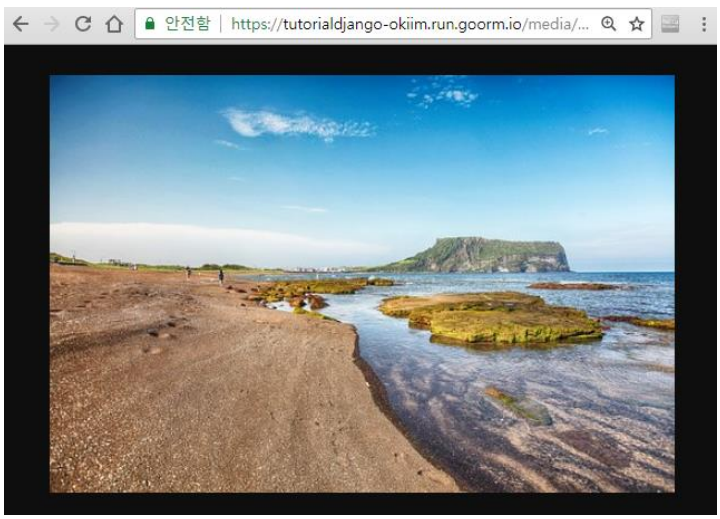
I click on image file's name and an error page is showing up that says the page can not be found. The error is caused by the image url that can not be found. So, We have to set up the image url.

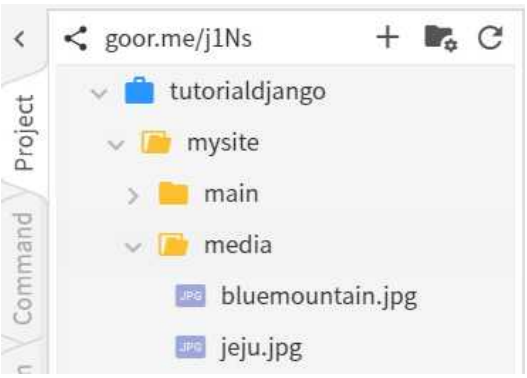


4. Create Post page(cont.)

Add urlpatterns as shown below in the urls.py file . This will allow you to see uploaded images.

```
16  from django.contrib import admin
17  from django.urls import path
18  from main.views import index, blog, postdetails
19  from django.conf.urls.static import static
20  from django.conf import settings
21
22  urlpatterns = [
23      path('admin/', admin.site.urls),
24      path('',index),
25      path('blog/', blog),
26      path('blog/<int:pk>', postdetails),
27  ]
28
29  urlpatterns +=static(settings.MEDIA_URL, document_root = settings.MEDIA_ROOT)
```





4. Create Post page(cont.)

I'll load the image from the postdetails page. Please change the value in the red square to your website's url. For more information about using files in models, please refer to https://docs.djangoproject.com/en/2.0/topics/files/.

tutorialdjango/mysite/main/templates/main/postdetails.html

```
<html>
    <head>
        <title>Django!</title>
    </head>
    <body>
        <h1>Postdetails Page!</h1>
        <p>{{postlist.postname}}</p>
        <p>{{postlist.contents}}</p>
        {% if postlist.mainphoto %}
            <img src="{{postlist.mainphoto.url}}">
        {% endif %}
        <a href='https://tutorialdjango-okiim.run.goorm.io/blog/'>List(Go back)</a>
    </body>
</html>
```

- Django official website -

Using files in models

When you use a **FileField** or **ImageField**, Django provides a set of APIs you can use to deal with that file.

Consider the following model, using an **ImageField** to store a photo:

```
from django.db import models

class Car(models.Model):
    name = models.CharField(max_length=255)
    price = models.DecimalField(max_digits=5, decimal_places=2)
    photo = models.ImageField(upload_to='cars')
```

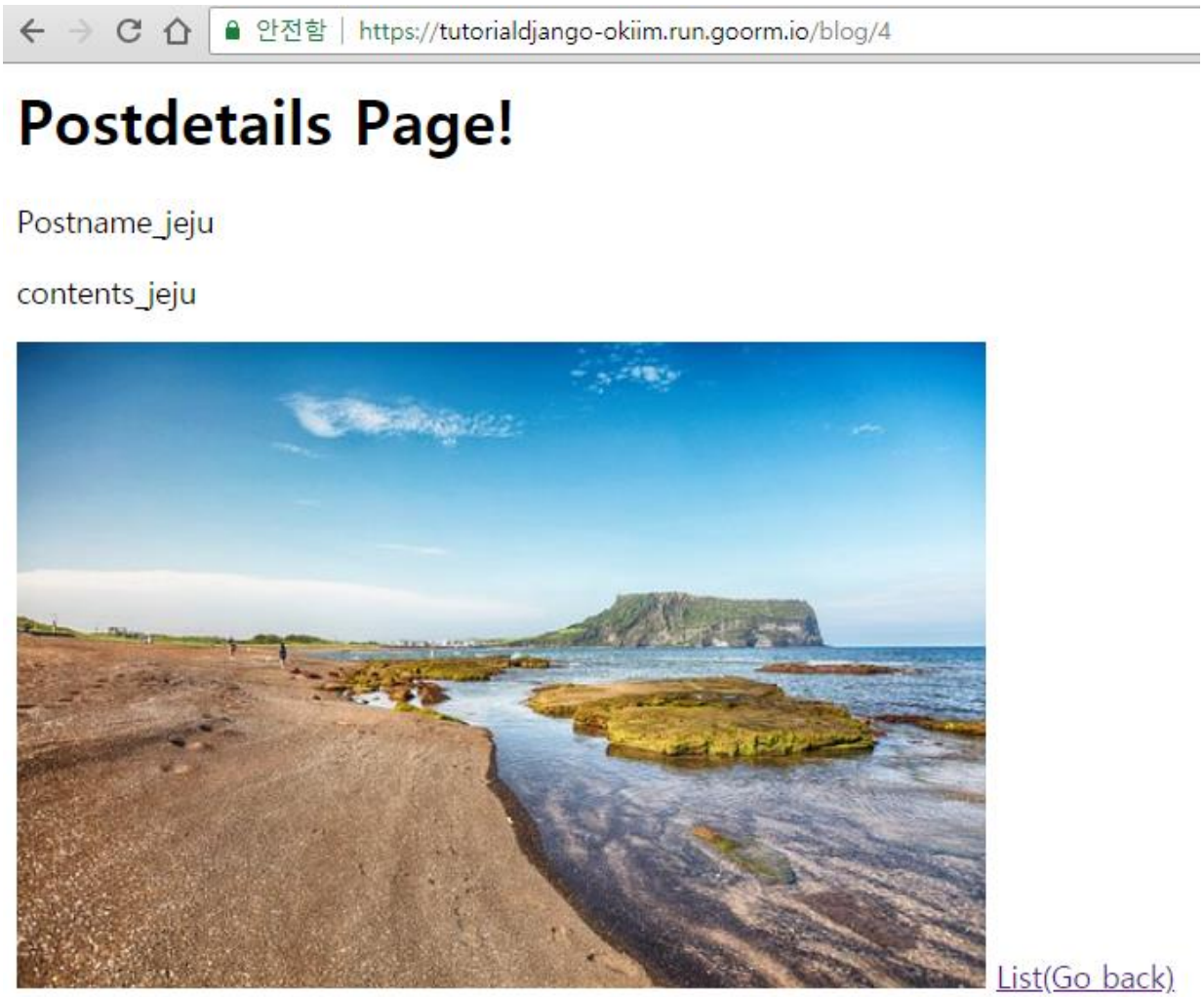
Any **Car** instance will have a **photo** attribute that you can use to get at the details of the attached photo:

```
>>> car = Car.objects.get(name="57 Chevy")
>>> car.photo
<ImageFieldFile: chevy.jpg>
>>> car.photo.name
'cars/chevy.jpg'
>>> car.photo.path
'/media/cars/chevy.jpg'
>>> car.photo.url
'http://media.example.com/cars/chevy.jpg'
```

This object – **car.photo** in the example – is a **File** object, which means it has all the methods and attributes described below.

4. Create Post page(cont.)

Now, you can see the image on the post detail page.



Chapter 5

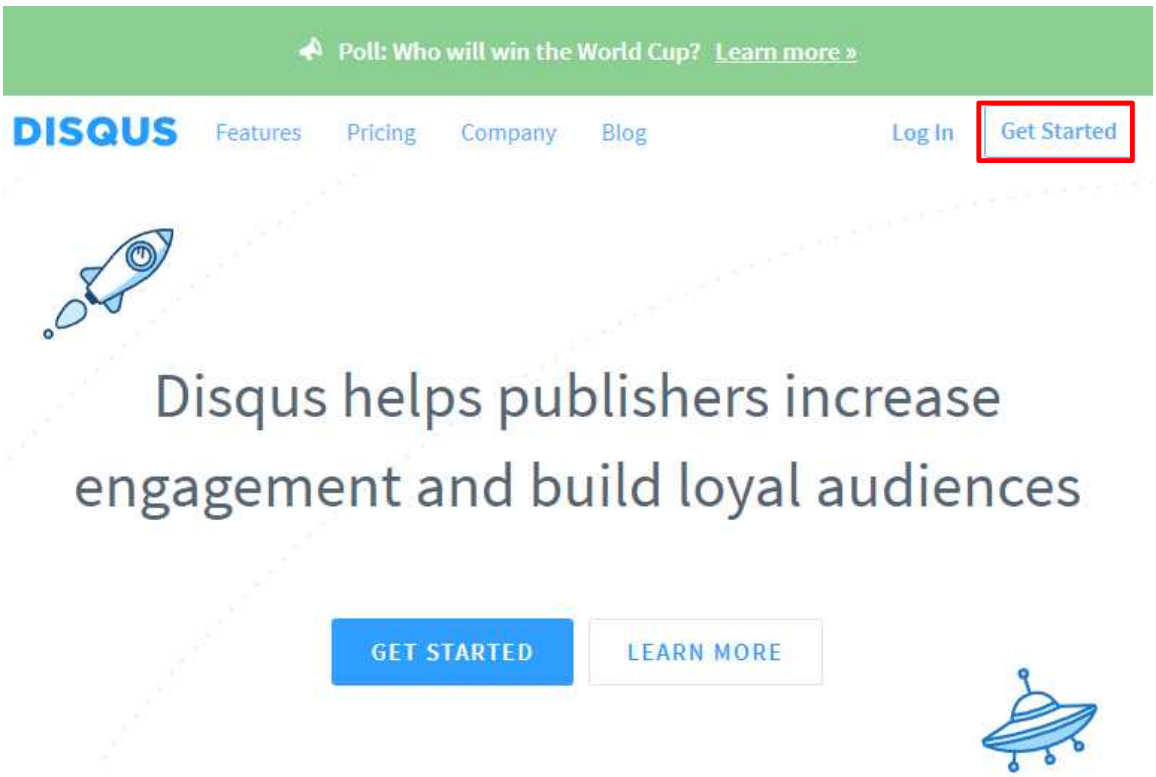
Add Comments Box & Tag

5. Add Comments Box

Now let's set it up that we can comment on it. We are going to use comments plug-in called Disqus. You can install disqus in Django using the following command, but we will use plug-in in a more convenient way.

Instrall disqus

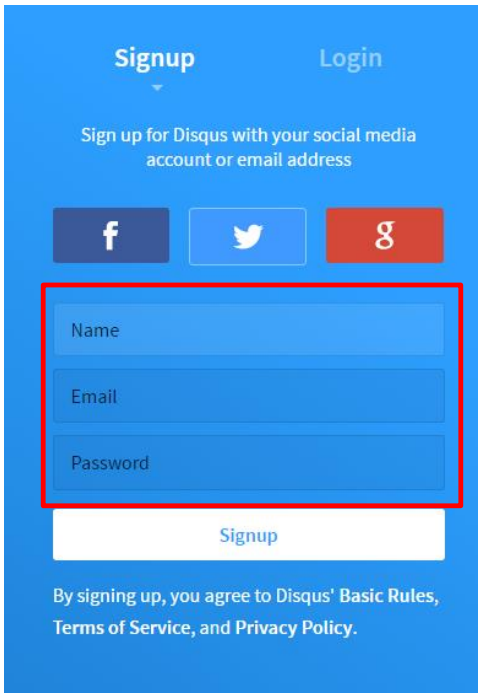
```
(myvenv)root@Goorm:/workspace/container name/mysite# pip install django-disqus
```



https://disqus.com/

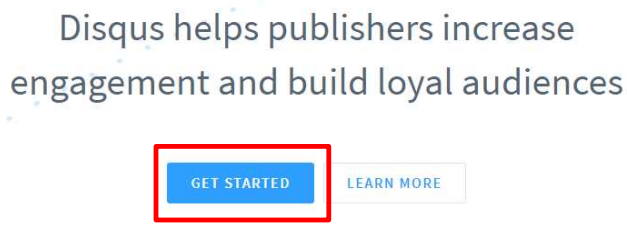
5. Add Comments Box (cont.)

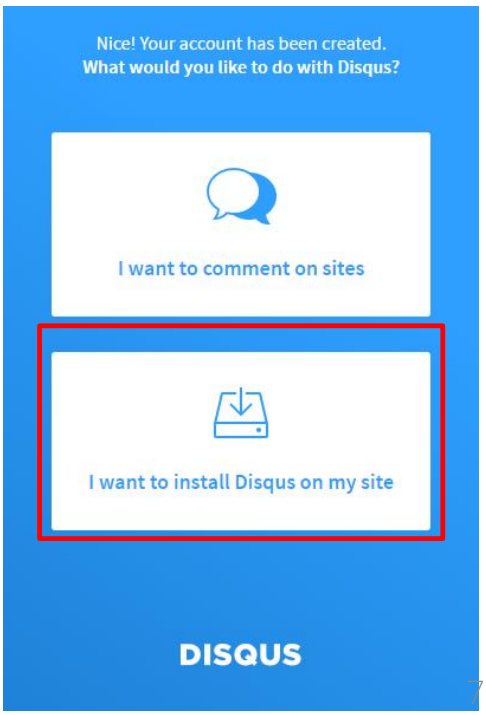
Now let's set it up so that we can comment on it.



Name, E-mail, etc. are easy to manage

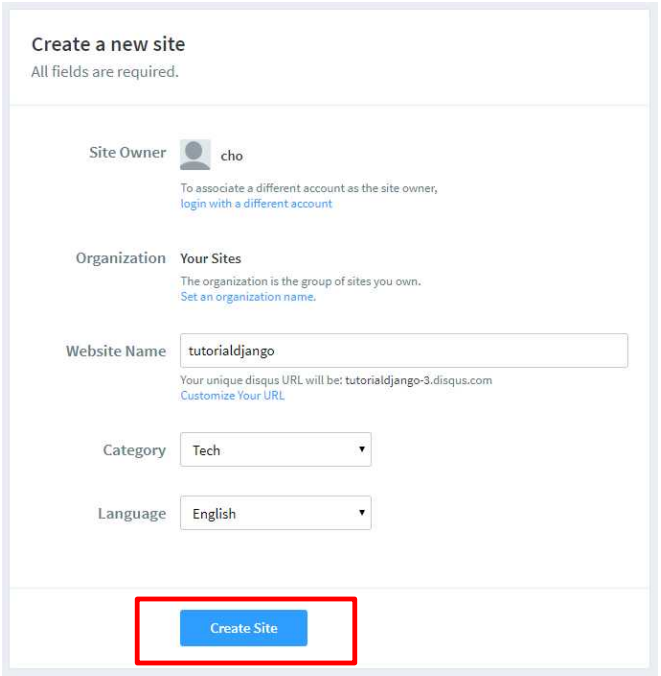
Goorm IDE ID, PW enabled

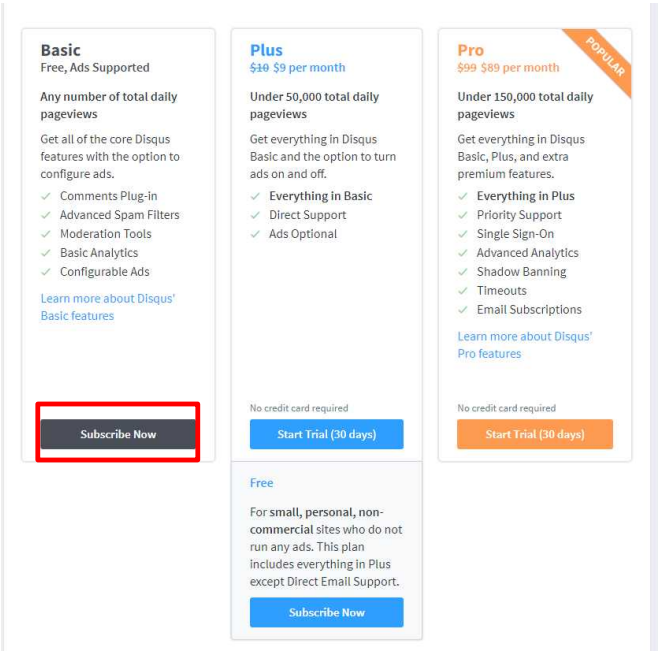




5. Add Comments Box (cont.)

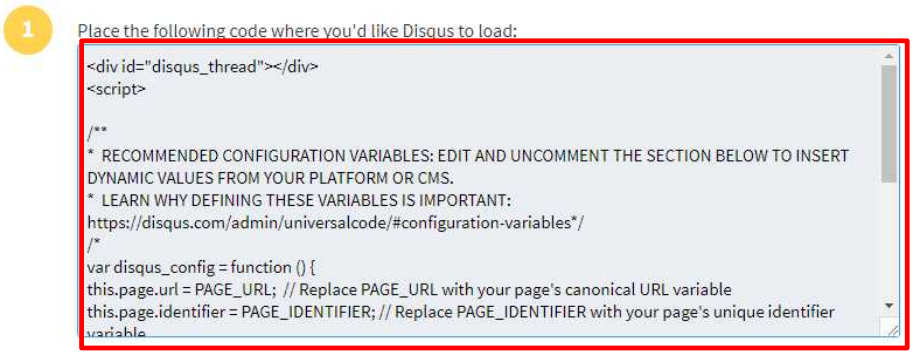
Please fill out the following form (it does not matter what you write). We will install it with Basic option.

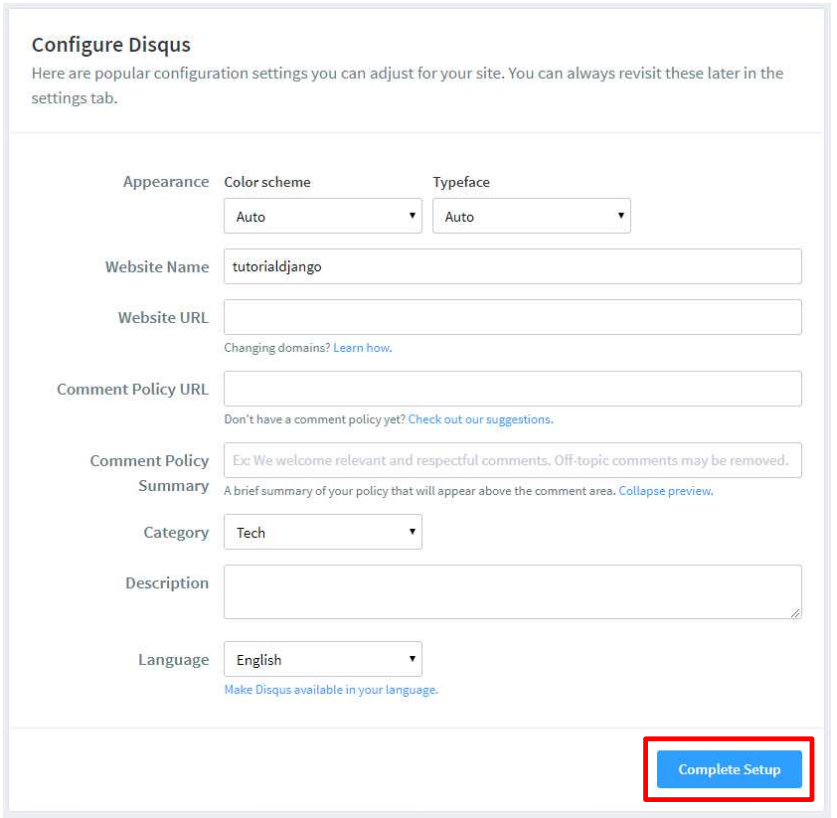




5. Add Comments Box (cont.)

If you click Next, you will see several platforms. Click on the bottom one. Then copy all of the sources as image.1 (you will paste it to your project later).





5. Add Comments Box (cont.)

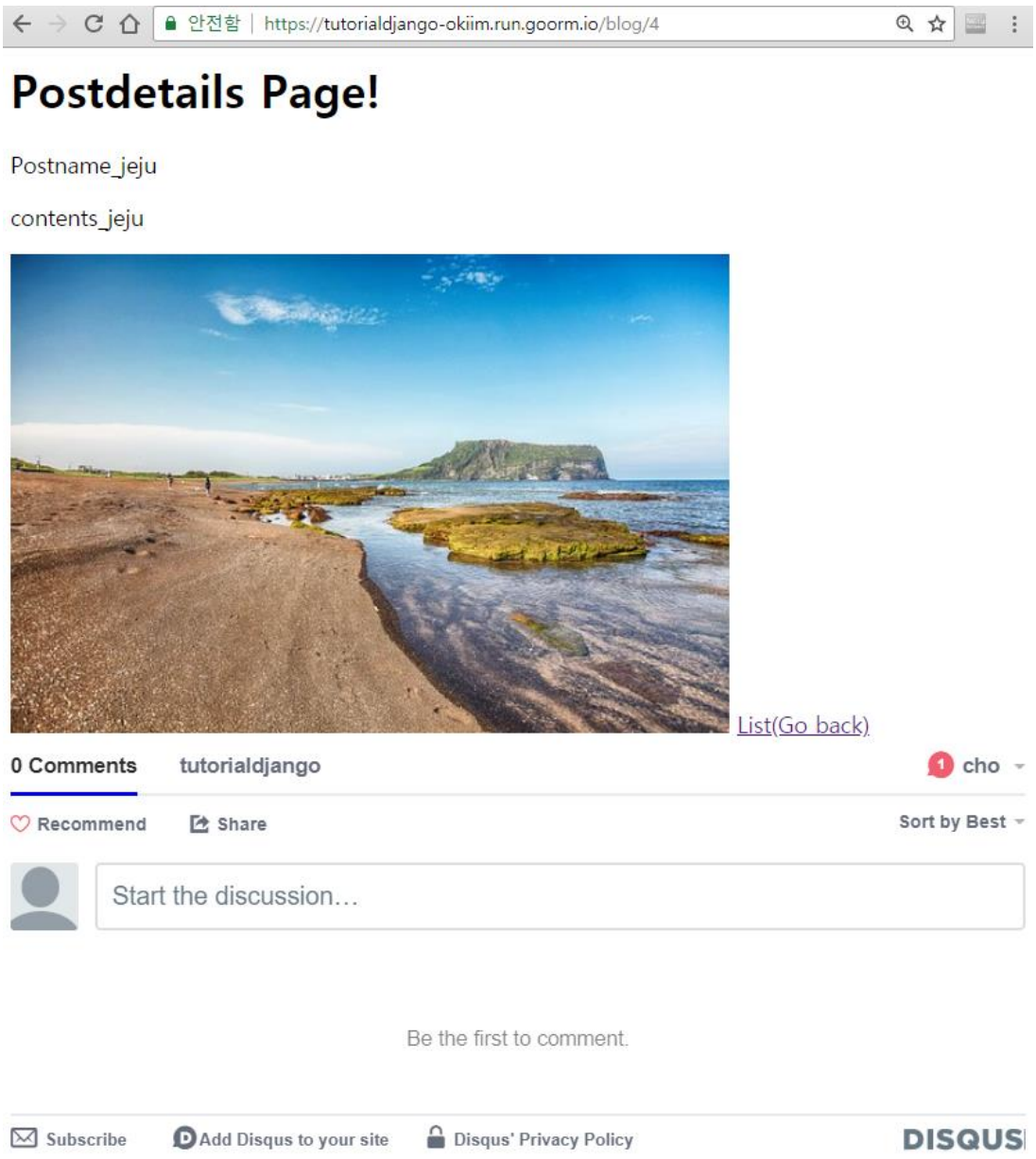
Let's put the sources to the project. Open the postdetails.html file and paste the source above the body closing tag 〈/body〉.

tutorialdjango/mysite/main/templates/main/postdetails.html

```
<html>
<head>
    <title>Django!</title>
</head>
<body>
    <h1>Postdetails Page!</h1>
    <p>{{ postlist.postname }}</p>
    <p>{{ postlist.contents|linebreaks }}</p>
    {% if postlist.mainphoto %}
        <img src="{{ postlist.mainphoto.url }}">
    {% endif %}
    <a href='https://tutorialdjango-bcrpr.run.goorm.io/blog/'>목록</a>
    <div id="disqus_thread"></div>
<script>
(function() {
var d = document, s = d.createElement('script');
s.src = 'https://tutorialdjango.disqus.com/embed.js';
s.setAttribute('data-timestamp', +new Date());
(d.head || d.body).appendChild(s);
})();
</script>
<noscript>Please enable JavaScript to view the <a href="https://disqus
</a></noscript>
<body>
<html>
```

5. Add Comments Box (cont.)

When the web server is running you can see comments at the bottom of the post detail page.



5. Add Comments Box (cont.)

Now, I will add the published date and the modified date.

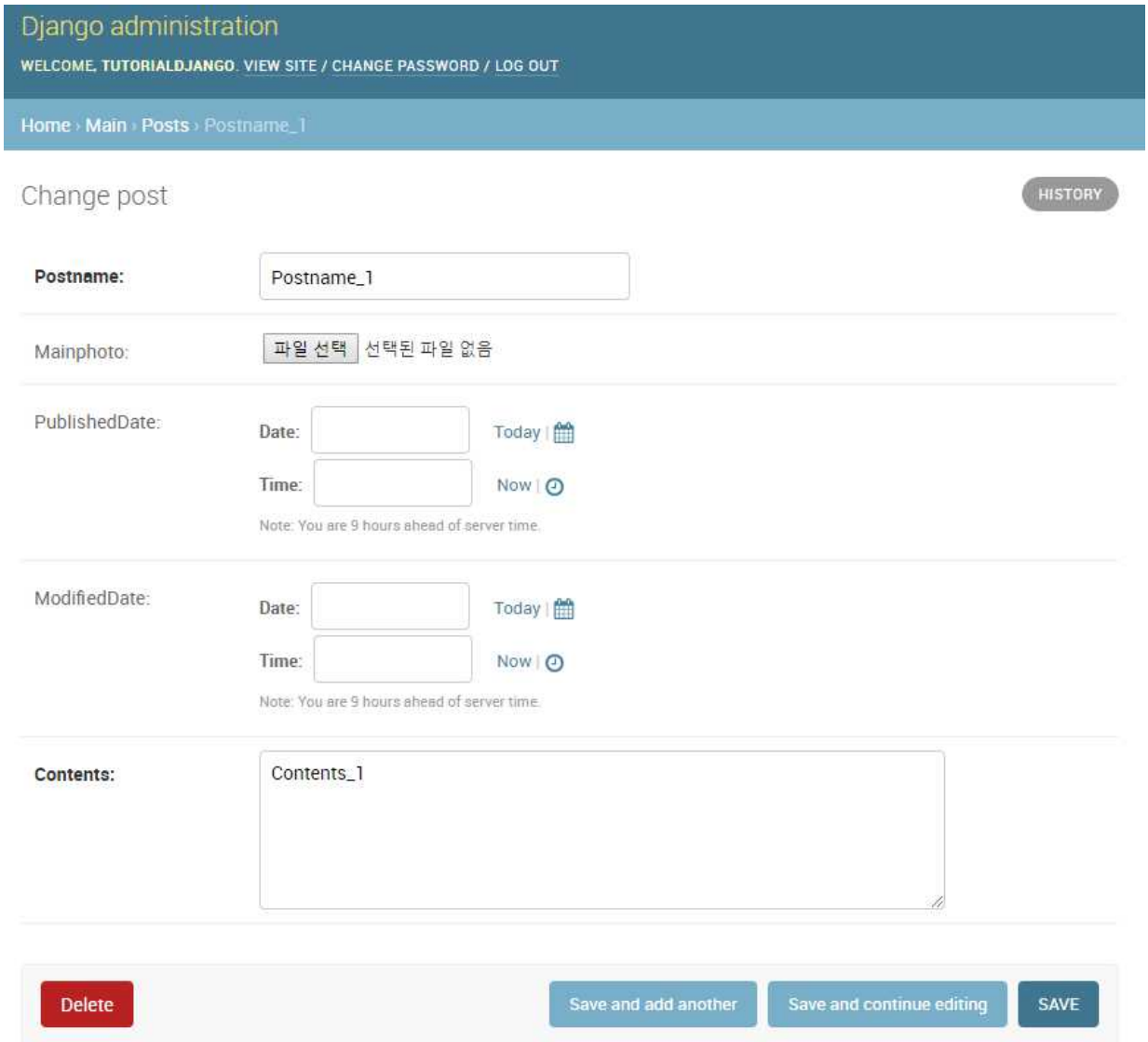
tutorialdjango/mysite/main/models.py

```python
from django.db import models

class Post(models.Model):
    postname = models.CharField(max_length=50)
    mainphoto = models.ImageField(blank=True, null=True)
    publishedDate = models.DateTimeField(blank=True, null=True)
    modifiedDate = models.DateTimeField(blank=True, null=True)
    contents = models.TextField()

    def __str__(self):
        return self.postname
```

```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py makemigrations
Migrations for 'main':
  main/migrations/0003_auto_20180628_0554.py
    - Add field modifiedDate to post
    - Add field publishedDate to post
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, main, sessions
Running migrations:
  Applying main.0003_auto_20180628_0554... OK
(myvenv)root@goorm:/workspace/tutorialdjango/mysite#
```

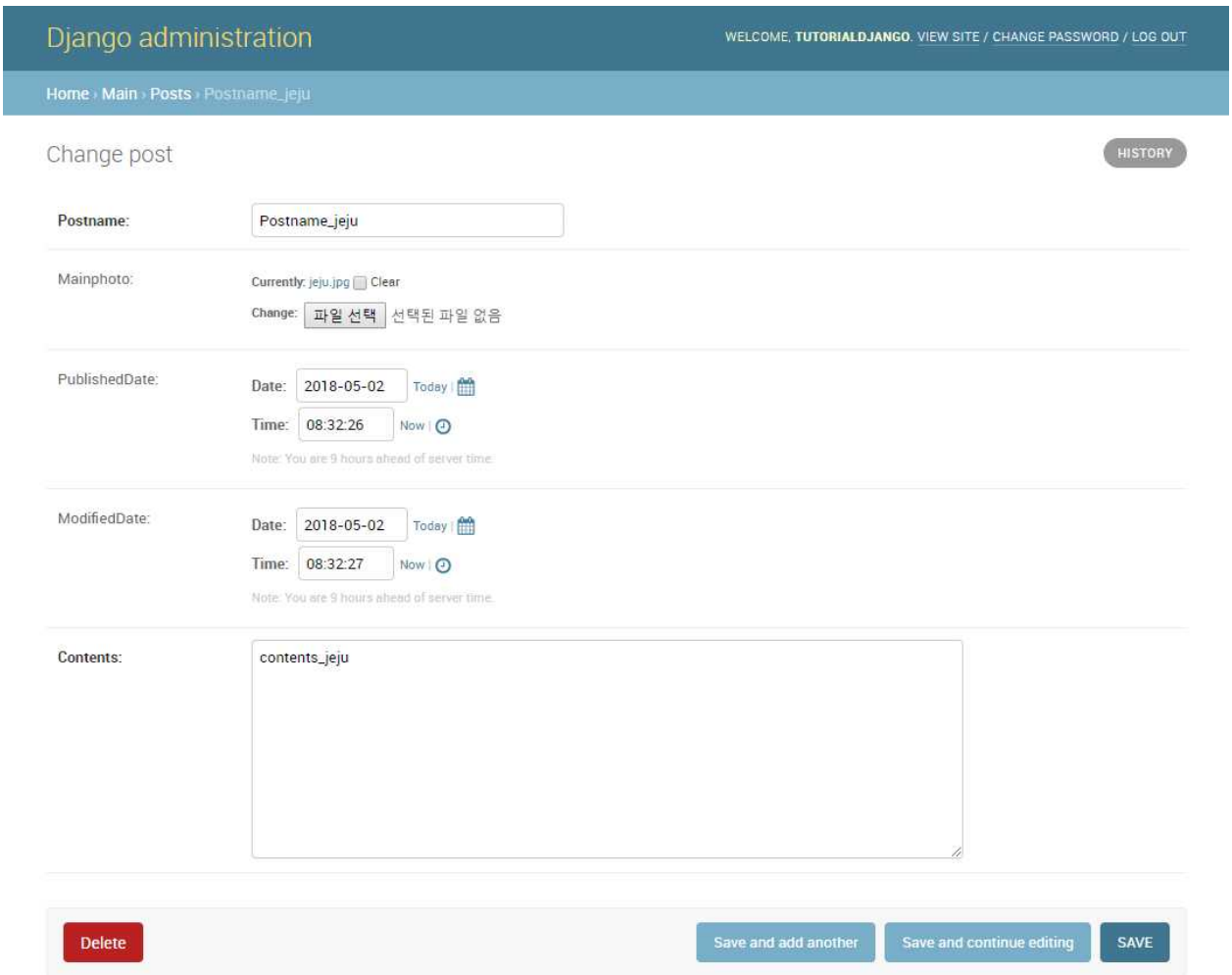
5. Add Comments Box (cont.)

You can see that the posted date field and the modified date field are added for posting.



5. Add Comments Box (cont.)

Let's modify all posts.



5. Add Comments Box (cont.)

If you add modifiedDate as below you will see them in on the blog page.

tutorialdjango/mysite/main/templates/main/blog.html

```
<html>
<head>
    <title>Django!</title>
</head>
<body>
    <h1>Blog Page!</h1>
    <table>
    {% for list in postlist %}
    <tr onclick="location.href='https://t
        <td>{{list.postname}}</td>
        <td>{{list.contents}}</td>
        <td>{{list.modifiedDate}}</td>
    </tr>
    {% endfor %}
    </table>
<body>
<html>
```

https://tutorialdjango-bcrpr.run.Goorm.io/blog/

5. Add Comments Box (cont.)

We will install Django-tagiit to put tag on your pages. You can use tag to search contents and you can create pages for tags only.

(myvenv)root@Goorm:/workspace/container name/mysite# pip install django-taggit

```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# pip install django-taggit
Downloading/unpacking django-taggit
  Downloading django_taggit-0.22.2-py2.py3-none-any.whl (45kB): 45kB downloaded
Installing collected packages: django-taggit
Successfully installed django-taggit
Cleaning up...
```

tutorialdjango/mysite/main/models.py

```
1  from django.db import models
2  from taggit.managers import TaggableManager
3
4  class Post(models.Model):
5      postname = models.CharField(max_length=50)
6      mainphoto = models.ImageField(blank=True, null=True)
7      publishedDate = models.DateTimeField(blank=True, null=True)
8      modifiedDate = models.DateTimeField(blank=True, null=True)
9      contents = models.TextField()
10     tag = TaggableManager(blank=True)
11
12     def __str__(self):
13         return self.postname
```

5. Add Comments Box (cont.)

Let's add taggit as a application to the setting.py file as below.

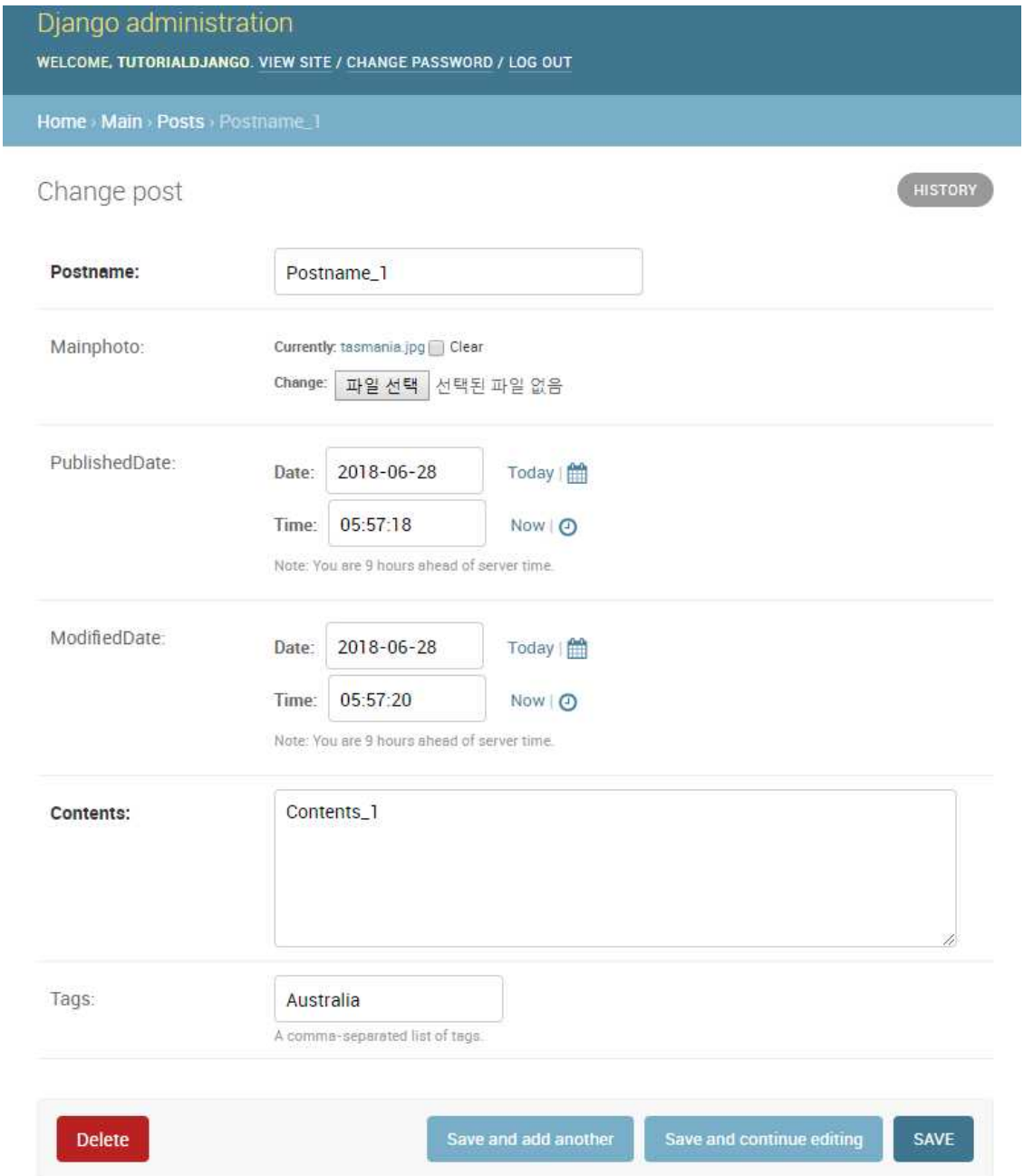
```
33  INSTALLED_APPS = [
34      'django.contrib.admin',
35      'django.contrib.auth',
36      'django.contrib.contenttypes',
37      'django.contrib.sessions',
38      'django.contrib.messages',
39      'django.contrib.staticfiles',
40      'main',
41      'taggit',
42  ]
```

tutorialdjango/mysite/tutorialdjango/settings.py

```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py makemigrations
Migrations for 'main':
  main/migrations/0004_post_tag.py
    - Add field tag to post
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, main, sessions, taggit
Running migrations:
  Applying taggit.0001_initial... OK
  Applying taggit.0002_auto_20150616_2121... OK
  Applying main.0004_post_tag... OK
```

5. Add Comments Box (cont.)

Go to the admin page and check if tags field appears at the bottom. We will put the traveled countries names here.



5. Add Comments Box (cont.)

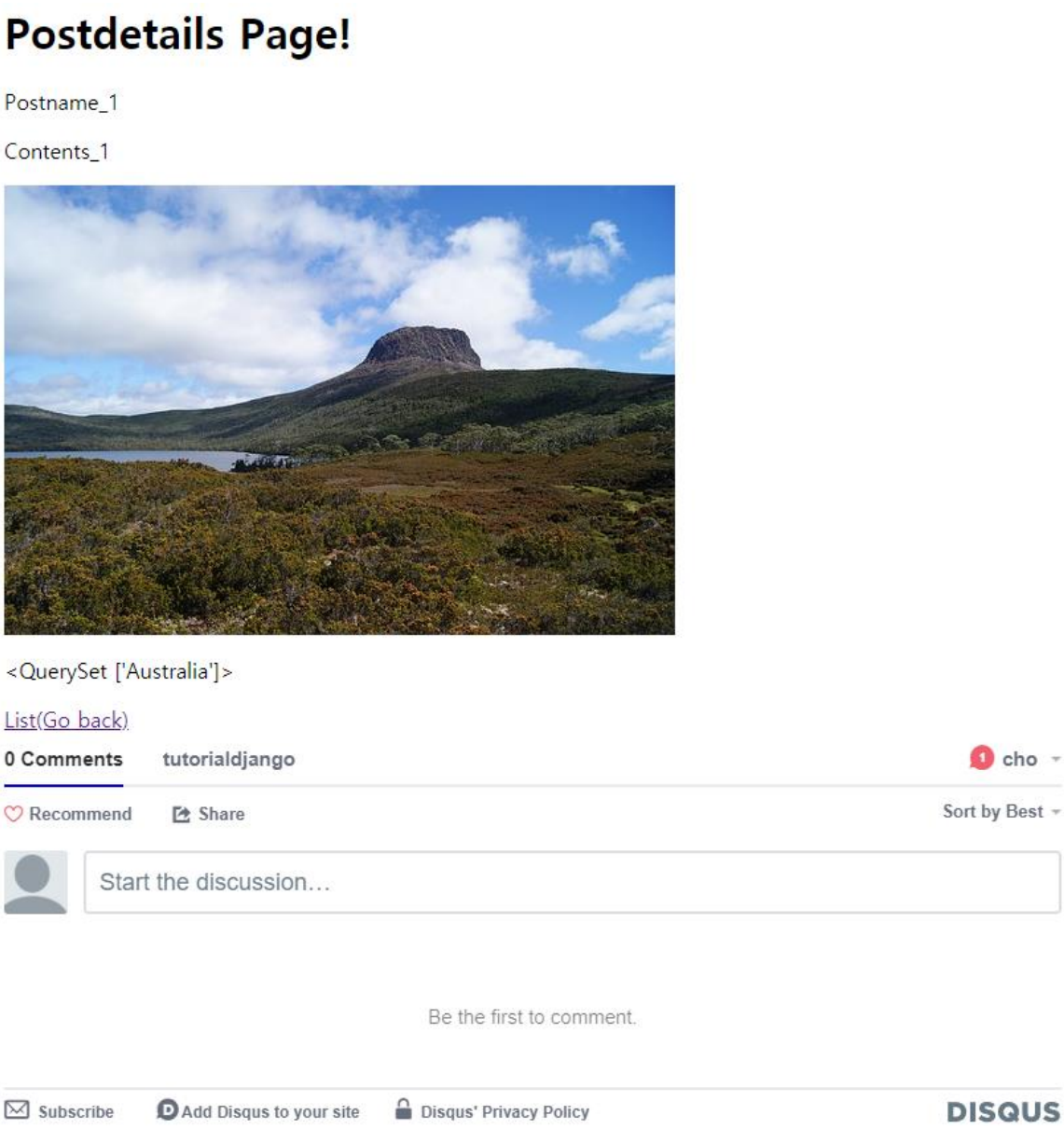
Enter the Tags, press SAVE, and you will see the tags on the postdetails page.

tutorialdjango/mysite/main/templates/main/postdetails.html

```
<html>
<head>
    <title>Django!</title>
</head>
<body>
    <h1>Postdetails Page!</h1>
    <p>{{ postlist.postname }}</p>
    <p>{{ postlist.contents|linebreaks }}</p>
    {% if postlist.mainphoto %}
        <img src="{{ postlist.mainphoto.url }}">
    {% endif %}
    <p>{{ postlist.tag.names }}</p>
    <br>
    <a href='https://tutorialdjango-bcrpr.run.goorm.io/blog/'>목록</a><br>
    <div id="disqus_thread"></div>
<script>
(function() {
var d = document, s = d.createElement('script');
s.src = 'https://tutorialdjango.disqus.com/embed.js';
s.setAttribute('data-timestamp', +new Date());
(d.head || d.body).appendChild(s);
})();
</script>
<noscript>Please enable JavaScript to view the <a href="https://disqus.com
</a></noscript>
<body>
<html>
```

5. Add Comments Box (cont.)

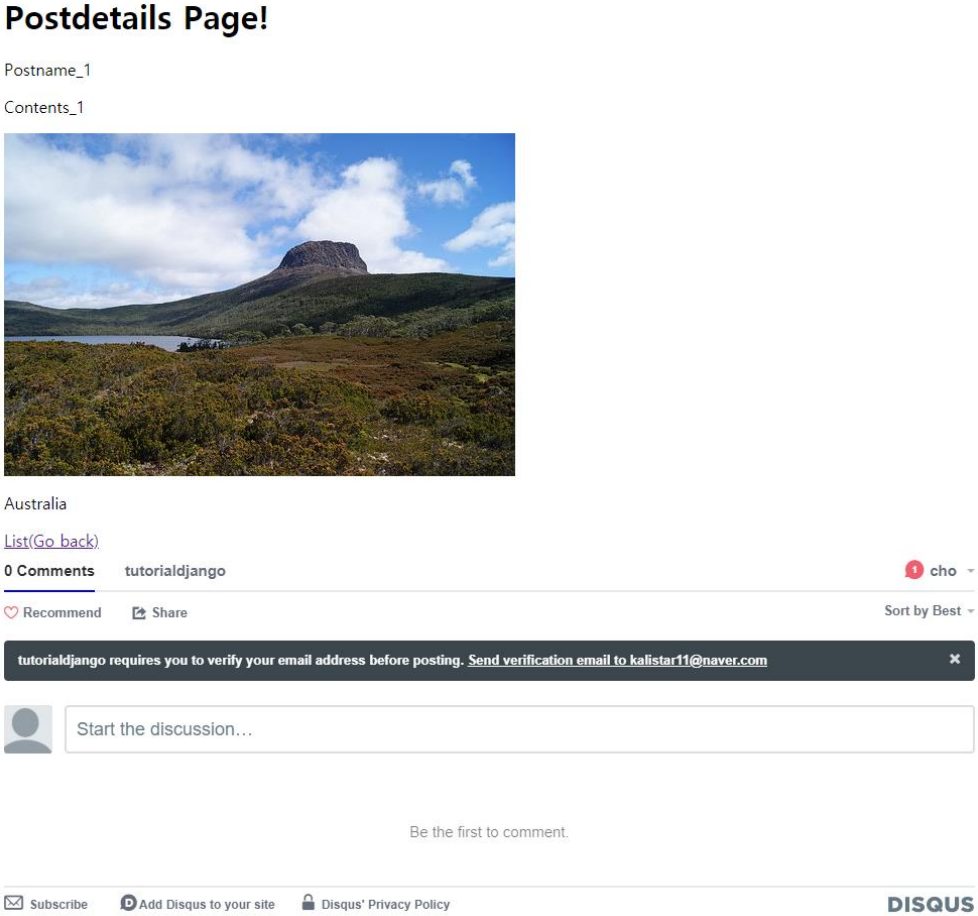
The tag is shown with the phrase Query Set.



5. Add Comments Box (cont.)

If you use “for loop” you can have multiple tags shown. Now we will use only one tag so put 0 at the end of the tag list.

```
<html>
    <head>
        <title>Django!</title>
    </head>
    <body>
        <h1>Postdetails Page!</h1>
        <p>{{postlist.postname}}</p>
        <p>{{postlist.contents}}</p>
        {% if postlist.mainphoto %}
            <img src="{{postlist.mainphoto.url}}">
        {% endif %}
        <p>{{postlist.tag.names.0}}</p>
        <a href='https://tutorialdjango-okiim.run.goorm.io/blog/'>List(Go back)</a>

```



Chapter 6

Design blog with bootstrap & Deploy

6.1. Bootstrap Introduction

6.2. Bootstrap Download

6.3. Create a Template

6.4. Bootstrap Basic

6.5. Finishing touches
with template code examples

6.6. Deployment

TUTORIAL 6.1
Bootstrap Introduction

Bootstrap is a web framework. It's easy to think of a framework as a comprehensive set of components that you can use to get results quickly with minimal effort.

Bootstrap is optimized for the user's point of view, regardless of whether it looks like a big monitor screen or a small screen like a mobile phone. This site is tailored to the user's point of view and is called a responsive site. Bootstrap is optimized to build a responsive site.

Bootstrap is pre-designed with HTML, CSS, form, button, table, navigator. In Bootstrap 4, most of the tags used in bootstrap 3 are still used, but many have changed, so you should study the new version.

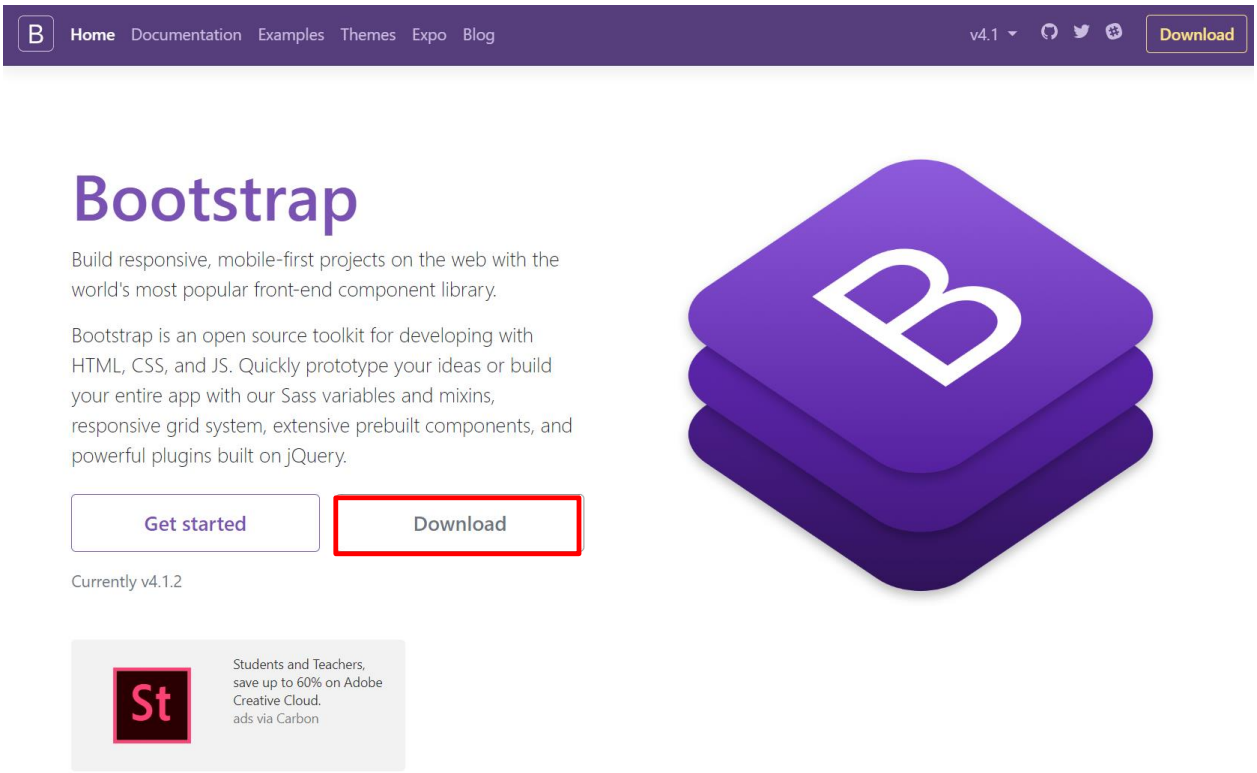
You can find a tutorial on bootstrap 4 at https://www.w3schools.com/bootstrap4/. For more information, check out the official Bootstrap homepage at https://getbootstrap.com/docs/4.1/content/reboot/.

TUTORIAL 6.2
Bootstrap Download

You can download bootstrap 4 at the https://getbootstrap.com/

* It is not necessary to download in this tutorial.

- Bootstrap Homepage in English: https://getbootstrap.com/ (v4)



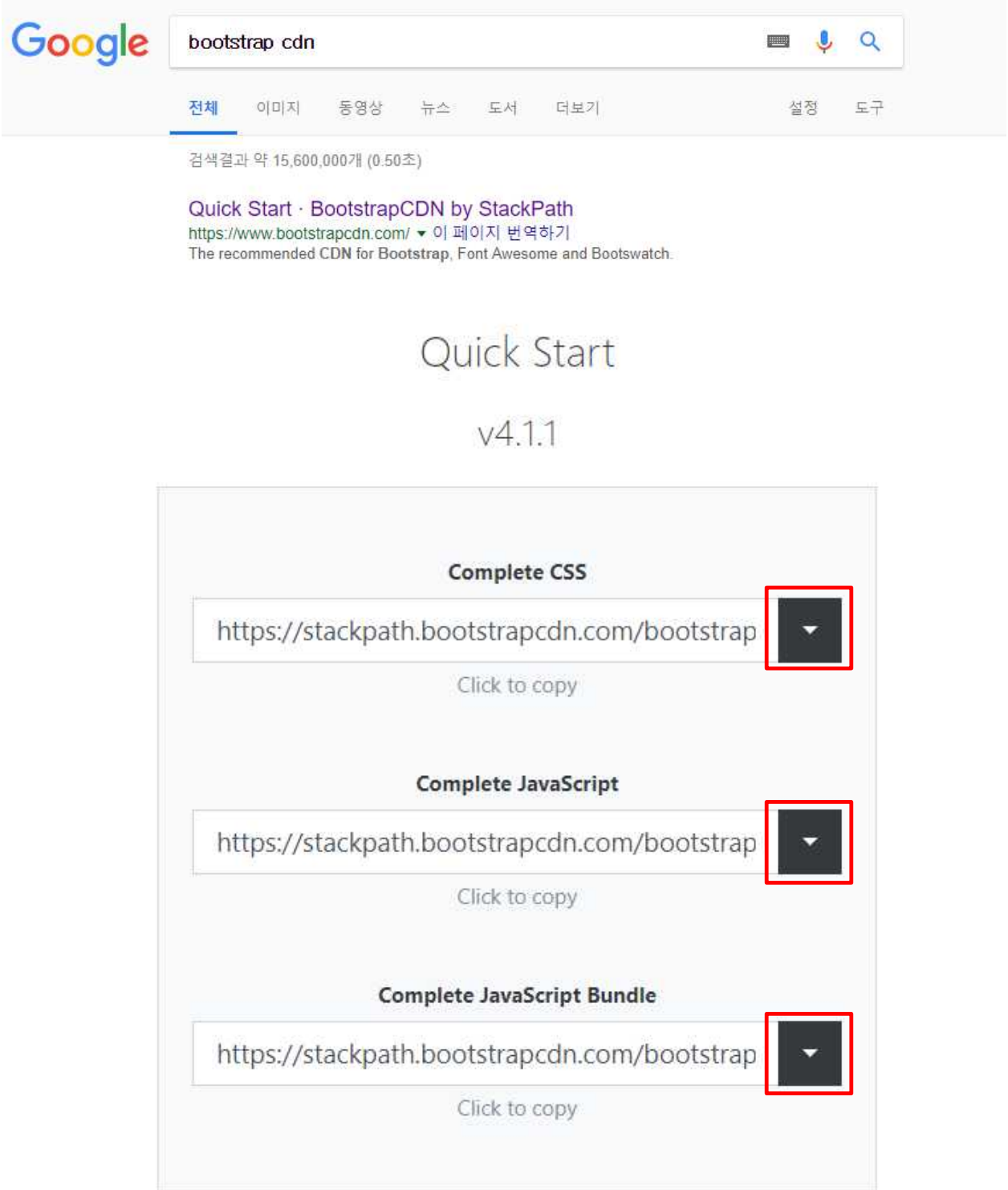
TUTORIAL 6.3
Create a Template

The default template was created using CDN (Content delivery network / content distribution network). CDN allows you to use it without downloading it.

```
<!doctype html>
<html lang="ko">
  <head>
    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->
    <link rel="stylesheet"
    href="https://stackpath.bootstrapcdn.com/bootstrap/4.1.0/css/bootstrap.min.css"
    integrity="sha384-9gVQ4dYFwwWSjIDZnLEWnxCjeSWFphJiwGPXr1jddIhOegiu1FwO5qRGvFXOdJZ4"
    crossorigin="anonymous">

    <title>Hello, world!</title>
  </head>
  <body>
    <h1>Hello, world!</h1>

    <!-- Optional JavaScript -->
    <!-- jQuery first, then Popper.js, then Bootstrap JS -->
    <script src="https://code.jquery.com/jquery-3.3.1.slim.min.js"
    integrity="sha384-q8i/X+965DzO0rT7abK41JStQIAqVgRVzpbzo5smXKp4YfRvH+8abtTE1Pi6jizo"
    crossorigin="anonymous"></script>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.0/umd/popper.min.js"
    integrity="sha384-cs/chFZiN24E4KMATLdqdvsezGxaGsi4hLGOzlXwp5UZB1LY//20VyM2taTB4QvJ"
    crossorigin="anonymous"></script>
    <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.1.0/js/bootstrap.min.js"
    integrity="sha384-uefMccjFJAIv6A+rW+L4AHf99KvxDjWSu1z9VI8SKNVmz4sk7buKt/6v9KI65qnm"
    crossorigin="anonymous"></script>
  </body>
</html>

001.html* 24:1
```

001.html

If you want to use the latest version of CDN, search for the 'bootstrap cdn' on google and go to https://www.bootstrapcdn.com/. The latest version is 4.



TUTORIAL 6.4
Bootstrap Basic

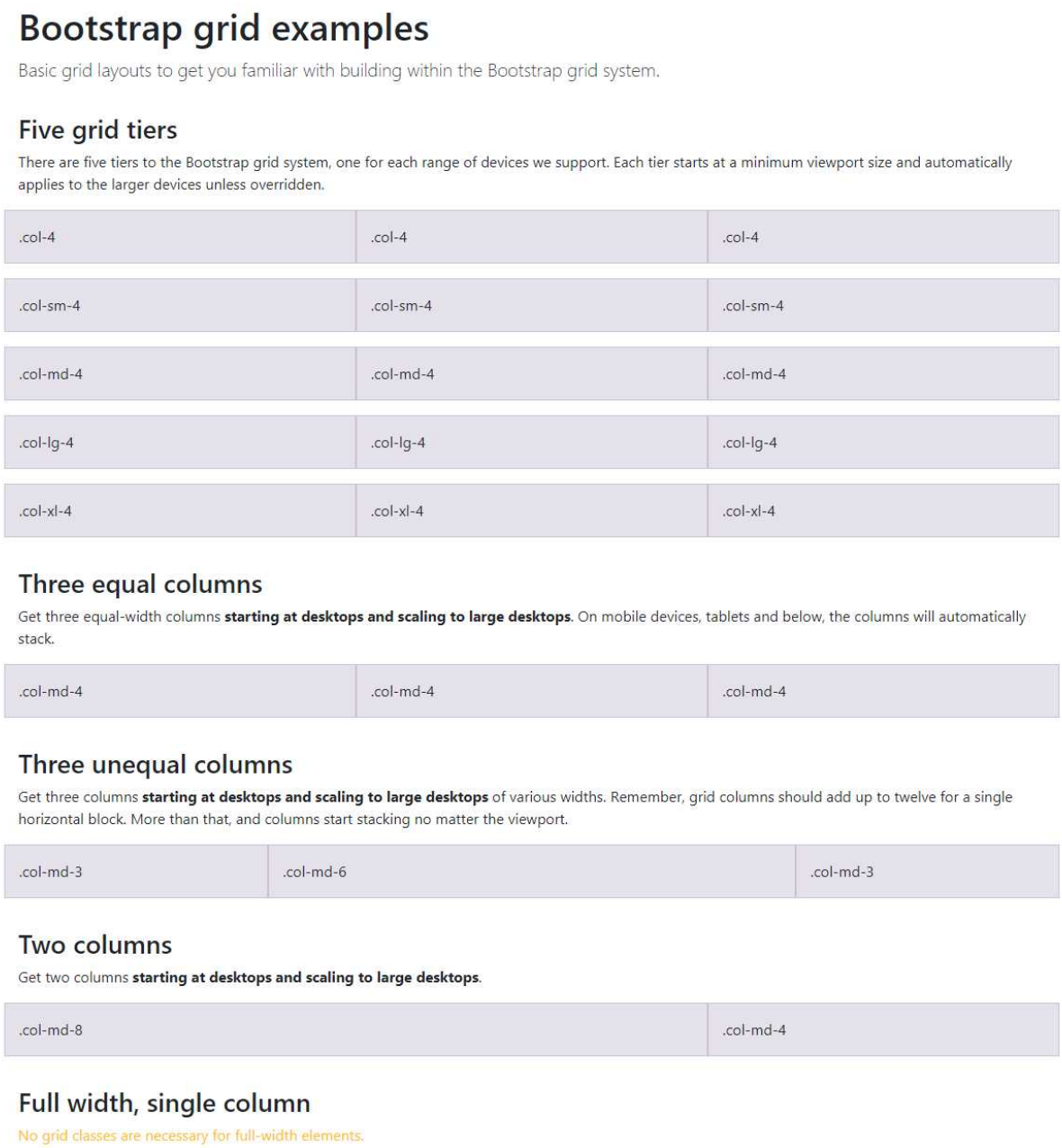
Within the body tag **〈body〉〈/ body〉**, there are script tags **〈script〉〈/ script〉** for the CDN . The code for designing the templates is added as shown below in the red square.

```
<!doctype html>
<html lang="ko">
  <head>
    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->
    <link rel="stylesheet"
    href="https://stackpath.bootstrapcdn.com/bootstrap/4.1.0/css/bootstrap.min.css"
    integrity="sha384-9gVQ4dYFwwWSjIDZnLEWnxCjeSWFphJiwGPXr1jddIhOegiu1FwO5qRGvFXOdJZ4"
    crossorigin="anonymous">

    <title>Hello, world!</title>
  </head>
  <body>
    <h1>Hello, world!</h1>

    <!-- Optional JavaScript -->
    <!-- jQuery first, then Popper.js, then Bootstrap JS -->
    <script src="https://code.jquery.com/jquery-3.3.1.slim.min.js"
    integrity="sha384-q8i/X+965DzO0rT7abK41JStQIAqVgRVzpbzo5smXKp4YfRvH+8abtTE1Pi6jizo"
    crossorigin="anonymous"></script>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.0/umd/popper.min.js"
    integrity="sha384-cs/chFZiN24E4KMATLdqdvsezGxaGsi4hLGOzlXwp5UZB1LY//20VyM2taTB4QvJ"
    crossorigin="anonymous"></script>
    <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.1.0/js/bootstrap.min.js"
    integrity="sha384-uefMccjFJAIv6A+rW+L4AHf99KvxDjWSu1z9VI8SKNVmz4sk7buKt/6v9KI65qnm"
    crossorigin="anonymous"></script>
  </body>
</html>

001.html* 24:1
```

001.html

6.4 Bootstrap Grids

Bootstrap grid system provides the quick and easy way to create responsive website layouts. Bootstrap grid system allows to display up to 12 columns in a row across the page and if you do not want to use all 12 column individually, you can group the columns together to create wider columns



Bootstrap grid examples

Basic grid layouts to get you familiar with building within the Bootstrap grid system.

Five grid tiers

There are five tiers to the Bootstrap grid system, one for each range of devices we support. Each tier starts at a minimum viewport size and automatically applies to the larger devices unless overridden.

.col-4	.col-4	.col-4
.col-sm-4	.col-sm-4	.col-sm-4
.col-md-4	.col-md-4	.col-md-4
.col-lg-4	.col-lg-4	.col-lg-4
.col-xl-4	.col-xl-4	.col-xl-4

Three equal columns

Get three equal-width columns **starting at desktops and scaling to large desktops**. On mobile devices, tablets and below, the columns will automatically stack.

.col-md-4	.col-md-4	.col-md-4

Three unequal columns

Get three columns **starting at desktops and scaling to large desktops** of various widths. Remember, grid columns should add up to twelve for a single horizontal block. More than that, and columns start stacking no matter the viewport.

.col-md-3	.col-md-6	.col-md-3

Two columns

Get two columns **starting at desktops and scaling to large desktops**.

.col-md-8	.col-md-4

Full width, single column

No grid classes are necessary for full-width elements.

https://getbootstrap.com/docs/4.1/examples/grid/

6.4 Bootstrap Grids (cont.)

After type the codes as shown below in the 〈body〉〈/ body〉 tag , save it as 002.html and execute it. The red squares represent defined grid in one row. Four small size columns are grouped in one medium column so you can see three columns.

Code

```
14      <div class="container">
15        <div class="row">
16          <div class="col-md-4">
17            <h1>hello</h1>
18          </div>
19
20          <div class="col-md-4">
21            <h1>hello</h1>
22          </div>
23
24          <div class="col-md-4">
25            <h1>hello</h1>
26          </div>
27        </div>
28      </div>
```

Output

002.html

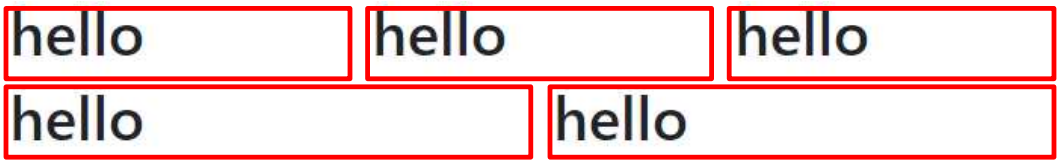
6.4 Bootstrap Grids (cont.)

We use **.col-md-4** class and **.col-md-6** class to compare how grid looks like with each class

Code

```
<div class="container">
  <div class="row">
    <div class="col-md-4">
      <h1>hello</h1>
    </div>
    <div class="col-md-4">
      <h1>hello</h1>
    </div>
    <div class="col-md-4">
      <h1>hello</h1>
    </div>
  </div>
  <div class="row">
    <div class="col-md-6">
      <h1>hello</h1>
    </div>
    <div class="col-md-6">
      <h1>hello</h1>
    </div>
  </div>
</div>
```

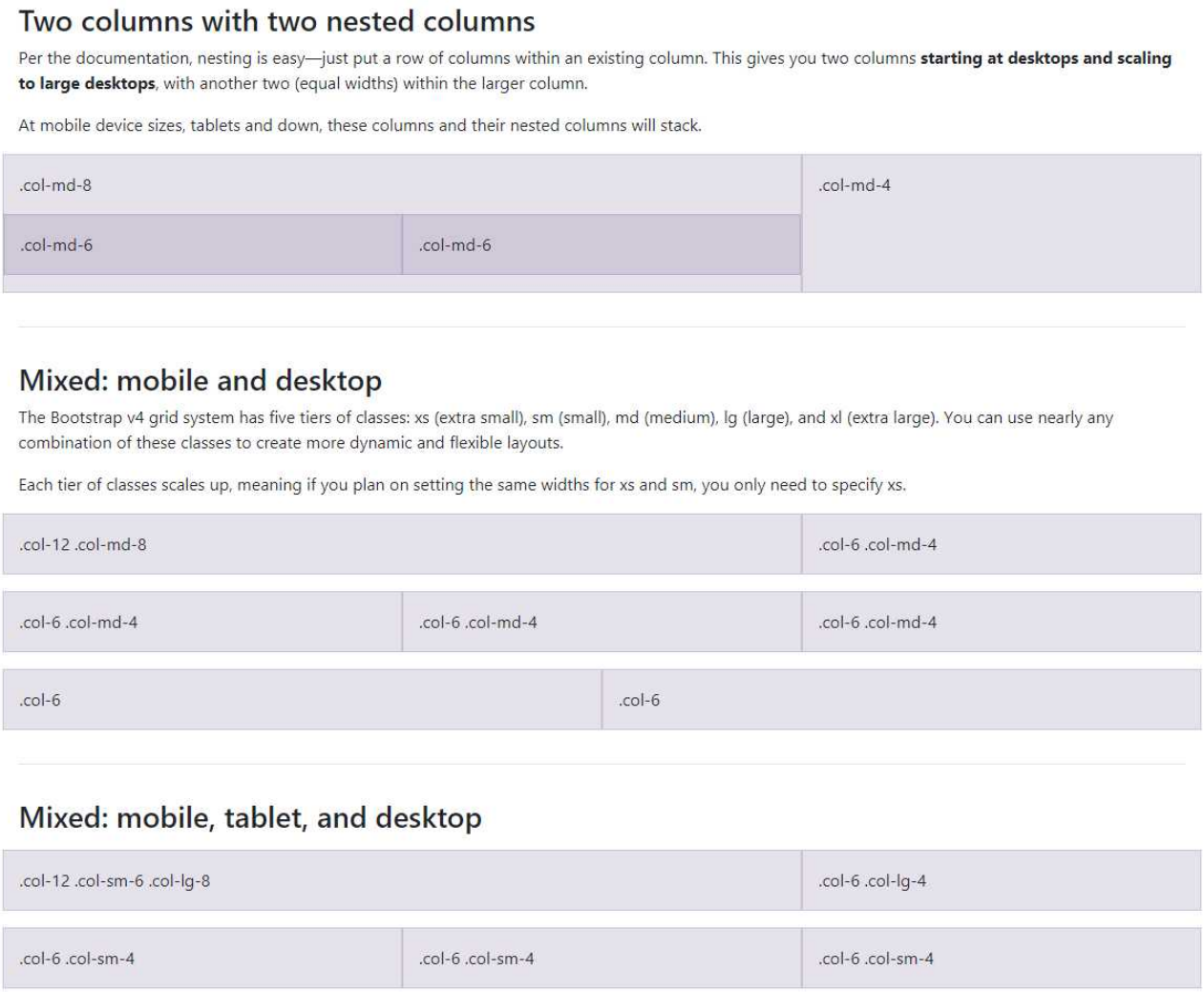
Output



003.html

6.4 Bootstrap Grids (cont.)

As you can see the official website below, it is also possible to subdivide one column unit.



Two columns with two nested columns

Per the documentation, nesting is easy—just put a row of columns within an existing column. This gives you two columns **starting at desktops and scaling to large desktops**, with another two (equal widths) within the larger column.

At mobile device sizes, tablets and down, these columns and their nested columns will stack.

.col-md-8		.col-md-4
.col-md-6	.col-md-6	

Mixed: mobile and desktop

The Bootstrap v4 grid system has five tiers of classes: xs (extra small), sm (small), md (medium), lg (large), and xl (extra large). You can use nearly any combination of these classes to create more dynamic and flexible layouts.

Each tier of classes scales up, meaning if you plan on setting the same widths for xs and sm, you only need to specify xs.

.col-12 .col-md-8		.col-6 .col-md-4
.col-6 .col-md-4	.col-6 .col-md-4	.col-6 .col-md-4
.col-6	.col-6	

Mixed: mobile, tablet, and desktop

.col-12 .col-sm-6 .col-lg-8		.col-6 .col-lg-4
.col-6 .col-sm-4	.col-6 .col-sm-4	.col-6 .col-sm-4

https://getbootstrap.com/docs/4.1/examples/grid/

6.4 Bootstrap Grids (cont.)

If you want to use all 12 columns as a 100% of the screen width in a grid system, use the **.container-fluid** class.

You can remove padding and margin between columns by applying the **.no-gutters** class to the **.row** class.

Below is a description of the grid system on the official website. Nestable means you can split a column.

We will use **md** class mainly .

	Extra small <576px	Small ≥576px	Medium ≥768px	Large ≥992px	Extra large ≥1200px
Max container width	None (auto)	540px	720px	960px	1140px
Class prefix	.col-	.col-sm-	.col-md-	.col-lg-	.col-xl-
# of columns	12				
Gutter width	30px (15px on each side of a column)				
Nestable	Yes				
Column ordering	Yes				

https://getbootstrap.com/docs/4.1/layout/grid/

6.4 Bootstrap Grids (cont.)

If offset is used, the space of one column is floated. There are many ways to give margins, but we mainly use the offset method and the Flexbox method to sort columns. Only offset is covered here.

Code

```
14      <div class="container">
15        <div class="row">
16          <div class="col-md-5 offset-md-1">
17            <h1>hello</h1>
18          </div>
19          <div class="col-md-5">
20            <h1>hello</h1>
21          </div>
22        </div>
23        <div class="row">
24          <div class="col-md-6">
25            <h1>hello</h1>
26          </div>
27          <div class="col-md-6">
28            <h1>hello</h1>
29          </div>
30        </div>
31      </div>
```

Output

003.html

TUTORIAL 6.5
Finishing touches with template code examples

When you extract **templates.zip** file there will be index.html, blog.html, postdetails.html files in it. If you run index.html, you can see the map with some markers. Coordinates are required for each post in order to draw a marker on the map. **LatLng** in the codes below is latitude and longitude.

Next, we will use the template tag to insert coordinates of each post.

```
285         function initMap() {
286
287           var bluemountain = new google.maps.LatLng(-33.3493206,149.7360613);
288           var jejucityhall = new google.maps.LatLng(33.499597,126.5290653);
289           var perth = new google.maps.LatLng(-32.0388312,115.4010747);
290           var sydney = new google.maps.LatLng(-33.8567844,151.213108);
291           var tasmania = new google.maps.LatLng(-42.200633, 146.643736);
```

Index_001.html

* Download Source Code Examples: www.paullab.co.kr/templates.zip

6.5 Finishing touches with template code examples

Let's add codes as shown below in the models.py file.

The official document contains blank and null references.
Official document :
https://docs.djangoproject.com/en/2.0/ref/models/fields/#django.db.models.FloatField

```
from django.db import models
from taggit.managers import TaggableManager

class Post(models.Model):
    postname = models.CharField(max_length=50)
    Lat = models.FloatField(null=True)
    Lng = models.FloatField(null=True)
    mainphoto = models.ImageField(blank=True, null=True)
    publishedDate = models.DateTimeField(blank=True, null=True)
    modifiedDate = models.DateTimeField(blank=True, null=True)
    contents = models.TextField()
    tag = TaggableManager(blank=True)

    def __str__(self):
        return self.postname
```

tutorialdjango/mysite/main/models.py

null

If **True**, Django will store empty values as **NULL** in the database. Default is **False**.

blank

If **True**, the field is allowed to be blank. Default is **False**.

Note that this is different than **null**. **null** is purely database-related, whereas **blank** is validation-related. If a field has **blank=True**, form validation will allow entry of an empty value. If a field has **blank=False**, the field will be required.

Django official documentation about a null & blank part

6.5 Finishing touches with template code examples (cont.)

Type these commands in the console window and excute to apply all migrations.

python manage.py make migrations

python manage.py migrate

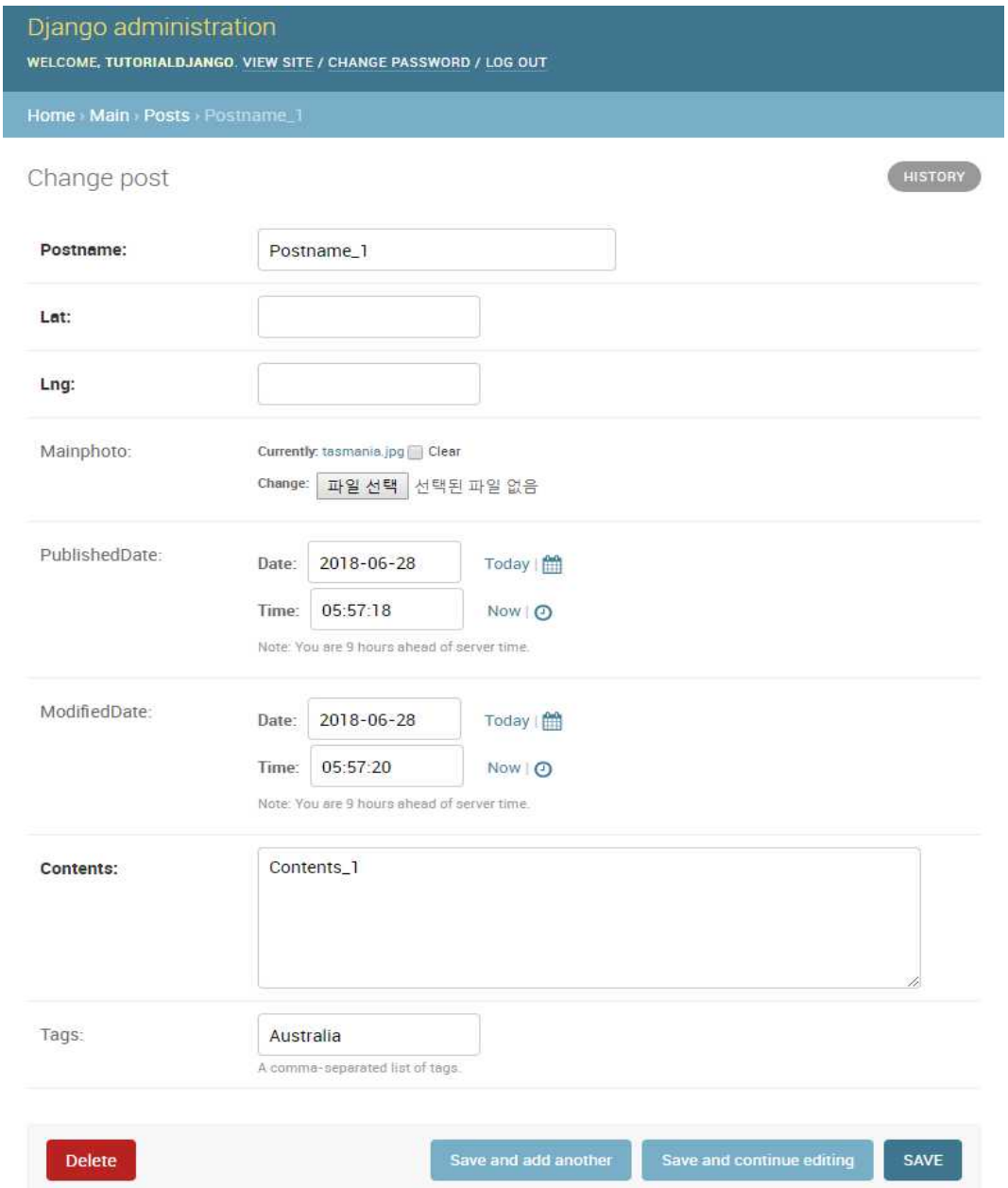
Then let's run the web server.

python manage.py runserver 0:80

```
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py makemigrations
Migrations for 'main':
  main/migrations/0005_auto_20180504_0204.py
    - Add field Lat to post
    - Add field Lng to post
(myvenv)root@goorm:/workspace/tutorialdjango/mysite# python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, main, sessions, taggit
Running migrations:
  Applying main.0005_auto_20180504_0204... OK
```

6.5 Finishing touches with template code examples (cont.)

You can see the fields Lat and Lng for the geographical coordinates (as shown below) If you have forgotten your ID and password, you can re-create it in the console window.



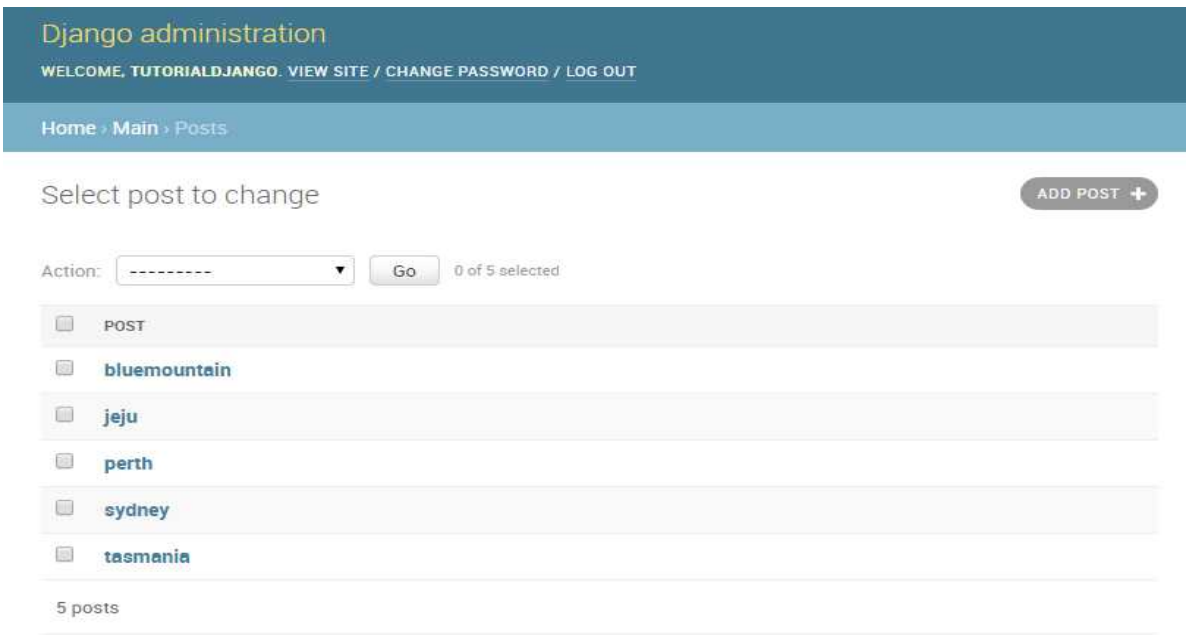
6.5 Finishing touches with template code examples (cont.)

Let's put these value below to the Lat field and the Lng field of each post.

bluemountain, latitude -33.3493206, longitude 149.7360613
jejucityhall, latitude 33.499597, longitude 126.5290653
perth, latitude -32.0388312, longitude 115.4010747
sydney, latitude -33.8567844, longitude 151.213108
tasmania, latitude -42.200633, longitude 146.643736

I will put contents from the **lorem ipsum** web site and upload a photo from the template/img folder

lorem ipsum : https://lipsum.com/
* I will remove all posts except the 5 below.



6.5 Finishing touches with template code examples (cont.)

Now, let's check if the content that we posted is applied to the web site. First, Add the codes to the views.py file as below so that you can use postlist at the index.html. Then, copy the whole codes from the templates/Index_002.html and paste them to the index.html file in your project. The difference between the original index.html file and the index_002.html is shown below.

Then, If you restart the web server, you can see the broken image with the marker as shown below. Next, let's modify the index.html file.

```
4   def index(request):
5       postlist = Post.objects.all()
6       return render(request, 'main/index.html', {'postlist':postlist})
```

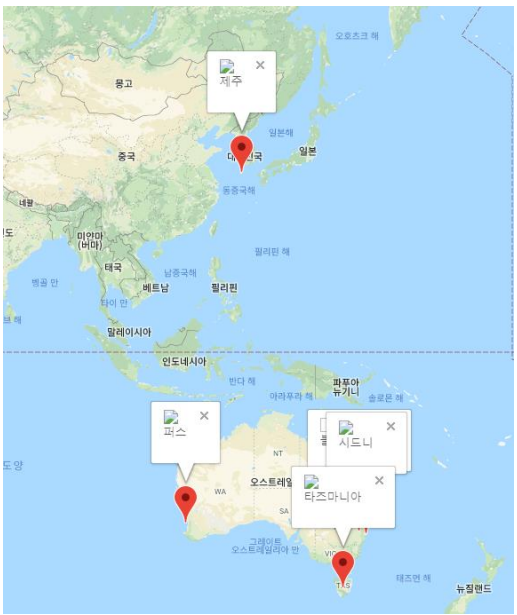
tutorialdjango/mysite/main/views.py

```
285 function initMap() {
286
287   var bluemountain = new google.maps.LatLng(-33.3493206,149.7360613);
288   var jejucityhall = new google.maps.LatLng(33.499597,126.5290653);
289   var perth = new google.maps.LatLng(-32.0388312,115.4010747);
290   var sydney = new google.maps.LatLng(-33.8567844,151.213108);
291   var tasmania = new google.maps.LatLng(-42.200633, 146.643736);
```

Index.html

```
285 function initMap() {
286   {% for list in postlist %}
287     var {{list.postname}} = new google.maps.LatLng({{list.Lat}},{{list.Lng}});
288   {% endfor %}
```

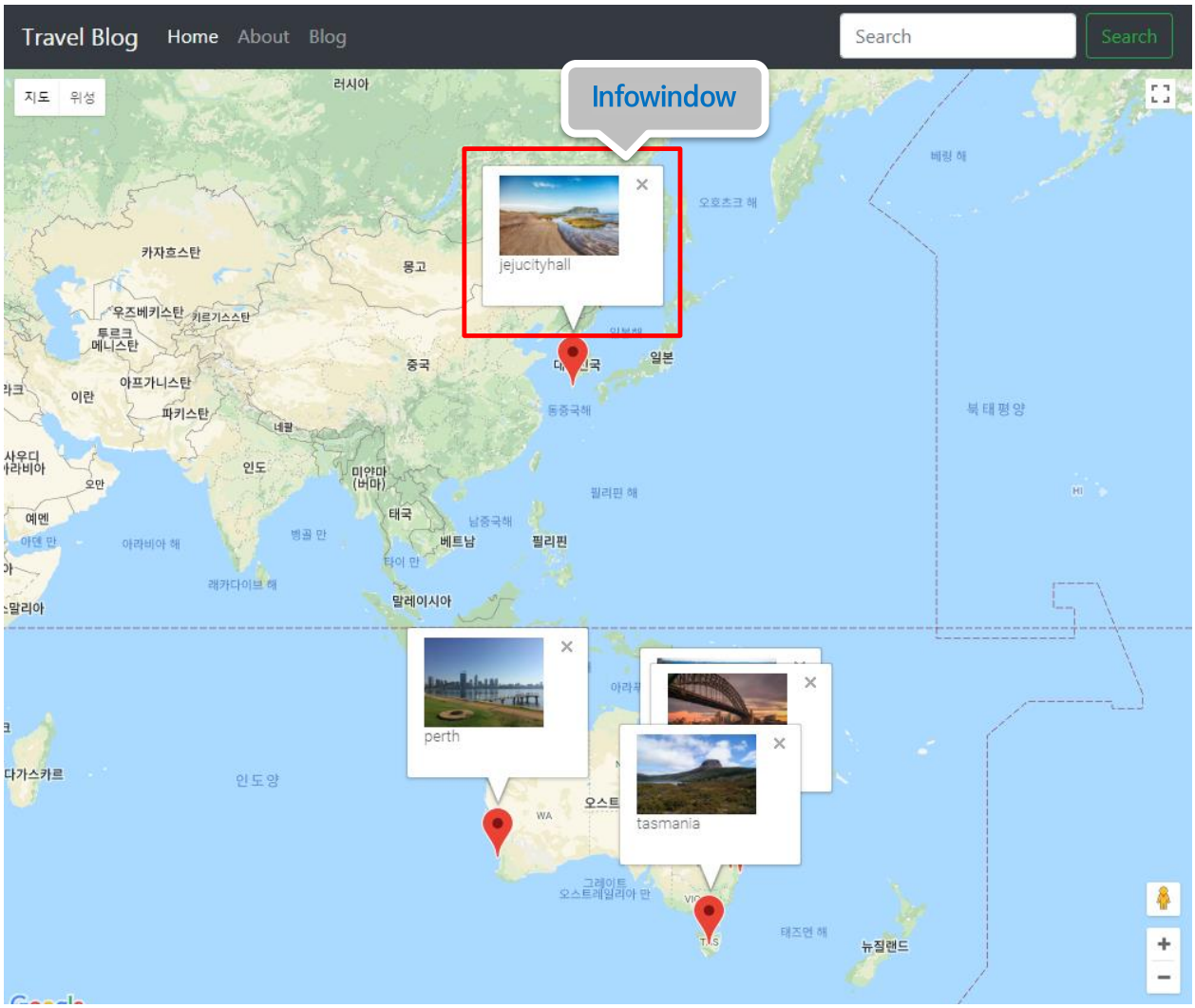
Index_002.html



If you can not see this page restart the web server

6.5 Finishing touches with template code examples (cont.)

Let's use template tag **{% %}, {{}}** to put a photo to a Infowindow which is in the red square of each post. If you click on a photo, the blog page will change to the post detail page.



6.5 Finishing touches with template code examples (cont.)

Then, copy the entire codes from the templates/index_003.html file and paste them to the index.html file in your project.

```
295
296
297  var bluemountainmarker = new google.maps.Marker({
298      position: bluemountain,
299      map: map
300    });
301  var infowindow = new google.maps.InfoWindow({
302    content: "<a href='#'><img width='100px;' src='img/bluemountain.jpg'><
303  });
304  infowindow.open(map,bluemountainmarker);
305
306  var jejucityhallmarker = new google.maps.Marker({
307      position: jejucityhall,
308      map: map
309    });
310  var infowindow = new google.maps.InfoWindow({
311    content: "<a href='#'><img width='100px;' src='img/jeju.jpg'></a><br><
312  });
313  infowindow.open(map,jejucityhallmarker);
314
315  var perthmarker = new google.maps.Marker({
316      position: perth,
317      map: map
318    });
319  var infowindow = new google.maps.InfoWindow({
320    content: "<a href='#'><img width='100px;' src='img/perth.jpg'></a><br>
321  });
322  infowindow.open(map,perthmarker);
323
324  var sydneymarker = new google.maps.Marker({
325      position: sydney,
326      map: map
327    });
328  var infowindow = new google.maps.InfoWindow({
329    content: "<a href='#'><img width='100px;' src='img/sydney.jpg'></a><br
330  });
331  infowindow.open(map,sydneymarker);
332
333  var tasmaniamarker = new google.maps.Marker({
334      position: tasmania,
335      map: map
336    });
337  var infowindow = new google.maps.InfoWindow({
338    content: "<a href='#'><img width='100px;' src='img/tasmania.jpg'></a><
339  });
340  infowindow.open(map,tasmaniamarker);
341
```

Index.html

```
295
296  {% for list in postlist %}
297  var {{list.postname}}marker = new google.maps.Marker({
298      position: {{list.postname}},
299      map: map
300    });
301  var infowindow = new google.maps.InfoWindow({
302    content: "<a href='https://tutorialdjango-bcrpr.run.goorm.io/blog/{{ l
303    <img width='100px;' src='{{ list.mainphoto.url }}'></a><br><p>{{list.p
304  });
305  infowindow.open(map,{{list.postname}}marker);
306  {% endfor %}
307
```

Index_003.html

6.5 Finishing touches with template code examples (cont.)

Now, Let's modify the blog.html file. Just copy the whole codes from the templates/blog.html file and paste them to the blog.html file in your project. The Most important part of those codes is as shown below (from the line 161 to the line 180).

Find the anchor tag 〈a href=…〉〈/a〉 and put your url in the red square as below.

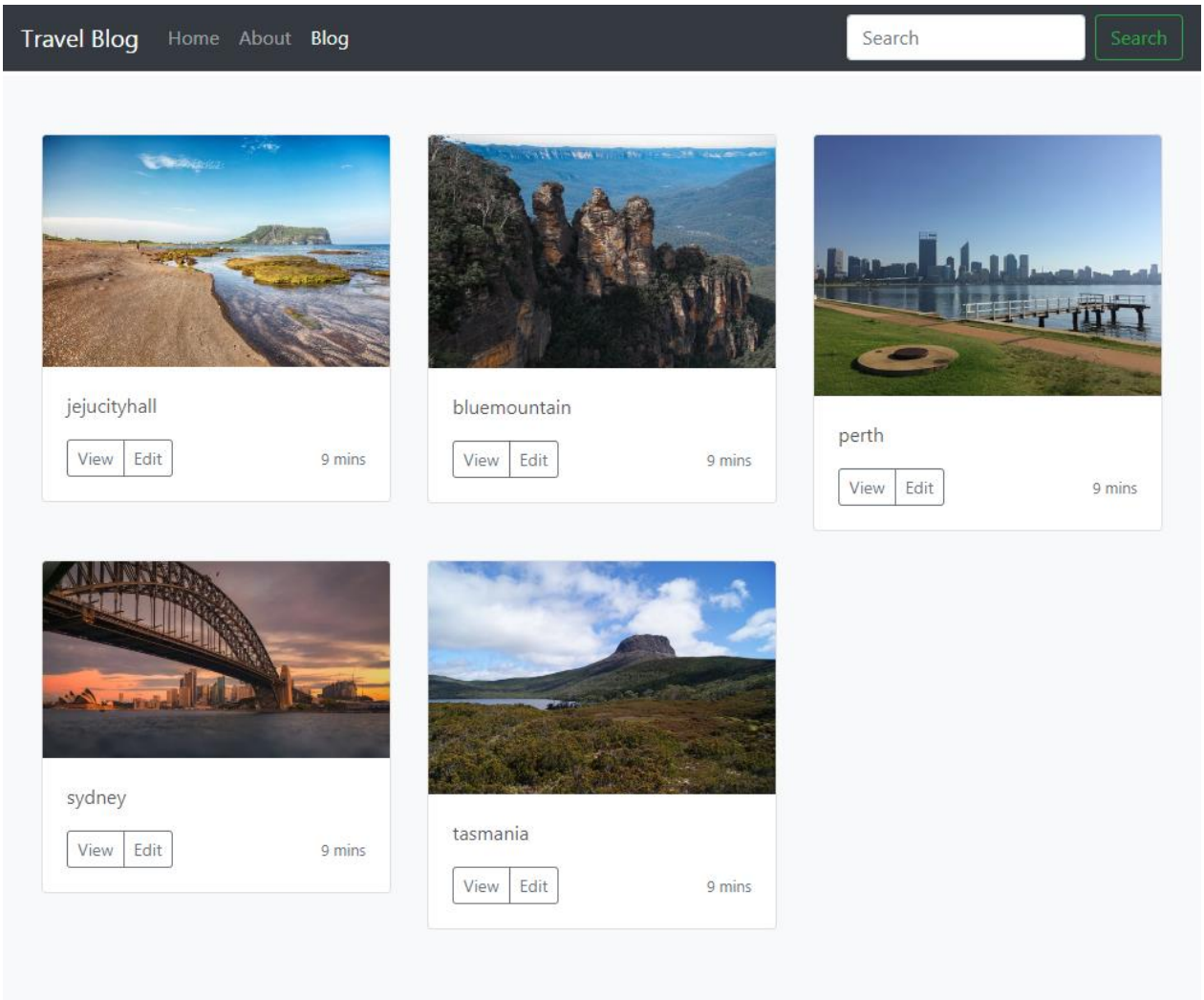
```
{% for list in postlist %}
<div class="col-md-4">
  <div class="card mb-4 box-shadow">
    {% if list.mainphoto %}
      <a href="https://tutorialdjango-bcrpr.run.goorm.io/blog/{{ list.pk
      }}/"><img class="card-img-top" src="{{ list.mainphoto.url }}"
      alt="Card image cap"></a>
    {% endif %}
    <div class="card-body">
      <p class="card-text">{{list.postname}}</p>
      <div class="d-flex justify-content-between align-items-center">
        <div class="btn-group">
          <button type="button" class="btn btn-sm
          btn-outline-secondary">View</button>
          <button type="button" class="btn btn-sm
          btn-outline-secondary">Edit</button>
        </div>
        <small class="text-muted">9 mins</small>
      </div>
    </div>
  </div>
</div>
{% endfor %}
```

Put your url here instead of this.

blog.html

6.5 Finishing touches with template code examples (cont.)

I run the web server and execute the project's url. When you click on each photo here, the blog page will be moved to the post detail page.



The blog page

6.5 Finishing touches with template code examples (cont.)

Now let's modify postdetails.html. Just copy the entire codes from the templates/blogdetails.html file and paste them to the postdetails.html file in your project. We use template tags **{% %}, {{}}** to use postlist's element as below (from the line 147 to the line 166).

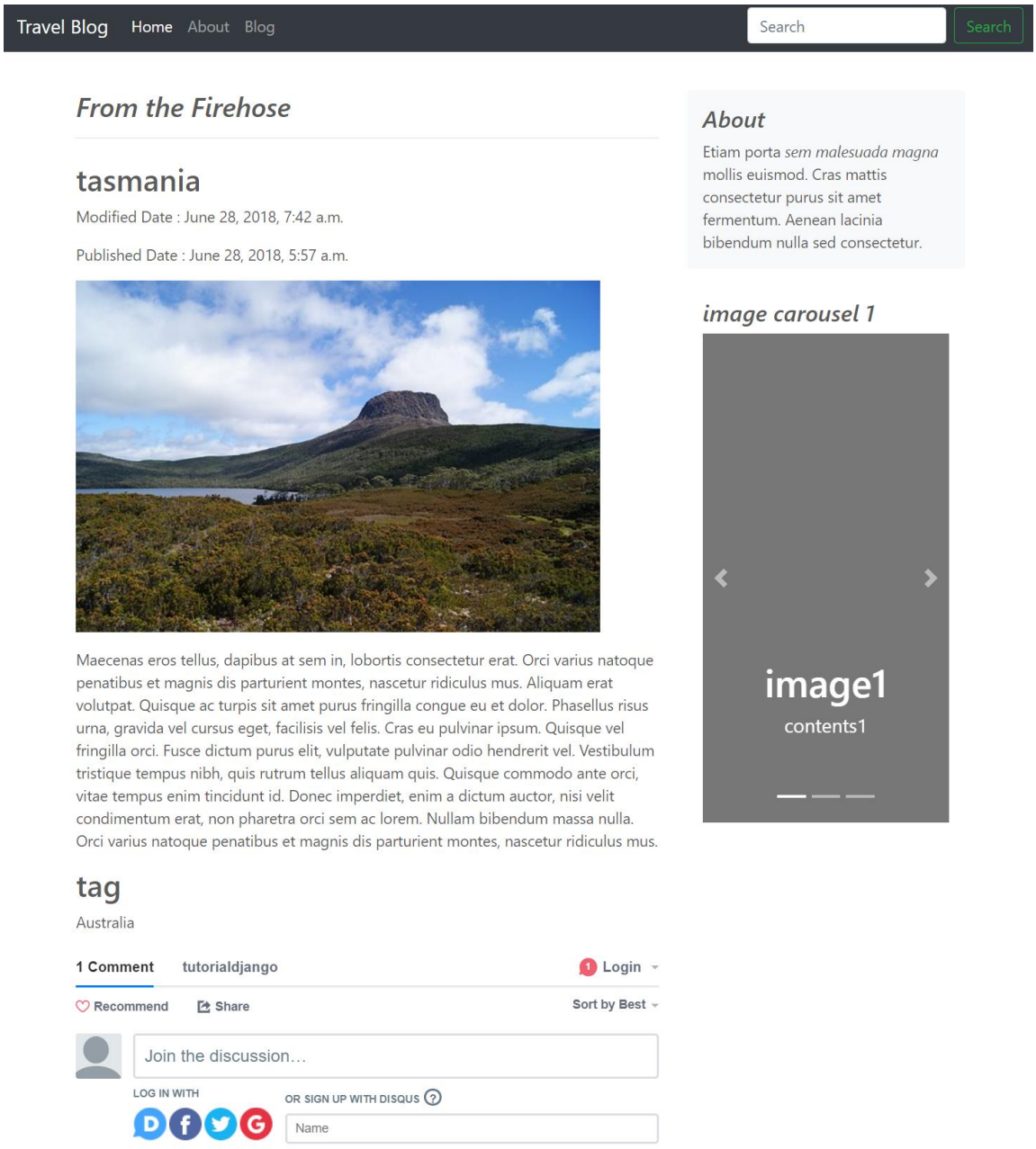
Find the anchor tag **⟨a href=…⟩⟨/a⟩** and put your url in the red square as below.

```
<div class="blog-post">
  <h2 class="blog-post-title">{{ postlist.postname }}</h2>
  <p class="blog-post-meta">Modified Date : {{ postlist.modifiedDate }}</p>
  <p class="blog-post-meta">Published Date : {{ postlist.publishedDate }}</p>
  {% if postlist.mainphoto %}
      <img width="90%" src="{{ postlist.mainphoto.url }}">
  {% endif %}

  <p>{{ postlist.contents|linebreaks }}</p>
  <h2>tag</h2>
  <p>{{ postlist.tag.names.0 }}</p>

  <div id="disqus_thread"></div>


</div><!-- /.blog-post -->
<nav class="blog-pagination">
  <a class="btn btn-outline-primary" href="https://https://tutorialdjango-okiim.run.goorm.io/blog/">
      List</a>
</nav>
```

postdetails.html

6.5 Finishing touches with template code examples (cont.)

Here is the executed post detail page



The postdetails page

6.5 Finishing touches with template code examples (cont.)

I did not use template inheritance for this tutorial. But most of time when you create a web service you will use template inheritance.

Usually, we create templates of menus, headers, footers or etc. And add them in every single page through template inheritance .

Here is a template inheritance example from the official document.

year_archive.html inherits **base.html**.

mysite/templates/base.html

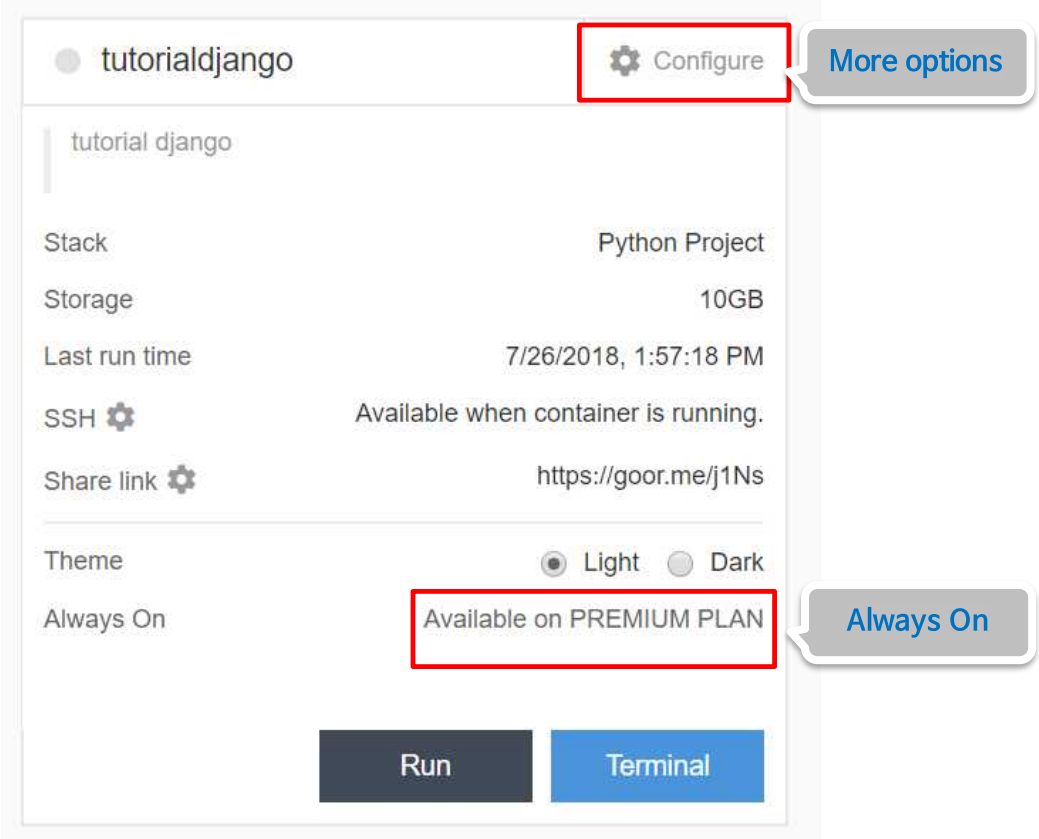
```
{% load static %}
<html>
<head>
    <title>{% block title %}{% endblock %}</title>
</head>
<body>
    <img src="{% static "images/sitelogo.png" %}" alt="Logo" />
    {% block content %}{% endblock %}
</body>
</html>
```

mysite/news/templates/news/year_archive.html

```
{% extends "base.html" %}

{% block title %}Articles for {{ year }}{% endblock %}

{% block content %}
<h1>Articles for {{ year }}</h1>

{% for article in article_list %}
    <p>{{ article.headline }}</p>
    <p>By {{ article.reporter.full_name }}</p>
    <p>Published {{ article.pub_date|date:"F j, Y" }}</p>
{% endfor %}
{% endblock %}
```

TUTORIAL 6.6
Deployment

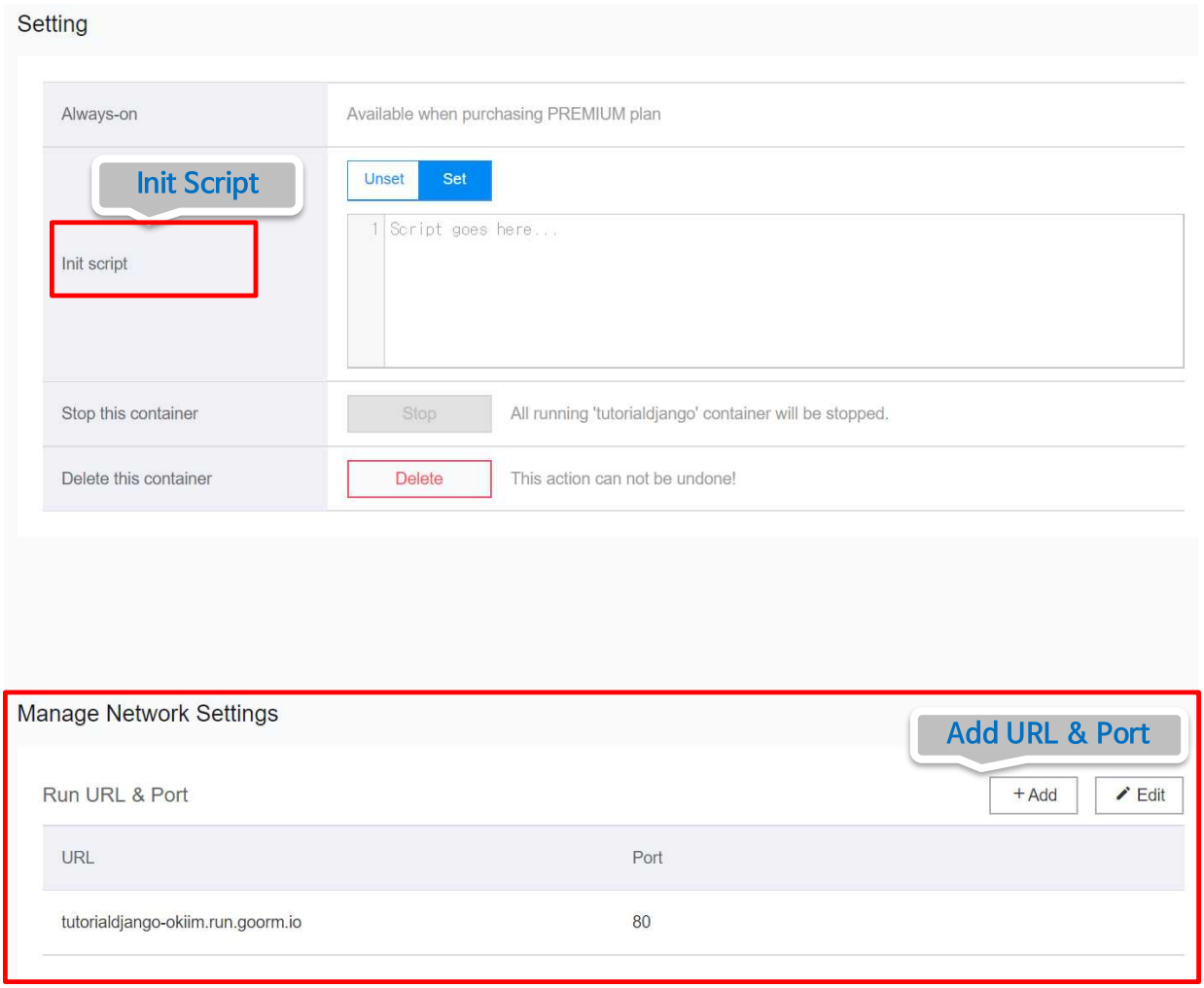
In the Goorm IDE, the Always On option is only available for Premium accounts. Always On is activated when you click on it then you can always access your travel blog. Click on the button in the red square to see the detailed options.



6.6 Deployment

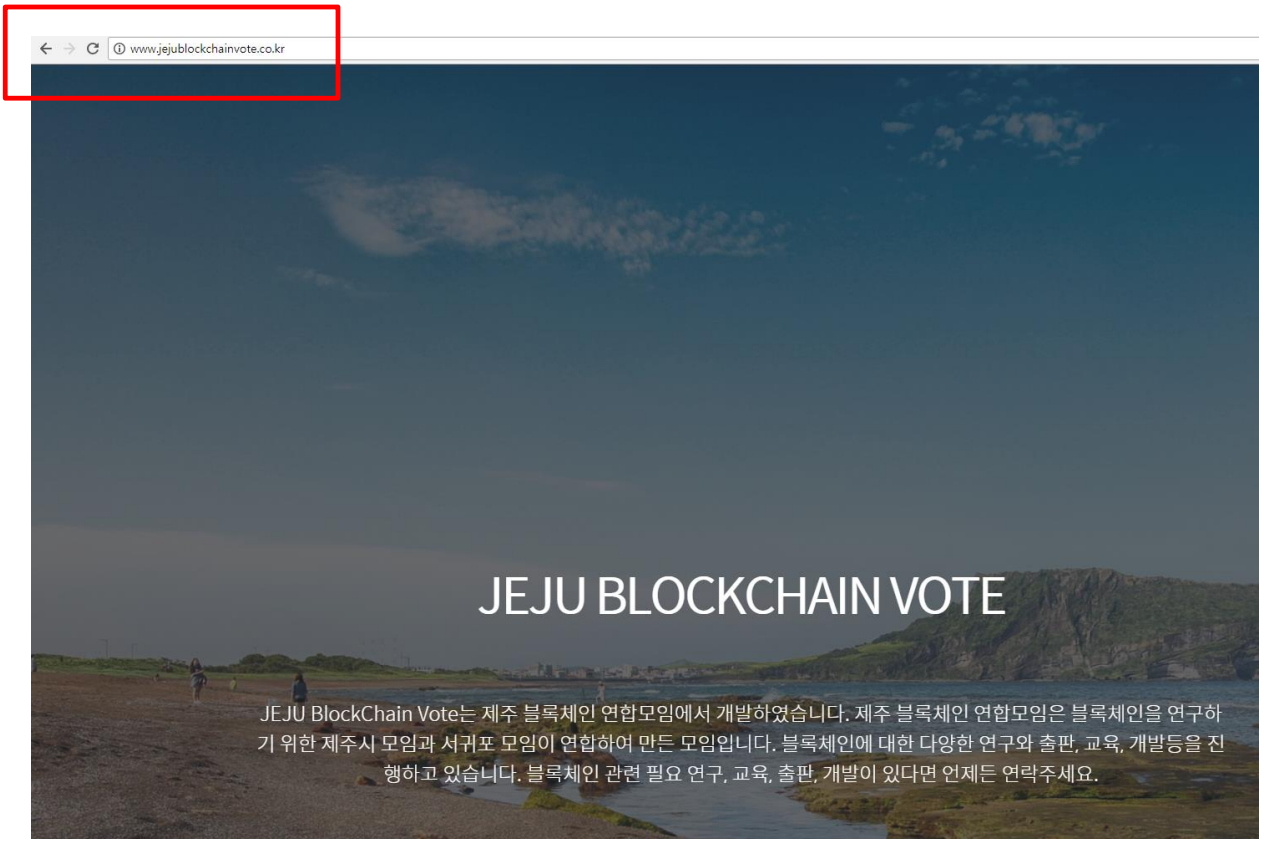
Press the + Add button in the second red square and add the port and the URL which you purchased. In the Init script I usually put those two commands as below.

source /workspace/container name/mysite/myvenv/bin/activate
python3 /workspace / container name /mysite/manage.py runserver 0:80



6.6 Deployment (cont.)

Please verify that the URL is properly linked and working.



Chapter 7

Summary

Django

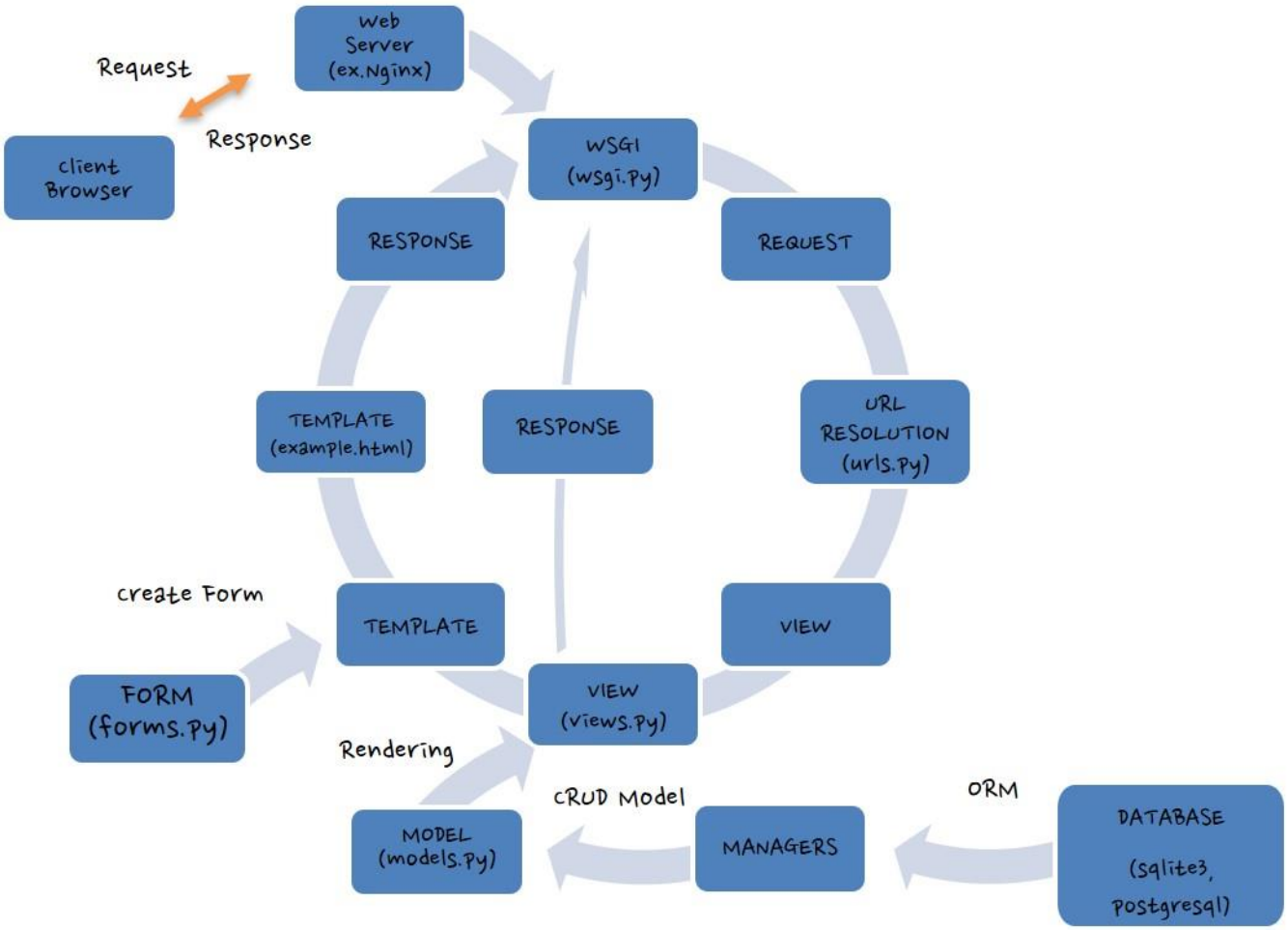
Django is a web framework that came out to develop the web quickly with Python. Most of the features are automated and the official documentation is very detailed, so once you read it, you would not need any other documentation.

We have created a simple travel blog so far with Django so far. But, it is only a small part of Django framework. If you want to use the more powerful features of Django, I recommend reading the official documentation.

Below is a Django architecture diagram and I will summarize briefly for all the steps that we did before. So, please check that you have not missed any of it.

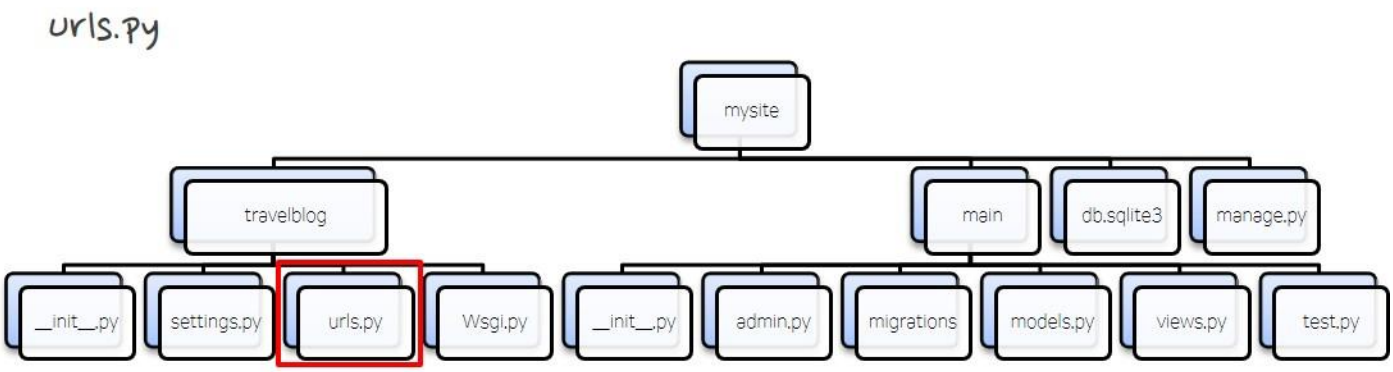
* This book does not cover forms in Django.

Django


Web Server (ex.Nginx)
Request
Response
client Browser
WSGI (wsgi.Py)
REQUEST
URL RESOLUTION (urls.Py)
VIEW
VIEW (views.Py)
MANAGERS
DATABASE (sqlite3, postgresql)
ORM
cRUD Model
MODEL (models.Py)
Rendering
TEMPLATE
create Form
FORM (forms.Py)
TEMPLATE (example.html)
RESPONSE
RESPONSE

urls.py

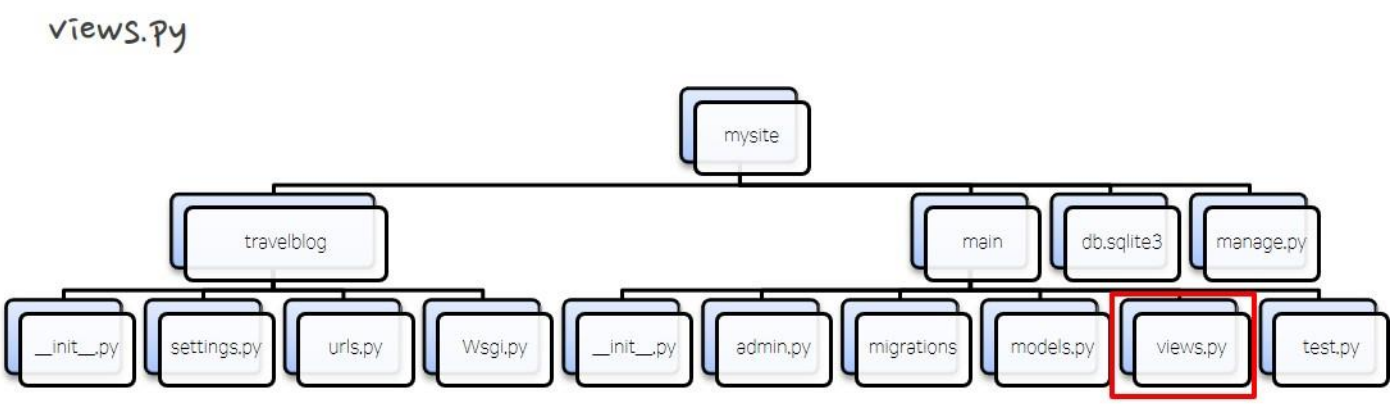
Here is a summary or “MAP” of the whole process we’ve been through .This is the order of the modifications of the Django file system that we did in the previous chapters (marked by red square). At first I designed URLs. A file specifies which view is called for a given URL pattern.




```
from django.contrib import admin
from django.urls import path
from main.views import index, blog, postdetails
from django.conf.urls.static import static
from django.conf import settings

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', index),
    path('blog/', blog),
    path('blog/<int:pk>/', postdetails),
]

urlpatterns += static(settings.MEDIA_URL, document_root=settings.MEDIA_ROOT)
```

views.py

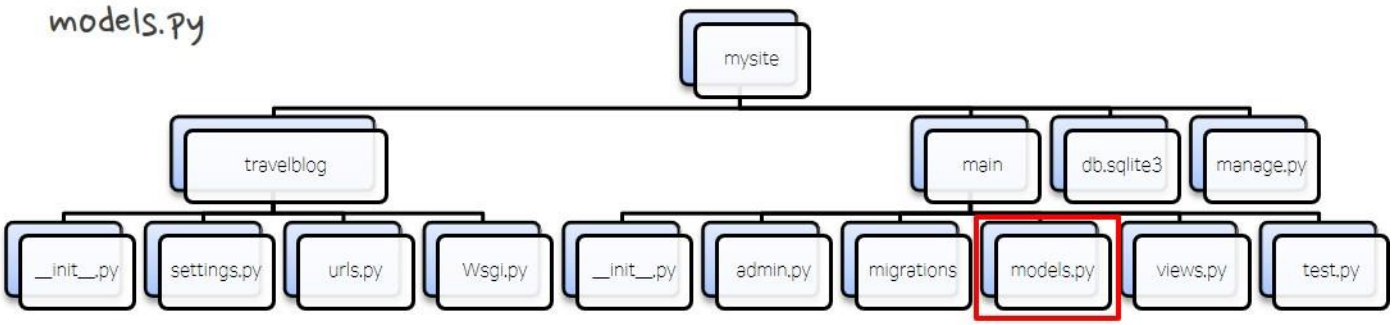
If you have finished designing the URL, you can create view functions that are linked to the URLs. Views contains the logic for pages.




```
from django.shortcuts import render
from .models import Post

def index(request):
    postlist = Post.objects.all()
    return render(request, 'main/index.html', {'postlist':postlist})

def blog(request):
    postlist = Post.objects.all()
    return render(request, 'main/blog.html', {'postlist':postlist})

def postdetails(request, pk):
    postlist = Post.objects.get(pk=pk)
    return render(request, 'main/postdetails.html', {'postlist':postlist})
```

models.py

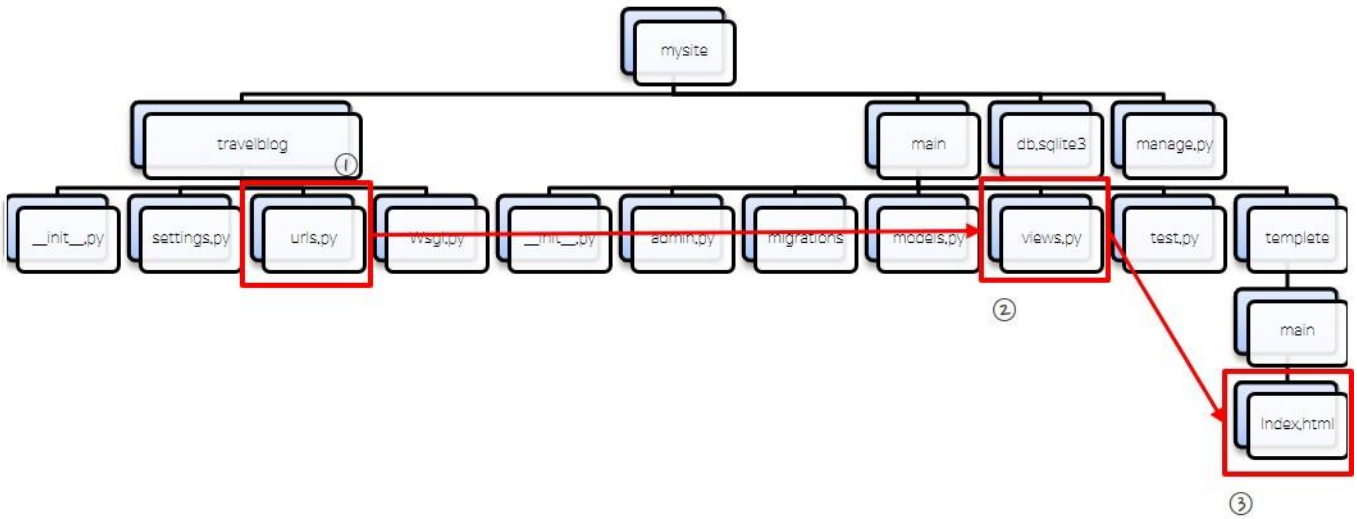
Class variables represents a database fields in the model. And you need migrations to keep the database in sync with model objects.




```
from django.db import models
from taggit.managers import TaggableManager

class Post(models.Model):
    postname = models.CharField(max_length=50)
    Lat = models.FloatField(null=True)
    Lng = models.FloatField(null=True)
    mainphoto = models.ImageField(blank=True, null=True)
    publishedDate = models.DateTimeField(blank=True, null=True)
    modifiedDate = models.DateTimeField(blank=True, null=True)
    contents = models.TextField()
    tag = TaggableManager(blank=True)

    def __str__(self):
        return self.postname
```

Templates

A template is simply a text file which can be generated in any text-based format(html, csv, etc.) and It describes the design of the pages.



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TUTORIAL PROJECT

Django Tutorial-Build a Travel Blog with Python and Bootstrap 4

Who should read this tutorial

This book is recommended for those who want to program with Django. Django is a very popular framework among Python programmers. We hope it will be a good opportunity to expend your perspectives on web development.

About the book

This book is a tutorial on Django that you will teach you to use it while creating a simple travel blog with Python. So instead of learning with Django in details,

We focused on a simple way (step by step) to create a web service.

If you just follow along, you will be able to create a web service.

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