

Djagno 기반의 웹프로그래밍

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Web Frameworks for Python(<https://wiki.python.org/moin/WebFrameworks>)

장고 공식 사이트(<https://www.djangoproject.com/>)

장고 공식 소스 저장소(<http://github.com/django/django>)

장고 참조 문서 영어(<https://docs.djangoproject.com/en/3.2/>)

Agenda

Django(장고) 기반의 파이썬 웹 프로그래밍

Ch01. Django 시작하기

1. Django 란?
2. 개발 환경 구축
3. Django 구조

Ch02. Django App

1. Django Project
2. Model
3. View

Ch03. Model

1. Model 속성 및 옵션
2. Relationship
3. Migrations
4. Admin App

Ch04. Django SQL

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2. Manager & QuerySet
3. 조회 SQL
4. 생성/수정/삭제 SQL
5. Django-Debug-Toolbar

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2. URL Dispatcher
3. Template 상속
4. Template Engines
5. Template Filter

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Ch07. Django Form

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2. CSRF
3. HttpRequest/HttpResponse
4. Django Form
5. Django Model Form
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Ch08. File 관리

1. Static Files
2. Media Files
3. Image Thumbnail

Ch09. 사용자 인증

1. Auth App
2. 회원가입 구현
3. 로그인/아웃 구현
4. Oauth 라이브러리 활용

Ch 02 Django App

1. Django Project
2. Model
3. View

Chapter 02. Django App

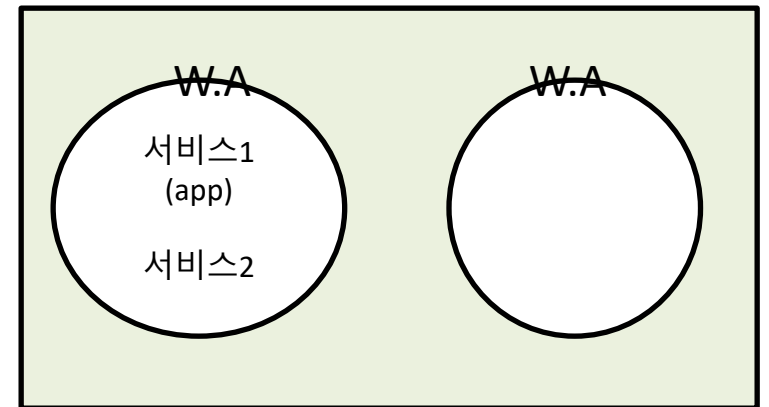
- 기본 converter
(<https://github.com/django/django/blob/3.2/django/urls/converters.py>)
- HttpRequest 소스
(https://docs.djangoproject.com/en/3.2/_modules/django/http/request/#HttpRequest)
- HttpRequest 객체
(<https://docs.djangoproject.com/en/3.2/ref/request-response/#httprequest-objects>)
- HttpResponse 소스
(<https://github.com/django/django/blob/3.2/django/http/response.py>)
- HttpResponse 객체
(<https://docs.djangoproject.com/en/3.2/ref/request-response/#httpresponse-objects>)



1. Django Project



Django Project = Web Application = web site



Django Project 생성

1. Django Project

- 장고 프로젝트 생성

```
django-admin startproject myproject  
tree /f
```

```
myproject : manage.py  
└─ myproject : __init__.py : 패키지로 만들어짐  
                  settings.py : 장고 프로젝트 설정  
                  urls.py      : 들어온 요청과 view 연결  
                  wsgi.py      : 실제 서버 배포시 사용
```

- Django 규칙에 따라 디렉터리, 파일 자동 생성
- cmd창이나 shift+오른쪽마우스클릭 – powershell창 열기 등 이용해서 명령어 수행

Django Project 생성

1. Django Project

- 디렉토리 이동

D:\src\django> cd myproject

- Model을 DB에 반영(디폴트가 SQLite가 기본 설정)

D:\src\ django\myproject> python manage.py migrate : model의 내용을DB에 반영

- 개발 서버 구동(실습용 개발 서버)

D:\src\django\myproject> python manage.py runserver

<http://127.0.0.1:8000>으로 Webserver 연결

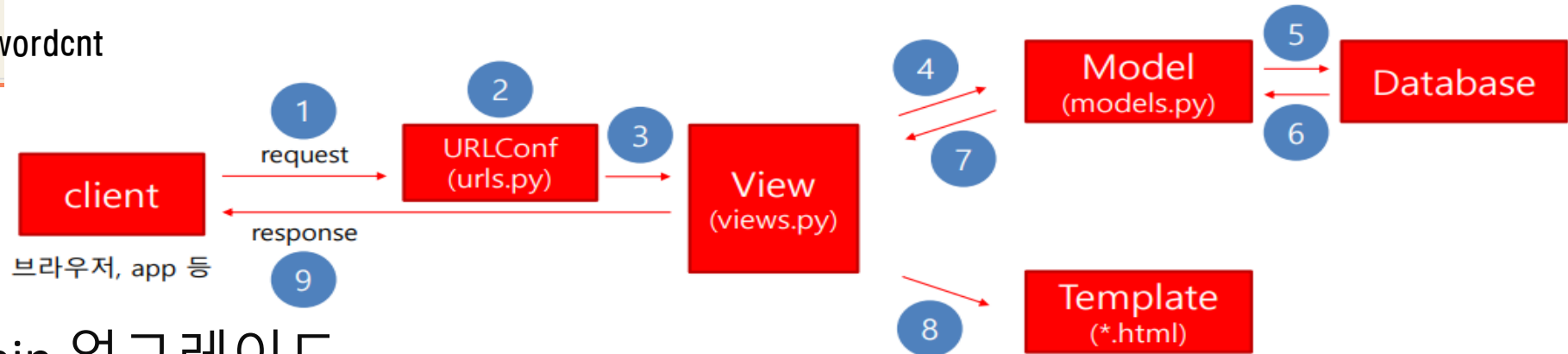
Django Project 구조

1. Django Project

- 장고 프로젝트는 여러 개의 App을 가짐
- App 생성 : `python manage.py <app_name>`
 - D:\src\django\myproject> `python manage.py -help` : 도움말
 - D:\src\django\myproject> `python manage.py startapp blog` : 앱생성. 서비스 구현은 앱 안에.
- App의 구조

```
myproject : manage.py
└─ myproject : __init__.py, settings.py, urls.py, wsgi.py
└─ blog : migrations
          __init__.py
          admin.py
          apps.py
          models.py
          tests.py
          views.py
```


Django framework flow



1. pip 업그레이드

- pip --version
- python -m pip install --upgrade pip
- pip --version

2. Django install

- pip install django

3. 파이참에서 프로젝트 생성 후

- Django-admin startproject ch02 .

4. SECRET_KEY 숨기기(.gitignore생성)

- .env생성(.gitignore에 .env추가)
- Pip install python-decouple
- settings.py 를 수정하기

From decouple import config

SECRET_KEY = config('SECRET_KEY')

5. Home, wordcnt app 추가하기

- `python manage.py startapp home`
- `python manage.py startapp wordcnt`
- `Settings.py`에 `home`과 `wordcnt` app 등록

6. URLconf

- `ch02/urls.py`

```
urlpatterns = [  
    path("admin/", admin.site.urls),  
    path("", views.index, name='index'),  
    path('test/', views.test, name='test'),  
    path('showId/<int:id>', views.intId, name='showIntId'),  
    path('showId/<str:id>', views.strId, name='showStrId'),  
    path('wordcnt/', include('wordcnt.urls')),  
]
```
- `Wordcnt/urls.py`

- Wordcnt/urls.py
wordcnt 패키지 안의 urls.py :
/wordcnt/ : text 입력
/wordcnt/result : 입력된 text wordcount
/wordcnt/about : 도움말 페이지
from django.urls import path
import wordcnt.views
app_name = 'wordcnt'
urlpatterns = [
 path("", wordcnt.views.wordinput, name='wordinput'),
 path('about/', wordcnt.views.about, name='about'),
 path('result/', wordcnt.views.result, name='result'),
]

7. Views

```
from django.shortcuts import render
from django.http import HttpResponse

# Create your views here.
def index(request):
    context = {'msg': 'wordCount welcome page'}
    return render(request,
                  'home/index.html',
                  context=context)

def test(request):
    return HttpResponse('<h1>테스트 페이지</h1>'+
                       '<button onclick="location=\'\&\'">뒤로</button>')

def intId(request, id):
    msg = '숫자 ID는 ' + str(id)
    type = '숫자'
    return render(request,
                  template_name='home/showId.html',
                  context={'msg': msg, 'type': type})

def strId(request, id):
    msg = '문자 ID는 ' + str(id)
    type = '문자'
    return render(request,
                  template_name='home/showId.html',
                  context={'msg': msg, 'type': type})
```

7. Views

```
from django.shortcuts import render

# text 입력
def wordinput(request):
    return render(request, 'wordcnt/wordinput.html')
def about(request):
    return render(request, 'wordcnt/about.html')

def result(request):
    #print(request.POST)
    # full = request.POST['fulltext']
    #full = request.POST.get('fulltext', '')
    full = request.GET['fulltext']
    strlength = len(full) # 글자수
    words = full.split()
    wordcnt = len(words) # 단어 갯수
    words_dic = dict() # 빈 딕셔너리
    for word in words:
        if word in words_dic.keys():
            words_dic[word] += 1 # words_dic['hong'] = 2
        else:
            words_dic[word] = 1
    print('★', full, wordcnt)
    context = {
        'full':full,
        'strlength':strlength,
        'wordcnt':wordcnt,
        'dict':words_dic.items() # [('hong',2),('good',1),('luck',1)]
    }
    return render(request,
        'wordcnt/result.html',
        context=context)
```

8. templates/home

```

<head>
  <meta charset="UTF-8">
  <!-- 파비콘 설정 : 아이콘 설정 (http://www.flaticon.com) -->
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">
  {% load static %}
  <link href="{% static 'img/brand.png' %}" rel="icon">
  <link href="{% static 'css/ex.css' %}" rel="stylesheet">
  <title>Title</title>
</head>
<body>
<div class="p-5 mb-4 bg-body-tertiary rounded-3">
  <h2>템플릿을 index.html로 사용해 보았어요</h2>
  <h1 onclick="location='{% url 'wordcnt:wordinput' %}'">{{msg}}</h1>
  <br>
  <a href="test">TEST</a><br>
  <a href="{% url 'test' %}">TEST</a><br>
  <button class="btn btn-outline-danger" onclick="location='{% url 'test'%}'">TEST</button>
  <button class="btn btn-outline-danger" onclick="location='/test'">TEST</button>
  <hr>
  <a href="showId/123">showIntId/123</a><br>
  <a href="{% url 'showIntId' 124 %}">showIntId/124</a><br>
  <button class="btn btn-outline-warning" onclick="location='showId/123'">숫자ID</button>
  <button class="btn btn-outline-warning" onclick="location='{% url 'showIntId' 124 %}'">숫자ID</button>
  <hr>
  <a href="showId/aab">showIntId/123</a><br>
  <a href="{% url 'showStrId' 'abc' %}">showIntId/124</a><br>
  <button class="btn btn-outline-info" onclick="location='showId/abc'">문자ID</button>
  <button class="btn btn-outline-info" onclick="location='{% url 'showStrId' 'abc' %}'">문자ID</button>
</div>
</body>

```

Django framework flow



- Student.models (student app 생성 후 app 등록)
from django.db import models

```

class Student(models.Model): # student_student(테이블명 : 앱명_클래스명소문자)
    id = models.AutoField(primary_key=True)
    name = models.CharField(max_length=100, unique=True)
    major = models.CharField(max_length=100, null=True) # 기본 0 / null=False
    age = models.IntegerField(default=0)
    grade = models.IntegerField(default=1)
    def __str__(self):
        return "{:}({:}, {}세 {}학년)".format(self.id,
                                              self.name,
                                              self.major,
                                              self.age,
                                              self.grade)
  
```

- python manage.py migrate : 사용자 및 그룹 테이블 생성
- python manage.py createsuperuser : 관리자 계정 생성(auth_user)
- python manage.py runserver 관리자 계정 로그인 확인
- python manage.py makemigrations : 변경사항이 있는지 models 검색
- python manage.py migrate : 변경사항 테이블 생성
- python manage.py shell : 장고 shell 모두 실행

CRATE

```
from student.models import Student
st = Student(name='hong', major='computer', age=22, grade=2)
st.save()
st = Student(name='kim', major='bigdata', age=21, grade=2)
st.save()
st = Student(name='lee', major='ai', age=23, grade=3)
st.save()
qs = Student.objects.all() # 전체 데이터 읽기 READ
qs[0].name, qs[1]
for s in qs:
    print(s)
```



```
qs = Student.objects.get(name='kim') # 조건에 맞는 한행 읽기 READ
Print(qs)
qs = Student.objects.filter(age__lt=30) # 필터로 읽기
__lt : 보다 작다
__lte : 보다 작거나 같다
__gt : ~보다 크다
__gte : ~보다 크거나 같다
__isnull : null인 자료
__contains : 특정 문자열 포함 name__contains = 'k'
qs = Student.objects.order_by('age') # age 필터 기준으로 오름차순 정렬 가져옴
qs = Student.objects.order_by('-age') # age 필터 기준으로 내림차순 정렬 가져옴
qs = Student.objects.get(name='kim')
qs.age = 40 # 데이터 수정 UPDATE
qs.save()
qs = Student.objects.get(name='hong')
qs.delete() # 데이터 삭제 DELETE
```

Blog 앱 작성

1. Django Project

- myproject/settings.py

```
INSTALLED_APPS = [  
    ~ 생략 ~ # 장고에서 미리 만들어 놓은 기능(앱) 있음  
    'blog',    # 최신스타일 'blog.apps.BlogConfig'  
]
```

- blog/views.py

```
from django.shortcuts import render  
from django.http import HttpResponse  
  
def index(request):  
    return HttpResponse("Hello, World!")
```

Blog 앱 작성

1. Django Project

- myproject/urls.py

```
from django.contrib import admin
from django.urls import include, path
urlpatterns = [
    path('blog/', include('blog.urls'))
]
```

- blog/urls.py

```
from django.urls import path
from . import views
urlpatterns = [
    path('', views.index)
]
```



← → ↻ ⓘ localhost:8000/blog/

Hello, World!

새로운 앱 작성

1. Django Project

0. 프로젝트 생성
1. 앱 생성
2. 프로젝트/settings.py의 INSTALLED_APPS에 앱 등록
3. View 작성
4. 앱이름/urls.py 파일 생성
5. 프로젝트/urls.py에 include 적용

Django의 요청처리

1. Django Project

1. root URLConf : settings.py의 ROOT_URLCONF

```
ROOT_URLCONF = 'myproject.urls'
```

2. ROOT_URLCONF 모듈 로드 후 urlpatterns 변수 검색
3. ROOT_URLCONF의 include를 통해 TREE 구조로 확장
4. Tree 구조로 확장된 urlpatterns의 path()또는 re_path()들을 검색 리스트에 포함
5. 작성된 리스트에서 URL 패턴을 순차 검색
6. 요청된 URL과 일치하는 패턴을 찾으면 검색 중단
7. 일치된 패턴의 뷰 함수 호출
8. 뷰 함수에 다음의 인자를 전달
 - HttpRequest인스턴스
 - 이름이 지정되지 않은 인자는 위치 기반으로 전달
 - 키워드 인자는 kwargs 값에 설정되어 전달

url pattern

1. Django Project

- URL 패턴의 끝은 "/"로 끝남
- 첫번째 /는 내부적으로 추가되기 때문에 지정하지 않음
 - `"/articles/"` 대신 `"articles/"`로 지정
- View의 인자로 사용되는 값은 꺾쇠괄호 <변수이름>를 사용
- View의 인자로 사용되는 값의 타입 지정 시 <데이터 타입:변수이름>으로 지정

- 프로젝트/urls.py

```
urlpatterns = [  
    # path('', root, name='root'),  
    path('', lambda r: redirect('article:list'), name='root'),  
    path('admin/', admin.site.urls),  
    path('blog/', include('blog.urls')),  
    path('bookmark/', include('bookmark.urls')),  
    path('accounts/', include('accounts.urls')),  
    path('accounts/', include('allauth.urls')),  
    path('shop/', include('shop.urls')),  
    path('article/', include('article.urls')),  
    path('book/', include('book.urls')),  
]
```

- 앱/urls.py

```
from django.urls import path  
from . import views  
  
app_name = 'article'  
urlpatterns = [  
    path('mine/', views.MyView.as_view(), name='my-view'),  
    path('new/', views.article_new, name='new' ),  
    path('home/', views.HomePageView.as_view(), name='home'),  
    path('go-to-django/', views.RedirectView.as_view(url='https://djangoproject.com'), name='go-to-django'),  
    path('<pk>/edit/', views.article_edit, name='edit'),  
    path('<pk>/delete/', views.article_delete, name='delete'),  
    path('<pk>/detail/', views.ArticleDetailView.as_view(),  
    path('<pk>/', views.ArticleDV.as_view(), name='detail'),  
  
    path('', views.article_list, name='list'),  
]
```



2. Model



데이터 베이스 설정

2. Model

- myproject/settings.py

```
DATABASES = {  
    'default': {  
        'ENGINE': 'django.db.backends.sqlite3',  
        'NAME': os.path.join(BASE_DIR, 'db.sqlite3'),  
    }  
}  
  
LANGUAGE_CODE = 'ko-kr'  
  
TIME_ZONE = 'Asia/Seoul'
```

Django Model

2. Model

- Django 내장 ORM
- SQL문 없이 장고 모델을 통해 DB CRUD 작업 가능
- 파이썬 클래스와 DB 테이블
 - ◆ Model = DB Table
 - ◆ Model instance = Table의 1개 row

Model 정의

2. Model

- [blog/models.py](#)

```
from django.db import models

class Post(models.Model):
    title = models.CharField(max_length=100)
    content = models.TextField()
    create_at = models.DateField(auto_now_add=True)
    updated_at = models.DateTimeField(auto_now=True)
```

Mode의 활성화

2. Model

- D:\src\django\myproject>python manage.py makemigrations blog

```
C:\dev\myproject>python manage.py makemigrations blog
Migrations for 'blog':
  blog\migrations\0001_initial.py
    - Create model Post
```

- D:\src\django\myproject>python manage.py sqlmigrate blog 0001

```
BEGIN;
--
-- Create model Post
--
CREATE TABLE "blog_post" ("id" integer NOT NULL PRIMARY KEY AUTOINCREMENT,
                           "title" varchar(100) NOT NULL, "content" text NOT NULL, "create
                           _at" date NOT NULL, "updated_at" datetime NOT NULL);
COMMIT;
```

- D:\src\django\myproject>python manage.py migrate

```
C:\dev\myproject>python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, blog, contenttypes, sessions
Running migrations:
  Applying blog.0001_initial... OK
```

DB API

2. Model

```
C:\dev\myproject> python manage.py shell (기본셸은 장고 프로젝트 인식. 장고셸은 환경값 인식하는 셸)
```

```
In[1] : from blog.models import Post
In[2] : Post.objects.all() #<QuerySet []>
In[3] : p1 = Post(title='아이스하키', content='빙판에서 5명이 퍽을 가지고 하는 경기')
In[4] : p1.save() # 실제 DB에 save(insert)
In[5] : p1.id #1
In[6] : p1.title
In[7] : p1.content
In[8] : p1.create_at
In[9] : p2 = Post(); p2.title='농구'
In[10] : p2.content='지상에서 5명이 농구공을 가지고 하는 경기'
In[10] : p2.save()
In[11] : p2.id # 2

In[12] : Post.objects.all() #<QuerySet [<Post: Post object (1)>, <Post: Post object (2)>]>
```

객체 표현

2. Model

- `__str__` 메소드 오버라이딩

```
models.py x
1  from django.db import models
2
3  class Post(models.Model):
4      title = models.CharField(max_length=100)
5      content = models.TextField()
6      create_at = models.DateField(auto_now_add=True)
7      updated_at = models.DateTimeField(auto_now=True)
8
9      def __str__(self):
10         return self.title
```

- `__str__` 메소드에서 반환 값 출력

```
In [1]: from blog.models import Post

In [2]: Post.objects.all()
Out[2]: <QuerySet [<Post: 아이스하키>, <Post: 농구>]>
```

Django Admin App

2. Model

- Super User 계정 생성

D:\src\django\myproject> python manage.py createsuperuser

- 개발 서버 구동

D:\src\django\myproject> python manage.py runserver

- Admin 페이지에서 blog 모델

```
# blog/admin.py

from django.contrib import admin
from .models import Post

admin.site.register(Post)
```

- Admin 페이지 접속

<http://localhost:8000/admin>



3. View



View

3. View

- HttpRequest

- ◆ View의 첫번째 인자로 전달, client의 요청 정보를 가짐

- HttpResponse

- ◆ View의 반환 객체, client로 전달되는 응답 정보를 가짐
- ◆ 문서 : <https://docs.djangoproject.com/en/3.2/ref/request-response/#httpresponse-objects>
- ◆ 소스 : <https://github.com/django/django/blob/3.2/django/http/response.py>

- View 종류

- ◆ FBV(Function Based View) ; 함수 기반 뷰
 - 호출 가능한 객체
- ◆ CBV(Class Based View) ; 클래스 기반 뷰
 - 클래스이름.as_view()를 통해 호출 가능한 객체를 생성/반환

View의 인자

3. View

- 1번째 인자

- ◆ HttpRequest ; client 의 요청 정보를 가짐
- ◆ 문서 : <https://docs.djangoproject.com/en/3.2/ref/request-response/#httprequest-objects>
- ◆ 소스 : <https://docs.djangoproject.com/en/3.2/ref/request-response/#httprequest-objects>

- 2번째 이후

- ◆ 요청 URL로부터 capture된 문자열들. Client가 넘겨준 데이터
- ◆ url(), re_path()를 통한 모든 인자는 str타입으로 전달
- ◆ Path를 통한 인자는 매핑된 Converter의 to_python()에서 반환된 타입으로 전달

HttpRequest

3. View

- 문서

- <https://docs.djangoproject.com/en/3.2/ref/request-response/#httprequest-objects>

- 속성

- HttpRequest.body
 - HttpRequest.path
 - HttpRequest.path_info
 - HttpRequest.method
 - HttpRequest.encoding
 - HttpRequest.content_type
 - HttpRequest.content_params
 - HttpRequest.GET
 - HttpRequest.POST
 - HttpRequest.COOKIES
 - HttpRequest.FILES
 - HttpRequest.META

```
[docs]class HttpRequest:
    """A basic HTTP request."""

    # The encoding used in GET/POST dicts. None means use default setting.
    _encoding = None
    _upload_handlers = []

    def __init__(self):
        # WARNING: The `WSGIRequest` subclass doesn't call `super`.
        # Any variable assignment made here should also happen in
        # `WSGIRequest.__init__()`.

        self.GET = QueryDict(mutable=True)
        self.POST = QueryDict(mutable=True)
        self.COOKIES = {}
        self.META = {}
        self.FILES = MultiValueDict()

        self.path = ''
        self.path_info = ''
        self.method = None
        self.resolver_match = None
        self._post_parse_error = False
        self.content_type = None
        self.content_params = None
```

HttpRequest

3. View

The image displays a Django development environment with a debug console. The left pane shows the local variables and arguments for the `blog_code` function. The right pane shows the source code of the function, which returns an `HttpResponse` with a formatted string. The bottom pane shows the detailed structure of the `request` object, including cookies, files, query parameters, and meta data.

```
def blog_code(request, code):  
    return HttpResponse('{} 코드에 대한 내용'.format(code))
```

Local variables and arguments:

- `request`: `<WSGIRequest: GET '/blog/archives/1234/'>`
- `code`: `1234`

Request object details:

- `COOKIES`: `{'csrftoken': '3ZTchlPCGM0vPs7BpEw...I9GM'}`
- `FILES`: `<MultiValueDict: {}>`
- `GET`: `<QueryDict: {}>`
- `META`: `{'ALLUSERSPROFILE': 'C:\\\\ProgramData', 'APPD...`
- `POST`: `<QueryDict: {}>`
- `_current_scheme_host`: `'http://localhost:8000'`
- `_encoding`: `None`
- `_messages`: `<django.contrib.messages.storage.fallba...`
- `_post_parse_error`: `False`
- `_read_started`: `True`
- `_stream`: `<django.core.handlers.wsgi.LimitedStream ...`
- `_upload_handlers`: `[]`
- `content_params`: `{}`
- `content_type`: `'text/plain'`
- `csrf processing done`: `True`

View의 반환값

3. View

- View는 반드시 HttpResponse 객체를 리턴해야 함
- 문서
 - <https://docs.djangoproject.com/en/3.2/ref/request-response/#httprequest-objects>
 - 소스 : <https://docs.djangoproject.com/en/3.2/ref/request-response/#httprequest-objects>
- 속성
 - HttpResponse.content
 - HttpResponse.charset
 - HttpResponse.status_code
 - HttpResponse.reason_phrase
 - HttpResponse.streaming
 - HttpResponse.closed

View의 반환값

3. View

[#https://github.com/django/django/blob/3.2/django/http/response.py](https://github.com/django/django/blob/3.2/django/http/response.py)

```
class HttpResponseBase:
    status_code = 200
    def __init__(self, content_type=None, status=None, reason=None, charset=None):
        self._headers = {}
        self._closable_objects = []
        self._handler_class = None
        self.cookies = SimpleCookie()
        self.closed = False
        if status is not None:
            try:
                self.status_code = int(status)
            except (ValueError, TypeError):
                raise TypeError('HTTP status code must be an integer.')

            if not 100 <= self.status_code <= 599:
                raise ValueError('HTTP status code must be an integer from 100 to 599.')
        self._reason_phrase = reason
        self._charset = charset
        if content_type is None:
            content_type = '%s; charset=%s' % (settings.DEFAULT_CONTENT_TYPE, self.charset)
        self['Content-Type'] = content_type
```

View 내 function의 반환값

3. View

```
class HttpResponse(HttpResponseBase):
    streaming = False

    def __init__(self, content=b'', *args, **kwargs):
        super().__init__(*args, **kwargs)
        self.content = content

class StreamingHttpResponse(HttpResponseBase):
class FileResponse(StreamingHttpResponse):
class HttpResponseRedirectBase(HttpResponse):
class HttpResponseRedirect(HttpResponseRedirectBase):
class HttpResponseNotModified(HttpResponse):
class HttpResponseBadRequest(HttpResponse):
class HttpResponseNotFound(HttpResponse):
class HttpResponseForbidden(HttpResponse):
class HttpResponseNotAllowed(HttpResponse):
class HttpResponseGone(HttpResponse):
class HttpResponseServerError(HttpResponse):
    class HttpResponseServerError(HttpResponse):
        class Http404(Exception):
class JsonResponse(HttpResponse):
```

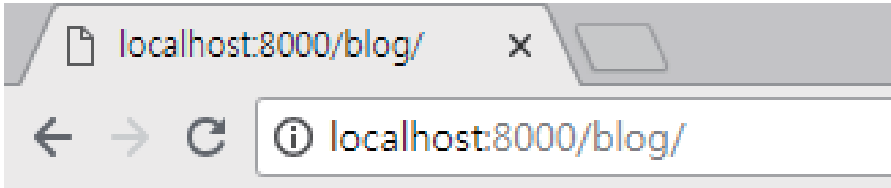
응답 정보 직접 처리

3. View

- blog/views.py

```
from django.http import HttpResponse
from .models import Post

def index(request):
    post_list = Post.objects.all()
    output=', '.join([p.title for p in post_list])
    return HttpResponse(output)
```



아이스하키,농구,축구,테니스

Template 사용

3. View

```
# blog/views.py
from django.template import loader
def index(request):
    post_list = Post.objects.all()
    template = loader.get_template('blog/index.html')
    context = {
        'post_list': post_list,
    }
    return HttpResponse(template.render(context, request))
```

```
# blog/templates/blog/index.html
{% if post_list %}
    <ul>
        {%for post in post_list %}
            <li><a href="/blog/{{post.id}}/">{{post.title}}</a></li>
        {% endfor %}
    </ul>
{% else %}
    <p> No posts are available.</p>
{% endif %}
```

Rander() 함수 - 주로 많이 씀

3. View

```
# blog/views.py
```

```
from django.shortcuts import render
```

```
def index(request):
```

```
    post_list = Post.objects.all()
```

```
    return render(request, 'blog/index.html', {'post_list': post_list})
```

템플릿페이지에서 사용할 이름

```
# django/shortcuts.py
```

```
def render(request, template_name, context=None, content_type=None, status=None, using=None): """
```

```
    Return a HttpResponse whose content is filled with the result of calling d  
   jango.template.loader.render_to_string() with the passed arguments.
```

```
    """
```

```
    content = loader.render_to_string(template_name, context, request, using=usin  
g) return HttpResponse(content, content_type, status)
```

템플릿페이지가 있는 곳은 앱/templates

detail View 작성

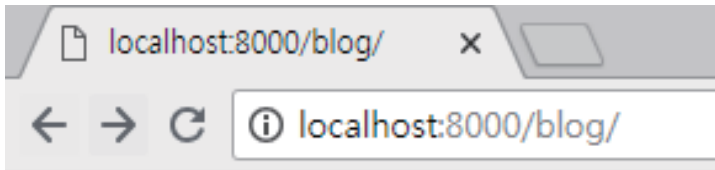
3. View

- blog/views.py

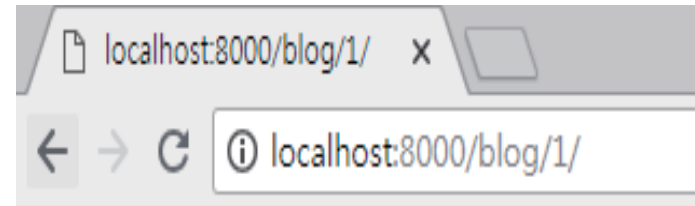
```
def detail(request, post_id):  
    return HttpResponse("You're looking at blog %s." %post_id)
```

- blog/urls.py

```
path('<int:post_id>/', views.detail)
```



- [아이스하키](#)
- [농구](#)
- [축구](#)
- [테니스](#)



You're looking at blog 1.

404 오류 발생

3. View

- blog/views.py

```
from django.http import Http404

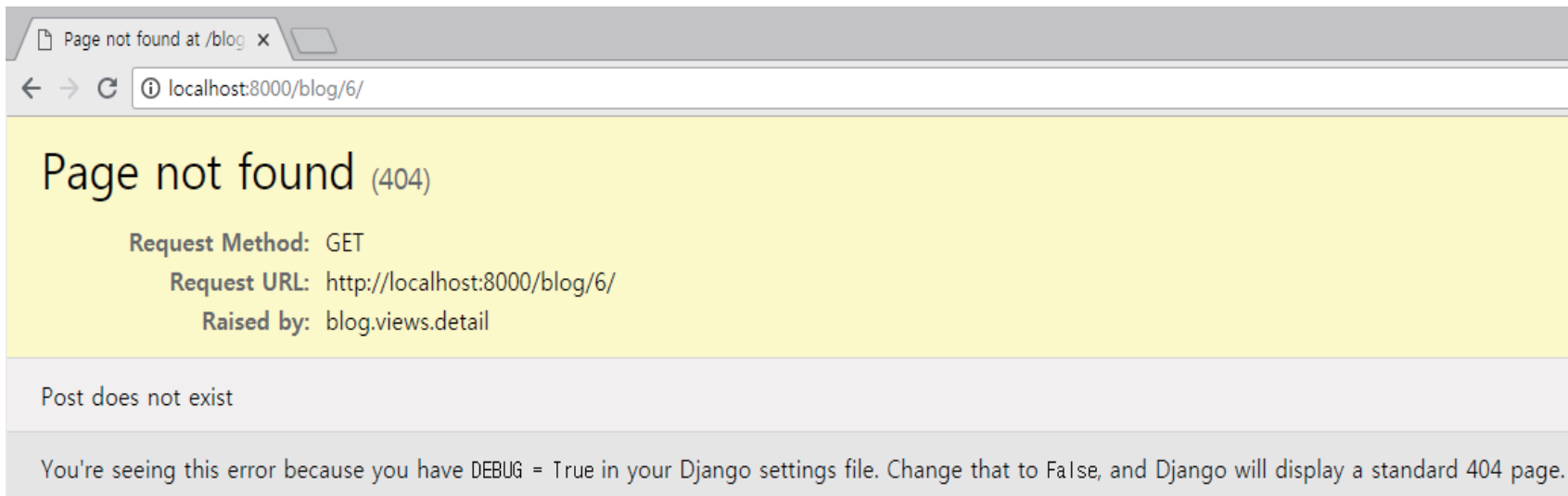
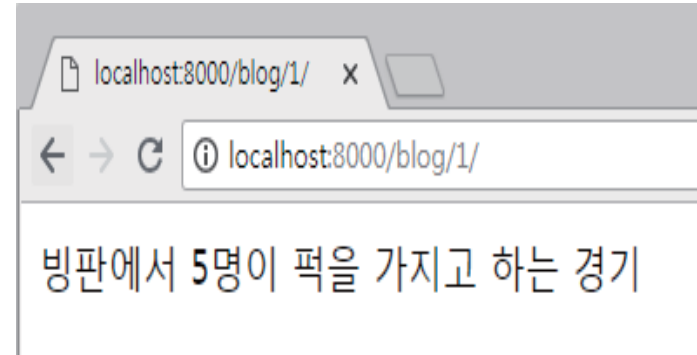
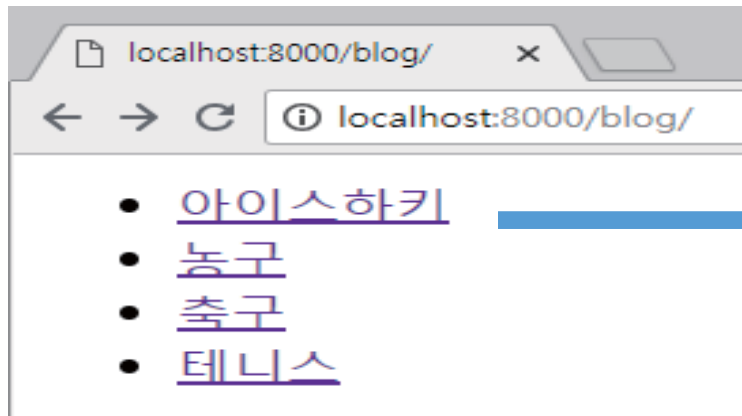
def detail(request, post_id):
    try:
        post = Post.objects.get(pk=post_id)
    except Post.DoesNotExist:
        raise Http404("Post does not exist")
    return render(request, 'blog/detail.html', {'post':post})
```

- blog/templates/blog/detail.html

```
{{ post.content }}
```

404오류 발생

3. View



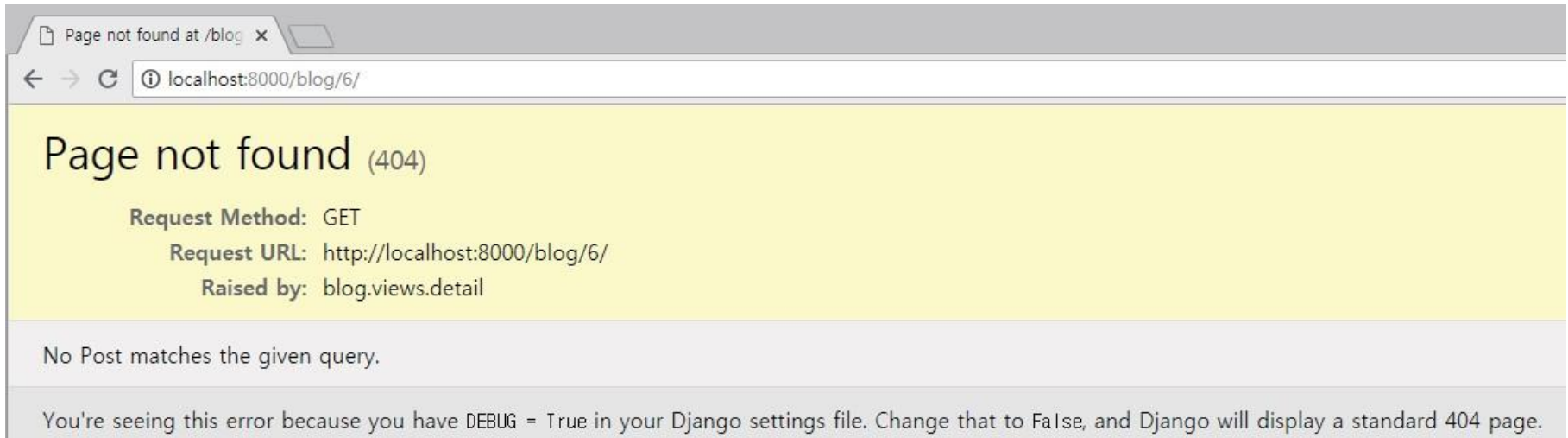
get_object_or_404() 함수

3. View

- blog/views.py

```
from django.shortcuts import render, get_object_or_404

def detail(request, post_id):
    post = get_object_or_404(Post, pk=post_id)
    return render(request, 'blog/detail.html', {'post': post})
```



JSON 데이터 응답

[HttpResponse 객체](#)의 HttpResponse subclasses 참조

3. View

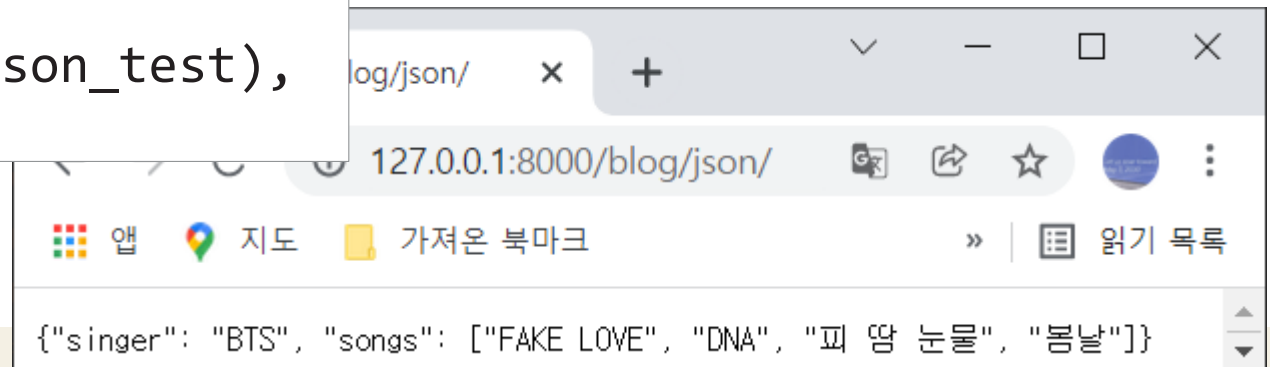
- blog/views.py

```
from django.http import JsonResponse # HttpResponse 하위클래스

def json_test(request):
    music = {'singer': 'BTS', 'songs': ['FAKE LOVE', 'DNA', '피 땀 눈물', '봄날']}
    return JsonResponse(music, json_dumps_params={'ensure_ascii': False}) # 한글 깨지지 않으려
```

- blog/urls.py

```
urlpatterns = [
    path('json/', views.json_test),
]
```



JSON 데이터 응답

3. View

- blog/views.py

```
import os
from django.conf import settings

def excel_download(request):
    filepath = os.path.join(settings.BASE_DIR, 'demo.xlsx')
    filename = 'demo.xlsx'
    with open(filepath, 'rb') as f:
        response = HttpResponse(f, content_type='application/vnd.ms-excel')
        response["Content-Disposition"] =
            "attachment; filename={}".format(filename)
    return response
```

- blog/urls.py

```
urlpatterns = [
    path('file/', views.excel_download),
]
```


Pandas를 통해 CSV 응답

3. View

```
import pandas as pd
from io import StringIO
from urllib.parse import quote
from django.http import HttpResponse

def pandas_csv(request): df = pd.DataFrame([
    [100, 110, 120],
    [200, 210, 220],
    [300, 310, 320],
])

io = StringIO()
df.to_csv(io)
io.seek(0)

filename = quote('pandas_csv.csv')
response = HttpResponse(io, content_type="text/csv")
response['Content-Disposition'] =
    "attachment; filename*=utf-8' '{}".format(filename)
return response
```

Pandas를 통해 excel 응답

3. View

```
import pandas as pd from io import BytesIO
from urllib.parse import quote
from django.http import HttpResponse

def pandas_excel(request): df = pd.DataFrame([
    [100, 110, 120],
    [200, 210, 220],
    [300, 310, 320],
])

io = BytesIO()
df.to_excel(io)
io.seek(0)

filename = quote('pandas_excel.xlsx')
response = HttpResponse(io, content_type="application/vnd.ms-excel")
response['Content-Disposition'] =
    "attachment; filename={}".format(filename)
return response
```

Redirect

3. View

```
from django.shortcuts import redirect

def get_redirect1(request):
    return redirect('/blog/', permanent=True)

def get_redirect2(request):
    return redirect('http://google.com')
```