

Django 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(<https://docs.djangoproject.com/ko/5.2/>)

Agenda

Django(장고) 기반의 파이썬 웹 프로그래밍

Ch01. Django 시작하기

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Chapter 09. 사용자 인증

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- auth/models.py(<https://github.com/django/django/blob/master/django/contrib/auth/models.py#LC324>)
- User 주요 함수(https://github.com/django/django/blob/master/django/contrib/auth/base_user.py#LC47)
- auth/context_processors.py(https://github.com/django/django/blob/master/django/contrib/auth/context_processors.py#LC46)

auth/forms.py

- 회원가입 폼(<https://github.com/django/django/blob/5.2/django/contrib/auth/forms.py#LC75>)
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- 암호변경 리셋 요청폼(<https://github.com/django/django/blob/5.2/django/contrib/auth/forms.py#LC238>)
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Signals

- Signals](<https://docs.djangoproject.com/en/5.2/ref/signals/>)
- dispatch/dispatcher.py(<https://github.com/django/django/blob/master/django/dispatch/dispatcher.py>)
- db/models/signals.py(<https://github.com/django/django/blob/master/django/db/models/signals.py>)
- auth/signals.py(<https://github.com/django/django/blob/master/django/contrib/auth/signals.py>)

Email

- Django Email library(<https://docs.djangoproject.com/en/5.2/topics/email/>)
- 장고 Email 기본 환경 변수(https://github.com/django/django/blob/master/django/conf/global_settings.py#L184)

auth/views.py

- auth/views.py(<https://github.com/django/django/blob/master/django/contrib/auth/views.py>)
- user_logged_in(<https://github.com/django/django/blob/5.2/django/dispatch/dispatcher.py#LC24>)

Session

- SessionMiddleware(<https://github.com/django/django/blob/5.2/django/contrib/sessions/middleware.py>)
- SessionStore(<https://github.com/django/django/blob/master/django/contrib/sessions/backends/db.py>)
- MiddlewareMixin(<https://github.com/django/django/blob/5.2/django/utils/deprecation.py#LC82>)



1. Auth App



Auth 앱

1. Auth App

- **LOGIN_URL = '/accounts/login/'**
 - 기본 로그인 페이지 URL 지정
 - login_required 장식자에서 사용
- **LOGIN_REDIRECT_URL = '/accounts/profile/'**
 - 로그인 완료 후 next 인자가 없으면 이동되는 페이지 URL
 - next 가 지정된 경우는 해당 URL로 이동
- **LOGOUT_REDIRECT_URL = None**
 - 로그아웃 후 next_page가 지정되지 않은 경우 이동할 URL
 - next_page가 지정된 경우 해당 URL로 이동
 - next_page 미지정, LOGOUT_REDIRECT_URL=None이면 'registration/logout.html' 페이지 이동
- **AUTH_USER_MODEL = 'auth.User'**
 - 인증에 사용할 커스텀 User 모델 지정. '앱이름.모델명'

※ AUTHENTICATION

(https://github.com/django/django/blob/master/django/conf/global_settings.py#LC515)

Auth 앱

1. Auth App

- django.conf.global_settings.py

```
#####
# AUTHENTICATION #
#####

AUTH_USER_MODEL = 'auth.User'

AUTHENTICATION_BACKENDS = ['django.contrib.auth.backends.ModelBackend']

LOGIN_URL = '/accounts/login/'

LOGIN_REDIRECT_URL = '/accounts/profile/'

LOGOUT_REDIRECT_URL = None
```

※ AUTHENTICATION

(https://github.com/django/django/blob/master/django/conf/global_settings.py#LC515)

Auth 앱

1. Auth App

- **django/contrib/auth/base_user.py**

```
class AbstractBaseUser(models.Model):
    password = models.CharField(max_length=128)
    last_login = models.DateTimeField(blank=True, null=True)
    is_active = True
~ 생략 ~
```

- **django/contrib/auth/models.py**

```
class PermissionsMixin(models.Model):
    is_superuser = models.BooleanField(False)
~ 생략 ~
```

- auth/models.py

(<https://github.com/django/django/blob/master/django/contrib/auth/models.py#LC324>)

Auth 앱

1. Auth App

- django/contrib/auth/models.py

```
class AbstractUser(AbstractBaseUser, PermissionsMixin):
    username = models.CharField(max_length=150, unique=True)
    first_name = models.CharField(max_length=30, blank=True)
    last_name = models.CharField(max_length=150, blank=True)
    email = models.EmailField(blank=True)
    is_staff = models.BooleanField(default=False)
    is_active = models.BooleanField(default=True)
    date_joined = models.DateTimeField(default=timezone.now)
    ~
class User(AbstractUser):
    ~
class AnonymousUser:
    id = None
    pk = None
    username = ''
    is_staff = False
    is_active = False
    is_superuser = False
```



<https://github.com/django/django/blob/main/django/contrib/auth/models.py#LC403>

Auth 앱

1. Auth App

● User 주요 속성과 함수

```
class AbstractBaseUser(models.Model):
    @property
    def is_anonymous(self):                      #로그 아웃 여부

    @property
    def is_authenticated(self):                   #로그인 여부

    def set_password(self, raw_password):         #비밀번호를 암호화

    def check_password(self, raw_password):        #비밀번호 확인

    def set_unusable_password(self):              #로그인 불가 암호로 세팅

    def has_usable_password(self):                #로그인 불가 암호 설정 여부
```

@property : 메소드를 속성처럼 사용

Auth 앱

1. Auth App

● User 주요 속성과 함수

```
>> from django.contrib.auth import get_user_model  
>> User = get_user_model()  
>> user = User.objects.first()  
>> user.is_authenticated      #True  
>> user.is_anonymous        #False  
>> user.password  
'pbkdf2_sha256$100000$8j1afpleMsaN$0HudIy/MGGUSmx8VCPTeY+b91kSgNo/Fmfh1ISaP23A='
```

해싱함수

횟수

seed

결과값

Auth 앱

1. Auth App

● User 주요 속성과 함수

```
>> user.set_password('1234')
>> user.password
'pbkdf2_sha256$100000$ICT98xUOR2S7$NxhSXKQgzaOysbDODt7XSS0kJnOssc/Liltm331M3Nw='

>> user.password == '1234'          #False
>> user.check_password('1234')      #True
```

set_unusable_password()

1. Auth App

- 로그인 불가 암호 세팅
- 외부 서비스 인증으로 가입된 회원의 경우, 직접 로그인은 불가.
외부 서비스를 통한 [로그인](#)을 허용
- 외부 서비스 인증(OAuth) 연동
 - django-allauth 라이브러리
 - python-social-auth 라이브러리

```
>> user.set_unusable_password()  
>> user.password  
'!  
kNDbkLVYUUd0tqoMr1j0ewhsYoOR7vM2jfUNYrvZ'  
>>user.check_password('1234')  
False
```

뷰에서 현재 로그인 유저 획득

1. Auth App

- FBV 뷰 : `request.user`
- CBV 뷰 : `self.request.user`
- `context_processors`를 통해 user 제공
- 유저 탐색
 - 로그인 상태 : `settings.AUTH_USER_MODEL` 클래스
 - 로그아웃 상태 : `django.contrib.auth.models.AnonymousUser`

```
# blog패키지의 views모듈
def index(request):
    print('로그인 한 사람:', request.user)
    post_list = Post.objects.all()
    return render(request,
                  'blog/index.html',
                  {'post_list':post_list})
```

```
<li><a href="#">{{user}}님</a></li>
```

context_processors

1. Auth App

```
TEMPLATES = [
    {
        'BACKEND': 'django.template.backends.django.DjangoTemplates',
        'DIRS': [
            os.path.join(BASE_DIR, 'myproject', 'templates'),
        ],
        'APP_DIRS': True,
        'OPTIONS': {
            'context_processors': [
                'django.template.context_processors.debug',
                'django.template.context_processors.request',
                'django.contrib.auth.context_processors.auth',
                'django.contrib.messages.context_processors.messages',
            ],
        },
    },
]
```

context_processors

1. Auth App

- `django.contrib.auth.context_processors.auth`

```
def auth(request):
    if hasattr(request, 'user'):
        user = request.user
    else:
        from django.contrib.auth.models import AnonymousUser
        user = AnonymousUser()
    return {
        'user': user,
        'perms': PermWrapper(user),
    }
```

https://github.com/django/django/blob/main/django/contrib/auth/context_processors.py#LC49

회원 인증 Form 클래스

1. Auth App

- UserCreationForm : 회원가입

- <https://github.com/django/django/blob/main/django/contrib/auth/forms.py#LC78>

- AuthenticationForm : 로그인

- <https://github.com/django/django/blob/main/django/contrib/auth/forms.py#LC163>

- PasswordResetForm : 암호 변경 리셋 요청

- <https://github.com/django/django/blob/main/django/contrib/auth/forms.py#LC241>

- PasswordChangeForm : 암호 변경

- <https://github.com/django/django/blob/main/django/contrib/auth/forms.py#LC363>

- SetPasswordForm : 암호 설정

- <https://github.com/django/django/blob/main/django/contrib/auth/forms.py#LC319>



2. 회원가입 구현



회원가입 구현

2. 회원가입 구현

```
#account/urls.py
```

```
from django.urls import path
from . import views

app_name = 'account' # 로그인 기능은 앱에 중복될 일이 없으니 app_name 없어도 됨
urlpatterns = [
    path('signup/', views.signup, name='signup'),
]
```

회원가입 구현

2. 회원가입 구현

```
# accounts/views.py

from django.shortcuts import render, redirect
from django.contrib.auth.forms import UserCreationForm
from django.conf import settings

def signup(request):
    if request.method == 'POST':
        form = UserCreationForm(request.POST)
        if form.is_valid():
            form.save()
            return redirect(settings.LOGIN_URL)
    else:
        form = UserCreationForm()

    return render(request, 'accounts/signup_form.html', {'form':form})
```

https://github.com/django/django/blob/main/django/conf/global_settings.py#LC504

회원가입 구현

2. 회원가입 구현

```
# accounts/templates/accounts/signup_form.html

<form action="" method="post">
    {% csrf_token %}
    <table>
        {{ form.as_table }}
    </table>
    <input type="submit" />
</form>
```

UserCreationForm 커스텀(1)

2. 회원가입 구현

```
#accounts/forms.py

from django.contrib.auth.forms import UserCreationForm

class SignupForm(UserCreationForm):
    class Meta(UserCreationForm.Meta):
        fields= UserCreationForm.Meta.fields +('email',)
```

```
#accounts/views.py

from .forms import SignupForm

def signup(request):
    if request.method == 'POST':
        form = SignupForm(request.POST)
        if form.is_valid():
            form.save()
            return redirect(settings.LOGIN_URL)
    else:
        form = SignupForm()
    return render(request, 'accounts/signup_form.html',{'form':form})
```

UserCreationForm 커스텀(2)

2. 회원가입 구현

```
# accounts/form.py
from django.contrib.auth.forms import UserCreationForm
from django import forms
from accounts.models import Profile

class SignupForm(UserCreationForm):
    phone_number = forms.CharField(label="전화", max_length=20)
    address = forms.CharField(label="주소", max_length=50)
    class Meta(UserCreationForm.Meta):
        fields = UserCreationForm.Meta.fields + ('email',)
    def save(self, commit=True):
        user = super().save()
        profile = Profile(user=user,
                          phone_number=self.cleaned_data['phone_number'],
                          address=self.cleaned_data['address'])
        profile.save()
        return profile
```

Email 보내는 library

2. 회원가입 구현

- Djagno Email library 
 - <https://docs.djangoproject.com/ko/3.2/topics/email>
- Django 3rd party Email library
- Python 3rd party Email library
 - <https://github.com/vinta/awesome-python#email>

Django Email

2. 회원가입 구현

- https://github.com/django/django/blob/main/django/conf/global_settings.py#L199

```
199 EMAIL_BACKEND = 'django.core.mail.backends.smtp.EmailBackend'  
200  
201 # Host for sending email.  
202 EMAIL_HOST = 'localhost'  
203  
204 # Port for sending email.  
205 EMAIL_PORT = 25  
206  
207 # Whether to send SMTP 'Date' header in the local time zone or in UTC.  
208 EMAIL_USE_LOCALTIME = False  
209  
210 # Optional SMTP authentication information for EMAIL_HOST.  
211 EMAIL_HOST_USER = ''  
212 EMAIL_HOST_PASSWORD = ''  
213 EMAIL_USE_TLS = False  
214 EMAIL_USE_SSL = False  
215 EMAIL_SSL_CERTFILE = None  
216 EMAIL_SSL_KEYFILE = None  
217 EMAIL_TIMEOUT = None
```

<https://docs.djangoproject.com/ko/5.2/topics/email/#s-smtp-backend>

Django Email

2. 회원가입 구현

- smtp.EmailBackend – Naver SMTP 연동

```
# settings.py
```

```
EMAIL_BACKEND = 'django.core.mail.backends.console.EmailBackend'  
# EMAIL_BACKEND = 'django.core.mail.backends.smtp.EmailBackend'  
EMAIL_HOST = 'smtp.naver.com'  
EMAIL_PORT = 465  
EMAIL_HOST_USER = 'naver-id@naver.com'  
EMAIL_HOST_PASSWORD = '비밀번호'  
EMAIL_USE_SSL = True  
DEFAULT_FROM_EMAIL = EMAIL_HOST_USER
```

```
# 네이버 메일에서 POP3/STMP 사용으로 설정
```

Django Email

2. 회원가입 구현

- smtp.EmailBackend – Google SMTP 연동

settings.py

```
# EMAIL_BACKEND = 'django.core.mail.backends.console.EmailBackend'  
EMAIL_BACKEND = 'django.core.mail.backends.smtp.EmailBackend'  
EMAIL_HOST = 'smtp.gmail.com'  
EMAIL_PORT = 465  
EMAIL_HOST_USER = 'gmail-id@gmail.com'  
EMAIL_HOST_PASSWORD = '비밀번호'  
EMAIL_USE_SSL = True  
DEFAULT_FROM_EMAIL = EMAIL_HOST_USER  
EMAIL_USE_TLS=False
```

Django Email

2. 회원가입 구현

● Sending email

Although Python makes sending email relatively easy via the `smtplib` module, Django provides a couple of light wrappers over it. These wrappers are provided to make sending email extra quick, to make it easy to test email sending during development, and to provide support for platforms that can't use SMTP.

The code lives in the `django.core.mail` module.

Quick example

In two lines:

```
from django.core.mail import send_mail

send_mail(
    'Subject here',
    'Here is the message.',
    'from@example.com',
    ['to@example.com'],
    fail_silently=False,
)
```

Mail is sent using the SMTP host and port specified in the `EMAIL_HOST` and `EMAIL_PORT` settings. The `EMAIL_HOST_USER` and `EMAIL_HOST_PASSWORD` settings, if set, are used to authenticate to the SMTP server, and the `EMAIL_USE_TLS` and `EMAIL_USE_SSL` settings control whether a secure connection is used.

- https://github.com/django/django/blob/main/django/core/mail/__init__.py

Email 보내기

2. 회원가입 구현

- 이벤트 처리 : 회원가입 완료 후 가입인사 이메일 전송

- Signal = 이벤트

```
# accounts/models.py
```

```
from django.db.models.signals import post_save
from django.conf.global_settings import AUTH_USER_MODEL

def on_send_mail(sender, **kwargs):
    if kwargs['created']:
        user = kwargs['instance']

post_save.connect(on_send_mail, sender=AUTH_USER_MODEL)
```

참조 : <https://docs.djangoproject.com/en/5.2/ref/signals/>

<https://github.com/django/django/blob/main/django/db/models/signals.py>

<https://github.com/django/django/blob/main/django/dispatch/dispatcher.py#LC22>

Django Email

2. 회원가입 구현

● 이메일 보내기

```
# accounts/models.py
class Profile(models.Model):
    user = models.OneToOneField(settings.AUTH_USER_MODEL, on_delete=models.CASCADE)
    phone_number = models.CharField(max_length=20)
    address = models.CharField(max_length=50)

def on_send_mail(sender, **kwargs):
    if kwargs['created']:
        user = kwargs['instance'].user
        title = user.username + '님 가입을 환경합니다'
        body = user.username + '님 가입 감사합니다'
        bodyhtml = '<h1>{}님 가입 환영합니다</h1><h2>진심진심</h2>'.format(user.username)
        # settings.py 에 stmp 설정이 셋팅
        send_mail(subject=title,
                  message=body,
                  from_email='yisy0703@naver.com',
                  recipient_list=[user.email],
                  fail_silently=False, # 메일 전송이 안 되었을 경우 아무일도 하지 않음
                  html_message=bodyhtml
        )
# post_save.connect(on_send_mail, sender=settings.AUTH_USER_MODEL)
post_save.connect(on_send_mail, sender=Profile)
```

Django Email

2. 회원가입 구현

- smtp.EmailBackend – Google SMTP 연동

```
# settings.py
EMAIL_BACKEND = 'django.core.mail.backends.smtp.EmailBackend'
EMAIL_HOST = 'smtp.gmail.com'
EMAIL_PORT = 465
EMAIL_HOST_USER = config('EMAIL_HOST_USER')
EMAIL_HOST_PASSWORD = config('EMAIL_HOST_PASSWORD')
EMAIL_USE_SSL = True
DEFAULT_FROM_EMAIL = EMAIL_HOST_USER
```

manage.py와 같은 폴더에 .env

```
EMAIL_HOST_USER=gmail-id@gmail.com
EMAIL_HOST_PASSWORD=비밀번호
```

<https://myaccount.google.com/apppasswords> 앱 비밀번호 생성



3. 로그인/아웃 구현



로그인/로그아웃 구현

3. 로그인/아웃 구현

```
# accounts/urls.py https://github.com/django/django/blob/main/django/contrib/auth/views.py
from django.conf import settings
from django.urls import path
from django.contrib.auth import views as auth_views
from . import views

app_name = 'accounts'
urlpatterns = [
    path('signup/', views.signup, name='signup'),
    path('profile/', views.profile, name='profile')
    path('login/', auth_views.LoginView.as_view(
        template_name='accounts/login_form.html'), name='login'),
    path('logout/', auth_views.LogoutView.as_view(
        next_page=settings.LOGIN_URL), name='logout'),
]

```

로그인 성공시 settings.LOGIN_REDIRECT_URL로

```
82     def get_default_redirect_url(self):
83         """Return the default redirect URL."""
84         return resolve_url(self.next_page or settings.LOGIN_REDIRECT_URL)
```

https://github.com/django/django/blob/main/django/conf/global_settings.py#LC514

```
514     LOGIN_REDIRECT_URL = '/accounts/profile/'
```

로그인/로그아웃 구현

3. 로그인/아웃 구현

```
# accounts/views.py

def profile(request):
    return render(request, 'accounts/profile.html')
```

```
# accounts/templates/accounts/profile.html

<h1> {{user}}'s Profile </h1>

<ul>
    <li> name : {{user}}</li>
    <li> email : {{user.email}}</li>
    <li> is_staff : {{user.is_staff}}</li>
    <li> is_superuser : {{user.is_superuser}}</li>
    <li>{{user.date_joined}}</li>
</ul>
```

로그인/로그아웃 구현

3. 로그인/아웃 구현

```
# accounts/templates/accounts/login_form.html

<form action="" method="post">
    {% csrf_token %}
    <table>
        {{ form.as_table}}
    </table>
    <input type="submit" />
</form>
```

로그인/로그아웃 구현

3. 로그인/아웃 구현

```
# myproject/templates/layout.html

{% if not user.is_authenticated %}
    <a href="{% url "signup" %}">회원 가입 </a> /
    <a href="{% url "login" %}?next={{request.path}}">로그인</a>
{% else %}
    <a href="{% url "profile" %}">프로필</a> /
    <a href="{% url "logout" %}?next={{request.path}}">로그 아웃</a>
{% endif %}
```

`{{request.path}}` : 현재 페이지 요청경로

accounts/models.py

```
from django.conf import global_settings
from django.contrib.auth.signals import user_logged_in
from django.contrib.sessions.backends.db import SessionStore

class UserSession(models.Model):
    user = models.ForeignKey(global_settings.AUTH_USER_MODEL,
                            on_delete=models.CASCADE, editable=False)
    session_key = models.CharField(max_length=40, editable=False)
    created_at = models.DateTimeField(auto_now_add=True)

def block_duplicate_logins(sender, request, user, **kwargs):
    for user_session in UserSession.objects.filter(user=user):
        session_key = user_session.session_key
        session = SessionStore(session_key)
        # session.delete()
        session['blocked'] = True
        session.save()
    session_key = request.session.session_key
    UserSession.objects.create(user=user, session_key=session_key)

user_logged_in.connect(block_duplicate_logins) # 로그인시 발생하는 시그널
```

accounts/middleware.py

```
from django.conf import settings
from django.contrib import messages
from django.contrib.auth import logout as auth_logout
from django.shortcuts import redirect
from django.utils.deprecation import MiddlewareMixin

class BlockedMiddleware(MiddlewareMixin):
    def process_request(self, request):
        blocked = request.session.pop('blocked', None)
        if blocked:
            messages.info(request, '다른 기기에서 동일 아이디로 로그인 되어 자동 로그아웃')
            auth_logout(request)
        return redirect(settings.LOGIN_URL)
```

myproject/settings.py

```
MIDDLEWARE = [  
    "django.middleware.security.SecurityMiddleware",  
    "django.contrib.sessions.middleware.SessionMiddleware",  
    "django.middleware.common.CommonMiddleware",  
    "django.middleware.csrf.CsrfViewMiddleware",  
    "django.contrib.auth.middleware.AuthenticationMiddleware",  
    "django.contrib.messages.middleware.MessageMiddleware",  
    "django.middleware.clickjacking.XFrameOptionsMiddleware",  
    'accounts.middleware.BlockedMiddleware',  
]
```