

# Django Notes (मराठीत) – Beginner साठी

## १. Django म्हणजे काय?

- Django हे Python आधारित एक **high-level web framework** आहे.
  - Web development साठी बनवले गेले आहे.
  - मुख्य उद्दिष्ट: **fast development आणि clean, pragmatic design.**
  - Features:
    - ORM (Object-Relational Mapping) – database handling सोपे.
    - Authentication system – user login/signup.
    - Admin panel – auto-generated admin interface.
    - Security features – SQL injection, XSS protection.
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## २. Django सेटअप कसा करावा

1. Python इंस्टॉल करा (Python 3.8 किंवा नंतरची आवृत्ती recommended).

2. Virtual environment तयार करा # Windows:-

```
python -m venv myenv  
myenv\Scripts\activate
```

3. Django install करा:

```
pip install django
```

4. Django version verify करा:

```
django-admin --version
```

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## ३. Django project सुरु करणे

1. नवीन project तयार करा:

```
django-admin startproject myproject
```

- यामुळे myproject/ नावाचा फोल्डर तयार होईल ज्यात खालील फाइल्स असतील:
    - manage.py → command line utility
    - settings.py → project settings
    - urls.py → URL routes
    - wsgi.py → deployment साठी
2. Project run करा:

```
python manage.py runserver
```

- ब्राउजरमध्ये <http://127.0.0.1:8000/> उघडा.
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## ४. Django App तयार करणे

- Django मध्ये project > app structure असते.
- App तयार करा:

```
python manage.py startapp myapp
```

- settings.py मध्ये app add करा:

```
INSTALLED_APPS = [  
    ...  
    'myapp',  
]
```

---

## ५. URL आणि View तयार करणे

- myapp/views.py:

```
from django.http import HttpResponse

def home(request):
    return HttpResponse("Hello, Django!")
```

- myproject/urls.py मध्ये URL link करा:

```
from django.contrib import admin
from django.urls import path
from myapp import views

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', views.home),
]
```

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## ६. Templates वापरणे

- App मध्ये templates folder तयार करा:

```
myapp/templates/myapp/home.html
```

- Example HTML home.html:

```
<h1>Welcome to Django in Marathi!</h1>
```

- View मध्ये template render करा:

```
from django.shortcuts import render

def home(request):
    return render(request, 'myapp/home.html')
```

---

## ७. Models आणि Database

- myapp/models.py मध्ये:

```
from django.db import models

class Student(models.Model):
```

```
name = models.CharField(max_length=100)
age = models.IntegerField()
email = models.EmailField()
```

- Database apply करा:

```
python manage.py makemigrations
python manage.py migrate
```

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## ८. Admin Panel

- Superuser तयार करा:

```
python manage.py createsuperuser
```

- models.py मध्ये register करा:

```
from django.contrib import admin
from .models import Student

admin.site.register(Student)
```

- ब्राउजरमध्ये <http://127.0.0.1:8000/admin/> उघडा.
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## ९. Forms आणि User Input

- forms.py तयार करा:

```
from django import forms
from .models import Student

class StudentForm(forms.ModelForm):
    class Meta:
        model = Student
        fields = ['name', 'age', 'email']
```

- View मध्ये वापरा:

```
from django.shortcuts import render, redirect
from .forms import StudentForm

def add_student(request):
    if request.method == "POST":
        form = StudentForm(request.POST)
        if form.is_valid():
```

```
        form.save()
        return redirect('/')
    else:
        form = StudentForm()
        return render(request, 'myapp/add_student.html', {'form': form})
```

खाली तुम्हाला `myapp/add_student.html` फाईलचा साधा (normal) HTML version दिला आहे

```
<!DOCTYPE html>

<html lang="mr">

<head>

    <meta charset="UTF-8">

    <title>विद्यार्थी जोडा</title>

</head>

<body>

    <h2>नवीन विद्यार्थी जोडा</h2>

    <!-- Form errors दाखवणे -->

    {% if form.errors %}

        <p style="color: red;">कृपया सर्व फील्ड्स बरोबर भरा!</p>

    {% endif %}

    <form method="POST">

        {% csrf_token %}

        <p>

            <label for="id_name">नाव:</label><br>

            {{ form.name }}

        </p>
```

```
<p>
  <label for="id_age">वयः</label><br>
  {{ form.age }}
</p>

<p>
  <label for="id_email">ईमेलः</label><br>
  {{ form.email }}
</p>

<p>
  <input type="submit" value="सुरक्षित करा">
</p>
</form>

<p><a href="/">मुख्य पृष्ठावर जा</a></p>
</body>
</html>
```

### **Key Points:-**

1. {% csrf\_token %} – सुरक्षा साठी आवश्यक.
2. {{ form.field\_name }} – Django form fields insert करतो.
3. Form errors साध्या <p> tag मध्ये दाखवल्या आहेत.

मी तुम्हाला **संपूर्ण छोटा Django project structure** तयार करून देतो, जे beginners साठी अगदी simple आहे. तुम्ही फक्त Python आणि Django install केल्यावर लगेच चालवू शकता.

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**Project Name:** `student_project`

## 1 Project Structure

```
student_project/  
├── manage.py  
├── student_project/  
│   ├── __init__.py  
│   ├── settings.py  
│   ├── urls.py  
│   └── wsgi.py  
├── myapp/  
│   ├── __init__.py  
│   ├── admin.py  
│   ├── apps.py  
│   ├── forms.py  
│   ├── models.py  
│   ├── views.py  
│   ├── urls.py (optional)  
│   └── templates/  
│       └── myapp/  
│           ├── home.html  
│           └── add_student.html
```

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## 2 manage.py

Django default, तुम्ही `django-admin startproject student_project` केल्यावर मिळेल.

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## 3 settings.py (main changes only)

```
INSTALLED_APPS = [
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
    'myapp', # आपला app add करा
]

TEMPLATES = [
    {
        'BACKEND': 'django.template.backends.django.DjangoTemplates',
        'DIRS': [], # templates folder automatically detected in app
        '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',
        ]},
    },
]
```

---

## 4 models.py (myapp/models.py)

```
from django.db import models

class Student(models.Model):
    name = models.CharField(max_length=100)
    age = models.IntegerField()
    email = models.EmailField()

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

---

## 5 forms.py (myapp/forms.py)

```
from django import forms
from .models import Student

class StudentForm(forms.ModelForm):
    class Meta:
        model = Student
        fields = ['name', 'age', 'email']
```

---

## 6 views.py (myapp/views.py)

```
from django.shortcuts import render, redirect
from .forms import StudentForm

def home(request):
    return render(request, 'myapp/home.html')

def add_student(request):
    if request.method == "POST":
        form = StudentForm(request.POST)
        if form.is_valid():
            form.save()
            return redirect('/')
    else:
        form = StudentForm()
    return render(request, 'myapp/add_student.html', {'form': form})
```

---

## 7 urls.py (student\_project/urls.py)

```
from django.contrib import admin
from django.urls import path
from myapp import views

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', views.home, name='home'),
    path('add/', views.add_student, name='add_student'),
]
```

---

## 8 templates

### home.html (myapp/templates/myapp/home.html)

```
<h1>मुख्य पृष्ठावर स्वागत आहे!</h1>
<p><a href="/add/">विद्यार्थी जोडा</a></p>
```

### add\_student.html (myapp/templates/myapp/add\_student.html)

```
<h2>नवीन विद्यार्थी जोडा</h2>

{% if form.errors %}
    <p style="color: red;">कृपया सर्व फील्ड्स बरोबर भरा!</p>
{% endif %}

<form method="POST">
    {% csrf_token %}

    <p>
        <label for="id_name">नाव:</label><br>
        {{ form.name }}
    </p>

    <p>
        <label for="id_age">वय:</label><br>
        {{ form.age }}
    </p>

    <p>
        <label for="id_email">ईमेल:</label><br>
        {{ form.email }}
    </p>

    <p>
        <input type="submit" value="सुरक्षित करा">
    </p>
</form>

<p><a href="/">मुख्य पृष्ठावर जा</a></p>
```

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## 9 Admin Panel Setup (optional but recommended)

- myapp/admin.py मध्ये:

```
from django.contrib import admin
from .models import Student
```

```
admin.site.register(Student)
```

- Superuser तयार करा:

```
python manage.py createsuperuser
```

- Admin panel: <http://127.0.0.1:8000/admin/>
- 

## 10 Run the Project

```
python manage.py makemigrations  
python manage.py migrate  
python manage.py runserver
```

- Browser मध्ये:
  - मुख्य पृष्ठ: <http://127.0.0.1:8000/>
  - विद्यार्थी form: <http://127.0.0.1:8000/add/>