***Single page django application***

1. Create a new conda environment from pycharm
2. **pip install Django**
3. Create a Django Project:

**django-admin startproject myproject**

1. Create an App:

**cd myproject**

**python manage.py startapp myapp**

1. Set Up the View:

Open the views.py file in the myapp folder

***# myapp/views.py***

***from django.http import HttpResponse***

***def home(request):***

***return HttpResponse("Hello, Django!")***

1. Configure the URL:

In the **urls.py** file in your myproject folder, include the view from myapp

***# myproject/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'), # Map the root URL to the home view***

***]***

1. Run the Server:

**python manage.py runserver**

1. View the Application:

[**http://127.0.0.1:8000/**](http://127.0.0.1:8000/)

**To Add more pages to application**

1. Create a New View

In the views.py file, create a new view for the second page

***# myapp/views.py***

***from django.http import HttpResponse***

***def home(request):***

***return HttpResponse("Hello, Django!") # This is the first screen***

***def about(request):***

***return HttpResponse("This is the About page!") # New screen***

1. Add a URL Pattern for the New View, in urls.py

***# myproject/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'), # Home page***

***path('about/', views.about, name='about'), # New about page***

***]***

1. Access URLS from browser:

**home page** at http://127.0.0.1:8000/

**about page** at http://127.0.0.1:8000/about/

***Use Templates for custom HTML pages***

1. Create a templates Folder : myapp folder, create a templates/myapp/ directory

Create home.html and add to templates/myapp folder

**<!-- myapp/templates/myapp/home.html -->**

**<!DOCTYPE html>**

**<html lang="en">**

**<head>**

**<meta charset="UTF-8">**

**<meta name="viewport" content="width=device-width, initial-scale=1.0">**

**<title>Home</title>**

**</head>**

**<body>**

**<h1>Hello, This is from template!</h1>**

**<p>This is the home page.</p>**

**<a href="/about/">Go to About Page</a>**

**</body>**

**</html>**

1. Create the about.html Template

**<!-- myapp/templates/myapp/about.html -->**

**<!DOCTYPE html>**

**<html lang="en">**

**<head>**

**<meta charset="UTF-8">**

**<meta name="viewport" content="width=device-width, initial-scale=1.0">**

**<title>About</title>**

**</head>**

**<body>**

**<h1>About Page</h1>**

**<p>This is the about page.</p>**

**<a href="/">Go to Home Page</a>**

**</body>**

**</html>**

1. Update the Views to Use Templates

***# myapp/views.py***

***from django.shortcuts import render***

***def home(request):***

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

***def about(request):***

***return render(request, 'myapp/about.html')***

1. In settings.py add templates location:

Import os

'DIRS': [os.path.join(BASE\_DIR, 'myapp/templates')],

1. Run the Server

**python manage.py runserver**

1. Access URLS from browser:

**home page** at http://127.0.0.1:8000/

**about page** at http://127.0.0.1:8000/about/

**Library system with Django ORM**

1. **Create a New Django Project**

**django-admin startproject library\_project**

**cd library\_project**

1. **Create a New Django App**

**python manage.py startapp library**

1. **Define Models** in library/models.py

from django.db import models

class Author(models.Model):

name = models.CharField(max\_length=100)

birth\_date = models.DateField(null=True, blank=True)

def \_\_str\_\_(self):

return self.name

class Book(models.Model):

title = models.CharField(max\_length=200)

author = models.ForeignKey(Author, on\_delete=models.CASCADE)

isbn = models.CharField(max\_length=13, unique=True)

available = models.BooleanField(default=True)

added\_on = models.DateField(auto\_now\_add=True)

def \_\_str\_\_(self):

return self.title

class Member(models.Model):

name = models.CharField(max\_length=100)

email = models.EmailField(unique=True)

join\_date = models.DateField(auto\_now\_add=True)

def \_\_str\_\_(self):

return self.name

1. **Register Models** in Admin library/admin.py, to define lists and filters for search

from django.contrib import admin

from .models import Author, Book, Member

# Registering all models to show in Django admin

admin.site.register(Author)

admin.site.register(Book)

admin.site.register(Member)

1. **Add the library app to INSTALLED\_APPS**

Open the settings.py file in your Django project folder, located at project\_name/settings.py (in your case, probably library\_project/settings.py)

Look for the INSTALLED\_APPS list. This is where you need to add your app (library).

**INSTALLED\_APPS = [** 'django.contrib.admin',  
 'django.contrib.auth',  
 'django.contrib.contenttypes',  
 'django.contrib.sessions',  
 'django.contrib.messages',  
 'django.contrib.staticfiles', **'library',   
]**

1. **Apply Migrations**

**python manage.py makemigrations**

**python manage.py migrate**

1. **Create a Superuser**

**python manage.py createsuperuser**

1. **Run the Development Server**

**python manage.py runserver**

http://127.0.0.1:8000/admin/

1. **Now ORM!!**

Open Django shell

python manage.py shell

1. **Create data in database from command prompt:**

from library.models import Author, Book, Member

# Add an author

author = Author.objects.create(name="J.K. Rowling", birth\_date="1965-07-31")

# Add a member

member = Member.objects.create(name="Alice Smith", email="alice@example.com")

# Add a book

book = Book.objects.create(

title="Harry Potter and the Philosopher's Stone",

author=author,

isbn="9780747532743",

available=True

)

# Create books

book1 = Book.objects.create(title="1984", author=author1, published\_date=date(1949, 6, 8))

book2 = Book.objects.create(title="Animal Farm", author=author1, published\_date=date(1945, 8, 17))

book3 = Book.objects.create(title="Harry Potter and the Philosopher's Stone", author=author2, published\_date=date(1997, 6, 26))

-----------------------------------------------------

**Query All Books**

books = Book.objects.all()

for book in books:

print(book.title, "-", book.author.name)

-----------------------------------------------------

**Filter Books by Author**

orwell\_books = Book.objects.filter(author\_\_name="George Orwell")

for book in orwell\_books:

print(book.title)

-----------------------------------------------------

**Filter Books Published After a Certain Date**

recent\_books = Book.objects.filter(published\_date\_\_year\_\_gte=1990)

for book in recent\_books:

print(book.title)

-----------------------------------------------------

**Update Book Information**

book\_to\_update = Book.objects.get(title="Animal Farm")

book\_to\_update.title = "Animal Farm: A Fairy Story"

book\_to\_update.save()

-----------------------------------------------------

**Delete a Book**

book\_to\_delete = Book.objects.get(title="1984")

book\_to\_delete.delete()

**Create a Login App in Django project Login app**

1. **Create a Project :**

django-admin startproject loginProject1

cd loginProject1

1. **Create a New App:**

python manage.py startapp accounts

1. **Set Up the App:** (Add accounts to INSTALLED\_APPS)

In loginProject1/settings.py add the new app (accounts) to INSTALLED\_APPS

**INSTALLED\_APPS = [**

**# Other apps**

**'accounts',]**

1. **Create URLs for the Login Page**:

In your accounts app, create a urls.py file and add url for login in urls.py

**# accounts/urls.py**

**from django.urls import path**

**from . import views**

**urlpatterns = [**

**path('login/', views.login\_view, name='login'),**

**]**

1. **Configure App URLs**(accounts app URLs) in the Project URL Configuration (loginProject1/urls.py):

**# myproject/urls.py**

**from django.contrib import admin**

**from django.urls import path, include**

**urlpatterns = [**

**path('admin/', admin.site.urls),**

**path('accounts/', include('accounts.urls')),**

**]**

1. **Create the Login View**

In accounts/views.py, create a view to handle the login page.

**# accounts/views.py**

**from django.shortcuts import render, redirect**

**from django.contrib.auth import authenticate, login**

**from django.contrib import messages**

**def login\_view(request):**

**if request.method == 'POST':**

**username = request.POST['username']**

**password = request.POST['password']**

**user = authenticate(request, username=username, password=password)**

**if user is not None:**

**login(request, user)**

**# Redirect to home after successful login**

**return redirect('home')**

**else:**

**messages.error(request, 'Invalid username or password')**

**return render(request, 'accounts/login.html')**

1. **Create a custom html file for login page:**

In the accounts/templates/accounts/ directory, create login.html. Create this structure.

1. **Add this HTML content to login.html**

**<!-- accounts/templates/accounts/login.html -->**

**<!DOCTYPE html>**

**<html lang="en">**

**<head>**

**<meta charset="UTF-8">**

**<meta name="viewport" content="width=device-width, initial-scale=1.0">**

**<title>Login</title>**

**</head>**

**<body>**

**<h2>Login</h2>**

**{% if messages %}**

**<ul>**

**{% for message in messages %}**

**<li>{{ message }}</li>**

**{% endfor %}**

**</ul>**

**{% endif %}**

**<form method="POST">**

**{% csrf\_token %}**

**<label for="username">Username:</label>**

**<input type="text" name="username" id="username" required><br>**

**<label for="password">Password:</label>**

**<input type="password" name="password" id="password" required><br>**

**<button type="submit">Login</button>**

**</form>**

**</body>**

**</html>**

1. **Create a URL for the Home Page**

In loginProject1/urls.py, add a simple home view

# loginProject1/urls.py

from django.http import HttpResponse

def home(request):

return HttpResponse("Welcome to the home page!")

urlpatterns = [

path('admin/', admin.site.urls),

path('accounts/', include('accounts.urls')),

path('', home, name='home'), # This is the home page

]

1. **Create a Superuser**

python manage.py createsuperuser

1. **Run Migrations and Start the Server**

python manage.py migrate

python manage.py runserver

1. **Test Login Page**

http://127.0.0.1:8000/accounts/login/