**DJANGO**

**----------**

Django is an open source *web application* development framework. It was Named after famous Guitarist "Django Reinhardt".it was Developed by Adrian Holovaty and Jacob Kaplan-moss at World Online News for efficient development in python .It was Open sourced in 2005 and it's first Version released September 3, 2008.

It follows the principle of "Don't Repeat Yourself". Means keeping the code simple and non repeating. Django is also a high level, MVT architect which stands for Model View Template.

Features of Django

- Fast: -encourages rapid development
- Tons of Packages: that helps us to develop websites faster and easier.
- Secure: It helps the developers to avoid many common security mistakes, such as SQL injection, cross-site scripting, csrf and clickjacking.
- Versatile –can develop all sort of things – like content management systems, social networks, scientific computing platforms etc.

A *Web application* (Web app) is an application program that is stored on a remote server and delivered to a browser through internet.

## Django architecture

Django follows MVC- MVT architecture. MVC stands for ***Model View Controller***.

Model – Model is used for storing and maintaining data and work as a backend to define database.

Views – In Django templates, View is all about which user is seeing. Templates and views are designed in html.

Controller – business logic which interact with the model and the view.

Django is a powerful and popular server-side web framework. It is:

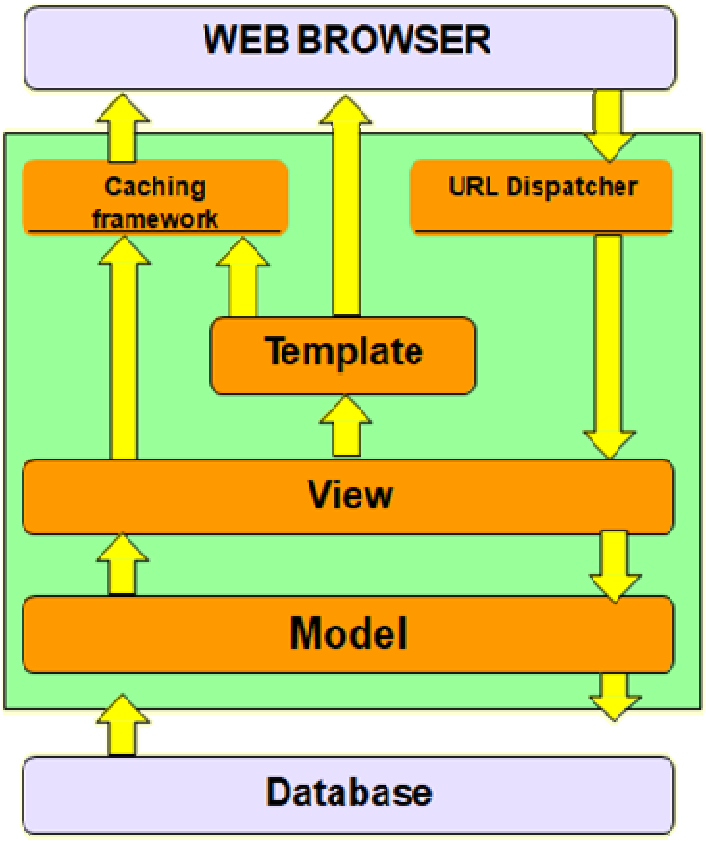
Secure:

Versatile:

Portable:

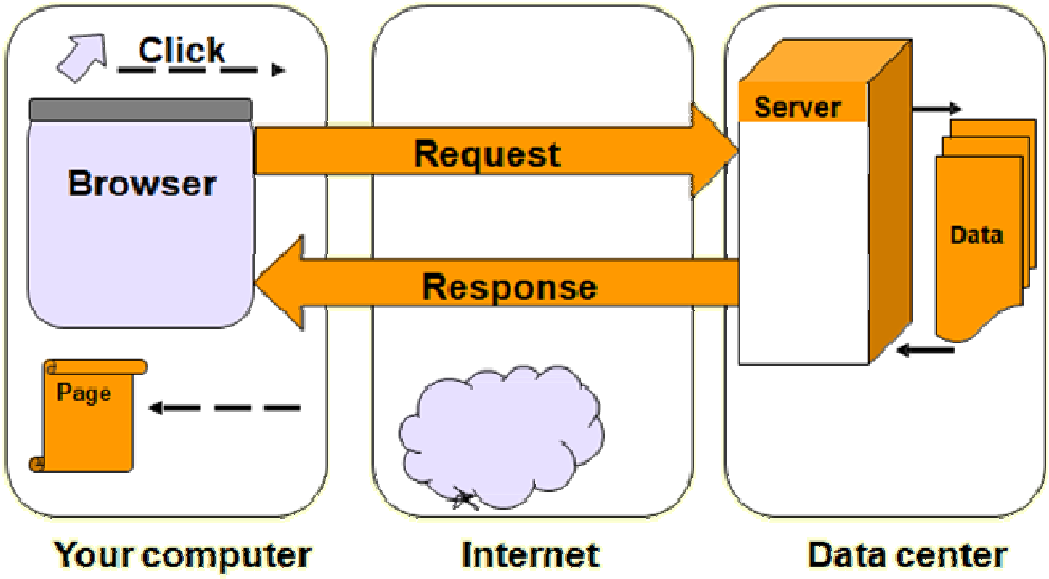
Easy to maintain:

# Functional architecture of django webapplication




1.URL dispatcher(urls.py)-> requests url to view function and call it.if cache version available then cache copy Will be returned
2.View function(view.py)-> perform display Part and database interaction
3. model(models.py) -> define data in Pythond and interact with data(typically Mysql,postgress,sqlite etc)
4.Templates -> return html pages with the help of django template language.
5.After any request the view returns HTTP response object to the web browser ,generally to display value

# Django Request and Response life cycle




Django uses request and response objects to pass state through the system. When a page is requested, Django creates an HttpRequest object which contains metadata about the request. Then Django loads the appropriate view, passing the HttpRequest as the first argument to the view function. Each view is responsible for returning an HttpResponse object.

Differences between the GET and POST methods in form submitting

| GET Method | POST Method |
|---|---|
| ➢ GET requests can be cached<br>➢ GET requests remain in the browser history<br>➢ GET requests can be bookmarked<br>➢ GET requests should never be used when dealing with sensitive data like password<br>➢ GET requests have length restrictions<br>➢ GET requests is only used to request data (not modify) | ➢ POST requests are never cached<br>➢ POST requests do not remain in the browser history<br>➢ POST requests cannot be bookmarked<br>➢ POST requests have no restrictions on data length<br>➢ URL query string is encoded so can't be used for malicious purpose |

How DJANGO works?

1. Install the virtual environment in which the Django will work.

2. Create a folder by the name of Django in D: drive.

3. Once the installation had done then activate the scripts for the environment to run the web based Django applications.

4. Now start the project by using command "django-admin startproject <project_name>"

5. This will create a folder by the project name.

6. This project folder consist of 5 different files which are as follows:
    a. _init_.py
    b. Settings.py
    c. Urls.py
    d. Wsgi.py
    e. Manage.py

7. All these above files were used for the applications and project to run on web browser.

8. The server will run to localhost : 8000 port.

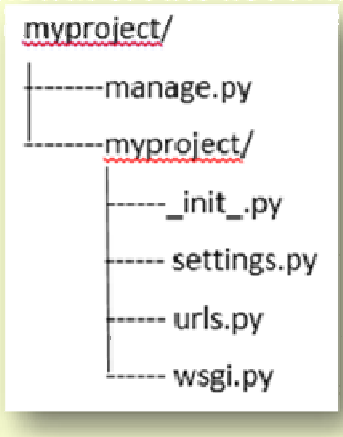
9. The project needs html support to run the djang project and modules on the web browser.

# Building Web Application in Django

- Create a folder on computer. E.g. create a folder named demo in c drive.
- Open command prompt through cmd command in search option of window.
- Move to folder demo in command prompt(using cd command) cd c:\demo
- Run the following command to create project

  c:\demo> django-admin startproject myproject

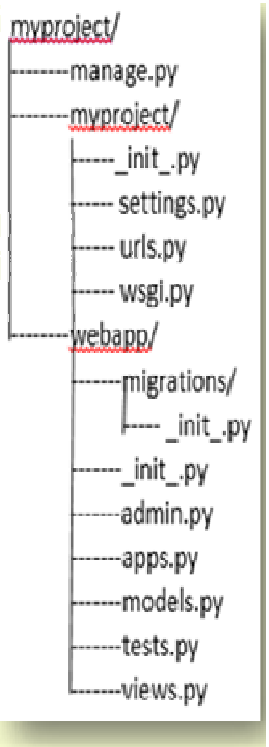
  It will create list of files in demo->myproject




manage.py – used as command to interact with this Django project.
myproject/ – It is actual Python package.
init.py–tells the python to treated like a python package.
settings.py – to manage settings of project.
urls.py – to maps website.
wsgi.py – It serves as an entry point for WSGI compatible web servers.

- Move to the folder where manage.py file is stored.
  c:\demo>cd c:\demo\myproject

# Building Web Application in Django



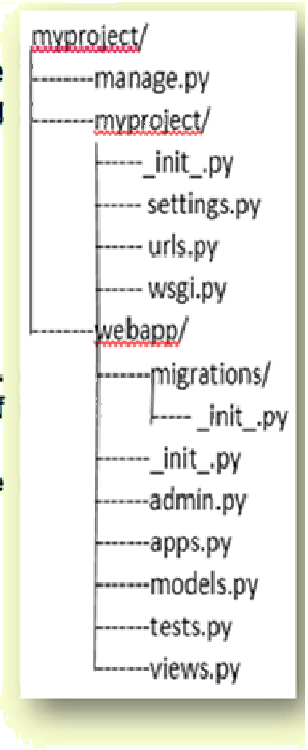

- Type the following command to create app there
  python manage.py startapp webapp
  it will create other files in myproject/webapp
- Next, we need to import our application manually inside project settings.open myproject/settings.py in windows edit with ide and add webapp manually as below code and save it.

```
INSTALLED_APPS = [
    'webapp',
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
]
```

•now. Open webapp/views.py and put below code in it:

```
from django.shortcuts import render
from django.http import HttpResponse
def index(request):
    return HttpResponse("<H2>Hi ,it is our first django webapp </H2>")
```

# Building Web Application in Django




- Now we need to map this view to a URL.so create a new python file "urls.py" inside our webapp.In webapp/urls.py include the following code:

```
from django.conf.urls import url
from . import views
urlpatterns = [
 url(r'^$', views.index, name='index'),
]
```

In the above code, we have referenced a view which will return index. here url pattern is a regular expression where ^ stands beginning of the string and $ stands for the end.

- Open myproject/urls.py file and write the below code to point the root URLconf at the webapp.urls module.

```
from django.conf.urls import include, url
from django.contrib import admin
urlpatterns = [
    url(r'^webapp/', include('webapp.urls')),
]
```

·First move to folder of manage.py file,run the server with command

```
python manage.py runserver
```

After running the server, go to **http://localhost:8000/webapp/** In any browser

Note – for above development pycharm(trial version available) like ide can be used