Web designing with Python

Web development includes all the codes that influence a website to run. We can separate the whole process of web development into two categories:

- Front-end
- Back-end

Though frontend and backend web development are certainly distinct from each other, they are also like two sides of the same coin. A complete website relies on each side communicating and operating effectively with the other as a single unit. Both front-end and back-end are equally important in web development.

The front-end or client-side of an application is the code responsible for everything the user directly experiences on screen from text colors to buttons, images and navigation menus.

Some of the common skills and tools which are used by front-end developers are listed below:

- HTML/CSS/JavaScript
- CSS preprocessors
- Frameworks
- Libraries

Generally, the back-end/server-side of an application is responsible for managing information within the database and serving that information to the front-end. The backend of a website consists of a server, application, and database. In general, it involves everything that happens before hitting your browser. The tools required in back-end web development are:

- Programming language – Ruby, PHP, Python, etc.
- Database – MySQL, PostgreSQL, MongoDB,etc.

Python Web Development Libraries – Python Frameworks

Python is one of the most acceptable languages among web and application developers because of its strong emphasis on efficiency and readability. There are numerous outstanding Python web frameworks, each with their own specialties and features.

Django

- Built by experienced developers, Django is a high level Python web framework which allows rapid, clean and practical design development.
- Django handles much of the complexities of web development, so you can focus on writing your app without a need to reinvent the wheel.
- It's free and open source.
- To map objects to database table, Django uses ORM (Object Relational Mapper) and the same is used to transfer from one database to other. It works with mostly all important databases like Oracle, MySQL, SQLite, etc.
- There are numerous websites in the industry which uses Django as their primary framework for backend development.
- **Mozilla Firefox** Second most widely used browser in the world after Google Chrome is the Mozilla browser. Now the help page of Mozilla is built with Django framework.
- **Pinterest**: Millions of users around the globe discover their new ideas and inspiration from Pinterest. Pinterest is using the Django framework (done modification as per their requirement) to run it.
- **NASA** The National Aeronautics and Space Administration's official website is a place for millions of users to visit and check out the news, images, videos and podcasts provided by the premiere agency. Django develops some specific parts of official NASA website.

Features of Django Some of the exemplary features of this Python web framework are:

- URL routing
- Authentication
- Database schema migrations

Flask

About: It is classified as a micro-framework as we don't require any particular libraries or tools. It has no form validation or database abstraction layer or any other components where pre-existing third party libraries provide common functions.

Features of Flask

- Integrated support for unit testing
- Contains development server and debugger
- Uses Jinja2 templating
- Support for secure cookies
- Unicode-based

Web2py

About: With no further dependencies, it's a complete package in itself. Development, database administration, debugging, deployment, testing, and maintenance of applications all can be done through web interface, but generally not required. It is a scalable open source framework that comes with its own web-based IDE alongside a code editor, one-click deployment and debugger.

Features of Web2py

This framework comes with many developing tools and built-in features that eliminate the hassle of complexity to the developers.

- With no installation and configuration, it is easy to run.

- Supports almost all major operating system, like Windows, Unix/Linux, Mac, Google App Engine and almost all web hosting platform through Python 2.7/3.5/3.6/ version.

- Easy to communicate with MySQL, MSSQL, IBM DB2, Informix, Ingres, MongoDB, SQLite, PostgreSQL, Sybase, Oracle and Google App Engine.

Pyramid

About: Pyramid is a small, fast, down-to-earth Python web framework. It makes real-world web application development and deployment more fun, more predictable and more productive.

Features of Pyramid Python Pyramid is an open sourced framework with the following features:

- Simplicity - Anyone can start to work with it without any prior knowledge about it.

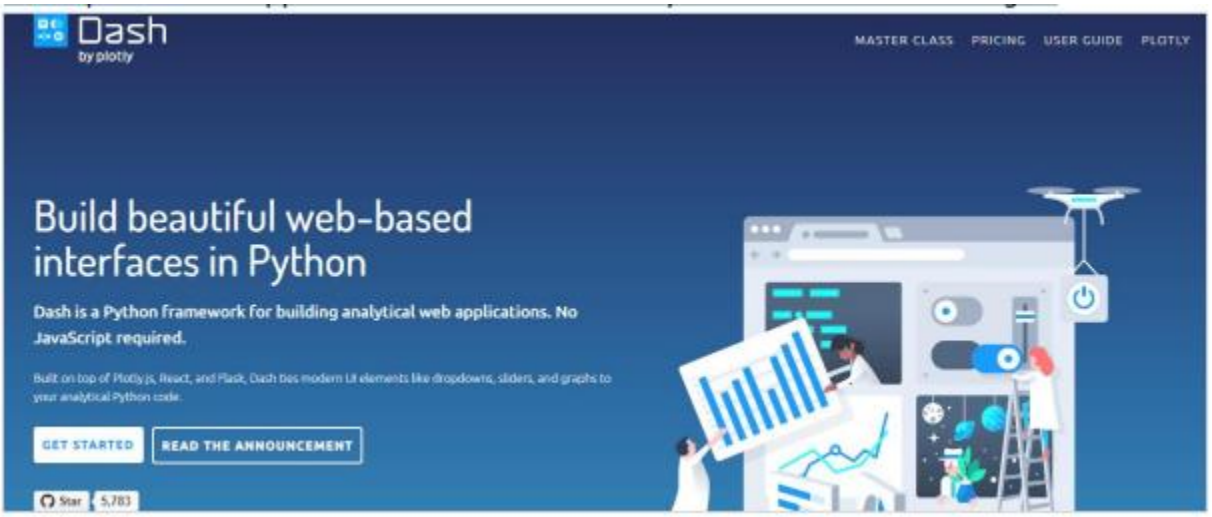
- Minimalism - Quite out of the box, Pyramid comes with only some important tools, which are needed for almost every web application, may it be security or serving static assets like JavaScript and CSS or attaching URLs to code.

• Speed - Very fast and accurate.

• Reliability - It is developed, keeping in mind that it is conservative and tested exhaustively. If not tested properly, it will be considered as broke.

• Openness - It's sold with a permissive and open license.

Dash



About: Dash as an open source library for creating interactive web-based visualizations. The plotly team created Dash – an open source framework that leverages Flask, to build custom data visualization apps.

Key highlight of this library is that you can build highly interactive web application only through Python code. Data scientists love dash framework, specially all those who are less familiar with web development.

Dash applications are inherently cross-platform (Linux/Win/Mac) and mobile friendly and the capabilities of applications can be extended by the rich set of Flask Plugins

Features of Dash

• Provides access to configurable properties and Flask instance

• Through Flash plugins, we can extend the capabilities of the Dash application

Getting started with Djago

```
PS C:\Users\MY_PC\PycharmProjects\WEBPROJECT> pip install django
Requirement already satisfied: django in c:\users\my_pc\appdata\local\programs\python\python310\lib\site-packages (4.0.6)
Requirement already satisfied: asgiref<4,>=3.4.1 in c:\users\my_pc\appdata\local\programs\python\python310\lib\site-packages (from django) (3.5.2)
Requirement already satisfied: tzdata in c:\users\my_pc\appdata\local\programs\python\python310\lib\site-packages (from django) (2022.1)
Requirement already satisfied: sqlparse>=0.2.2 in c:\users\my_pc\appdata\local\programs\python\python310\lib\site-packages (from django) (0.4.2)
PS C:\Users\MY_PC\PycharmProjects\WEBPROJECT> django-admin startproject DEMOPROJECT
```

```
PS C:\Users\MY_PC\PycharmProjects\WEBPROJECT> django-admin startproject DEMOPROJECT
PS C:\Users\MY_PC\PycharmProjects\WEBPROJECT> python manage.py run server
C:\Users\MY_PC\AppData\Local\Programs\Python\Python310\python.exe: can't open file 'C:\\Users\\MY_PC\\PycharmProjects\\WEBP
le or directory
```

```
PS C:\Users\MY_PC\PycharmProjects\WEBPROJECT> cd DEMOPROJECT
PS C:\Users\MY_PC\PycharmProjects\WEBPROJECT\DEMOPROJECT> python manage.py runserver
Watching for file changes with StatReloader
```

```
PS C:\Users\MY_PC\PycharmProjects\WEBPROJECT\DEMOPROJECT> python manage.py startapp DEMOAPP
MOAPP_PC\PycharmProjects\WEBPROJECT\DEMOPROJECT>          python manage.py runserver
Watching for file changes with StatReloader
Performing system checks...
```