PYTHON DJANGO WEB FRAMEWORK
Define framework?
A framework, is a platform for developing software applications.

Web Framework (WF)/WAF Web App Framework
It is a software framework that is designed to support the development of web applications.

What is MEAN/MERN Stack:
MongoDB, Express.js, AngularJS, and Node.js
MongoDB, Express, ReactJS, Node.js

What is OpenStack?
OpenStack is a free and open-source software platform for cloud computing, It is infrastructure-as-a-service(IaaS). Written in Python by Apache.

What is "Full-Stack"?
There are two main components of a website:
1. The Front-End
2. The Back-End

1.FrontEnd:It is what you see as user on the website-UI
1. HTML & HTML5 2. CSS & CSS3
3. JavaScript 4. jQuery 5. Bootstrap 6. AngularJS

2. Back-End:It is the technology used to actually decide what to show you on the Front-End. It has maily the following three components:
1. The Language (PYTHON)
2. The framework (Django)
3. The Database (SQLite)

DJANGO
It is a high-level Python MVT web framework.

History of Django
2003-Started by Adrian Holovaty&Simon Willison as an internal project
2005 - Released July 2005 & named it Django, after the jazz guitarist Django Reinhardt.

Features of Django: (https://www.djangoproject.com)
1. Ridiculously fast.
2. Fully loaded.
3. Reassuringly secure.
4. Exceedingly scalable.
5. Incredibly versatile.

In PYTHON Popular Web Frameworks are:
1 Django 2 Flask 3 Pyramid 4 Falcon 5. Bottle

Step1 : Installing python
Step2: installing django
$ pip install django==3.0.5

Checking Django Installation:
import django

```
print(django.VERSION)
$ pip show django

Getting Started with Django:
1 Creating the first Project
Syntax:
$django-admin startproject projectname

Example:
$django-admin startproject BFSI
$cd BFSI
$ tree /f

[BFSI]/  <== Project root
├── [BFSI]/ <== Django root
│    ├── __init__.py
│    ├── asgi.py
│    ├── settings.py
│    ├── urls.py
│    └── wsgi.py
└── manage.py

__init__.py:
These files are required to make Python treat as packages

settings.py:
It is the central configuration for all Django projects

urls.py
In urls.py, the most important thing is the "urlpatterns" tuple. It's
where you define the mapping between URLs and views.

wsgi.py
Web Server Gateway Interface is a simple calling convention for web
servers to forward requests to web applications.

manage.py
It does the same thing as django-admin but takes care of a few things
for you.

How to run Django Project:
$python manage.py runserver
Server will run with few warnings as well.
Open any Web browser , Check address, 127.0.0.1:8000

Python Turtle Module:
http://pythonturtle.org/
“Turtle” is a python feature like a drawing board, which lets you
command a turtle to draw all over it! You can use functions like
turtle.forward(...) and turtle.left(...) which can move the turtle
around.

1    Import the turtle module
2    Create a turtle to control.
3    Draw around using the turtle methods.
4    Run turtle.done().
```

```
Turtle motion
forward() | fd()        backward() | bk() | back()
right() | rt()  left() | lt()
goto() | setpos() | setposition()
setx()  sety()
setheading() | seth()
home()  circle()
dot()   stamp() clearstamp()
clearstamps()   undo()  speed()

Example:
import turtle
star = turtle.Turtle()
for i in range(50):
    star.forward(50)
    star.right(144)
turtle.done()

Example:
import turtle
colors = ['red', 'purple', 'blue', 'green', 'orange', 'yellow']
t = turtle.Pen()
turtle.bgcolor('black')
for x in range(360):
    t.pencolor(colors[x%6])
    t.width(x/100 + 1)
    t.forward(x)
    t.left(59)

Turtule Star:
from turtle import *
color('red', 'yellow')
begin_fill()
while True:
    forward(200)
    left(170)
    if abs(pos()) < 1:
        break
end_fill()
done()

Example:
import turtle
painter = turtle.Turtle()
painter.pencolor("blue")
for i in range(50):
    painter.forward(50)
    painter.left(123) # Let's go counterclockwise this time
painter.pencolor("red")
for i in range(50):
    painter.forward(100)
    painter.left(123)
turtle.done()

Example:
import turtle
ninja = turtle.Turtle()
```

```
ninja.speed(10)
for i in range(180):
    ninja.forward(100)
    ninja.right(30)
    ninja.forward(20)
    ninja.left(60)
    ninja.forward(50)
    ninja.right(30)
    ninja.penup()
    ninja.setposition(0, 0)
    ninja.pendown()
    ninja.right(2)
turtle.done()
```

Example:

```
import turtle   #Outside_In
wn = turtle.Screen()
wn.bgcolor("light green")
wn.title("Turtle")
skk = turtle.Turtle()
skk.color("blue")

def sqrfunc(size):
    for i in range(4):
        skk.fd(size)
        skk.left(90)
        size = size-5

sqrfunc(146)
sqrfunc(126)
sqrfunc(106)
sqrfunc(86)
sqrfunc(66)
sqrfunc(46)
sqrfunc(26)
```

Example:

```
import turtle
loadWindow = turtle.Screen()
turtle.speed(2)

for i in range(100):
    turtle.circle(5*i)
    turtle.circle(-5*i)
    turtle.left(i)

turtle.exitonclick()
```

Example:

```
import turtle
colors = ['red', 'purple', 'blue', 'green', 'orange', 'yellow']
t = turtle.Pen()
turtle.bgcolor('black')
for x in range(360):
    t.pencolor(colors[x%6])
    t.width(x/100 + 1)
    t.forward(x)
```

```
t.left(59)
```