Q. What is a program ?

- A Program is nothing but a Set of instructions.
- A program is a specific set of ordered operations for a computer to perform task.

For example: **addition.py**

```
a = 10          #  10 value holds by a variable.
b = 20          #  20 value holds by b variable.
c = a + b       #  c  variable holds the result of both  a and b variable values.
print(c)        #  print()  display result to console.
```

- here, each line is one instruction. Total instructions perform the addition task.

Q. What is Software ?

- A Software is nothing but a Set of Programs.
- Software is a set of instructions, data or programs used to operate computers and execute specific tasks.

For example, **Calculator software**.

- here, we need multiple programs to perform all required operations like addtion, subtraction, multiplication and division and so on....

Introduction to Framework

- Framework is a software which is used to create the dynamic websites.
- Framework is a collection of Classes and API 's (Application Programming Interface), which are having predefined code.
- These are used to solve our problems when we face at the time of developing web application.
- Framework is mainly Aimed to develope the "Dynamic web applications " , It is also used to develop the "Static web applications".

Different Web Frameworks:

- Each language has its own Framework(s) for developing web applications.

For example,

Languages		**Frameworks**
Java	------->>>	Struct, Spring , Hibernate
DotNet	------->>>	ASP.Net , MVC Framework
Java Script	------>>>	Angular JS, Node JS.....
Python	------->>>	Django, Flask, Pyramid, PyJS

What is Django?

- Django is a server-side web application development framework written in Python.
- Django is a WebFramework of Python language which is used to create Web Applications.
- Django follows DRY(Dont Repeat Yourself) principle, Some other framworks or languages follow WET (Write Eveything Twise).
- Django is Open,Free Source and Protable framework.
- Django contains the Tons of packages.

History of Django :

- Django started as an internal project in lawrance-journal world newspaper organization in 2003.
- The Original authors of Django Framework are : Adrian and Simon Willison .
- They both are called web-developers, and they used to create multiple websites as per the organization requirements.
- They used to write the same code in all the projects which has taken more time.
- Later They thought that to reuse the code for the new projects.
- They factor-out all common features from all existing websites and created a new framework.
- They developed multiple websites by using this new framework, all these new websites have given a matured results.
- They like a guitarist named "Django Reinhardt" , so they kept "Django" as a Framework name.
- In 2005 July 21st, Developers are released Django as Open Source Framework for public.
- In 2008 June , They started a new organization named as DSF(Django Software Foundation) to maintain Django Software.

- DSF is a non-profitable and independent organization.
- They released Django 1.0 version in 2008(September-3).
- They released Django 2.0.x version in 2017(December-2).
- They released Django 2.2.xx (LTS-->Long Term Support) version in 2019(April-1).
- Next they released Django 3.0.x. version in 2019(December-2).
- Next they released Django 3.2.x.(LTS-->Long Term Support) version in 2021(April-6).
- Now they released latest Django 4.0 version in 2021(December-7).

Django Features :

1. Fast

2. Scalable
3. Versatile
4. More Secure
5. Easy to Maintain
6. Portable
7. Open and Free Source
8. All Databases
9. default database is SQLite3
10. tons of packages
11.Comes with admin site (default)

Explanation:

1. Fast Framework:

- By Using django framework, we can create any kind of website within less time, that means it takes very less development time, so we can say as it is very fast

2. Scalable Framework:

- By Using django framework, we can create all levels (low levels, medium level and high level) of websites, so It is called Scalable framework.

3. Versatile Framework:

- By Using django framework, we can create any kind of domain websites, so it is called Versatile Framework.

4. More Secure Framework:

- Django Framework is having the default code which is around 80% code, so this 80% is pre- secured and pre-compiled, so we dont think about the security of this all coding, thats why django provides more security. (csrf)

5. Easy to Maintain Framework:

- As the django has lot of default coding, we dont bother about default coding. We need to maintain our user code properly.

6. Open and Free Source Framework:

- If we want to use Django software then we dont require any kind of licence because it is a open source and freeware.

7. Portable:

- Django applications can be run on any kind of operating system without any kind of modifications,so it is called Portable framework.

8. Supports all databases:

- Database is an important part of any website, so django supports all types of databases like MySQL, Oracle, SQL Server, MongoDB , postgreesql, nosql.

9. Default database is sqlite3:

- We can create the website by using sqlite3 database, but it is not recommanded for realtime projects. We can use sqlite3 database for small or personal websites.

10. Brings lot of packages:

- When we install django, then it brings tons of packages / modules.
- if we combine the code of all these packages then it will be around 80% default coding.

11. admin site

- Admin people can interacting with our application database using admin site.

12. auth appliaction

- auth application provide so many predefined models, forms, views, templates, urls for developing the our application easily.

13. messages module :

- message module is providing by django to display user friendly messages according to user requests.

Django Advantages :

- When we install Django framework , it brings Tons of packages or modules or libraries.
- The collection of all Packages containing the Code will be around 80% , That means as a Developer we will write very less coding only.
- If we write very less code , then advantages are ,
    - It takes less development time.
    - It takes less development cost.
    - It takes less maintanace time.
    - It gives more productivity . (Getting more results in less time with less cost)