Python Introduction

What is Python?

Python is a programming language.

Python is General Purpose Programming Language. A programming language suitable for developing any type of software or application is called general purpose programming language.

Python is a high level programming language. All high level programming languages are in simple English. High level languages are hardware independent. These languages are used to develop programs irrespective hardware architecture.

Python is a programming language having some of the features of scripting language. Python programs can be embedded in other programming languages.

Python is object oriented programming language. It is a programming paradigm, which define set of rules and regulations for writing programs. Python is object oriented programming language, but it also support other programming paradigms (POP,MOP,..).

Python is interpreted programming language.

"Python is a high level, general purpose, interpreted programming language" for developing various types of applications.

Python Applications
In real time or software companies uses python for developing what types of software.

1. **Web applications/Internet Applications**
   Example: Instagram, Dropbox, Spotify, Google, …

   Python web frameworks

Django, Flask, TurboGears, web2py, CherryPy, FastAPI,..

2. **Windows Based Applications/Desktop Applications/GUI Applications**

   Tkinter, wxpython, pyQT, kivy

3. **Mobile Applications**

   Kivy

4. **Data Science/BA/DA**

   Pandas, Numpy, SciPy, Matplotlib,

5. **AI**
   NumPy. ...
   SciPy. ...
   Pandas. ...
   PyTorch. ...
   Seaborn. ...
   Matplotlib. ...
   Scikit-Learn.

6. **Cloud Computing(AWS) and Data Engineering**

   boto3

7. **Automation**

   Testing Tools (Selenium)
   Web Scraping (wb2py,scrpy,..)

8. **Big Data**

   PySpark

9. **Data Visualization**

   Matplotlib

10. **Web Scraping**

Scrappy, request,…

11. **Game Development**

   PyGame

12. **Cyber Security**
13. **Language Development**
14. **Block Chain**
15. **Image Processing**
16. **Audio/Video Processing**
17. **Operating System**
18. **CAD/CAM**
19. **ERP (Enterprise Resource Planning)**
20. **Software Development**
21. **DEVOPS (CI/CD)**

Python Features
Advantage of using python (OR) facilities provided by python to software developers or programmers.

1. Easy or Simple
2. Free and Open Source
3. Large Standard Libraries
4. Dynamic
5. Platform Independent
6. Portable
7. High Level
8. Object Oriented
9. Embeddable

10. Extensible
11. Robust

Easy or Simple
Python is easy language, it makes the programmers job easy by providing some facilities
1. Simple Syntax/Easy Syntax
    a. Statements are not terminated with ;
    b. Blocks are not defined using curly braces
2. Large standard Libraries
   A Library is pre written program which consist of pre written functionality. Library makes it application development easy
3. Automatic Memory Management
   Python developer does not think about memory management, it is done by Python runtime (GC Garbage Collection)
4. It is in simple English

Free and Open Source

Python software is free to download. Python software can be downloaded from,
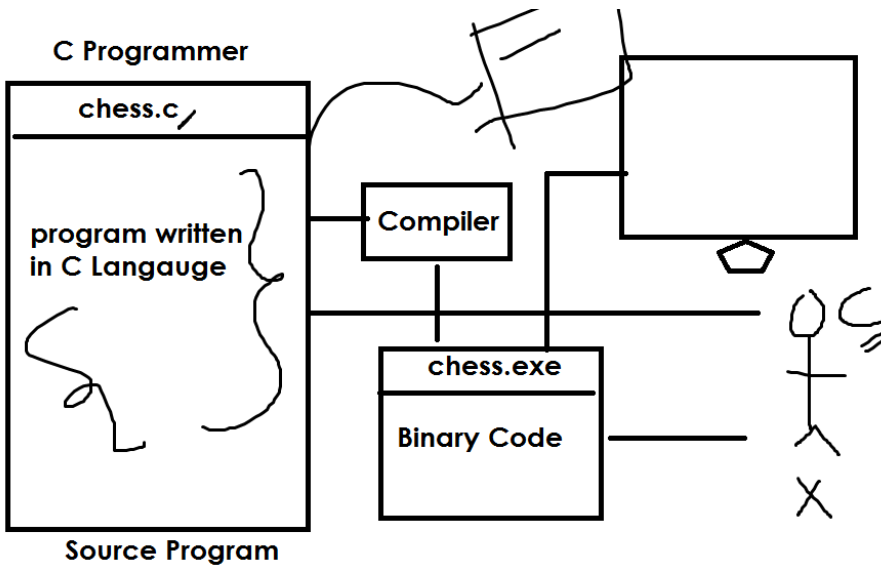
www.python.org

What is open source?
Source Code of python software is given to public. Public can modify or extend and develop new python technologies.

What is source code?
The program written in high level language is called source program or code.

C Programmer

chess.c

program written
in C Langauge

Source Program

Compiler

chess.exe

Binary Code

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