PROGRAMMING FUNDAMENTALS

- **What is Programming?**

➢ Programming is giving instructions to computer to perform tasks given by users using logic , variables, data structures , control flow and functions .

- **What is Python?**
  - ➢ Python is a general purpose, dynamic, high-level, and interpreted programming language.
  - ➢ Python supports Object Oriented programming approach to develop applications.
  - ➢ Python is simple and easy to learn and it provides high level data structures

- **Python History**
  - ➢ Python was developed by **Guido van Rossum** in **1991** at CWI in Netherland.
  - ➢ Idea of Python programming language has taken from the ABC programming language.
  - ➢ There is also a fact behind the choosing name Python. Guido van Rossum was a fan of the popular BBC comedy show of that time, **"Monty Python's Flying Circus"**
  - ➢ Python has vast community across the world
- **Why learn Python?**
  - o Easy to use and Learn
  - o Interpreted Language
  - o Object-oriented Language
  - o Wide Range of Libraries and Frameworks
  - o Learn Standard Library
  - o Open Source Language
  - o Integrated
  - o Dynamic memory allocation

- **Python Features**
    1. *Easy to Learn and Use*

       Python is easy to learn and use as compared to other languages, Because its syntax is straightforward and much the same as English Language.

       In python, there is no use of semi-colon or curly bracket only indentation defines code block.
    2. *Expressive Language*

       Python can perform complex tasks using few lines of code.
    3. *Interpreted*

       Python code is executed one line at a time. It makes debugging easier.
    4. *Cross-platform Language*

       It runs equally on different platforms, that's why we can say that Python is a portable language
    5. *Free and Open Source*

       Python is freely available for everyone. Python is open-source it means "Anyone can download its source code without paying any money ".
    6. *Object-Oriented Language*

       Python supports object-oriented language and concepts of classes and objects come into existence. Object-oriented procedure helps to programmer to write reusable code and develop application in less code.
    7. *Extensible*

       Python implies other languages such as C/C++ can be used to compile the code and thus it can be used further in our Python code.
    8. *Large Standard Library*

       It provides a vast range of libraries for the various fields.
    9. *GUI Programming Language*

       Graphical User Interface is used for the developing Desktop application.
    10. *Integrated*

        It can be easily integrated with languages like C, C++, Java, etc
    11. *Embeddable*

        The code of the other programming language can use in the Python source code.
    12. *Dynamic Memory Allocation*

        In Python, we don't need to specify the data-type of the variable.