Python Programming Basics

Python is a high-level, interpreted programming language created by Guido van Rossum.
It was first released in 1991 and has become one of the most popular programming languages.

Key Features of Python:
1. Easy to learn and read with simple syntax
2. Versatile - used for web development, data science, AI, and more
3. Large standard library and extensive third-party packages
4. Object-oriented, functional, and procedural programming paradigms

Basic Python Concepts:
- Variables: Store data values (e.g., x = 10, name = 'John')
- Data Types: int, float, str, bool, list, tuple, dict
- Control Flow: if/else statements, for loops, while loops
- Functions: Reusable blocks of code defined with 'def' keyword

Python uses indentation to define code blocks, unlike many languages that use braces.
The print() function is used to display output to the console.
Python is dynamically typed, meaning you don't need to declare variable types.

Common Python Libraries:
- NumPy: Numerical computing
- Pandas: Data analysis
- Matplotlib: Data visualization
- Django/Flask: Web frameworks
- TensorFlow/PyTorch: Machine learning