



# Hands-On Python Programming





# A Brief about the Tutor



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# Contents

- **Module – 1: Why Python?**
  - Ease to code
  - Broad applications
  - Readability
  - Portability
- **Module – 2: Fundamentals in Python Programming**
  - **Data Types:** Basic types, lists, dictionaries, sets, tuples
  - **I/O:** Reading/Printing from/to the console
  - **Operators:** Arithmetic, Logical, Unary and Ternary operators
  - **Conditional Statements:** if, if-else, elif
  - **Loops:** for loops, while loops
  - **Functions:** Defining a function, function calls
  - **Special Variables :** `__name__`



# Contents

- **Module – 3: Basic libraries in Python**
  - **Math:** exp(), sqrt(), ceil(), floor() etc.
  - **NumPy:** 1D, 2D, 3D and nD arrays, array operations
  - **Pandas:** Introduction to DataFrames, reading excel files, Operations on DataFrames
  - **Matplotlib:** 2D and 3D plotting, plotting using DataFrames and NumPy arrays
- **Module – 4: Advantages of Python**
  - Interpreted language
  - Dynamically typed
  - Rapid development
  - C/C++ v/s Python
  - Broad community

A stylized illustration of a laptop with a black frame and a white screen. The screen displays a code editor with a light blue background, a dark blue header bar, and several lines of code in a monospaced font. The laptop is positioned on the left side of the slide, against a dark blue background with a white circular light source behind it.

# Contents

- **Module – 5: Disadvantages of Python**
  - Execution speed
  - Memory consumption
- **Module – 6: Applications and Way Ahead**
  - Artificial Intelligence, Data Science
  - Web Development
  - IoT and automation
  - Software Development