Hands-On
Python Programming

A Brief about the Tutor

Thribhuvan Gupta S

Student, Research Intern

Studying 4thyr B.E in ECE at NMIT, Bengaluru

Contact: +91 9482091226

Email: thribhuvangupta@gmail.com

Website: https://thribhuvan.codes

GitHub: https://github.com/ThribhuvanGuptaS

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- **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__

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- **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

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- **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