

# PYTHON CURRICULUM

- **Introduction to computer programming**
  - What is programming and how does it relate to the real world
  - Evolution of programming languages
  - Algorithms & problem solving
- **Installation & setup of Python**
  - Installation of python
  - What is an IDE & installation of PyCharm
  - Write the first program
- **Data types and variables**
  - What are data types
  - 5 different data types in python
  - Introduction to variables
  - Naming convention of variables
  - Declaration and assignment of values
  - Variable type and casting
  - Print command
  - Practice challenges
  - Test
- **Operators and precedence**
  - Arithmetic operators
  - Comparison operators
  - Assignment Operators
  - Logical Operators
  - Bitwise Operators
  - Membership Operators
  - Identity Operators
  - Precedence table of operators
  - Evaluation of expressions
  - Practice challenges
  - Test
- **Strings**
  - Single & multiline strings
  - Escape Characters
  - Slicing & Indexing
  - String operators
  - String Methods
  - Practice challenges
  - Test
- **Numbers**
  - Numeric data types
  - Type conversion
  - Practice challenges
  - Test
- **Program Control Flow**
  - Introduction to blocks and statements
  - If, elif and else statements
  - Nested if else
  - Loops
    - For loop
    - While loop
    - Do while loop
    - Continue
    - Break
  - Nested loops
  - Practice challenges
  - Test

- **Lists & Tuples**
  - Introduction to sequence data types
  - Mutable and immutable objects
  - Introduction to lists
  - Operations on list
    - Creating list
    - Appending elements to list
    - Removing elements from list
    - Iterating a list
    - Sorting list
  - Nested lists
  - Introduction to tuples
  - Operations on tuples
  - Nested tuples
  - Practice challenges
  - Test
- **Dictionary and sets**
  - Introduction to dictionaries
  - Operations on a dictionary
  - Nested Dictionaries
  - Introduction to sets
  - Joining sets
  - Practice challenges
  - Test
- **Functions**
  - What are functions and why do we need them?
  - Defining a function
  - Arguments and Parameters
  - Return Values
  - Writing a docstring
  - Practice challenges
  - Test