

## 1. Introduction to Python ([link](#))

- What is Python?
- Installing Python and IDEs (e.g., Jupyter, VS Code, PyCharm)
- Writing and Running Python Programs

## 2. Basic Syntax and Data Types

- Comments and Docstrings ([link](#))
- Basic Input/Output (`print()` and `input()`) ([link](#))
- Variables and Data Types ([link](#))
  - Integers
  - Floats
  - Strings
  - Booleans
- Type Casting ([link](#))

## 3. Operators

- Arithmetic Operators (+, -, \*, /, etc.) ([link](#))
- Comparison Operators (==, !=, <, >, etc.) ([link](#))
- Assignment Operators (=, +=, -=, etc.) ([link](#))
- Logical Operators (and, or, not) ([link](#))

## 4. Control Flow

- Conditional Statements (`if`, `elif`, `else`) ([link](#))
- Looping Structures:
  - `for` loop ([link](#))
  - `while` loop ([link](#))
- `break`, `continue`, and `pass` ([link](#))

## 5. Functions ([link](#))

- Defining Functions
- Function Arguments and Parameters
- Return Statement

## 6. Data Structures

- **Lists** ([link](#))
  - Creating Lists
  - List Operations (slicing, indexing, appending, etc.)
- **Tuples**
  - Creating Tuples
  - Tuple Operations
- **Dictionaries**
  - Creating Dictionaries
  - Accessing and Modifying Values
  - Dictionary Methods
- **Sets**
  - Creating Sets
  - Set Operations (union, intersection, difference)

## 7. String Manipulation

- String Indexing and Slicing
- String Methods (e.g., `upper()`, `lower()`, `replace()`, etc.)
- String Formatting (`f-strings`, `format()`, `%`)
- Escape Characters

## 8. File Handling

- Opening Files (`open()`)
- Reading and Writing to Files
- File Modes (`r`, `w`, `a`, etc.)
- Using `with` Statement for Files

## 9. Modules and Packages

- Importing Modules (`import`, `from ... import`)
- Standard Library Modules (e.g., `math`, `random`, `os`, `sys`)
- Installing External Packages (`pip`)