

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** ([link](#))
 - 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`)