WORKING WITH STRINGS

Course: Python Programming

Section: Python Basics

Topic: Working with Strings

📌 What You Will Learn

- What strings are in Python

- How strings are created

- Accessing characters in strings

- String immutability

- Common string operations

1. What is a String?

A **string** is a sequence of characters used to represent text data.

In Python, strings are created using:

- Single quotes `''`

- Double quotes `""`

Strings can contain letters, numbers, symbols, and spaces.

Strings are commonly used to store names, messages, and user input.

2. Creating Strings

Strings can be created in different ways:

- Using single quotes

- Using double quotes

- Using triple quotes (for multi-line text)

The content inside quotes is treated as text.

3. Accessing Characters in a String

Each character in a string has a **position number**, called an **index**.

Key points:

- Indexing starts from `0`

- Characters can be accessed using their index position

- Negative indexing accesses characters from the end

This allows programs to read or manipulate individual characters.

4. String Immutability

Strings in Python are **immutable**, which means:

- Once a string is created, it cannot be changed

- Any modification creates a new string instead of changing the original

This design helps improve performance and memory efficiency.

5. Common String Operations

Python provides several operations to work with strings:

- Concatenation (joining strings)

- Repetition (repeating strings)

- Finding length of a string

- Checking membership of characters or words

These operations help manipulate and analyze text data.

6. String Methods

Python includes built-in methods for string processing, such as:

- Converting case (uppercase, lowercase)

- Removing spaces

- Replacing characters

- Checking string content

String methods make text handling easier and cleaner.

7. Common Mistakes with Strings

Beginners often make mistakes such as:

- Forgetting strings are immutable

- Confusing characters with strings

- Incorrect indexing

- Mixing strings with numbers without conversion

Understanding string behavior helps avoid logical errors.

📝 Summary

- Strings store text data

- Strings are sequences of characters

- Indexing allows access to characters

- Strings are immutable

- Python provides many string operations and methods