SDEV 1001

Programming Fundamentals

Introduction to Programming - 2

A LEADING POLYTECHNIC COMMITTED TO YOUR SUCCESS

Expectations - What I expect from you

- No Late Assignments

- No Cheating

- Be a good classmate

- Don’t waste your time

- Show up to class

Agenda

On the right is what we will cover today.

Introduction to Data Types in Python
The String Data Type
The Integer and Float Data Types
Math Operations with Data Types
Changing and Using Data Types
Exercises

Introduction to Data Types in Python

Python uses data types to classify the kind of value a variable holds. The most common data types you'll encounter are:

- String (`str`)
- Integer (`int`)
- Float (`float`)

Understanding data types is essential for performing math operations and working with user input.

The String Data Type

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

```
name = "Alice"
print("Hello, " + name)
```

- Strings are always enclosed in quotes (`" "` or `' '`).
- Useful for displaying information to the user.

The Integer and Float Data Types

- **Integer (`int`)**: Represents whole numbers (e.g., `14`, `0`, `-5`)
- **Float (`float`)**: Represents numbers with decimals (e.g., `3.14`, `0.0`, `-2.5`)

```
days_until_assignment_due = 14      # int
average_score = 87.5                # float
```

Python is dynamically typed, so you don't need to declare the type—just assign a value.

Math Operations with Data Types

Python supports basic math operations:

- Addition: `+`
- Subtraction: `-`
- Multiplication: `*`
- Division: `/` (returns a float)
- Exponent: `**`
- Modulus: `%` (remainder)
- Floor Division: `//` (integer division)

```
a = 10
b = 3
print(a + b)   # 13
print(a / b)   # 3.333...
print(a // b)  # 3
print(a % b)   # 1
```

Changing and Using Data Types

- You can reassign variables to new values.
- Use `int()` or `float()` to convert input or other types.

```
user_input = input("Enter a number: ")
number = int(user_input)  # Convert string to int
print(number * 2)
```

Always be aware of the data type you are working with, especially when performing math or combining values.

Example

Let’s go run a few examples together