

Conditional Tests

if/elif/else chains

Unit Overview

- In this unit we will introduce the second construct to control the flow of our programs; the if/elif/else chain. We will learn how to:
 - Define Boolean values
 - Use various comparison, membership, and logical operators.
 - Build simple if/else statements using conditional tests.
 - Build more complex if/elif/else chains.
 - Nest if/elif/else chains for more dynamic programs.
 - Interpret blank lists or strings as Boolean values.
 - Use logical operators to create more robust conditional tests.
 - Import the random module to randomly generate values for our programs.

Data Types

- Strings: A series of characters
- Integers: Whole numbers
- Floats: Decimal numbers
- Lists: A mutable collection
- Tuples: An immutable collection
- Ranges: A sequence of integers
- **Booleans: A True or False value**

Control Flow

- For Loops
- If Statements
- If/Else Statements
- If/Elif/Else Statements
- Break
- Pass
- Continue

Operators

Assignment Operators

- = Assignment
- += Compound Assignment
- -= Compound Assignment
- + Concatenation (strings)

Algebraic Operators

- + Addition (ints and floats)
- - Subtraction
- * Multiplication
- / Division
- ** Exponentiation

Operators

Logical Operators

- And
- Or
- Not

Membership Operators

- In
- Not in

Comparison Operators

- == Equal to
- != Not Equal to
- < Less than
- > Greater Than
- <= Less Than or Equal
- >= Greater Than or Equal

Built In Functions

- `print()`
- `type()`
- `str()`
- `int()`
- `float()`
- `input()`
- `round()`
- `sorted()`
- `len()`
- `range()`
- `list()`
- `min()`
- `max()`
- `sum()`
- `zip()`
- `bin()`
- `hex()`

Methods

Strings:

- .upper()
- .lower()
- .title()
- .strip()
- .count()
- .join()
- **.startswith()**

Lists:

- .append()
- .insert()
- .pop()
- .remove()
- .sort()
- .reverse()
- .copy()

External Libraries

- math
- datetime
- cmath
- random

Challenge Problems

- Shipping Accounts Program
- Coin Toss App
- Voter Registration App
- Guess My Number App
- Rock Paper Scissors App