python

Shell | Bash
Scripting

Key Points

For this series, I will be using below configurations -

OS - Ubuntu OS 22.04

Editors/IDEs - Vi Editor

Notes -

- To create python program use below command, remember extension for python program is **.py** –

vi script_name.py

- To create Shell | Bash script use below command, remember extension for Shell script could be different like **Bash, Zsh, Csh, Ksh**, and more but for Bash script is **.bash** –

vi script_name.bash

- Remember to run these program, execute permission should be there (if you are using Linux). So to give permissions use below command –

chmod 755 script_name

OR to only give execute permissions

chmod +x script_name

Python - Data Types

1) **int (Integer):** Represents whole numbers without any fractional part.

   For example: 1, 2, -3

   Real life examples:
   Counting the number of students in a class: num_students = 30
   Representing a person's age: age = 25

2) **float (Floating-point Number):** Represents real numbers with decimal points.

   For example: 3.14, -0.5, 2.0

   Real life examples:
   Storing the price of a product: price = 19.99
   Calculating the average temperature: temperature = 25.5

Python - Data Types

3) **str (String) :** Represents a sequence of characters enclosed in single quotes (' ') or double quotes (" ").

For example: "Hello, world!", 'Python'

Real life examples:
Storing a person's name: name = "John Doe"
Displaying a message: message = "Welcome to our website!“

4) **bool (Boolean):** Represents either True or False. It is used in logical operations and conditional statements.

Real life examples:
Checking if a user is logged in: is_logged_in = True
Validating a condition: is_valid = False

Python - Data Types

5) list (List): Represents an ordered collection of items enclosed in square brackets ([]). The items can be of different data types.

For example: [1, 2, 3], ['apple', 'banana', 'cherry']

Real life examples:

Storing a shopping list: shopping_list = ['apples', 'bananas', 'milk']

Keeping track of a student's grades: grades = [90, 85, 95]

6) tuple (Tuple): Similar to a list, but it is immutable, meaning its elements cannot be changed after creation. It is represented by items enclosed in parentheses (()).

For example: (1, 2, 3), ('a', 'b', 'c')

Real life examples:

Storing coordinates of a point: point = (2, 5)

Storing RGB values of a color: color = (255, 0, 0)

Python - Data Types

7) **dict (Dictionary):** Represents a collection of key-value pairs enclosed in curly braces ({ }). Each key is unique and associated with a value.

   For example: {'name': 'John', 'age': 25}

   Real life examples:

   Storing information about a person: person = {'name': 'John', 'age': 30, 'city': 'New York'}

   Representing a product with its attributes: product = {'name': 'Phone', 'price': 599, 'brand': 'Apple'}

8) **set (Set):** Represents an unordered collection of unique elements. It is enclosed in curly braces ({ }).

   For example: {1, 2, 3}, {'apple', 'banana', 'cherry'}

   Real life examples:

   Keeping track of unique email addresses: email_set = {'user1@example.com', 'user2@example.com', 'user3@example.com'}

   Storing unique tags for a blog post: tags = {'python', 'programming', 'tutorial'}

Bash - Data Types

1) **String:** Represents whole numbers without any fractional part.

   For example: 'Hello, world!‘

   Real life examples:

   name="John Doe“

2) **Integers:** Whole numbers without decimal points. Bash supports integer arithmetic for basic operations like addition, subtraction, multiplication, and division.

   For example: number1=10

   Real life examples:

   quantity=5

   price=10

Bash - Data Types

3) Arrays: Collections of elements stored in a single variable. Arrays in Bash can contain both strings and integers. You can access individual elements using their indices or iterate over the entire array.

For example: ("apple" "banana" "orange")

Real life examples:

my_array=("apple" "banana" "orange")

4) Booleans: Bash does not have a built-in boolean data type, but you can use integer values as booleans. Conventionally, 0 represents false, and any non-zero value represents true.

For example: is_true=1, is_false=0

Real life examples:

is_raining=1

file_exists=false

Bash - Data Types

5) **Dictionary (Associative Array):** An associative array called dictionary with key-value pairs

For example: grades["John"]=85, grades["Alice"]=92

Real life examples:

dictionary["apple"]="A sweet fruit"

dictionary["banana"]="A tropical fruit"

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https://www.linkedin.com/in/themr255/

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