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**Day 2 Assignment**

Understanding Variables, Comments, and Data Types in Python

**Multiple Choice Questions (Choose the correct answer)**

1. What symbol is used to start a single-line comment in Python?

   - a) `//`

   - b) `/\*`

   - c) #

   - d) `<!--`

2. Which of these is a valid variable assignment in Python?

   - a) `2nd\_number = 10`

   - b) `number-2 = 10`

   - c) `number\_two = 10`

   - d) `number.2 = 10`

3. What data type in Python is used to represent whole numbers?

   - a) String

   - b) Integer

   - c) Character

   - d) Float

4. In Python, what does the term "dynamic typing" mean?

   - a) Variables can change types during execution.

   - b) The type of a variable is checked at compile time.

   - c) Variables must be typed dynamically on the keyboard.

   - d) The type of a variable cannot be inferred by the interpreter.

5. Which of these is not a Python data type?

   - a) `list`

   - b) `str`

   - c) `int`

   - d) `perform`

**Fill in the Blanks**

1.In Python, a variable's value can be changed after it has been created, making variables mutable.

2. To write a multi-line comment in Python, a common practice is to use (**'''** or **"""**) at the beginning of each line.

**True/False**

1. A variable name in Python can begin with a number. False

2. Triple-quoted strings (`'''` or `"""`) are often used as single-line comments in Python. False

**Match the Columns**

Match the terms in **Column A** with their descriptions in **Column B.**

|  |  |
| --- | --- |
| **A** | **B** |
| 1. # | a. Symbol for single-line comment |
| 2. `int` | b. Data type for numbers with a decimal point |
| 3. `float` | c. Data type for whole numbers |
| 4. `"apple"` | d. Example of a string |
| 5. Variable | e. A symbolic name referring to a value stored in memory |
|  |  |

Ans:

1. >> a
2. >> c
3. >> b
4. >> d
5. >> e

**Theory + Practical Code Based Questions**

**Question 1: Variable Assignment and Usage**

* **Theory:** Explain the process of variable assignment in Python. What rules should be followed while naming a variable?
* **Practical:** Write a Python code to assign the value `10` to a variable named `my\_number` and then print the value of `my\_number`.

**Ans:** In Python, variable assignment is the process of associating a value with a variable name. This is done using the assignment operator (**=**). When we assign a value to a variable, Python creates a reference to that value in memory and associates it with the variable name.

**Ex:** my\_number =10

**Question 2: Understanding Data Types**

* **Theory:** Describe the difference between integers and floating-point numbers in Python.
* **Practical:** Create two variables, `whole\_number` assigned with an integer and `decimal\_number` assigned with a floating-point number. Print their values.

Ans: Integers represent whole numbers without any decimal or fractional parts.

Ex: ‘-10’,0,10

Floating-point numbers, commonly referred to as floats, represent numbers with

decimal points or fractional parts.

Ex: ‘1.2’,’1.0’,’-0.5’

Code: whole\_number = 15

decimal\_number = 1.5

print(‘whole\_number’)

print(‘decimal\_number’)

**Question 3: Strings in Python**

* **Theory:** What is a string in Python, and how is it different from a character?
* **Practical:** Define a string variable named `greeting` with the value `"Hello, world!"`. Print the variable value.

**Ans:** In Python, a string is a sequence of characters enclosed within either single quotes (**'**) or double quotes (**"**). Strings are used to represent text data.

A character, on the other hand, is a single symbol or letter. In Python, characters are not a separate data type but are represented as strings containing a single character

Code: greeting = “Hello, world!"`

print(greeting)

**Question 4: Single-line and Multi-line Comments**

* **Theory:** Explain the purpose of comments in Python and differentiate between single-line and multi-line comments.
* **Practical:** Write a Python code snippet that includes both a single-line comment and a multi-line comment.

**Ans:** start with the ‘#’ symbol and continue until the end of the line. They are typically used for short comments or explanations on a single line.

Enclosed within triple quotes (**'''** or **"""**) and can span multiple lines. They are often used for longer comments, documentation strings (docstrings), or commenting out blocks of code.

Code:

Print(“hello world”) #this is single line comment

“””

We use multi line comments for explaining below

* 1. Process
  2. Code
  3. Variable details and imports

“””

print(“this code has both”).