Python for Data science

Assignment -01

MCQ

Q1. Which of the following is a valid Python variable name?
a) 2name
b) name_1
c) first-name
d) total$

Answer: b) name_1

Q2. Which of the following is **not** a basic Python data type?
a) Integer
b) Boolean
c) Character
d) Float

Answer: c) Character

Descriptive Questions

Q1. Explain the rules and conventions for naming variables in Python with suitable examples.
Answer:
In Python, variables are used to store values and must follow certain rules:

- A variable name must start with an alphabet (uppercase or lowercase).
- It can contain alphabets, numbers, and underscores, but cannot start with a number.
- Special characters other than underscore are not allowed.
- Variable names should be descriptive and meaningful (e.g., student_name is preferred over x).
- Avoid using names that clash with Python's built-in functions (e.g., list, str).
- Common naming conventions:
    - **Camel case:** studentName
    - **Snake case:** student_name
    - **Pascal case:** StudentName

Example: age = 20

student_name = "John"

salary_tier = '3'

Q2. Differentiate between lists and tuples in Python with examples.
Answer:

- **Mutability**:
    - **List** is mutable (elements can be changed).
    - **Tuple** is immutable (cannot be changed once defined).
- **Syntax**:
    - List → square brackets []
    - Tuple → parentheses ()
- **Use case**:
    - Lists are used when data is expected to change.
    - Tuples are used for fixed collections (e.g., coordinates).

Example:

my_list = [1, 2, 3]

my_list[0] = 10 # Allowed

my_tuple = (1, 2, 3)

my_tuple[0] = 10 # Error (immutable)

Hence, lists provide flexibility, while tuples ensure data integrity.