Assignment 1 – Python for Data Science (Week 1 & 2)

Name: Puneeth v v

SRN: [PES2UG23EC802]

Multiple Choice Questions

Q1. Which of the following is a valid way to declare a list in Python?

A. list = (1, 2, 3)

B. list = <1, 2, 3>

C. list = {1, 2, 3}

D. list = [1, 2, 3]

Answer: D

Q2. What will be the output of the expression: 3 * 'Data'?

A. 'Data3'

B. Error

C. 'DataDataData'

D. 'Data*3'

Answer: C

Descriptive Questions

Q3. Explain the difference between mutable and immutable data types in Python with examples.

Answer: In Python, mutable data types can be changed after creation, while immutable types cannot.

Mutable: Lists, Dictionaries, Sets Example:

python

```
my_list = [1, 2, 3]
my_list[0] = 10  # List is modified
```

Immutable: Tuples, Strings, Integers Example:

python

```
my_tuple = (1, 2, 3)
my_tuple[0] = 10  # Error: Tuples cannot be modified
```

Q4. Differentiate between lists and tuples in Python. When would you use each?

Answer:

Lists are mutable, meaning their contents can be changed.

tuples are immutable, meaning once created, they cannot be altered.

Feature	List	Tuple
Mutability	Mutable	Immutable
Syntax	[1, 2, 3]	(1, 2, 3)
Use Case	Dynamic data	Fixed data
Performance	Slightly slower	Faster (due to immutability)