**Data Science with ML & AI**

**Day 1:**

**Topic – Python(Data types and Operators)**

**Assignment 1:-**



Data Types

1. How do lists and tuples differ in terms of mutability and performance? When would you choose one over the other?
2. Explain how Python handles type conversion between different data types, such as between integers and floats or between strings and lists.
3. What are the key differences between Python’s `list`, `set`, and `dictionary` data types? Provide examples of scenarios where each would be the most appropriate choice.
4. Discuss the role of the `\_\_repr\_\_` and `\_\_str\_\_` methods in custom data types. How do they differ, and when should you implement them?
5. How does Python handle large integers? Explain the difference between `int` in Python 2 and Python 3.

Operators

1. \*\*What is the difference between the `+=` operator and the `+` operator in Python when used with mutable and immutable types?
2. \*\*Explain the purpose and use of the `in` operator in Python. How does it behave differently when used with different data types, such as strings, lists, and dictionaries?
3. \*\*How do the bitwise operators (`&`, `|`, `^`, `~`, `<<`, `>>`) work in Python? Provide examples of their usage.
4. What are augmented assignment operators, and how do they work in Python? Give examples with `+=`, `-=`, and `\*=`.
5. How does Python’s `is` operator differ from `==`, especially in terms of comparing lists, strings, and other complex data types?

**submit your assignment to the below link**

https://forms.gle/Grz51ZXvfHs2KcWv7