Data analysis is the process of inspecting, cleansing, transforming, and modeling data with the goal of discovering useful information, informing conclusions, and supporting decision-making

why use python?

1-Easy to learn and to use

2-Lots of Libraries

3-easier to scale

4-wide spread

A **library** is a collection of pre-written code that you can use to perform specific tasks

virtual environments are self-contained, isolated spaces where you can install specific versions of software packages, including dependencies, libraries, and Python versions.

This isolation helps avoid conflicts between package versions and ensures that your projects have the exact libraries and tools they need.

**make sure you have both python and anaconda installed (follow the default installation steps)

Two ways to write comments in python:

1-Sinlge line comments using #

2-multiple line comments using '" and ending with the same '"

Variables

No need to explicitly mention data type, for example (x = 10)

To know the data type of a variable we use the function type (variable name)

Input & Output

We use the input() function and the print() function to take in values or to display what is needed.

Example:

Taking user input

user_name = input("Enter your name:")

Displaying output

```python
print("Hello, " + user_name + "!")
```

Storing Multiple values in one variable

1-List (ordered, mutable)	data_list = [10, 20, 30, 40]
2-Tuple (ordered, immutable)	data_tuple = (10, 20, 30, 40)
3-Dictionary (key-value pairs)	data_dict = {"Name": "Alice", "Age": 25, "Salary": 50000}

File Handling

1-Writing to a file

```python
file = open("example.txt", "w")
file.write("Hello, World!")
file.close()
```

2-Reading from a file

```python
file = open("example.txt", "r")
content = file.read()
print(content)
file.close()
```