

PYTHON BASICS

1. What is Python? Why is it popular in AI & Data Science?

Python is a high-level, interpreted programming language that is easy to learn and use. It is popular in AI and Data Science because it has powerful libraries like NumPy, Pandas, TensorFlow, and supports fast and readable coding.

2. Difference between list, tuple, set and dictionary

A list is ordered, mutable, and allows duplicate values.

A tuple is ordered but immutable and allows duplicates.

A set is unordered, mutable, and does not allow duplicate values.

A dictionary stores data as key–value pairs and keys must be unique.

3. What are variables and data types in Python?

A variable is used to store data in memory.

Data types define the type of value stored, such as int, float, string, and boolean.

4. What is the difference between == and =?

The = operator is used to assign a value to a variable.

The == operator is used to compare two values.

5. Explain if, elif, and else

if checks a condition and executes code if it is true.

elif checks another condition if the previous one is false.

else executes when all conditions are false.

6. What is a function? Why do we use functions?

A function is a reusable block of code that performs a specific task.

Functions help reduce repetition and improve code readability.

7. Difference between for loop and while loop

A for loop is used when the number of iterations is known.

A while loop is used when the loop runs until a condition becomes false.

8. What is a module? Give an example

A module is a file that contains Python functions and variables.

Example: the math module.

9. What is exception handling?

Exception handling is used to manage runtime errors using try and except.

It prevents the program from stopping unexpectedly.

10. What is pip?

pip is a package manager used to install and manage Python libraries.

Example: pip install pandas.