1 what is a set in python?

set is a collection of unique, unordered elements enclosed in curly braces {}.

Sets are mutable, which means that you can add or remove elements after they are created.

my\_set = {1, 2, 3, 4, 5}

2 what is a encapsulations in python?

In Python, encapsulation is a mechanism that restricts access to methods and variables, preventing them from being modified or accessed directly from outside the class in which they are defined. Encapsulation is one of the fundamental principles of object-oriented programming (OOP)

class Person:

def \_\_init\_\_(self, name, age):

self.\_name = name # protected variable

self.\_\_age = age # private variable

def get\_name(self):

return self.\_name

def get\_age(self):

return self.\_\_age

def set\_age(self, age):

self.\_\_age = age

person = Person("John", 30)

print(person.get\_name())

print(person.get\_age())

# Try to access private variable directly

print(person.\_\_age) # Raises an AttributeError

# Try to modify private variable directly

person.\_\_age = 40 # Does not modify the private variable

print(person.get\_age()) # Still prints 30

# Modify private variable using public method

person.set\_age(40)

print(person.get\_age()) # Now prints 40

3 access a value in a dictionnary in python?

my\_dict = {"name": "John", "age": 30, "city": "New York"}

# Access the value associated with the "name" key

name = my\_dict["name"]

# Print the value

print(name) # Output: "John"

4 what is virtual environment in python?

- Open a command prompt or terminal and navigate to the directory where you want to create the virtual environment.

Run the command "python -m venv env" to create a new virtual environment named "env". You can replace "env" with any name you want.

Activate the virtual environment by running the command "env\Scripts\activate" on Windows, or "source env/bin/activate" on Linux or macOS.

You should see the name of the virtual environment in your command prompt or terminal prompt, indicating that the virtual environment is active.

Now you can install packages and dependencies in the virtual environment using pip, just like you would in a global Python environment. For example, you can run "pip install numpy" to install the NumPy package in the virtual environment.

When you are done working in the virtual environment, you can deactivate it by running the command "deactivate".

Using virtual environments in Python can help you avoid dependency conflicts and keep your projects organized and isolated

5 how to implement inheritance in python?

Inheritance is a fundamental concept of object-oriented programming (OOP) that allows one class to inherit properties and methods from another class. In Python, you can implement inheritance by creating a subclass that inherits from a parent class.

6 What is OOP?

OOP stands for Object-Oriented Programming. It is a programming paradigm that focuses on using objects to represent and manipulate data, rather than functions or procedures.

7 What is a class?

A class is a blueprint for creating objects. It defines the properties and methods that an object will have.

8 What is method overriding(polymorphism)?

Method overriding is the process of replacing a method in a parent class with a different implementation in a child class. This allows you to modify or extend the behavior of the parent class without modifying its code directly

9 difference between overloading and overriding?

10 What is an interface?

An interface is a collection of abstract methods that define a common set of functionality. It provides a way to enforce a certain behavior in classes that implement the interface