***Inheritance:***

1.Inheritance allows us to define a class that inherits all the methods and properties from another class.

2.Parent class is the class being inherited from, also called base class.

3.Child class is the class that inherits from another class, also called derived class.

4. There are four types of inheritance in python.

* ***Single Inheritance***
* ***Multiple Inheritance***
* ***Multilevel Inheritance***
* ***Hierarchical Inheritance***
* ***Hybrid inheritance***

***Single Inheritance:***

1.Single inheritance enables a derived class to inherit properties from a single parent class.

2.enables code reusability and the addition of new features to existing code.

***syntax:***

*class Parent\_class\_Name:*

*#Parent\_class code block*

*class Child\_class\_Name(Parent\_class\_name):*

*#Child\_class code block*

***Example:***

*#Inheritance Example*

*classA:*

*x="Parent class variable"*

*classB(A):*

*pass*

*c1=Test()*

*obj=B(*

*print(obj.x)*

***Multiple Inheritance:***

1.When child class is derived or inherited from more than one parent class. This is called multiple inheritance.

2.In multiple inheritance, we have two parent classes/base classes and one child class that inherits both parent classes properties.

***syntax:***

*class parent\_1:*

*pass*

*class parent\_2:*

*pass*

*class child(parent\_1.parent\_2):*

*pass*

*obj=child()*

***Example:***

*class Brands:*

*brand\_name\_1="Amazon"*

*class Products:#child\_class*

*prod\_1="Online Ecommerce Store"*

*class Popularity(Brands Products):*

*prod\_1\_popularity=100*

*obj\_1=Popularity()*

*print(obj\_1.brand\_name\_1+" is an"+obj\_1.prod\_1))*

***Multilevel Inheritance***

1.In multilevel inheritance, we have one parent class and child class that is derived or inherited from that parent class.

2.We have a grand-child class that is derived from the child class

***Syntax:***

*classA:*

*pass*

*classB(A):*

*pass*

*classC(B):*

*pass*

*obj=C()*

***Example:***

*class Brands:#parent\_class*

*brand\_name\_1="Amazon"*

*class Products(Brands):#child\_class*

*prod\_1="Online Ecommerce Store"*

*class Popularity(Products):#grand\_child\_class*

*prod\_1\_popularity=100*

*obj\_1=Popularity())*

*print(obj\_1.brand\_name\_1+" is an"+obj\_1.prod\_1+"popularity of"+str(obj\_1.prod\_1\_popularity))*

***Hierarchical inheritance:***

1.When we derive or inherit more than one child class from one(same) parent class

***Syntax:***

*classA:*

*pass*

*classB(A):*

*pass*

*classC(A):*

*pass*

*classD(A):*

*pass*

*obj\_1=B()*

*obj\_2=C()*

*obj\_3=D()*

***Example:***

*class Brands:*

*brand\_name\_1="Amazon"*

*class Products(Brands):*

*prod\_1="Online Ecommerce Store"*

*class Popularity(Brands):*

*prod\_1\_popularity=100*

*class Value(Brands):*

*prod\_1\_value="Excellent Value"*

*obj\_1=Products()*

*print(obj\_1.brand\_name\_1+"is an"+obj\_1.prod\_1)*

***Hybrid inheritance:***

1.Hybrid inheritance satisfies more than one form of inheritance

2. It is a combination of all inheritance

***syntax:***

*class PC:*

*pass*

*class Laptop(PC):*

*pass*

*class Mouse(Laptop):*

*pass*

*class Student3(Mouse,Laptop)*

*pass*

*obj=Student3()*