

Multiple Inheritance Concept:

- When a derived class contains more than one base class is called Multiple inheritance.
- Means The process of inheriting the fields from multiple parent classes into a single child class is called as Multiple inheritance.

Syntax:

class A:

statement1

statement2

class B:

statement3

statement4

class C(A,B):

statement5

statement6

c = C()

Note: here we can use C class object for accessing all the properties of above classes.

Example for multiple inheritance:

class Student:

def setStudent(self, sno, sname):

self.sno = sno;

self.sname = sname;

def getStudent(self):

print("Student No : ", self.sno);

print("Student Name : ", self.sname);

class Marks:

def setMarks(self, m1, m2):

```
self.mark1 = m1;
self.mark2 = m2;
```

```
def getMarks(self):
    print("Mark1 : ", self.mark1);
    print("Mark2 : ", self.mark2);
```

```
class Result(Student,Marks): # multiple inheritance
    def findTotal(self):
        self.total = self.mark1 + self.mark2;

    def getTotal(self):
        print("Total : ", self.total);
```

```
r = Result();
r.setStudent(10, "Srinivas");
r.setMarks(60, 70);
r.getStudent()
r.getMarks();
r.findTotal()
r.getTotal();
```

Output:

```
Student No : 10
Student Name : Srinivas
Mark1 : 60
Mark2 : 70
Total : 130
```

4. Hierarchical Inheritance:

If One Base class contains more than one Derived class.

syntax : father---> child1 and child2.

The process of inheriting the fields from Single parent class into Multiple Child classes is called as Hierarchical inheritance.

Syntax:

class A:

statement1

statement2

class B(A):

statement3

statement4

class C(A):

statement5

statement6

Q. Write a program to use one parent class properties into multiple child classes?

class Sample1:

def display(self):

self.x=1000;

self.y=2000;

print("display() is the method in class Sample1");

print("Value of X= ",self.x);

print("Value of Y= ",self.y);

class Sample2(Sample1):

def add(self):

print("add() is the method in class Sample2");

print("The sum of X and Y is : ",(self.x+self.y));

class Sample3(Sample1):

def mul(self):

print("mul() is the method in class Sample3");

print("The multiplication of X and Y is: ",(self.x * self.y));

s2 = Sample2();

s3 = Sample3();

s2.display()

s3.display()

```
print()
s2.add()
print()
s3.mul()
```

Output:

```
display() is the method in class Sample1
Value of X= 1000
Value of Y= 2000
display() is the method in class Sample1
Value of X= 1000
Value of Y= 2000
```

```
add() is the method in class Sample2
The sum of X and Y is : 3000
```

```
mul() is the method in class Sample3
The multiplication of X and Y is: 2000000
```

Way2:

Q. Write a program to initialize the values automatically and accessing the values from one parent class into multiple child classes?

```
class Sample1:
    def __init__(self):
        self.x = 1000;
        self.y = 2000;
        print("Non-parameterized constructor is the method in class Sample1");
        print("Value of X= ",self.x);
        print("Value of Y= ",self.y);

class Sample2(Sample1):
    def add(self):
        print("add() is the method in class Sample2");
        print("The sum of X and Y is : ",(self.x+self.y));
```

```
class Sample3(Sample1):
    def mul(self):
        print("mul() is the method in class Sample3");
        print("The multiplication of X and Y is: ",(self.x * self.y));
```

```
s2 = Sample2();
print()
s2.add()
print()
s3 = Sample3();
print()
s3.x = 100 # update the x value (1000) in s3 object as 100
s3.y = 200 # update the y value (2000) in s3 object as 200
print('After updating the values of X and Y are :')
print('Value of X :',s3.x)
print('Value of Y :',s3.y)
s3.mul()
```

Output:

Non-parameterized constructor is the method in class Sample1

Value of X= 1000

Value of Y= 2000

add() is the method in class Sample2

The sum of X and Y is : 3000

Non-parameterized constructor is the method in class Sample1

Value of X= 1000

Value of Y= 2000

After updating the values of X and Y are :

Value of X : 100

Value of Y : 200

mul() is the method in class Sample3

The multiplication of X and Y is: 20000