



ATHARVA YADAV

ROLL NO : 127

BATCH : S23

## Polymorphism

### Executable Code:

```
class Specialstring:
```

```
    def __len__(self):
```

```
        return 10
```

```
# Driver's code if
```

```
__name__ == "__main__":
```

```
    string = Specialstring()
```

```
    print(len(string))
```

```
    print("fly with wings")
```

```
    print("fly with fuel")
```

```
class Bird:
```

```
    def fly(self):
```

```
        print("fly with wings")
```

```
class Airplane:
```

```
    def fly(self):
```

```
print("fly with fuel")
```

```
class Fish:  
    def swim(self):  
        print("Dolphins  
        swim in sea")
```

```
for obj in Bird(),  
    Airplane(), Fish():    if  
    hasattr(obj, 'fly'):  
        obj.fly()    else:  
        print("Cannot fly")
```

```
print(10 + 15)  
s1 = "Red" s2 =  
"Fort" print(s1  
+ s2) a = [10,  
20, 30] b = [5,  
15, -10]  
print(a + b)
```

```
class BookX:    def  
    __init__(self, pages):  
        self.pages = pages
```

```
class BookY:      def
__init__(self, pages):
self.pages = pages

b1 = BookX(30)
b2 = BookY(20) print('Total
Pages=', b1.pages + b2.pages)
```

```
class BookX:      def
__init__(self, pages):
self.pages = pages

    def __add__(self, other):
        return self.pages + other.pages
```

```
b1 = BookX(10) b2 =
BookX(15) print('Total
Pages=', b1 + b2)
```

```
class A:      def
__init__(self, a):
    self.a = a

    def __add__(self, o):
return self.a + o.a
```

```
ob1 = A(1) ob2 =  
A(2) ob3 =  
A("Hello") ob4 =  
A("World")  
print(ob1 + ob2)  
print(ob3 + ob4)
```

```
class complex:      def  
__init__(self, a, b):  
    self.a = a  
self.b = b  
  
    def __add__(self, other):  
        return self.a + other.a, self.b + other.b
```

```
Ob1 = complex(1, 2)  
Ob2 = complex(2, 3)  
Ob3 = Ob1 + Ob2  
print(Ob3)
```

```
class Point:      def  
__init__(self, x=0, y=0):  
    self.x = x  
self.y = y  
  
    def __str__(self):
```

```
        return "{0},{1}".format(self.x, self.y)
```

```
    def __lt__(self, other):
```

```
        self_mag = (self.x ** 2) + (self.y **
```

```
2)         other_mag = (other.x ** 2) +
```

```
(other.y ** 2)         return self_mag <
```

```
other_mag
```

```
p1 = Point(1, 1)
```

```
p2 = Point(-2, -
```

```
3) p3 = Point(1,
```

```
-1) print(p1 <
```

```
p2)    print(p2 <
```

```
p3) print(p1 <
```

```
p3)
```

```
class Student():    def
```

```
__init__(self, r_no, name, age,
```

```
marks):
```

```
        self.r_no = r_no
```

```
self.name = name
```

```
self.age = age
```

```
self.marks = marks
```

```
    def displayStudent(self):
```

```
        print("Roll no:", self.r_no, "Name:", self.name, ", Age:",  
self.age, ", Marks:", self.marks)
```

```

def __str__(self):
    return "({0},{1},{2},{3})".format(self.r_no, self.name,
self.age, self.marks)

def __eq__(self, other):
    if self.marks == other.marks:
        return self.marks == other.marks
stu = []
for i in range(1, 3):
    print("Enter Details for Students
%d" % (i))
    r_no = int(input("Enter
Roll no:"))
    name = input("Enter
Name:")
    age = int(input("Enter
Age:"))
    marks = input("Enter
Marks:")
    stu.append(Student(r_no,
name, age, marks))

for s in stu:
    s.displayStudent()

class Nikhil:
    def sum(self, a=None, b=None,
c=None):
        if a is not None and b is not
None and c is not None:
            print("Sum of Three=", a +
b + c)
        elif a is not None and

```

```
b is not None:          print("Sum
Of two=", a + b)        else:
                        print('Please enter two or three Argument')
```

```
m = Nikhil()
```

```
m.sum(10, 15, 20)
```

```
m.sum(10.5, 22.5)
```

```
m.sum(10)
```

```
class Employee:
```

```
def message(self):
```

```
    print('This message is from Employee Class')
```

```
class Department(Employee):
```

```
def message(self):
```

```
    print('This Department class is inherited from Employee')
```

```
emp = Employee()
```

```
emp.message()
```

```
print('-----')
```

```
dept = Department()
```

```
dept.message()
```

```
class Employee:
```

```
def message(self):
```

```
    print('This message is from Employee Class')
```

```
class Department(Employee):  
    def message(self):  
        print('This Department class is inherited from Employee')
```

```
class Sales(Department):  
    def message(self):  
        print('This Sales class is inherited from Employee')  
emp = Employee()  
emp.message()  
print('-----')  
dept = Department()  
dept.message()  
print('-----  
--') sl = Sales()  
sl.message()
```

```
class Employee:  
    def add(self, a, b):  
        print('The Sum of Two = ', a + b)
```

```
class Department(Employee):  
    def add(self, a, b, c):  
        print('The Sum of Three = ', a + b + c)
```

```
emp = Employee()  
emp.add(10, 20)  
print('-----')
```



```
dept = Department()
```

```
dept.add(50, 130, 90)
```

```
class Employee:
```

```
def message(self):
```

```
    print('This message is from Employee Class') class
```

```
Department(Employee):    def message(self):    Employee.message(self)
```

```
print('This Department class is inherited from Employee')
```

```
emp = Employee()
```

```
emp.message()
```

## Output

```
Python 3.12.1 (tags/v3.12.1:2305ca5, Dec 7 2023, 22:03:29) [AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.

= RESTART: C:\Users\Lab1004\AppData\Local\Programs\Python\Python312\polymorphism.py
10
fly with wings
fly with fuel
fly with wings
fly with fuel
Cannot fly
25
RedFort
[10, 20, 30, 5, 15, -10]
Total Pages= 50
Total Pages= 25
3
HelloWorld
(3, 5)
True
False
False
Enter Details for Students 1
Enter Roll no:96
Enter Name:Om Pawaskar
Enter Age:21
Enter Marks:100
Enter Details for Students 2
Enter Roll no:90
Enter Name:Darshan Soni
Enter Age:20
Enter Marks:100
Roll no: 96 Name: Om Pawaskar Age: 21 Marks: 100

Activate Windows
Go to Settings to activate Windows.
```

```
True
False
False
Enter Details for Students 1
Enter Roll no:96
Enter Name:Om Pawaskar
Enter Age:21
Enter Marks:100
Enter Details for Students 2
Enter Roll no:90
Enter Name:Darshan SOni
Enter Age:20
Enter Marks:100
Roll no: 96 Name: Om Pawaskar , Age: 21 , Marks: 100
Roll no: 90 Name: Darshan SOni , Age: 20 , Marks: 100
Sum of Three= 45
Sum Of two= 33.0
Please enter two or three Argument
This message is from Employee Class
-----
This Department class is inherited from Employee
This message is from Employee Class
-----
This Department class is inherited from Employee
-----
This Sales class is inherited from Employee
The Sum of Two = 30
-----
The Sum of Three = 270
This message is from Employee Class
```