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Batch BSCS 6th Semester

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Subject AI Lab

Lab #05

Task 1

```
#           Question 1
def check_presence(rollnum, attend):  2 usages
    if rollnum in attend:
        return "Present"
    else:
        return "Absent"
attend=[1,5,6]
print(check_presence( rollnum: 5, attend))
print(check_presence( rollnum: 7, attend))
```

Output

```
"D:\Semester 6\PythonProject\
Present
Absent
```

Task 2

```
# #           Question 2
class Student:  2 usages
    def init(self):
        pass
    def setname(self,name):  3 usages
     self.name=name
    def setage(self, age):  3 usages
     self.age=age
    def display_info(self):  2 usages
            print(f"Name: {self.name}, Age: {self.age}")
student1=Student()
student1.setname("Rida")
student1.setage(30)
```

```
student2=Student()
student2.setname("Hina")
student2.setage(20)

print(student1.name)
print(student2.age)

student1.setname("Zainab")
student2.setage(14)

student1.display_info()
student2.display_info()
```

Output

```
"D:\Semester 6\PythonProject\.venv\Scripts\py
Rida
20
Name: Zainab, Age: 30
Name: Hina, Age: 14

Process finished with exit code 0
```

Task 3

```python
# #           Question 3
class Student:  1 usage
    def init(self):
        pass
    def setname(self,name):  1 usage
        self.name=name
    def setage(self, age):  1 usage
        self.age=age
    def setgrades(self, grades):  1 usage
        self.grades = grades

    def avg_grade(self):  1 usage
        if self.grades :
            return sum(self.grades)/len(self.grades)
```

```python
        if self.grades :
            return sum(self.grades)/len(self.grades)
        else:
            return None
student=Student()
student.setname("Rida")
student.setage(30)
student.setgrades([34,89])
average=student.avg_grade()
print(f" {student.name} and her age is {student.age} and average grade is {average}
```

Output

```
"D:\Semester 6\PythonProject\.venv\Scripts\python.exe
 Rida and her age is 30 and average grade is 61.5

Process finished with exit code 0
```

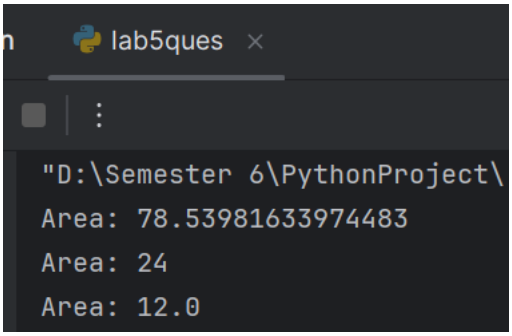
Task 4

```python
#        Question 4
import math
class Shape:  3 usages
    def area(self):
        pass
class Circle(Shape):  1 usage
    def __init__(self, radius):
        self.radius = radius
    def area(self):  1 usage
        return math.pi * self.radius ** 2
class Rectangle(Shape):  1 usage
    def __init__(self, length, width):
        self.length = length
        self.width = width
```

```python
    def area(self):  1 usage
        return self.length * self.width


class Triangle(Shape):  1 usage
    def __init__(self, base, height):
        self.base = base
        self.height = height

    def area(self):  1 usage
        return 0.5 * self.base * self.height
```

```python
# Using polymorphism
shapes = [Circle(5), Rectangle( length: 4,  width: 6), Triangle( base: 3,  height: 8)]

for shape in shapes:
    print(f"Area: {shape.area()}")
```

Output



Task 5

```
#       Question 5
class Employee:  2 usages
    def __init__(self, name, salary):
        self.name = name
        self.salary = salary

    def display_details(self):
        print(f"Name: {self.name}, Salary: {self.salary}")


class Manager(Employee):  1 usage
    def __init__(self, name, salary, department):
        super().__init__(name, salary)
        self.department = department
```

```
    def display_details(self):  1 usage
        print(f"Name: {self.name}, Salary: {self.salary}, Department: {self.departm


class Developer(Employee):  1 usage
    def __init__(self, name, salary, programming_language):
        super().__init__(name, salary)
        self.programming_language = programming_language

    def display_details(self):  1 usage
        print(f"Name: {self.name}, Salary: {self.salary}, Programming Language: {se
```

```
# Example usage
employees = [
    Manager( name: "Alice",  salary: 80000,  department: "HR"),
    Developer( name: "Bob",  salary: 60000,  programming_language: "Python")
]

for emp in employees:
    emp.display_details()
```

Output