LAB REPORT 03

Course Code	**CSE 222**
Course Title	**Object Oriented Programming**
Semester	**Spring 2024**

Submitted To	**Submitted By**
NAME: AFJAL H. SAROWER **Lecturer, Department of CSE** **Daffodil International University.**	**NAME: MUNNA BISWAS** **Student ID: 221-15-5174** **Section: 61-J** **Department of CSE** **Daffodil International University**

Date of Submission: 13/05/2024

Problem: 1

```
class Bird:
    def __init__(self, species, color, can_fly):
        self.species = species
        self.color = color
        self.can_fly = can_fly

    def sing(self):
        return f"The {self.species} sings beautifully."

    def fly(self):
        if self.can_fly:
            return f"The {self.species} flies high in the sky."
        else:
            return f"The {self.species} cannot fly."

    def describe(self):
        return f"A {self.color} {self.species}."

# Creating 5 objects of Bird class
sparrow = Bird("Sparrow", "brown", True)
penguin = Bird("Penguin", "black and white", False)
parrot = Bird("Parrot", "green", True)
ostrich = Bird("Ostrich", "brown", False)
peacock = Bird("Peacock", "blue and green", True)

# Printing different behaviors
print(sparrow.describe())
print(sparrow.sing())
```

```
print(sparrow.fly())


print(penguin.describe())
print(penguin.sing())
print(penguin.fly())


print(parrot.describe())
print(parrot.sing())
print(parrot.fly())


print(ostrich.describe())
print(ostrich.sing())
print(ostrich.fly())


print(peacock.describe())
print(peacock.sing())
print(peacock.fly())
```

```
D:\6th semester\OOP 2\Lab>C:/Python312/python.exe "d:/6th semester/OOP 2/Lab/1,py"
A brown Sparrow.
The Sparrow sings beautifully.
The Sparrow flies high in the sky.
The Penguin cannot fly.
A green Parrot.
The Parrot sings beautifully.
The Parrot flies high in the sky.
A brown Ostrich.
The Ostrich sings beautifully.
The Ostrich cannot fly.
A blue and green Peacock.
The Peacock sings beautifully.
The Peacock flies high in the sky.
```

Problem: 2

```
class Institution:
```

```
    pass


class School(Institution):
    pass


school = School()


# Check if school is an instance of Institution
print(isinstance(school, Institution))  # This should return True
```

```
D:\6th semester\OOP 2\Lab>C:/Python312/python.exe "d:/6th semester/OOP 2/Lab/2.py"
True

D:\6th semester\OOP 2\Lab>
```

Problem: 3

```
class Fruits:
    def __init__(self, name, color):
        self.name = name
        self.color = color


class Mango(Fruits):
    def __init__(self, name, color, season):
        super().__init__(name, color)
        self.season = season


    def __str__(self):
        return f"{self.name} is {self.color} and available in {self.season}."


class Apple(Fruits):
```

```
    def __init__(self, name, color, variety):
        super().__init__(name, color)
        self.variety = variety

    def __str__(self):
        return f"{self.name} is {self.color} and of {self.variety} variety."

class Orange(Fruits):
    def __init__(self, name, color, taste):
        super().__init__(name, color)
        self.taste = taste

    def __str__(self):
        return f"{self.name} is {self.color} and tastes {self.taste}."

class Grapes(Fruits):
    def __init__(self, name, color, size):
        super().__init__(name, color)
        self.size = size

    def __str__(self):
        return f"{self.name} is {self.color} and {self.size} in size."

# Creating objects of each class and printing attributes
mango = Mango("Mango", "yellow", "summer")
apple = Apple("Apple", "red", "Honeycrisp")
orange = Orange("Orange", "orange", "sweet")
grapes = Grapes("Grapes", "purple", "small")
```

```
print(mango)
print(apple)
print(orange)
print(grapes)
```

```
D:\6th semester\OOP 2\Lab>C:/Python312/python.exe "d:/6th semester/OOP 2/Lab/3.py"
Mango is yellow and available in summer.
Apple is red and of Honeycrisp variety.
Orange is orange and tastes sweet.
Grapes is purple and small in size.

D:\6th semester\OOP 2\Lab>
```

Problem 4:

```
class Bird:
    def __init__(self, species, color, can_fly):
        self.species = species
        self.color = color
        self.can_fly = can_fly

    def sing(self):
        return f"The {self.species} sings beautifully."

    def fly(self):
        if self.can_fly:
            return f"The {self.species} flies high in the sky."
        else:
            return f"The {self.species} cannot fly."

    def describe(self):
        return f"A {self.color} {self.species}."
```

```
# Creating 5 objects of Bird class
sparrow = Bird("Sparrow", "brown", True)
penguin = Bird("Penguin", "black and white", False)
parrot = Bird("Parrot", "green", True)
ostrich = Bird("Ostrich", "brown", False)
peacock = Bird("Peacock", "blue and green", True)

# Printing different behaviors
print(sparrow.describe())
print(sparrow.sing())
print(sparrow.fly())

print(penguin.describe())
print(penguin.sing())
print(penguin.fly())

print(parrot.describe())
print(parrot.sing())
print(parrot.fly())

print(ostrich.describe())
print(ostrich.sing())
print(ostrich.fly())

print(peacock.describe())
print(peacock.sing())
print(peacock.fly())
```

```
D:\6th semester\OOP 2\Lab>C:/Python312/python.exe "d:/6th semester/OOP 2/Lab/4.py"
Mango is green and available in summer.

D:\6th semester\OOP 2\Lab>
```