OOP – Lab #5

Aim: Getting Familiar with **Class** and **Object** in Python

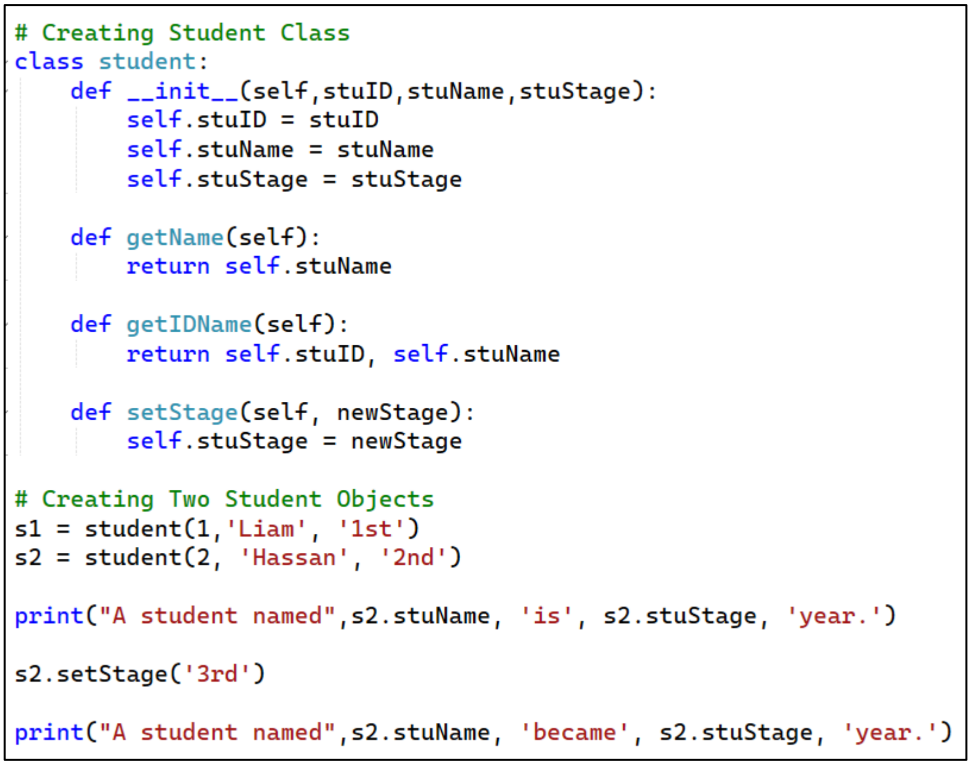
Topics:

1. Creating a **Class**
2. Class **Attributes** and **Methods**
3. Creating an **Object** of a Class

Lab Questions –

Q1 – Write Python code to create the following **Student** class. Then create two objects of it.

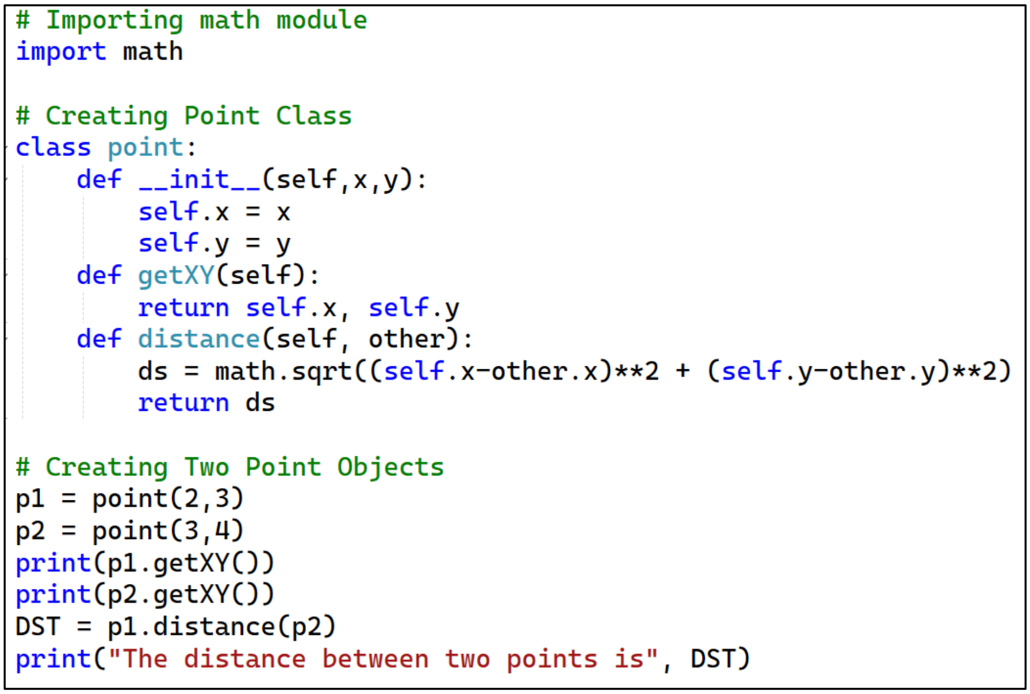
Student Class
Attributes
stuID
stuName
stuStage
Methods
getName( )
getIDName( )
setStage(***newStage***)



```python
# Creating Student Class
class student:
    def __init__(self,stuID,stuName,stuStage):
        self.stuID = stuID
        self.stuName = stuName
        self.stuStage = stuStage

    def getName(self):
        return self.stuName

    def getIDName(self):
        return self.stuID, self.stuName

    def setStage(self, newStage):
        self.stuStage = newStage

# Creating Two Student Objects
s1 = student(1,'Liam', '1st')
s2 = student(2, 'Hassan', '2nd')

print("A student named",s2.stuName, 'is', s2.stuStage, 'year.')

s2.setStage('3rd')

print("A student named",s2.stuName, 'became', s2.stuStage, 'year.')
```

Q2 – Write Python code to create the following **Point** class. Then create two objects of it.

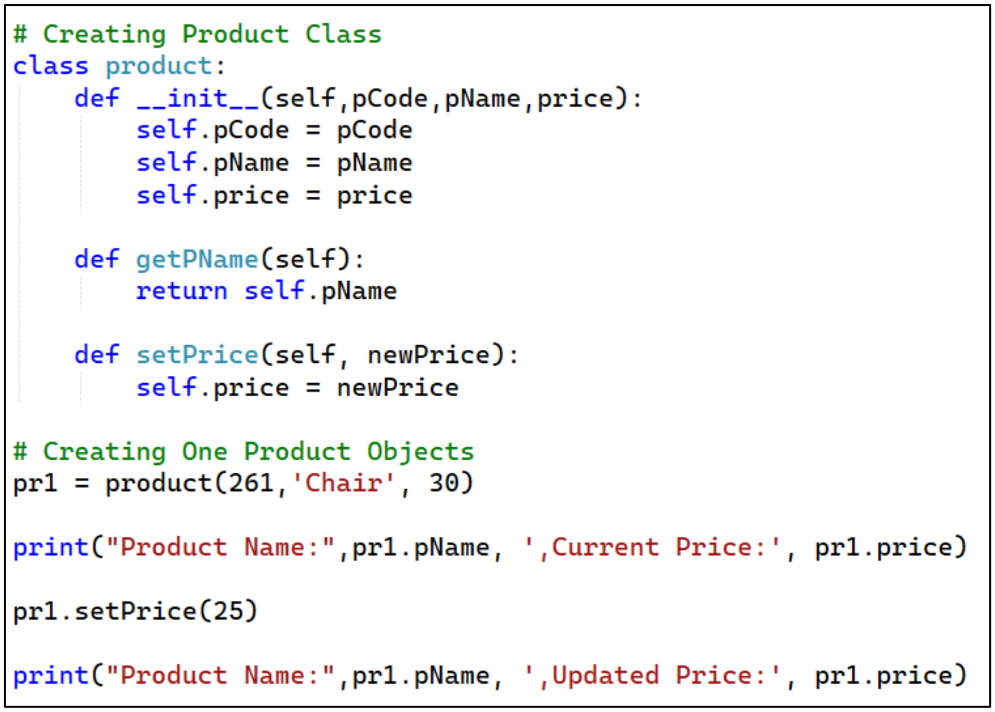
Point Class
Attributes
x
y
Methods
getXY( )
distance(***other***)



```python
# Importing math module
import math

# Creating Point Class
class point:
    def __init__(self,x,y):
        self.x = x
        self.y = y
    def getXY(self):
        return self.x, self.y
    def distance(self, other):
        ds = math.sqrt((self.x-other.x)**2 + (self.y-other.y)**2)
        return ds

# Creating Two Point Objects
p1 = point(2,3)
p2 = point(3,4)
print(p1.getXY())
print(p2.getXY())
DST = p1.distance(p2)
print("The distance between two points is", DST)
```

Q3 – Write Python code to create the following **Product** class. Then create one object of it.

Product Class
Attributes
pCode
pName
price
Methods
getPName( )
setPrice(***newPrice***)



```python
# Creating Product Class
class product:
    def __init__(self,pCode,pName,price):
        self.pCode = pCode
        self.pName = pName
        self.price = price

    def getPName(self):
        return self.pName

    def setPrice(self, newPrice):
        self.price = newPrice

# Creating One Product Objects
pr1 = product(261,'Chair', 30)

print("Product Name:",pr1.pName, ',Current Price:', pr1.price)

pr1.setPrice(25)

print("Product Name:",pr1.pName, ',Updated Price:', pr1.price)
```

Students' Task

Change the Python code of (**Product** Class) by adding:

- An attribute to represent **discount** percentage.
- A method to calculate the product's **price after discount** and update the price attribute.