Tribhuvan University
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Lab Report
On
Implement Point, Segment, and Test for 5 dimensions of point-line classification.

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```
class Point:
    def __init__(self):
        self.points = []

    def getPoint(self):
        return self.points

    def set3DPoint(self):
        print("Enter 2D point: eg. 2,3,4")
        self.points = tuple(map(int, input().split(',')))
        return self.getPoint()

    def set2DPoint(self):
        print("Enter 2D point: eg. 2,3")
        self.points = tuple(map(int, input().split(',')))
        return self.getPoint()


    def displayPoint(self):
        print(self.points)
```

Segement.py

```
from Point import Point
class Segment:
    def __init__(self):
        self.p1 = []
        self.p2 = []

    def setPoints(self):
        self.p1 = Point().set2DPoint()
        self.p2 = Point().set2DPoint()
        return self.getPoints()

    def getPoints(self):
        return [self.p1, self.p2]
```

PointLineClassification.py

```
from Segment import Segment
from Point import Point

class PointLineClassification:

    def __init__(self):
        self.p1, self.p2 = Segment().setPoints()
        self.testPoint = Point().set2DPoint()

    def classify(self):
        if (self.p1[0] == self.testPoint[0] & self.p1[1] == self.
            testPoint[1]):
            print("Test point is start point.")
        elif (self.p2[0] == self.testPoint[0] & self.p2[1] == self.
            testPoint[1]):
             print("Test point is end point.")
        if (self.p2[1] < self.testPoint[1] or  self.testPoint[0] > self.
            p2[0]):
```

```
            print("Test point is beyond line segment.")
        elif (self.p1[1] > self.testPoint[1] or self.testPoint[0] < self
            .p1[0]):
            print("Test point is behind line segment.")
        elif ((self.p1[1] < self.testPoint[1] & self.p2[1] < self.
            testPoint[1]) or
        self.testPoint[0] > self.p1[0] and self.testPoint[0] < self.p2
            [1]):
            print("Test point is between the line segment.")
```

Main.py

```
from Point import Point
from Segment import Segment
from PointLineClassification import PointLineClassification
if __name__ == "__main__":
    # print(Point().set2DPoint())
    # print(Segment().setPoints())
    PointLineClassification().classify()
```