



Bahria University, Islamabad

Department of Software Engineering

Artificial Intelligence Lab

(Fall-2021)

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Lab Journal: 4

Date: 10-11-2021

Task No:	Task Wise Marks		Documentation Marks		Total Marks (20)
	Assigned	Obtained	Assigned	Obtained	
1	8		5		
2	7		5		

Comments:

Signature

Lab No: 4

OOP in Python (Part-1) (Functions, Classes)

Introduction:

- Python is an interpreted high-level general-purpose programming language. Python's design philosophy emphasizes code readability with its notable use of significant indentation.

Tool Used:

- Visual Studio Code

Objective:

- To learn and understand OOP concepts in python.

Task 1:

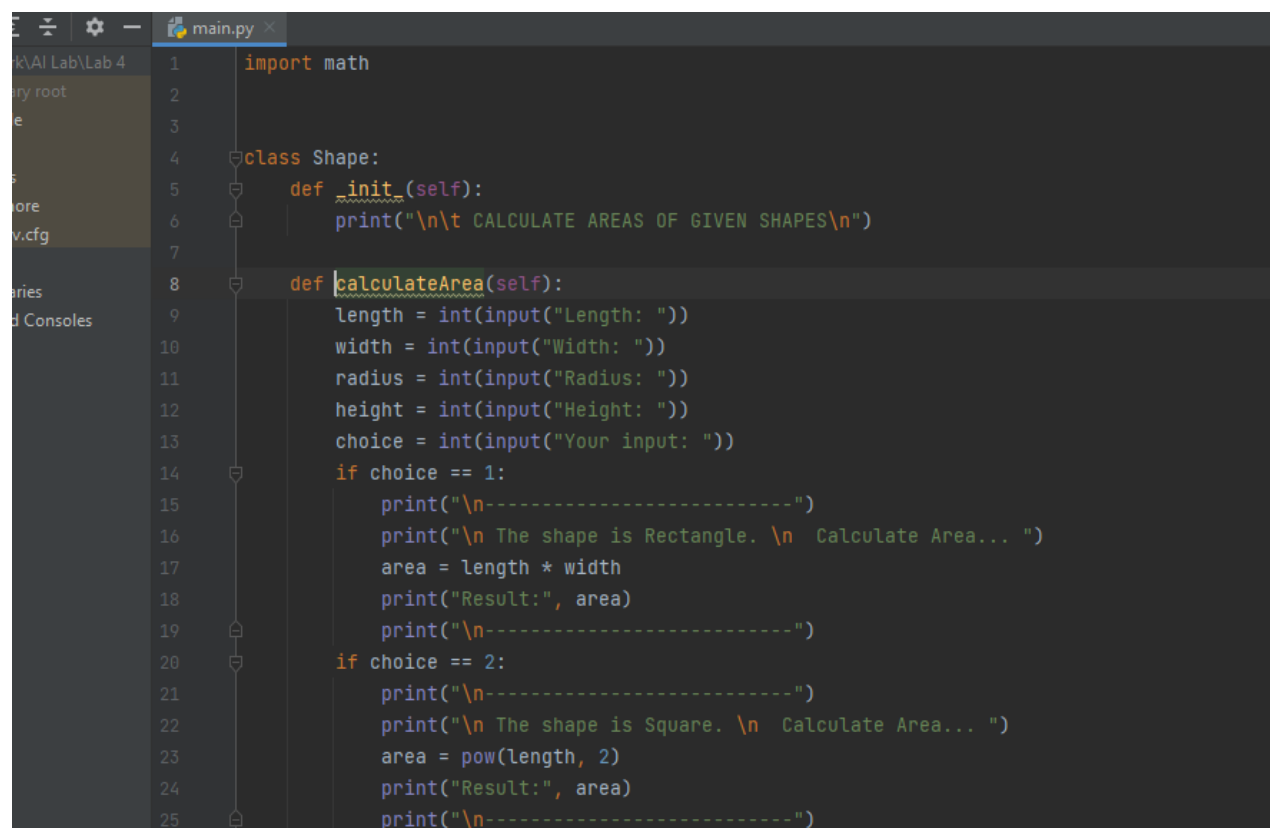
Using below shape class:

```
class Shape():  
    """returns area of a shape"""  
    def __init__(self):  
        print("Area of a Shapes")  
    def calculate_area(self):  
        pass
```

Implement the calculate area function for

- Rectangle
- Square
- Circle
- Cylinder

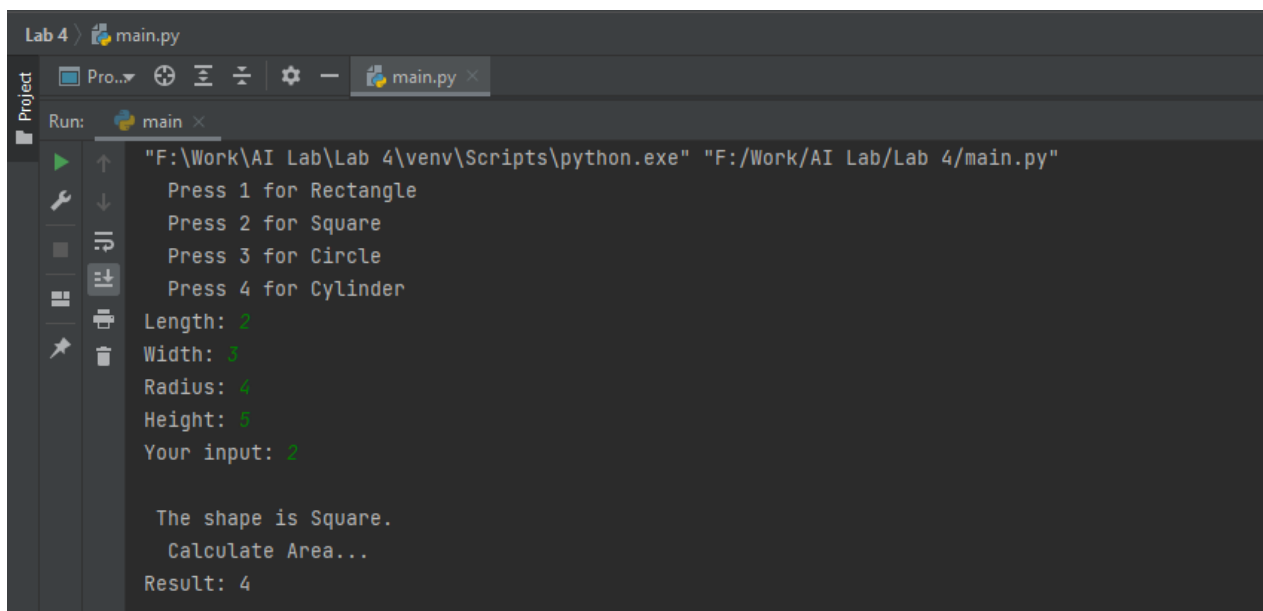
Code:



```
1  import math  
2  
3  
4  class Shape:  
5      def __init__(self):  
6          print("\n\t CALCULATE AREAS OF GIVEN SHAPES\n")  
7  
8      def calculateArea(self):  
9          length = int(input("Length: "))  
10         width = int(input("Width: "))  
11         radius = int(input("Radius: "))  
12         height = int(input("Height: "))  
13         choice = int(input("Your input: "))  
14         if choice == 1:  
15             print("\n-----")  
16             print("\n The shape is Rectangle. \n Calculate Area... ")  
17             area = length * width  
18             print("Result:", area)  
19             print("\n-----")  
20         if choice == 2:  
21             print("\n-----")  
22             print("\n The shape is Square. \n Calculate Area... ")  
23             area = pow(length, 2)  
24             print("Result:", area)  
25             print("\n-----")
```

```
25     print("\n-----")
26     if choice == 3:
27         print("\n-----")
28         print("\n The shape is Circle. \n Calculate Area... ")
29         area = math.pi * pow(radius, 2)
30         print("Result:", area)
31         print("\n-----")
32     if choice == 4:
33         print("\n-----")
34         print("\n The shape is Cylinder. \n Calculate Area... ")
35         area = (2 * math.pi * radius * height) + (2 * math.pi * pow(radius, 2))
36         print("Result:", area)
37         print("\n-----")
38
39
40 if __name__ == "__main__":
41     print(" Press 1 for Rectangle")
42     print(" Press 2 for Square")
43     print(" Press 3 for Circle")
44     print(" Press 4 for Cylinder")
45     print("\n-----")
46     obj = Shape()
47     obj.calculateArea()
```

Outputs:



```
Lab 4 > main.py
Run: main
"F:\Work\AI Lab\Lab 4\venv\Scripts\python.exe" "F:/Work/AI Lab/Lab 4/main.py"
Press 1 for Rectangle
Press 2 for Square
Press 3 for Circle
Press 4 for Cylinder
Length: 2
Width: 3
Radius: 4
Height: 5
Your input: 2

The shape is Square.
Calculate Area...
Result: 4
```

Conclusion

I completed the tasks given to us and pasted output above.