American International University-Bangladesh (AIUB)

Department of Computer Science Faculty of Science &Technology (FST)

Final-Term Performance Task

Deadline – 31st January, 2025

Course Name	**INTRODUCTION TO PROGRAMMING LAB [Spring 2023-2024]**		
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Section	v	**Submission Date**	29.01.25

❖ **Instructions:**

- *Paste your code with output screenshot in the bellow Answer section, make a pdf copy of the file and rename the file with your name, ID and section.*
  Example:
  1. *[20-34678-3] [IP-A].pdf*
- *Do not copy your code from your friends. If you do there will be consequences.*
- *Make sure to turn in your assignments by the deadline.*

Questions	Marks
Create a C++ program that calculates the area of geometric shapes including rectangles, circles, and triangles. Implement functions for each shape: calculateRectangleArea_(Area=Length×Width),_calculateCircleArea (Area=π×Radius^2), and calculateTriangleArea (Area=1/2×Base×Height). In the main function, prompt the user to choose a shape, input dimensions, and call the relevant function to display the calculated area. Use 3.14159 for π.	**10**

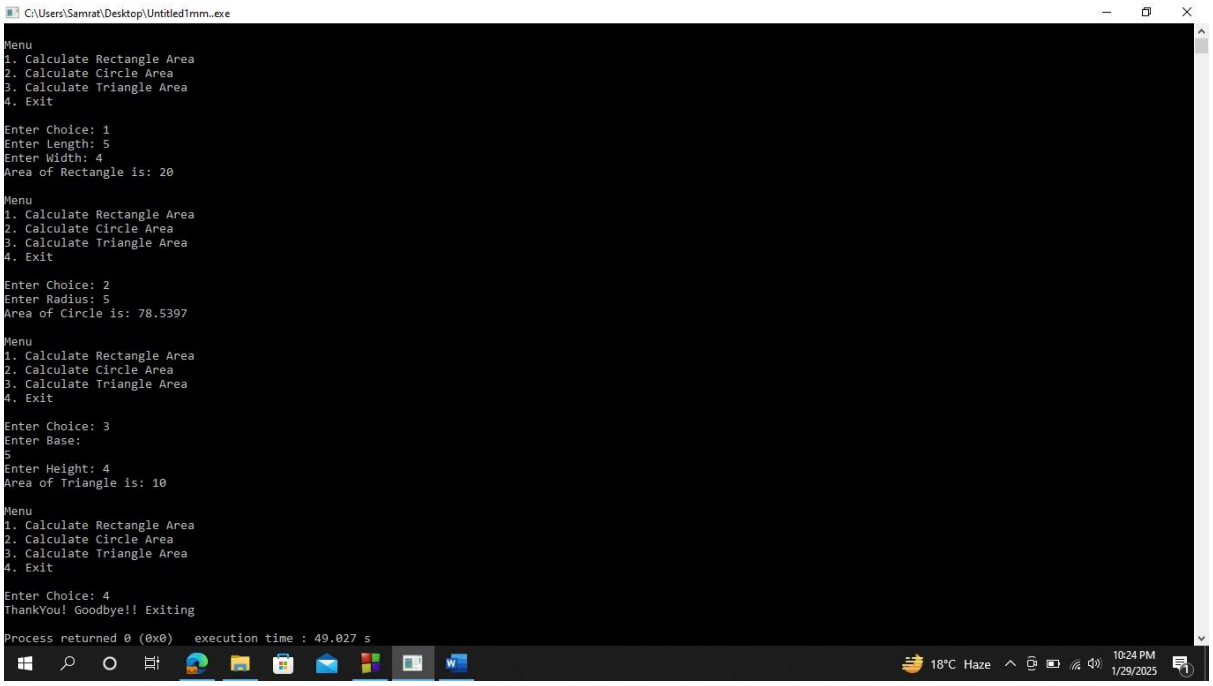
Answer section:

```
#include <iostream>

using namespace std;

double calculateRectangleArea(double length, double width){

   double Area= length * width;

   return Area;

}
```

```
double calculateCircleArea(double radius){
   double Area=  3.14159 * radius * radius;
   return Area;
}
double calculateTriangleArea(double base, double height){
   double Area= 0.5 * base * height;
   return Area;
}
int main() {
while(true){
cout<<endl;
cout<<"Menu"<<endl;
cout<<"1. Calculate Rectangle Area"<<endl;
cout<<"2. Calculate Circle Area"<<endl;
cout<<"3. Calculate Triangle Area"<<endl;
cout<<"4. Exit"<<endl<<endl;
int choice;
cout<<"Enter Choice: ";
cin>>choice;
switch(choice){
   case 1:
   {
      double L, W;
      cout<<"Enter Length: ";
      cin>>L;
      cout<<"Enter Width: ";
      cin>>W;
      cout<<"Area of Rectangle is: "<<calculateRectangleArea(L, W)<<endl;
      break;
```

```
    }
    case 2:
    {
        double r;
        cout<<"Enter Radius: ";
        cin>>r;
        cout<<"Area of Circle is: "<<calculateCircleArea(r)<<endl;
        break;
    }
    case 3:
    {
        double B, H;
        cout<<"Enter Base: ";
        cin>>B;
        cout<<"Enter Height: ";
        cin>>H;
        cout<<"Area of Triangle is: "<<calculateTriangleArea(B, H)<<endl;
        break;
    }
    case 4:
    {
        cout<<"ThankYou! Goodbye!! Exiting "<<endl;
        return 0;
    }
}
}
    return 0;
}
```

Output:


C:\Users\Samrat\Desktop\Untitled1mm..exe
Menu
1. Calculate Rectangle Area
2. Calculate Circle Area
3. Calculate Triangle Area
4. Exit
Enter Choice: 1
Enter Length: 5
Enter Width: 4
Area of Rectangle is: 20
Menu
1. Calculate Rectangle Area
2. Calculate Circle Area
3. Calculate Triangle Area
4. Exit
Enter Choice: 2
Enter Radius: 5
Area of Circle is: 78.5397
Menu
1. Calculate Rectangle Area
2. Calculate Circle Area
3. Calculate Triangle Area
4. Exit
Enter Choice: 3
Enter Base:
5
Enter Height: 4
Area of Triangle is: 10
Menu
1. Calculate Rectangle Area
2. Calculate Circle Area
3. Calculate Triangle Area
4. Exit
Enter Choice: 4
ThankYou! Goodbye!! Exiting
Process returned 0 (0x0) execution time : 49.027 s
18°C Haze
10:24 PM
1/29/2025