

# Theory Assignment-2

**Q. Program to calculate the area of different shapes using function overloading .**

**Code:-**

```
//Harsh Bamotra AC-1216
//Program to calculate area of different shapes using function overloading

#include <iostream>
using namespace std;

//defining function to calculate the area of square
int area(int s)
{
    return s*s;
}

//defining function to calculate the area of circle
float area(float r)
{
    return (3.14*r*r);
}

//defining function to calculate the area of triangle
float area(float b , float h)
{
    return (0.5*b*h);
}

//defining function to calculate the area of rectangle
int area(int l , int b)
{
    return (l*b);
}

int main()
{
    int y=1;
    while(y==1) {

        int choice , s , b , l;           //defining the variables
        float r , h , be;
```

```

// printing the menu to the user
cout << "*****MENU*****" << endl;
cout << "Select the shape whose area is to be printed." << endl;
cout << "1. Square" << endl << "2. Circle" << endl << "3. Triangle" << endl;
cout << "4. Rectangle" << endl;
cout << "*****" << endl;
cout << "Enter your choice (1,2,3 or 4)::";
cin >> choice; //taking choice from the user
switch(choice) { //defining switch case
    case 1:
        cout << "Enter the side of the sqare::";
        cin >> s;
        cout << "Area of the square::" << area(s); //calling the function and
        break; // printing the area of square
    case 2:
        cout << "Enter the radius of the circle::";
        cin >> r;
        cout << "Area of the circle::" << area(r); //calling the function
        break; // and printing the area of circle
    case 3:
        cout << "Enter the hieght::";
        cin >> h;
        cout << "Enter the base::"; //calling the function
        cin >> be; // and printing the area of triangle
        cout << "Area of the triangle::" << area(be , h);
        break;
    case 4:
        cout << "Enter the lenght::";
        cin >> l;
        cout << "Enter the breath::"; //calling the function
        cin >> b; // and printing the area of rectangle
        cout << "Area of the rectangle::" << area(l , b);
        break;
    default:
        cout << "Wrong input !!!"; //handling exception
}
cout << endl << "Do you want to continue(1 for Yes)::";
cin >> y; //asking user if he want to continue or not
cout << endl << endl;
}
return 0;
}

```

Output:-

### Calculating area of square and circle

Command Prompt - Area\_over.exe

```
C:\Users\harsh>cd desktop

C:\Users\harsh\Desktop>g++ Area_over.cpp -o Area_over.exe

C:\Users\harsh\Desktop>Area_over.exe
*****MENU*****
Select the shape whose area is to be printed.
1. Square
2. Circle
3. Triangle
4. Rectangle
*****
Enter your choice (1,2,3 or 4)::1
Enter the side of the sqare::25
Area of the square::625
Do you want to continue(1 for Yes)::1

*****MENU*****
Select the shape whose area is to be printed.
1. Square
2. Circle
3. Triangle
4. Rectangle
*****
Enter your choice (1,2,3 or 4)::2
Enter the radius of the circle::7
Area of the circle::153.86
Do you want to continue(1 for Yes)::
```

## Calculating area of triangle and rectangle

Command Prompt - Area\_over.exe

```
C:\Users\harsh>cd desktop
```

```
C:\Users\harsh\Desktop>Area_over.exe
```

```
*****MENU*****
```

```
Select the shape whose area is to be printed.
```

1. Square
2. Circle
3. Triangle
4. Rectangle

```
*****
```

```
Enter your choice (1,2,3 or 4)::3
```

```
Enter the hieght::20
```

```
Enter the base::12
```

```
Area of the triangle::120
```

```
Do you want to continue(1 for Yes)::1
```

```
*****MENU*****
```

```
Select the shape whose area is to be printed.
```

1. Square
2. Circle
3. Triangle
4. Rectangle

```
*****
```

```
Enter your choice (1,2,3 or 4)::4
```

```
Enter the lenght::2
```

```
Enter the breath::3
```

```
Area of the rectangle::6
```

```
Do you want to continue(1 for Yes)::_
```

## Handling exceptions

 Command Prompt

```
*****MENU*****
Select the shape whose area is to be printed.
1. Square
2. Circle
3. Triangle
4. Rectangle
*****
Enter your choice (1,2,3 or 4)::4
Enter the lenght::2
Enter the breath::3
Area of the rectangle::6
Do you want to continue(1 for Yes)::1

*****MENU*****
Select the shape whose area is to be printed.
1. Square
2. Circle
3. Triangle
4. Rectangle
*****
Enter your choice (1,2,3 or 4)::7
Wrong input !!!
Do you want to continue(1 for Yes)::2
```

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