BSc (Hons) in Information Technology
Year 1

Lab Exercise 6

IT1050 – Object Oriented Concepts **Semester 2, 2021**

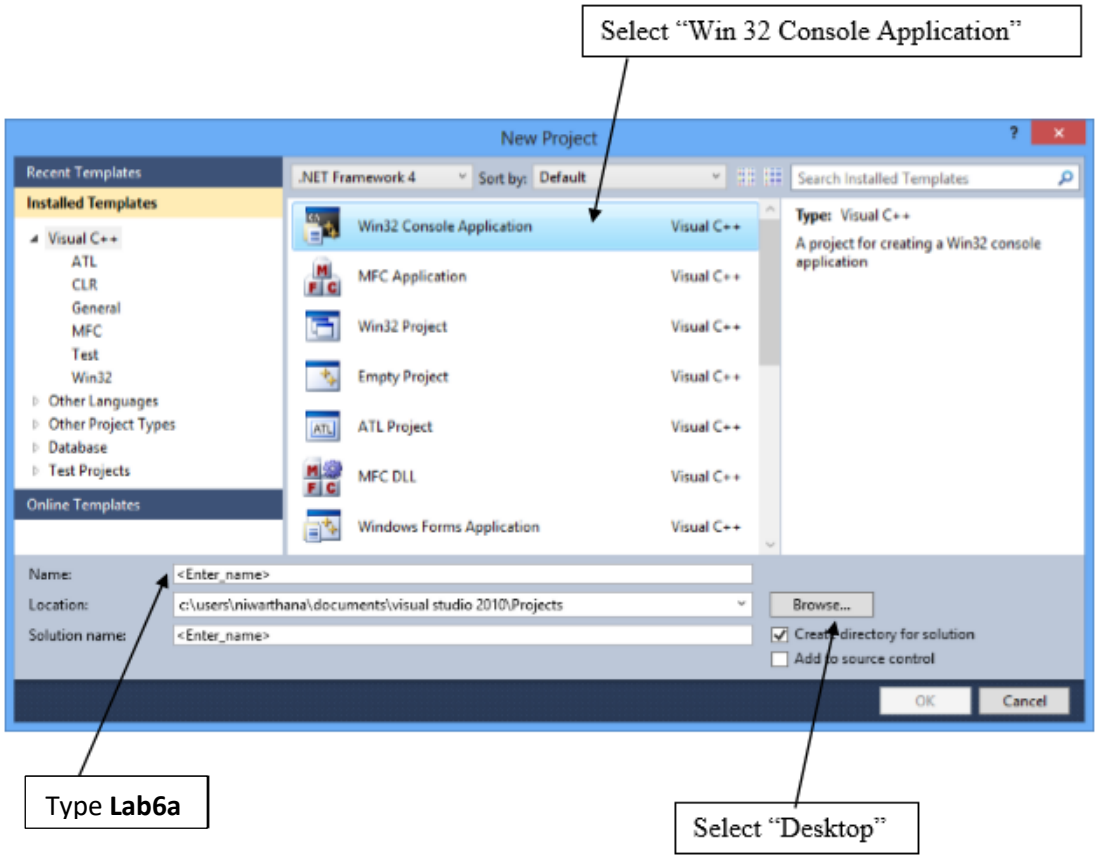
Objectives:

- Creation of classes and method calling in Object Oriented Programming concepts.

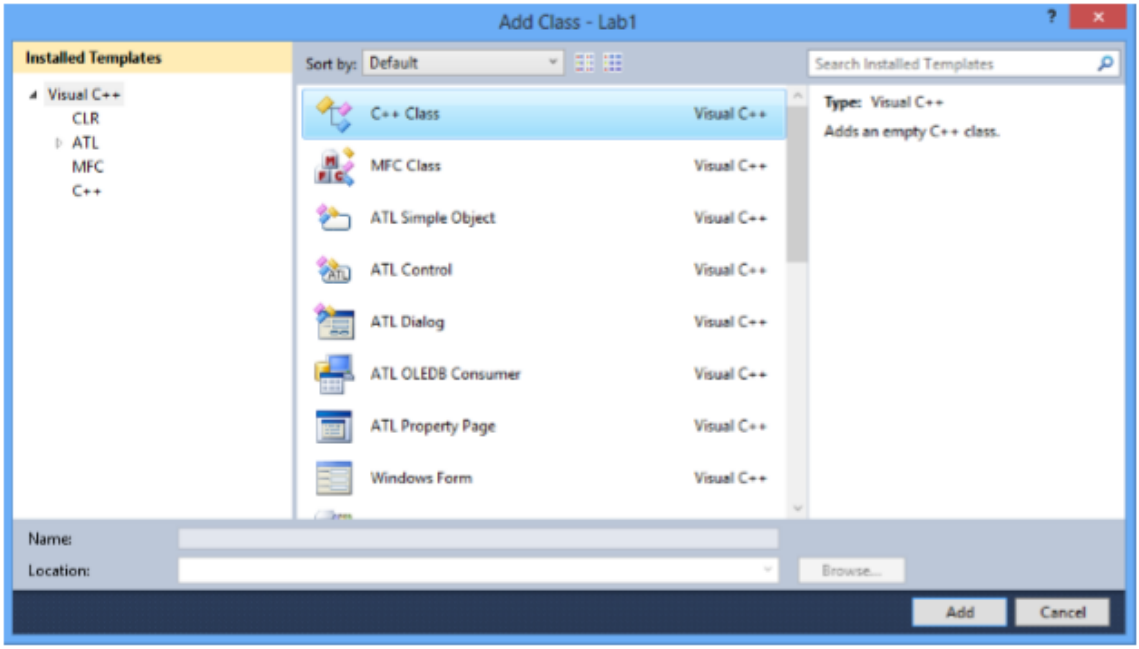
Exercise 1:

In Exercise 1 we will implement the *Circle* class that can be helpful to calculate the area of a garden.

(a) In Visual C++, create a new Win32 Console Application project. Save the project in your Desktop. We will name the project as **Lab6a**

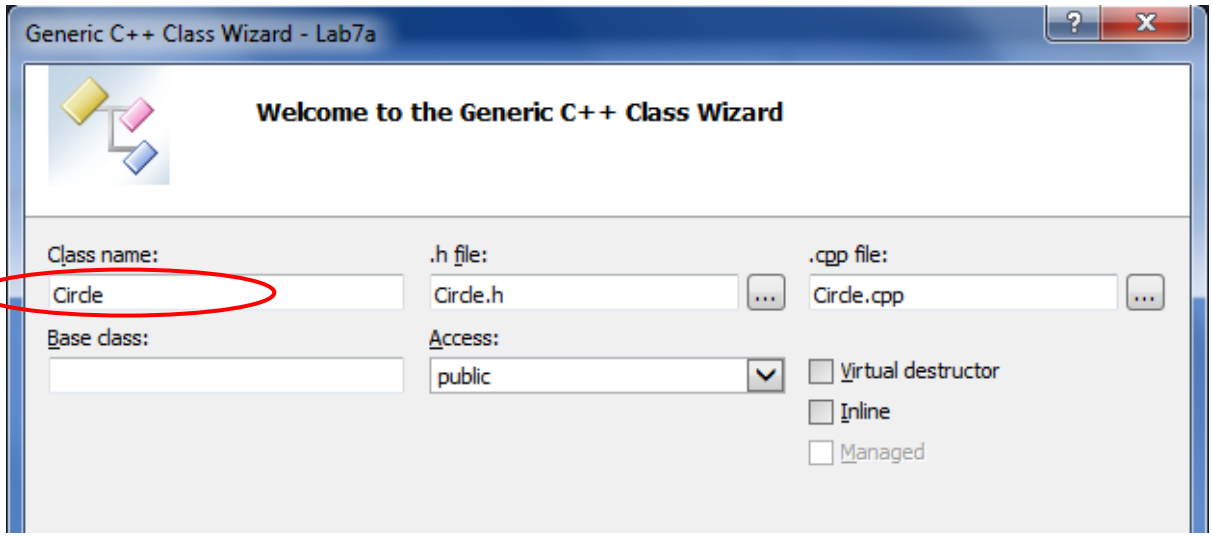


b) Add a new Class to the project from the main menu select ***Project -> Add Class***



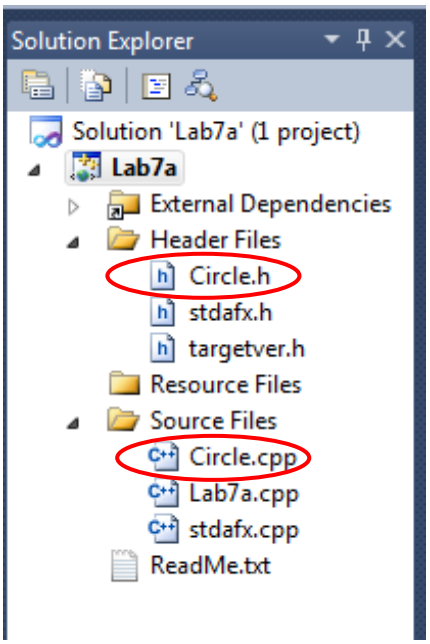
Select the C++ Class Template.

(b) We will create a Class called Circle. When you specify the Class Name the Wizard creates the header file and the .cpp file.

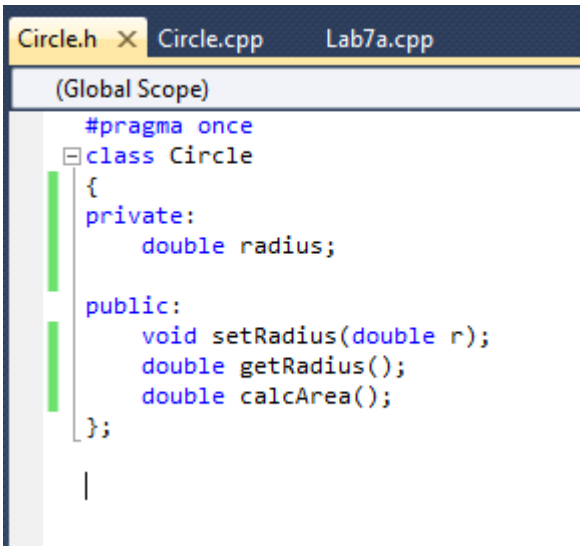


Click the "Finish" button at the bottom of the "C++ Class Wizard"

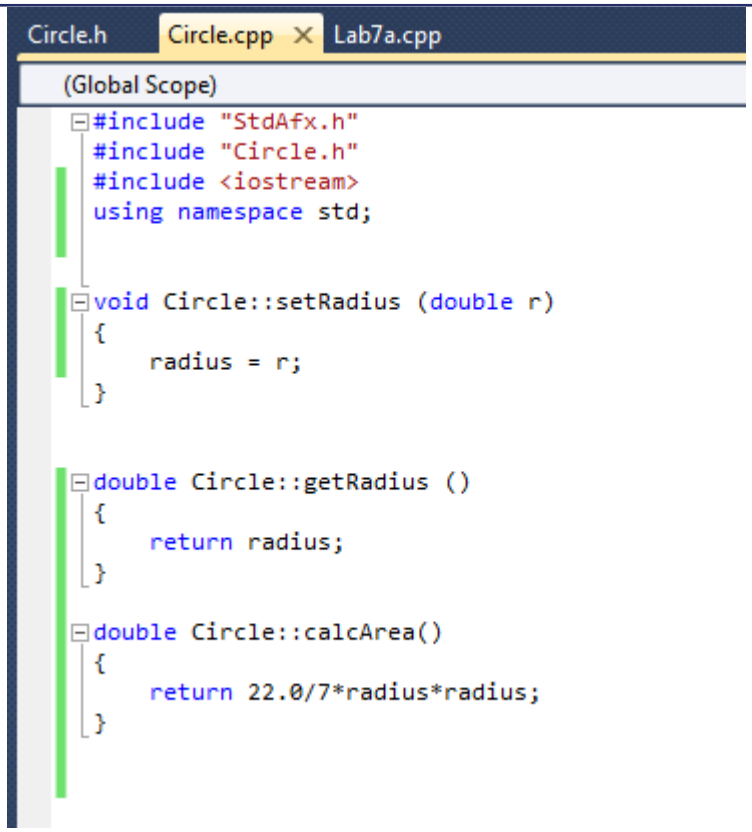
Then you can see the **Circle.h** and the Circle.cpp files in the "Solution Explorer"



c) Write the definition of the Circle class in **Circle.h** header file. (Double click **Circle.h** from the Solution Explorer).



d) Implement Circle class in **Circle.cpp** (Double click on **Circle.cpp** from the Solution Explorer)

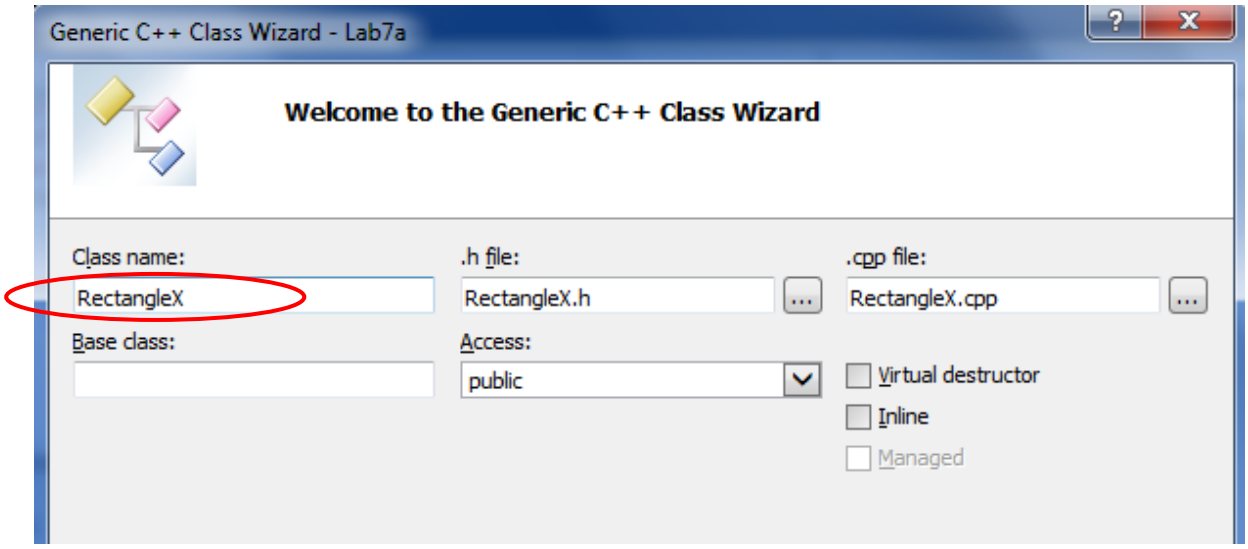


Exercise 2:

In Exercise 2 we will implement the ***RectangleX*** class that can be helpful to calculate the area of a garden.

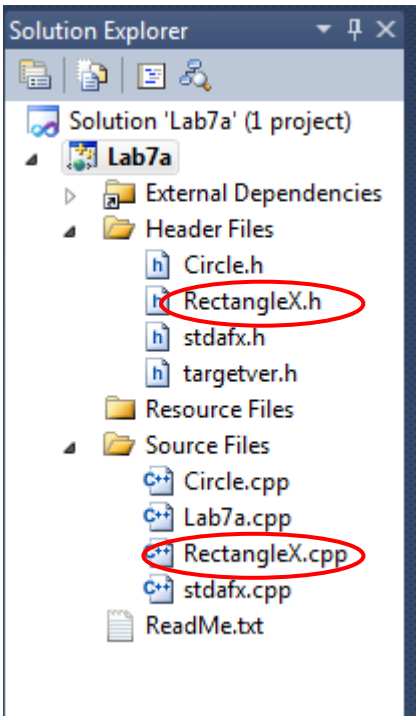
a) Add another Class to the project from the main menu select ***Project -> Add Class.*** Select the C++ Class Template.
b) We will create a Class called ***RectangleX.*** When you specify the Class Name the Wizard creates the header file and the .cpp file.

Note: Rectangle is a reserved word in C++. We can't use Rectangle as a class name instead of that use **RectangleX** as the class name

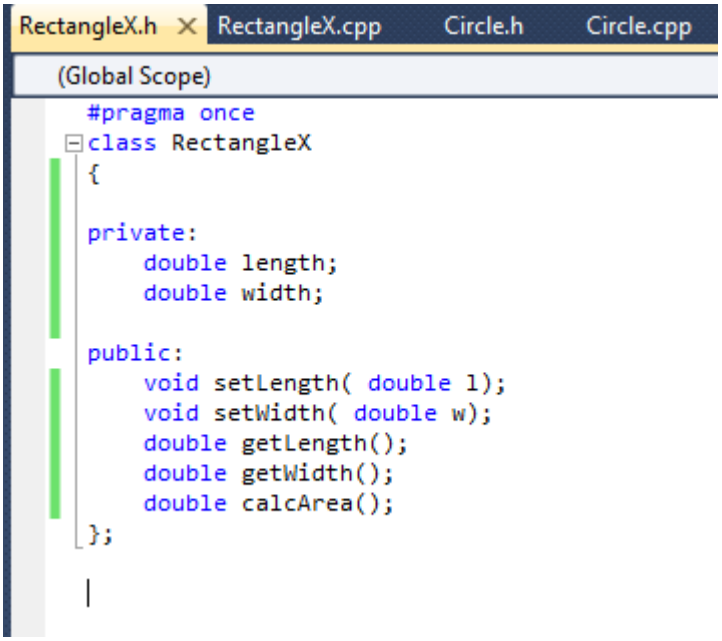


Click the "Finish" button at the bottom of the "C++ Class Wizard"

Then you can see the **RectangleX.h** and the **RectangleX.cpp** files in the "Solution Explorer"



c) Write the definition of the **RectangleX** class in **RectangleX.h** header file. (Double click **RectangleX.h** from the Solution Explorer).



d) Implement ***RectangleX*** class in **RectangleX.cpp** (Double click on RectangleX.cpp from the Solution Explorer)

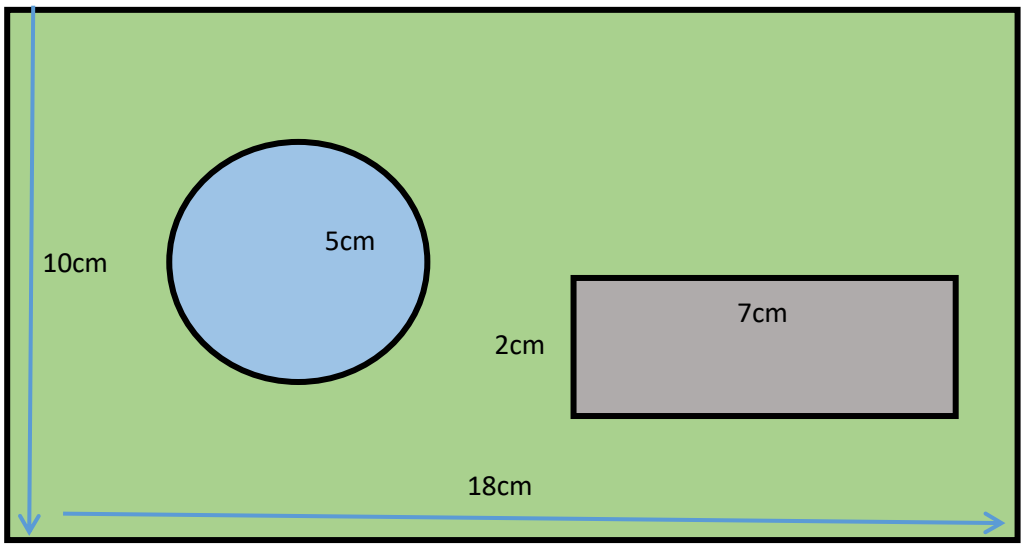
RectangleX.h | RectangleX.cpp | Circle.h | Circle.cp

RectangleX

```
#include "StdAfx.h"
#include "RectangleX.h"
#include <iostream>
using namespace std;


void RectangleX::setLength ( double l)
{
    length = l;
}

void RectangleX::setWidth ( double w)
{
    width = w;
}

double RectangleX::getLength()
{
    return length;
}

double RectangleX::getWidth ()
{
    return width;
}

double RectangleX::calcArea()
{
    return length * width;
}
```

Exercise 3:

Write the client program (main) in Lab06a.cpp to find the garden area (green colour) as shown in the diagram below.



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Additional Exercise

a) Implement a ***Square*** class that can be helpful to calculate the area of a square.

Follow the same steps as in Exercise 1 and Exercise 2 to implement the Square class accordingly. You may have to use,

Area of a square = length*length

b) Modify the client program in Lab7a.cpp to add a square to the diagram as shown below and find the area shown in green.