

Task # 1

```
class Rectangle {
    int width, height;
public:
    void setDimension(int x,int y){
        width=x; height=y;
    }
    void showArea(){ cout<<width*height; }
    int getArea(){ return width*height; }
};
```

- Define all the member functions of the Rectangle class.
- After defining the member functions, use the Rectangle class by creating multiple objects of this type.
- Set the dimension of each of the rectangle objects using **setDimension()** function.
- Output the area of each rectangle using the function **void showArea()** and **int getArea()** both.
- Without calling the setDimension() call showArea() once, that prints some garbage values. Solve that problem anyhow.
- Multiple rectangles should be created, data should be given by user. Objects will be stored in a dynamic memory allocated array.
- Deallocate the memory assigned by the above mentioned array using delete keyword

Task # 2

Write a class called Circle, that will have only one variable named radius. A function named setRadius will set the radius of the circle. The class should have two other functions, one should output the circumference and the another should output the area of that circle.

Hints :

$$\text{Area} = \text{PI} * r^2$$

$$\text{Circumference} = 2 * \text{PI} * r$$

- Multiple circles should be created, data should be given by user. Objects will be stored in a dynamic memory allocated array.
- Deallocate the memory assigned by the above mentioned array using delete keyword

Task # 3

Write a class called **Box** which contains three member variables; **length**, **width** and **height**. This class also contains two constructors, one **empty** and another one is **with parameter**. You also have to write a function named **getArea()** that calculates and returns the area of a box object. Write necessary code inside the main function to test the class by creating an object.

- Multiple boxes should be created, data should be given by user. Objects will be stored in a dynamic memory allocated array.
- Deallocate the memory assigned by the above mentioned array using delete keyword

Task # 4

Define a class called **Student** that contains six parameters; **id**, **objectCount**, **name**, **quiz1**, **quiz2** and **quiz3**. Declare an **array** of 10 Student objects. Using appropriate functions, find the average of the quizzes for each student. **Print** the **id**, **name** and the **average marks** of all the students. Also track how many objects of **Student** class have been created, use the static variable **objectCount**.

- Multiple students should be created, data should be given by user. Objects will be stored in a dynamic memory allocated array.
- Deallocate the memory assigned by the above mentioned array using delete keyword