

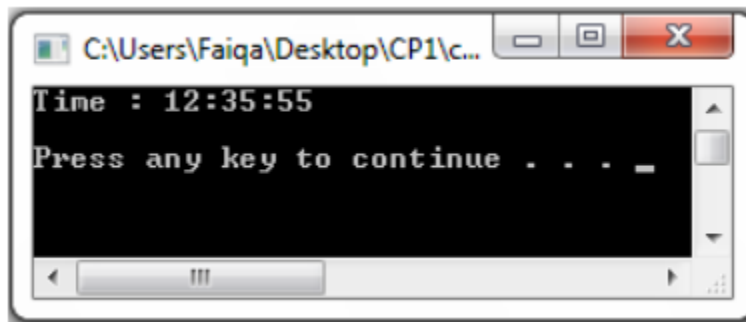
Chapter 12: Classes and Data Abstraction

Laboratory Exercises (6)

Intro to Object Oriented Programming

KEYWORDS: class, object

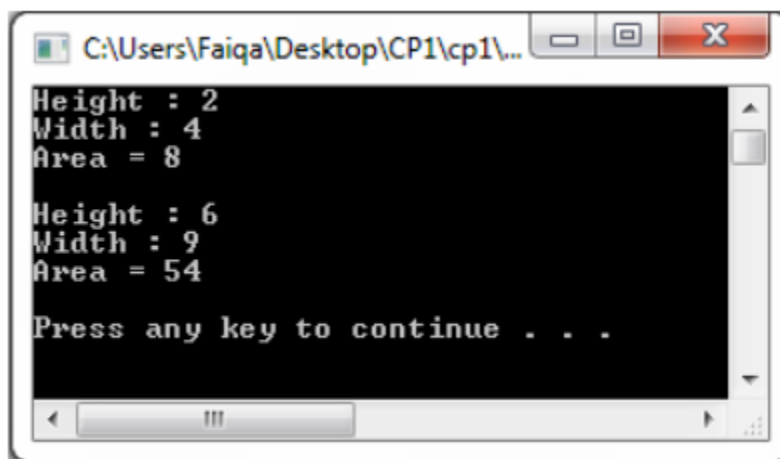
Program 1: Define a class named time having hour, minute and second as data members. The class should have two member functions named gettime and displaytime. The gettime function is used for setting values of hour, minute and second. The displaytime function is used for displaying hour, minute and time in appropriate format. Use the class in your main program and set the time as 12:35:55.



```
C:\Users\Faiqa\Desktop\CP1\c...
Time : 12:35:55
Press any key to continue . . .
```

Sample Output

Program 2: Define a class named rectangle having height and width as data members. The class has three member functions named getdata, displaydata and area. The getdata function is used for setting the values of width and height. The displaydata function is used for displaying width and height. Finally, the area function is used for calculating the area of rectangle and returning the calculated value. Use the class in your main program and calculate the area for (2, 4) and (6, 9).



```
C:\Users\Faiqa\Desktop\CP1\cp1\...
Height : 2
Width : 4
Area = 8

Height : 6
Width : 9
Area = 54

Press any key to continue . . .
```

Sample Output

C++ Constructors

C++ program to calculate the area of a Rectangle.

// C++ program to understand **Default** and **Parameterized** Constructor

```
#include <iostream>

using namespace std;

// declare a class
class Rect
{
    private:
        double length;
        double height;

    public:
        // create a default constructor
        Rect()
        {
            // initialize private variables
            length = 2;
            height = 2;
        }

        // create parameterized constructor
        Rect(double L, double H)
        {
            // initialize private variables
            length = L;
            height = H;
        }
}
```

```

        double calculateArea() {
            return length * height;
        }
};

int main() {
    // create object and initialize data members
    Rect rec1;
    Rect rec2(6.0, 8.4);

    cout << "The Area of Rectangle 1: " << rec1.calculateArea() <<
endl;

    cout << "The Area of Rectangle 2: " << rec2.calculateArea() <<
endl;

    return 0;
}

```

=====

C++ program to calculate the area of a Rectangle.

// C++ program to understand Constructors with Default Parameters

```

#include <iostream>
using namespace std;
// declare a class
class Rect
{
    private:
        double length;
        double height;

    public:

```

```
// create parameterized constructor
Rect(double L = 2, double H = 2)
{
    // initialize private variables
    length = L;
    height = H;
}

double calculateArea() {
    return length * height;
}

};

int main() {
    // create object and initialize data members
    Rect rec1;
    Rect rec2(10.0);
    Rect rec3(6.0, 8.0);

    cout << "The Area of Rectangle 1: " << rec1.calculateArea() <<
endl;
    cout << "The Area of Rectangle 2: " << rec2.calculateArea() <<
endl;
    cout << "The Area of Rectangle 2: " << rec3.calculateArea() <<
endl;

    return 0;
}
```