Object Oriented Programming (IGS2130)

Lab 5

Instructor:
Choonwoo Ryu, Ph.D.

INHA UNIVERSITY

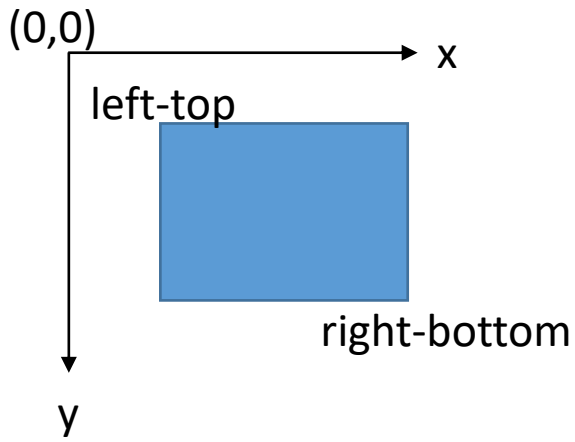
Exercise #1

Hint
03. p12-14

- Make the program on pages 12-14 of the lecture note.
  - Use the main.cpp as it is
  - After understanding the codes of the lecture note,
    - Create your own Point class (Point.h and Point.cpp) for the main.cpp
    - Create your own Rectangle class (Rectangle.h and Rectangle.cpp) for the main.cpp

Exercise #2

- Upgrade Exercise #1
  - Upgrade the InitMembers() function of the Rectangle class so it will automatically decide two corners, left-top and right-bottom, of the rectangle



Exercise #3

- Upgrade Exercise #2
  - Add a member function IsInside() in the Rectangle class
    - Return true if the given point is inside the rectangle
    - Return false if the given point is outside the rectangle
  - The following piece of the code in the main() should run with no error

```
Point pos3;
pos3.InitMembers(3, 6);
cout << "pos3: [" << pos3.GetX() << ", " << pos3.GetY() << "]" << endl;
if (rec.IsInside(pos3))
    cout << "The pos3 is inside the rectangle." << endl;
else
    cout << "The pos3 is outside the rectangle." << endl;
```

```
Pos3: [3, 6]
The pos3 is inside the rectangle.
```

Exercise #4

Hint
03. p5

- Write a C++ class named Person so that the main() function below outputs as follows.

```
int main() {
    Person ryu = { "Victor Ryu", "male", 30, "IGS2130v1@inha.ac.kr" };
    Person laura = { "Laura Lee", "female", 23, "IGS2130v2@inha.ac.kr" };

    ryu.introduceMyself();
    cout << endl;
    laura.introduceMyself();

    return 0;
}
```

```
My name is Victor Ryu.
I am male and 30 years old.
My email address is IGS2130v1@inha.ac.kr.

My name is Laura Lee.
I am female and 23 years old.
My email address is IGS2130v2@inha.ac.kr.
```

Exercise #5

Hint
03. p5

- Write a C++ class named Number so that the main() function below outputs as follows.

```
int main(void) {
    Number n1, n2;
    n1.setValue(0.0);
    cout << "n1 : " << n1.getValue() << endl;
    cout << "n1 += 10.5 : " << n1.add(10.5) << endl;
    cout << "n1 -= 1.5 : " << n1.sub(1.5) << endl;
    cout << "n1 *= 3.0 : " << n1.mul(3.0) << endl;
    cout << "n1 /= 9.0 : " << n1.div(9.0) << endl;
    cout << "n2 = n1 : " << n2.setValue(n1.getValue());

    return 0;
}
```

```
n1 : 0
n1 += 10.5 : 10.5
n1 -= 1.5 : 9
n1 *= 3.0 : 27
n1 /= 9.0 : 3
n2 = n1 : 3
```