

Класове в C++ (упражнение) (Rev: 1.1)

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Point.hpp

```
1 #ifndef POINT_HPP__
2 #define POINT_HPP__
3
4 class Point {
5     double x_, y_;
6 public:
7     Point(double x=0.0, double y=0.0)
8         : x_(x), y_(y)
9     {}
10    double get_x(void) const {return x_;}
11    double get_y(void) const {return y_;}
```

Point.hpp

```
12 Point& set_x(double x) {
13     x_=x;
14     return *this;
15 }
16 Point& set_y(double y) {
17     y_=y;
18     return *this;
19 }
20 void print() const;
21 };
22
23 #endif
```

Point.cpp

```
1 #include <iostream>
2 using namespace std;
3
4 #include "Point.hpp"
5
6 void Point::print() const {
7     cout << "(" << x_ << ", " << y_ << ")";
8 }
```

Rectangle.hpp

```
1 #ifndef RECTANGLE_HPP_  
2 #define RECTANGLE_HPP_  
3  
4 #include "Point.hpp"  
5  
6 class Rectangle {  
7     Point bl_, ur_;  
8  
9     static double max(double a, double b) {  
10         return a>b?a:b;  
11     }  
12     static double min(double a, double b) {  
13         return a<b?a:b;  
14     }
```

Rectangle.hpp

```
16 public :  
17     Rectangle(const Point& p1,  
18               const Point& p2);  
19     double get_width() const;  
20     double get_height() const;  
21     double get_x() const;  
22     double get_y() const;  
23     const Point& get_ur() const;  
24     const Point& get_bl() const;  
25     void print() const;  
26 };  
27 #endif
```

Rectangle.cpp

```
1 #include <iostream>
2 using namespace std;
3
4 #include "Rectangle.hpp"
5
6 Rectangle::Rectangle(const Point& p1,
7                     const Point& p2)
8     : bl_(min(p1.get_x(), p2.get_x()),
9           min(p1.get_y(), p2.get_y())),
10      ur_(max(p1.get_x(), p2.get_x()),
11          max(p1.get_y(), p2.get_y()))
12 {}
```

Rectangle.cpp

```
14 double Rectangle::get_x() const {
15     return bl_.get_x();
16 }
17 double Rectangle::get_y() const {
18     return bl_.get_y();
19 }
20 const Point& Rectangle::get_bl() const {
21     return bl_;
22 }
23 const Point& Rectangle::get_ur() const {
24     return ur_;
25 }
```

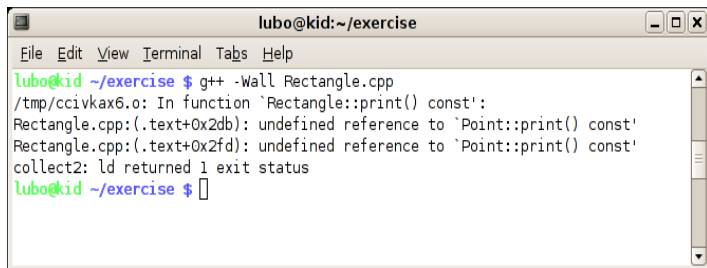

Rectangle.cpp

```
26 double Rectangle::get_width() const {
27     return ur_.get_x()-bl_.get_x();
28 }
29 double Rectangle::get_height() const {
30     return ur_.get_y()-bl_.get_y();
31 }
32 void Rectangle::print() const {
33     cout << "R{";
34     bl_.print();
35     cout << ";␣";
36     ur_.print();
37     cout << "}";
38 }
```

Rectangle.cpp

```
1 int main(void) {  
2     Rectangle r1(Point(0,0),Point(2,2));  
3     Rectangle r2(Point(-1,-2), Point(2,1));  
4  
5     r1.print();cout << endl;  
6     r2.print();cout << endl;  
7     return 0;  
8 }
```

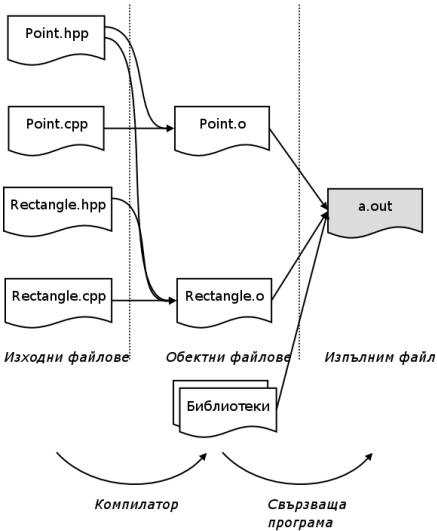
Разделно компилиране



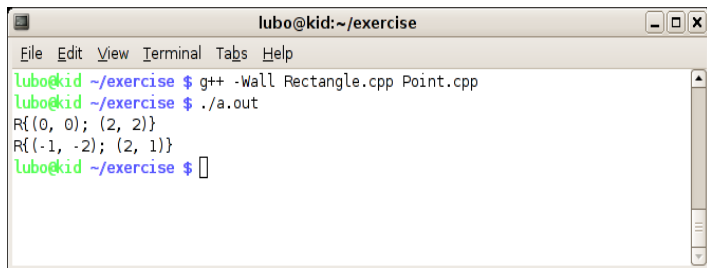
A terminal window titled "lubo@kid:~/exercise" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The terminal shows the following output:

```
lubo@kid ~/exercise $ g++ -Wall Rectangle.cpp
/tmp/ccivkax6.o: In function `Rectangle::print() const':
Rectangle.cpp:(.text+0x2db): undefined reference to `Point::print() const'
Rectangle.cpp:(.text+0x2fd): undefined reference to `Point::print() const'
collect2: ld returned 1 exit status
lubo@kid ~/exercise $
```

Разделно компилиране



Разделно компилиране

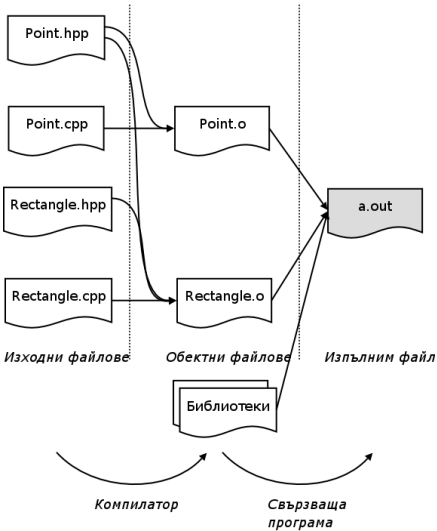


```
lubo@kid:~/exercise
File Edit View Terminal Tabs Help
lubo@kid ~/exercise $ g++ -Wall Rectangle.cpp Point.cpp
lubo@kid ~/exercise $ ./a.out
R{(0, 0); (2, 2)}
R{(-1, -2); (2, 1)}
lubo@kid ~/exercise $
```

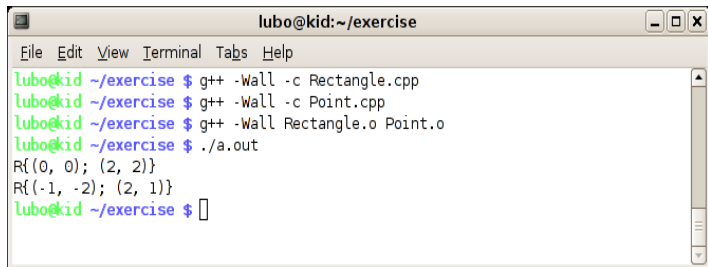
Разделно компилиране

- Следната команда се опитва да създаде изпълним файл a.out.
`g++ -Wall Rectangle.cpp`
- Следната команда създава обектен файл Rectangle.o.
`g++ -Wall -c Rectangle.cpp`

Разделно компилиране



Разделно компилиране



```
lubo@kid:~/exercise
File Edit View Terminal Tabs Help
lubo@kid ~/exercise $ g++ -Wall -c Rectangle.cpp
lubo@kid ~/exercise $ g++ -Wall -c Point.cpp
lubo@kid ~/exercise $ g++ -Wall Rectangle.o Point.o
lubo@kid ~/exercise $ ./a.out
R{(0, 0); (2, 2)}
R{(-1, -2); (2, 1)}
lubo@kid ~/exercise $
```