

Chapter 5

Lab 5.1.9 (1)

```
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (1)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (1)]$ ./output
Meet Harry
Harry is 23 years old
Harry | testo
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (1)]$
```

Lab 5.1.9 (2)

```
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (2)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (2)]$ ./output
Square: side=4 area=16
Square: side=2 area=4
Square: side=2 area=4
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (2)]$
```

Lab 5.1.9 (3)

```
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (3)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (3)]$ ./output
4
16
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (3)]$
```

Lab 5.1.9 (4)

```
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (4)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (4)]$ ./output
Item name: Ordername2
Item unit price: 9.99
Number of items ordered: 10
Total price: 99.9
[ec2-user@ip-172-31-82-95 Lab 5.1.9 (4)]$
```

Lab 5.3.10 (1)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (1)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (1)]$ ./output
Provide flight capacity: 100
Provide number of reserved seats: 50
Flight1 : 50 / 100 ( 50 % ) seats taken
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (1)]$ ./output
Provide flight capacity: 180
Provide number of reserved seats: 200
Flight1 : 200 / 180 ( 111 % ) seats taken
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (1)]$ ./output
Provide flight capacity: 42
Provide number of reserved seats: 14
Flight1 : 14 / 42 ( 33 % ) seats taken
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (1)]$
```

Lab 5.3.10 (2)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (2)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (2)]$ ./output
Provide flight capacity: 100
Provide number of reserved seats: 50
Flight1 : 50 / 100 ( 50 % ) seats taken
What would you like to do?: Flight1 : 50 / 100 ( 50 % ) seats taken
What would you like to do?: add 4
Flight1 : 54 / 100 ( 54 % ) seats taken
Flight1 : 54 / 100 ( 54 % ) seats taken
What would you like to do?: cancel 200
Cannot perform this operation
Flight1 : 54 / 100 ( 54 % ) seats taken
What would you like to do?: quit
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (2)]$ ./output
Provide flight capacity: 180
Provide number of reserved seats: 200
Flight1 : 189 / 180 ( 105 % ) seats taken
What would you like to do?: Flight1 : 189 / 180 ( 105 % ) seats taken
What would you like to do?: add 1
Cannot perform this operation
Flight1 : 189 / 180 ( 105 % ) seats taken
What would you like to do?: quit
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (2)]$ ./output
Provide flight capacity: 100
Provide number of reserved seats: 0
Flight1 : 0 / 100 ( 0 % ) seats taken
What would you like to do?: Flight1 : 0 / 100 ( 0 % ) seats taken
What would you like to do?: add 50
Flight1 : 50 / 100 ( 50 % ) seats taken
Flight1 : 50 / 100 ( 50 % ) seats taken
What would you like to do?: cancel 25
Flight1 : 25 / 100 ( 25 % ) seats taken
Flight1 : 25 / 100 ( 25 % ) seats taken
What would you like to do?: quit
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (2)]$
```

Lab 5.3.10 (3)

```

[ec2-user@ip-172-31-82-95 Lab 5.3.10 (3)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (3)]$ ./output
No flights in the system
What would you like to do?: create 101 400
Flight 101 : 0 / 400 ( 0 % ) seats taken
What would you like to do?: create 307 180
Flight 101 : 0 / 400 ( 0 % ) seats taken
Flight 307 : 0 / 180 ( 0 % ) seats taken
What would you like to do?: add 101 404
Flight 101 : 404 / 400 ( 101 % ) seats taken
Flight 307 : 0 / 180 ( 0 % ) seats taken
What would you like to do?: add 307 9
Flight 101 : 404 / 400 ( 101 % ) seats taken
Flight 307 : 9 / 180 ( 5 % ) seats taken
What would you like to do?: cancel 101 200
Flight 101 : 204 / 400 ( 51 % ) seats taken
Flight 307 : 9 / 180 ( 5 % ) seats taken
What would you like to do?: delete 101
Flight 307 : 9 / 180 ( 5 % ) seats taken
What would you like to do?: quit
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (3)]$ ./output
No flights in the system
What would you like to do?: add 101 404
Cannot perform this operation : ID not found
No flights in the system
What would you like to do?: create 101 400
Flight 101 : 0 / 400 ( 0 % ) seats taken
What would you like to do?: add 101 500
Cannot perform this operation : overbooking
Flight 101 : 0 / 400 ( 0 % ) seats taken
What would you like to do?: delete 101
No flights in the system
What would you like to do?: cancel 101 200
Cannot perform this operation : ID not found
No flights in the system
What would you like to do?: delete 101
Cannot perform this operation : ID not found
No flights in the system
What would you like to do?: quit

```

```

[ec2-user@ip-172-31-82-95 Lab 5.3.10 (3)]$ ./output
No flights in the system
What would you like to do?: add 1 10
Cannot perform this operation : ID not found
No flights in the system
What would you like to do?: create 1 10
Flight 1 : 0 / 10 ( 0 % ) seats taken
What would you like to do?: add 2 20
Cannot perform this operation : ID not found
Flight 1 : 0 / 10 ( 0 % ) seats taken
What would you like to do?: quit
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (3)]$ █

```

Lab 5.3.10 (4)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (4)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (4)]$ ./output
No members in the system
What would you like to do?: create 7 John Doe
Member 7 : John Doe, subscription valid for 0 months.
What would you like to do?: create 8 Jane Doe
Member 7 : John Doe, subscription valid for 0 months.
Member 8 : Jane Doe, subscription valid for 0 months.
What would you like to do?: extend 7 6
Member 7 : John Doe, subscription valid for 6 months.
Member 8 : Jane Doe, subscription valid for 0 months.
What would you like to do?: extend 8 12
Member 7 : John Doe, subscription valid for 6 months.
Member 8 : Jane Doe, subscription valid for 12 months.
What would you like to do?: cancel 8
Member 7 : John Doe, subscription valid for 6 months.
Member 8 : Jane Doe, subscription valid for 0 months.
What would you like to do?: delete 7
Member 8 : Jane Doe, subscription valid for 0 months.
What would you like to do?: quit
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (4)]$ ./output
No members in the system
What would you like to do?: cancel 1
Cannot perform this operation : ID not found
No members in the system
What would you like to do?: quit
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (4)]$
```

Lab 5.3.10 (5)

```

[ec2-user@ip-172-31-82-95 Lab 5.3.10 (5)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (5)]$ ./output
3/4
3
4
3/4 is 0.75 in decimal
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (5)]$ ./output
7/-4
7
-4
-1 3/4 is -1.75 in decimal
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (5)]$ ./output
8/4
8
4
2 is 2.00 in decimal
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (5)]$ ./output
-6/8
-6
8
-1 6/8 is -0.75 in decimal
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (5)]$ ./output
42/7
42
7
6 is 6.00 in decimal
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (5)]$ █

```

Lab 5.3.10 (6)

```

[ec2-user@ip-172-31-82-95 Lab 5.3.10 (6)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (6)]$ ./output
Fraction 1: 3/4
Fraction 2: 1/3
3/4 + 1/3 = 1 1/12
3/4 - 1/3 = 5/12
3/4 * 1/3 = 1/4
3/4 / 1/3 = 2 1/4
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (6)]$ ./output
Fraction 1: 7/4
Fraction 2: -6/10
1 3/4 + -1 6/10 = 1 3/20
1 3/4 - -1 6/10 = 2 7/20
1 3/4 * -1 6/10 = -1 1/20
1 3/4 / -1 6/10 = -2 11/12
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (6)]$ ./output
Fraction 1: 0/5
Fraction 2: 5/0
Error
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (6)]$ █

```

Lab 5.3.10 (7)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (7)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (7)]$ ./output
Fraction 1: 3/4
Fraction 2: 1/3
3/4 > 1/3
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (7)]$ ./output
Fraction 1: 7/4
Fraction 2: -6/10
1 3/4 > -1 6/10
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (7)]$ ./output
Fraction 1: 7/4
Fraction 2: -10/0
Error
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (7)]$
```

Lab 5.3.10 (8)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (8)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (8)]$ ./output
0 0
3 4
5
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (8)]$ ./output
9 16
4 4
13
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (8)]$ ./output
-3 -6.7
-8.5 9
16.6355
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (8)]$ ./output
1 1
1 1
0
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (8)]$
```

Lab 5.3.10 (9)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (9)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (9)]$ ./output
0 0
3 6
y = 2x + 0
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (9)]$ ./output
2 2
-2 0
y = 0.5x + 1
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (9)]$ ./output
-1 1
2 -4
y = -1.666667x -0.666667
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (9)]$ ./output
1 1
3 2
y = 0.5x + 0.5
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (9)]$
```

Lab 5.3.10 (10)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (10)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (10)]$ ./output
0 0
3 6
-2 -4
collinear
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (10)]$ ./output
2 2
-2 0
0 0
not collinear
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (10)]$ ./output
5 5
3 3
0 0
collinear
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (10)]$
```

Lab 5.3.10 (11)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (11)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (11)]$ ./output
animalA consumes 5 liters of water and 10 ed of eat.
What about the others?
This animal consumes 10 liters of water
This animal consumes 15 ed of eat
-----
This animal consumes 42 liters of water
This animal consumes 11 ed of eat
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (11)]$
```

Lab 5.3.10 (12)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (12)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (12)]$ ./output
Enter animal and weight: cow 500
Enter animal and weight: sheep 80
Enter animal and weight: horse 400
Enter animal and weight:
79
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (12)]$ ./output
Enter animal and weight: horse 100000
Enter animal and weight:
6800
[ec2-user@ip-172-31-82-95 Lab 5.3.10 (12)]$
```

Lab 5.3.13 (1)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (1)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (1)]$ ./output
4
3
2
1
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (1)]$
```

Lab 5.3.13 (2)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (2)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (2)]$ ./output
+Node
+Node
+Node
+Node
-Node
-Node
-Node
-Node
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (2)]$
```

Lab 5.3.13 (3)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (3)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (3)]$ ./output
pushed 0, size: 1
pushed 1, size: 2
pushed 2, size: 3
pushed 3, size: 4
pushed 4, size: 5
pushed 5, size: 6

popped 5, size: 5
popped 4, size: 4
popped 3, size: 3
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (3)]$
```

Lab 5.3.13 (4)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (4)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (4)]$ ./output
1
2
3
4
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (4)]$
```

Lab 5.3.13 (5)


```
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (5)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (5)]$ ./output
1
2
3
4

[ec2-user@ip-172-31-82-95 Lab 5.3.13 (5)]$
```

Lab 5.3.13 (6)

```
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (6)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (6)]$ ./output
list[0] == 1
list[1] == 2
list[2] == 3
list[3] == 4

list[0] == 1
list[1] == 2
list[2] == 4

list[0] == 1
list[1] == 6
list[2] == 2
list[3] == 4
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (6)]$
```

Lab 5.3.13 (7)

```

[ec2-user@ip-172-31-82-95 Lab 5.3.13 (7)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (7)]$ ./output
list1
list[0] == 1
list[1] == 2
list[2] == 3
list[3] == 4

list2
list[0] == 1
list[1] == 2
list[2] == 3
list[3] == 4

list1
list[0] == 1
list[1] == 6
list[2] == 2
list[3] == 3
list[4] == 4

list2
list[0] == 1
list[1] == 2
list[2] == 4

[ec2-user@ip-172-31-82-95 Lab 5.3.13 (7)]$

```

Lab 5.3.13 (8)

```

[ec2-user@ip-172-31-82-95 Lab 5.3.13 (8)]$ g++ -std=c++11 -lm -o output Lab*.cpp
[ec2-user@ip-172-31-82-95 Lab 5.3.13 (8)]$ ./output
list[0] == 1
list[1] == 2
list[2] == 3

list[0] == 1
list[1] == 2
list[2] == 0
list[3] == 3

3
0
2
1

list[0] == 1
list[1] == 2
list[2] == 0
list[3] == 3

[ec2-user@ip-172-31-82-95 Lab 5.3.13 (8)]$

```