

# Data Types, Operators and Expressions in C++

## LAB # 02



Spring 2022

CSE-102L COMPUTER PROGRAMMING LAB

Submitted by: MUHAMMAD SADEEQ

Registration No.: 21PWCSE2028

Section: C

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: \_\_\_\_\_

Submitted to:

Engr. Abdullah Hamid

(July 2022)

Department of Computer Systems Engineering University of  
Engineering and Technology, Peshawar

## Lab 2: Data Types, Operators and Expressions in C++

### Objectives

To be familiar with different data types, Operators and Expressions in C++.

### Task Titles:

1. Write a program that takes the temperature in Fahrenheit from the user and convert it to Celsius And Kelvin:

$$K = C + 273$$

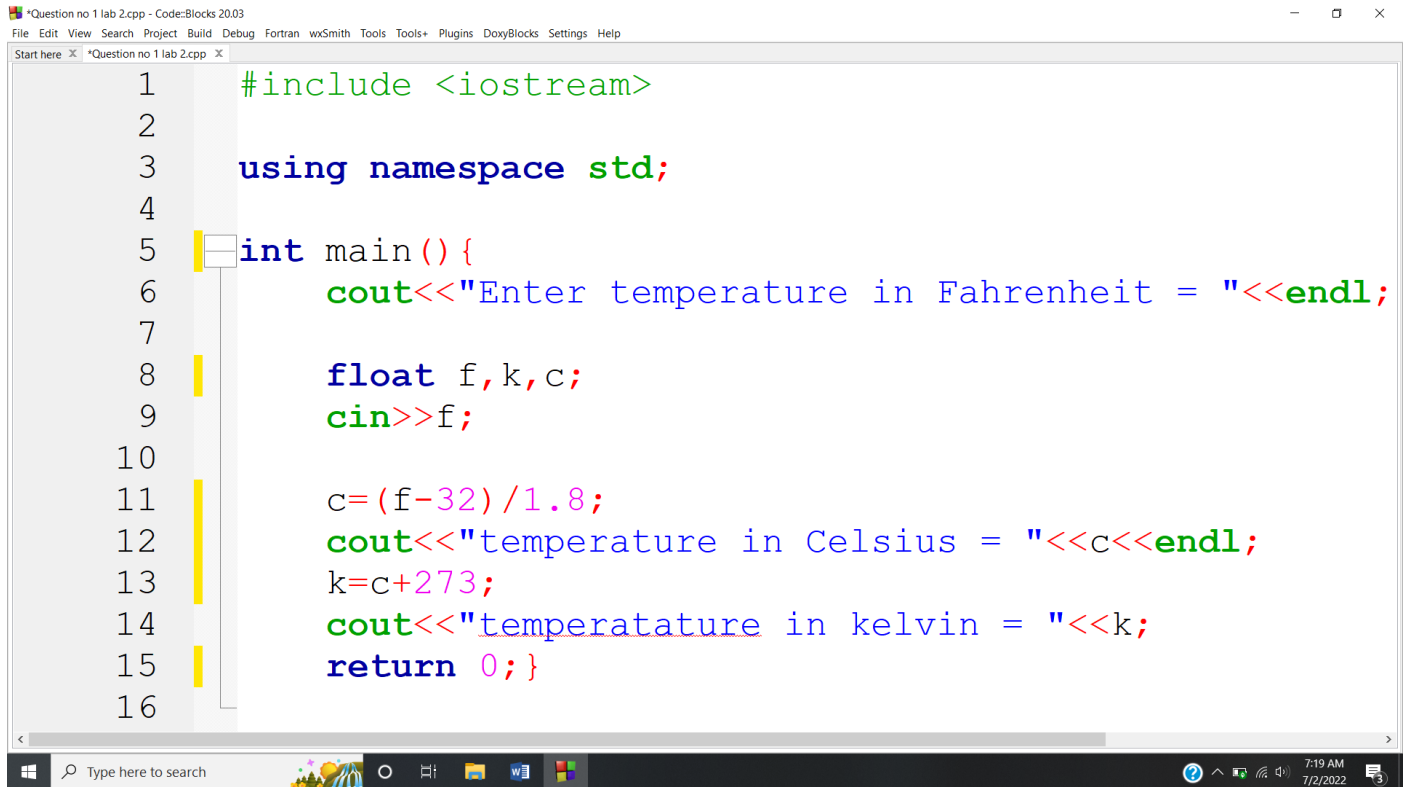
$$C = (F - 32) / 1.8$$

2. Write the C++ code that takes the integer a, b, c, d and e from the user and display the output according to the following equation.

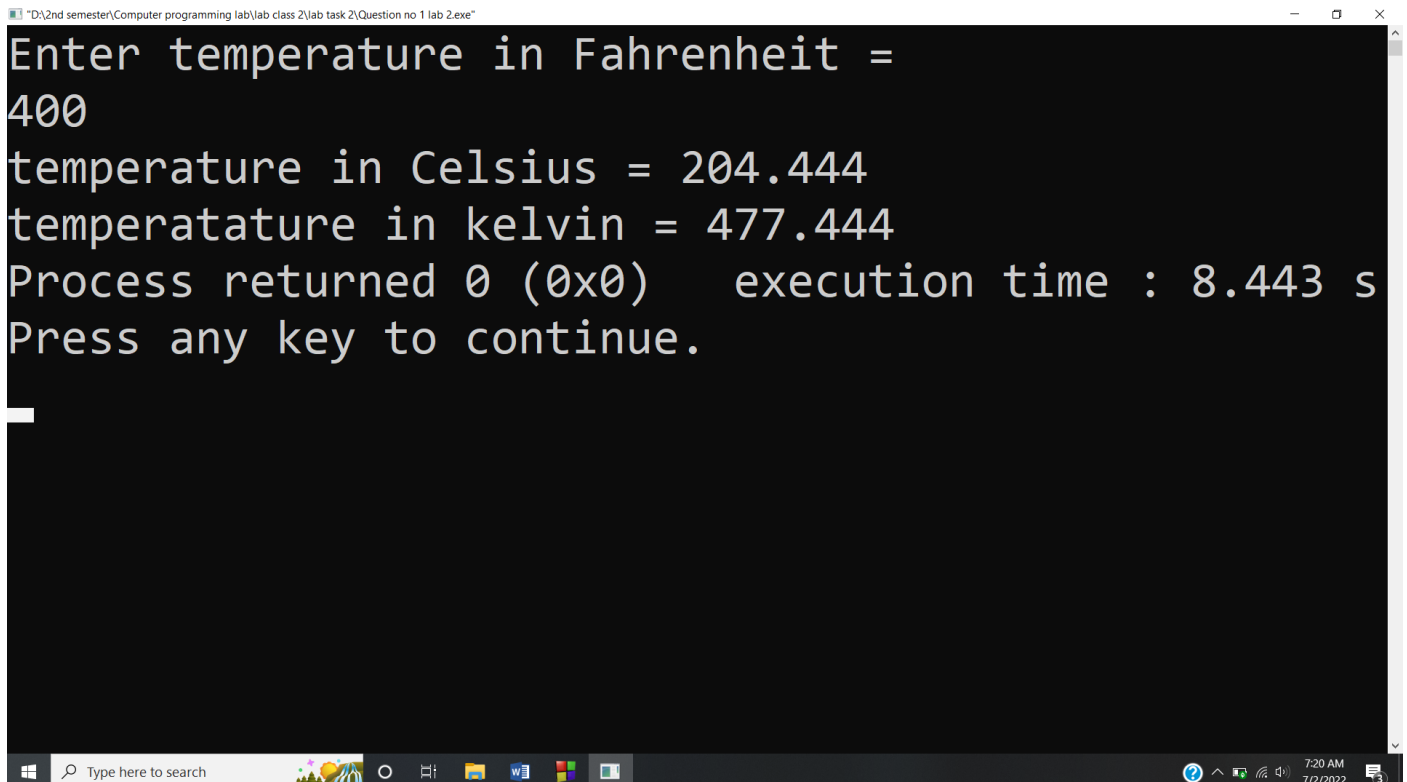
$$\underline{a^3 + b - d / b}$$

$$a (b + c (e + a) / b) - 5$$

3. Write a program to declare two integer and one float variables then initialize them to 10, 11, and 12.6. Also print the variable values on the screen.
4. Write a C++ program to prompt the user to input 3 integer values and print these values in forward and reversed order.
5. Write a program to swap two variables values with and without using third variables.

**COMPUTER PROGRAMMING LAB # 2****Answer #1****CODE:**

```
1  #include <iostream>
2
3  using namespace std;
4
5  int main() {
6      cout<<"Enter temperature in Fahrenheit = "<<endl;
7
8      float f,k,c;
9      cin>>f;
10
11      c=(f-32)/1.8;
12      cout<<"temperature in Celsius = "<<c<<endl;
13      k=c+273;
14      cout<<"temperatature in kelvin = "<<k;
15      return 0;}
16
```

**OUTPUT:**

```
Enter temperature in Fahrenheit =
400
temperature in Celsius = 204.444
temperatature in kelvin = 477.444
Process returned 0 (0x0)   execution time : 8.443 s
Press any key to continue.
```

## Answer #2

### CODE:

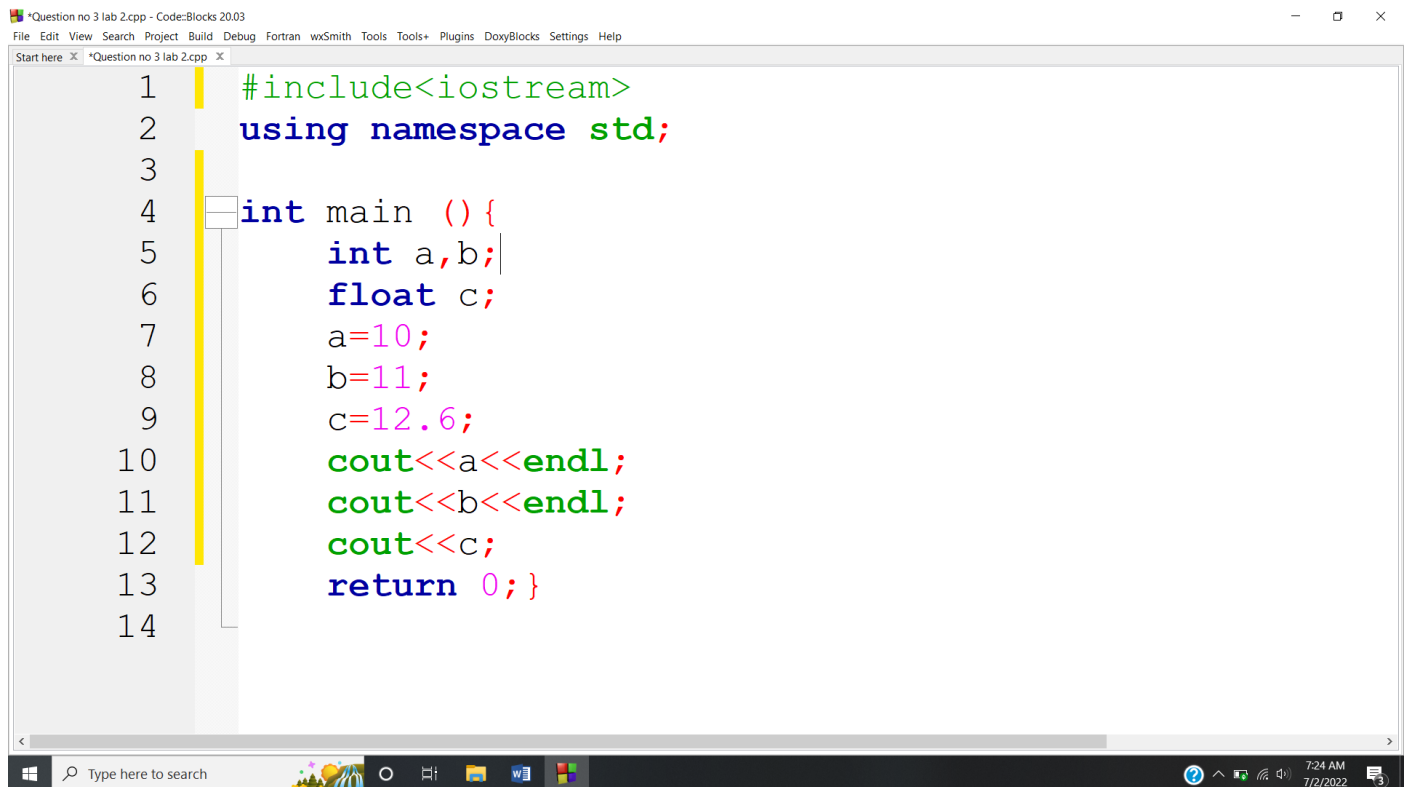
```
Question no 2 lab 2.cpp - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Start here X Question no 2 lab 2.cpp X
1  #include <iostream>
2  using namespace std;
3
4  int main() {
5      int a,b,c,d,e;
6      cout << "Enter value of a = "<<endl ;
7      cin>>a;
8      cout << "Enter value of b = "<<endl ;
9      cin>>b;
10     cout << "Enter value of c = "<<endl ;
11     cin>>c;
12     cout << "Enter value of d = "<<endl ;
13     cin>>d;
14     cout << "Enter value of e = "<<endl ;
15     cin>>e;
16     cout<<"result = "<<(a*a*a)+b-d/b/a*(b+c*(e+a)/b)-5;
17     return 0;}
```

### OUTPUT:

```
"D:\2nd semester\Computer programming lab\lab class 2\lab task 2\Question no 2 lab 2.exe"
Enter value of a =
2
Enter value of b =
2
Enter value of c =
2
Enter value of d =
2
Enter value of e =
2
result = 5
Process returned 0 (0x0)    execution time : 3.698 s
Press any key to continue.
```

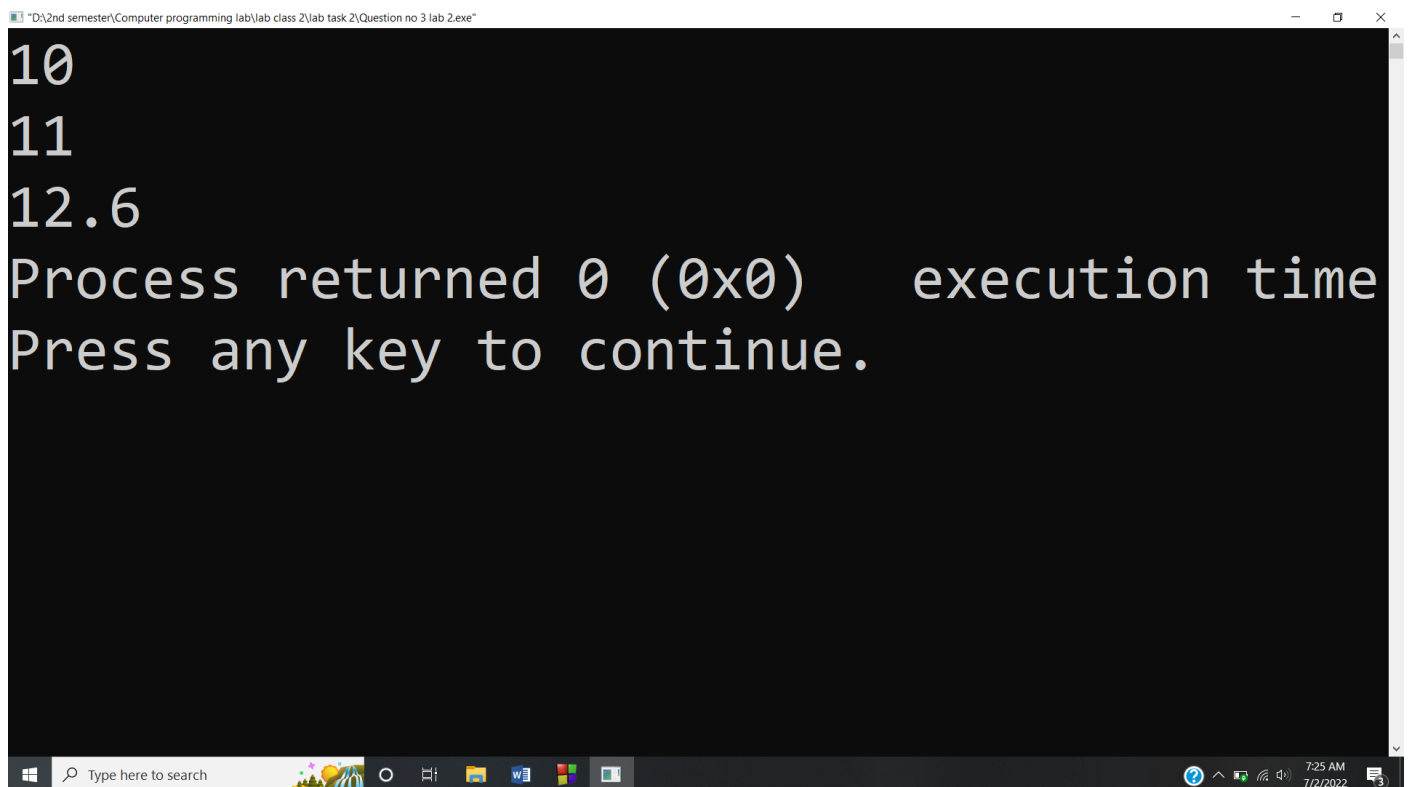
## Answer #3

### CODE:



```
*Question no 3 lab 2.cpp - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Start here x *Question no 3 lab 2.cpp x
1 #include<iostream>
2 using namespace std;
3
4 int main () {
5     int a,b;
6     float c;
7     a=10;
8     b=11;
9     c=12.6;
10    cout<<a<<endl;
11    cout<<b<<endl;
12    cout<<c;
13    return 0;}
14
```

### OUTPUT:



```
"D:\2nd semester\Computer programming lab\lab class 2\lab task 2\Question no 3 lab 2.exe"
10
11
12.6
Process returned 0 (0x0)   execution time
Press any key to continue.
```

## Answer #4

### CODE:

```
*Question no 4 lab 2.cpp - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Start here x *Question no 4 lab 2.cpp x
1      #include<iostream>
2
3      using namespace std;
4
5      int main() {
6
7          int a,b,c;//declaring integer a b c
8
9          cout<<"Enter first integer >> ";
10         cin>>a;
11         cout<<"Enter first integer >> ";
12         cin>>b;
13         cout<<"Enter first integer >> ";
14         cin>>c;
15         cout<<a<<" "<<b<<" "<<c<<endl;//forward order
16         cout<<c<<" "<<b<<" "<<a;//reversed order
17         return 0; }
```

### OUTPUT:

```
"D:\2nd semester\Computer programming lab\lab class 2\lab task 2\Question no 4 lab 2.exe"
Enter first integer >> 5
Enter first integer >> 1
Enter first integer >> 3
5 1 3
3 1 5
Process returned 0 (0x0)    execution time : 15
Press any key to continue.
```

## Answer #5

### Swapping of two variables with the help of third variable

#### CODE:

```
*Question no 5 lab 2.cpp - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Start here x *Question no 5 lab 2.cpp x
1  #include<iostream>
2  using namespace std;
3
4  int main(){
5      int a,b,c;
6      cout<<"enter value of a :";
7      cin>>a;
8      cout<<"enter value of b :";
9      cin>>b;
10         c=a;
11         a=b;
12         b=c;
13
14     cout<<"value of a = "<<a<<endl;
15     cout<<"value of b = "<<b;
16     return 0;}
```

#### OUTPUT:

```
"D:\2nd semester\Computer programming lab\lab class 2\lab task 2\Question no 5 lab 2.exe"
enter value of a :1
enter value of b :2
value of a = 2
value of b = 1
Process returned 0 (0x0)    execution time:
Press any key to continue.
```

## Swapping of two variables without the use of third variable

### CODE:

```
*Question no 6 lab 2.cpp - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Start here x *Question no 6 lab 2.cpp x
1 #include<iostream>
2 using namespace std;
3
4 int main(){
5     int a,b;
6     cout<<"Enter value of A :";
7     cin>>a;
8     cout<<"Enter value of B :";
9     cin>>b;
10     a=a+b;
11     b=a-b;
12     a=a-b;
13
14     cout<<"value of A : "<<a<<endl;
15     cout<<"value of B : "<<b;
16     return 0;}
```

### OUTPUT:

```
"D:\2nd semester\Computer programming lab\lab class 2\lab task 2\Question no 6 lab 2.exe"
Enter value of A :1
Enter value of B :2
value of A : 2
value of B : 1
Process returned 0 (0x0)   executio
Press any key to continue.
```