



Aror University of Art, Architecture, Design & Heritage Sukkur.

Department of Artificial Intelligence and Multimedia Gaming

Fundamentals of Programming (Fall-2023)

LAB No. 03

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Objective of Lab No. 03:

After performing lab 3, students will be able to:

- Use escape sequences in a C++ Program
- Take user input using cin
- Use arithmetic Operators in a C++ Program
- Use arithmetic Operators to solve real-world problems
- Understand the difference between Local and Global Variables

Task 01: Print out the following output by using appropriate escape sequences in your Program:

A.

A screenshot of a C++ program's output. The output is a decorative message on a black background with white text and symbols. The message reads: "DASHNY AZADI MUBARIK" followed by "TO ALL FRIENDS". Below this, there is a large rectangular frame made of asterisks and spaces, with the word "LOVE" in the center. The frame is composed of multiple lines of asterisks and spaces, creating a border around the word "LOVE". The output is displayed in a terminal window with a title bar that says "C:\Users\Zubair\Desktop\lab3\lab3.cpp".



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```
1  #include <iostream>
2  using namespace std;
3  int main(){
4
5
6      cout<<"**"<<endl;
7      cout<<"**"<<endl;
8      cout<<"*****"<<endl;
9      cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
10     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
11     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
12     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
13     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
14     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
15     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
16     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
17     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
18     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
19     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
20     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
21     cout<<"**\t*\t*\t*\t*\t*\t*"<<endl;
22     cout<<"*****"<<endl;
23     cout<<"**"<<endl;
24     cout<<"**"<<endl;
25     cout<<"**"<<endl;
26     cout<<"**"<<endl;
27     cout<<"**"<<endl;
28     cout<<"**"<<endl;
29     cout<<"**"<<endl;
30     cout<<"**"<<endl;
31     cout<<"**"<<endl;
32     cout<<"**"<<endl;
33     cout<<"**"<<endl;
34     cout<<"**"<<endl;
35 }
```



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B.

"quotes in quotes"

I've said "save your notebook," so let's do it!

```
1 #include<iostream>
2 using namespace std;
3 int main()
4 {
5     cout<<"I said,\"Save your notebook,\"so let's do it!\"<<endl;
6 }
```

C.

"\\WARNING!///"

```
1 #include<iostream>
2 using namespace std;
3 int main (){
4     cout<<"\"\\warning///\"";
5 }
```

Task 02: Write a C++ program to convert temperature from Fahrenheit to Celsius degrees.

Example:

Input a value in Degree Fahrenheit: 212

Expected Output:

212.0 degree Fahrenheit is equal to 100.0 in Celsius



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Formula: $C = 5/9 * (F - 32)$

```
1  #include<iostream>
2  using namespace std;
3  int main (){
4      float fehenheit, celsius;
5      cout << "enter value in fehenhiet  : ";
6      cin>>fehenheit ;
7
8      celsius= (fehenheit - 32) * 5/ 9 ;
9
10     cout<<" enter celsius value is  : "<< celsius << endl;
11     return 0;
12 }
```

Task 03: Write a C++ program that takes a number in inches and converts it into meters

Example:

Input a value in inches: 212

Expected Output:

212.0 degree Fahrenheit is equal to 100.0 in Celsius

Formula: $\text{meter} = \text{Inches} * 0.0254$

```
1  #include<iostream>
2  using namespace std;
3  int main (){
4      float inches, meter;
5      cout << "enter value in inches  : ";
6      cin>>inches ;
7
8      meter= inches * 0.0254;
9
10     cout<<inches<<" inches is equal to  : "<<meter << "meter" << endl;
11     return 0;
12 }
```



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Task 04: Write a program in C++ to compute quotient and remainder.

Sample Output:

Compute quotient and remainder :

Input the dividend : 25

Input the divisor : 3

The quotient of the division is : 8

The remainder of the division is : 1

```
1  #include<iostream>
2  using namespace std;
3  int main (){
4      int dividend, divisor, quotient, remainder ;
5      cout <<"Computer quotient and remainder"<<endl;
6      cout <<"-----"<<endl;
7
8      cout<<" Input the dividend : ";
9      cin>>dividend;
10
11     cout<<" Input the divisor : ";
12     cin>>divisor;
13
14     quotient = dividend / divisor ;
15     remainder = dividend % divisor ;
16
17     cout<<" Quotient = "<< quotient << endl;
18     cout<<" Remainder = "<< remainder << endl;
19
20     return 0;
21 }
```



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Task 05: Write a C++ program which takes 5 numbers as an input from the user, Compute their sum and average and display the output:

Sample Output:

Compute quotient and remainder :

Input the first_number: 5

Input the second_number: 6

Input the third_number: 5

Input the fourth_number: 4

Input the fifth_number: 5

Sum of the numbers is: 25

Average of the numbers is: 5

```
1  #include<iostream>
2  using namespace std;
3  int main () {
4      int num1, num2, num3, num4, num5;
5
6      cout<<" Input the first number : ";
7      cin>>num1;
8
9      cout<<" Input the second number : ";
10     cin>>num2;
11
12     cout<<" Input the third number : ";
13     cin>>num3;
14
15     cout<<" Input the fourth number : ";
16     cin>>num4;
17
18     cout<<" Input the fifth number : ";
19     cin>>num5;
20
21     sum = num1 + num2 + num3 + num4 + num5 ;
22     average = sum / 5 ;
23
24     cout<<"Sum of the numbers is : "<< sum << endl;
25     cout<<" Average of the numbers is : "<< average << endl;
26
27     return 0;
28 }
```



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Sample Output:

Enter your weight in kgs: 50

Enter your height in meters: 1.65

Your BMI is: 30.303

Formula for BMI: $\text{BMI} = \text{kg}/\text{m}^2$

```
1  #include<iostream>
2  using namespace std;
3  int main (){
4      float weight, height, bmi;
5
6      cout<<" Enter your weight in kgs : ";
7      cin>>weight;
8
9      cout<<" Enter your height in meter : ";
10     cin>>height;
11
12     bmi = weight / (height * height) ;
13     cin>>height;
14
15     cout<<"Your BMI is : "<< bmi << endl;
16
17     return 0;
18 }
```