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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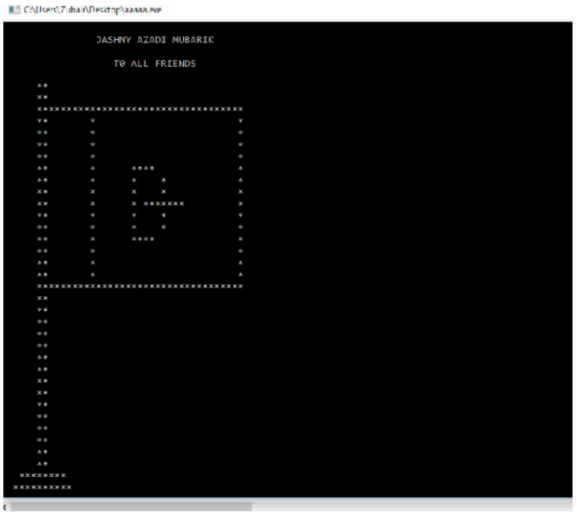
Objective of Lab No. 03:

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.



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```cpp
#include <iostream>
using namespace std;
int main(){


    cout<<"**"<<endl;
    cout<<"**"<<endl;
    cout<<"**************************************************"<<endl;
    cout<<"**\t*\t\t\t\t\t*"<<endl;
    cout<<"**\t*\t\t\t\t\t*"<<endl;
    cout<<"**\t*\t\t\t\t\t*"<<endl;
    cout<<"**\t*\t*****\t\t\t\t*"<<endl;
    cout<<"**\t*\t*\t*\t\t\t*"<<endl;
    cout<<"**\t*\t*\t*\t\t\t*"<<endl;
    cout<<"**\t*\t*************\t\t\t*"<<endl;
    cout<<"**\t*\t*\t*\t\t\t*"<<endl;
    cout<<"**\t*\t*\t*\t\t\t*"<<endl;
    cout<<"**\t*\t****\t\t\t\t*"<<endl;
    cout<<"**\t*\t\t\t\t\t*"<<endl;
    cout<<"**\t*\t\t\t\t\t*"<<endl;
    cout<<"**\t*\t\t\t\t\t*"<<endl;
    cout<<"**************************************************"<<endl;
    cout<<"**"<<endl;
    cout<<"**"<<endl;
    cout<<"**"<<endl;
    cout<<"**"<<endl;
    cout<<"**"<<endl;
    cout<<"**"<<endl;
    cout<<"**"<<endl;
    cout<<"**"<<endl;
    cout<<"**"<<endl;
    cout<<"**"<<endl;
    cout<<"****"<<endl;
    cout<<"******"<<endl;
}
```

B.

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

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

C.

```
"\\WARNING!///"
```

```cpp
#include<iostream>
using namespace std;
int main (){
    cout<<"\"\\\warning////\"";
}
```

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

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

```
#include<iostream>
using namespace std;
int main (){
    float fehenheit, celsius;
    cout << "enter value in fehenhiet  : ";
    cin>>fehenheit ;

    celsius= (fehenheit - 32) * 5/ 9 ;

    cout<<" enter celsius value is   : "<< celsius  << endl;
    return 0;
}
```

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: meter = Inches * 0.0254

```
#include<iostream>
using namespace std;
int main (){
    float inches, meter;
    cout << "enter value in inches  : ";
    cin>>inches ;

    meter= inches * 0.0254;

    cout<<inches<<" inches is equal to  : "<<meter << "meter" << endl;
    return 0;
}
```

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

```cpp
#include<iostream>
using namespace std;
int main (){
    int dividend, divisor, quotient, remaider ;
    cout <<"Computer quotient and remaider"<<endl;
    cout <<"--------------------------------"<<endl;

    cout<<" Input the dividend : ";
    cin>>dividend;

    cout<<" Input the divisor : ";
    cin>>divisor;

    quotient = dividend / divisor ;
    remaider = dividend % divisor ;

    cout<<" Quotient = "<< quotient << endl;
    cout<<" Remaider = "<< remaider << endl;

    return 0;
}
```

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

```cpp
#include<iostream>
using namespace std;
int main (){
    int  num1, num2, num3, num4, num5;

    cout<<" Input the first number : ";
    cin>>num1;

    cout<<" Input the second number : ";
    cin>>num2;

    cout<<" Input the third number : ";
    cin>>num3;

    cout<<" Input the fouth number : ";
    cin>>num4;

    cout<<" Input the fifth number : ";
    cin>>num5;

    sum = num1 + num2 + num3 + num4 + num5 ;
    average = sum / 5 ;

    cout<<"Sum of the numbers is :  "<< sum << endl;
    cout<<" Average of the numbers is :  "<< average << endl;

    return 0;
}
```

Sample Output:

Enter your weight in kgs: 50

Enter your height in meters: 1.65

Your BMI is: 30.303

Formula for BMI: BMI = kg/m²

```cpp
#include<iostream>
using namespace std;
int main (){
    float weight, height, bmi;

    cout<<" Enter your weight in kgs : ";
    cin>>weight;

    cout<<" Enter your height in meter  : ";
    cin>>height;

    bmi = weight / (height * height) ;
    cin>>height;

    cout<<"Your BMI is  :  "<< bmi << endl;

    return 0;
}
```