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**BSIT-S-T-1A-T** **Prof. J. Andong**

**COMPUTER PRORAMMING: LOOPS SEATWORK**

1. Please type in the total number of data values to be averaged: In response to this prompt, the program should accept a user-entered number, and then use it to control the number of times the while loop is executed. So if the user enters 6 in response to the prompt, the program should request an input of six numbers and display the average of the six numbers entered.

CODE:

number1_CelsiusToFarenheit.cpp | number2.cpp | number3.cpp | number0.cpp

```cpp
#include <iostream>
using namespace std;

int main()
{
    int count = 0, i = 1;
    float num = 0, sum = 0, ave = 0;

    // INPUT
    cout << "Enter the number of integer input: ";
    cin >> count; // kukunin kung ilang input ng number kelangan

    // PROCESS
    while (i <= count) // condition para malimit ung input base sa kung ilan lang yung nilagay ng user
    {
        cout << "Enter the integer " << i << ": ";
        cin >> num;

        sum = sum + num; // accumulator para sa number na ini-input
        i++;             // add ng 1 sa i para mareach ung value ng count
    }
    ave = sum / count; // average, sum (yung pinakatotal) / count (kung ilang number)
    // OUTPUT
    cout << "Ave is: " << ave << "\n";

    return 0;
}
```

OUTPUT:

```
Enter the number of integer input: 13
Enter the integer 1: 3
Enter the integer 2: 1
Enter the integer 3: 0
Enter the integer 4: 13
Enter the integer 5: 31
Enter the integer 6: 6
Enter the integer 7: 9
Enter the integer 8: 69
Enter the integer 9: 4
Enter the integer 10: 2
Enter the integer 11: 0
Enter the integer 12: 420
Enter the integer 13: 123
Ave is: 52.3846

--------------------------------
Process exited after 34.16 seconds with return value 0
Press any key to continue . . .
```

2. Write a C++ program to convert Celsius degrees to Fahrenheit. The program should request the starting Celsius value, the number of conversions to be made, and the increment between Celsius values. The display should have appropriate headings and list the Celsius value and the corresponding Fahrenheit value. Use the relationship that Fahrenheit = (9.0 / 5.0) * Celsius + 32.0.

CODE:

number1_CelsiusToFarenheit.cpp | number2.cpp | number3.cpp | number0.cpp

```cpp
#include <iostream>
#include <string>
#include <iomanip>
#include <windows.h>

using namespace std;

int main()
{
    string ans;
    int i = 0; // for loop variable
    int count = 0;
    float celsius = 0, increment_value = 0, farenheit = 0;
    do
    {
        ans = ""; // to reset the ans value
        system("cls");
        // CONSOLE HEADER
        cout << "****************************************\n"
             << "*\tCelsius to Farenheit Conversion\n"
             << "****************************************\n";

        // INPUT
        cout << "\nEnter the value for Celsius: \t\t";
        cin >> celsius;
        cout << "Enter the number of conversions: \t";
        cin >> count;
        cout << "Enter the increment value: \t\t";
        cin >> increment_value;

        // PROCESS
        cout << setprecision(3);

        // Setting the output table
        cout << "\n[OUTPUT]\n\n"
             << "No." << setw(13) << "Celsius" << setw(17) << "Farenheit" << endl;

        for (i = 1; i <= count; i++)
        {
            farenheit = ((9.0 / 5.0) * celsius) + 32.0;
            cout << i << setw(13) << celsius << setw(17) << farenheit << "\n";

            celsius += increment_value;
        }
        while (!(ans == "n" || ans == "N" || ans == "y" || ans == "Y"))
        {
            cout << "\nDo you want to continue: (y/n)";
            cin >> ans;
        }

    } while (!(ans == "n" || ans == "N"));

    return 0;
```

OUTPUT:

```
****************************************
*       Celsius to Farenheit Conversion
****************************************

Enter the value for Celsius:            13
Enter the number of conversions:        3
Enter the increment value:              3

[OUTPUT]

No.       Celsius        Farenheit
1            13             55.4
2            16             60.8
3            19             66.2

Do you want to continue: (y/n)
```

3. Program an old Arabian legend has it that a fabulously wealthy but unthinking king agreed to give a beggar 1 cent and double the amount for 64 days. Using this information, write, compile, and run a C++ program that displays how much the king must pay the beggar each day. The output of your program should appear as follows:

Day Amount Owed

--- ----------

1 0.01

2 0.02

3 0.04

. .

. .

64

CODE:

```cpp
#include <iostream>
#include <iomanip>

using namespace std;

int main()
{
    int days = 64;
    double cent = 0.01;

    cout << "Day" << setw(25) << "Amount Owed\n";
    for (int i = 1; i <= 64; i++)
    {
        cout << setw(3) << i << setw(25) << cent << "\n";
        cent = cent * 2;
    }

    return 0;
}
```

OUTPUT:

```
Day             Amount Owed
  1                    0.01
  2                    0.02
  3                    0.04
  4                    0.08
  5                    0.16
  6                    0.32
  7                    0.64
  8                    1.28
  9                    2.56
 10                    5.12
 11                   10.24
 12                   20.48
 13                   40.96
 14                   81.92
 15                  163.84
 16                  327.68
 17                  655.36
 18                 1310.72
 19                 2621.44
 20                 5242.88
 21                 10485.8
 22                 20971.5
 23                   41943
 24                 83886.1
 25                  167772
 26                  335544
 27                  671089
 28             1.34218e+006
 29             2.68435e+006
 30             5.36871e+006
 31             1.07374e+007
 32             2.14748e+007
 33             4.29497e+007
 34             8.58993e+007
 35             1.71799e+008
 36             3.43597e+008
 37             6.87195e+008
 38             1.37439e+009
 39             2.74878e+009
 40             5.49756e+009
 41             1.09951e+010
 42             2.19902e+010
 43             4.39805e+010
 44             8.79609e+010
 45             1.75922e+011
 46             3.51844e+011
 47             7.03687e+011
 48             1.40737e+012
 49             2.81475e+012
 50              5.6295e+012
 51              1.1259e+013
 52              2.2518e+013
 53              4.5036e+013
 54              9.0072e+013
 55             1.80144e+014
 56             3.60288e+014
 57             7.20576e+014
 58             1.44115e+015
 59              2.8823e+015
 60             5.76461e+015
 61             1.15292e+016
 62             2.30584e+016
 63             4.61169e+016
 64             9.22337e+016
```

4. Write, compile, and run a C++ program that converts gallons to liters. The program should display gallons from 10 to 20 in 1-gallon increments and the corresponding liter equivalents. Use the relationship that 1 gallon = 3.785 liters.

CODE:

```cpp
#include <iostream>
#include <iomanip>
using namespace std;

int main()
{
    int range = 20;
    int gallons = 0;
    float GALLONS_TO_LITERS = 3.875;
    float liters = 0;

    cout << "Gallons" << setw(11) << "Liters\n\n";
    for (gallons = 10; gallons <= range; gallons++)
    {
        liters = gallons * GALLONS_TO_LITERS;
        cout << gallons << setw(15) << liters << endl;
    }

    return 0;
}
```

OUTPUT:

```
Gallons   Liters

10          38.75
11         42.625
12           46.5
13         50.375
14          54.25
15         58.125
16             62
17         65.875
18          69.75
19         73.625
20           77.5

--------------------------------
Process exited after 0.05762 seconds with return value 0
Press any key to continue . . .
```