

ECE2036: Week 3_B – Mathematical Statements and Control Statements

Reading: Continue to read in D&D Chapter 4 and 5

For today we will review some syntax related to mathematical statements and structured programming concepts that are generally consistent in both C and C++. Here are a few examples.

//----- **Example Program Increment Operator** -----

```
#include <iostream>
using namespace std;
int main()
{
    int num = 0; //note initialization of variable

    cout << "For post increment we see that num++ " << ++num << endl;
    cout << "Num by itself is just : " << num << endl;
    cout << "For pre increment we see that ++num " << ++num << endl;
    cout << "Num by itself is just : " << num << endl;
}
```

//----- **Example Program If-Else Statements** -----

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

int main()
{
    double T; //This is a temperature

    cout << "Please enter the current temperature: ";
    cin >> T;
    cout << scientific << setprecision(3) << "Temperature : " << T << "F" << endl;

    if (T >= 60 && T <= 100) // For this time of year this is most probable
        cout << "It is a nice day! " << endl;
    else if (T >= 35 && T < 60)
        cout << "It is a little nippy! " << endl;
    else if (T > 100 && T <= 120)
        cout << "Oh Boy! It's hot" << endl;
    else if (T >= -40 && T < 35)
        cout << "I can't feel my toes!!" << endl;
    else
        cout << "Are you sure you are on planet earth!" << endl;
} //end main
```

//----- **Example Program Conditional Operator** -----

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

int main()
{
    double Temp;

    cout << "Please enter your car temperature: ";
    cin >> Temp;
    cout << "The engine is " << (Temp >= 300 ? "in danger" : "safe. ") << endl;
}
```

//----- **Example Program Switch Statement and Global Function** -----

//This will have an example of a switch statement

#include <iostream>

#include <iomanip>

using namespace std;

//function prototype for printGrades

void printGrades(int,int,int,int);

int main()

{

int aCount=0, bCount=0, cCount =0, dCount =0;

char grade;

system("clear");

cout << "Please input your grades A,B,C,D" << endl;

while ((grade = cin.get()) != EOF) //ctrl-d on mac and control-z PC

{

switch(grade)

{

case 'A':

case 'a':

aCount++;

break;

case 'B':

case 'b':

bCount++;

break;

case 'C':

case 'c':

cCount++;

break;

case 'D':

case 'd':

dCount++;

break;

case '\n':

case '':

break;

default:

cout << "You did not enter a correct grade" << endl;

} //end of switch statementS

} //end of while loop

printGrades(aCount,bCount,cCount,dCount);

return 0;

} //end of main

void printGrades(int numA, int numB, int numC, int numD)

{

cout << "The summary of your grades are as follows" << endl;

cout << "\n\n";

cout << "Number of A's: " << numA << endl;

cout << "Number of B's: " << numB << endl;

cout << "Number of C's: " << numC << endl;

cout << "Number of D's: " << numD << endl;

}