BASIC TIPS AND TRICKS IN PROGRAMMING

* REMEMBER to read the compiler error messages while you build your code
* Make sure you write code in a well-indented fashion. Refer to this link: https://en.wikipedia.org/wiki/Indent_style . Please follow which ever you like, and make sure you do it while writing the code, and NOT after writing the code.

1. Variable Declaration:

    Correct declarations:

    ```
    int x;  //Declares a variable named "x" with data type integer
    float y; //Declares a variable named "y" with data type float
    ```

    Wrong declarations:

    ```
    integer x; //integer is not a keyword
    floating x;//floating is not a keyword
    decimal x;//decimal is not a keyword
    int x; float x; //x can not have two data types
    ```

2. Expressions:

    Correct Expressions:

    ```
    (b*c+d)/a is a valid expression
    ```

    Wrong Expressions:

    ```
    1+2+3+...+n; //This is something we humans understand, but the
                 //computer can't understand what "…" means
    ```

3. Variable Assignment:

    LHS = RHS is an assignment statement.
    LHS should be variable name,iit should have been declared before this statement
    RHS should be a well formed expression
    NOTE: a = b in programming is very different from that in mathematics
    Correct assignments:

    ```
    a = b; //loads the value of b from memory and stores it in a
    a = b*a+6*b; // Computes b*a+6*b with the values of a, b before this line
                 // And stores it in a
    ```

    Wrong assignments:

    1. a*2 = b; //Wrong because LHS of an assignment has to be a variable name

    2. a=1;
    int a;   //wrong because initialisation before declaration

3. int a,b;
   b = a+1;
   a = 5; // wrong to use “a” in an expression before initialising

4. Comparator operators:
   Equal to operator
   if(a=b) // wrong
   if(a==b) //correct
   if(a=b) assigns value of b to a and checks whether a is not equal to 0
   if(a==b) checks whether a==b or not
   if(LHS == RHS) //:LHS and RHS should be well formed expressions

5. Boolean Logic:
   (a == 0) || (b == c); // Evaluates to true if either a is 0 or b is equal to c
   (a == 0) && (b == c); // Evaluates to true if either a is 0 and b is equal to c

6. Loops: Note the usage of usage of {} which helps you write multiple lines inside the loop block

```
for( i=0; i < n; i++){                    // NOTE no commas, semicolons
        ….
}

while(cond){
   ...
}


do{
  ….
}while(cond);          // Don’t forget the semicolon
```