Week 6

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Comments in C++

- C++ comment is written in one of the following ways:
  - The /* (slash, asterisk) characters, followed by any sequence of characters (including new lines), followed by the */ characters.
  - The // (two slashes) characters, followed by any sequence of characters.
  - In C/C++ there are two types of comments i.e. Single line comment represented by // and Multi-line comment represented by /*
  - Normally, we use // for short comments, and /* */ for longer.
  - Comments are text notes added to the program to provide explanatory information about the source code. They are used in a programming language to document the program and remind programmers of what tricky things they just did with the code and also helps the later generation for understanding and maintenance of code.

Example

```
#include <iostream.h>
using namespace std
int main()
{
 int sum=0, a,b;
cout<<"Enter two no.:";
cin>>a>>b;              //input two numbers  →(single line comment)
sum=a+b;
/*Enter two no. ,add
these no.s and store in sum*/    →(multiline comment)
cout<<"sum:"<<sum<<endl;
return 0;
}
```

Difference between declaration and definition

- A declaration provides basic attributes of a symbol: its type and its name. A definition provides all of the details of that symbol--if it's a function, what it does; if it's a class, what fields and methods it has; if it's a variable, where that variable is stored.
- Declaration means that variable is only declared and memory is allocated, but no value is set. However, definition means the variables has been initialized. The same works for variables, arrays, collections, etc.
- Variables
  - Declaring a variable.
    - int x;
  - Let's define and assign a value.
    - x = 10;
  - Declaring , defining and initialization .
   - int x=10;

getch() and getche() functions

- getch() reads a single character from keyboard and displays the entered character without using enter key , it doesnot buffer any. getche() reads a single character from the keyboard and displays immediately on output screen without waiting for enter key.
- The getche() function obtains the next available keystroke from the console. It waits until a keystroke is available. That character is echoed on the screen at the position of the cursor (use getch when you don't want to echo the keystroke).
- These are built-in function with conio header file.
- Syntax : getch() and getche()

Control structures

- Control structure control the flow of program execution.
- The statements of a computer program are always executed one after another in the order of its sequence. However, the order of execution in the program can be change. This is done with the help of control structures .
- A control structure is like a block of programming that analyses variables and chooses a direction in which to go based on given parameters. The term flow control details the direction the program takes. Hence it is the basic decision-making process in computing.
- There are three type of control structure: Sequence, Selection and Repitition.

Sequence structures

- Sequence :
  - A sequence control structure uses a compound statements or blocks to specify sequential flow.
  - {

    Statement 1;

    Statement 2;

    .... }
  - A set of instruction is executed in sequence from top to bottom.
  - Statement executed one after the other in order of their sequential execution.

Sequence Structure
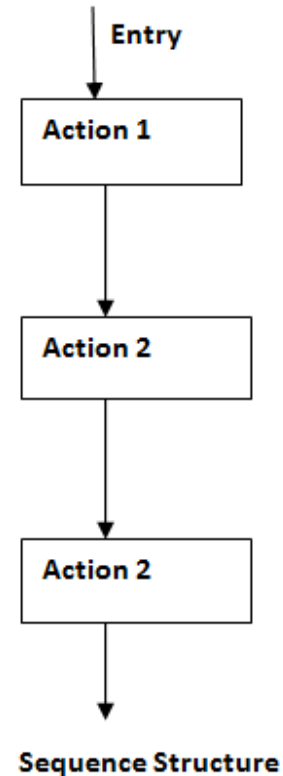
Selection structure(1)

- The "if" statement
  - The if statement is used to execute or ignore a set of statements after testing a condition.
  - The if statement evaluates the condition. If the given condition is true the statement or set of statements under the 'if statement' is executed or if its false the statement or set of statements will be ignored.
  - Syntax
    - if(condition)

      statement-1 ;   \\ for single statement
    - if(condition)

      {statement-1;

      Statement-2; ……}   \\ for set of statements

Selection structure(2)

- if-else statement
  - It is used for making two way decision. In computer programming, we use the if...else statement to run one block of code under certain conditions and another block of code under different conditions.
  - In this statement, one condition and two block of statements are given and any one block is executed after evaluating the condition.
  - Syntax:
    - if(condition)
        statement-1;
      else
        statement-2;
  - Syntax:
    - if(condition)
      {statement-1;
      Statement-2; ……}   \\ first block of statements
      else
      {statement-1;
      Statement-2; ……}   \\ second block of statements