

LAB 05

Summary

Items	Description
Course Title	Programming Fundamentals
Lab Title	Control Structure and introduction to loops
Duration	3 Hours
Operating System /Tool/Language	Visual Studio
Objective	To get familiar with switch statement and loops in c++

Syntax: case control structure

```
switch( integer expression/constant value)
{
case constant1 :
    statement(s);
    break;
case constant 2 :
    statement(s);
    break;
    .....
default : //optional
    statement(s)
}
```

The integer expression following the keyword **switch** is any C++ **expression** that will **yield an integer** value. It could be an integer, variable, constant like 1, 2 or 3, or an expression that evaluates to an integer. The keyword **case** is followed by an **integer** or a **character constant**. Each constant in each **case** must be different from all the others.

When we run a program containing a **switch** first, the integer expression following the keyword **switch** is evaluated. The value it gives is then matched, one by one, against the constant values that follow the **case** statements. When a match is found, the program executes the statements following that **case**, and all subsequent **case** and **default** statements as well. If no match is found with any of the **case** statements, only the statements following the **default** are executed.

Sample program # 01

```
#include "stdafx.h"
#include<iostream>
using namespace std;

int _tmain(int argc, _TCHAR* argv[])
{
    int a;
    cout<<"please enter any value from 1-3 "<<endl;
    cin>>a;
    switch(a)
    {
        case 1:
            cout<<"you have entered 1"<<endl;
            break;
        case 2:
            cout<<"you have entered 2"<<endl;
            break;
        case 3:
            cout<<"you have entered 3"<<endl;
            break;
        default :
            cout<<"you have entered other number from 1-3"<<endl;
    }
    system("pause");
    return 0;
}
```

Syntax: while loop

```
while (condition)
{
    Statement(s) to be executed till the condition = TRUE
}
```

Syntax: do while loop

```
do { statement(s)
    } while(condition);
```

Sample program # 02

```
#include "stdafx.h"
#include<iostream>
using namespace std;

int _tmain(int argc, _TCHAR* argv[])
{cout<<"use of while loop"<<endl;
int i=0;
while(i<10)
{   cout<<i<<endl;
    i++; // i=i+1
}
system("pause");
return 0;
}
```

Sample program# 03

```
#include "stdafx.h"
#include<iostream>
using namespace std;

int _tmain(int argc, _TCHAR* argv[])
{
    cout<<"use of do while"<<endl;
int i=20;
do
{ cout<<i<<endl;
  i--;
}
while(i>0);
system("pause");
return 0;
}
```

Break and Continue statements in loops

whenever break statement is executed within the loop, it will transfer the control to next line after the loop ie will force the control to exit from loop. Break usually associated with if.
syntax : break;

Continue statement :

whenever continue statement is executed within the loop, it will transfer the control to the start of the loop.

Syntax : continue;

Goto statement:

transfers the control to a specific location called label

syntax : goto mylabel

mylabel:

statement(s)

LAB TASKS

TASK # 01

Run the sample program 1, note the output and get familiar with the syntax of switch statement

TASK # 02

Create a Calculator using switch statement now

Ask the user to enter 2 values

then ask the user to enter the operator

Sample output:

Enter first value? 3

Enter 2nd vale? 2

enter operator? +

3+2=5

TASK # 03

Write a C++ code which take an (character) input from the user, your program should tell whether user has entered a vowel or constant , if user enter any vowel your program should also display that vowel using switch statement

Vowels = a,e,i,o,u

Sample Output:

Please enter a character ? i

you have enter a vowel

you have entered i

TASK # 04

Run the sample # 02 and sample # 03 and get familiar with the loops in c++

TASK # 05

Create a program to print the following sequence using while loop.

```
2
4
6
8
10
```

TASK # 06

Write a program to print the table of a number entered by user using do while loop.

Sample output:

Enter a number? 3

3x1=3

3x2=6

3x3=9

.....

3x12=36