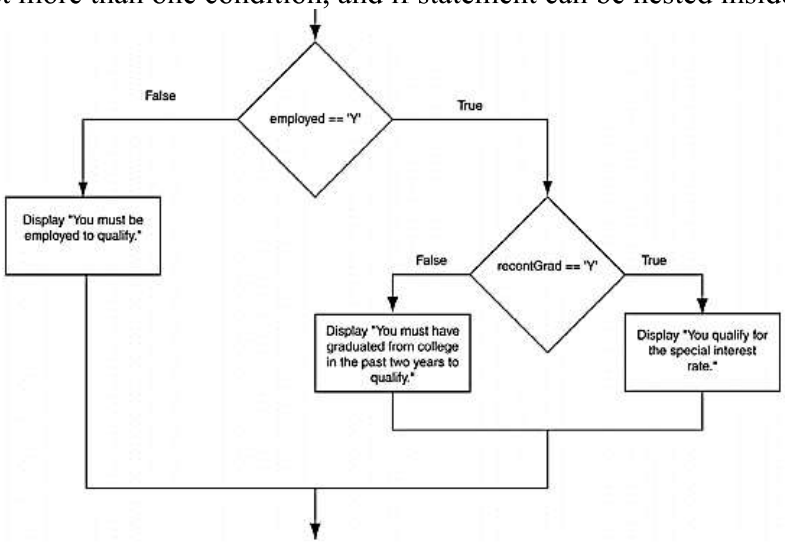
LAB 07: Control Structures (switch Statement/Nested if)

Objective(s): Upon completion of this lab session, learners will be able to:
CLOs: CLO1, CLO4
Nested if Statement:
Test more than one condition, and if statement can be nested inside another if statement.



Example:

```
 // This program demonstrates a nested if statement.
#include <iostream>
 using namespace std;
int main()
 {
        char employed, recentGrad;
        cout << "Answer the following questions\n";
        cout << "with either Y for Yes or ";
        cout << "N for No.\n";
        cout << "Are you employed? ";
        cin  >> employed;
        cout << "Have you graduated from college ";
        cout << "in the past two years? ";
        cin  >> recentGrad;
        if (employed == 'Y')
        {
                if (recentGrad == 'Y')  {
                        cout << "You qualify for the special ";
                         cout << "interest rate.\n";
                }
        }
        return 0;
}
```

Program Output

Answer the following questions with either Y for Yes or N for No.
Are you employed? Y[Enter]
Have you graduated from college in the past two years? Y[Enter]
You qualify for the special interest rate.

Program Output
Answer the following questions with either Y for Yes or N for No.
Are you employed? Y[Enter]
Have you graduated from college in the past two years? N[Enter]

Switch Statement:

The switch statement lets the value of a variable or expression determines where the program will branch.

Syntax:

```
Switch (IntegerExpression)
{
        case  ConstantExpression:
        // place one or more
        // statements here
        case  ConstantExpression:
        // place one or more
        // statements here
        // case statements may be repeated as many
        // times as necessary
        default:
        // place one or more
        // statements here
}
```

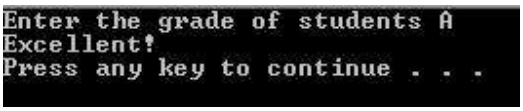
Example

```
#include <iostream>
using namespace std;
void main (){
        // local variable declaration:
        char grade;
        cout<<"Enter the grade of students ";
        cin>>grade;
        switch(grade){
        case 'A' :
                cout <<"Excellent!\n";
                break;
        case 'B' :
        case 'C' :
                cout << "Well done\n";
                break;
```

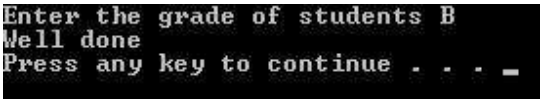
```
        case 'D' :
                cout << "You passed\n";
                break;
        case 'F' :
                cout << "Better try again\n";
                break;
        default :
                cout << "Invalid grade\n";
        }
}
```

OUTPUT

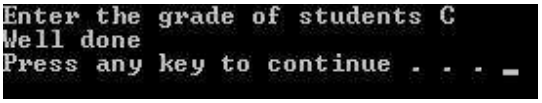
a) Case "A"
If the user entered letter grade A. The compiler executes case A statements.



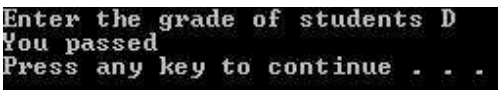
b) Case "B"
If the user entered letter grade B. The compiler executes case B statements.



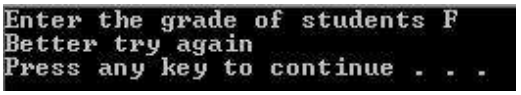
c) Case "C"
If the user entered letter grade C. The compiler executes case C statements.



d) Case "D"
If the user entered letter grade D. The compiler executes case D statements.

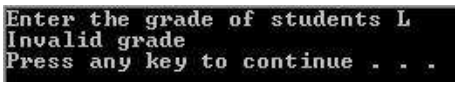


e) Case „F"
If the user entered grade F. The compiler executes case F statements.



f) Default Case:

If any other letter grade is entered. The default statement is executed.



Without the break statement, the program "falls through" all of the statements below the one with the matching case expression.

Lab Tasks:

Task 1

Attempt Task 1 and Task 3 from previous lab using switch statements. (Use symbols as user input operations)

Task 2

Serendipity Booksellers has a book club that awards points to its customers based on the number of books purchased each month. (Use Switch Statement)

The points are awarded as follows:

- If a customer purchases 0 books, he or she earns 0 points.
- If a customer purchases 1 book, he or she earns 5 points.
- If a customer purchases 2 books, he or she earns 15 points.
- If a customer purchases 3 books, he or she earns 30 points.
- If a customer purchases 4 or more books, he or she earns 60 points.

Write a program that asks the user to enter the number of books that he or she has purchased this month and then displays the number of points awarded.