

LECTURE 7

1. The Switch Selection Statement (Selector):

The switch statement is a special multi way decision maker that tests whether an expression matches one of the number of constant values, and braces accordingly.

General Form of Switch Selection statement:

```
switch ( selector )
{
    case label1 : statement1 ; break;
    case label2 : statement2 ; break;
    case label3 : statement3 ; break;
    :
    case label-n : statement-n ; break;
    default : statement-e ; break;
}
```

Example 1:


```
switch (value)
{
    case 0: cout << "grade is A";
            break;
    case 1: coucout << "grade is B";
            break;
    case 2: coucout << "grade is C";
            break;
    default: cout << "grade is X";
            break;
}
```

Example 1

 Write C++ program to read integer number, and print the name of the day in a week:

```
#include<iostream.h>
void main( )
{
    int day;
    cout << "Enter the number of the day \n";
    cin >> day;
    switch (day)
    {
        case 1: cout << "Sunday";    break;
        case 2: cout << "Monday";   break;
        case 3: cout << "Tuesday";  break;
        case 4: cout << "Wednesday"; break;
        case 5: cout << "Thursday"; break;
        case 6: cout << "Friday";   break;
        case 7: cout << "Saturday";  break;
        default: cout << "Invalid day number"; break;
    }
}
```

Example 2

 Write C++ program to read two integer numbers, and read the operation to perform on these numbers:

```
#include<iostream.h>
void main( )
{
    int a, b;
    char x;

    cout << "Enter two numbers \n";
    cin >> a >> b;

    cout << "+ for addition \n";
    cout << "- for subtraction \n";
    cout << "*" for multiplication \n";
    cout << "/" for division \n";
    cout << "enter your choice \n";
    cin >> x;

    switch ( x )
    {
        case '+': cout << a + b;
                  break;
    }
}
```

```

        case '-': cout << a - b;
                break;
        case '*': cout << a * b;
                break;
        case '/': cout << a / b;
                break;
        default: break;
    }
}

```

2. Nested Switch Selection Statement:

General Form of Nested Switch Selection statement:

```

switch ( selector1 )
{
    case label1 : statement1 ; break;
    case label2 : statement2 ; break;
    case label3 : switch ( selector2 )
                    {
                        case label1 : statement1 ; break;
                        case label2 : statement2 ; break;
                        :
                    }
    case label-n : statement-n ; break;
    default : statement-e ; break;
}

```

Example 3

 Write C++ program to read integer number, and print the name of the computerized department:

```

#include<iostream.h>
void main( )
{
    int i,j;
    cout << "Enter the number for the department name \n";
    cin >> i>>j;
    switch (i)
    {

```

```

case 1: cout << "Software Engineering Department"; break;
case 2: cout << "Control and computers Department"; break;
case 3: cout << "Computer Sciences Department";
        cout<<"Enter the no. of branch";
        switch(j)
{
case 1: cout << "Software"; break;
case 2: cout << "Information system"; break;
case 3: cout << "Security";
case 4: cout << "AI";
}
default: cout << "Invalid day number"; break;
}
}
}

```

3. Conditional Statement:

General Form of Conditional statement:

(*condition* ? True : False)

Example 1: cin >> value;
 cout << (value >= 0 ? "positive" : "negative");

Example 2: cin >> x >> y;
 cout << (x < y ? -1 : (x == y ? 0 : 1));

Example 4

 Write C++ program to read integer number, and print if its even or odd:

```

#include<iostream.h>
void main( )
{
    int value;
    cout << "Enter the number \n";
    cin >> value;
    cout<<(value%2==0?"even":"odd");
}

```

WORK SHEET (3)

Selection Statements

Q1: Write C++ program to read two integer numbers then print "multiple" or "not" if one number is a multiple to another number.

Q2: Write C++ program to read integer number and print the equivalent string.

e.g:

0 → Zero

1 → One

2 → Two

:

Q3: Write C++ program to read a score of student and print the estimation to refer it.

e.g:

100 - 90 → Exultant

89 - 80 → Very good

79 - 70 → Good

69 - 60 → Middle

59 - 50 → Accept

49 - 0 → Fail

Q4: Write C++ program to represent a simple nested case (selector).

Q5: Write C++ program to compute the area of circle if the radius $r=2.5$.

Note: area of circle is $r * r * pi$,

pi is 3.14

Q6: Write C++ program to read an integer number and check if it is positive or negative, even or odd, and write a suitable messages in each case.

Q7: Write a program to read 3 numbers, and write the largest and smallest numbers.

Q8: Write C++ program to read an integer from 1 to 12, and print out the value of the corresponding month of the year.

Q9: Write C++ program to reads a character and print if it is digit (0..9), capital letter (A,B, ... ,Z), small letter (a, b, ... ,z), special character (+, !, @, #, _ , {, >, ...).

Q10: Write C++ program to read x and compute the following:

$$Y = \begin{cases} \frac{x^2 + 5x - 20}{\sqrt{2x}} & \text{if } x > 0 \\ 0 & \text{if } x = 0 \\ x^2 + (5x)^2 - 10 & \text{if } x < 0 \end{cases}$$

Q11: Write C++ program to read 5 numbers and determine if the numbers sorted ascending or not.

Q12: Write C++ program to read two integer numbers, and read the operation to perform on these numbers.

Q13: Write a program to read X and print Sin X if X>0, square root X if X<0 and absolute X if X/2 is integer.