SWITCH AND CLASSES

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***Abstract*- A switch statement allows a variable to be tested for equality against a list of values. Each value is called a case, and the variable being switched on is checked for each switch case.**

Syntax:
The syntax for a switch statement in C programming language is as follows:

```
switch(expression){
   case constant-expression  :
      statement(s);
      break; /* optional */
   case constant-expression  :
      statement(s);
      break; /* optional */

   /* you can have any number of case statements */
   default : /* Optional */
      statement(s);
}
```

The following rules apply to a switch statement:

The expression used in a switch statement must have an integral or enumerated type, or be of a class type in which the class has a single conversion function to an integral or enumerated type.

You can have any number of case statements within a switch. Each case is followed by the value to be compared to and a colon.

The constant-expression for a case must be the same data type as the variable in the switch, and it must be a constant or a literal.

When the variable being switched on is equal to a case, the statements following that case will execute until a break statement is reached.

When a break statement is reached, the switch terminates, and the flow of control jumps to the next line following the switch statement.

Not every case needs to contain a break. If no break appears, the flow of control will fall through to subsequent cases until a break is reached.

A switch statement can have an optional default case, which must appear at the end of the switch. The default case can be used for performing a task when none of the cases is true. No break is needed in the default case.

Flow Diagram:
switch statement in C
Example:

```
#include <stdio.h>

int main ()
{
   /* local variable definition */
   char grade = 'B';

   switch(grade)
   {
   case 'A' :
      printf("Excellent!\n" );
      break;
   case 'B' :
   case 'C' :
      printf("Well done\n" );
      break;
   case 'D' :
      printf("You passed\n" );
      break;
   case 'F' :
      printf("Better try again\n" );
      break;
   default :
      printf("Invalid grade\n" );
   }
   printf("Your grade is  %c\n", grade );

   return 0;
}
```

When the above code is compiled and executed, it produces the following result:

```
Well done
Your grade is B
```

Decision making structures require that the programmer specify one or more conditions to be evaluated or tested by the program, along with a statement or statements to be executed if the condition is determined to be true, and optionally, other statements to be executed if the condition is determined to be false.

Following is the general form of a typical decision making structure found in most of the programming languages:

Decision making statements in C
C programming language assumes any non-zero and non-null values as true, and if it is either zero or null, then it is assumed as false value.

C programming language provides following types of decision making statements. Click the following links to check their detail.

Statement	Description
if statement	An if statement consists of a boolean expression followed by one or more statements.
if...else statement	An if statement can be followed by an optional else statement, which executes when the boolean expression is false.
nested if statements	You can use one if or else if statement inside another if or else if statement(s).
switch statement	A switch statement allows a variable to be tested for equality against a list of values.
nested switch statements	You can use one switch statement inside another switch statement(s).

REFERENCES

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Let us c - yashvant p.kanetkar