**LAB # 6**

**OBJECT**

***DECISION MAKING IN PROGRAMMING USING SWITCH OPERATOR***

**THEORY**

Programming using the decision statements, it is necessary to use the most appropriate decision statement according to the problem. ‘If” statement is good for choosing between two alternatives, it quickly becomes cumbersome when several alternatives are needed. C language’s solution to this problem is the ‘switch’ statement.

## Switch Statement

The ‘switch’ statement is C’s multiple selection statement. It is use to select one of several alternative paths in program execution.

### Working of Switch Statement

A variable is successfully tested against a list of integer or character constants. When a match is found, the statement sequence associated with that match is executed.

### General Form

The general form of the ‘switch’ statement is as follows:

***switch (variable)***

***{***

***case constant 1:***

***statement sequence***

***break;***

***case constant 2:***

***statement sequence***

***break;***

***case constant 3:***

***statement sequence***

***break;***

***.***

***.***

***default:***

***statement sequence;***

***}***

Where the default sequence is performed if no matches is found. The default is optional. If all matches fail and default is absent, no action takes place. When match is found, then the statement associated with the case is executed until the break statement is encountered or the end of switch statement is reached.

## Comparison of Switch with If Statement

The ‘switch’ statement differ from the ‘if’ statement, in that ‘switch’ can only test for equality, whereas the ‘if’ condition is of any type. Also, ‘switch’ will only work with integer or character types.

## Break statement

The ‘break’ statement allows exiting a loop from any point with in its body, by passing its normal termination expression. When the ‘break’ statement s encountered inside a loop, the loop is immediately terminated and programs control resume at the next statement following the loop. The ‘break’ statement is commonly used in loops in which a special condition can cause immediate termination.

## Example-1

This program describes the use of ‘break’ statement to terminate a loop.

#include “stdio.h”

void main (void)

{

int i;

for ( i = 1 ; i < 100 ; i++ )

{

printf (“%d”, i);

if (i == 10)

break;

}

}

## Output

This program will generate a loop of number, which will terminate as 10 are encountered.

## Example-2

This program input number from keyboard and prints according to the case.

#include “stdio.h”

void main (void)

{

int i;

printf(“Enter a number between 1 and 4: “);

scanf(“%d”, &i );

switch ( i )

{

case 1 ;

printf (“one”);

break;

case 2 :

printf (“two”);

break;

case 3 :

printf(“three”);

break;

case4:

printf(“four”);

break;

default:

printf(“unrecognized number”);

}

}

## Output:

The result of this program will be as:

Enter a number between 1 and 4 : 4

Four

Enter a number between 1 and 4 : 1

One

Enter a number between 1 and 4 : 8

Unrecognized number

**TASKS TO BE PERFORMED**

1. What would be the output of following program
2. main( )

{

int i = 2 ;

switch ( i )

{

case 1 :

printf ( "I am in case 1 \n" ) ;

case 2 :

printf ( "I am in case 2 \n" ) ;

case 3 :

printf ( "I am in case 3 \n" ) ;

default :

printf ( "I am in default \n" ) ; }

}

OUTPUT

I am in case 2

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1. main( )

{

char suite = 3 ;

switch ( suite )

{

case 1 :

printf ( "\nDiamond" ) ;

case 2 :

printf ( "\nSpade" ) ;

default :

printf ( "\nHeart") ;

}

printf ( "\nI thought one wears a suite" ) ;

}

OUTPUT

Heart

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I thought one wears a suite

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1. Point out the errors, if any, in the following programs:

main( )

{

int suite = 1 ;

switch ( suite ) ;

{

case 0 ;

printf ( "\nClub" ) ;

case 1 ;

printf ( "\nDiamond" ) ;

}

}

Break is missing in cases

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Unwanted space between printf scopes and commas.

Invalid terminator after cases.

3. Write a program of calculator using Switch operator

# PROGRAM

#include <stdio.h>

int main(){

float a,b,result;

int choice;

system("cls");

printf("\nEnter first number: ");

scanf("%f",&a);

printf("\nEnter second number: ");

scanf("%f",&b);

printf("\n1- Take sum");

printf("\n2- Take product");

printf("\n3- Take division");

printf("\n4- Take difference");

scanf("%d",&choice);

switch(choice){

case 1:

result=a+b;

printf("\nSum is: %f",result);

break;

case 2:

result=a\*b;

printf("\nProduct is: %f",result);

break;

case 3:

result=a/b;

printf("\nDivision is: %f",result);

break;

case 4:

result=a-b;

printf("\nDifference is: %f",result);

break;

default:

printf("\nWrong input");

}

getch();

}