Switch Case Problems
Assignment:-9
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1. Write a program which takes the month number as an input and display number of days in that month.

Ans:-

```
#include<stdio.h>
int main()
{
   int x;
   printf("Enter a month number ");
   scanf("%d",&x);
   switch(x)
   {
   case 1:
   case 3:
   case 5:
   case 7:
   case 8:
   case 10:
   case 12:
      printf("31 days");
      break;
   case 2:
      printf("28 days");
      break;
   case 4:
   case 6:
   case 9:
   case 11:
      printf("30 days");
      break;
   default:
      printf("You enter an invalid input ");

   }
   return 0;
}
```

2. Write a menu driven program with the following options:

a. Addition

b. Subtraction

c. Multiplication

d. Division

e. Exit

Ans:-

```
#include<stdio.h>
int f1();
int a,b;
int main()
{
   char x;
   printf("a.Addition\nb.Substraction\nc.Multiplication\nd.Division\ne.Exit");
   printf("\nEnter your choice\n");
   scanf("%c",&x);
   switch(x)
   {
   case 'a':
      f1();
      printf("Sum is =%d",a+b);
      break;
   case 'b':
      f1();
      printf("Substraction is =%d",a-b);
      break;
   case 'c':
      f1();
      printf("Multiplication is =%d",a*b);
      break;
   case 'd':
      f1();
      printf("division is =%d",a/b);
      break;

   case 'e':
      f1();
      printf("You have exit from the entire program");
      break;
   default:
      printf("You enter an invalid input ");

   }
   return 0;
}
int f1()
{
   printf("Enter two number");
   scanf("%d%d",&a,&b);
}
```

3. Write a program which takes the day number of a week and displays a unique greeting message for the day.

Ans:-

```
#include<stdio.h>
```

```
int main()
{
   int x;
   printf("Enter a day number in a week\n");
   scanf("%d",&x);
   switch(x)
   {
      case 1: printf("Today is Monday");
            break;
      case 2: printf("Today is tuesday");
            break;
      case 3: printf("Today is thursday");
            break;
      case 4: printf("Today is Wednesday");
            break;
      case 5: printf("Today is friday");
            break;
      case 6: printf("Today is Satarday");
            break;
      case 7: printf("Today is Sunday");
            break;
      default:printf("You have enter an invalid input");
   }
   return 0;
}
```

4. Write a menu driven program with the following options:
a. Check whether a given set of three numbers are lengths of an isosceles triangle or not
b. Check whether a given set of three numbers are lengths of sides of a right angled triangle or not
c. Check whether a given set of three numbers are equilateral triangle or not
d. Exit
Ans:-

```
#include<stdio.h>
int f1();
int a,b,c;
int main()
{
   int x;
   printf("\nEnter your choice\n");
   printf("1. Check isosceles triangle or not\n");
   printf("2. Check right angled  triangle or not\n");
   printf("3. Check equilateral triangle or not\n");
   printf("4. Exit\n");
   scanf("%d",&x);
   switch(x)
```

```
   {
   case 1:
      f1();
      if(a==b || b==c || c==a)
         printf("Isosceles Triangle");
      else
         printf("Not an isosceles triangle");
      break;
   case 2 :
      f1();
      if( (a*a==b*b+c*c) || (b*b==a*a+c*c) || (c*c==a*a+b*b) )
         printf("A right angled triangle");
      else
         printf("Not A right angled triangle");
      break;
   case 3:
      f1();
      if(a==b && b==c )
         printf("Equilateral  Triangle");
      else
         printf("Not an equilateral triangle");
      break;
   case 4:
      printf("You have exit from the entire program");
      break;
   default:
      printf("You enter an invalid input ");

   }
   return 0;
}
int f1()
{
   printf("Enter three number");
   scanf("%d%d%d",&a,&b,&c);
}
```

5. Convert the following if-else-if construct into switch case:

```
if(var == 1)
        printf("good");
else if(var == 2)
        printf("better");
else if(var == 3)
        printf("best");
else
        printf("invalid");
```

Ans:-

```
#include<stdio.h>
```

```
int main()
{
   int x;
   printf("Enter a choice between 1 to 3 \n");
   scanf("%d",&x);
   switch(x)
   {
      case 1: printf("Good");
            break;
      case 2: printf("better");
            break;
      case 3: printf("best");
            break;
      default:printf("Invalid");
   }
   return 0;
}
```

6. Program to check whether a year is a leap year or not. Using switch Statement.

Ans:-

```
#include<stdio.h>
int main()
{
   int x;
   printf("Enter any year \n");
   scanf("%d",&x);
   switch(x%100==0)
   {
      case 1: switch(x%400==0)
            {
               case 1: printf("Leap Year");
                     break;
               case 0: printf("Not a leap year");
                     break;
            }break;
      case 0: switch(x%4==0)
            {
               case 1: printf("Leap year");
                     break;
               case 0: printf("Not a leap year");
                     break;
            }break;
   }
   return 0;
}
```

7. Program to take the value from the user as input electricity unit charges and calculate total electricity bill according to the given condition . Using the switch statement.

For the first 50 units Rs. 0.50/unit

For the next 100 units Rs. 0.75/unit
For the next 100 units Rs. 1.20/unit
For units above 250 Rs. 1.50/unit
An additional surcharge of 20% is added to the bill.
Ans:-

```
#include<stdio.h>
int main()
{
   int x;
   float y;
   printf("Enter your electric bill\n");
   scanf("%d",&x);
   switch(x>50)
   {
      case 1: switch(x>150)
            {
               case 1: switch(x>250)
                     {
                        case 1: y=25+75+120+(x-250)*1.50;
                              break;
                        case 0: y=25+75+(x-150)*1.20;
                     }break;
               case 0: y=25+(x-50)*0.75;
            }break;
      case 0: y=x*0.50;
   }
   printf("Total electric bill=%.2f",y*120/100);
   return 0;
}
```

8. Program to convert a positive number into a negative number and negative number into a positive number using a switch statement.
Ans:-

```
#include<stdio.h>
int main()
{
   int x;
   printf("Enter a number\n");
   scanf("%d",&x);
   switch(x>0)
   {
      case 1:printf("%d in negative form=%d",x,-1*x);
           break;
      case 0:printf("%d in positive form=%d",x,-1*x);
   }
   return 0;
}
```

9. Program to Convert even number into its upper nearest odd number Switch Statement.

Ans:-

```
#include<stdio.h>
int main()
{
   int x;
   printf("Enter a even number\n");
   scanf("%d",&x);
   switch(x%2==0)
   {
      case 1:printf("upper nearest odd number of %d is=%d",x,x+1);
           break;
      case 0:printf("You have enter an odd number");
   }
   return 0;
}
```

10. C program to find all roots of a quadratic equation using switch case.

Ans:-

```
#include<stdio.h>
#include<math.h>
int main()
{
   float a,b,c,d,p,q;
   printf("Enter the value of a,b and c\n");          //equation=a*x*x+b*x+c
   scanf("%f%f%f",&a,&b,&c);
   d=b*b-4*a*c;
   switch(d>0)
   {
      case 1:p=(-b+sqrt(d))/2/a;
           q=(-b-sqrt(d))/2/a;
           printf("Two distinct real roots are %.2f and %.2f",p,q);
           break;
      case 0:switch(d<0)
           {
             case 1:p=sqrt(-d)/2/a;
                  q=-b/2/a;
                  printf("Two distinct complex roots are %.2f+i%.2f and %.2f-i%.2f",q,p,q,p);
                  break;
             case 0:p=-b/2/a;
             printf("Equal roots are %d and %d",p,p);
           }
   }
   return 0;
}
```