Assignment - 9

1. Write a program which takes the month number as an input and display number of days in that month.

```
        #include<stdio.h>
int main()
{
   int month;
   printf("Enter the month number = ");
   scanf("%d",&month);

   switch(month)
   {
   case 1:
      printf("31 days");
      break;
   case 2:
      printf("28 or 29 days");
      break;
   case 3:
      printf("31 days");
      break;
   case 4:
      printf("30 days");
      break;
   case 5:
      printf("31 days");
      break;
   case 6:
      printf("30 days");
      break;
   case 7:
      printf("31 days");
```

```
        break;
    case 8:
        printf("31 days");
        break;
    case 9:
        printf("30 days");
        break;
    case 10:
        printf("31 days");
        break;
    case 11:
        printf("30 days");
        break;
    case 12:
        printf("31 days");
        break;
    default:
        printf("Invalid");
        break;
    }
    return 0;
}
```

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

a. Addition
b. Subtraction
c. Multiplication
d. Division
e. Exit

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
```

```
   int n,x,y;
while(1)
   {
      printf("\n\nEnter the choice : \n\n");
      printf("---  1. Addition \n");
      printf("---  2. Subtraction \n");
      printf("---  3. Multiplication \n");
      printf("---  4. Division \n");
      printf("---  5. Exit \n");

   scanf("%d",&n);

   switch(n)
   {
      case 1:
         printf("Enter the two number = ");
         scanf("%d %d",&x,&y);
         printf("Sum = %d",x+y);
         break;
      case 2:
         printf("Enter the two number = ");
         scanf("%d %d",&x,&y);
         printf("Sub = %d",x-y);
         break;
      case 3:
         printf("Enter the two number = ");
         scanf("%d %d",&x,&y);
         printf("multiply = %d",x*y);
         break;
      case 4:
         printf("Enter the two number = ");
         scanf("%d %d",&x,&y);
         printf("Division = %d",x/y);
         break;
      case 5:
```

```
            exit(0);

        default:
            printf("Invalid options");
            break;

    }
    }
    return 0;
}
```

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

```
         #include<stdio.h>
int main()
{
    int day;
    printf("Enter the day number :");
    scanf("%d",&day);

    switch(day)
    {
    case 1:
        printf("Welcome to Monday");
        break;
     case 2:
        printf("Welcome to Tuesday");
        break;
    case 3:
        printf("Welcome to Wednesday");
        break;
    case 4:
        printf("Welcome to Thursday");
        break;
```

```
    case 5:
        printf("Welcome to Friday");
        break;
    case 6:
        printf("Welcome to Saturday");
        break;
    case 7:
        printf("Welcome to Sunday");
        break;
    default:
        printf("Invalid Number");

    }
    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

```
        #include<stdio.h>
#include<stdlib.h>
int main()
{
    int choice, a,b,c;
    while(1)
    {
       printf("\n\n*****  Enter the choice *****\n\n");
    printf("1: To check isosceles triangle\n");
    printf("2: To check Right Angle triangle\n");
```

```
    printf("3: To check Equilateral triangle\n");
    printf("4: Exit\n\n");

    scanf("%d",&choice);
    printf("Enter the three sides of the triangle : ");
    scanf("%d %d %d",&a,&b,&c);
    switch(choice)
    {
    case 1:
        if((a==b) || (b==c) || (c==a))
            printf("Isosceles Triangle");
        else
            printf("Not Isosceles Triangle");
        break;
    case 2:
        if(a*a == b*b+c*c || b*b == c*c+a*a || c*c == a*a+b*b)
            printf("Right Angle Triangle");
        else
            printf("Not Right Angle Triangle");
        break;
    case 3:
        if((a==b) && (b==c))
            printf("Equilateral triangle");
        else
            printf("Not Equilateral triangle");
        break;
    case 4:
        exit(0);
    default:printf("Invalid Options");
    }
    }

    return 0;
}
```

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

```
if(var == 1) System.out.println("good");
else if(var == 2) System.out.println("better");
else if(var == 3) System.out.println("best");
else System.out.println("invalid");
```

```
#include<stdio.h>
int main()
{
    int choice;
    printf("Enter the choice : ");
    scanf("%d",&choice);

    switch(choice)
    {
        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

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

```
int main()
{
   int year = 2004;
   switch(year%100==0)
   {
   case 1: switch(year%400==0)
           {
           case 0:
              printf("Leap year");
              break;
           case 1:
              printf("Not Leap year");
              break;

           }break;
   case 0:switch(year%4==0)
           {
           case 1:
              printf("Leap year");
              break;
           case 0:
              printf("Not Leap year");
              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

```
#include<stdio.h>
int main()
{
   float x,amount = 0,total = 0;
   printf("\n\n\tsEnter the Electricity Unit : ");
   scanf("%f",&x);
   switch(x<=50)
   {
   case 1:
      amount = x*0.5;
      break;
   case 0:
      switch(x<=150)
      {
      case 1:
         amount = 25+(x-50)*0.75;
         break;
      case 0:
         switch(x<=250)
         {
         case 1:
            amount = 100+(x-150)*1.20;
            break;
         case 0:
            amount = 220+(x-250)*1.5;
            break;
```

```
            }break;

        }break;

    }
    total = amount + amount*0.20;
    printf("total amount = %f",total);
    return 0;
}
```

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

```
        #include<stdio.h>
#include<math.h>
int main()
{
    int n;
    printf("\n\n\t******  To convert the number Positive Or Negative
*******\n\n");
    printf("\n\n\tEnter the number = ");
    scanf("%d",&n);

    switch(n>0)
    {
    case 1:
        printf("\n\n\tNumber is = -%d\n\n",n);
        break;
    case 0:
        printf("\n\n\tNumber is = %d\n\n",abs(n));
        break;
    }
    return 0;
}
```

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

```
        #include<stdio.h>
int main()
{
   int n;
   printf("\n\n\tEnter the number = ");
   scanf("%d",&n);

   switch(n%2==0)
   {

   case 1:
      printf("\n\tNearest upper Odd Number is = %d\n\n",(n+1));
      break;

   case 0:
      printf("\n\tOdd Number is = %d\n\n",n);
      break;

   }
   return 0;
}
```

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

```
                #include <stdio.h>
#include <math.h>
int main()
{
   float a, b, c;
   float r1, r2, ima, D;
   printf("Enter value of 'a' of quadratic equation (aX^2 + bX + c): ");
```

```
    scanf("%f", &a);
    printf("Enter value of 'b' of quadratic equation (aX^2 + bX + c): ");
    scanf("%f",&b);
    printf("Enter values of 'c' of quadratic equation (aX^2 + bX + c): ");
    scanf("%f",&c);

    D = (b * b) - (4 * a * c);
    switch(D > 0)
    {
    case 1:
        r1 = (-b + sqrt(D)) / (2 * a);
        r2 = (-b - sqrt(D)) / (2 * a);
        printf("Two distinct and real roots exists: %.2f and %.2f",
               r1, r2);
        break;
    case 0:
        switch(D < 0)
        {
        case 1:
            r1 = r2 = -b / (2 * a);
            ima = sqrt(-D) / (2 * a);
            printf("Two distinct complex roots exists: %.2f + i%.2f and %.2f -
i%.2f",
                   r1, ima, r2, ima);
            break;
        case 0:
            r1 = r2 = -b / (2 * a);
            printf("Two equal and real roots exists: %.2f and %.2f", r1, r2);
            break;
        }
    }
    return 0;
}
```