Assignment - 9

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

```c
#include<stdio.h>
#include<stdlib.h>
int main()
{
    int n;
    while(1)
    {
        printf("\nEnter Month Number: ");
        scanf("%d",&n);
        switch (n)
        {
        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;
```

```c
            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;
            case 0:
                exit(0);
            default:
                break;
        }
    }
}
```

2. Write a menu driven program with the following options:
 a. Addition
 b. Subtraction
 c. Multiplication
 d. Division
 e. Exit

```c
#include<stdio.h>
#include<stdlib.h>
int main()
{
    int n1, n2;
    char n;
        printf("\na. Addition\nb. Subtraction\nc. Multiplication\nd. Division\ne.
```

```c
Exit ");
        printf("\nEnter your choice: ");
        scanf("%c",&n);
        switch (n)
        {
        case 'a':
            printf("\nEnter two numbers: ");
            scanf("%d %d",&n1, &n2);
            printf("\nAddition : %d", n1 + n2);
            break;
        case 'b':
            printf("\nEnter two numbers: ");
            scanf("%d %d",&n1, &n2);
            if (n1>n2)
            {
                printf("\nsubtraction: %d", n1 - n2);
            }
            else
            {
            printf("\nsubtraction: %d", n2 - n1);
            }
            break;
        case 'c':
            printf("\nEnter two numbers: ");
            scanf("%d %d",&n1, &n2);
            printf("\nMultiplication: %d", n1 * n2);
            break;
        case 'd':
            printf("\nEnter two numbers: ");
            scanf("%d %d",&n1, &n2);
            if (n1>n2)
            {
                printf("\ndivision: %d", n1 / n2);
            }
            else
            {
                printf("\ndivision: %d", n2 / n1);
```

```c
            }
            break;
        case 'e':
            exit(0);
        default:
            break;
        }
    printf("\n");
    return 0;
}
```

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

```c
#include<stdio.h>
#include<stdlib.h>
int main()
{
    int n;
    while (1)
    {
        printf("\nEnter Day no: ");
        scanf("%d", &n);
        switch (n)
        {
        case 1:
          printf("Every day is a gift (even Monday). Have a great week!");
          break;
        case 2:
          printf("Today is the thoughtful Tuesday. Think about your present and
plan your future accordingly. ...");
          break;
        case 3:
          printf("Good morning, have a wonderful Wednesday. ...");
          break;
        case 4:
          printf("May your day be blessed with joy and happiness as the sun shines
```

```c
its rays");
        break;
      case 5:
        printf("it is the day like a cool breeze in life. Enjoy the Friday!");
        break;
      case 6:
        printf("Wishing you for the most fun Saturday");
        break;
      case 7:
        printf("Have a blessed Sunday and give thanks for all the blessings you
have.");
        break;
      case 0:
        exit(0);
      default:
        break;
      }
   }
}
```

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

```c
#include<stdio.h>
#include<stdlib.h>
#include<math.h>
int main()
{
    int a = 3, b = 3, c = 2;
    char n;
      printf("\na. Check whether a given set of three numbers are lengths of an
isosceles triangle or not\nb. Check whether a given set of three numbers are
```

```c
lengths of sides of a right angled triangle or not\nc. Check whether a given set
of three numbers are equilateral triangle or not\nd. Exit ");
     printf("\nChoose Choice to check: ");
     scanf("%c", &n);
     switch (n)
     {
       case 'a':
           if (a==b || b==c)
           {
               printf("\nIts an Isoscles Triangle");
           }
           else
           {
               printf("\nNot a Isoscles Triangle");
           }
           break;
       case 'b':
           if (a>b && a>c)
           {
               if(a == sqrt(b*b + c*c))
               printf("\nIts a Right angled Triangle");
           }
           if (c>b && c>a)
           {
               if(c == sqrt(b*b + b*b))
               printf("\nIts a Right angled Triangle");
           }
           if (b>a && b>c)
           {
               if(b == sqrt(a*a + c*c))
               printf("\nIts a Right angled Triangle");
           }
           else
           {
               printf("\nNot a Right angled Triangle");
           }
           break;
```

```c
        case 'c':
            if (a==b==c)
            {
                printf("\nIts an Equilateral Triangle");
            }
            else
            {
                printf("\nNot a Equilateral Triangle");
            }
            break;
        case 'd':
            exit(0);
        default:
            break;
    }
}
```

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

```java
    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");
```

```c
#include<stdio.h>
int main()
{
        int var;
        printf("\nEnter var: ");
        scanf("%d",&var);
        switch (var)
        {
        case 1:
            printf("good");
```

```c
            break;
        case 2:
            printf("better");
            break;
        case 3:
            printf("Best");
            break;
        default:
            printf("invalid");
            break;
    }
}
```

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

```c
#include<stdio.h>
void main()
{
    int year,y;
    printf("Enter the Year :\n");
    scanf("%d",&year);
 y = year % 400 == 0 || year % 100 == 0 || year % 4 == 0;
 switch (y) {
        case 1:
            printf("\n%d is the leap year.\n", year);
            break;
        case 0:
            printf("\n%d is not the leap year.\n", year);
            break;
        default:
            printf("\n%d is not the leap year.\n", year);
    }
}
```

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()
{
    int u;
    float bill,total;
    printf("Enter Unit Value: ");
    scanf("%d",&u);
    switch (u)
    {
    case 1 ... 50 :
        bill = 0.50 * u;
        total = bill + bill*20/100;
        printf("total bill: %f",total);
        break;
    case 51 ... 150 :
        bill = 0.75 * u;
        total = bill + bill*20/100;
        printf("total bill: %f",total);
        break;
    case 151 ... 250 :
        bill = 1.20 * u;
        total = bill + bill*20/100;
        printf("total bill: %f",total);
        break;
    default:
        bill = 1.50 * u;
        total = bill + bill*20/100;
        printf("total bill: %f",total);
        break;
    }
}
```

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

```c
#include<stdio.h>
int main()
{
    int n, num;
    printf("\nEnter Number: ");
    scanf("%d",&num);
    printf("\nChoice  \n1.To convert to positive num\n2.To convert to Negative Num:\n");
    scanf("\n%d",&n);
    switch (n)
    {
    case 1:
        if(num<0)
            {
                num = num*-1;
                printf("\nPositive num is: %d",num);
            }
        else
            {
                printf("\nIts Already positive Num:");
            }
        break;
    case 2:
        if(num>0)
            {
                num = num*-1;
                printf("\nNegative num is: %d",num);
            }
        else
            {
                printf("\nIts Already Negative Num:");
            }
```

```c
            break;
        default:
            printf("\nInvalid Choice");
            break;
        }
}
```

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

```c
#include<stdio.h>
int main()
{
    int n;
    printf("\nEnter Even number to be round off to odd: ");
    scanf("%d",&n);
    switch (n%2==0)
    {
    case 1:
        n = n-1;
        printf("\nodd number upper nearest odd number is: %d",n);
        break;
    default:
        printf("\nAlready Odd Number");
        break;
    }
}
```

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

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

```c
    scanf("%d %d %d",&a,&b,&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);
            i = sqrt(-d) / (2 * a);
            printf("Two distinct complex roots exists: %.2f + i%.2f and %.2f -
i%.2f", r1, i, r2, i);
            break;
        case 0:
            r1 = -b/2*a;
            r2 = -b/2*a;
            printf("Two equal and real roots exists: %.2f and %.2f", r1, r2);
        }
        break;
    default:
        break;
    }
}
```