Assignment - 9 A Job Ready Bootcamp in C++, DSA and IOT

Switch Case Problems

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 x;
   printf("Enter the month number ");
   scanf("%d",&x);

   switch(x)
   {
      case 1: printf("\nDays id 31");
            break;
      case 2: printf("\nDays is 28/29");
            break;
      case 3: printf("\nDays id 31");
            break;
      case 4: printf("\nDays is 30");
            break;
      case 5: printf("\nDays id 31");
            break;
      case 6: printf("\nDays is 30");
            break;
      case 7: printf("\nDays id 31");
            break;
      case 8: printf("\nDays is 31");
            break;
      case 9: printf("\nDays id 30");
            break;
      case 10: printf("\nDays is 31");
            break;
      case 11: printf("\nDays id 30");
            break;
      case 12: printf("\nDays is 31");
            break;

      default: printf("Please enter a valid month number");
   }
}
```

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 x,a,b;
   while(1)
   {
      printf("\n\n1. Addition");
      printf("\n2. Subtraction");
      printf("\n3. Multiplication");
      printf("\n4. Division");
      printf("\n5. Exit");

      printf("\n\nEnter your choice  ");
      scanf("%d",&x);

      switch(x)
      {
         case 1:
            printf("Enter two number ");
            scanf("%d%d",&a,&b);
            printf("Addition is %d",a+b);
            break;

         case 2:
            printf("Enter two number ");
            scanf("%d%d",&a,&b);
            printf("Subtraction is %d",a-b);
            break;

         case 3:
            printf("Enter two number ");
            scanf("%d%d",&a,&b);
            printf("Multiplication is %d",a*b);
            break;
```

```
        case 4:
           printf("Enter two number ");
           scanf("%d%d",&a,&b);
           printf("Division is %d",a/b);
           break;

        case 5:
           exit(0);

        default:
           printf("Invalid Choice\n");
      }//end of switch
   }//end of while
}
```

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 x;
   printf("Enter the day number ");
   scanf("%d",&x);

   switch(x)
   {
      case 1: printf("\nToday is Monday");
            break;
      case 2: printf("\nToday is Tuesday");
            break;
      case 3: printf("\nToday is Wednesday");
            break;
      case 4: printf("\nToday is is Thrusday");
            break;
      case 5: printf("\nToday is Friday");
            break;
      case 6: printf("\nToday is Saturday");
            break;
      case 7: printf("\nToday is Sunday");
            break;
      default: printf("Please enter a valid number");
   }
}
```

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 x;

   printf("\n 1. To check isosceles triangle ");
   printf("\n 2. To check right angled triangle");
   printf("\n 3. To check equilateral triangle");
   printf("\n 4. To Exit");

   printf("\n\nEnter your choice");
   scanf("%d",&x);

   switch(x)
   {
      int a,b,c;

      case 1:printf("\n\nEnter length of triangle is");
            scanf("%d%d%d",&a,&b,&c);

         if(a==b || b==c || a==c)
            printf("\nTriangle is isosceles");
         else
            printf("\nNot an isosceles triangle");
            break;

      case 2:printf("\n\nEnter length of triangle is");
            scanf("%d%d%d",&a,&b,&c);

         if(a*a==b*b+c*c || b*b==c*c+a*a || c*c==a*a+b*b )
            printf("\nTriangle is right angled");
         else
            printf("\nNot a right angled triangle");
            break;

      case 3:printf("\n\nEnter length of triangle is");
            scanf("%d%d%d",&a,&b,&c);
```

```
        if(a==b && b==c)
           printf("\nTriangle is equilateral");
        else
           printf("\nNot an equilateral triangle");
           break;

     case 4:exit(0);

     default: printf("Please enter a valid number");
   }
   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 var;
   printf("Enter your var value ");
   scanf("%d",&var);

   switch(var)
   {
      case 1:if(var==1)
           printf("\ngood");
           break;

      case 2:if(var==2 )
           printf("\nbetter");
           break;

      case 3:if(var==3)
           printf("\nbest");
           break;
```

```
    default: printf("invalid");
  }
}
```

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

```
#include<stdio.h>
int main()
{
  int x=1600;

  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;
    }
  }
}
```

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 x;
  float total,cost;
```

```
   printf(" Enter ");
   scanf("%d",&x);

   switch(x<=50)
   {
      case 1: cost= x*0.50;
         break;
      case 0: switch(x<=150)
            {
               case 1: cost= 25+ (x-50)*0.75;
                  break;
               case 0: switch(x<=250)
               {
                  case 1: cost= 100+ (x-150)*1.20;
                     break;
                  case 0: switch(x>250)
                  {
                     case 1: cost= 220+ (x-250)*1.50;
                  }break;
               }break;
            }break;
   }
   printf("Value of cost %.2f\n\n",cost);
   total= cost+ cost*0.2;
   printf("Total amount is %.2f",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>
int main()
{
   int x;
   printf("Enter a number ");
   scanf("%d",&x);

   switch(x>0)
   {
      case 1: printf("-%d",x);
         break;
      case 0: printf("%d",-x);
   }
}
```

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

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

   switch(x%2==0)
   {
      case 1: printf("%d",x+1);
         break;
      case 0: printf("%d",x);
   }
}
```

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

```
#include<stdio.h>
#include<math.h>
int main()
{
   int a,b,c,D;
   float root1,root2,img;
   printf("Enter the value of a b c ");
   scanf("%d%d%d",&a,&b,&c);

   //quadratic equation (ax*x + b*x + c = 0)
   D=b*b-4*a*c;

   switch(D>0)
   {
      case 1: root1=(-b + sqrt(D)) / 2*a;
            root2=(-b - sqrt(D)) / 2*a;
            printf("Roots are unique %.2f and %.2f ",root1,root2);
            break;
      case 0:  switch(D<0)
      {
         case 1: root1=root2=-b/2*a;
               img=sqrt(-D)/ 2*a;
               printf("Roots are imaginary %.2f + %.2fi and %.2f - %.2fi ",root1,img,root2,img);
               break;
         case 0: root1=root2=-b /(2*a);
```

```
            printf("Roots are same %.2f and %.2f ",root1,root2);
            break;
        }break;
    }
    return 0;
}
```