Switch Case Problems

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

```c
#include <stdio.h>
int main()
{
    int n;
    printf("Enter month number (1 to 12) : ");
    scanf("%d", &n);
    switch (n)
    {
    case 1:
        printf("January - 31 days");
        break;
    case 2:
        printf("February - 28 days in a common year and 29 days in leap
years");
        break;
    case 3:
        printf("March - 31 days");
        break;
    case 4:
        printf("April - 30 days");
        break;
    case 5:
        printf("May - 31 days");
        break;
    case 6:
        printf("June - 30 days");
        break;
    case 7:
        printf("July - 31 days");
        break;
    case 8:
        printf("August - 31 days");
        break;
    case 9:
        printf("September - 30 days");
        break;
    case 10:
        printf("October - 31 days");
        break;
    case 11:
        printf("November - 30 days");
        break;
    case 12:
        printf("December - 31 days");
        break;

    default: printf("Invalid Input");
        break;
    }
    return 0;
}
```

```
================================================================================
Output:
Enter month number (1 to 12) : 9
September - 30 days
```

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 a, b;
    char n;
    while (1)
    {
        printf("\na. Addition\n");
        printf("b. Subtraction\n");
        printf("c. Multiplication\n");
        printf("d. Division\n");
        printf("e. Exit\n");
        printf("\nEnter your choice : ");
        fflush(stdin);
        scanf("%c", &n);
        fflush(stdin);
        switch (n)
        {
        case 'a':
            printf("Enter two numbers : ");
            scanf("%d %d", &a, &b);
            printf("Sum = %d ", a + b);
            break;
        case 'b':
            printf("Enter two numbers : ");
            scanf("%d %d", &a, &b);
            printf("Difference = %d ", a - b);
            break;
        case 'c':
            printf("Enter two numbers : ");
            scanf("%d %d", &a, &b);
            printf("Product = %d ", a * b);
            break;
        case 'd':
            printf("Enter two numbers : ");
            scanf("%d %d", &a, &b);
            printf("Division = %d ", a / b);
            break;
        case 'e':
            exit(0);
        default:
            printf("\nInvalid Input");
        } // switch case end
    }     // loop end
    return 0;
}
```

```
================================================================================
Output:
a. Addition
b. Subtraction
c. Multiplication
d. Division
e. Exit

Enter your choice : c
Enter two numbers : 6 5
Product = 30
a. Addition
```

```
b. Subtraction
c. Multiplication
d. Division
e. Exit

Enter your choice : d
Enter two numbers : 50 2
Division = 25
a. Addition
b. Subtraction
c. Multiplication
d. Division
e. Exit

Enter your choice : e
```

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;
    //Ask user to input week number
    printf("Enter day number (1-7): ");
    scanf("%d", &day);
    switch (day)
    {
    case 1:
        printf("Monday - A great attitude is like a perfect cup of coffee,
don't start your day without it.");
        break;
    case 2:
        printf("Tuesday - For me, a lovely day is any day I wake up.");
        break;
    case 3:
        printf("Wednesday - It's a great day to be alive. I know the sun's
still shining when I close my eyes.");
        break;
    case 4:
        printf("Thursday - Make each day your masterpiece.");
        break;
    case 5:
        printf("Friday - Every day is a good day. There is something to
learn, care and celebrate.");
        break;
    case 6:
        printf("Saturday - A good day is a good day. A bad day is a good
story.");
        break;
    case 7:
        printf("Sunday - It's time to start living the life you've
imagined.");
        break;
    default:
        printf("Please enter Valid Number between 1 to 7");
    }
    return 0;
}
```

```
Output:
Enter day number (1-7): 3
```

```
Wednesday - It's a great day to be alive. I know the sun's still shining when
I close my eyes.
```

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>
int main()
{
    int side1, side2, side3;
    char c;
    while (1)
    {
        printf("\na. Check isosceles triangle or not\n");
        printf("b. Check right angled triangle or not\n");
        printf("c. Check equilateral triangle or not\n");
        printf("d. Exit\n");
        printf("Enter your choice : ");
        fflush(stdin);
        scanf("%c", &c);
        switch (c)
        {
        case 'a':
            printf("\nEnter three sides of triangle: ");
            scanf("%d%d%d", &side1, &side2, &side3);
            if (side1 == side2 || side2 == side3 || side3 == side1)
            {
                printf("The given Triangle is isosceles\n");
            }

            else
            {
                printf("The given Triangle is not isosceles\n ");
            }
            break;

        case 'b':
            printf("Enter three sides of triangle: ");
            scanf("%d%d%d", &side1, &side2, &side3);
            if ((side1 * side1) + (side2 * side2) == (side3 * side3) || (side1 *
side1) + (side3 * side3) == (side2 * side2) || (side2 * side2) + (side3 * side3) ==
(side1 * side1))
            {
                printf("It is a right angle triangle!\n");
            }

            else
            {
                printf("It is not a right angle triangle!\n");
            }
            break;

        case 'c':
            printf("Enter three sides of triangle: ");
            scanf("%d%d%d", &side1, &side2, &side3);
            if (side1 == side2 && side2 == side3)
            {
                printf("The Given Triangle is equilateral\n");
```

```
            }

            else
            {
                printf("The Given Triangle is not equilateral\n");
            }
            break;

        case 'd':
            exit(0);

        default:
            printf("Invalid Input\n");
        } // end switch
    }     // end loop
    return 0;
}
```

```
Output:
a. Check isosceles triangle or not
b. Check right angled triangle or not
c. Check equilateral triangle or not
d. Exit
Enter your choice : a

Enter three sides of triangle: 3 3 5
The given Triangle is isosceles

a. Check isosceles triangle or not
b. Check right angled triangle or not
c. Check equilateral triangle or not
d. Exit
Enter your choice : a

Enter three sides of triangle:  5 6 9
The given Triangle is not isosceles

a. Check isosceles triangle or not
b. Check right angled triangle or not
c. Check equilateral triangle or not
d. Exit
Enter your choice : d
```

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 a number (1-3) : ");
    scanf("%d", &var);
    switch (var)
    {
    case 1:
```

```
        printf("good");
        break;
    case 2:
        printf("better");
        break;
    case 3:
        printf("best");
        break;
    default:
        printf("invalid");
        break;
    }
    return 0;
}
```

```
Output:
Enter a number (1-3) : 3
best
```

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

```
#include <stdio.h>
int main()
{
    int n, y;
    printf("Enter year to check leap year or not : ");
    scanf("%d", &n);
    y = (n % 100 != 0 && n % 4 == 0) || n % 400 == 0;
    switch (y)
    {
    case 0:
        printf("%d is not leap year", n);
        break;
    case 1:
        printf("%d is leap year", n);
        break;
    }
    return 0;
}
```

```
Output:
Enter year to check leap year or not : 1900
1900 is not leap year
```

7. Program to take the value from the user as input electricity unit charges and calculate the 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 unit;
    float total, surcharge ;
    printf("Enter electricity unit : ");
    scanf("%d", &unit);
    switch (unit)
    {
    case 0: printf("Please enter valid input");
        break;
```

```
    case 1 ... 50:
        total = unit * 0.50;
        surcharge = total * 0.20;
        total = surcharge + total;
        printf("The total electricity bill (An additional surcharge of 20%c is
added to the bill) : Rs. %f/-", 37, total);
        break;
    case 51 ... 150:
        total = unit * 0.75;
        surcharge = total * 0.20;
        total = surcharge + total;
        printf("The total electricity bill (An additional surcharge of 20%c is
added to the bill) : Rs. %f/-", 37, total);
        break;
    case 151 ... 250:
        total = unit * 1.20;
        surcharge = total * 0.20;
        total = surcharge + total;
        printf("The total electricity bill (An additional surcharge of 20%c is
added to the bill) : Rs. %f/-", 37, total);
        break;
    default:
        total = unit * 1.50;
        surcharge = total * 0.20;
        total = surcharge + total;
        printf("The total electricity bill (An additional surcharge of 20%c is
added to the bill): Rs. %f/-", 37, total);
    }
    return 0;
}
================================================================================
Output:
Enter electricity unit : 190
The total electricity bill (An additional surcharge of 20% is added to the bill) :
Rs. 273.600006/-
```

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()
{
    float number;
    int choice;
    printf("1. Negative to positive\n");
    printf("2. Positive to negative\n");
    printf("Enter your choice : ");
    scanf("%d", &choice);
    switch (choice)
    {
    case 1:
        printf("Enter a Negative number : ");
        scanf("%f", &number);
        number = number * (-1);
        printf("Positive form of the number is %f", number);
        break;
    case 2:
        printf("Enter a Positive number : ");
        scanf("%f", &number);
        number = number * (-1);
        printf("Negative form of the number is %f", number);
        break;
    default:
        printf("Invalid Input");
```

```
    }
    return 0;
}
================================================================================
Output:
1. Negative to positive
2. Positive to negative
Enter your choice : 2
Enter a Positive number : 96
Negative form of the number is -96.000000
```

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

```c
#include <stdio.h>
int main()
{
    int number;
    printf("Enter a even number : ");
    scanf("%d", &number);
    switch (number % 2)
    {
    case 0:
        printf("%d upper nearest odd number is %d", number, number + 1);
        break;
    default:
        printf("Invalid input");
    }
    return 0;
}
```

```
================================================================================
Output:
Enter a even number : 12
12 upper nearest odd number is 13
```

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

```c
#include <stdio.h>
int main()
{
    int a, b, c, d = 0;
    printf("Enter three number for quadratic equation (a, b, c) : ");
    scanf("%d%d%d", &a, &b, &c);
    d = (b * b) - (4 * a * c);
    printf("D=%d\n", d);
    switch (d > 0)
    {
    case 1:
        printf("Roots are real and distinct (unequal)");
        break;
    case 0:
        switch (d == 0)
        {
        case 1:
            printf("Roots are real and equal (coincident)");
            break;
        case 0:
            printf("Roots are imaginary and unequal");
        } // end inner switch case
    }     // end outer switch case
    return 0;
}
```

```
================================================================================
Output:
Enter three number for quadratic equation (a, b, c) : 2 8 3
D=40
```

```
Roots are real and distinct (unequal)
```