# Assignment – 9 A Job Ready Bootcamp in C++, DSA and IOT MySirG

(Solutions)

## 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* mnth;

    printf("Enter month number : \n");

    scanf("%d", &mnth);

    switch (mnth)

    {

    case 1:

        printf("Month : January\nDays : 31");

        break;

    case 2:

        printf("Month : February\nDays : 28/29");

        break;

    case 3:

        printf("Month : March\nDays : 31");

        break;

    case 4:

        printf("Month : April\nDays : 30");

        break;

    case 5:

        printf("Month : May\nDays : 31");

        break;

    case 6:

        printf("Month : June\nDays : 30");

        break;

    case 7:

        printf("Month : July\nDays : 31");

        break;

    case 8:

        printf("Month : August\nDays : 31");

        break;

    case 9:

        printf("Month : September\nDays : 30");

        break;

    case 10:

        printf("Month : October\nDays : 31");

        break;

    case 11:

        printf("Month : November\nDays : 30");

        break;

    case 12:

        printf("Month : December\nDays : 31");

        break;

    default:

        printf("Invalid choice.\n");

        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>

*int* main()

{

*int* x, y, a, b, c, d, p, q;

*int* n;

    printf("Enter Your Choice from 1 to 5 :");

    printf("\n1.Addition");

    printf("\n2.Subtraction");

    printf("\n3.Multiplication");

    printf("\n4.Division");

    printf("\n5.Exit");

    printf("\n\nYour Choice : ");

    scanf("%d", &n);

    switch (n)

    {

    case 1:

        // int x, y;

        printf("Enter the value to find the sum :-");

        printf("\nFirst number: ");

        scanf("%d", &*x*);

        printf("Second number: ");

        scanf("%d", &*y*);

        printf("\nSum = %d", x + y);

        break;

    case 2:

        // int a, b;

        printf("Enter the value to find the Difference :-");

        printf("\nFirst number: ");

        scanf("%d", &*a*);

        printf("Second number: ");

        scanf("%d", &*b*);

        if (a > b)

        {

            printf("\nDifference = %d", a - b);

        }

        else

            printf("\nDifference = %d", b - a);

        break;

    case 3:

        // nt c, d;

        printf("Enter the value to find the Product :-");

        printf("\nFirst number: ");

        scanf("%d", &*c*);

        printf("Second number: ");

        scanf("%d", &*d*);

        printf("\nProduct = %d", c \* *d*);

        break;

    case 4:

        // int p, q;

        printf("Enter the value to find the Quotient :-");

        printf("\nFirst number: ");

        scanf("%d", &*p*);

        printf("Second number: ");

        scanf("%d", &*q*);

        if (p > q)

        {

            printf("\nQuotient = %d", p / q);

        }

        else

            printf("\nQuotient = %d", q / p);

        break;

    case 5:

        break;

    default:

        printf("Invalid Choice");

        break;

    }

    return 0;

}

**3. Write a program which takes the day number of a week and displays a**

**unique greeting message for the day.**

*int* main()

{

*int* day;

    printf("Enter day number from 1 to 7: ");

    scanf("%d", &day);

    switch (day)

    {

    case 1:

        printf("Day : Sunday\nMessage : Eat, Sleep, Code n Repeat.");

        break;

    case 2:

        printf("Day : Monday\nMessage : Don't be Lazy Dude.");

        break;

    case 3:

        printf("Day : Tuesday\nMessage : Grind yourself Everyday.");

        break;

    case 4:

        printf("Day : Wednesday\nMessage : Practice makes a man Perfect.");

        break;

    case 5:

        printf("Day : Thursday\nMessage : Have faith in God.");

        break;

    case 6:

        printf("Day : Friday\nMessage : Believe in Yourself.");

        break;

    case 7:

        printf("Day : Saturday\nMessage : Its weekend, Rest and Chill.");

        break;

    default:

        printf("Hafte me saat hi din hote hai bhiaiya, aap kha se aaye ho.\n");

        break;

    }

    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>

*int* main()

{

*int* n, s1, s2, s3;

  printf("\n1.Isosceles Triangle:");

  printf("\n2.Right Angled  Triangle:");

  printf("\n3.Equilateral Triangle:");

  printf("\nChoose the option to check :");

  scanf("%d", &n);

  printf("Enter lenght of sides of triangle :");

  printf("\nS1 = ");

  scanf("%d", &s1);

  printf("S2 = ");

  scanf("%d", &s2);

  printf("S3 = ");

  scanf("%d", &s3);

  switch (n)

  {

  case 1:

    if (s1 == s2 || s2 == s3 || s3 == s1)

    {

      printf("Isosceles Triangle");

    }

    else

      printf("Not an Isosceles Triangle");

    break;

  case 2:

    if (s1 \* s1 == s2 \* s2 + s3 \* s3 || s2 \* s2 == s1 \* s1 + s3 \* s3 || s3 \* s3 == s1 \* s1 + s2 \* s2)

    {

      printf("Right Angled Triangle");

    }

    else

      printf("Not an Right Angled Triangle");

    break;

  case 3:

    if (s1 == s2 && s2 == s3 && s3 == s1)

    {

      printf("Equilateral Triangle");

    }

    else

      printf("Not an Equilateral Triangle");

    break;

  default:

    break;

  }

  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* a; // var1, var2, var3;

  printf("var==1");

  printf("\nvar==2");

  printf("\nvar==3");

  printf("\nChoose one option: ");

  scanf("%d", &a);

  switch (a)

  {

  case 1:

    printf("good");

    break;

  case 2:

    printf("better");

    break;

  case 3:

    printf("best");

    break;

  default:

    printf("invalid");

    break;

  }

  return 0;

}

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

**statement**

#include <stdio.h>

*int* main()

{

*int* yr;

  printf("Enter the year : ");

  scanf("%d", &yr);

  switch (yr % 100 == 0)

  {

  case 1:

    switch (yr % 400 == 0)

    {

    case 0:

      printf("Leap Year");

      break;

    case 1:

      printf("Not Leap Year");

      break;

    }

    break;

  case 0:

    switch (yr % 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* unit, amount = 0.0, total = 0.0;

  printf("Enter the Electricity unit : ");

  scanf("%f", &unit);

  switch (unit <= 50)

  {

  case 1:

    amount = unit \* 0.5;

    break;

  case 0:

    switch (unit <= 150)

    {

    case 1:

      amount = 25 + (unit - 50) \* .75;

      break;

    case 0:

      switch (unit <= 250)

      {

      case 1:

        amount = 100 + (unit - 150) \* 1.20;

        break;

      case 0:

        amount = 220 + (unit - 250) \* 1.50;

        break;

      }

      break;

    }

  }

  total = amount + amount \* .20;

  printf("Total Bill Amount = %.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()

{

*float* num;

*int* choice;

  printf("Select 1, for Negative to positive");

  printf("\nSelect 2, for Positive to negative");

  scanf("\n%d", &choice);

  switch (choice)

  {

  case 1:

    printf("Enter a Negative number : ");

    scanf("%f", &num);

    num = num \* -1;

    printf("The Positive form of the number is : %.1f", num);

    break;

  case 2:

    printf("Enter a Positive number : ");

    scanf("%f", &num);

    num = num \* -1;

    printf("The Negative form of the number is : %.1f", num);

    break;

  default:

    printf("Invalid Input.");

    break;

  }

  return 0;

}

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

**Switch Statement.**

#include <stdio.h>

*int* main()

{

*int* n, x;

  printf("Enter a Even number : ");

  scanf("%d", &n);

  switch (n)

  {

  case 1:

    if (n % 2 == 0)

    {

      x = n + 1;

      printf("%d", n);

    }

    break;

  case 2:

    if (n % 2 != 0)

    {

      printf("Its an odd number.");

    }

    break;

  default:

    printf("Invalid Input");

    break;

  }

  return 0;

}

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

#include <stdio.h>

#include <math.h> /\* Used for sqrt() \*/

*int* main()

{

*float* a, b, c;

*float* root1, root2, imaginary;

*float* discriminant;

  printf("Enter values of a, b, c of quadratic equation (aX^2 + bX + c): ");

  scanf("%f %f %f", &a, &b, &c);

  /\* Calculate discriminant \*/

  discriminant = (b \* b) - (4 \* a \* c);

  /\* Compute roots of quadratic equation based on the nature of discriminant \*/

  switch (discriminant > 0)

  {

  case 1:

    /\* If discriminant is positive \*/

    root1 = (-b + sqrt(discriminant)) / (2 \* a);

    root2 = (-b - sqrt(discriminant)) / (2 \* a);

    printf("Two distinct and real roots exists: %.2f and %.2f",

           root1, root2);

    break;

  case 0:

    /\* If discriminant is not positive \*/

    switch (discriminant < 0)

    {

    case 1:

      /\* If discriminant is negative \*/

      root1 = root2 = -b / (2 \* a);

      imaginary = sqrt(-discriminant) / (2 \* a);

      printf("Two distinct complex roots exists: %.2f + i%.2f and %.2f - i%.2f",

             root1, imaginary, root2, imaginary);

      break;

    case 0:

      /\* If discriminant is zero \*/

      root1 = root2 = -b / (2 \* a);

      printf("Two equal and real roots exists: %.2f and %.2f", root1, root2);

      break;

    }

  }

  return 0;

}