Assignment - 9
A Job Ready Bootcamp in C++, DSA and IOT MySirG
Switch Case Problems

Submitted by:
Vishal Shaw
bkr.vishalshaw@gmail.com

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

```
#include<stdio.h>
#include<stdlib.h>
int main(){
    int x;
    while(1){
        printf("\nEnter month number: ");
        scanf("%d",&x);
        switch(x){
            case 1:
                printf("No of days in month - %d is: 31 days",x);
                break;
            case 2:
                printf("No of days in month - %d is: 28 or 29 days (if leap year)",x);
                break;
            case 3:
                printf("No of days in month - %d is: 31 days",x);
                break;
            case 5:
                printf("No of days in month - %d is: 31 days",x);
                break;
```

```
            case 7:
                printf("No of days in month - %d is: 31
days",x);
                break;
            case 8:
                printf("No of days in month - %d is: 31
days",x);
                break;
            case 10:
                printf("No of days in month - %d is: 31
days",x);
                break;
            case 12:
                printf("No of days in month - %d is: 31
days",x);
                break;
            case 4:
                printf("No of days in month - %d is: 30
days",x);
                break;
            case 6:
                printf("No of days in month - %d is: 30
days",x);
                break;
            case 9:
                printf("No of days in month - %d is: 30
days",x);
                break;
            case 11:
                printf("No of days in month - %d is: 30
days",x);
                break;
```

```
            default:
                exit(0);
        }
        printf("\n");
        printf("\nDo you want to chek again");
    }
    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 x;
    float a, b;
    while(1){
        printf("Choose your Choice: ");
        printf("\n1.Addition");
        printf("\n2.Subtraction");
        printf("\n3.Multiplication");
        printf("\n4.Division");
        printf("\n5.Exit");
        printf("\n");
        scanf("%d",&x);
        printf("Enter 2 numbers: ");
        scanf("%f %f", &a, &b);
        switch(x){
```

```
            case 1:
                b = a+b;
                printf("Sum is: %f",b);
                break;
            case 2:
                b = a>b?a-b:b-a;
                printf("Difference is: %f",b);
                break;
            case 3:
                b = b*a;
                printf("Product is: %f",b);
                break;
            case 4:
                b = a>b?a/b:b/a;
                printf("Division result is: %f",b);
                break;
            case 5:
                printf("You chose to exit");
                break;
            default:
                exit(0);
        }
        printf("\n");
        printf("\nDo you want to chek again\n");
    }
    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>
#include<stdlib.h>
int main(){
    int x;
    while(1){
        printf("\nConsidering Monday as 1st day of
week\nEnter day number: ");
        scanf("%d",&x);
        switch(x){
            case 1:
                printf("Monday");
                break;
            case 2:
                printf("Tuesday");
                break;
            case 3:
                printf("Wednesday");
                break;
            case 4:
                printf("Thursday");
                break;
            case 5:
                printf("Friday");
                break;
            case 6:
                printf("Saturday");
                break;
            case 7:
                printf("Sunday");
                break;
```

```
            default:
                exit(0);
        }
        printf("\n");
        printf("\nDo you want to chek again");
    }
    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 x,a,b,c;
    while(1){
        printf("\nChoose Your choice: ");
        printf("\n1.Isoceles");
        printf("\n2.Right-Angled triangle");
        printf("\n3.Equilateral");
        printf("\n4.Exit\n");
        scanf("%d",&x);
        printf("\nEnter 3 sides of a triangle: ");
        scanf("%d%d%d", &a, &b, &c);
        switch(x){
            case 3:
                if(a==b && b==c)
```

```
                    printf("Equilateral triangle");
                else
                    printf("Not an Equilateral
traiangle");
                break;
            case 1:
                 if(a==b || b==c || c==a)
                    printf("isoceles triangle");
                else
                    printf("Not an isoceles traiangle");
                break;
            case 2:
                if(a*a+b*b == c*c || b*b+c*c == a*a ||
c*c+a*a == b*b)
                    printf("Right Angled triangle
triangle");
                else
                    printf("Not a Right Angled triangle
triangle");
                break;
            case 4:
                printf("You chose to exit");
                exit(0);
            default:
                exit(0);
        }
        printf("\n");
        printf("\nDo you want to chek again");
    }
    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");
```

```c
#include<stdio.h>
#include<stdlib.h>
int main(){
    int x;
    while(1){
        printf("1. First Choice\n");
        printf("2. Second Choice\n");
        printf("3. Third Choice\n");
        printf("Enter Your choice\n");
        scanf("%d", &x);
        if(x>=4){
            printf("\nInvalid Choice");
            break;
            }
        else{
            switch(x){
                case 1:
                    printf("good\n");
                    break;
                case 2:
                    printf("better\n");
                    break;
                case 3:
                    printf("best\n");
```

```
                    break;
                default:
                    exit(0);
            }
            printf("Do you want to continue\n");
        }

    }
    return 0;
}
```

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

```
#include<stdio.h>
#include<stdlib.h>
int main(){
    int x, y;
    while(1){
        printf("\n1. Leap year");
        printf("\n2. Not Leap \n");
        printf("Enter your choice:");
        scanf("%d",&x);
        printf("Enter a year: ");
        scanf("%d", &y);
        switch(x){
            case 1:
                if(y%400==0)
                    printf("leap year\n");
                else if(y%100!=0)
                    printf("Leap Year\n");
                break;
            case 2:
```

```
                if(y%400!=0)
                    printf("Not a leap year\n");
                else if(y%4!=0)
                    printf("Not a leap year\n");
                break;
            default:
                exit(0);
        }
        printf("\nwant to continue");
    }
    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>
#include<stdlib.h>
int main(){
    int x;
    float amt=0.0, unit=0.0;
    while(1){
        printf("\n1.50 unit");
        printf("\n2.150 units");
        printf("\n3.250 units");
        printf("\n4.500 units");
        printf("\n5.Exit\n");
        printf("\nChoose Your Choice: ");
        scanf("%d",&x);
```

```
        printf("\nEnter unit consumed: ");
        scanf("%f", &unit);
        switch(x){
            case 1:
                if(unit<=50)
                    amt = unit*0.5;
                else
                    goto b;
                goto a;
            case 2:
                if(unit<=150)
                    amt = 25+((unit-50)*0.75);
                else
                    goto b;
                goto a;
            case 3:
                if(unit<=250)
                    amt = 100+(unit-150)*1.2;
                else
                    goto b;
                goto a;
            case 4:
                if(unit>=500)
                    amt = 220+(unit-250)*1.5;
                else
                    goto b;
                goto a;
            case 5:
                printf("You chose to exit");
                exit(0);
            default:
                b: printf("Enter Correct units info");
```

```
                exit(0);
        }
        a: amt = amt+amt*0.2;
        printf("Toatl bill: %.2f", amt);
        printf("\n");
        printf("\nDo you want to chek again");
    }
    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<stdlib.h>
int main(){
    int x, n;
    while(1){
        printf("Choices");
        printf("\n1.Convert To Positive");
        printf("\n2.Convert To Negative");
        printf("\n3.Exit");
        printf("\nEnter a choice: ");
        scanf("%d", &x);
        printf("\nEnter a number: ");
        scanf("%d", &n);
        switch(x){
            case 1:
                n=(-1)*n;
                printf("\nPositive number : %d", n);
                break;
            case 2:
```

```
                n=(-1)*n;
                printf("\nNegative number : %d", n);
                break;
            case 3:
                exit(0);
            default:
                exit(0);
        }
        printf("\nwant to check more ?");
    }
    return 0;
}
```

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

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
    int num,x;
    while(1){
    printf("\nEnter Choices");
    printf("\n1.Rounded off to nearest upper odd
number");
    printf("\n2.Rounded off to nearest lowest odd
number");
    printf("\n3.Exit");
    printf("\nEnter your choice: ");
    scanf("%d", &x);
    if(x>=3){
        printf("You Chose to Exit");
        break;
```

```
    }
    printf("\nEnter an even number: ");
    scanf("%d", &num);
    if(num%2==0)
        printf("\nentered num is %d is even number",
num);
    else{
        printf("\nProvided wrong information");
        break;
    }
    printf("\n");
    switch(x){
        case 1:
            printf("\nNearest upper odd number is:
%d",num+1);
            break;

        case 2:
            printf("\nNearest lower odd number is:
%d",num-1);
            break;

        default:
            exit(0);
        }
    printf("\nWant to chek more");
    }

}
```

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

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

```c
#include<math.h>
int main(){
    int x=1;
    float a=0.0, b=0.0, c=0.0;
    float rt1, rt2, imag;
    float disc=0.0;
    while(x){
        printf("Enter values of a, b, c of quadratic
equation (aX^2 + bX + c): ");
        scanf("%f %f %f", &a, &b, &c);
        disc= (b * b) - (4 * a * c);
        x = disc>0?1:(disc==0?3:2);
        switch (x)
        {
        //discriminant is positive
        case 1:
            rt1 = (-b+sqrt(disc))/(2*a);
            rt2 = (-b-sqrt(disc))/(2*a);
            printf("\nTwo distinct and real roots are:
%.2f and %.2f",rt1, rt2);
            break;

        //discriminant is negative
        case 2:
            rt1 = rt2 = -b / (2 * a);
            imag = (-disc)*0.5 / (2 * a);
            printf("\nTwo distinct complex roots are:
%.2f + i%.2f and %.2f - i%.2f",rt1, imag, rt2, imag);
            break;

        //discriminant is zero
        case 3:
```

```
            rt1 = rt2 = -b / (2 * a);
            printf("\nTwo equal and real roots are: %.2f
and %.2f", rt1, rt2);
            break;
        }
        printf("\nWant to check more [No-> 0  Yes->1]");
        scanf("%d",&x);
    }
    return 0;
}
```