Assignment - 9 (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 month\_number;

printf("Enter month number: ");

scanf("%d", &month\_number);

switch(month\_number)

{

case 1:

printf("Number of days in January are 31.");

break;

case 2:

printf("Number of days in Leap Year February are 29.\n");

printf("Number of days in Non-Leap Year February are 28.");

break;

case 3:

printf("Number of days in March are 31.");

break;

case 4:

printf("Number of days in April are 30.");

break;

case 5:

printf("Number of days in May are 31.");

break;

case 6:

printf("Number of days in June are 30.");

break;

case 7:

printf("Number of days in July are 31.");

break;

case 8:

printf("Number of days in August are 31.");

break;

case 9:

printf("Number of days in September are 30.");

break;

case 10:

printf("Number of days in October are 31.");

break;

case 11:

printf("Number of days in November are 30.");

break;

case 12:

printf("Number of days in December are 31.");

break;

default:

printf("You entered invalid month number!");

}

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()

{

char choice;

double x, y;

while(1)

{

fflush(stdin);

printf("\nChoose an option:");

printf("\na. Addition");

printf("\nb. Subtraction");

printf("\nc. Multiplication");

printf("\nd. Division");

printf("\ne. Exit\n");

scanf("%c", &choice);

switch(choice)

{

case 'a':

printf("Enter 2 numbers: ");

scanf("%lf%lf", &x, &y);

printf("Sum is %lf", x + y);

break;

case 'b':

printf("Enter 2 numbers: ");

scanf("%lf%lf", &x, &y);

printf("Difference is %lf", x - y);

break;

case 'c':

printf("Enter 2 numbers: ");

scanf("%lf%lf", &x, &y);

printf("Product is %lf", x \* y);

break;

case 'd':

printf("Enter 2 numbers: ");

scanf("%lf%lf", &x, &y);

printf("Quotient is %lf", x / y);

break;

case 'e':

exit(0);

default:

printf("You entered invalid choice! ");

}

}

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>

int main()

{

int day\_number;

printf("Enter Day Number: ");

scanf("%d", &day\_number);

switch(day\_number)

{

case 1:

printf("Happy Sunday");

break;

case 2:

printf("Happy Monday");

break;

case 3:

printf("Happy Tuesday");

break;

case 4:

printf("Happy Wednesday");

break;

case 5:

printf("Happy Thursday");

break;

case 6:

printf("Happy Friday");

break;

case 7:

printf("Happy Saturday");

break;

default:

printf("You entered invalid choice!");

}

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()

{

char choice;

double s1, s2, s3;

while(1)

{

printf("\nChoose an option:");

printf("\na. Check whether a given set of three numbers are lengths of sides of an isosceles triangle or not.");

printf("\nb. Check whether a given set of three numbers are lengths of sides of a right angled triangle or not.");

printf("\nc. Check whether a given set of three numbers are lengths of sides of an equilateral triangle or not.");

printf("\nd. Exit\n\n");

fflush(stdin);

scanf("%c", &choice);

switch(choice)

{

case 'a':

printf("Enter 3 numbers to check whether triangle is isosceles or not: ");

scanf("%lf%lf%lf", &s1, &s2, &s3);

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

printf("%lf, %lf and %lf are sides of isosceles triangle.", s1, s2, s3);

else

printf("%lf, %lf and %lf are not sides of isosceles triangle.", s1, s2, s3);

break;

case 'b':

printf("Enter 3 numbers to check whether triangle is right angled or not: ");

scanf("%lf%lf%lf", &s1, &s2, &s3);

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

printf("%lf, %lf and %lf are sides of right angled triangle.", s1, s2, s3);

else

printf("%lf, %lf and %lf are not sides of right angled triangle.", s1, s2, s3);

break;

case 'c':

printf("Enter 3 numbers to check whether triangle is equilateral or not: ");

scanf("%lf%lf%lf", &s1, &s2, &s3);

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

printf("%lf, %lf and %lf are not sides of equilateral triangle.", s1, s2, s3);

else

printf("%lf, %lf and %lf are sides of equilateral triangle.", s1, s2, s3);

break;

case 'd':

exit(0);

default:

printf("You entered invalid choice! ");

}

}

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 value of var: ");

scanf("%d", &var);

switch (var)

{

case 1:

printf("good");

break;

case 2:

printf("better");

break;

case 3:

printf("best");

break;

default:

printf("invalid");

}

return 0;

}

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

Statement

#include<stdio.h>

int main()

{

int year;

printf("Enter a year: ");

scanf("%d", &year);

switch(year % 4 == 0)

{

case 1:

switch (year % 100 == 0)

{

case 1:

switch (year % 400 == 0)

{

case 1:

printf("%d is a leap year.", year);

break;

case 0:

printf("%d is not a leap year.", year);

break;

}

break;

case 0:

printf("%d is a leap year.", year);

break;

}

break;

case 0:

printf("%d is not a leap year.", year);

}

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()

{

int chargeCount;

double bill;

printf("Enter value of charge consumed: ");

scanf("%d", &chargeCount);

switch (chargeCount > 250)

{

case 1:

bill = 50 \* 0.50 + 100 \* 0.75 + 100 \* 1.20 + (chargeCount - 250) \* 1.50;

bill = bill + 0.2 \* bill;

printf("Electricity bill is %lf.", bill);

break;

case 0:

switch (chargeCount > 150 && chargeCount <= 250)

{

case 1:

bill = 50 \* 0.50 + 100 \* 0.75 + (chargeCount - 150) \* 1.20;

bill = bill + 0.2 \* bill;

printf("Electricity bill is %lf.", bill);

break;

case 0:

switch (chargeCount > 50 && chargeCount <= 150)

{

case 1:

bill = 50 \* 0.50 + (chargeCount - 50) \* 0.75;

bill = bill + 0.2 \* bill;

printf("Electricity bill is %lf.", bill);

break;

case 0:

bill = chargeCount \* 0.50;

bill = bill + 0.2 \* bill;

printf("Electricity bill is %lf.", bill);

break;

}

}

}

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 number;

printf("Enter a number: ");

scanf("%d", &number);

switch (number >= 0)

{

case 1:

switch (number > 0)

{

case 1:

printf("Number %d is now %d.", number, number \* -1);

break;

case 0:

printf("Number 0 is zero.");

break;

}

break;

case 0:

printf("Number %d is now %d.", number, number \* -1);

}

return 0;

}

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

Switch Statement.

#include<stdio.h>

int main()

{

int number;

printf("Enter a number to convert it into its upper nearest odd number: ");

scanf("%d", &number);

switch (number % 2 == 0)

{

case 1:

printf("Upper nearest odd number of %d is %d.", number, number + 1);

break;

case 0:

printf("Upper nearest odd number of %d is %d.", number, number + 2);

}

return 0;

}

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

#include<stdio.h>

#include<math.h>

int main()

{

double a, b, c, discriminant;

printf("For a quadratic equation which is in the form, ax^2+bx+c=0,\nTo find nature of roots of the quadratic equation,\nEnter value of a: ");

scanf("%lf", &a);

printf("Enter value of b: ");

scanf("%lf", &b);

printf("Enter value of c: ");

scanf("%lf", &c);

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

switch (discriminant > 0)

{

case 1:

printf("Roots of this quadratic equation are: %lf and %lf.", (-1 \* b + sqrt(discriminant)) / 2 \* a, (-1 \* b - sqrt(discriminant)) / 2 \* a);

break;

case 0:

switch (discriminant == 0)

{

case 1:

printf("Roots of this quadratic equation are: %lf and %lf.", (-1 \* b + sqrt(discriminant)) / 2 \* a, (-1 \* b - sqrt(discriminant)) / 2 \* a);

break;

case 0:

printf("Roots of this quadratic equation are imaginary roots.");

}

}

return 0;

}