Assignment - 3 (Decision Control Statements)

1. Write a program to check whether a given number is positive or non-positive.

#include<stdio.h>

int main()

{

int number;

printf("Enter a number to check whether it is a positive or non positive number: ");

scanf("%d", &number);

if(number > 0)

printf("%d is a positive number.", number);

else

printf("%d is a non positive number.", number);

return 0;

}

2. Write a program to check whether a given number is divisible by 5 or not

#include<stdio.h>

int main()

{

int number;

printf("Enter a number: ");

scanf("%d", &number);

if(number%5 == 0)

printf("%d is divisible by 5.", number);

else

printf("%d is not divisible by 5.", number);

return 0;

}

3. Write a program to check whether a given number is an even number or an odd number.

#include<stdio.h>

int main()

{

int number;

printf("Enter number to check whether it is odd or even: ");

scanf("%d", &number);

if(number % 2 == 0)

printf("%d is even.", number);

else

printf("%d is odd.", number);

return 0;

}

4. Write a program to check whether a given number is an even number or an odd number without using % operator.

#include<stdio.h>

int main()

{

int number, x;

printf("Enter a number to check whether it is even or odd: ");

scanf("%d", &number);

x = number;

if(x < 0)

x = x \* -1;

if(x / 2 == (x + 1) / 2)

printf("%d is even.", number);

else

printf("%d is odd.", number);

return 0;

}

5. Write a program to check whether a given number is a three-digit number or not.

#include<stdio.h>

int main()

{

int number;

printf("Enter a number to check whether the number is a three digit number or not: ");

scanf("%d", &number);

if(number / 100 >= 1 && number / 100 < 10)

printf("%d is a three digit number.", number);

else

printf("%d is not a three digit number.", number);

return 0;

}

6. Write a program to print greater between two numbers. Print one number of both are the same.

#include<stdio.h>

int main()

{

double num1, num2;

printf("To check the greater number between two numbers,\nEnter first number: ");

scanf("%lf", &num1);

printf("Enter second number: ");

scanf("%lf", &num2);

if(num1 > num2)

printf("%lf is greater.", num1);

else

printf("%lf is greater.", num2);

return 0;

}

7. Write a program to check whether roots of a given quadratic equation are real & distinct, real & equal or imaginary roots

#include<stdio.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;

if(discriminant > 0)

printf("Distinct real roots");

else if(discriminant)

printf("Imaginary roots");

else

printf("Equal real roots");

return 0;

}

8. Write a program to check whether a given year is a leap year or not.

#include<stdio.h>

int main()

{

int year;

printf("Enter year to check whether it is a leap year or not: ");

scanf("%d", &year);

if(year % 4)

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

else if(year % 100)

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

else if(year % 400)

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

else

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

return 0;

}

9. Write a program to find the greatest among three given numbers. Print number once if the greatest number appears two or three times.

#include<stdio.h>

int main()

{

double num1, num2, num3;

printf("To check the greatest number among three numbers,\nEnter first number: ");

scanf("%lf", &num1);

printf("Enter second number: ");

scanf("%lf", &num2);

printf("Enter third number: ");

scanf("%lf", &num3);

if(num1 >= num2 && num1 >= num3)

printf("%lf is the greatest.", num1);

else if(num2 >= num1 && num2 >= num3)

printf("%lf is greatest.", num2);

else

printf("%lf is greatest.", num3);

return 0;

}

10. Write a program which takes the cost price and selling price of a product from the user. Now calculate and print profit or loss percentage.

#include<stdio.h>

int main()

{

float costPrice, sellingPrice;

double profitOrLossPercent;

printf("Enter cost price and selling price of a product to calculate profit or loss percentage: ");

scanf("%f %f", &costPrice, &sellingPrice);

if(sellingPrice > costPrice)

{

profitOrLossPercent = (sellingPrice - costPrice) / costPrice \* 100;

printf("There is a profit of %lf percent.", profitOrLossPercent);

}

else if(costPrice > sellingPrice)

{

profitOrLossPercent = (costPrice - sellingPrice) / costPrice \* 100;

printf("There is a loss of %lf percent.", profitOrLossPercent);

}

else

printf("There is neither profit nor loss.");

return 0;

}

11. Write a program to take marks of 5 subjects from the user. Assume marks are given out of 100 and passing marks is 33. Now display whether the candidate passed the examination or failed.

#include<stdio.h>

int main()

{

float s1marks, s2marks, s3marks, s4marks, s5marks;

printf("There are 5 subjects where maximum marks of each subject is 100. To check, student's result,\nEnter marks of subject 1: ");

scanf("%f", &s1marks);

printf("Enter marks of subject 2: ");

scanf("%f", &s2marks);

printf("Enter marks of subject 3: ");

scanf("%f", &s3marks);

printf("Enter marks of subject 4: ");

scanf("%f", &s4marks);

printf("Enter marks of subject 5: ");

scanf("%f", &s5marks);

if(s1marks >= 33 && s2marks >= 33 && s3marks >= 33 && s4marks >= 33 && s5marks >= 33)

printf("Student is passed.");

else

printf("Student is failed.");

return 0;

}

12. Write a program to check whether a given alphabet is in uppercase or lowercase.

#include<stdio.h>

int main()

{

char ch;

printf("Enter an alphabet to check whether this alphabet is in upper case or lower case: ");

scanf("%c", &ch);

if(ch >= 65 && ch <= 90)

printf("Alphabet %c is in upper case.", ch);

else if(ch >= 97 && ch <= 122)

printf("Alphabet %c is in lower case.", ch);

else

printf("Entered character %c is not an alphabet.", ch);

return 0;

}

13. Write a program to check whether a given number is divisible by 3 and divisible by 2.

#include<stdio.h>

int main()

{

int number;

printf("Enter a number: ");

scanf("%d", &number);

if(number % 2 == 0 && number % 3 == 0)

printf("%d is divisible by both 2 and 3.", number);

else

printf("%d is not divisible by both 2 and 3.", number);

return 0;

}

14. Write a program to check whether a given number is divisible by 7 or divisible by 3.

#include<stdio.h>

int main()

{

int number;

printf("Enter a number: ");

scanf("%d", &number);

if(number % 7 == 0 || number % 3 == 0)

printf("%d is divisible by 7 or divisible by 3.", number);

else

printf("%d is not divisible by 7 or divisible by 3.", number);

return 0;

}

15. Write a program to check whether a given number is positive, negative or zero.

#include<stdio.h>

int main()

{

int number;

printf("Enter a number to check whether the entered number is postive, negative or zero: ");

scanf("%d", &number);

if(number > 0)

printf("%d is a positive number.", number);

else if(number < 0)

printf("%d is a negative number.", number);

else

printf("Entered number 0 is Zero.");

return 0;

}

16. Write a program to check whether a given character is an alphabet (uppercase), an alphabet (lower case), a digit or a special character.

#include<stdio.h>

int main()

{

char ch;

printf("Enter a character to check whether a character is a alphabet, digit or special character: ");

scanf("%c", &ch);

if(ch >= 65 && ch <= 90)

printf("%c is upper case alphabet.", ch);

else if(ch >= 97 && ch <= 122)

printf("%c is lower case alphabet.", ch);

else if(ch >= 48 && ch <= 57)

printf("%c is a digit.", ch);

else

printf("%c is a special character.", ch);

return 0;

}

17. Write a program which takes the length of the sides of a triangle as an input. Display whether the triangle is valid or not.

#include<stdio.h>

int main()

{

int length1, length2, length3;

printf("Enter 3 lengths of triangle to check whether the triangle is valid or not: ");

scanf("%d %d %d", &length1, &length2, &length3);

if(length1 + length2 > length3 || length2 + length3 > length1 || length3 + length1 > length2)

printf("Triangle is valid.");

else

printf("Triangle is not valid.");

return 0;

}

18. 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;

}