**Assignment – 3 Solution Name – OM PANT**

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

Ans –

#include<stdio.h>

int main(){

    int num;

    printf("Enter a Number\n");

    scanf("%d",&num);

    if(num>0)

        printf("Positive Number\n");

  else if(num ==0 )

        printf("Number Is Zero (Neutral)\n");

    else

        printf("Negative Number\n");

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int num;

    printf("Enter a Number\n");

    scanf("%d",&num);

    if(num%5 == 0)

        printf("Number is divisible by 5\n");

    else

        printf("Number is not divisible by 5");

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int num;

    printf("Enter a Number\n");

    scanf("%d",&num);

    if(num%2 == 0)

        printf("Number is EVEN\n");

    else

        printf("Number is ODD\n");

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int num;

    printf("Enter a number\n");

    scanf("%d",&num);

    if(num&1){

        printf("Odd Number\n");

    }else{

        printf("Even Number\n");

    }

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int num;

    printf("Enter a number\n");

    scanf("%d",&num);

    if(num>99 && num<=999){

        printf("Three Digit Number\n");

    }

    else{

        printf("Not a Three digit Number\n");

    }

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int num1,num2;

    printf("Enter Two numbers\n");

    scanf("%d%d",&num1,&num2);

    if(num1>num2){

        printf("Greater Number: %d\n",num1);

    }

    else if(num1 == num2){

        printf("Both are Equal: %d\n",num1);

    }

    else{

        printf("Greater Number: %d\n",num2);

    }

return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    // considering quadratic eqn of form ax^2 + bx + c

    int a,b,c,D;

    printf("considering quadratic eqn of form ax^2 + bx + c \n");

    printf("Enter values of a, b and c \n");

    scanf("%d%d%d",&a,&b,&c);

    D = b\*b - (4\*a\*c);

    if(D>0){

        printf("Roots are : REAL and DISTINCT \n");

    } else if(D<0){

        printf("Roots are : IMAGINARY \n");

    } else{

        printf("Roots are : REAL AND EQUAL \n");

    }

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int year;

    printf("Enter year\n");

    scanf("%d",&year);

    if(year%4 == 0){

        if(year%100 == 0){

            if(year%400 == 0){

                printf("Leap year\n");

            }

            else{

                printf("Not a Leap year");

            }

        }

        else{

            printf("Leap year\n");

        }

    }

    else{

        printf("Not a leap year\n");

    }

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int n1, n2, n3;

    printf("Enter three numbers\n");

    scanf("%d%d%d", &n1,&n2,&n3);

    if(n1>=n2){

        if(n1>=n3){

            printf("Greatest: %d",n1);

        }

        else{

            printf("Greatest: %d",n3);

        }

    }

    else{

        if(n2>=n3){

            printf("Greatest: %d",n2);

        }

        else{

            printf("Greatest: %d",n3);

        }

    }

    return 0;

}

1. 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.

Ans-#include<stdio.h>

int main(){

    int cp, sp, profitP, lossP;

    printf("Enter Cost Price\n");

    scanf("%d",&cp);

    printf("Enter Selling Price\n");

    scanf("%d",&sp);

    if(sp>cp){

        profitP = ((sp - cp)/cp) \* 100;

        printf("%d%% Profit\n",profitP);

    }

    else {

        lossP =  ((cp - sp)/cp) \* 100;

        printf("%d%% Profit\n",profitP);

    }

    return 0;

}

1. 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.

Ans –

#include<stdio.h>

int main(){

    float s1, s2, s3, s4, s5, total, percentage;

    printf("Enter marks of Subject : \n");

    scanf("%f%f%f%f%f",&s1,&s2,&s3,&s4,&s5);

    total = s1 + s2 + s3 + s4 + s5;

    percentage = (total\*100)/500;

    if(percentage>33){

        printf("Congratulations !! You Passed the exam...\n");

    }

    else{

        printf("Sorry !!. You Failed in exam.. \n ");

    }

    return 0;

}

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

Ans -#include<stdio.h>

int main(){

    char ch;

    printf("Enter a alphabet\n");

    scanf("%c",&ch);

    //Logic 1

    if(ch >= 'a' && ch<='z')

        printf("Lowercase Character\n");

    else if (ch>='A' && ch<='Z')

        printf("Uppercase Character\n");

    else

        printf("Enter a valid alphabet");

    //Logic 2

    // if(ch >= 97 && ch <= 122){

    //     printf("Lowercase Character\n");

    // }else if (ch>=65 && ch<=90)

    // {

    //     printf("Uppercase Character\n");

    // }

    // else{

    //     printf("Enter a valid alphabet");

    // }

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int num;

    printf("Enter a number\n");

    scanf("%d",&num);

    if(num%3==0 && num%2==0){

        printf("Number is divisible by 2 and 3\n");

    }

    else{

        printf("Not divisible by 2 and 3\n");

    }

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int num;

    printf("Enter a number\n");

    scanf("%d",&num);

    if(num%7 == 0 || num%3 == 0){

        printf("Number is divisible by 7 or 3\n");

    }

    else{

        printf("Not divisible by 7 or 3\n");

    }

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int num;

    printf("Enter a number\n");

    scanf("%d",&num);

    if(num>0){

        printf("Positive Number \n");

    }

    else if(num== 0){

        printf("Number is Zero. \n");

    }

    else{

        printf("Negative Number \n");

    }

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    char ch;

    printf("Enter a alphabet\n");

    scanf("%c",&ch);

    if(ch >= 97 && ch <= 122){

        printf("Lowercase Character\n");

    }else if (ch>=65 && ch<=90)

    {

        printf("Uppercase Character\n");

    }

    else if (ch>=48 && ch<=57){

        printf("A Digit\n");

    }

    else{

        printf("A Special Character\n");

    }

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int side1,side2,side3;

    printf("Enter sides of the triangle\n");

    scanf("%d%d%d",&side1,&side2,&side3);

    if(side1 >= side2 + side3 || side2 >= side3 + side1 || side3 >= side1 +side2){

        printf("Triangle is valid\n");

    }

    else{

        printf("Invalid \n");

    }

    return 0;

}

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

Ans –

#include<stdio.h>

int main(){

    int monthNum;

    printf("Enter month Number Considering JAN as 1 and cont..\n");

    scanf("%d",&monthNum);

    if(monthNum == 1 || monthNum == 3|| monthNum == 5 || monthNum == 7||monthNum ==  8  || monthNum == 10 ||monthNum == 12 ){

        printf("31 Days\n");

    }

    else if (monthNum == 2)

    {

        printf("28 Days\n");

    }

    else{

        printf("30 Days\n");

    }

    return 0;

}