1. WAP to check whether a number is negative, positive or zero.

**Code**

#include <stdio.h>

int main()

{

    int number;

    printf("Enter a number: ");

    scanf("%d", &number);

    if (number == 0)

    {

        printf("The number is 0");

    }

    else if (number > 0)

    {

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

    }

    else

    {

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

    }

}

**Output**

Enter a number: 5

5 is positive

1. WAP to find maximum between three numbers entered by the user.

**Code**

#include <stdio.h>

int main()

{

    int a, b, c;

    printf("Enter 3 numbers: ");

    scanf("%d%d%d", &a, &b, &c);

    if (a > b && a > c)

        printf("%d is the maximum", a);

    else if (b > a && b > c)

        printf("%d is the maximum", b);

    else

        printf("%d is the maximum", c);

    return 0;

}

**Output**

Enter 3 number: 1 2 3

3 is the maximum

1. WAP to input a character from the user and check whether the character is vowel or consonant.

**Code**

#include <stdio.h>

int main()

{

    char ch;

    printf("Enter a character");

    scanf("%c", &ch);

    switch (ch)

    {

        case 'a':

        case 'e':

        case 'i':

        case 'o':

        case 'u':

        case 'A':

        case 'E':

        case 'I':

        case 'O':

        case 'U': printf("%c is a vowel", ch);

         break;

        default: printf("%c is a consonant");

    }

    return 0;

}

**Output**

Enter a character: c

c is a consonant

1. WAP to input a character from the user and check whether the character is Alphabet or not. If character is Alphabet then show whether it is uppercase or lowercase

**Code**

#include <stdio.h>

int main()

{

    char ch;

    printf("Enter a character ");

    scanf("%c", &ch);

    if ('a' <= ch && ch <= 'z')

        printf("%c is a lowercase Alphabet", ch);

    else if ('A' <= ch && ch <= 'Z')

        printf("%c is an uppercase Alphabet", ch);

    else

        printf("%c is not an Alphabet", ch);

    return 0;

}

Output

Enter a character 1

1 is not an Alphabet

1. WAP to check whether the year entered by the user is leap year or not.

**Code**

#include <stdio.h>

int main()

{

    int year;

    printf("Enter a year ");

    scanf("%d", &year);

    if (year % 4 == 0 && year % 400 ==0 || year % 100 != 0)

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

    else

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

    return 0;

}

**Output**

Enter a year 2016

1. is a leap year
2. WAP to check whether the number entered by the user is divisible by 5 and 11 or not.

**Code**

#include <stdio.h>

int main()

{

    int number;

    printf("Enter a number ");

    scanf("%d", &number);

    if (number % 55 == 0)

        printf("%d is divisible by both 5 and 11", number);

    else

        printf("%d is not divisible by both 5 and 11.", number);

    return 0;

}

**Output**

Enter a number 110

110 is divisible by both 5 and 11

1. WAP to find all the roots of the quadratic equation.

**Code**

#include <stdio.h>

#include <math.h>

int main()

{

    float a, b, c, dis, root1, root2, real, img;

    printf("Enter three numbers a, b, c in the equation ax^2+bx+c=0: ");

    scanf("%f%f%f", &a, &b, &c);

    dis = b\*b - 4\*a\*c;

    if (dis == 0)

    {

        printf("The solutions are real and same\n");

        root1 = root2 = -b / 2 /a;

        printf("root1=%f and root2=%f", root1, root2);

    }

    else if (dis > 0)

    {

        printf("The solutions are real and unique\n");

        root1 = -b / 2 /a + sqrt(dis) / 2 /a;

        root1 = -b / 2 /a - sqrt(dis) / 2 /a;

        printf("root1=%f and root2=%f", root1, root2);

    }

    else

    {

        printf("The solutions are imaginary\n");

        real = -b / 2 /a;

        img = sqrt(-dis) / 2 / a;

        printf("root1=%f+%fi and root2=%f-%fi", real, img, real, img);

    }

    return 0;

}

**Output**

Enter three numbers a, b, c in the equation ax^2+bx+c=0: 1 2 3

The solutions are imaginary

root1=-1.000000+1.414214i and root2=-1.000000-1.414214i

1. WAP to input two numbers and operator among [+, -. \*, /]. If user enters + then the program should perform subtraction the addition of the number and display the sum. If user enters – the program should perform subtraction of number and display the difference and so on for \* and /.

**Code**

#include <stdio.h>

int main()

{

    char operator;

    float a, b;

    printf("Enter two numbers");

    scanf("%f%f", &a, &b);

    printf("What operation would you like to perform on the numbers [+,-,\*,/]?: ");

    scanf(" %c", &operator);

    switch (operator)

    {

        case '+': printf("%.2f %c %.2f = %.2f", a, operator, b, a + b); break;

        case '-': printf("%.2f %c %.2f = %.2f", a, operator, b, a - b); break;

        case '\*': printf("%.2f %c %.2f = %.2f", a, operator, b, a \* b); break;

        case '/': printf("%.2f %c %.2f = %.2f", a, operator, b, a / b); break;

        default: printf("Please enter a valid operation.");

    }

    return 0;

}

**Output**

Enter two numbers10 11

What operation would you like to perform on the numbers [+,-,\*,/]?: +

10.00 + 11.00 = 21.00

1. WAP to input marks of five subjects C-programming, Physics, Applied Mechanics and Basic electrical. Display whether the student passed or failed. Take F.M. = 100 and P.M. = 40. For passed students calculate percentage and grade according to following:
   1. Percentage >= 90%: A
   2. Percentage >= 80%: B
   3. Percentage >= 70%: C
   4. Percentage >= 60%: D
   5. Percentage >= 40%: E

**Code**

#include <stdio.h>

#include <math.h>

int main()

{

    float c\_prog, physics, applied, basic, percent;

    printf("Enter your marks in c-programming, physics, applied mechanics and basic electrical: ");

    scanf("%f%f%f%f", &c\_prog, &physics, &applied, &basic);

    if (c\_prog >= 40 && physics >= 40 && applied >= 40 && basic >= 40)

    {

        printf("Congratulations! You passed.\n");

        percent = (c\_prog + physics + applied + basic) / 4.0;

        if (percent >= 90.0)

            printf("You got the grade A");

        else if (percent >= 80.0)

            printf("You got the grade B");

        else if (percent >= 70.0)

            printf("You got the grade C");

        else if (percent >= 60.0)

            printf("You got the grade D");

        else if (percent >= 40.0)

            printf("You got the grade E");

    }

    else

        printf("Unfortunately, you failed.");

    return 0;

}

**Output**

Enter your marks in c-programming, physics, applied mechanics and basic electrical: 50 60 70 80

Congratulations! You passed.

You got the grade D

1. WAP to input a number form user. If user enters a number less than or equal to zero then program should just display the number. If user enters 1 program should display output as neither prime nor composite, if user enters 2 the program should display output as smallest and only even prime number. If user enters any number greater than 2 the program should check whether the number is prime or not, also if the number is not prime the program should check whether it is even or not.

**Code**

#include <stdio.h>

#include <math.h>

int main()

{

    int number, factors = 0;

    printf("Enter a number: ");

    scanf("%d", &number);

    if (number <= 0)

        printf("%d", number);

    else if (number == 1)

        printf("1 is neither prime nor composite");

    else if (number == 2)

        printf("2 is the smallest and only even prime number");

    else

    {

        for (int i = 2; i < number / 2; i++)

        {

            if (number % i == 0)

            {

                factors = 1;

                break;

            }

        }

        if (factors == 0)

            printf("%d is a prime", number);

        else

            printf("%d is composite", number);

    }

    return 0;

}

**Output**

Enter a number: 3

3 is a prime