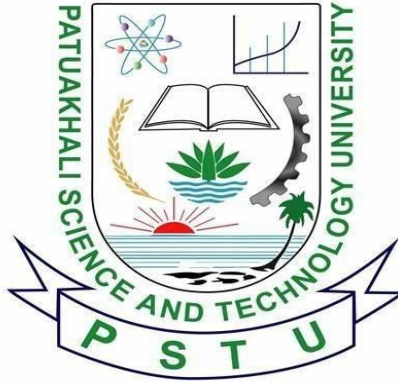# PATUAKHALI SCIENCE AND TECHNOLOGY UNIVERSITY

Course Code: CIT-112

SUBMITTED TO:

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Department of Computer Science And Communication

Engineering

Faculty of Computer Science And Engineering

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Faculty of Computer Science and Engineering
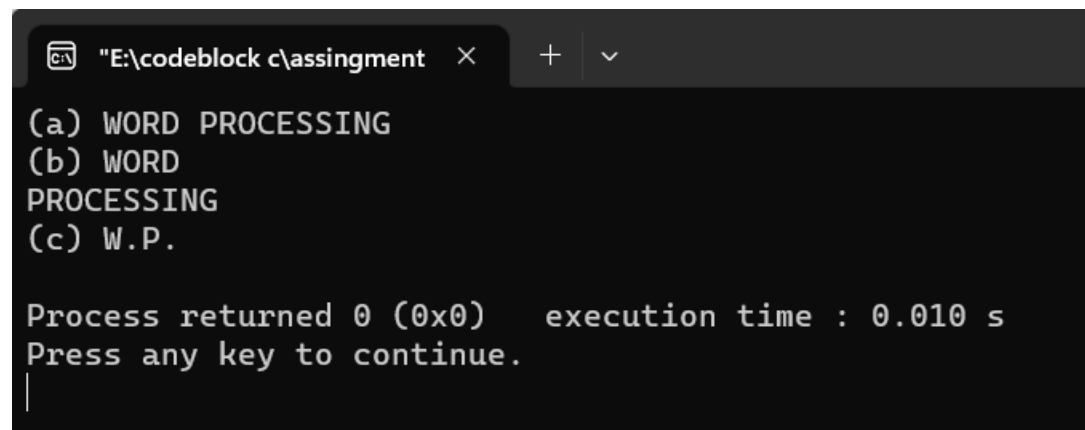
Date of submission: 12-4-2023

Chapter 5

5.1 Given the string "WORDPROCESSING", write a program to read the string from the terminal and display the same in the following formats: (a) WORD PROCESSING (b) WORD PROCESSING (c) W.P

```c
#include<stdio.h>

int main()
{
    char x[100]={"WORD"};
    char y[100]={"PROCESSING"};
    printf("(a) %4s %10s\n",x,y);
    printf("(b) %s\n%s\n",x,y);
    printf("(c) %.1s.%.1s.\n",x,y);


}
```

```
 ⊡  "E:\codeblock c\assingment   ×     +   ∨

(a) WORD PROCESSING
(b) WORD
PROCESSING
(c) W.P.

Process returned 0 (0x0)    execution time : 0.010 s
Press any key to continue.
|
```
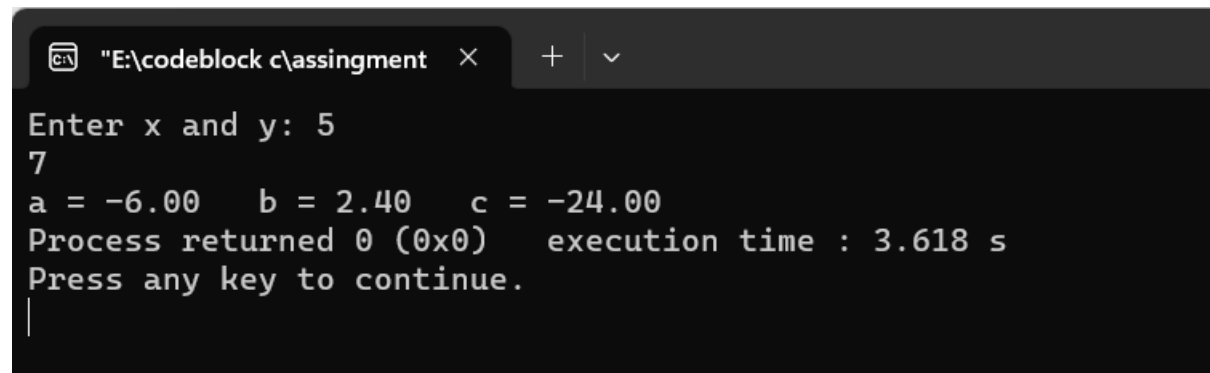
5.2 Write a program to read the values of x and y and print the results of the following expressions in one line: (a) (x+y)/(x–y) (b) (x+y)/2 (c) (x+y)(x–y)

#include<stdio.h>

int main()

{

   float a,b,c,x,y;

   printf("Enter x and y: ");

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

   a=(x+y)/(x-y);

   b=(x+y)/(x);

   c=(x+y)*(x-y);

   printf("a = %0.2f ",a);

   printf("b = %0.2f ",b);
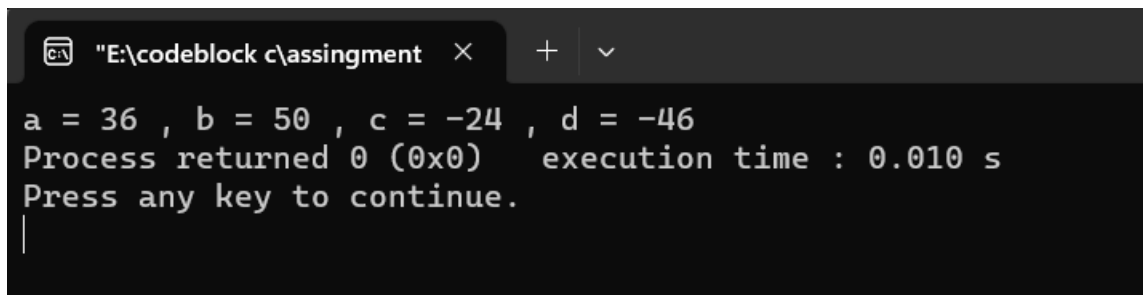
   printf("c = %0.2f ",c);

}

```
"E:\codeblock c\assingment    X        +    v

Enter x and y: 5
7
a = -6.00    b = 2.40    c = -24.00
Process returned 0 (0x0)    execution time : 3.618 s
Press any key to continue.
```

5.3 Write a program to read the following numbers, round them off to the nearest integers and print out the results in integer form: 35.7 50.21 – 23.73 – 46.45

#include<stdio.h>

int main()

{

  int a=35.7+.5;

   int b=50.21+.5;

 int   c=-(23.73+.5);

  int d=-(46.45+.5);

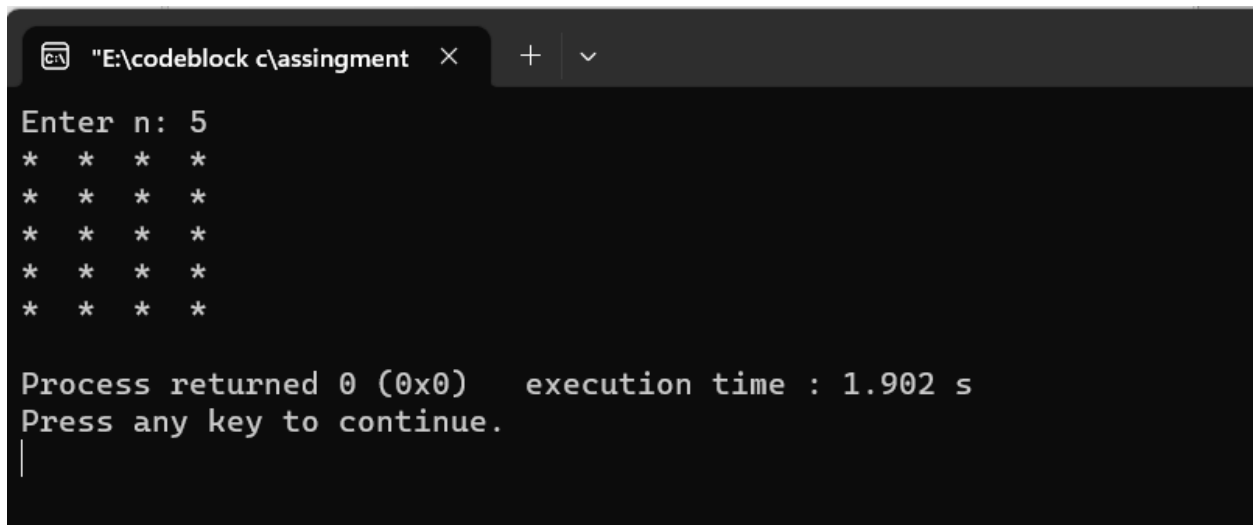 printf("a = %d , b = %d , c = %d , d = %d",a,b,c,d);

}

```
"E:\codeblock c\assingment   X      +   ∨

a = 36 , b = 50 , c = -24 , d = -46
Process returned 0 (0x0)    execution time : 0.010 s
Press any key to continue.
```

5.4 Write a program which print n number of raw and n number of columb with * symbol

```c
#include<stdio.h>
int main()
{
    int i,j,n;
    printf("Enter n: ");
    scanf("%d",&n);

    for(i=1;i<=n;i++)
    {
        for(j=1;j<=4;j++)
            {printf("* ");
            }
            printf("\n");
    }

}
```

```
■ "E:\codeblock c\assingment    ×    +  ∨

Enter n: 5
*   *   *   *
*   *   *   *
*   *   *   *
*   *   *   *
*   *   *   *

Process returned 0 (0x0)    execution time : 1.902 s
Press any key to continue.
|
```

5.5 Write an interactive program to demonstrate the process of multiplication. The program should ask the user to enter two two-digit integers and print the product of integers
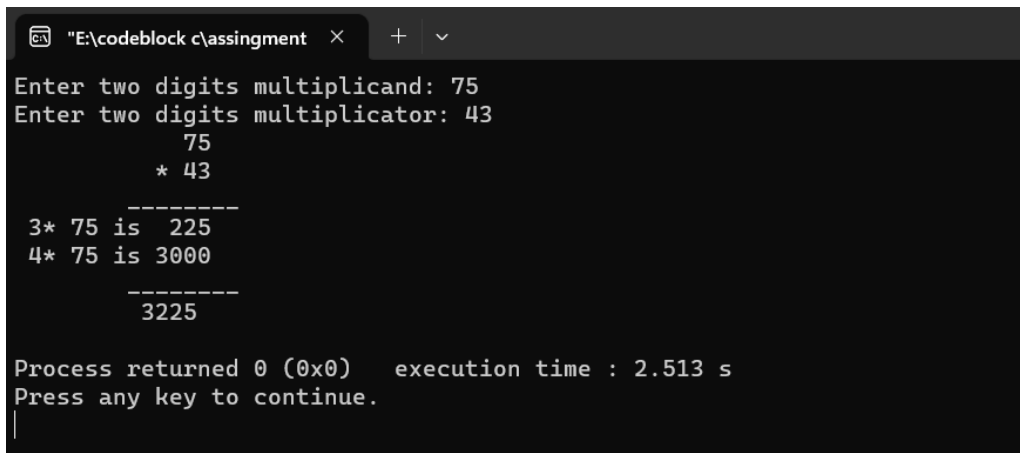
#include<stdio.h>

int main()

{

   int n,x;

   printf("Enter two digits multiplicand: ");

   scanf("%d",&n);

   printf("Enter two digits multiplicator: ");

   scanf("%d",&x);

   int x1=x%10;

   int x2=x/10;

   int mul=n*x;

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

   printf("   * %d\n",x);

   printf("   _____\n");

   printf(" %d* %d is %d\n",x1,n,x1*n);

   printf(" %d* %d is %d\n",x2,n,x2*n*10);

   printf("   _____\n");

   printf("   %d\n",mul);

}

```
Enter two digits multiplicand: 75
Enter two digits multiplicator: 43
          75
        * 43

        --------
 3* 75 is  225
 4* 75 is 3000

        --------
        3225

Process returned 0 (0x0)    execution time : 2.513 s
Press any key to continue.
```
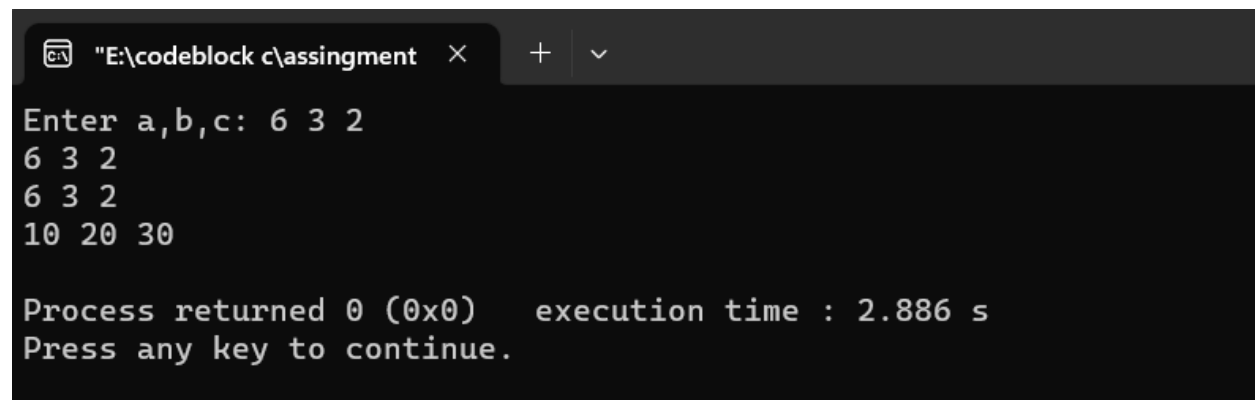
5.6 Write a program to read three integers from the keyboard using one scanf statement and output them on one line using: (a) three printf statements, (b) only one printf with conversion specifiers, and (c) only one printf without conversion specifiers.

#include<stdio.h>

int main()

{

   int a,b,c;

   printf("Enter a,b,c: ");

   scanf("%d %d %d",&a,&b,&c);

   printf("%d ",a);

   printf("%d ",b);

   printf("%d \n",c);

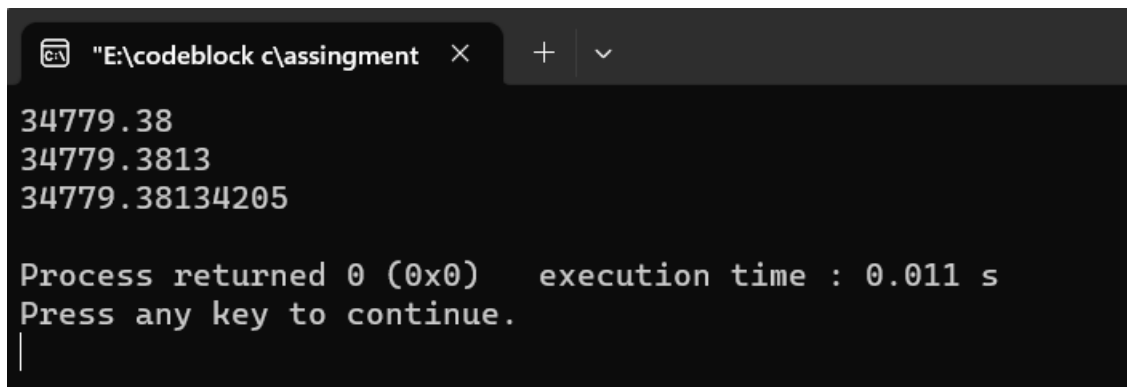   printf("%d %d %d\n",a,b,c);

   printf("10 20 30\n");

}

```
"E:\codeblock c\assingment    ×    +    ∨

Enter a,b,c: 6 3 2
6 3 2
6 3 2
10 20 30

Process returned 0 (0x0)    execution time : 2.886 s
Press any key to continue.
```

5.7 Write a program that prints the value 10.45678 in exponential format with the following specifications: (a) correct to two decimal places; (b) correct to four decimal places; and (c) correct to eight decimal places.

#include<stdio.h>

int main()

{

   double x;

   x=exp(10.45678);

   printf("%0.2lf\n",x);

   printf("%0.4lf\n",x);

   printf("%0.8lf\n",x);

}

```
 ▣  "E:\codeblock c\assingment    ✕      +    ⌄

34779.38
34779.3813
34779.38134205

Process returned 0 (0x0)     execution time : 0.011 s
Press any key to continue.
|
```
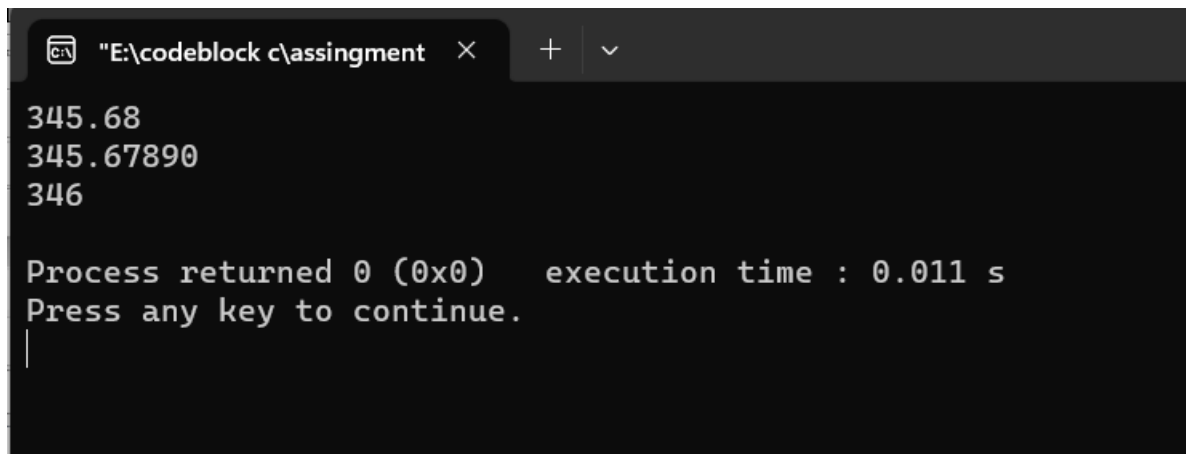
5.8 Write a program to print the value 345.6789 in fixed-point format with the following specifications: (a) correct to two decimal places; (b) correct to five decimal places; and (c) correct to zero decimal places.

#include<stdio.h>

 int main()

 {

   double x=345.6789;

   printf("%0.2f\n",x);

   printf("%0.5f\n",x);

   printf("%0.0f\n",x);
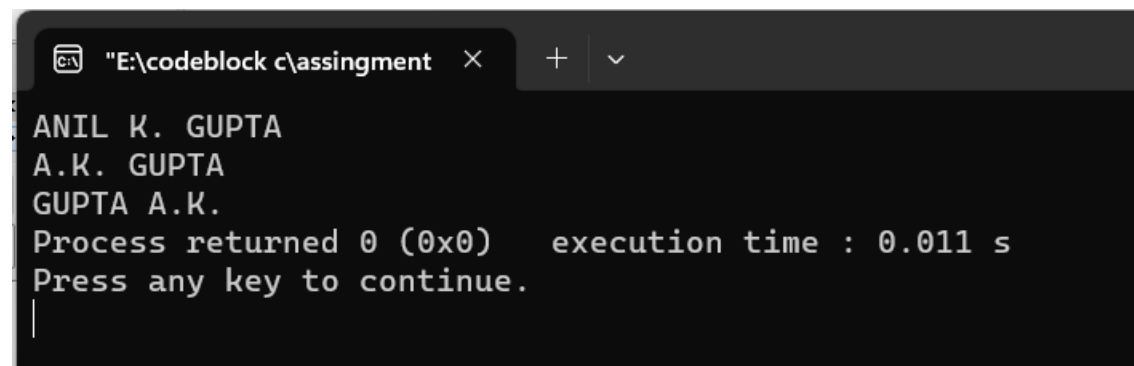
 }

```
345.68
345.67890
346

Process returned 0 (0x0)   execution time : 0.011 s
Press any key to continue.
```

5.9 Write a program to read the name ANIL KUMAR GUPTA in three parts using the scanf statement and to display the same in the following format using the printf statement. 5.3, 5.4 H] (a) ANIL K. GUPTA (b) A.K. GUPTA (c) GUPTA A.K.

#include<stdio.h>

int main()

{

   char x[100]={"ANIL"},y[100]={"KUMAR"},z[100]={"GUPTA"};

   printf("%s %.1s. %s\n",x,y,z);

   printf("%0.1s.%0.1s. %s\n",x,y,z);

   printf("%s %0.1s.%0.1s. ",z,x,y);

}


```
ANIL K. GUPTA
A.K. GUPTA
GUPTA A.K.
Process returned 0 (0x0)   execution time : 0.011 s
Press any key to continue.
```

5.10 Write a program with name code and price information:
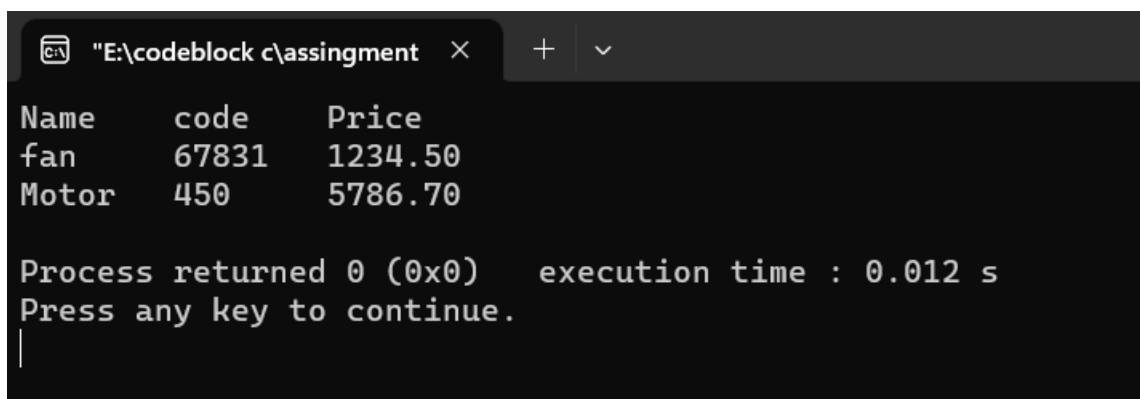
#include<stdio.h>

int main()

{

  printf("Name   code   Price\n");

  printf("fan   67831 1234.50\n");

  printf("Motor 450   5786.70\n");

}

```
"E:\codeblock c\assingment  ×    +   ∨

Name     code     Price
fan      67831    1234.50
Motor    450      5786.70

Process returned 0 (0x0)    execution time : 0.012 s
Press any key to continue.
```

5.11 Problem

5.12 Problem

5.13 Write a C program to input a currency value in Dollars and display its equivalent Euro and INR amounts. You may use current exchange rate for conversion purpose.

```c
#include<stdio.h>

int main()
{
    float euro,inr,dollars;
    printf("Enter your money in dollar: ");
    scanf("%f",&dollars);
    euro=dollars*0.92;
    inr=dollars*82.18;
    printf("The euro value of the money is: %0.2f\n",euro);
    printf("The INR value of the money is: %0.2f",inr);
}
```
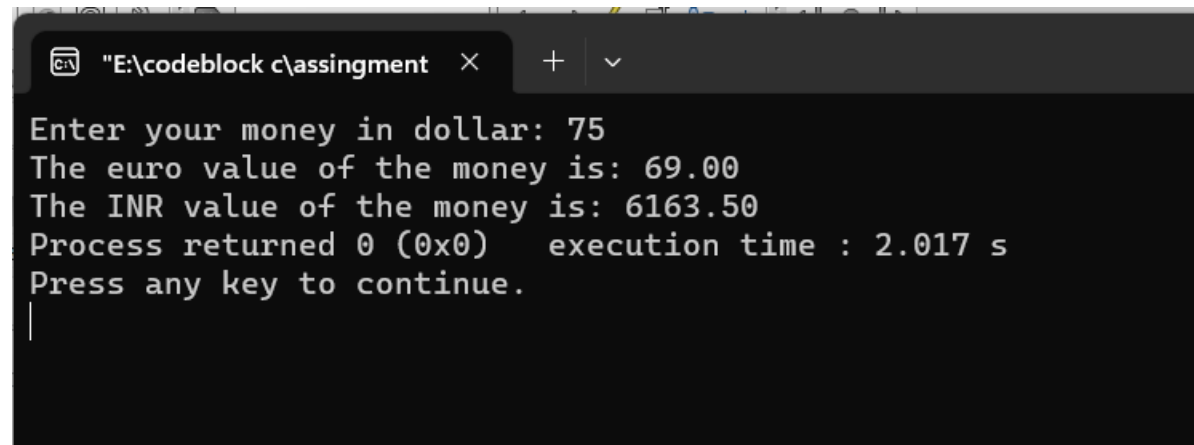


```
"E:\codeblock c\assingment    X    +    ∨

Enter your money in dollar: 75
The euro value of the money is: 69.00
The INR value of the money is: 6163.50
Process returned 0 (0x0)    execution time : 2.017 s
Press any key to continue.
```

5.14 Write a C program to display a pattern where 1ˢᵗ line will be 1 2 3 …. n than second line will be 1 2 3 …. (n-1) and go on and at last the line will be 1:

```c
#include<stdio.h>

int main()
{
    int n,r,c;
    printf("Enter row number: ");
    scanf("%d",&n);
    for(r=n;r>=1;r--)
    {
        for(c=1;c<=n-r;c++)
        {
            printf("  ");
        }
        for(c=1;c<=r;c++)
        {
            printf("%d ",c);
        }
        printf("\n");
    }
}
```
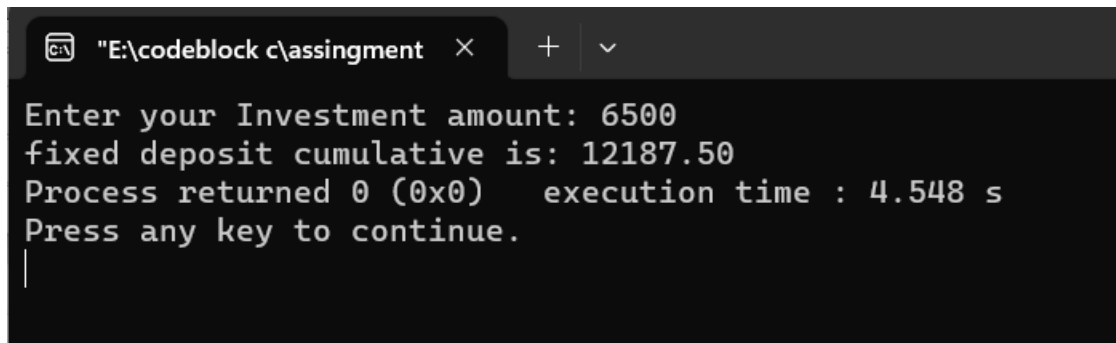
```
Enter row number: 7
1 2 3 4 5 6 7
  1 2 3 4 5 6
    1 2 3 4 5
      1 2 3 4
        1 2 3
          1 2
            1

Process returned 0 (0x0)   execution time : 1.443 s
Press any key to continue.
```

5.15 Write a C program to input an investment amount and compute its fixed deposit cumulative return after 10 years at a rate of interest of 8.75%.

#include<stdio.h>

int main()

{

   float r=(8.75/100),p,n=10,i,c;

   printf("Enter your Investment amount: ");

   scanf("%f",&p);

   i=p*n*r;

   //c=fixed deposit cumulative;

   c=i+p;

   printf("fixed deposit cumulative is: %0.2f",c);

}

```
 "E:\codeblock c\assingment    ×    +   ∨

Enter your Investment amount: 6500
fixed deposit cumulative is: 12187.50
Process returned 0 (0x0)    execution time : 4.548 s
Press any key to continue.
```
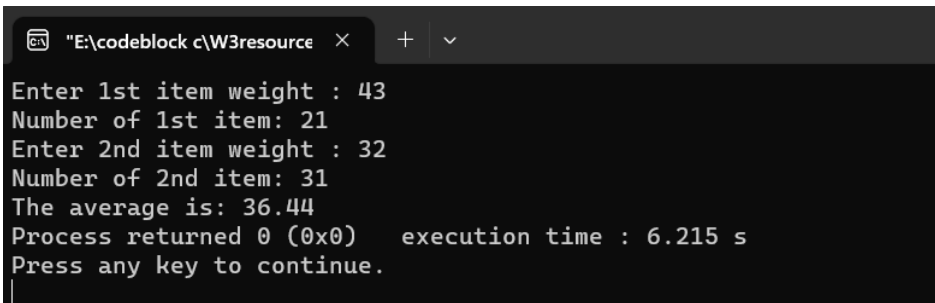
W3Resource Problem Solve

Basic Declaration and Expression

11. Write a C program that accepts two item's weight and number of purchases (floating point values) and calculates their average value.

```c
#include<stdio.h>

int main()
{
    float i1,ti1,i2,ti2,avg;
    printf("Enter 1st item weight : ");
    scanf("%f",&i1);
    printf("Number of 1st item: ");
    scanf("%f",&ti1);
    printf("Enter 2nd item weight : ");
    scanf("%f",&i2);
    printf("Number of 2nd item: ");
    scanf("%f",&ti2);
    avg=(i1*ti1 + i2*ti2)/(ti1+ti2);
    printf("The average is: %0.2f",avg);
}
```
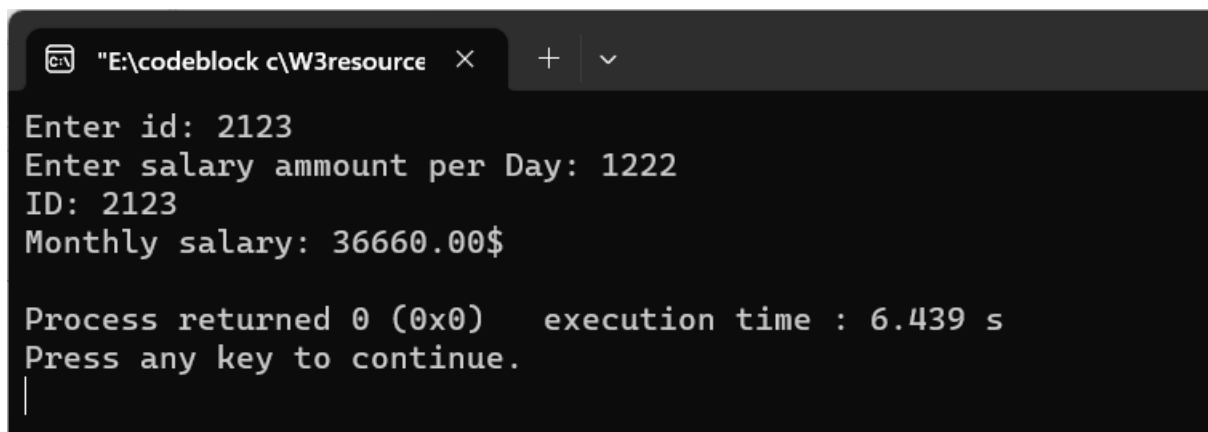
```
Enter 1st item weight : 43
Number of 1st item: 21
Enter 2nd item weight : 32
Number of 2nd item: 31
The average is: 36.44
Process returned 0 (0x0)   execution time : 6.215 s
Press any key to continue.
```

12. Write a C program that accepts an employee's ID, total worked hours in a month and the amount he received per hour. Print the ID and salary (with two decimal places) of the employee for a particular month.

#include<stdio.h>

int main()

{

    float ipd;

    int id;

    printf("Enter id: ");

    scanf("%d",&id);

    printf("Enter salary ammount per Day: ");

    scanf("%f",&ipd);

    float sal= 30*ipd;

    printf("ID: %d\n",id);

    printf("Monthly salary: %0.2f\n$",sal);

}

```
Enter id: 2123
Enter salary ammount per Day: 1222
ID: 2123
Monthly salary: 36660.00$

Process returned 0 (0x0)   execution time : 6.439 s
Press any key to continue.
```
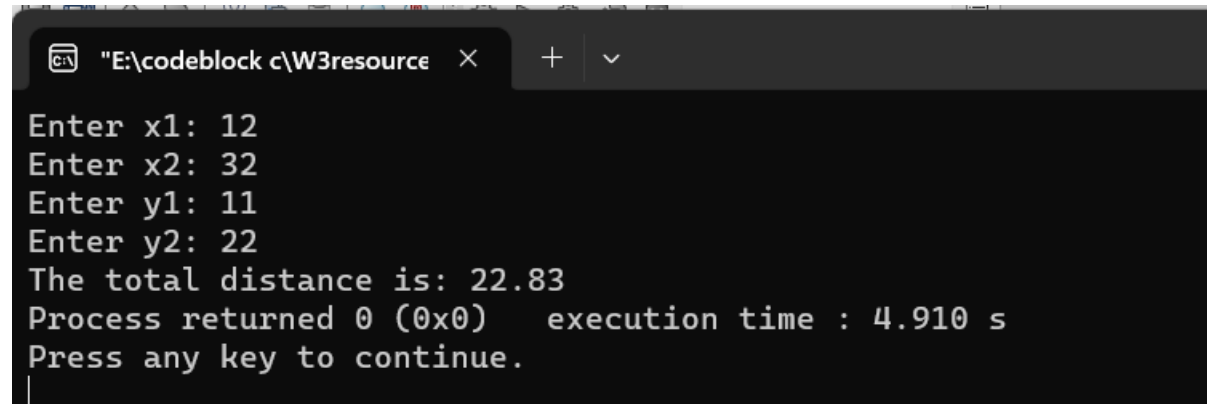
15. Write a C program to calculate the distance between two points.

```c
#include<stdio.h>
int main()
{
    float x1,x2,y1,y2;
    printf("Enter x1: ");
    scanf("%f",&x1);
    printf("Enter x2: ");
    scanf("%f",&x2);
    printf("Enter y1: ");
    scanf("%f",&y1);
    printf("Enter y2: ");
    scanf("%f",&y2);
    float d=sqrt((y1-y2)*(y1-y2)+(x1-x2)*(x1-x2));
    printf("The total distance is: %0.2f",d);

}
```
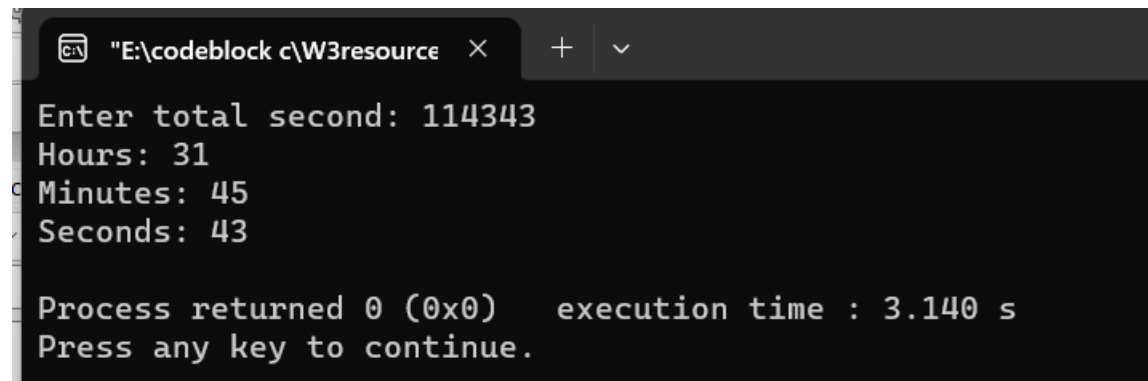
```
"E:\codeblock c\W3resource  ×     +    ∨

Enter x1: 12
Enter x2: 32
Enter y1: 11
Enter y2: 22
The total distance is: 22.83
Process returned 0 (0x0)    execution time : 4.910 s
Press any key to continue.
```

17. Write a C program to convert a given integer (in seconds) to hours, minutes and seconds.

#include<stdio.h>

int main()

{

   int s,hour,rs,min,sec;

   printf("Enter total second: ");

   scanf("%d",&s);

   hour=s/3600;

   rs=s%3600;

   min=rs/60;

   sec=rs%60;

   printf("Hours: %d\n",hour);

   printf("Minutes: %d\n",min);
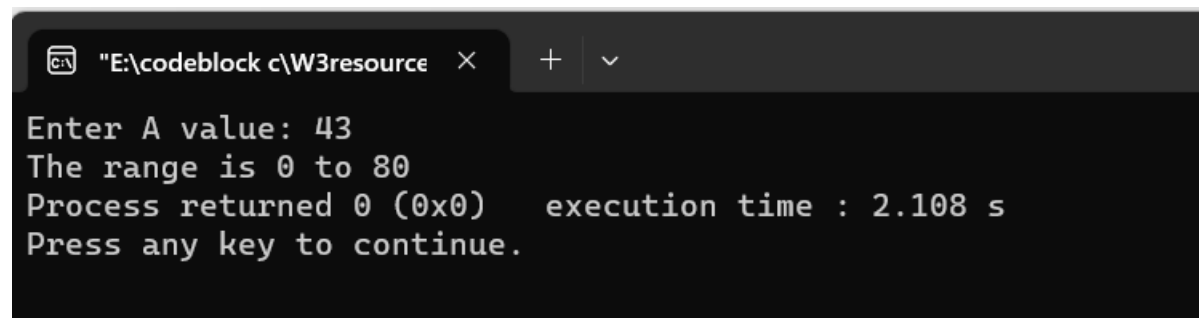
   printf("Seconds: %d\n",sec);

}

```
"E:\codeblock c\W3resource    ✕      +    ∨

Enter total second: 114343
Hours: 31
Minutes: 45
Seconds: 43

Process returned 0 (0x0)    execution time : 3.140 s
Press any key to continue.
```

21. Write a C program that reads an integer and checks the specified range to which it belongs. Print an error message if the number is negative and greater than 80.

```c
#include<stdio.h>

int main()
{
    int n;
    printf("Enter A value: ");
    scanf("%d",&n);
    if(n>=0 && n<=80)
        printf("The range is 0 to 80");
    else
        printf("Syntax error");
}
```



```
"E:\codeblock c\W3resource    X    +    v

Enter A value: 43
The range is 0 to 80
Process returned 0 (0x0)    execution time : 2.108 s
Press any key to continue.
```
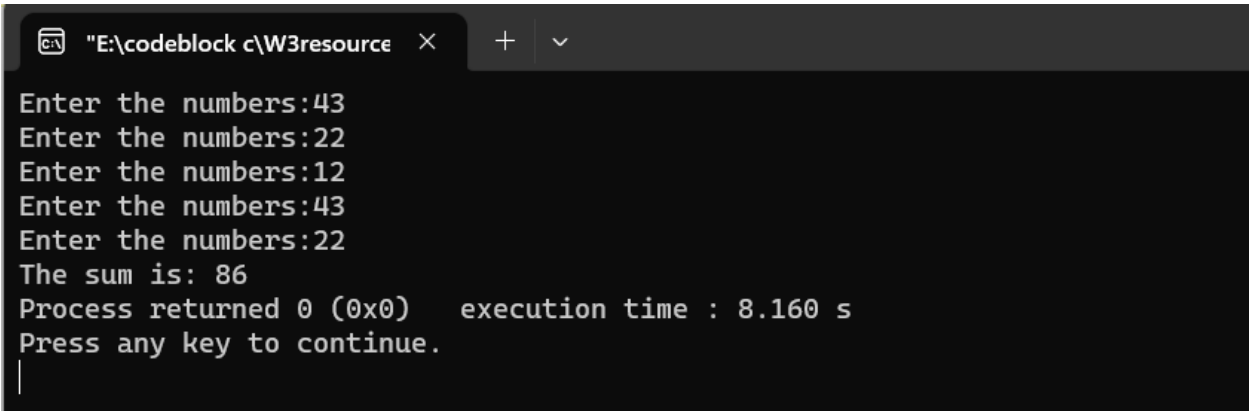
22. Write a C program that reads 5 numbers and sums all odd values between them.

```c
#include<stdio.h>
int main()

{
    int sum=0,a[4],i;

    for(i=0;i<5;i++)
    {
        printf("Enter the numbers:");
        scanf("%d",&a[i]);
    }
    for(i=0;i<5;i++)
    {
        if(a[i]%2!=0)
        {
            sum=sum+a[i];
        }
    }
    printf("The sum is: %d",sum);
}
```
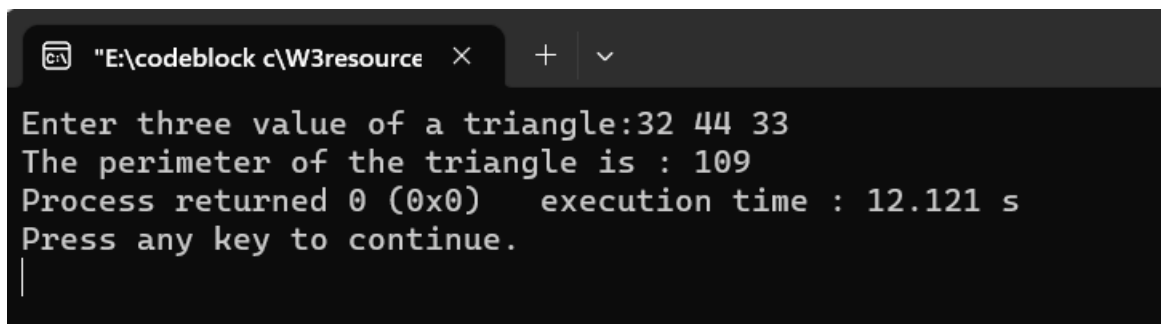
```
 "E:\codeblock c\W3resource    ×    +   ∨

Enter the numbers:43
Enter the numbers:22
Enter the numbers:12
Enter the numbers:43
Enter the numbers:22
The sum is: 86
Process returned 0 (0x0)   execution time : 8.160 s
Press any key to continue.
```

23. Write a C program that reads three floating-point values and checks if it is possible to make a triangle with them. Determine the perimeter of the triangle if the given values are valid.

#include<stdio.h>

int main()

{

   int a,b,c;

   printf("Enter three value of a triangle:");

   scanf("%d %d %d",&a,&b,&c);

   if(a+b>c || b+c>a || a+c>b)

   {

     printf("The perimeter of the triangle is : %d",a+b+c);

   }

   else

     printf("The value's are not curect");

}

```
"E:\codeblock c\W3resource    ✕    +   ∨

Enter three value of a triangle:32 44 33
The perimeter of the triangle is : 109
Process returned 0 (0x0)    execution time : 12.121 s
Press any key to continue.
```

33. Write a C program that accepts some integers from the user and finds the highest value and the input position.

#include<stdio.h>
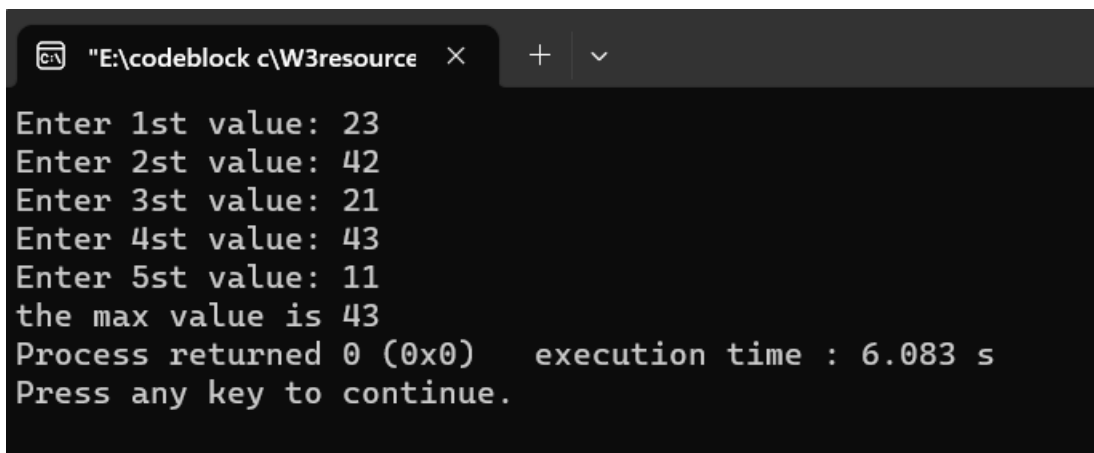
int main()

{

  int max,i,j,n;

  int a[5];

  max=0;

for(i=0;i<5;i++)

  {

    printf("Enter %dst value: ",i+1);

    scanf("%d",&a[i]);

  }

  for(i=0;i<5;i++)

  {

    if(a[i]>max)

      {max=a[i];

      }

  }

  printf("the max value is %d",max);

}

```
Enter 1st value: 23
Enter 2st value: 42
Enter 3st value: 21
Enter 4st value: 43
Enter 5st value: 11
the max value is 43
Process returned 0 (0x0)    execution time : 6.083 s
Press any key to continue.
```
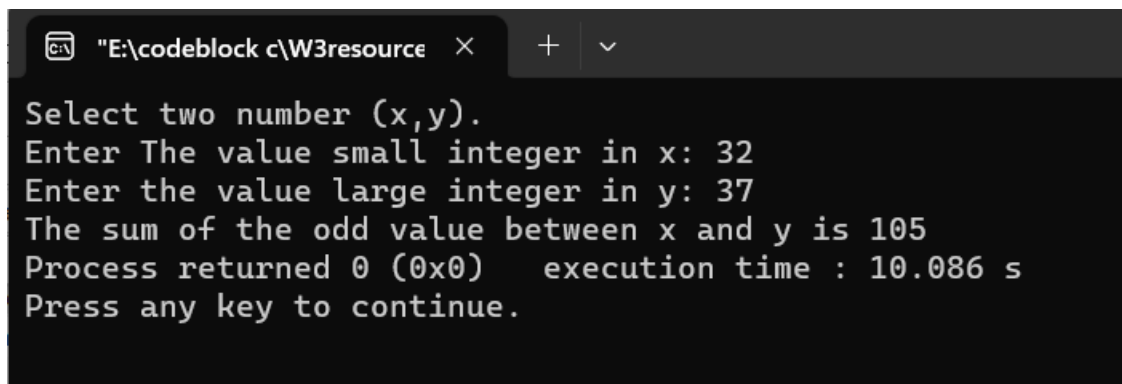
34. Write a C program to compute the sum of consecutive odd numbers from a given pair of integers.

#include<stdio.h>

int main()

{

   int n1,n2,i,sum;

   printf("Select two number (x,y). \n");

   printf("Enter The value small integer in x: ");

   scanf("%d",&n1);

   printf("Enter the value large integer in y: ");

   scanf("%d",&n2);

   for(i=n1;i<=n2;i++)

   {

     if(i%2==1)

       sum=sum+i;

   }

   printf("The sum of the odd value between x and y is %d",sum);

}

```
"E:\codeblock c\W3resource    X    +    v

Select two number (x,y).
Enter The value small integer in x: 32
Enter the value large integer in y: 37
The sum of the odd value between x and y is 105
Process returned 0 (0x0)    execution time : 10.086 s
Press any key to continue.
```
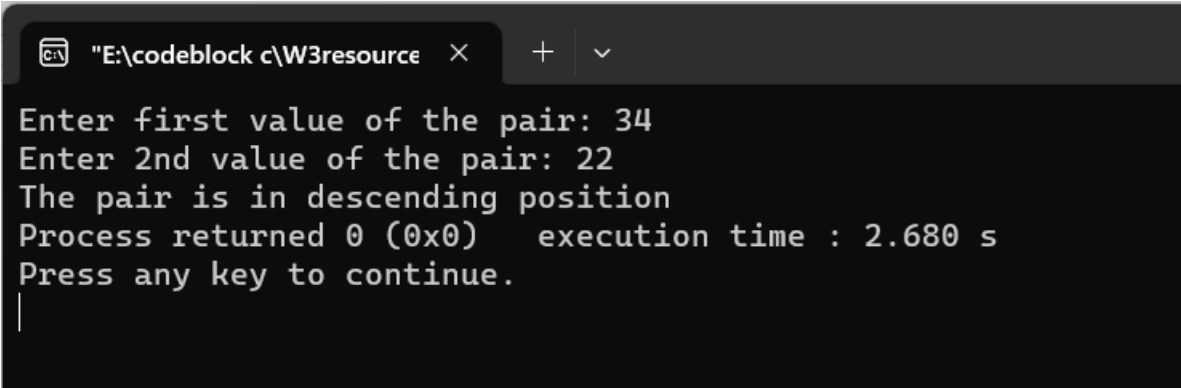
35. Write a C program to check if two numbers in a pair are in ascending order or descending order.

#include<stdio.h>

int main()

{

  int x,y;

  printf("Enter first value of the pair: ");

  scanf("%d",&x);

  printf("Enter 2nd value of the pair: ");

  scanf("%d",&y);

  if(x>y)

  {

    printf("The pair is in descending position");

  }

  else

    printf("The pair is in ascending position");

}

```
"E:\codeblock c\W3resource    ×    +    ⌄

Enter first value of the pair: 34
Enter 2nd value of the pair: 22
The pair is in descending position
Process returned 0 (0x0)    execution time : 2.680 s
Press any key to continue.
```
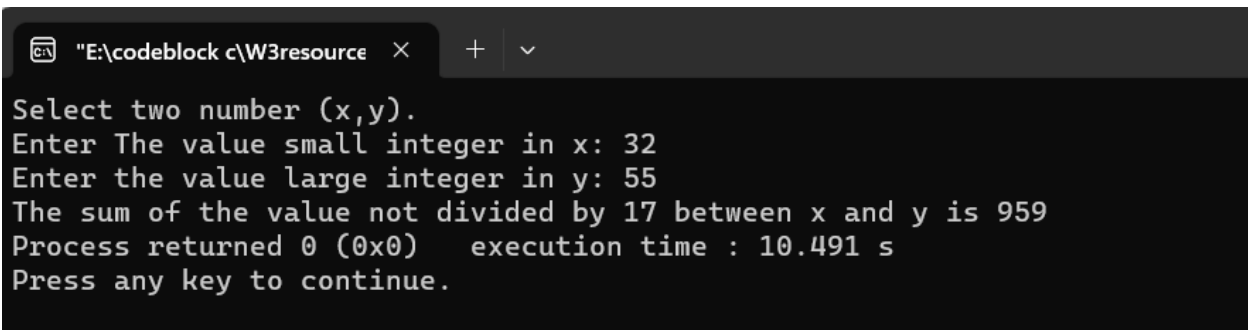
39. Write a C program to calculate the sum of all numbers not divisible by 17 between two given integer numbers.

#include<stdio.h>

int main()

{

   int n1,n2,i,sum;

   printf("Select two number (x,y). \n");

   printf("Enter The value small integer in x: ");

   scanf("%d",&n1);

   printf("Enter the value large integer in y: ");

   scanf("%d",&n2);

   for(i=n1;i<=n2;i++)

   {

     if(i%17!=0)

       sum=sum+i;

   }

   printf("The sum of the value not divided by 17 between x and y is %d",sum);

}

```
"E:\codeblock c\W3resource    ×      +    ∨
Select two number (x,y).
Enter The value small integer in x: 32
Enter the value large integer in y: 55
The sum of the value not divided by 17 between x and y is 959
Process returned 0 (0x0)   execution time : 10.491 s
Press any key to continue.
```
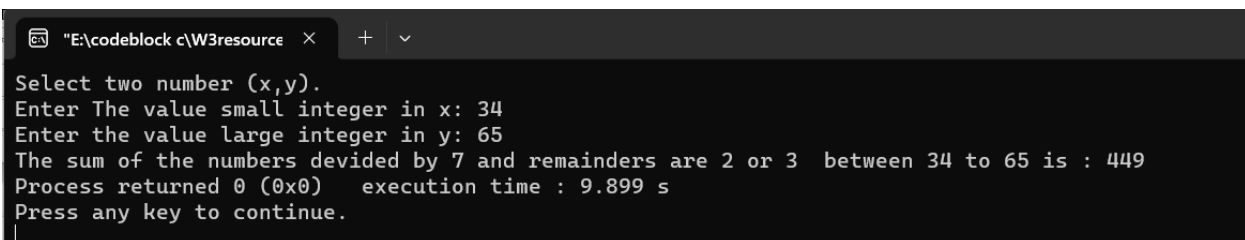
40. Write a C program that finds all integer numbers that divide by 7 and have a remainder of 2 or 3 between two given integers.

#include<stdio.h>

int main()

{

   int n1,n2,i,sum;

   printf("Select two number (x,y). \n");

   printf("Enter The value small integer in x: ");

   scanf("%d",&n1);

   printf("Enter the value large integer in y: ");

   scanf("%d",&n2);

 for(i=n1;i<=n2;i++)

 {

   if(i%7==2 || i%7==3)

   {

     sum=sum+i;

   }

 }

 printf("The sum of the numbers devided by 7 and remainders are 2 or 3 between %d to %d is : %d",n1,n2,sum);

}

```
 "E:\codeblock c\W3resource    ×    +   ∨

Select two number (x,y).
Enter The value small integer in x: 34
Enter the value large integer in y: 65
The sum of the numbers devided by 7 and remainders are 2 or 3  between 34 to 65 is : 449
Process returned 0 (0x0)    execution time : 9.899 s
Press any key to continue.
```
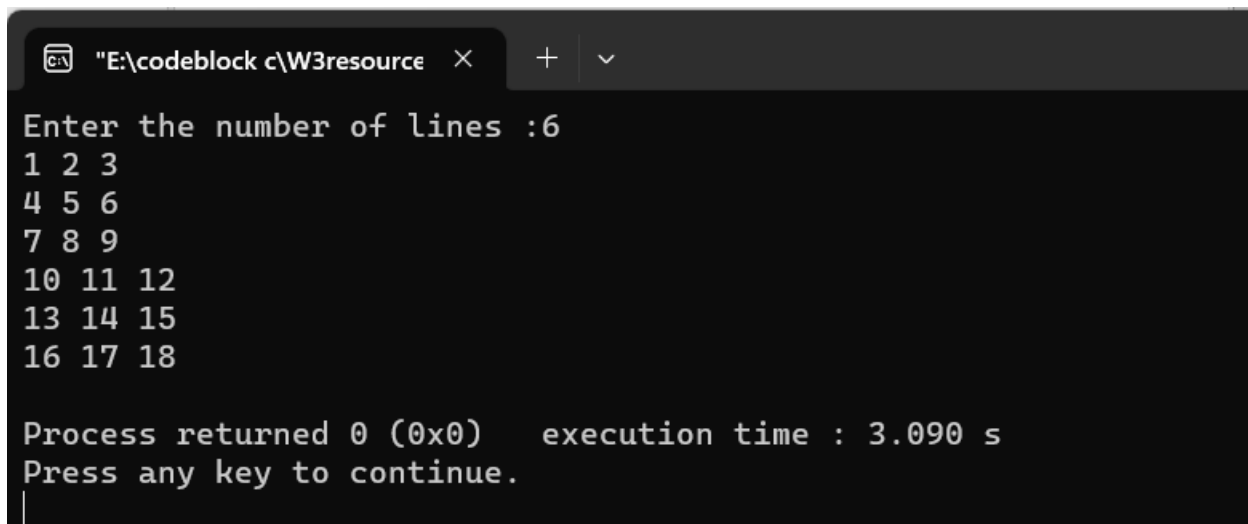
41. Write a C program to print 3 numbers on a line, starting with 1 and printing n lines. Accept the number of lines (n, integer) from the user.

```c
#include<stdio.h>

int main()
{

  int i,j,n,sum=0;

  printf("Enter the number of lines :");

  scanf("%d",&n);


  for(i=1;i<=n;i++)

  {

    for(j=1;j<=3;j++)

    {

      sum=sum+1;

      printf("%d ",sum);

    }

    printf("\n");

  }}
```

```
"E:\codeblock c\W3resource    ×    +    ∨

Enter the number of lines :6
1 2 3
4 5 6
7 8 9
10 11 12
13 14 15
16 17 18

Process returned 0 (0x0)    execution time : 3.090 s
Press any key to continue.
```

42. Write a C program to print a number, its square and cube, starting with 1 and printing n lines. Accept the number of lines (n, integer) from the user.

```c
#include<stdio.h>

int main()
{

    int x,i,j,n,sum=0;
    printf("Enter the number of lines :");
    scanf("%d",&n);


    for(i=1;i<=n;i++)
    {
        for(j=1;j<=3;j++)
        {
x=pow(i,j);
            printf("%d ",x);
        }
        printf("\n");
    }
}
```
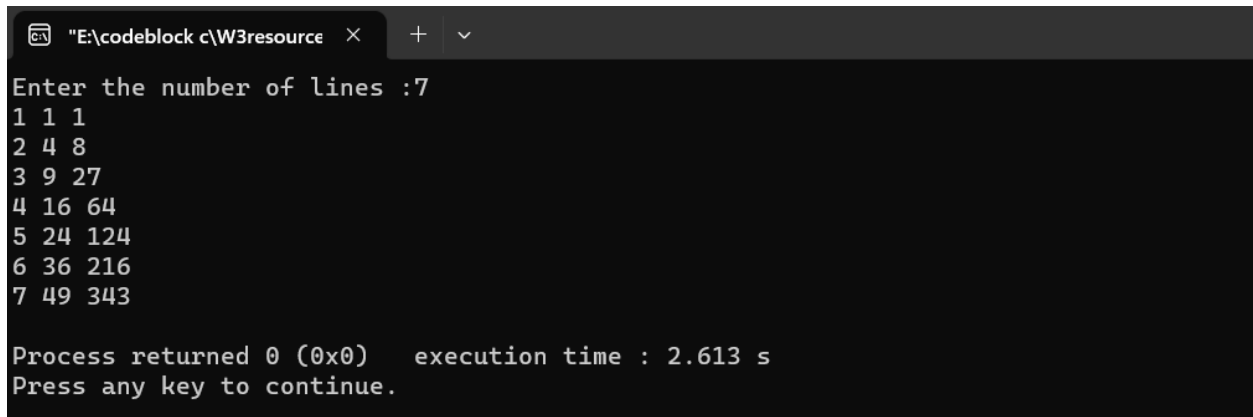
```
"E:\codeblock c\W3resource    ✕    +    ∨

Enter the number of lines :7
1 1 1
2 4 8
3 9 27
4 16 64
5 24 124
6 36 216
7 49 343

Process returned 0 (0x0)    execution time : 2.613 s
Press any key to continue.
```
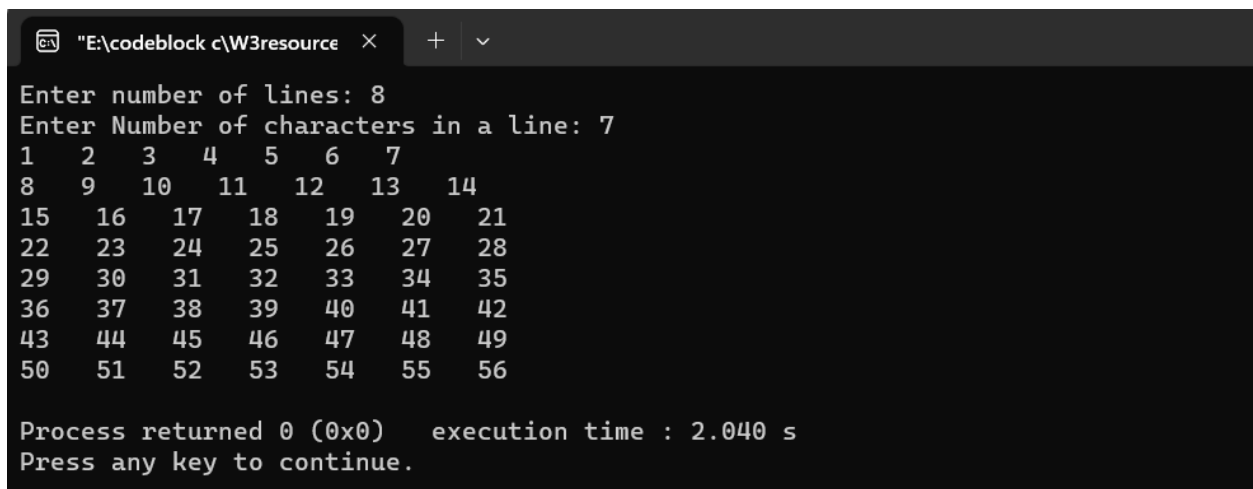
43. Write a C program that reads two integers p and q, prints p number of lines in a sequence of 1 to b in a line.

```c
#include<stdio.h>

int main()
{
    int x,y,i,j,sum=0;
    printf("Enter number of lines: ");
    scanf("%d",&x);
    printf("Enter Number of characters in a line: ");
    scanf("%d",&y);
    for(i=1;i<=x;i++)
    {
        for(j=1;j<=y;j++)
        {
            sum=sum+1;
            printf("%d  ",sum);

        }
        printf("\n");
    }
}
```
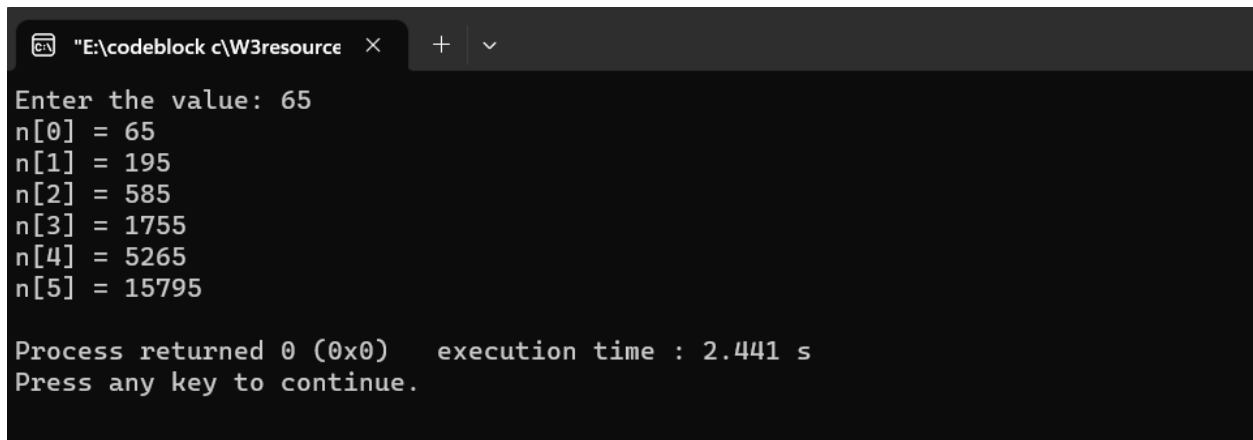
```
Enter number of lines: 8
Enter Number of characters in a line: 7
1    2    3    4    5    6    7
8    9    10   11   12   13   14
15   16   17   18   19   20   21
22   23   24   25   26   27   28
29   30   31   32   33   34   35
36   37   38   39   40   41   42
43   44   45   46   47   48   49
50   51   52   53   54   55   56

Process returned 0 (0x0)   execution time : 2.040 s
Press any key to continue.
```

49. Write a C program to read and print the elements of an array with length 7. Before printing, insert the triple of the previous position, starting from the second position.

#include<stdio.h>

int main()

{

   int res,i,n,a[5];

   printf("Enter the value: ");

   scanf("%d",&n);

   printf("n[0] = %d\n",n);

   for(i=0;i<5;i++)

   {

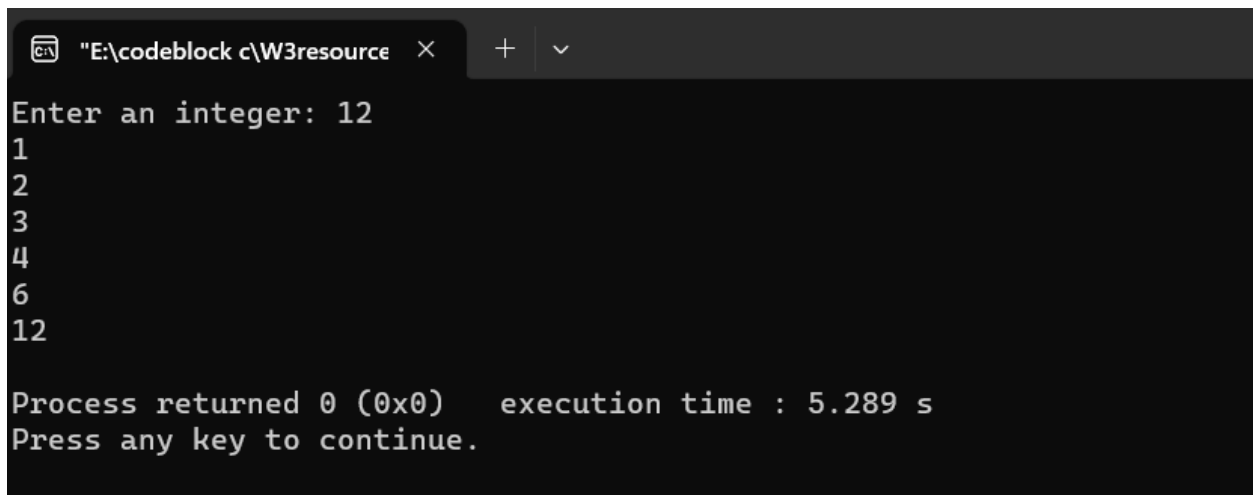   n=n*3;

     printf("n[%d] = %d\n",i+1,n);

   }

}

```
Enter the value: 65
n[0] = 65
n[1] = 195
n[2] = 585
n[3] = 1755
n[4] = 5265
n[5] = 15795

Process returned 0 (0x0)   execution time : 2.441 s
Press any key to continue.
```

47. Write a C program that finds all the divisors of an integer.

#include<stdio.h>

int main()

{

   int i,n;

   printf("Enter an integer: ");

   scanf("%d",&n);

   for(i=1;i<=n;i++)

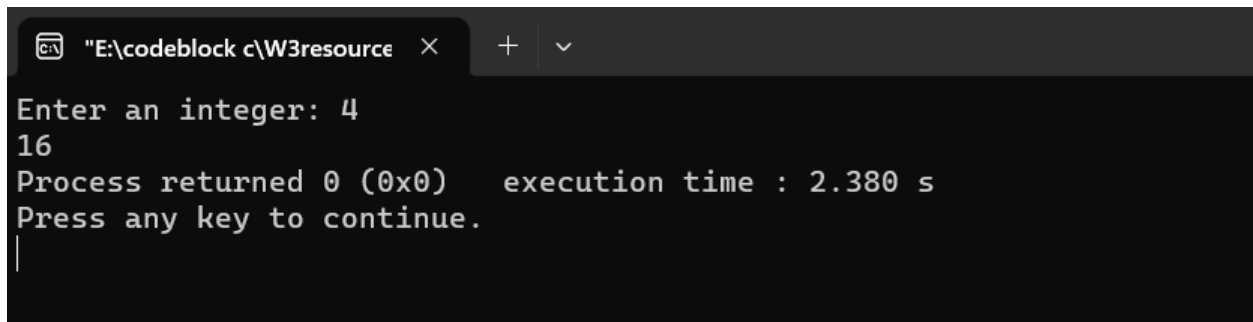   {

     if(n%i==0)

       printf("%d\n",i);

   }

}

```
Enter an integer: 12
1
2
3
4
6
12

Process returned 0 (0x0)   execution time : 5.289 s
Press any key to continue.
```

56. Write a C program to shift given data by two bits to the left.

#include<stdio.h>

int main()

{

   int x,n;

   printf("Enter an integer: ");

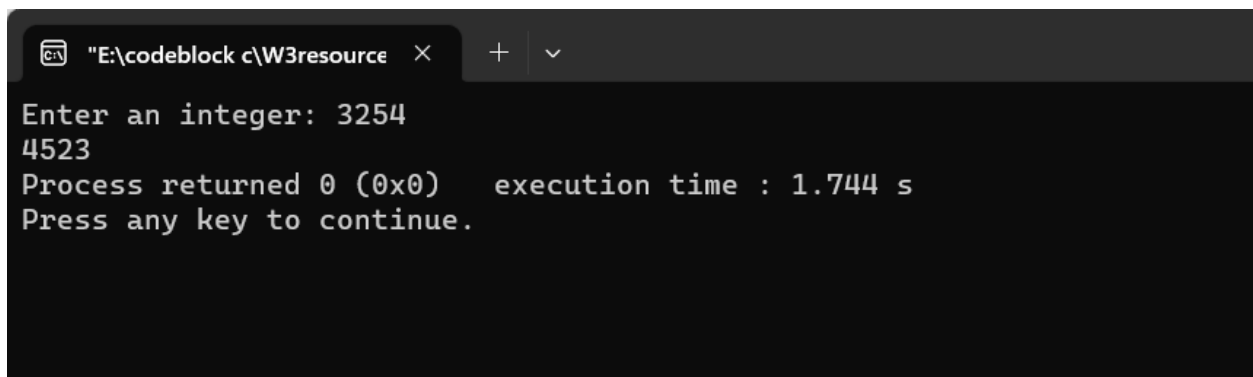   scanf("%d",&n);

n<<=2;

x=n;

   printf("%d",x);

}

```
"E:\codeblock c\W3resource    ×    +    ∨

Enter an integer: 4
16
Process returned 0 (0x0)    execution time : 2.380 s
Press any key to continue.
```

57. Write a C program to reverse and print a given number.

```c
#include<stdio.h>
int main()
{
    int n,x,sum=0;
    printf("Enter an integer: ");
    scanf("%d",&n);


    while(n!=0)
    {
        x=n%10;
        n=n/10;
        sum=sum*10+x;
    }
printf("%d",sum);
}
```

```
 "E:\codeblock c\W3resource    ×    +    ∨

Enter an integer: 3254
4523
Process returned 0 (0x0)   execution time : 1.744 s
Press any key to continue.
```

58. Write a C program that accepts 4 real numbers from the keyboard and prints out the difference between the maximum and minimum values of these four numbers.

```c
#include<stdio.h>

int main()

{
    float a,b,c,d,max,min;
    printf("Enter 4 real number's: ");
    scanf("%f %f %f %f",&a,&b,&c,&d);
    if(a>b&&a>c&&a>d)
        max=a;
    else if(b>a&&b>c&&b>d)
        max=b;

    else if(c>b&&c>a&&c>d)
        max=c;

    else if(d>b&&d>c&&d>a)
        max=d;

    if(a<b&&a<c&&a<d)
        min=a;

    else if(b<a&&b<c&&b<d)
        min=b;

    else if(c<b&&c<a&&c<d)
        min=c;

    else if(d<b&&d<c&&d<a)
        min=d;
```
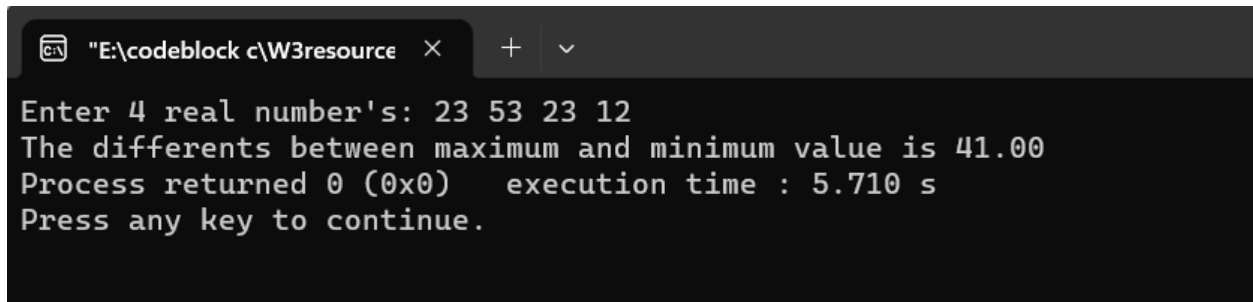
printf("The differents between maximum and minimum value is %0.2f",max-min);

}

```
Enter 4 real number's: 23 53 23 12
The differents between maximum and minimum value is 41.00
Process returned 0 (0x0)    execution time : 5.710 s
Press any key to continue.
```