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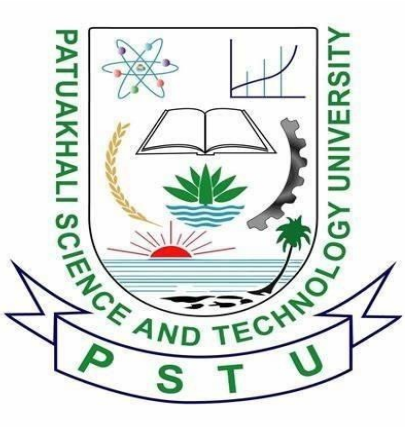

Course Code: CIT-112

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Chapter 4

Multiple choice question!

4.1| (d) All of the above are arithmetic operators,

4.2| (d) All of the above.

4.3| (d) All of the above are correct!

4.4| (d) ?=

4.5| (c) size of.

True of false

(a) True.

(b) ~~True~~ False

(c) False.

(d) False.

(e) False

(f) True.

(g) True

(h) True.

(i) True.

(J) False.

(K) True

(L) True

Fill in the blanks.

(a) Arithmatic.
(b) 6.
(c) sizeof
(d) Precedence
(e) logical.
(f) implicit type.
(g) parentheses.
(h) %
(i) ++ -- and ,
(j) relational, logical.
(k)

4.3| (a) True.
(b) False.
(c) True.
(d) True.
(e) False.
(f) False.

4.4| (a) False.
(b) True.
(c) True
(d) True.
(e) False.

4.5| (a) False.

(b) False.

(c) True.

(d) False.

4.6| (a) 0

(b) 7

(c) Not posible. Because 7.5 is a float number. And we cannot module a float number.

(d) 2

(e) -2

(f) 10.25.

(g) 7

(h) not possible. Because 4.5 is not an integer.

4.8| (a) (x-(Y/5)+z)%8+25

(b) (x-y)*p+9

(c) (m*n)+(-x/y)

(d) x/(3*y)

4.9/ (a) False.

(b) True.

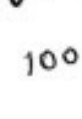
(c) True.

(d) False

(e) False.

4.10/ Output:

d



100

4.11/ Output:

110

112

4.12/ Output:

1

4.13/ Output:

200.

4.14/ Output:

x <= Y.

4.15/ There is an error in this program because we know that if else condition must contain 2 equal sign for a condition. But the program have one equal sign.

4.16] Output:

2
1
4

4.17] Out put:

-40
40

Debugging Exercise:

4.1] x != y % x; because we cannot module a float number.

4.2] (a) Their will be two $$. But in the program we have one $ only.

4.3] (a) 2.0 and -5.75 have no datatype and the are not store in a variable.

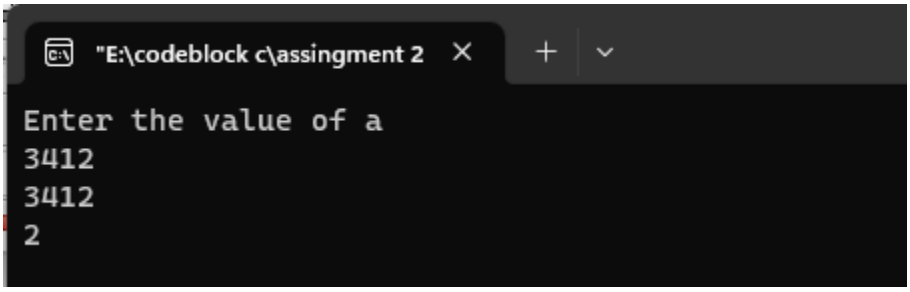
(e) s = 15. There is no value for devide.

(f) There is no ; at the end of the line.

Programming exercise

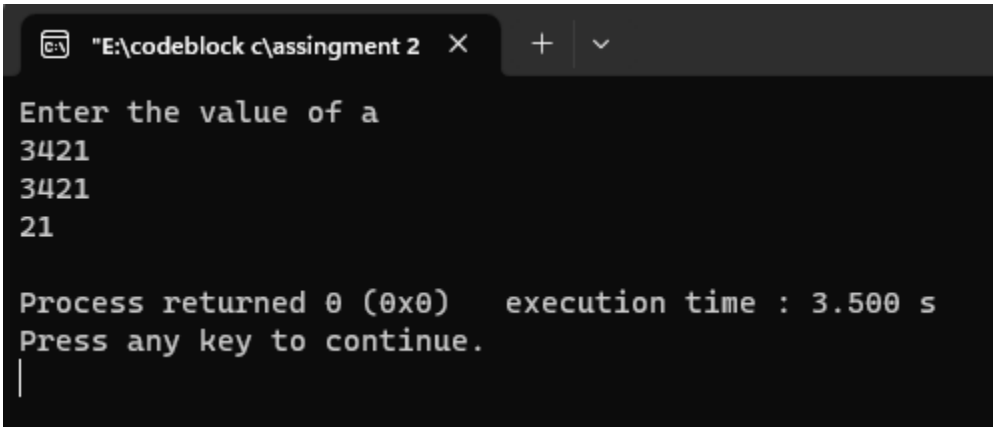
4.1 A program displays the right-most digit of the integral part of the number

```
#include<stdio.h>


int main()


{
int a,e;
printf("Enter the value of a\n");
scanf("%d",&a);
e=a%10;
if(a>10)
printf("%d\n%d\n",a,e);
}
```



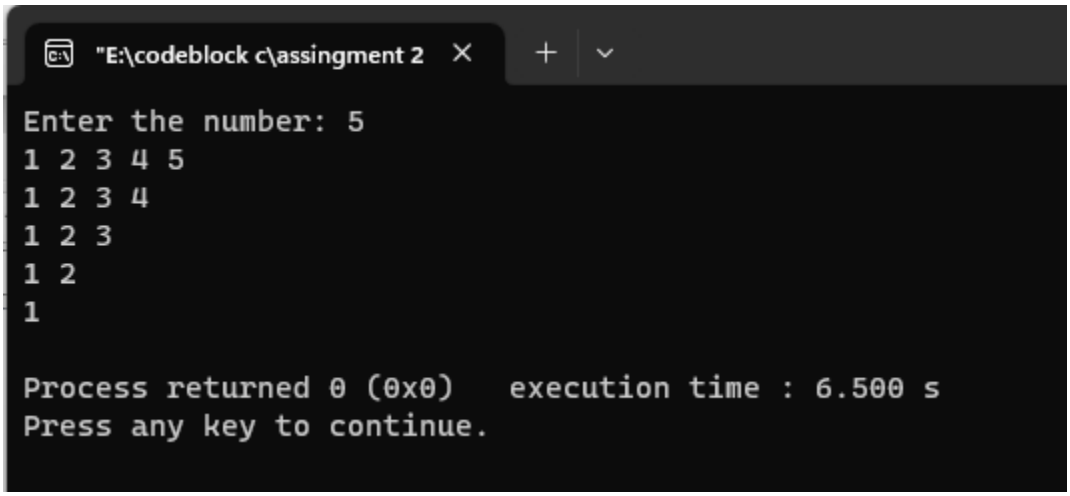
4.2 Modify the above program to display the two rightmost digits of the integral part

```
#include<stdio.h>

int main()

{

int a,e;
printf("Enter the value of a\n");
scanf("%d",&a);
e=a%100;
if(a>100)
printf("%d\n%d\n",a,e);
}
```



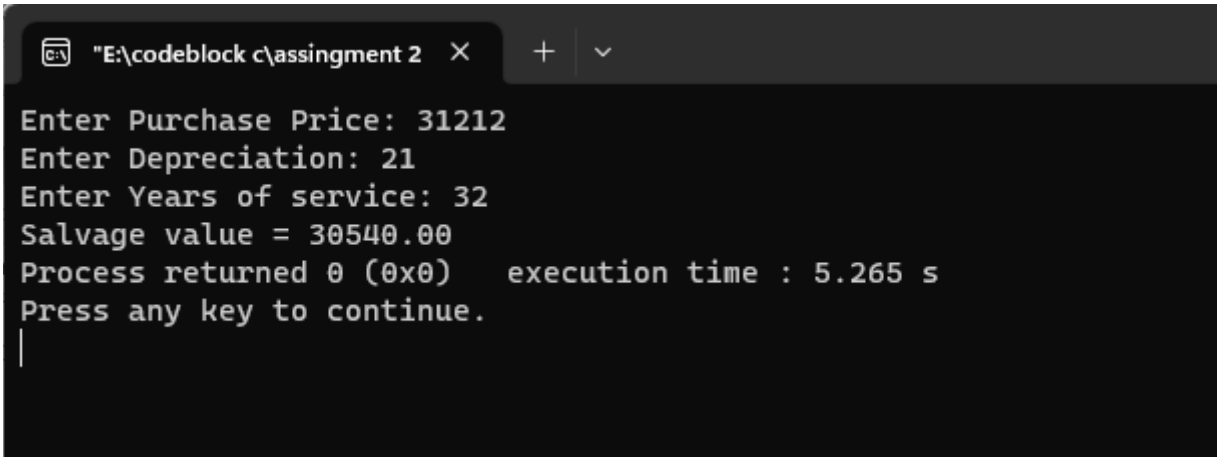
4.3 Given an integer number, write a program that displays the number as follows: First line : all digits Second line : all except first digit Third line : all except first two digits

```
#include<stdio.h>
int main()
{
   int n,i,x;
   printf("Enter the number: ");
   scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
      for(x=1;x<=i;x++)
       {
   printf("%d ",x);
       }
       printf("\n");
    }
}
```



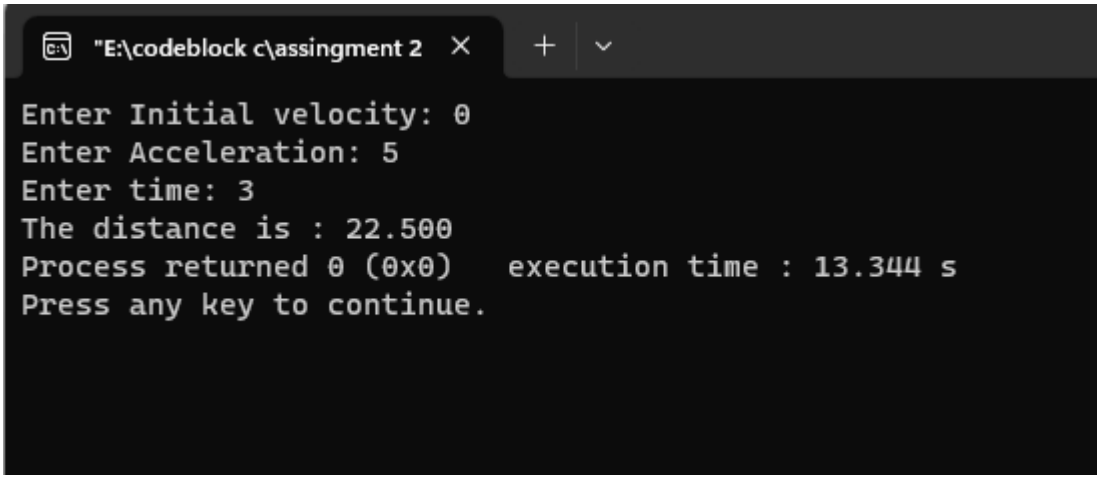
4.4 a program to determine the salvage value of an item when the purchase price, years of service, and the annual depreciation are given

```
#include<stdio.h>
int main()
{
   //pp= purchase price;sv=salvage value;yos=years of service;
   //dep=Depreciation
  float pp,sv,yos;
   float dep
   printf("Enter Purchase Price: ");
   scanf("%f",&pp);
   printf("Enter Depreciation: ");
   scanf("%f",&dep);
   printf("Enter Years of service: ");
   scanf("%f",&yos);
   sv=pp-(yos*dep);
   printf("Salvage value = %0.2f",sv);
}
```



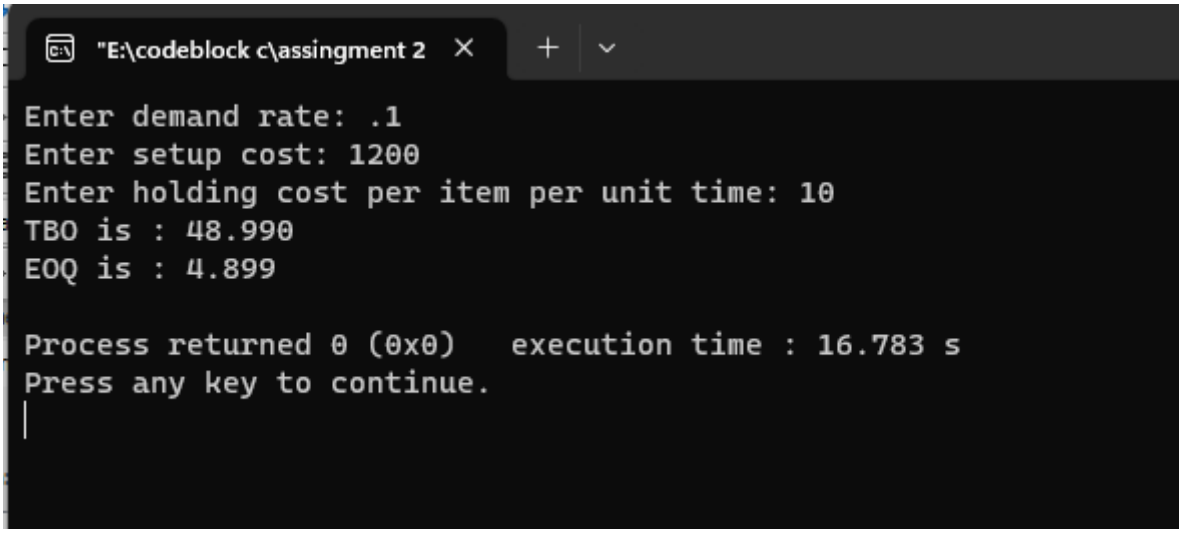
4.6 The total distance travelled by a vehicle in t seconds

```
#include<stdio.h>
int main()
{
   //a=acceleration;t=time;u=initial velocity;d=distance;
   float d,t,a,u;
   printf("Enter Initial velocity: ");
   scanf("%f",&u);
   printf("Enter Acceleration: ");
   scanf("%f",&a);
   printf("Enter time: ");
   scanf("%f",&t);
   d=(u*t+(a*t*t)/2);
   printf("The distance is : %0.3f",d);
}
```



4.7 a program to compute EOQ and TBO, given demand rate (items per unit time), setup costs (per order), and the holding cost (per item per unit time).

```
#include<stdio.h>
int main()
/*
demand rate=dr ;setup cost = sc ;holding cost per item per unit time = hc ;
*/
{
   float TBO,EOQ,dr,sc,hc;
   printf("Enter demand rate: ");
   scanf("%f",&dr);
   printf("Enter setup cost: ");
   scanf("%f",&sc);
   printf("Enter holding cost per item per unit time: ");
   scanf("%f",&hc);
   EOQ = sqrt((2*dr*sc)/(hc));
   TBO = sqrt((2*sc)/(dr*hc));
   printf("TBO is : %0.3f\n",TBO);
   printf("EOQ is : %0.3f\n",EOQ);
}
```

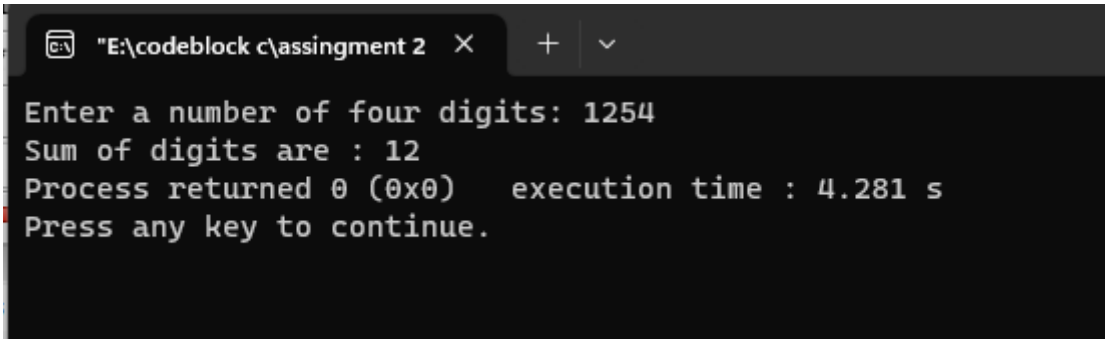


4.8 a program to calculate the frequency for different values of C starting from 0.01 to 0.1 in steps of 0.01.

```
#include<stdio.h>
int main()
{
   double r,c,l,fr;
   //r=resistance;l=inductance;c=capacitance;fr=frequency;
   printf("Enter resistance: ");
   scanf("%lf",&r);
   printf("Enter inductance: ");
   scanf("%lf",&l);
   printf("Enter capacitance from 0.01 to 0.1: ");
   scanf("%lf",&c);
   fr=sqrt((1/(l*c))-((r*r)/(4*c*c)));
   printf("The Frequency is %0.2lf",fr);
}
```

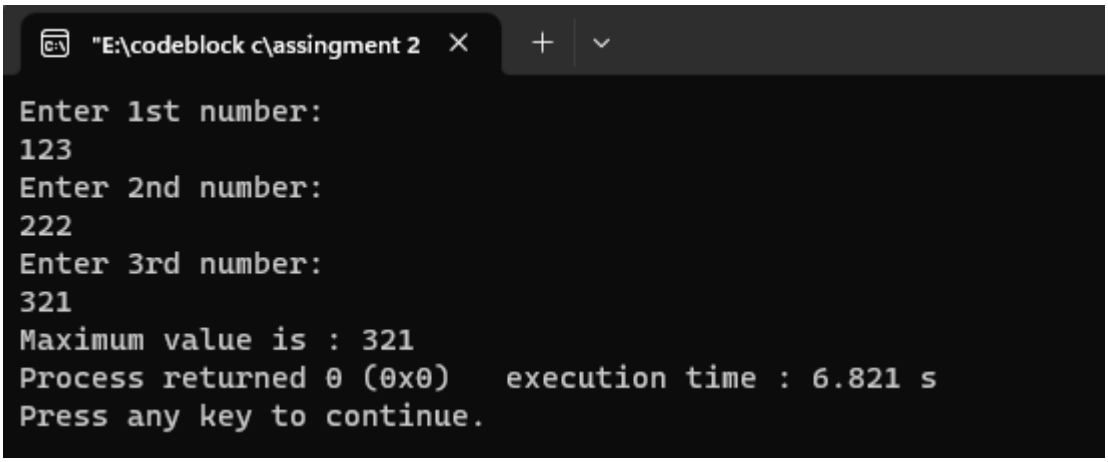
4.9 a program to read a four digit integer and print the sum of its digits

```
#include<stdio.h>
int main()
{
   int n,sum=0,r,x;
   printf("Enter a number of four digits: ");
   scanf("%d",&n);
   while(n!=0){

   r=n%10;
   sum=sum+r;
   n=n/10;}
   printf("Sum of digits are : %d",sum);
}
```



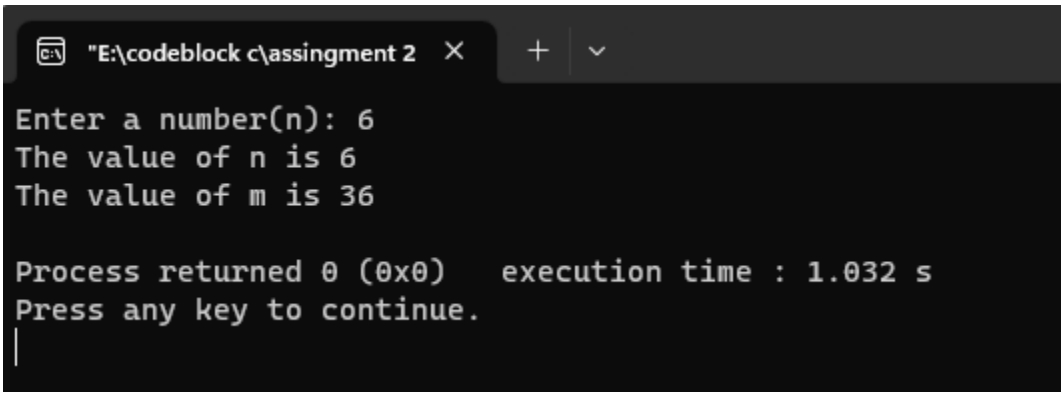
4.10 a program to read three values from keyboard and print out the largest of them without using if statement.

```
#include<stdio.h>
int main()
{
   int n1,n2,n3;
   printf("Enter 1st number: \n");
   scanf("%d",&n1);
   printf("Enter 2nd number: \n");
   scanf("%d",&n2);
   printf("Enter 3rd number: \n");
   scanf("%d",&n3);
int maximum = (n1> n2) ? ((n1 > n3) ? n1 : n3) : ((n2 > n3) ? n2 : n3);
printf("Maximum value is : %d",maximum);


}
```



4.11 a program to read two integer values m and n and to decide and print whether m is a multiple of n.

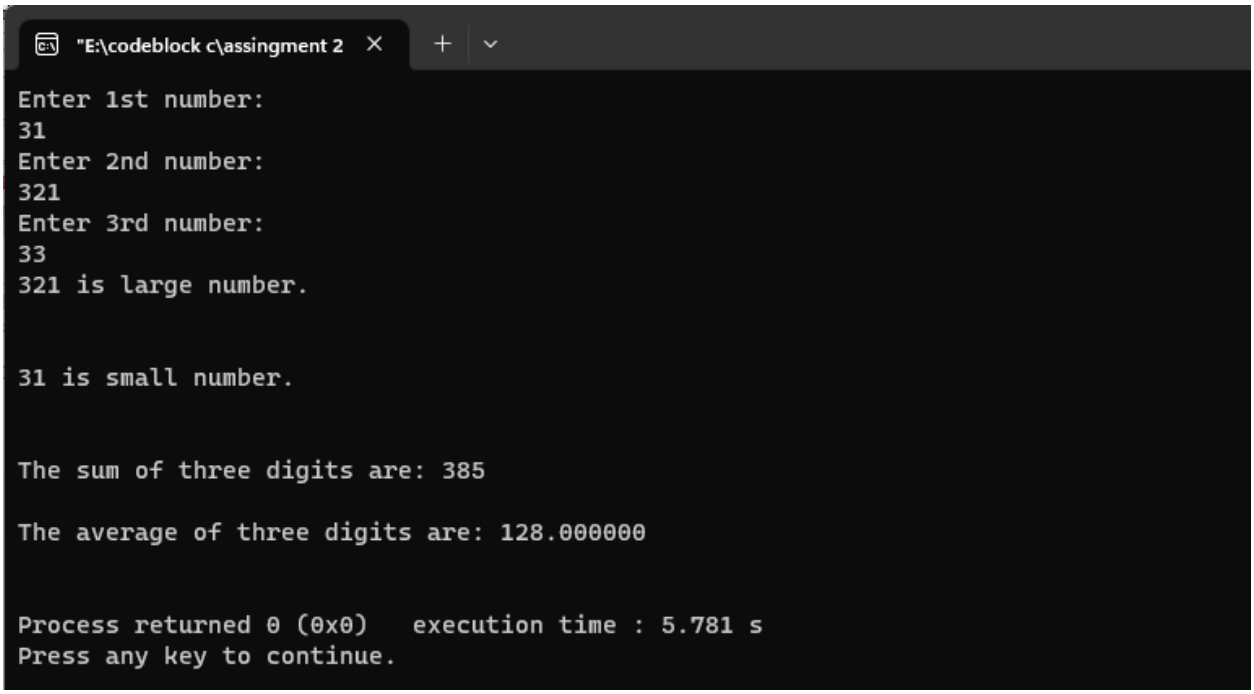
```
#include<stdio.h>
int main()
{
   int m,n;
   printf("Enter a number(n): ");
   scanf("%d",&n);
   m=n*n;
   printf("The value of n is %d\n",n);
   printf("The value of m is %d\n",m);
}
```



4.12 a program to read three values using scanf statement and print the following results: (a) Sum of the values (b) Average of the three values (c) Largest of the three (d) Smallest of the three

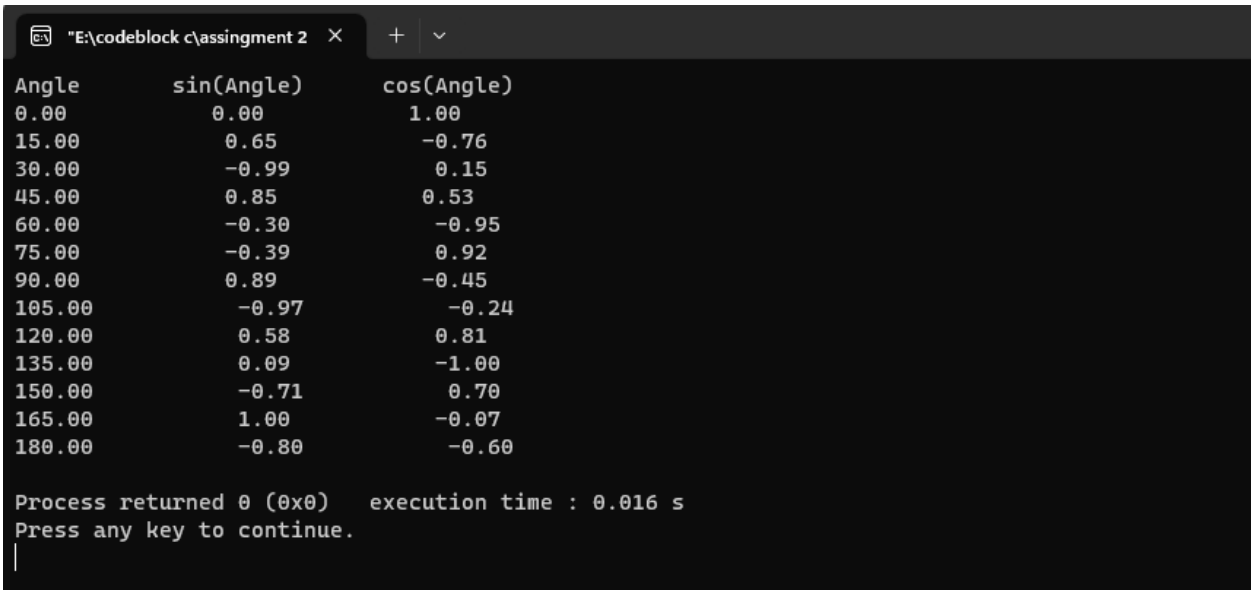
```
#include<stdio.h>
int main()
{
   int n1,n2,n3;
   printf("Enter 1st number: \n");
   scanf("%d",&n1);
   printf("Enter 2nd number: \n");
   scanf("%d",&n2);
   printf("Enter 3rd number: \n");
   scanf("%d",&n3);
   if(n1>n2&&n1>n3)
      printf("%d is large number. \n",n1);
   else if(n2>n1&&n2>n3)
      printf("%d is large number. \n",n2);
   else
      printf("%d is large number. \n",n3);
   printf("\n\n");
      if(n1<n2&&n1<n3)
      printf("%d is small number. \n",n1);
   else if(n2<n1&&n2<n3)
      printf("%d is small number. \n",n2);
   else
      printf("%d is small number. \n",n3);

   printf("\n\n");

   int sum=n1+n2+n3;
```

```
    float av= sum/3;

    printf("The sum of three digits are: %d\n\n",sum);
    printf("The average of three digits are: %f\n\n",av);
}
```



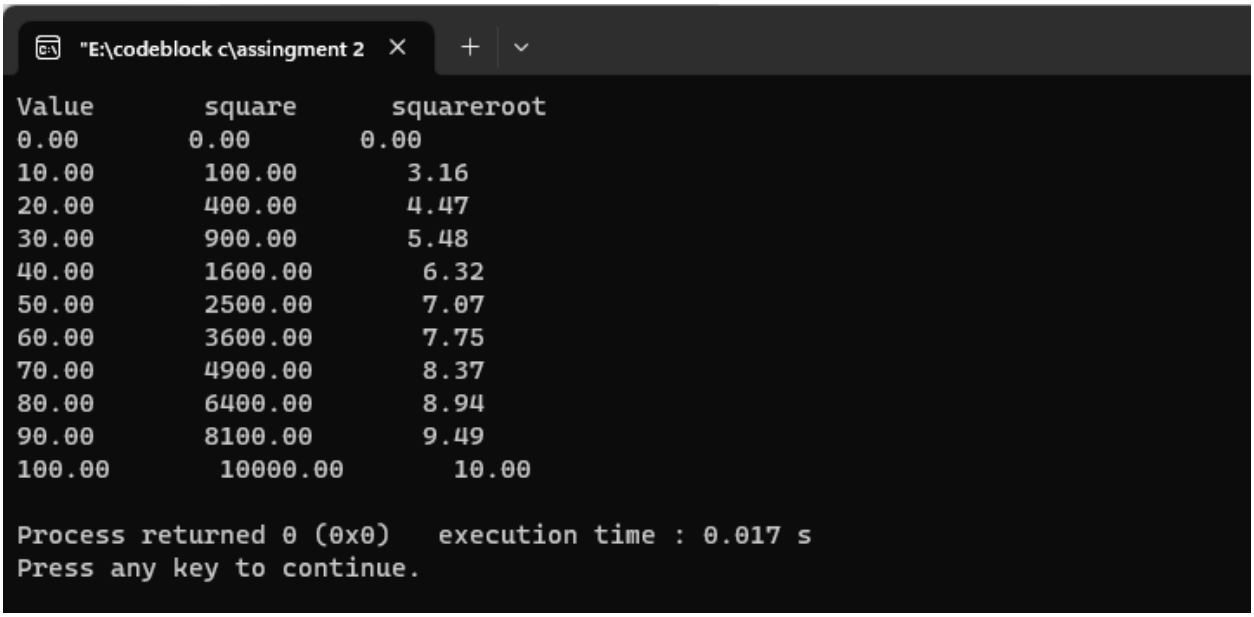
4.14 a program to print a table of sin and cos functions for the interval from 0 to 180 degrees in increments of 15

```
#include<stdio.h>
#include<math.h>
int main()
{
   float x,y,i;
   printf("Angle       sin(Angle)      cos(Angle)\n");
   for(i=0;i<=180;i=i+15)
   {
      x=sin(i);
      y=cos(i);
      printf("%0.2f          %0.2f          %0.2f\n",i,x,y);
   }

}
```



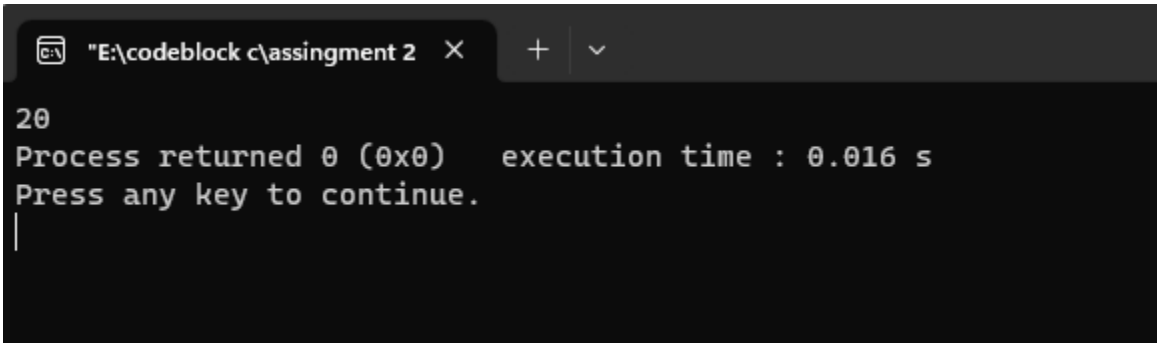
4.15 a program to compute the values of squareroots and squares of the numbers 0 to 100 in steps 10 and print the output in a tabular form

```
#include<stdio.h>
int main()
{
   float i,x,y;
   printf("Value      square      squareroot\n");
   for(i=0;i<=100;i=i+10)
   {
      x=i*i;
      y=sqrt(i);
      printf("%0.2f      %0.2f      %0.2f\n",i,x,y);
   }


}
```



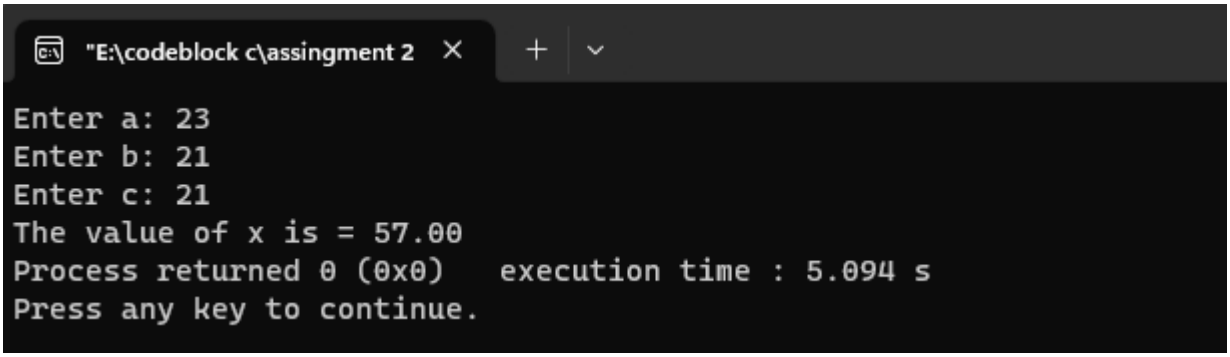
4.17 a C program to shift the given data by two bits to the left.

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

   int d =5;
   printf("%d",(d<<2));

}
```



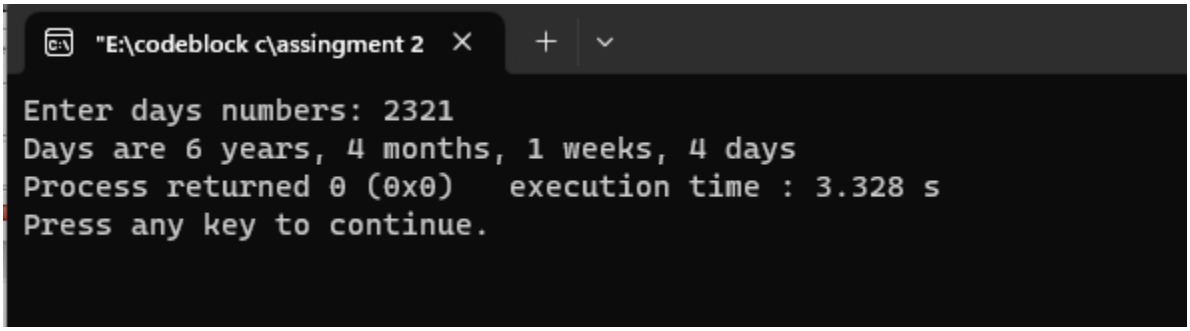
4.18 a C program to compute the value of the expression x=a-b/3+c*2-1.

```
#include<stdio.h>
int main()
{
   float a,b,c,x;
   printf("Enter a: ");
   scanf("%f",&a);
   printf("Enter b: ");
   scanf("%f",&b);
   printf("Enter c: ");
   scanf("%f",&c);
    x=a-b/3+c*2-1;
    printf("The value of x is = %0.2f",x);
}
```



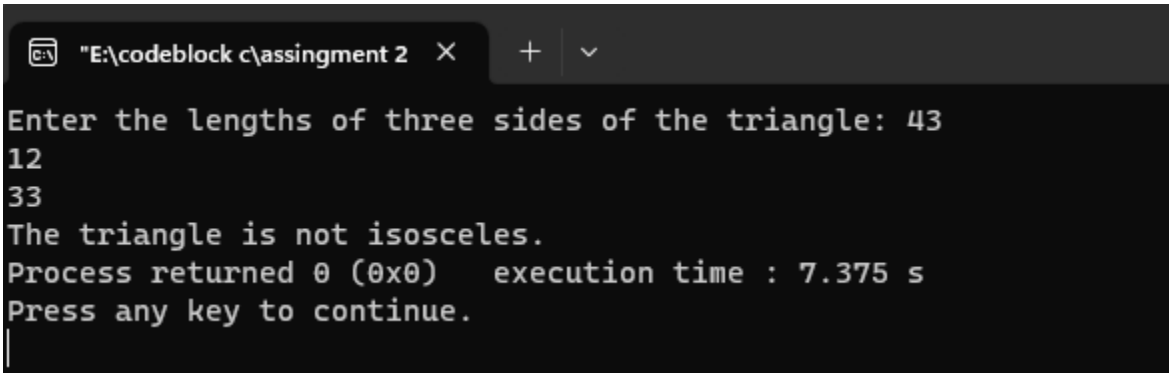
4.20 a C program to input a date value and determine whether the entered day, month, and year values are valid.

```
#include<stdio.h>
int main()
{
   int year,t,rd,rd2,month,week,days;
   printf("Enter days numbers: ");
   scanf("%d",&t);
   //rh=remain second after getting hours
   year=t/365;
   rd=t%365;
   month=rd/30;
   rd2=rd%30;
   week=rd2/7;
   days=rd2%7;
   printf("Days are %d years, %d months, %d weeks, %d days",year,month,week,days);
   return 0;
   }
```



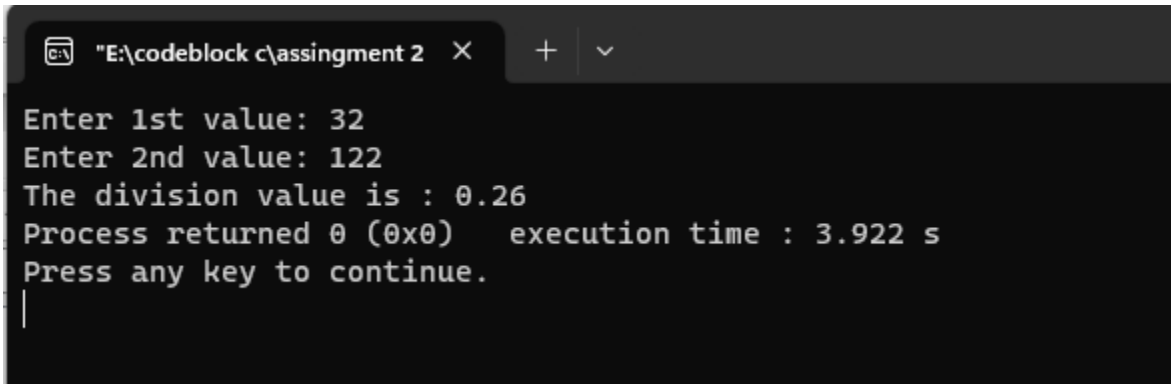
4.20 a C program to input the sides of a triangle and determine whether the triangle is isoceles or not.

```
#include <stdio.h>

int main() {
    int side1, side2, side3;

    // Read the lengths of three sides of the triangle
    printf("Enter the lengths of three sides of the triangle: ");
    scanf("%d %d %d", &side1, &side2, &side3);

    // Check if the triangle is isosceles or not
    if (side1 == side2 || side1 == side3 || side2 == side3) {
        printf("The triangle is isosceles.");
    } else {
        printf("The triangle is not isosceles.");
    }

    return 0;
}
```



4.21 a C program that reads two numbers and performs their division. If the division is not possible, then an error message, 'Division not possible' is displayed.

```
#include<stdio.h>
int main()
{
   float x,y,z;
   printf("Enter 1st value: ");
   scanf("%f",&x);
   printf("Enter 2nd value: ");
   scanf("%f",&y);
   z=x/y;
   if(y==0)
      printf("division not possible");
   else
      printf("The division value is : %0.2f",z);
}
```



4.22 the value of 4 variables a, b, c and d and compute the resultant value of following expressions: (a + b) * (c / d) (a + b) * c / d a + (b * c) / d

```
#include<stdio.h>
int main()
{
   float x,y,z,a,b,c,d;
   printf("Enter a: ");
   scanf("%f",&a);
   printf("Enter b: ");
   scanf("%f",&b);
   printf("Enter c: ");
   scanf("%f",&c);
   printf("Enter d: ");
   scanf("%f",&d);
   x=(a+b)*(c/d);
   y=(a+b)*c/d;
   z=a+(b*c)/d;
   printf("The 1st value is: %0.2f\n",x);
   printf("The 2nd value is: %0.2f\n",y);
   printf("The 3rd value is: %0.2f\n",z);
}
```