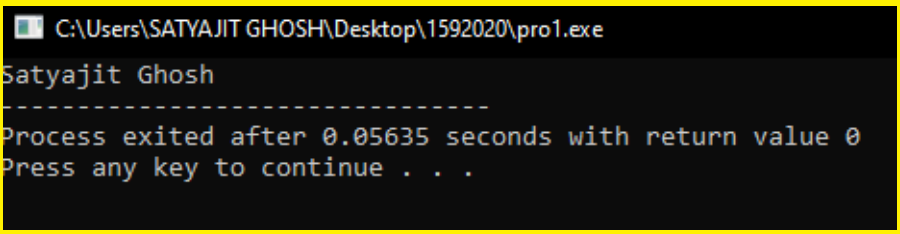
Q1. Print your name in the screen

```
#include <stdio.h>
int main()
{
	printf("Satyajit Ghosh");
	return 0;
}
```

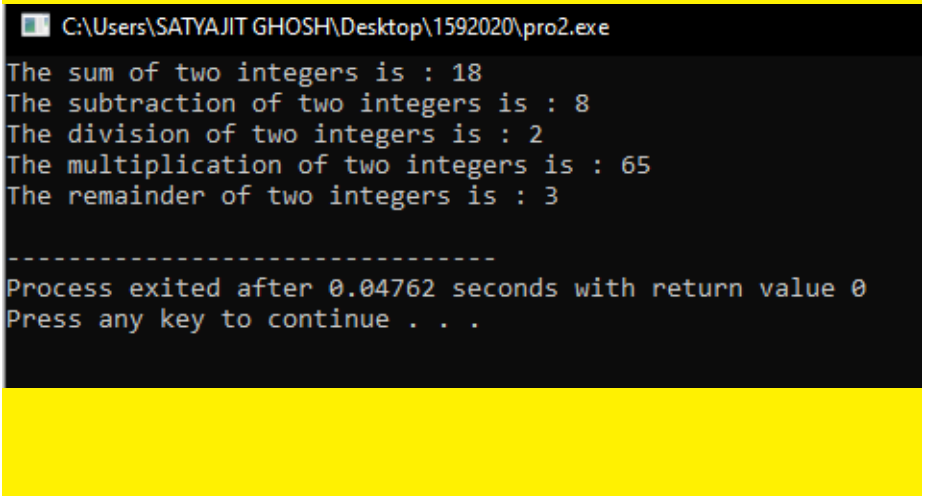
OUTPUT



Q2. Display the addition, subtraction, multiplication and division results of two integer numbers 13 and 5. Display the remainder result of 13 divided by 5.

```
#include <stdio.h>
int main()
{
	int num1 = 13;
	int num2 = 5;
	int sum , div , multi,remain,subs;
	sum = num1 + num2;
	subs = num1 - num2;
	div = num1 / num2;
	multi = num1 * num2;
	remain = num1 % num2;

	printf("The sum of two integers is : %d\n",sum);
	printf("The subtraction of two integers is : %d\n",subs);
	printf("The division of two integers is : %d\n",div);
	printf("The multiplication of two integers is : %d\n",multi);
	printf("The remainder of two integers is : %d\n",remain);
	return 0;
}
```

OUTPUT

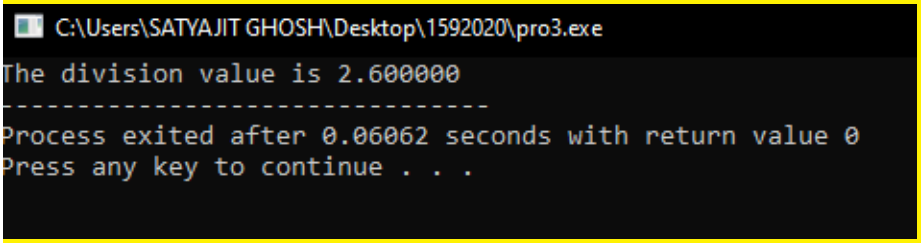

C:\Users\SATYAJIT GHOSH\Desktop\1592020\pro2.exe
The sum of two integers is : 18
The subtraction of two integers is : 8
The division of two integers is : 2
The multiplication of two integers is : 65
The remainder of two integers is : 3

Process exited after 0.04762 seconds with return value 0
Press any key to continue . . .

Q3. Check the division result of the above program again taking 13.0 in place of 13.

```
#include <stdio.h>
int main()
{
	float num1 = 13.0;
	int num2 = 5;
	float  div;
	div = num1/num2;
	printf("The division value is %f",div);
	return 0;
}
```

OUTPUT

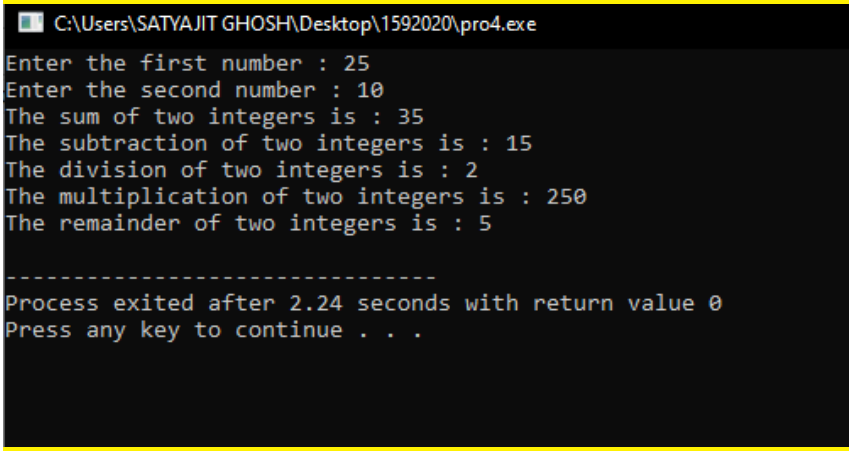

C:\Users\SATYAJIT GHOSH\Desktop\1592020\pro3.exe
The division value is 2.600000

Process exited after 0.06062 seconds with return value 0
Press any key to continue . . .

Q4. Do the same program as Question no.2 taking user input.

```
#include <stdio.h>
int main()
{
	int num1;
	int num2;
	printf("Enter the first number : ");
	scanf("%d",&num1);
	printf("Enter the second number : ");
	scanf("%d",&num2);
	int sum , div , multi,remain,subs;
	sum = num1 + num2;
	subs = num1 - num2;
	div = num1 / num2;
	multi = num1 * num2;
	remain = num1 % num2;

	printf("The sum of two integers is : %d\n",sum);
	printf("The subtraction of two integers is : %d\n",subs);
	printf("The division of two integers is : %d\n",div);
	printf("The multiplication of two integers is : %d\n",multi);
	printf("The remainder of two integers is : %d\n",remain);
	return 0;
}
```

OUTPUT

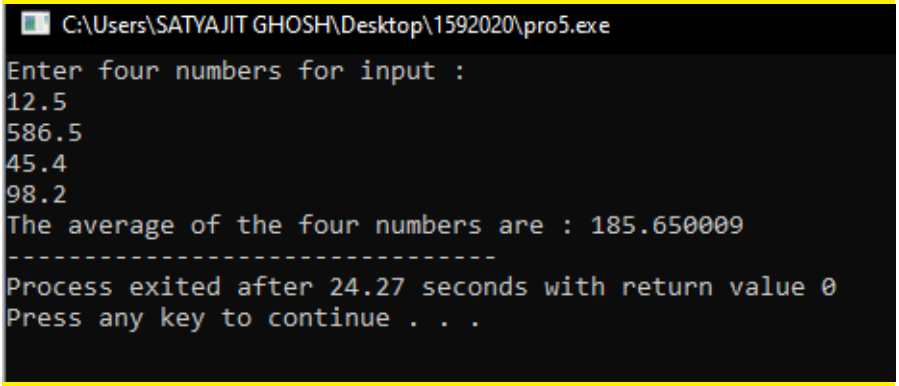

C:\Users\SATYAJIT GHOSH\Desktop\1592020\pro4.exe
Enter the first number : 25
Enter the second number : 10
The sum of two integers is : 35
The subtraction of two integers is : 15
The division of two integers is : 2
The multiplication of two integers is : 250
The remainder of two integers is : 5

Process exited after 2.24 seconds with return value 0
Press any key to continue . . .

Q5. Find the average of four float numbers and display the result. Take user input.

```
#include <stdio.h>
int main(){
        float num1 , num2 ,num3 ,num4 ;
        printf("Enter four numbers for input : \n");
        scanf("%f%f%f%f",&num1,&num2,&num3,&num4);
        float aver = (num1+num2+num3+num4)/4;
        printf("The average of the four numbers are : %f",aver);
        return 0;
}
```

OUTPUT


C:\Users\SATYAJIT GHOSH\Desktop\1592020\pro5.exe
Enter four numbers for input :
12.5
586.5
45.4
98.2
The average of the four numbers are : 185.650009

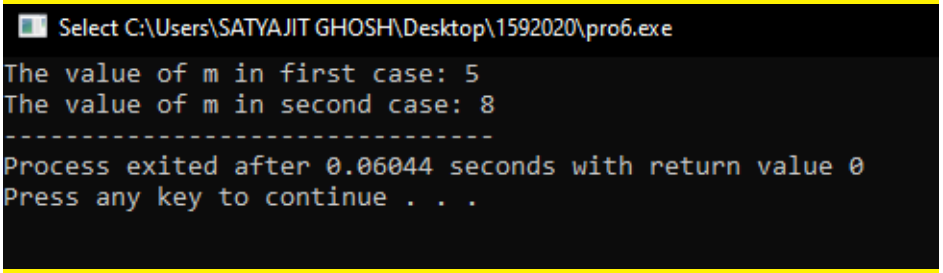
Process exited after 24.27 seconds with return value 0
Press any key to continue . . .

Q6. Check the difference in the results of the following two operations (in the same program) where y and m are two integer variables. Print the value of m in both the cases.

a) y=5; b) y=7;
m=y++; m=++y;

```
#include <stdio.h>
int main(){
        int m , y;
        y = 5;
        m = y++;
        printf("The value of m in first case: %d\n",m);
        y = 7;
        m = ++y;
        printf("The value of m in second case: %d",m);
        return 0;
}
```

OUTPUT


Select C:\Users\SATYAJIT GHOSH\Desktop\1592020\pro6.exe
The value of m in first case: 5
The value of m in second case: 8

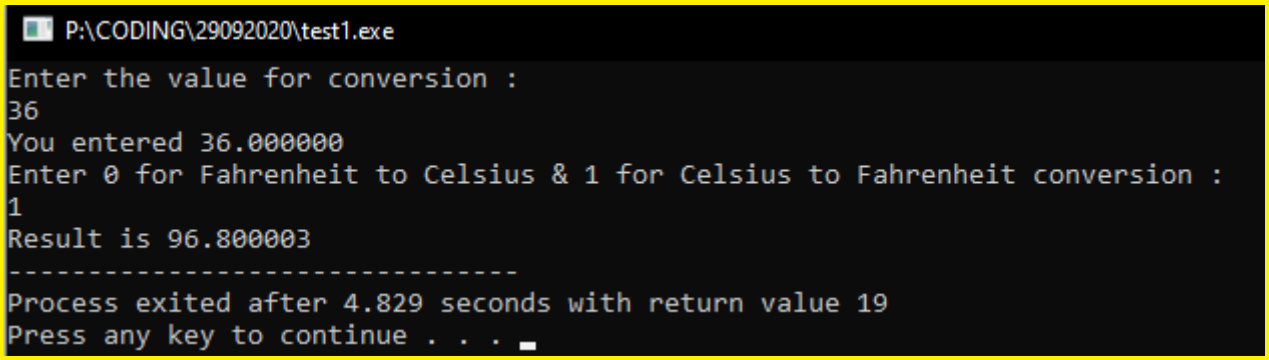
Process exited after 0.06044 seconds with return value 0
Press any key to continue . . .

END

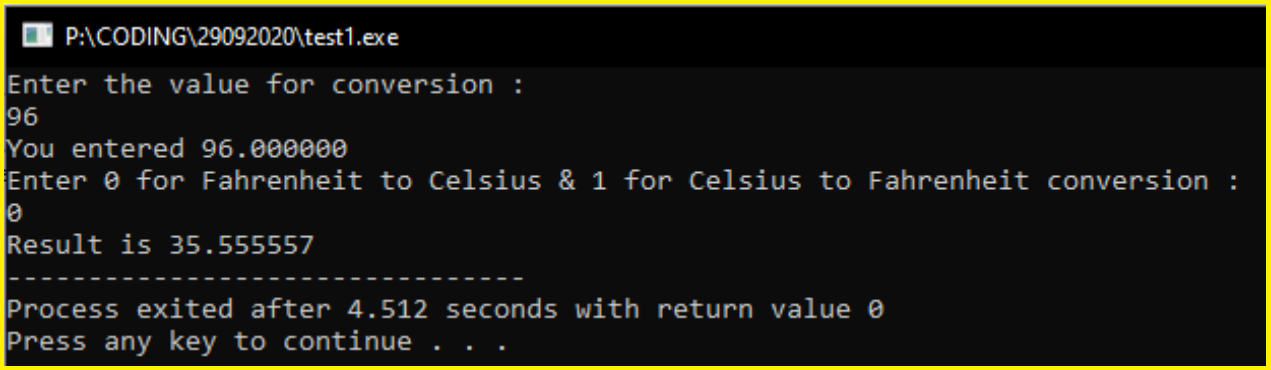
1.Write program to convert from Celsius to Fahrenheit degree or vice versa.

```
#include <stdio.h>
void main(){
	float value,cel,far;
	int i;
	printf(“Enter the value for conversion : \n”);
	scanf(“%f”,&value);
	printf(“You entered %f\n”,value);
	//Formulas
	cel = (value - 32)/1.8 ;
	far = (value * 1.8) + 32 ;
	//decision
	printf(“Enter 0 for Fahrenheit to Celsius & 1 for Celsius to Fahrenheit conversion :\n”);
	scanf(“%d”,&i);
	if(i==0){
		printf(“Result is %f”,cel);
	}
	if(i==1){
		printf(“Result is %f”,far);
	}


}
```

OUTPUT


P:\CODING\29092020\test1.exe
Enter the value for conversion :
36
You entered 36.000000
Enter 0 for Fahrenheit to Celsius & 1 for Celsius to Fahrenheit conversion :
1
Result is 96.800003

Process exited after 4.829 seconds with return value 19
Press any key to continue . . .

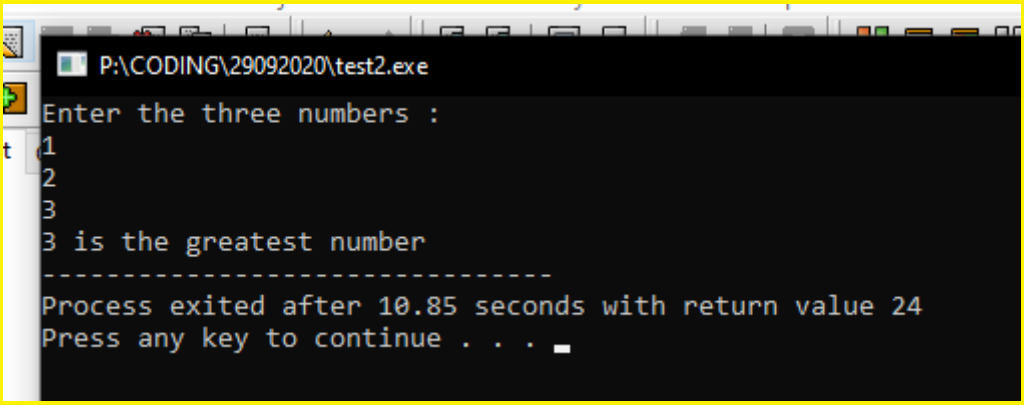

P:\CODING\29092020\test1.exe
Enter the value for conversion :
96
You entered 96.000000
Enter 0 for Fahrenheit to Celsius & 1 for Celsius to Fahrenheit conversion :
0
Result is 35.555557

Process exited after 4.512 seconds with return value 0
Press any key to continue . . .

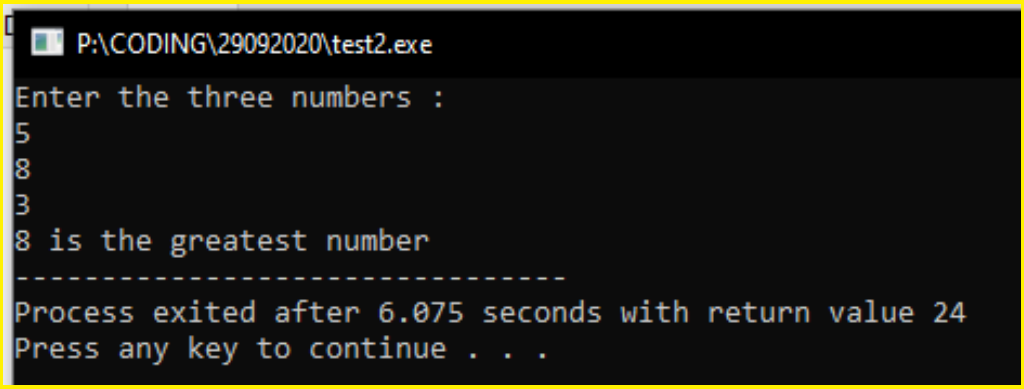
2.Write a program to find the largest number among three numbers using “binary minus” operator.

```
#include <stdio.h>
void main(){
	int num1,num2,num3;
	printf(“Enter the three numbers : \n”);
	scanf(“%d%d%d”,&num1,&num2,&num3);
	if (num1- num2>0 && num1-num3>0 ){
		printf(“%d is the greatest number”,num1);
	}
	else{
		if(num2-num3>0){
			printf(“%d is the greatest number”,num2);
		}
		else{
			printf(“%d is the greatest number”,num3);
		}

	}

}
```

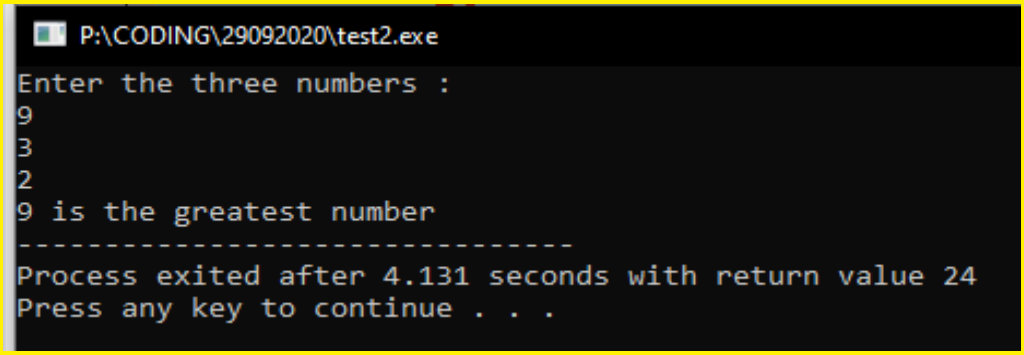
OUTPUT


P:\CODING\29092020\test2.exe
Enter the three numbers :
1
2
3
3 is the greatest number

Process exited after 10.85 seconds with return value 24
Press any key to continue . . .


P:\CODING\29092020\test2.exe
Enter the three numbers :
5
8
3
8 is the greatest number

Process exited after 6.075 seconds with return value 24
Press any key to continue . . .

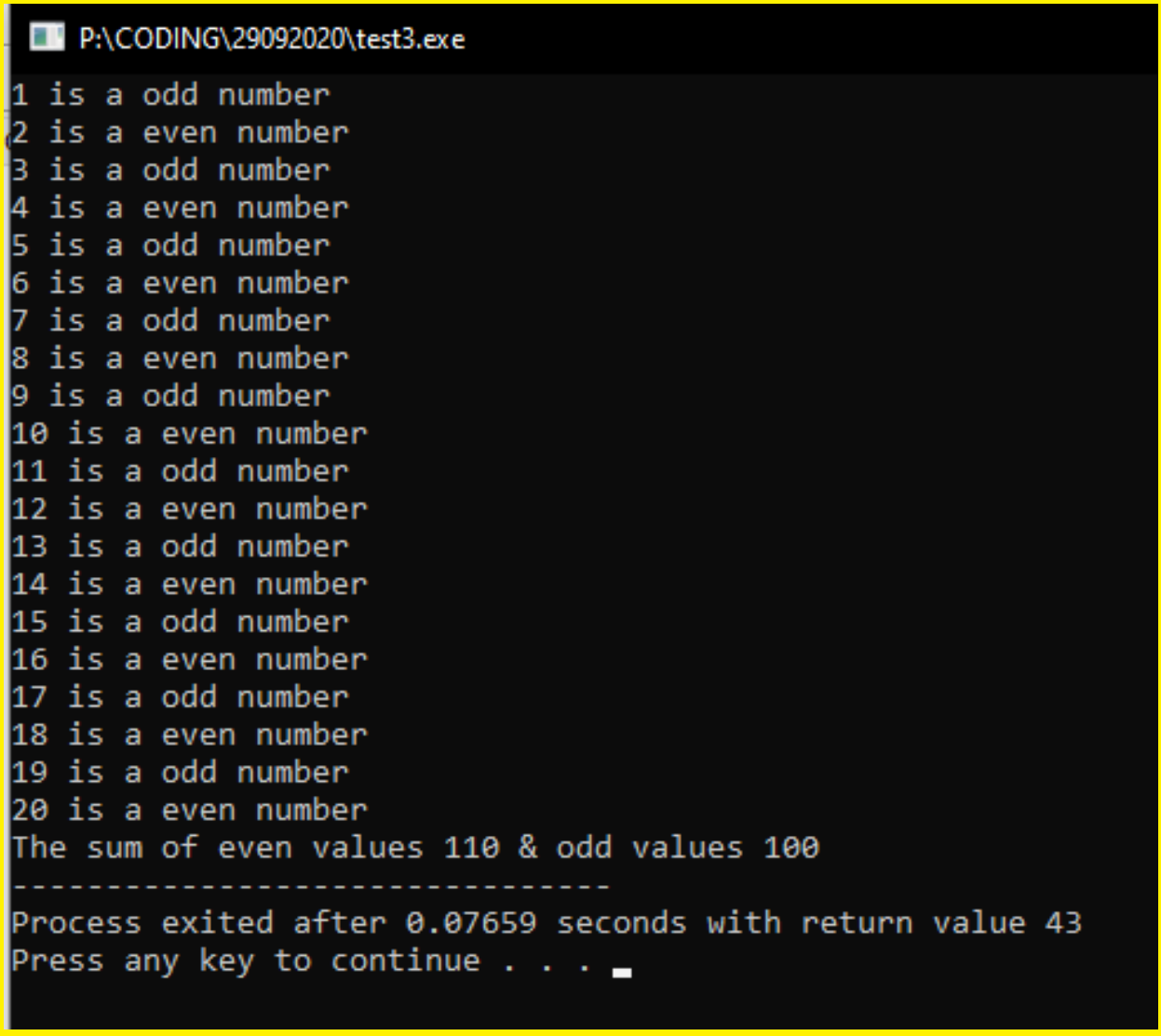

P:\CODING\29092020\test2.exe
Enter the three numbers :
9
3
2
9 is the greatest number

Process exited after 4.131 seconds with return value 24
Press any key to continue . . .

3.Write a program to find the ODD and EVEN numbers among first 20 numbers and also show the summation of all ODD and EVEN numbers respectively.

```
#include <stdio.h>
void main(){
   int i=1;
   int evensum=0;
   int oddsum = 0;
for(i=1;i<=20;i=i+1){
   if(i%2==0){
      printf("%d is a even number\n",i);
      evensum = evensum + i;

   }
   else{
      printf("%d is a odd number\n",i);

      oddsum = oddsum + i;
   }
}

printf("The sum of even values %d & odd values %d",evensum,oddsum);
}
```

OUTPUT

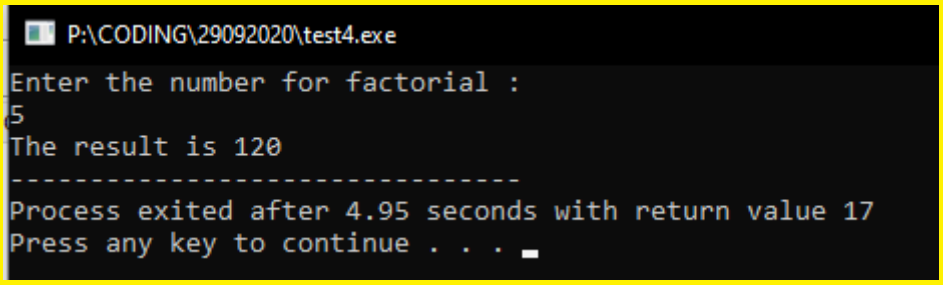

P:\CODING\29092020\test3.exe
1 is a odd number
2 is a even number
3 is a odd number
4 is a even number
5 is a odd number
6 is a even number
7 is a odd number
8 is a even number
9 is a odd number
10 is a even number
11 is a odd number
12 is a even number
13 is a odd number
14 is a even number
15 is a odd number
16 is a even number
17 is a odd number
18 is a even number
19 is a odd number
20 is a even number
The sum of even values 110 & odd values 100

Process exited after 0.07659 seconds with return value 43
Press any key to continue . . .

4.Write a c program to calculate the factorial of a user given number using for loop.

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

        }
        printf("The result is %d",result);
}
```

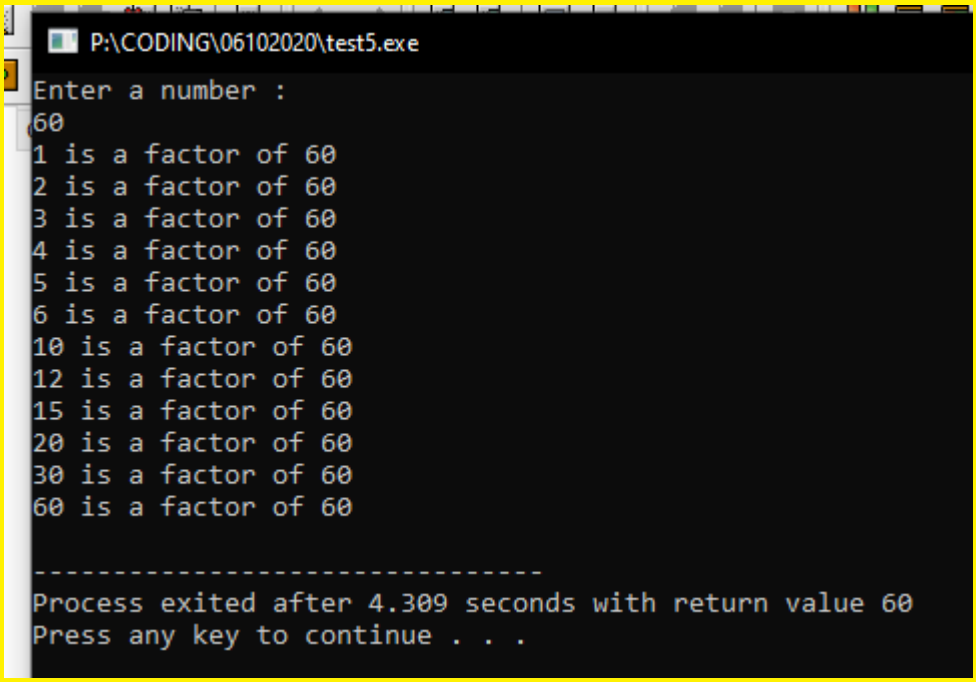
OUTPUT



5. Write a c program to find and display all the factors of a user given number.

```
#include <stdio.h>
void main(){
   int num,i=1;
   printf("Enter a number : \n");
   scanf("%d",&num);
         while(i<=num){
                  if(num%i==0){
                           printf("%d is a factor of %d\n",i,num);

                  }
                  i=i+1;
         }
}
```

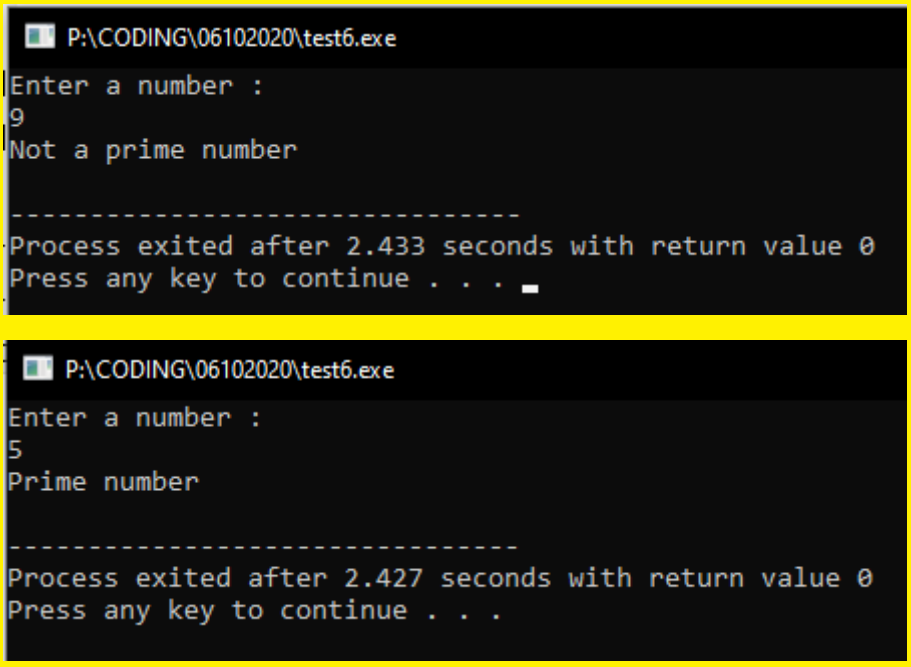
OUTPUT



6.Write a c program to whether the user given number is Prime or not. (Prime number is a natural number greater than 1 that has no positive divisor greater than 1 and itself.)

```
#include <stdio.h>
void main(){
	int num,i,result=0;
	printf("Enter a number : \n");
	scanf("%d",&num);
	for(i=2;i<num;i=i+1){
		if((num%i)==0){
			result = 1;
		}
	}

	if(result==1){
		printf("Not a prime number\n");

	}
	else{
		printf("Prime number\n");
	}
}
```

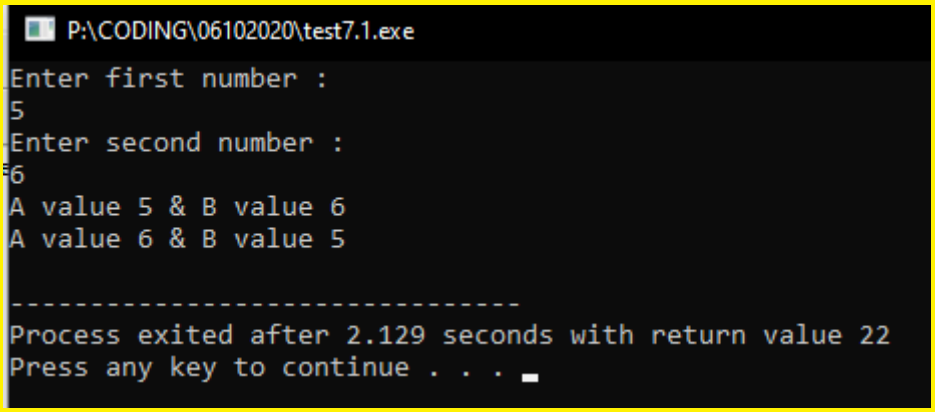
OUTPUT



7.A)Write a c program to swap the two number using third variable

```
#include <stdio.h>
void main(){
        int a,b,c=0;
        printf("Enter first number :\n");
        scanf("%d",&a);
        printf("Enter second number : \n");
        scanf("%d",&b);


        printf("A value %d & B value %d\n",a,b);
        c=b;
        b=a;
        a=c;
        printf("A value %d & B value %d\n",a,b);


}
```

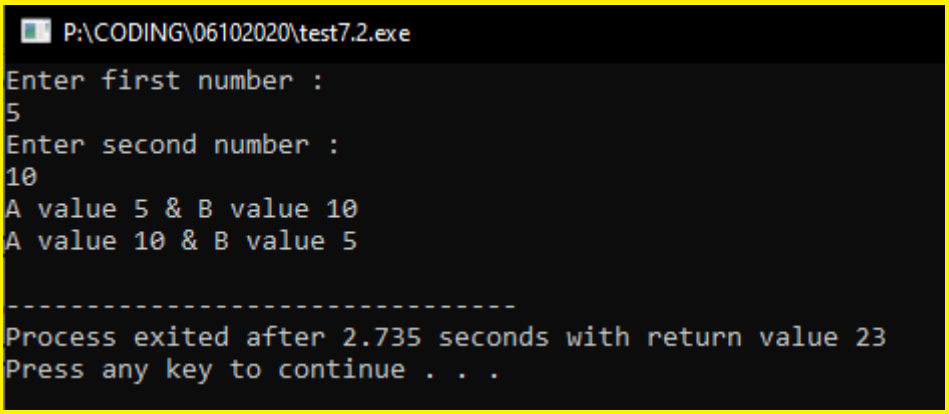
OUTPUT



7.B) Write a c program to swap the two numbers without using third variable.

```
#include <stdio.h>
void main(){
        int a,b;
        printf("Enter first number :\n");
        scanf("%d",&a);
        printf("Enter second number : \n");
        scanf("%d",&b);
        printf("A value %d & B value %d\n",a,b);

        //formula
        a=a+b;
        b=a-b;
        a=a-b;

        printf("A value %d & B value %d\n",a,b);


}
```

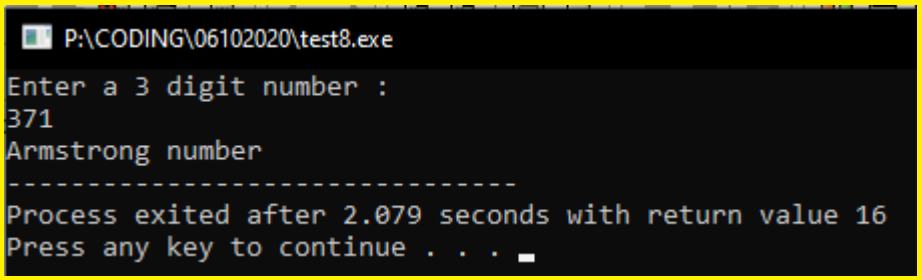
OUTPUT

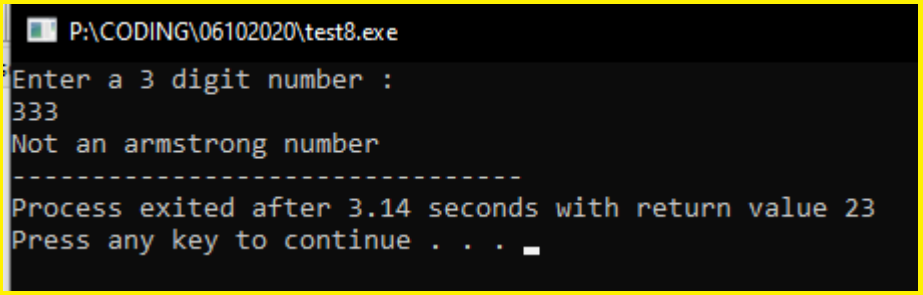


8.Write a c program to check whether a given number is Armstrong or not. (371 is Armstrong number)

```
#include <stdio.h>
void main(){
	int num,remainder,sum=0;
	printf("Enter a 3 digit number : \n");
	scanf("%d",&num);
	int temp = num;
	while(num!=0){
		remainder=num%10;
		sum = sum+(remainder*remainder*remainder);
		num = num/10;
	}
	if(temp==sum){
		printf("Armstrong number");
	}
	else{
		printf("Not an armstrong number");
	}
}
```

OUTPUT

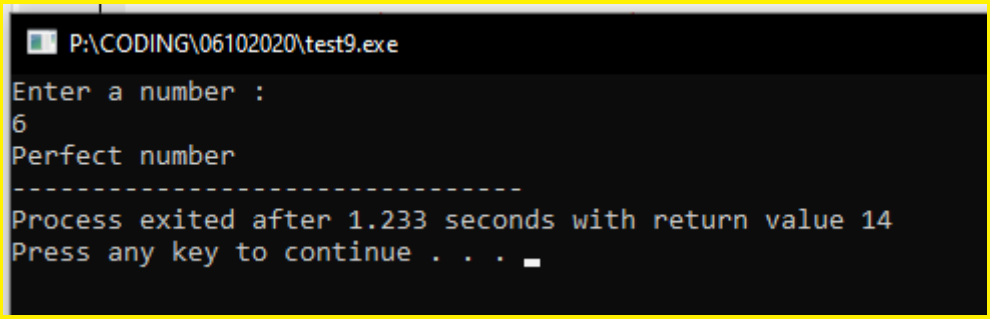


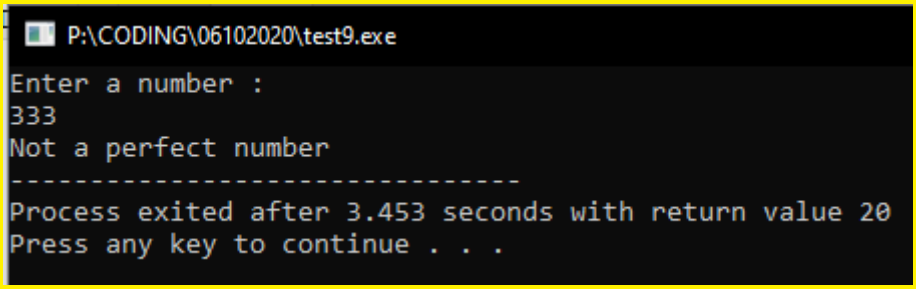


9.Write a c program to check the whether the given number is Perfect number or not. (6,28 is perfect number) (a perfect number is a positive integer that is equal to the sum of its proper positive divisors, that is, the sum of its positive divisors excluding the number itself)

```
#include <stdio.h>
void main(){
   int num,i=1,value=0;
   printf("Enter a number : \n");
   scanf("%d",&num);
        while(i<num){
                if(num%i==0){
                        value = value + i;

                }
                i=i+1;
        }
if(value==num){
        printf("Perfect number");
}
else{
        printf("Not a perfect number");
}

}
```

OUTPUT



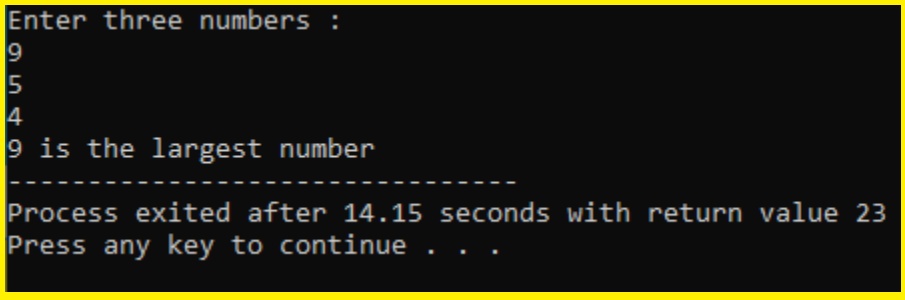


END

1.Find out the largest among 3 integer numbers using nested if-else.

```
#include <stdio.h>
void main()
{
   int n1, n2, n3;
   printf("Enter three numbers : \n");
   scanf("%d%d%d", &n1, &n2, &n3);
   if (n1 > n2 && n1 > n3)
   {
      printf("%d is the largest number", n1);
   }
   else
   {
      if (n2 > n1 && n2 > n3)
      {
         printf("%d is the largest number", n2);
      }
      else
      {
         printf("%d is the largest number", n3);
      }
   }
}
```

OUTPUT



2.In an organization if Basic Salary of an employee is greater than or equals to 10000 then his/her DA is 90% of basic and HRA is 30% of basic. If the Basic Salary of the employee is less than 10000, then his/her DA is 80% of basic and HRA is 20% of basic. Enter the Basic Salary of an employee through keyboard and print his/her Gross Salary where Gross=Basic+DA+HRA.

```
#include<stdio.h>
void main(){
   printf("Enter the basic salary : \n");
   int bsalary,DA,HRA,Gsalary;
   scanf("%d",&bsalary);
   if(bsalary>=10000){
      DA=(90*bsalary)/100;
      HRA=(30*bsalary)/100;
      Gsalary=bsalary+DA+HRA;

   }
   else
   {
   DA=(80*bsalary)/100;
   HRA=(20*bsalary)/100;
   Gsalary=bsalary+DA+HRA;
   }
   printf("Gross Salary = %d",Gsalary);
}
```

OUTPUT

```
Enter the basic salary :
19000
Gross Salary = 41800
--------------------------------
Process exited after 8.336 seconds with return value 20
Press any key to continue . . .
```

```
Enter the basic salary :
8000
Gross Salary = 16000
--------------------------------
Process exited after 2.736 seconds with return value 20
Press any key to continue . . .
```

3.Write the C program on the following scenario (using if and elseif).
In an exam marks obtained by a student in 3 different subjects are entered through keyboard. Find out the percentage acquired by the students in the exam. The student gets a division as per the following rules –
If percentage >=60 1st division
If 50<=perentage<60 2nd division
If 40<=perentage<50 2nd division
If percentage<40 Fail
Write the C program on the above scenario (use nested if-else).

Using if and elseif

```
#include <stdio.h>
void main()
{
   int s1, s2, s3, fmarks;
   printf("Enter the three subjects number : \n");
   scanf("%d%d%d", &s1, &s2, &s3);
   printf("Enter Full marks ( for one subject)\n");
   scanf("%d", &fmarks);
   int percentage = ((s1 + s2 + s3) * 100) / (fmarks*3);
   if (percentage >= 60)
   {
      printf("1st Division");
   }
   else if (percentage >= 50)
   {
      printf("2nd Division");
   }
   else if (percentage >= 40)
   {
      printf("3 rd division");
   }
   else
   {
      printf("Fail");
   }
}
```

Nested if-else

```
#include <stdio.h>
void main()
{
   int s1, s2, s3, fmarks;
   printf("Enter the three subjects number : \n");
   scanf("%d%d%d", &s1, &s2, &s3);
   printf("Enter Full marks ( for one subject)\n");
   scanf("%d", &fmarks);
   int percentage = ((s1 + s2 + s3) * 100) / (fmarks * 3);
   if (percentage >= 60)
   {
      printf("1st Division");
   }
   else
   {
      if (percentage >= 50)
      {
         printf("2nd Division");
      }
      else
      {
         if (percentage >= 40)
         {
            printf("3rd Division");
         }
         else
         {
            printf("Fail");
         }
      }
   }
}
```

OUTPUT

```
Enter the three subjects number :
65
66
79
Enter Full marks ( for one subject)
100
1st Division
--------------------------------
Process exited after 18.55 seconds with return value 12
Press any key to continue . . .
```

```
Enter the three subjects number :
51
52
55
Enter Full marks ( for one subject)
100
2nd Division
--------------------------------
Process exited after 13.35 seconds with return value 12
Press any key to continue . . .
```

```
Enter the three subjects number :
41
42
44
Enter Full marks ( for one subject)
100
3rd Division
--------------------------------
Process exited after 18.97 seconds with return value 12
Press any key to continue . . .
```

```
Enter the three subjects number :
10
11
13
Enter Full marks ( for one subject)
100
Fail
--------------------------------
Process exited after 10.37 seconds with return value 4
Press any key to continue . . .
```

4.a) Print the ASCII values of the following characters. A, b, g, H
b) Print the corresponding characters of the following ASCII values. 96, 107,69,79

a)

```
#include <stdio.h>
void main(){
   char char1='A',char2='b',char3='g',char4='H';
   printf("ASCII Value of %c is %d\n",char1,char1);
   printf("ASCII Value of %c is %d\n",char2,char2);
   printf("ASCII Value of %c is %d\n",char3,char3);
   printf("ASCII Value of %c is %d\n",char4,char4);


}
```

b)

```
#include <stdio.h>
void main(){
   int num1=96,num2=107,num3=69,num4=79;
   printf("The characters of %d ASCII Code is %c\n",num1,num1);
   printf("The characters of %d ASCII Code is %c\n",num2,num2);
   printf("The characters of %d ASCII Code is %c\n",num3,num3);
   printf("The characters of %d ASCII Code is %c\n",num4,num4);
}
```

OUTPUT

a)

```
ASCII Value of A is 65
ASCII Value of b is 98
ASCII Value of g is 103
ASCII Value of H is 72

--------------------------------
Process exited after 0.02521 seconds with return value 23
Press any key to continue . . .
```

b)

```
The characters of 96 ASCII Code is `
The characters of 107 ASCII Code is k
The characters of 69 ASCII Code is E
The characters of 79 ASCII Code is O

--------------------------------
Process exited after 0.0265 seconds with return value 37
Press any key to continue . . .
```

5. Write program on the following scenario

Gender	Year of service	Qualification	Salary
Male	>=5	Post Graduate	15000
	<5	Post Graduate	12000
	>=5	Graduate	12000
Female	>=5	Post Graduate	20000
	<5	Post Graduate	15000
	>=5	Graduate	15000

```
#include <stdio.h>
void main(){
   int gender=0,Qualification=0;
   int year=0,salary=0;
   printf("Enter the Gender\n1 = Male , 2 = Female\n");
   scanf("%d",&gender);
   printf("Enter the Year of service:\n");
   scanf("%d",&year);
   printf("Enter the Qualfication\n 1 = Post graduate \t 2 = Graduate\t");
   scanf("%d",&Qualification);

   //conditions for salary

   if(gender==1 && year>=5 && Qualification==1){
      salary = 15000;
      printf("The salary will be %d",salary);
   }
   else if(gender==1 && year<5 && Qualification==1){
      salary=12000;
      printf("The salary will be %d",salary);
   }
   else if(gender==1 && year>=5 && Qualification==2){
      salary=12000;
      printf("The salary will be %d",salary);
   }
   else if(gender==2 && year>=5 && Qualification==1){
      salary = 20000;
      printf("The salary will be %d",salary);
   }
   else if(gender==2 && year<5 && Qualification==1){
      salary=15000;
      printf("The salary will be %d",salary);
   }
   else if(gender==2 && year>=5 && Qualification==2){
      salary=15000;
      printf("The salary will be %d",salary);
   }
   else{
      printf("Invaild combinations");
   }


}
```

OUTPUT

```
Enter the Gender
1 = Male , 2 = Female
1
Enter the Year of service:
25
Enter the Qualfication
 1 = Post graduate       2 = Graduate   1
The salary will be 15000
--------------------------------
Process exited after 4.272 seconds with return value 24
Press any key to continue . . .
```

```
Enter the Gender
1 = Male , 2 = Female
2
Enter the Year of service:
1
Enter the Qualfication
 1 = Post graduate       2 = Graduate   2
Invaild combinations
```

6.Write a C program to implement mathematical operation (sum,sub,div,mul) of two user given number in menu driven way. That is if user chooses 1, there will be addition of the numbers, if 2 is chosen sub function will work and so on. (Hint:- use switch-case)

```
#include <stdio.h>
void main()
{
   int num1, num2, userinput, result;
   printf("Enter two number : \n");
   scanf("%d%d", &num1, &num2);
   printf("Enter 1 = Addition 2 = Subtraction 3 = Multiplication 4 = Division\n");
   scanf("%d", &userinput);
   if (num2 == 0 && userinput == 4)
   {
      printf("Cannot Divide by 0");
   }
   else
   {
      switch (userinput)
      {
      case 1:
         result = num1 + num2;
         printf("The result is %d", result);
         break;
      case 2:
         result = num1 - num2;
         printf("The result is %d", result);
         break;
      case 3:
         result = num1 * num2;
         printf("The result is %d", result);
         break;
      case 4:
         result = num1 / num2;
         printf("The result is %d", result);
         break;
      default:
         printf("Invaild Input");
         break;
      }
   }
}
```

OUTPUT

```
Enter two number :
2
5
Enter 1 = Addition 2 = Subtraction 3 = Multiplication 4 = Division
1
The result is 7
--------------------------------
Process exited after 5.818 seconds with return value 15
Press any key to continue . . .
```

```
Enter two number :
5
2
Enter 1 = Addition 2 = Subtraction 3 = Multiplication 4 = Division
2
The result is 3
--------------------------------
```

```
Enter two number :
5
2
Enter 1 = Addition 2 = Subtraction 3 = Multiplication 4 = Division
3
The result is 10
```

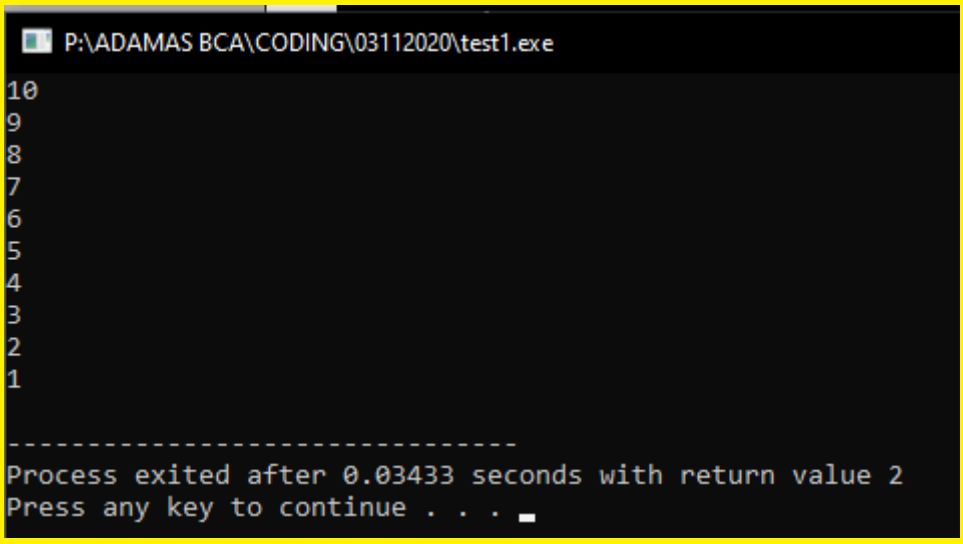
```
Enter two number :
10
5
Enter 1 = Addition 2 = Subtraction 3 = Multiplication 4 = Division
4
The result is 2
--------------------------------
```

```
Enter two number :
5
0
Enter 1 = Addition 2 = Subtraction 3 = Multiplication 4 = Division
4
Cannot Divide by 0
--------------------------------
```

1. Print the numbers 10 to 1 on the computer screen using while loop. Each number should be printed on each new line.

```c
#include <stdio.h>
void main(){
    int i=10;
    while(i>0){
        printf("%d\n",i);
        i--;
    }
}
```

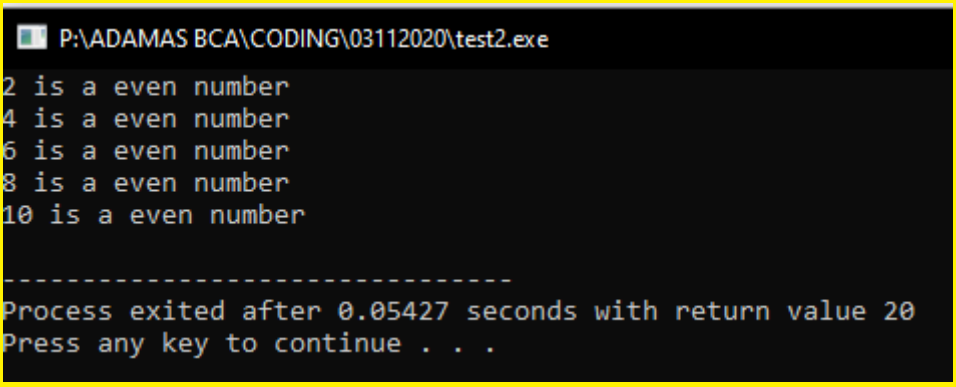
OUTPUT



2.Find the even numbers from 1 to 10.

```c
#include <stdio.h>
void main(){
    int i;
    for(i=1;i<=10;i++){
        if(i%2==0){
            printf("%d is a even number\n",i);
        }

    }
}
```

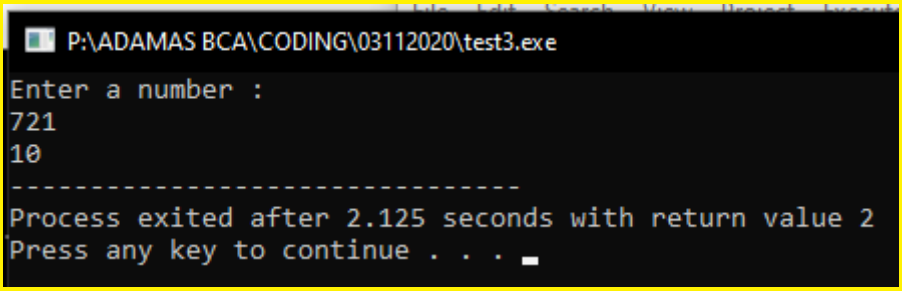
OUTPUT



3.Print the sum of digits of a multidigit number using while loop.

```c
#include <stdio.h>
void main(){
    int num,result=0,remainder;
    printf("Enter a number : \n");
    scanf("%d",&num);
    while(num>1){
        remainder=num%10;
        result=result+remainder;
        num=num/10;

    }
    printf("%d",result);
}
```

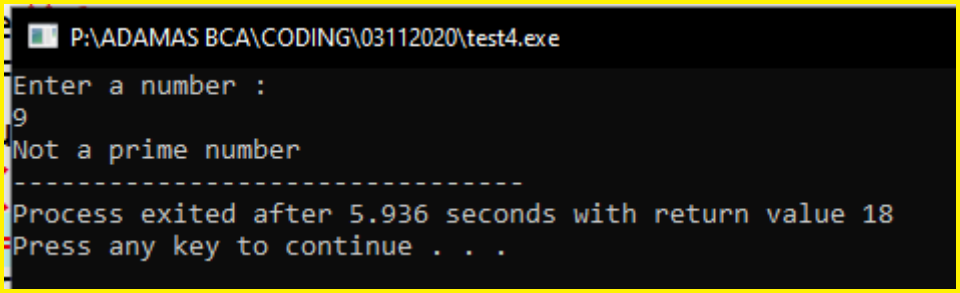
OUTPUT



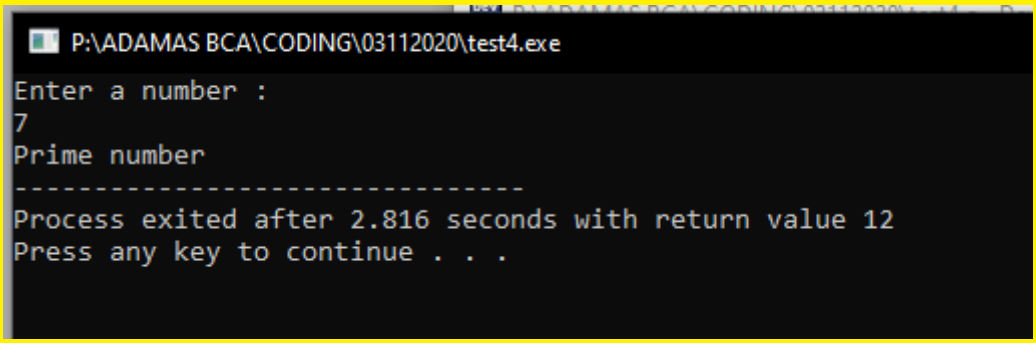
4.Check whether a given number is prime or not. Use function.

```c
#include <stdio.h>
void prime(){
    printf("Enter a number : \n");
    int num,i,flap=0;
    scanf("%d",&num);
    for(i=2;i<=num/2;i++){
        if(num%i==0){
            flap=1;
        }

    }
    if(flap==1){
        printf("Not a prime number");
    }
    else if (flap==0)
    {
        printf("Prime number");
    }



}
void main(){
    prime();
}
```

OUTPUT


P:\ADAMAS BCA\CODING\03112020\test4.exe
Enter a number :
9
Not a prime number

Process exited after 5.936 seconds with return value 18
Press any key to continue . . .

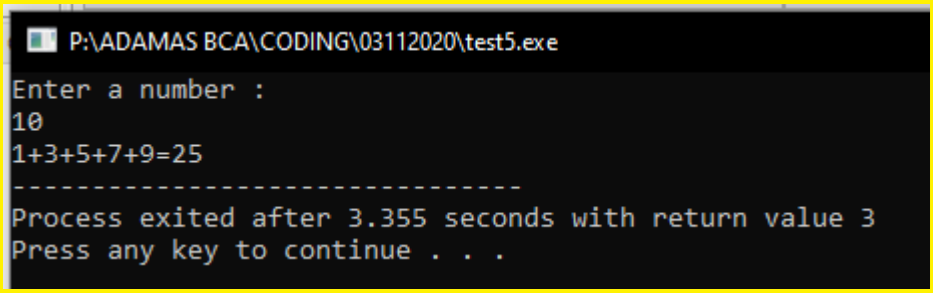

P:\ADAMAS BCA\CODING\03112020\test4.exe
Enter a number :
7
Prime number

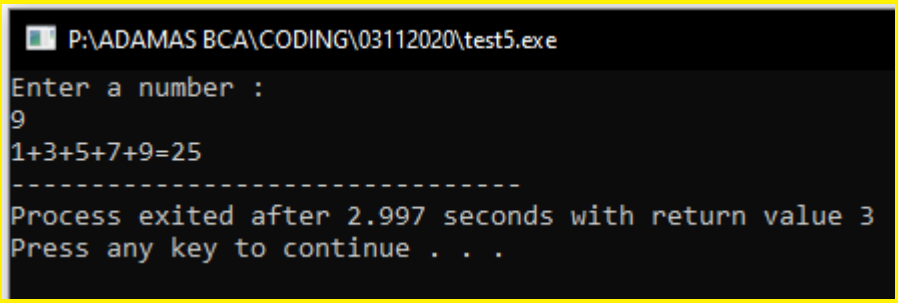
Process exited after 2.816 seconds with return value 12
Press any key to continue . . .

5. Print the following series where n will be user input.
1+3+5+...+n

```c
#include <stdio.h>
void main(){
    int num,i,result=0;
    printf("Enter a number : \n");
    scanf("%d",&num);
    for(i=1;i<=num;i=i+2){
        result = result+i;
        printf("%d",i);
        if(i<num-1){
            printf("+");
        }

    }
    printf("=%d",result);
}
```

OUTPUT



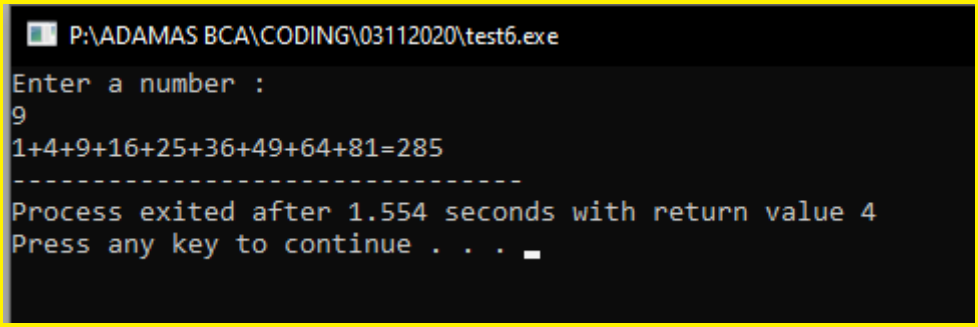


6. Print the following series.

$1+4+9+...+n^2$

```c
#include <stdio.h>
void main(){
    int num,i,result=0;
    printf("Enter a number : \n");
    scanf("%d",&num);
    for(i=1;i<=num;i=i+1){
        result = result+(i*i);
        printf("%d",i*i);
            if(i<num){
            printf("+");
        }

    }
    printf("=%d",result);
}
```

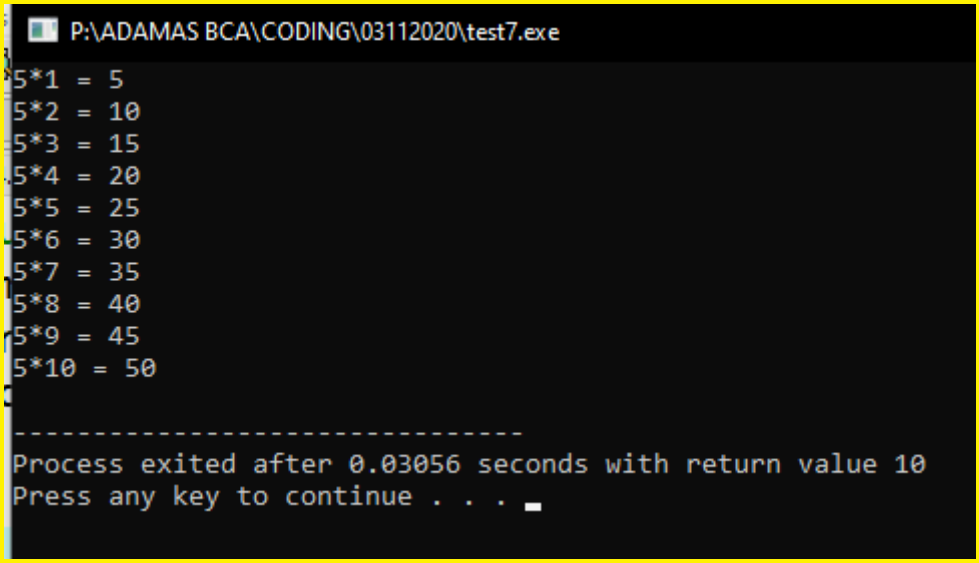
OUTPUT



7.Print the table of 5 (upto 5*10=50). It should be printed as follows.
5*1=5
5*2=10
…
5*10=50

```c
#include <stdio.h>
void main(){
    int n=5,i;
    for(i=1;i<=10;i++){
        printf("%d*%d = %d\n",n,i,i*n);
    }
}
```

OUTPUT



END

1. Print the sum of the following series.

   a) $1^2+2^2+3^2+...+n^2$

   b) $1^3+3^3+5^3+...+n^3$

a

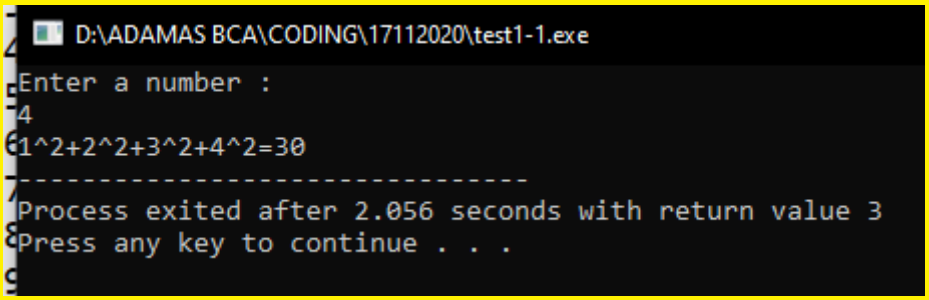
```c
#include <stdio.h>
void main(){
    int num,i,result=0;
    printf("Enter a number : \n");
    scanf("%d",&num);
    for(i=1;i<=num;i=i+1){
        result = result+(i*i);
        printf("%d^2",i);
            if(i<num){
            printf("+");
        }

    }
    printf("=%d",result);
}
```

b

```c
#include <stdio.h>
void main(){
    int num,i,result=0;
    printf("Enter a number : \n");
    scanf("%d",&num);
    for(i=1;i<=num;i=i+2){
        result = result+(i*i*i);
        printf("%d^3",i);
            if(i<num-1){
            printf("+");
        }

    }
    printf("=%d",result);
}
```

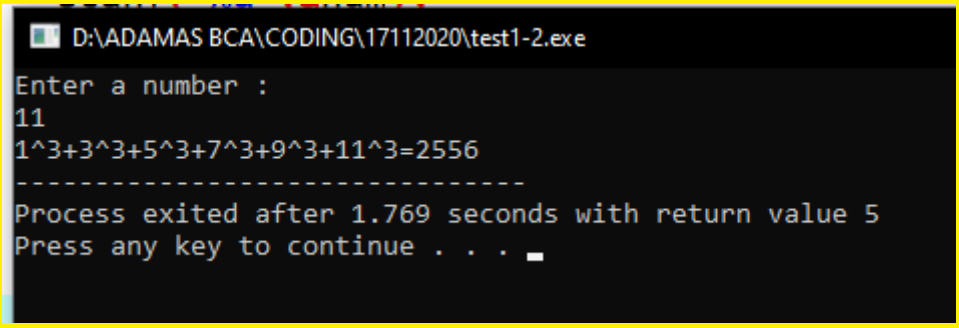
OUTPUT

a


D:\ADAMAS BCA\CODING\17112020\test1-1.exe
Enter a number :
4
1^2+2^2+3^2+4^2=30

Process exited after 2.056 seconds with return value 3
Press any key to continue . . .

b

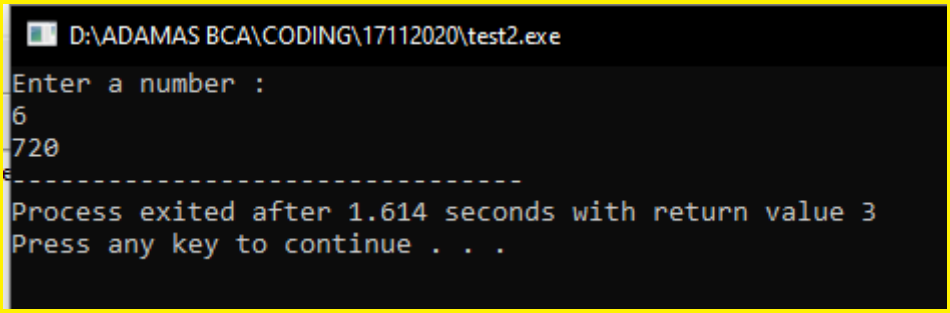

D:\ADAMAS BCA\CODING\17112020\test1-2.exe
Enter a number :
11
1^3+3^3+5^3+7^3+9^3+11^3=2556

Process exited after 1.769 seconds with return value 5
Press any key to continue . . .

2.Find the factorial of a given number. The number is user input.

```c
#include <stdio.h>
void main(){
    int num,i,result;
    printf("Enter a number :\n");
    scanf("%d",&num);
    for(i=num;i>=1;i--){
        result=result*i;
    }
    printf("%d",result);



}
```

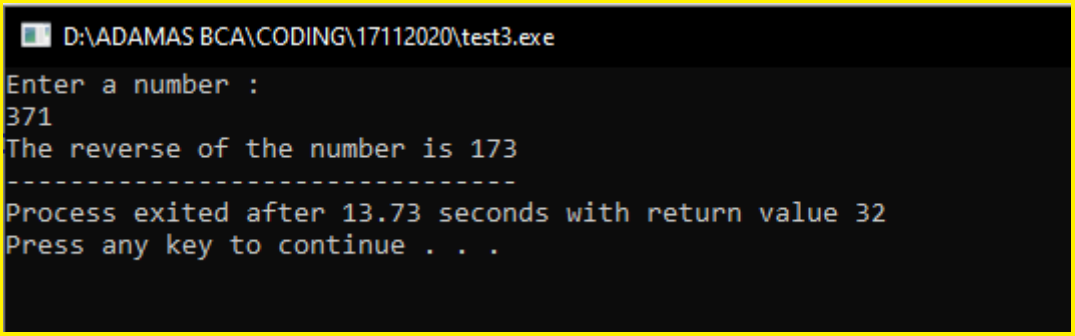
OUTPUT



3.Find the reverse of a number. Take user input.

```c
#include <stdio.h>
void main()
{
   int num, remainder, rev;
   printf("Enter a number : \n");
   scanf("%d", &num);
   int fixednum = num;
   while (num != 0)
   {
      remainder = num % 10;
      rev = rev * 10 + remainder;
      num /= 10;
   }
   printf("The reverse of the number is %d", rev);
}
```

OUTPUT



4. Print the following pattern. [Hint: if 3 columns are i, j, k, then for one value of i, j is executed two times and k=i+j (use for loop)]

```
2    3    5
2    4    6
3    3    6
3    4    7
4    3    7
4    4    8
```

```c
#include <stdio.h>
void main(){
    int i,j;
    for(i=2;i<=4;i++){
        for(j=3;j<=4;j++){
            printf("%d \t %d \t %d\t\n",i,j,i+j);
        }
    }

}
```

OUTPUT

```
Select D:\ADAMAS BCA\CODING\17112020\test4.exe
2       3       5
2       4       6
3       3       6
3       4       7
4       3       7
4       4       8

--------------------------------
Process exited after 0.02428 seconds with return value 11
Press any key to continue . . .
```

5. Print the following star patterns.

a)
```
*
**
***
****
```

(b)
```
****
***
**
*
```

(c)
```
   *
  **
 ***
****
```

(d)
```
   *
  * *
 * * *
* * * *
```

a

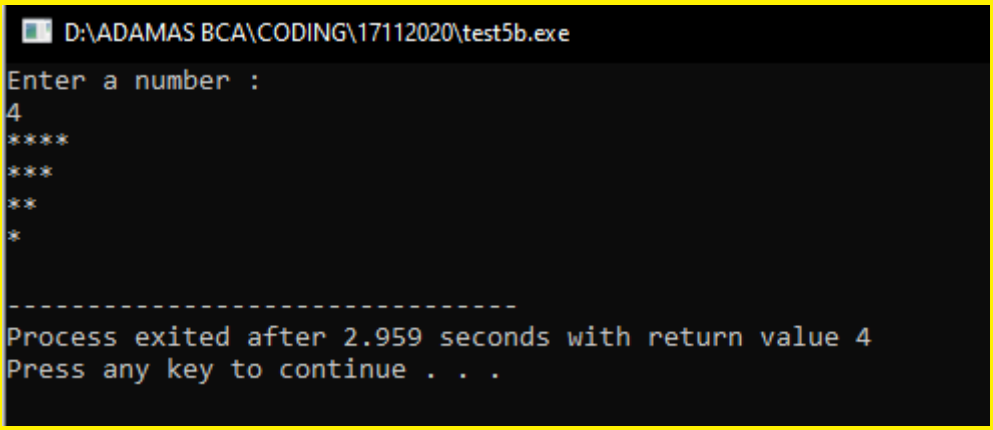
```c
#include <stdio.h>
void main()
{
    int num, i, j;
    printf("Enter a number : \n");
    scanf("%d", &num);
    for (i = 1; i <= num; i++)
    {
        for (j = 1; j <= num; j++)
        {
            if(j<=i){
                printf("*");
            }
            else{
                printf(" ");
            }
        }

        printf("\n");
    }
}
```

OUTPUT

b

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

            printf("*");
        }

        printf("\n");
    }
}
```

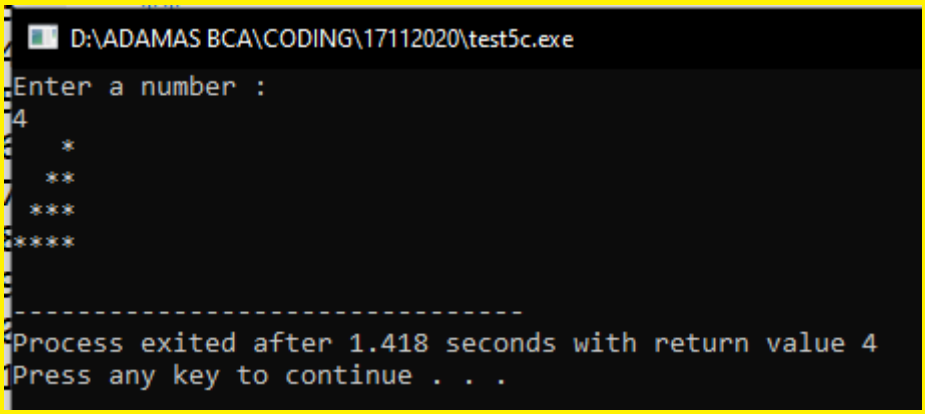
OUTPUT



C

```c
#include <stdio.h>
void main()
{
    int num, i, j;
    printf("Enter a number : \n");
    scanf("%d", &num);
    for (i = 1; i <= num; i++)
    {
        for (j = 1; j <= num; j++)
        {
            if(num-i<j){
                printf("*");
            }
            else{
                printf(" ");
            }
        }

        printf("\n");
    }
}
```

OUTPUT



d

```c
#include <stdio.h>
void main()
{
    int num, i, j;
    printf("Enter a number : \n");
    scanf("%d", &num);
    for (i = 1; i <= num; i++)
    {
        for (j = 1; j <= num; j++)
        {
            if(num-i<j){
                printf(" *");
            }
            else{
                printf(" ");
            }
        }

        printf("\n");
    }
}
```

OUTPUT


D:\ADAMAS BCA\CODING\17112020\test5d.exe
Enter a number :
4
*
* *
* * *
* * * *

Process exited after 3.506 seconds with return value 4
Press any key to continue . . .

6. Print the following number patterns.

(a)
```
1
1 2
1 2 3
1 2 3 4
```

(b)
```
4 3 2 1
4 3 2
4 3
4
```

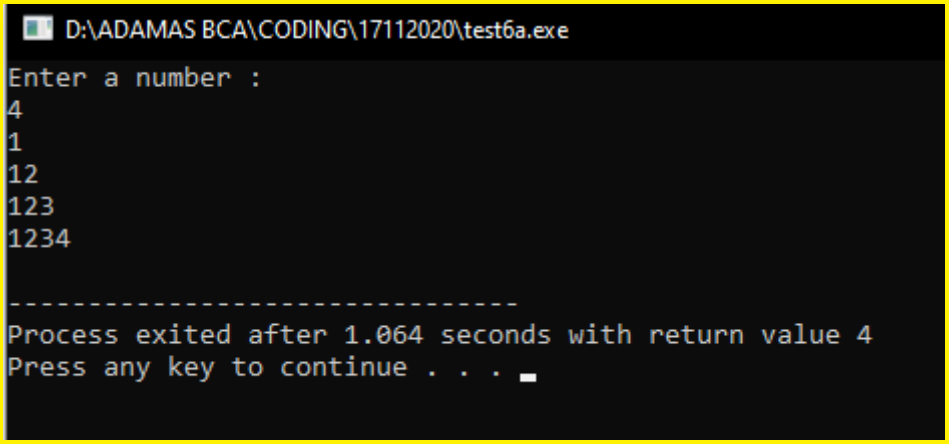
(c)
```
1 2 3 4
1 2 3
1 2
1
```

(d)
```
4
4 3
4 3 2
4 3 2 1
```

a

```c
#include <stdio.h>
void main()
{
    int num, i, j;
    printf("Enter a number : \n");
    scanf("%d", &num);
    for (i = 1; i <= num; i++)
    {
        for (j = 1; j <= num; j++)
        {
            if(j<=i){
                printf("%d",j);
            }
            else{
                printf(" ");
            }
        }

        printf("\n");
    }
}
```

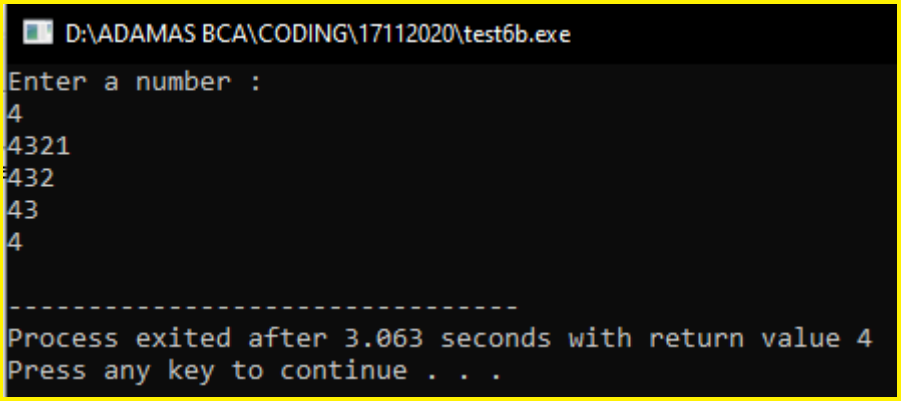
OUTPUT



b

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

            printf("%d", j);
        }

        printf("\n");
    }
}
```

OUTPUT



c

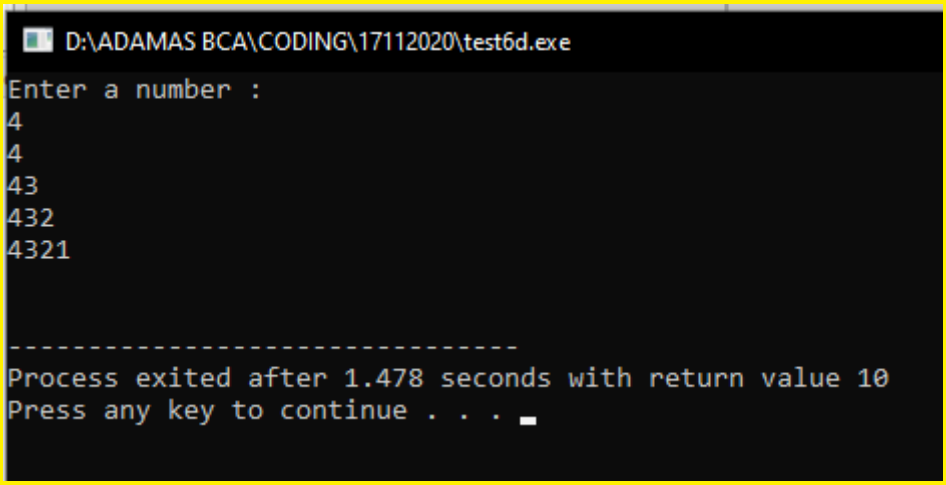
```c
#include <stdio.h>
void main()
{
    int num, i, j;
    printf("Enter a number : \n");
    scanf("%d", &num);

    for (i = 1; i <= num; i++)
    {

        for (j = 1; j <= num+1-i; j++)
        {

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

}
```

OUTPUT

d

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

    for(i=num;i>=1;i--){

        for(j=num;j>=i;j--){
                printf("%d",j);

        }
        printf("\n");
        }

    printf("\n");
    }
```

OUTPUT

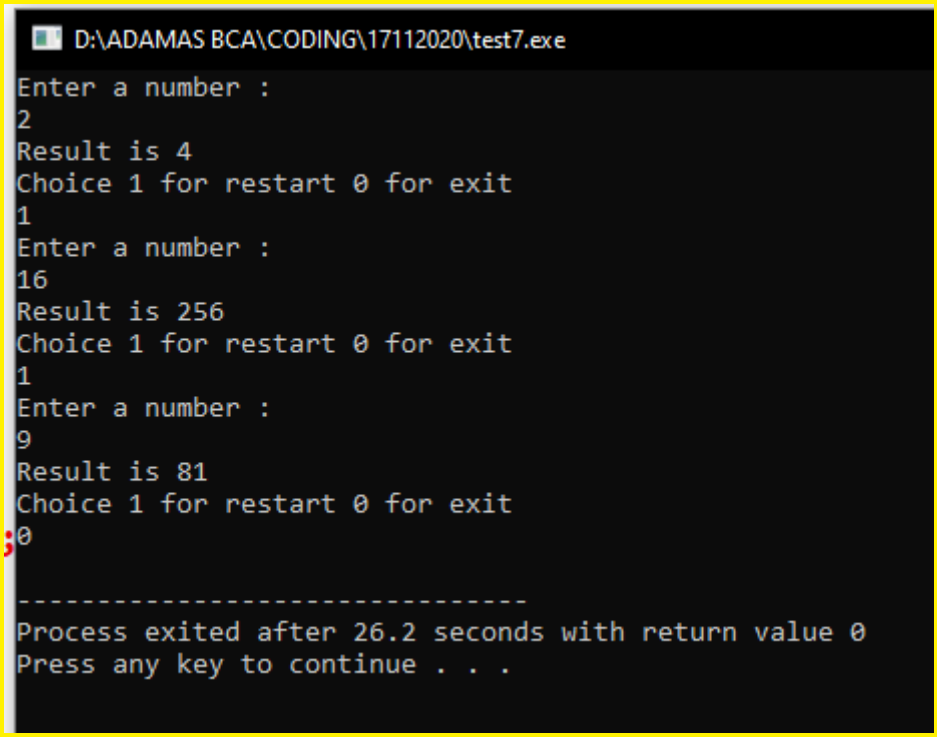

D:\ADAMAS BCA\CODING\17112020\test6d.exe
Enter a number :
4
4
43
432
4321

Process exited after 1.478 seconds with return value 10
Press any key to continue . . .

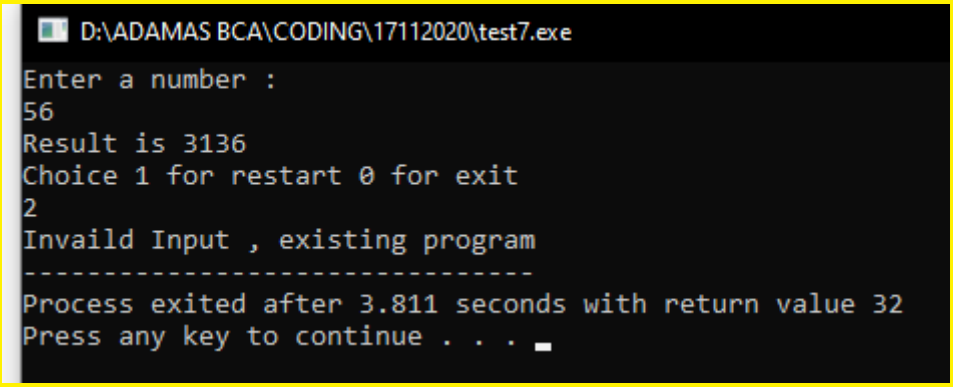
7.Use do-while loop to print the square of a number. The number is user input. Continue to find square of another numbers until you want to stop.

```c
#include <stdio.h>
void main()
{
    int num, square, choice;

    do
    {
        printf("Enter a number : \n");
        scanf("%d", &num);
        square = num * num;
        printf("Result is %d\n", square);
        printf("Choice 1 for restart 0 for exit\n");
        scanf("%d", &choice);
        if (choice == 0)
        {
            break;
        }
        else
        {
            if(choice==1){
                continue;
            }
            else{
                printf("Invaild Input , existing program");
                break;
            }
        }


    } while (1);
}
```

OUTPUT


D:\ADAMAS BCA\CODING\17112020\test7.exe
Enter a number :
2
Result is 4
Choice 1 for restart 0 for exit
1
Enter a number :
16
Result is 256
Choice 1 for restart 0 for exit
1
Enter a number :
9
Result is 81
Choice 1 for restart 0 for exit
0

Process exited after 26.2 seconds with return value 0
Press any key to continue . . .


D:\ADAMAS BCA\CODING\17112020\test7.exe
Enter a number :
56
Result is 3136
Choice 1 for restart 0 for exit
2
Invaild Input , existing program

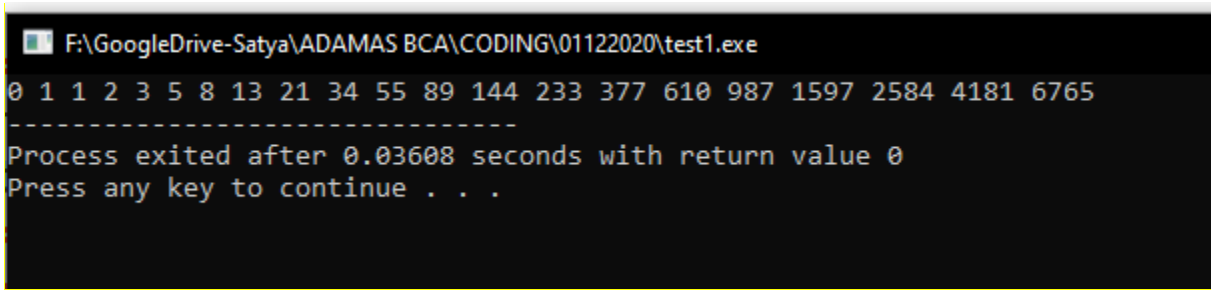
Process exited after 3.811 seconds with return value 32
Press any key to continue . . .

END

1. Print the Fibonacci series upto 21.

```c
#include <stdio.h>
int main() {
    int i, n=21, n1 = 0, n2 = 1, nextTerm;

    for (i = 1; i <= n; ++i) {
        printf("%d ", n1);
        nextTerm = n1 + n2;
        n1 = n2;
        n2 = nextTerm;
    }

    return 0;
}
```

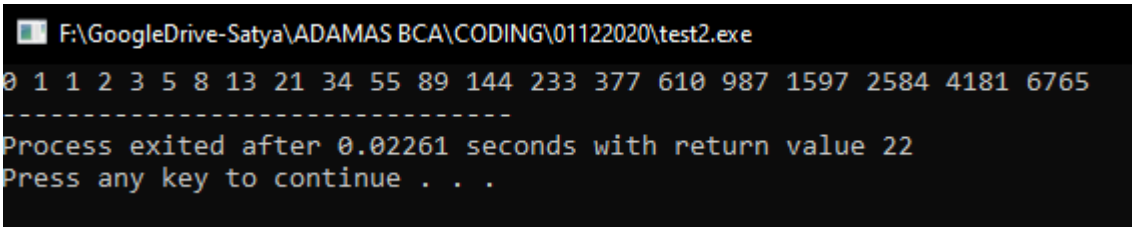
OUTPUT



2. Do the same as question no.1 using a separate function.

```c
#include <stdio.h>

void fib();
void main()
{

    fib();
}
void fib()
{
    int i, n = 21, n1 = 0, n2 = 1, nextTerm;
    for (i = 1; i <= n; ++i)
    {
        printf("%d ", n1);
        nextTerm = n1 + n2;
        n1 = n2;
        n2 = nextTerm;
    }
}
```

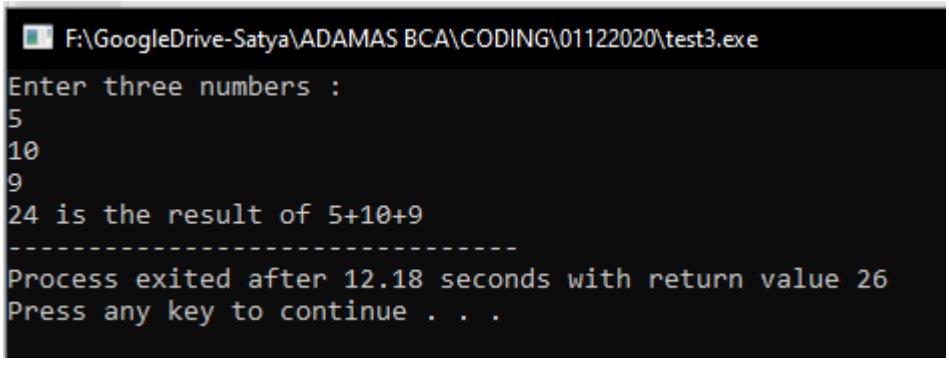
OUTPUT



3. Find the sum of three numbers using a separate function sum() in your program. Use call by value.

```c
#include <stdio.h>
int sum(int n1, int n2, int n3);
void main()
{
    int n1, n2, n3;
    printf("Enter three numbers : \n");
    scanf("%d%d%d", &n1, &n2, &n3);
    int output = sum(n1, n2, n3);
    printf("%d is the result of %d+%d+%d", output, n1, n2, n3);
}
int sum(int n1, int n2, int n3)
{

    int result = n1 + n2 + n3;
    return result;
}
```

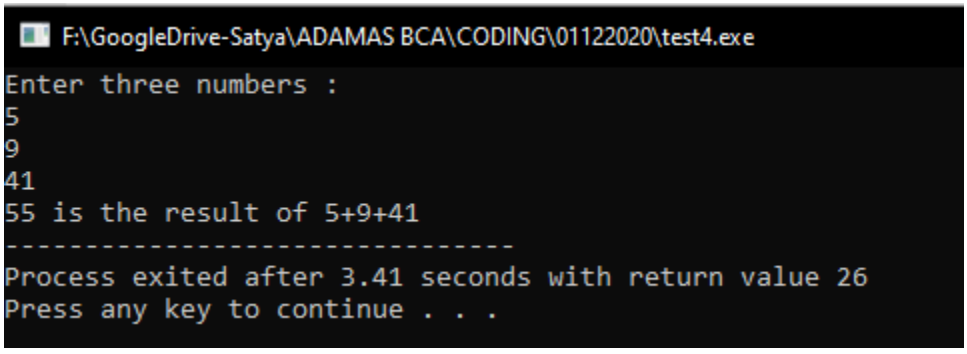
OUTPUT



4. Do the same as question no.3 but without using call by value. Here input is taken inside the function.

```c
#include <stdio.h>
int sum();
void main()
{

    sum();
}
int sum()
{
    int n1, n2, n3;
    printf("Enter three numbers : \n");
    scanf("%d%d%d", &n1, &n2, &n3);
    int result = n1 + n2 + n3;
    printf("%d is the result of %d+%d+%d", result, n1, n2, n3);
}
```

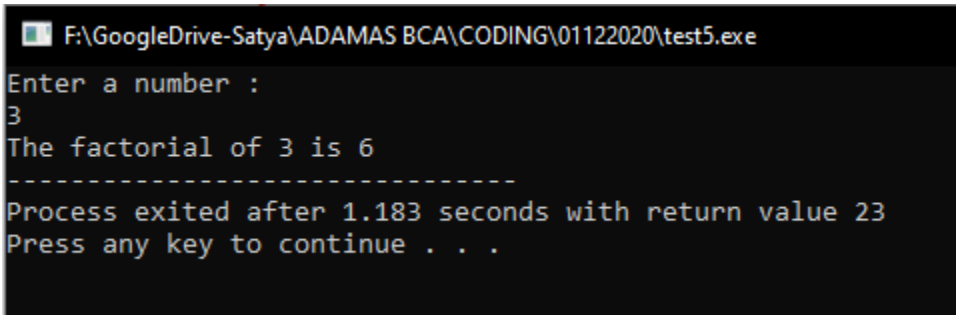
OUTPUT



5. Find the factorial of a number using a function.

```c
#include <stdio.h>
int fact(int num);
void main(){
    int num;
    printf("Enter a number :\n");
    scanf("%d",&num);
    int result=fact(num);

    printf("The factorial of %d is %d",num,result);

}
int fact(int num){
    int i,result;
    for(i=num;i>=1;i--){
        result=result*i;
    }
    return result;

}
```

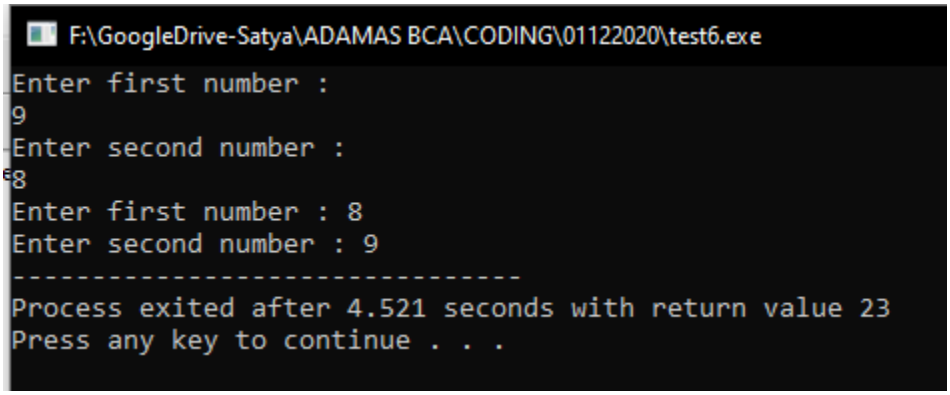
OUTPUT



6. Swap values of two integer variables using a third variable. The swapping is done in a separate function.

```c
#include <stdio.h>
void swap(int a,int b);
void main(){
    int a,b;
    printf("Enter first number : \n");
    scanf("%d",&a);
    printf("Enter second number : \n");
    scanf("%d",&b);
    swap(a,b);

}
void swap(int a,int b){
    int c;//third variable
    c=a;
    a=b;
    b=c;
    printf("Enter first number : %d\n",a);
    printf("Enter second number : %d",b);



}
```

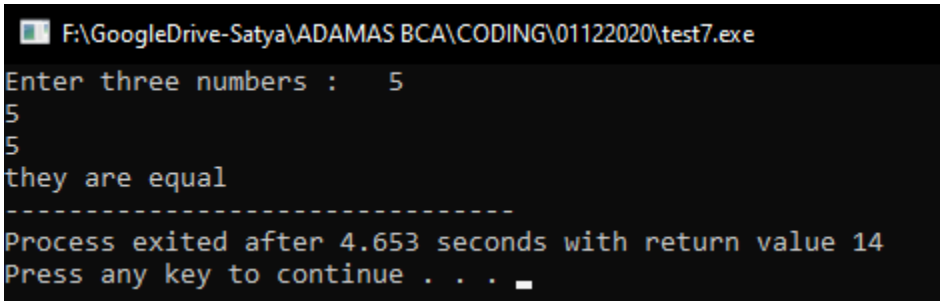
OUTPUT



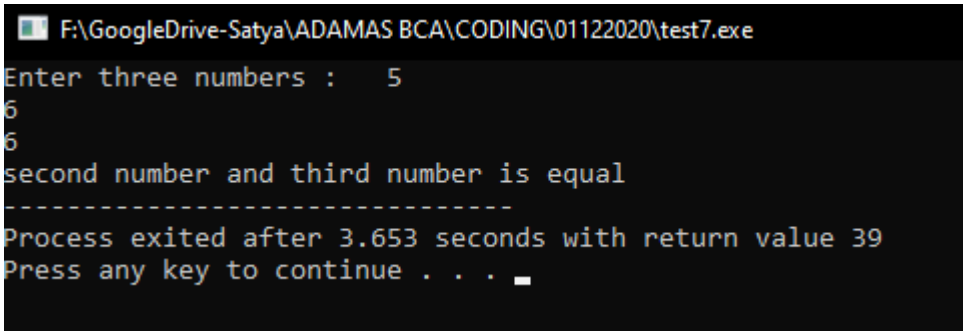
7. Write a function largest which finds the largest number among three numbers and prints the value when the numbers are not equal (i.e. when a≠b, b≠c, c≠a). It prints “they are equal” otherwise.

```c
#include <stdio.h>
void largefinder(int n1,int n2,int n3);
void main(){
    int n1,n2,n3;
    printf("Enter three numbers :\t");
    scanf("%d%d%d",&n1,&n2,&n3);
    largefinder(n1,n2,n3);
}
void largefinder(int n1,int n2,int n3){
    if(n1==n2 && n1==n3){
        printf("they are equal");
    }
    else if(n1==n2){
        printf("first number and second number is equal");
    }
    else if(n2==n3){
        printf("second number and third number is equal");
    }
    else if(n1==n3){
        printf("first number and third is equal");
    }
    else if(n2>n1 && n2>n3){
        printf("%d is largest",n2);

    }
    else if (n1>n2 && n1>n3)
    {
        printf("%d is largest",n1);

    }
    else if(n3>n1 && n3>n2){
         printf("%d is largest",n3);

    }



}
```

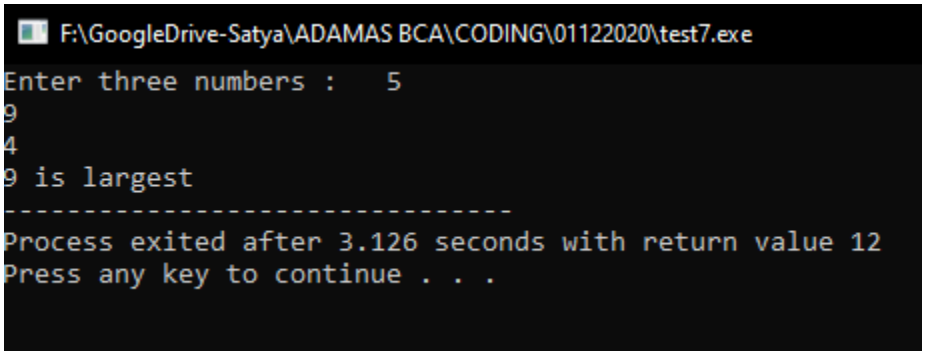
OUTPUT


F:\GoogleDrive-Satya\ADAMAS BCA\CODING\01122020\test7.exe
Enter three numbers :   5
5
5
they are equal

Process exited after 4.653 seconds with return value 14
Press any key to continue . . .


F:\GoogleDrive-Satya\ADAMAS BCA\CODING\01122020\test7.exe
Enter three numbers :   5
6
6
second number and third number is equal

Process exited after 3.653 seconds with return value 39
Press any key to continue . . .

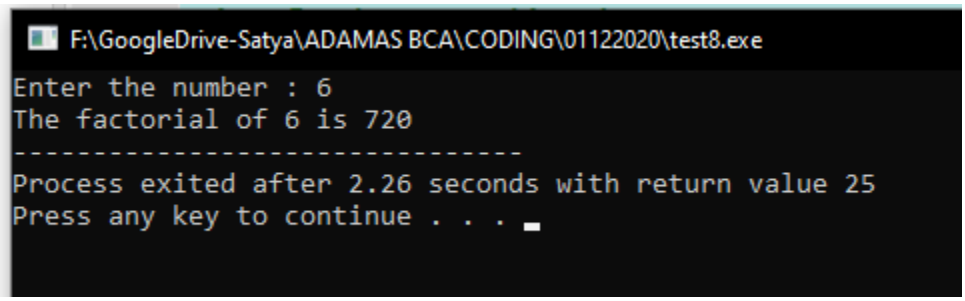

F:\GoogleDrive-Satya\ADAMAS BCA\CODING\01122020\test7.exe
Enter three numbers :   5
9
4
9 is largest

Process exited after 3.126 seconds with return value 12
Press any key to continue . . .

8. Find the factorial of a given number using recursion.

```c
#include <stdio.h>
int fact(int);
void main(){
    int i;
    printf("Enter the number : ");
    scanf("%d",&i);
    int result=fact(i);
    printf("The factorial of %d is %d",i,result);
}
int fact(int i){
    if(i==0){
        return 1;
    }
    else{
        return i*fact(i-1);
    }



}
```

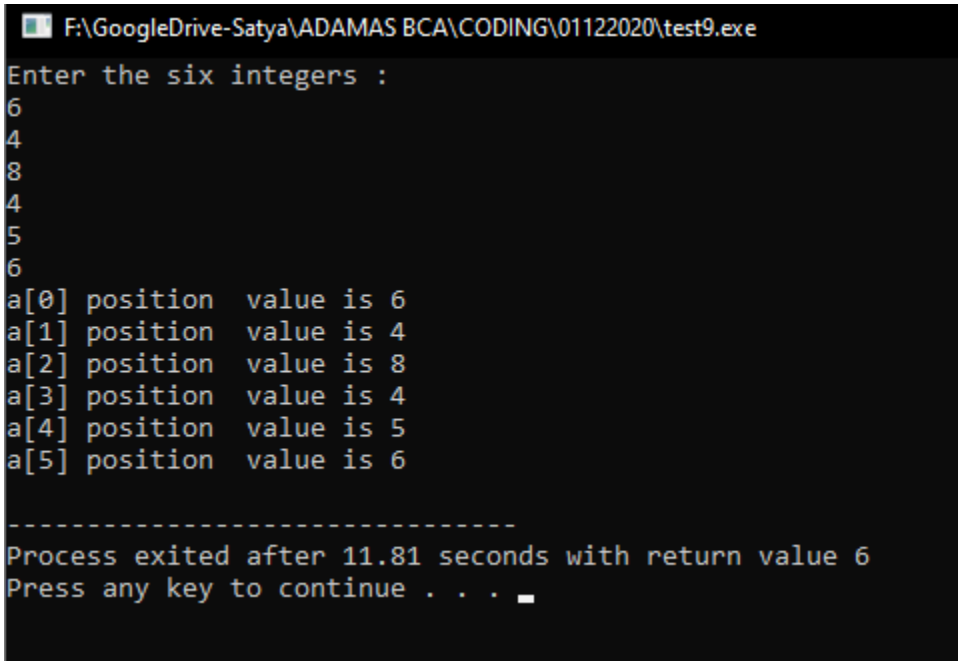
OUTPUT



9. Take an array of 6 integers and insert the elements from keyboard. Print the elements of the array using a different function.

```c
#include <stdio.h>
void print();
int arr1[6];
int i,j,num;
void main()
{   printf("Enter the six integers :\n");
    for(j=0;j<6;j++){
        scanf("%d",&arr1[j]);
    }
    print();
}
void print()
{

    for(i=0;i<6;i++){
        printf("a[%d] position  value is %d\n",i,arr1[i]);
    }



}
```

OUTPUT

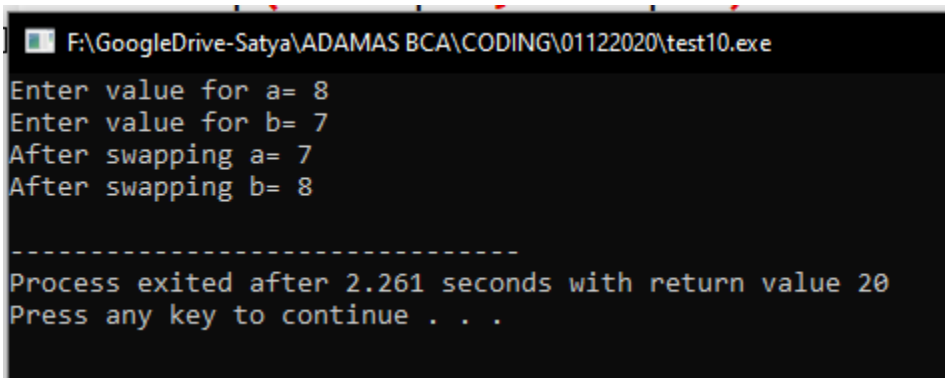

F:\GoogleDrive-Satya\ADAMAS BCA\CODING\01122020\test9.exe
Enter the six integers :
6
4
8
4
5
6
a[0] position value is 6
a[1] position value is 4
a[2] position value is 8
a[3] position value is 4
a[4] position value is 5
a[5] position value is 6

Process exited after 11.81 seconds with return value 6
Press any key to continue . . .

10. Swap values of two integer variables using a third variable. Use call by address.

```c
#include <stdio.h>

void swap(int *pr1,int *pr2)
{

    int c;
    c = *pr1;
    *pr1 = *pr2;
    *pr2 = c;
}
void main()
{
    int a = 10, b = 15;
    printf("Enter value for a= ");
    scanf("%d",&a);
    printf("Enter value for b= ");
    scanf("%d",&b);
    swap(&a,&b);
    printf("After swapping a= %d\n", a);
    printf("After swapping b= %d\n", b);
}
```

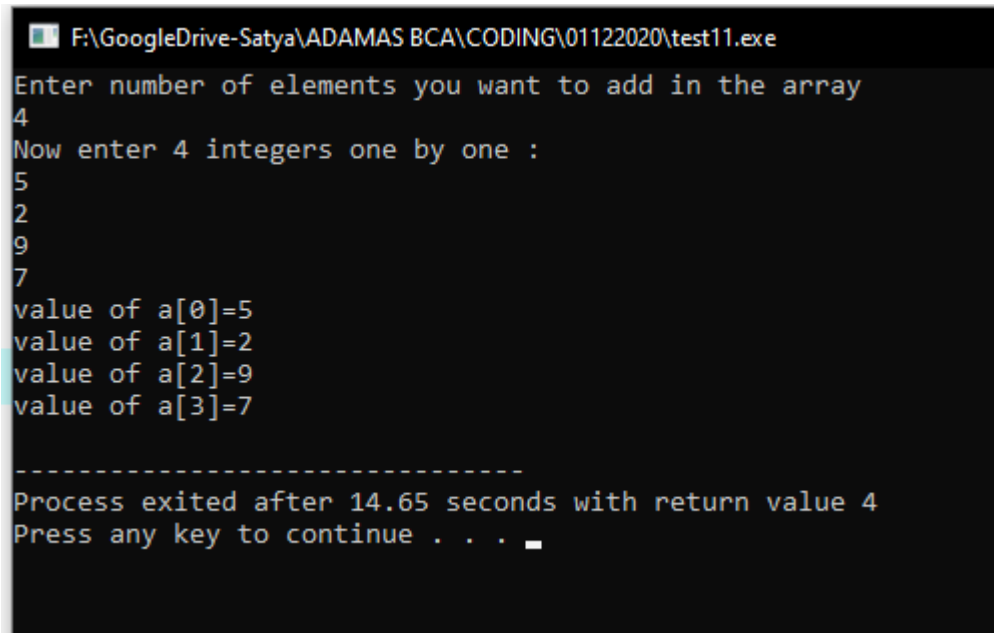
OUTPUT



11. Pass an entire array to a function using call by ay address and print all the elements in the function.

```c
#include <stdio.h>
void print(int *ptr, int a);
void main()
{
    int i, j, arr[j], *ptr[j];
    printf("Enter number of elements you want to add in the array \n")
;
    scanf("%d", &i);
    printf("Now enter %d integers one by one :\n",i);
    for (j = 0; j < i; j++)
    {
        int k;
        scanf("%d", &k);
        arr[j] = k;
    }


    print(arr,i);
}
void print(int *ptr,int a){
    int j;

    for (j = 0; j < a; j++)
    {
        printf("value of a[%d]=%d\n",j,*ptr);
        ptr=ptr+1;
    }
}
```

OUTPUT

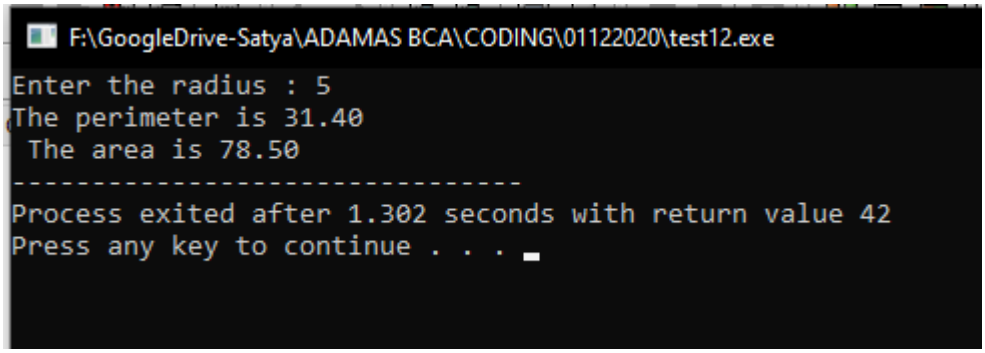

F:\GoogleDrive-Satya\ADAMAS BCA\CODING\01122020\test11.exe
Enter number of elements you want to add in the array
4
Now enter 4 integers one by one :
5
2
9
7
value of a[0]=5
value of a[1]=2
value of a[2]=9
value of a[3]=7

Process exited after 14.65 seconds with return value 4
Press any key to continue . . .

12. Find out area and perimeter of a circle in a separate function. The function takes radius, address of area and address of perimeter as argument. Use call by address intelligently to return the calculated area and perimeter both at a time.

```c
#include <stdio.h>
# define PI 3.14
void function1(float *ptr1,float *ptr2,float *ptr3);
void main()
{
    float radius,perimeter=0,area=0;
    printf("Enter the radius : ");
    scanf("%f", &radius);
    function1(&radius,&perimeter,&area);
    printf("The perimeter is %.2f \n The area is %.2f",perimeter,area);
}
void function1(float *ptr1,float *ptr2,float *ptr3)
{
    *ptr2 = 2 * PI * *ptr1;
    *ptr3 = PI * *ptr1 * *ptr1;
}
```

OUTPUT



END

1.Write a program to check whether input alphabet is vowel or not using if-else and switch statement.

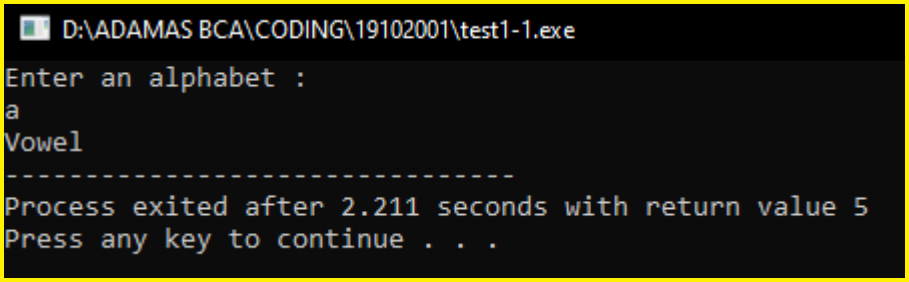
IF -ELSE STATEMENT

```
#include <stdio.h>
void main(){
   char alpha;
   printf("Enter an alphabet : \n");
   scanf("%c",&alpha);
   if(alpha=='a'||alpha=='e'||alpha=='i'||alpha=='o'||alpha=='u'||alpha=='A'||alpha=='E'||alpha=='I'||alpha=='O'||alpha=='U'){
      printf("Vowel");

   }
   else{
      printf("Consonent");
   }
}
```

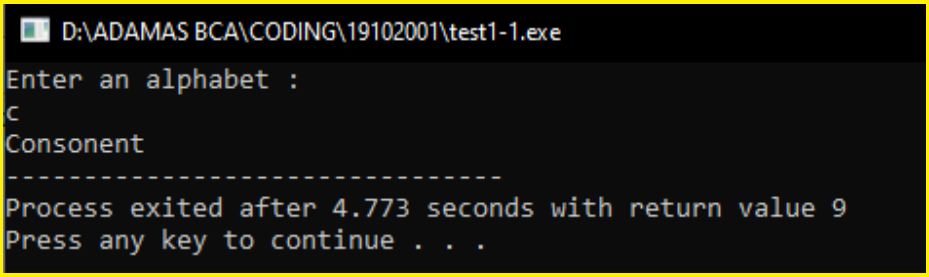
SWITCH STATEMENT

```
#include <stdio.h>
void main(){
   char alpha;
   printf(“Enter an alphabet : \n”);
   scanf(“%c”,&alpha);
   switch (alpha)
   {
   case ‘a’:
      printf(“Vowel”);
      break;
   case ‘e’:
      printf(“Vowel”);
      break;
   case ‘i’:
      printf(“Vowel”);
      break;
   case ‘o’:
      printf(“Vowel”);
      break;
   case ‘u’:
      printf(“Vowel”);
      break;
   case ‘A’:
      printf(“Vowel”);
      break;
   case ‘E’:
      printf(“Vowel”);
      break;
   case ‘I’:
      printf(“Vowel”);
      break;
   case ‘O’:
      printf(“Vowel”);
      break;
   case ‘U’:
      printf(“Vowel”);
      break;

   default:
   printf(“Consonent”);
   break;
   }
}
```

OUTPUT


D:\ADAMAS BCA\CODING\19102001\test1-1.exe
Enter an alphabet :
a
Vowel

Process exited after 2.211 seconds with return value 5
Press any key to continue . . .

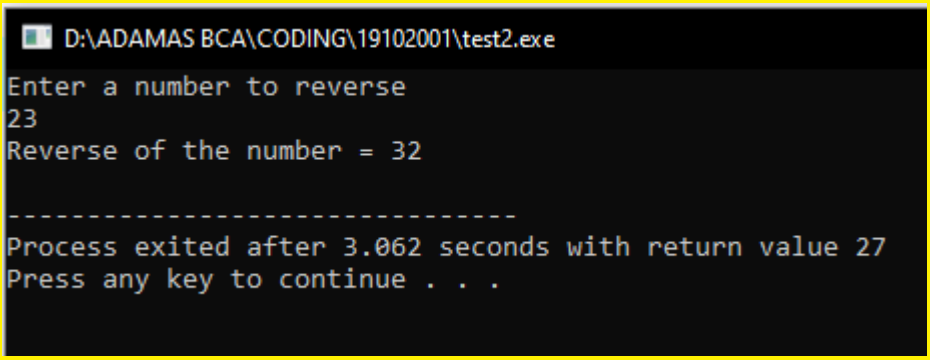

D:\ADAMAS BCA\CODING\19102001\test1-1.exe
Enter an alphabet :
c
Consonent

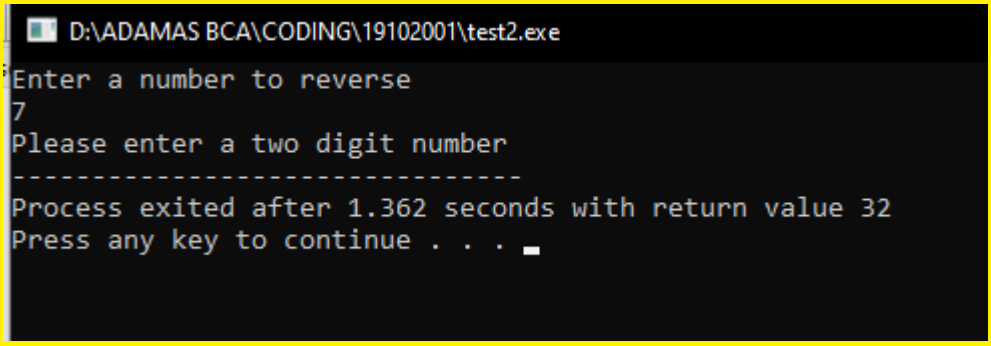
Process exited after 4.773 seconds with return value 9
Press any key to continue . . .

2.Write a program to get input of two or higher digit integer number and display in reverse order.

```
#include <stdio.h>
void main()
{
   int n, r = 0;

   printf("Enter a number to reverse\n");
   scanf("%d", &n);
          if (n >= 10){
          while (n != 0)
          {
         r = r * 10;
         r = r + n % 10;
         n = n / 10;
          }

      printf("Reverse of the number = %d\n", r);
   }
   else
   {
      printf("Please enter a two digit number ");
   }
}
```

OUTPUT

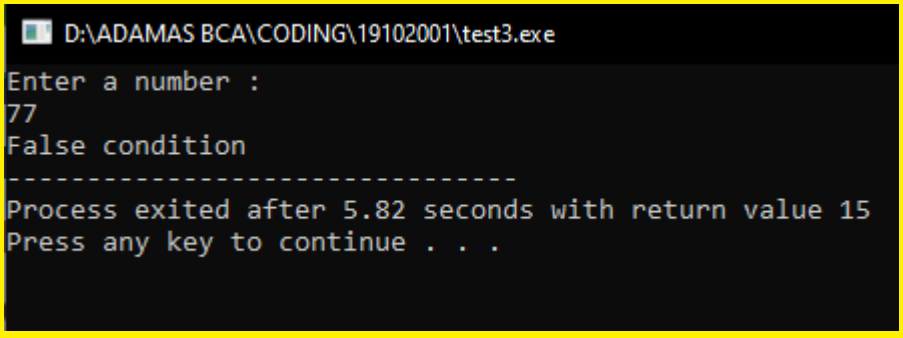


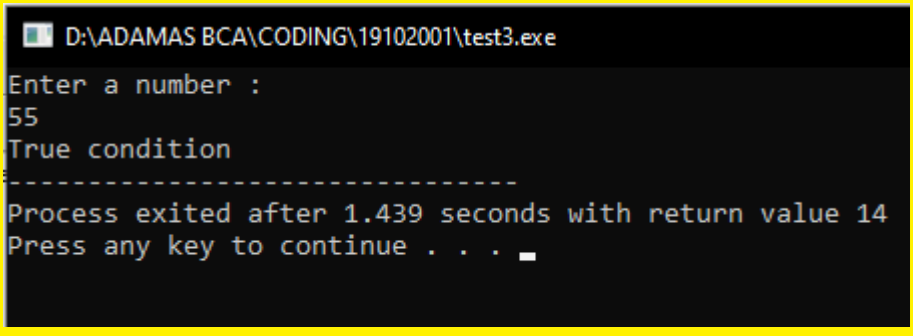


3.Write a program that asks a number and test the number whether it is multiple of 5 or not, divisible by 7 but not by eleven.

```
#include <stdio.h>
void main(){
   int num;
   printf("Enter a number : \n");
   scanf("%d",&num);
   if(num%5==0 || (num%7==0 && num%11 !=0)){
      printf("True condition");
   }
   else{
      printf("False condition");
   }
}
```

OUTPUT

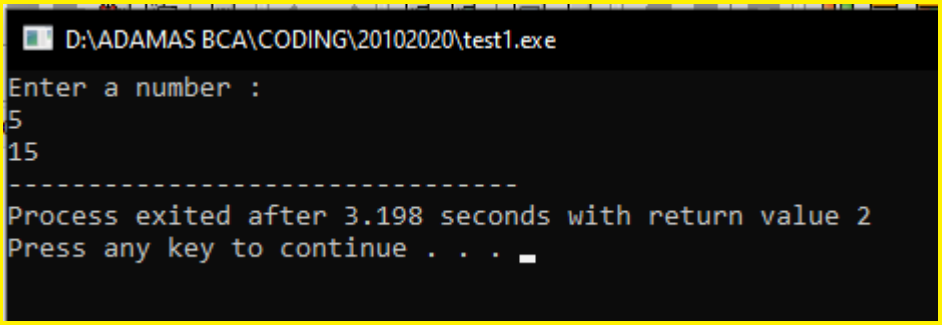




4.C program to find sum of all-natural numbers. (Hint: - Series: 1+2+3+4+….+N)

```
#include <stdio.h>
void main(){
   int num,result=0,i;
   printf("Enter a number : \n");
   scanf("%d",&num);
   for(i=1;i<=num;i++){
      result = result+i;
   }
   printf("%d",result);
}
```

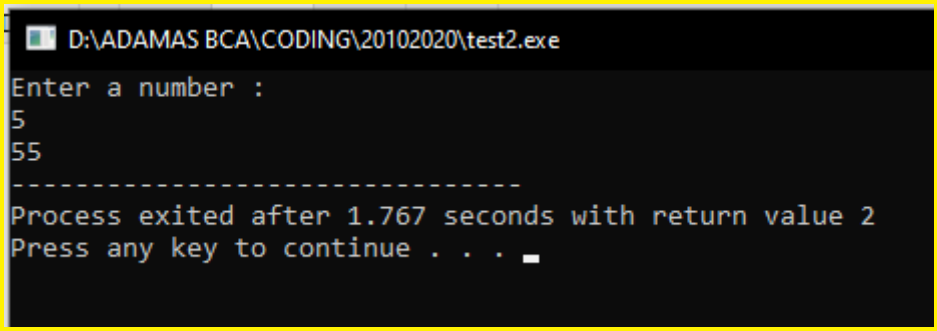
OUTPUT



5.C program to find sum of the square of all natural numbers from 1 to N. (Series: 1^2+2^2+3^2+4^2+..N^2)

```
#include <stdio.h>
void main(){
   int num,result=0,i;
   printf("Enter a number : \n");
   scanf("%d",&num);
   for(i=1;i<=num;i++){
      result = result+(i*i);
   }
   printf("%d",result);
}
```

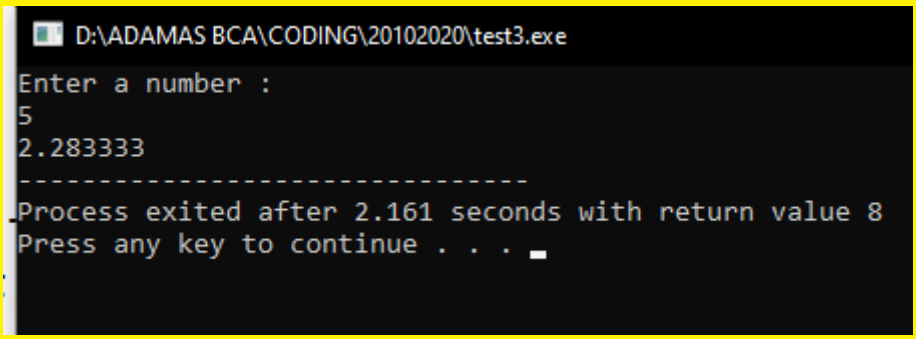
OUTPUT



6.C program to find sum of following series: 1+ 1/2 + 1/3 + 1/4 + 1/5 + .. 1/N

```
#include <stdio.h>
void main(){
   float num,result=0,i;
   printf("Enter a number : \n");
   scanf("%f",&num);
   for(i=2;i<=num;i++){
      result=result+(1/i);

   }
   printf("%f",result+1);
}
```

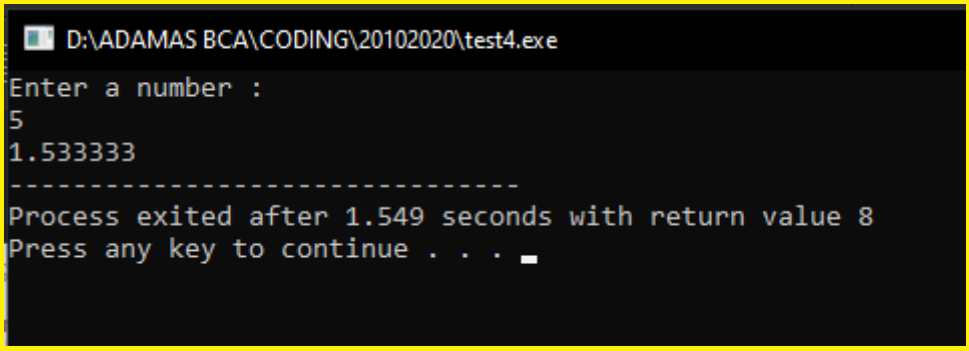
OUTPUT



7.C program to find sum of following series: 1 + 3^2/3^3 + 5^2/5^3 + 7^2/7^3 + ... till N terms

```
#include <stdio.h>
void main(){
   float num,result=0,i;
   printf("Enter a number : \n");
   scanf("%f",&num);
   for(i=3;i<=num;i=i+2){
      float cal =(i*i)/(i*i*i);
      result= result+cal;

   }
   printf("%f",result+1);
}
```

OUTPUT



1.

1

2 3

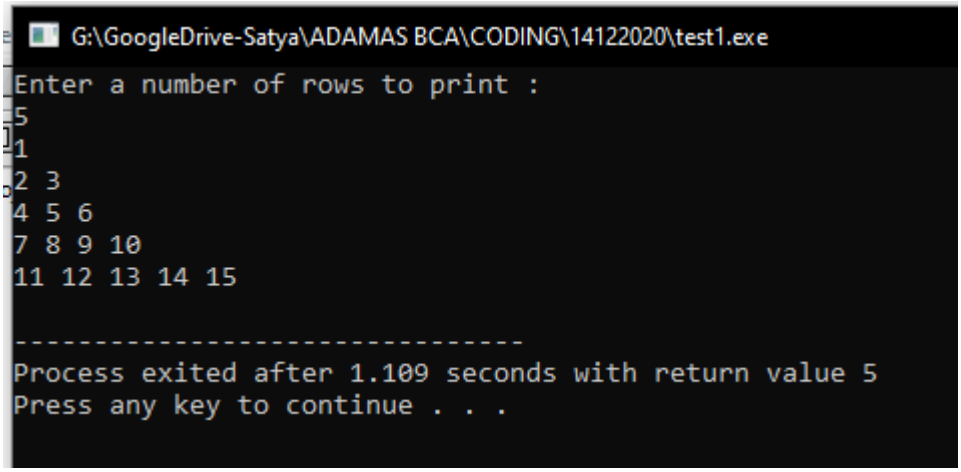
4 5 6

7 8 9 10

11 12 13 14 15

```c
#include <stdio.h>
void main(){
    int num,i,j,k=1;
    printf("Enter a number of rows to print :\n");
    scanf("%d",&num);
    for(i=1;i<=num;i++){
        for(j=1;j<=i;j++,k++){

            printf("%d ",k);

        }
        printf("\n");
    }

}
```

OUTPUT



2.

1

2 2

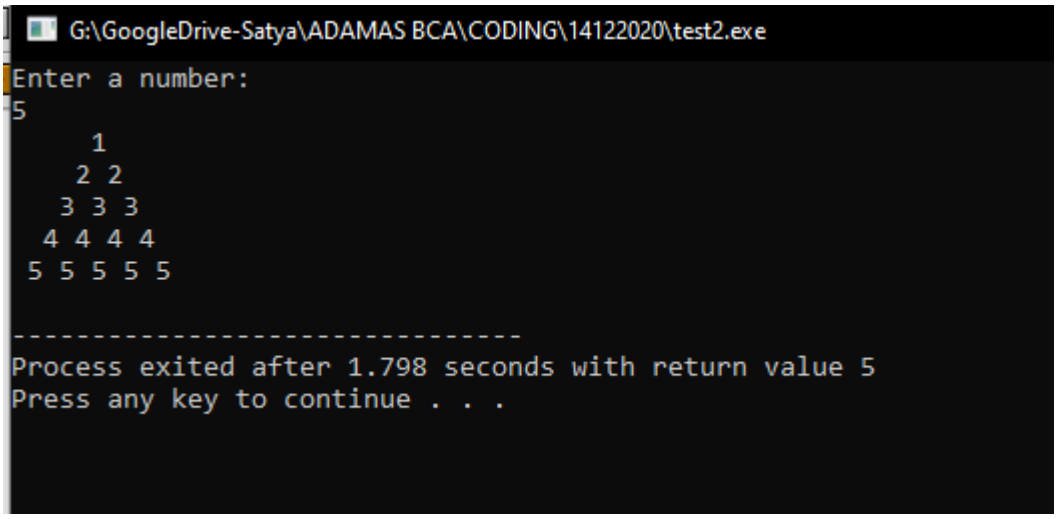
3 3 3

4 4 4 4

5 5 5 5 5

```c
#include <stdio.h>
void main()
{
    int num, i, j;
    printf("Enter a number: \n");
    scanf("%d", &num);
    for (i = 1; i <= num; i++)
    {
        for (j = 1; j <= num; j++)
        {
            if (num - i < j)
            {
                printf(" %d",i);
            }
            else
            {
                printf(" ");
            }
        }
        printf("\n");
    }
}
```

OUTPUT



3.

EDCBA

EDCB

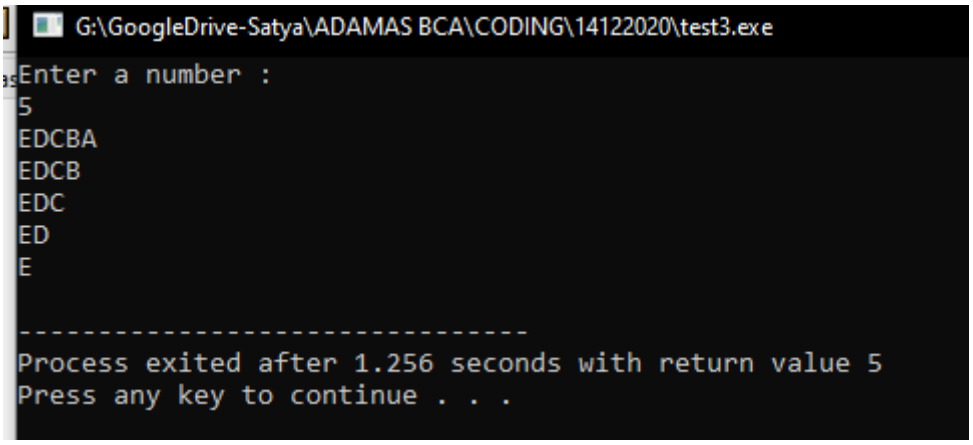
EDC

ED

E

```c
#include <stdio.h>
void main()
{
int num, i, j;
printf("Enter a number : \n");
scanf("%d", &num);
for (i = 1; i <= num; i++)
{
for (j = num; j >= i; j--)
{
printf("%c",j+64);
}
printf("\n");
}
}
```

OUTPUT



4.

EDCBA

DCBA

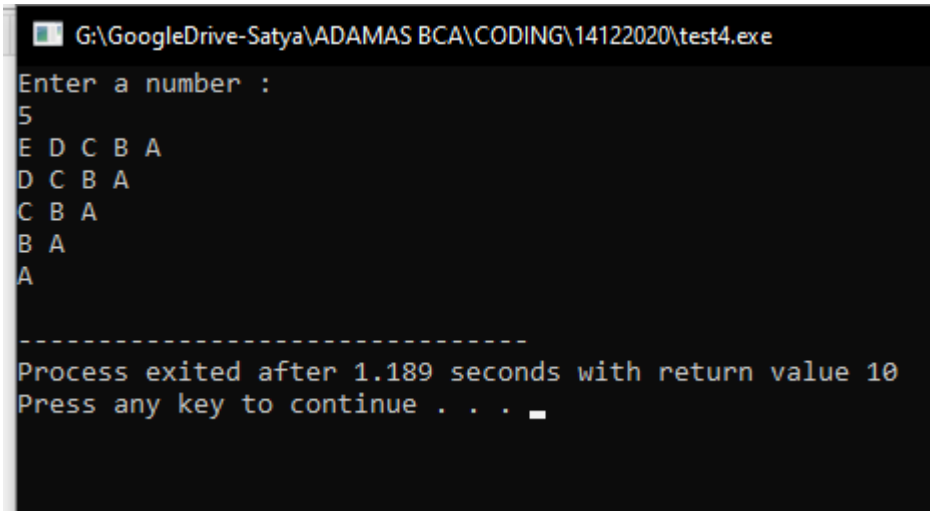
CBA

BA

A

```c
#include <stdio.h>
void main(){
    int num,i,j,k=1;
    printf("Enter a number :\n");
    scanf("%d",&num);
    for(i=num;i>=1;i--){
        for(j=i;j>=1;j--){

            printf("%c ",j+64);

        }
        printf("\n");
    }

}
```

OUTPUT

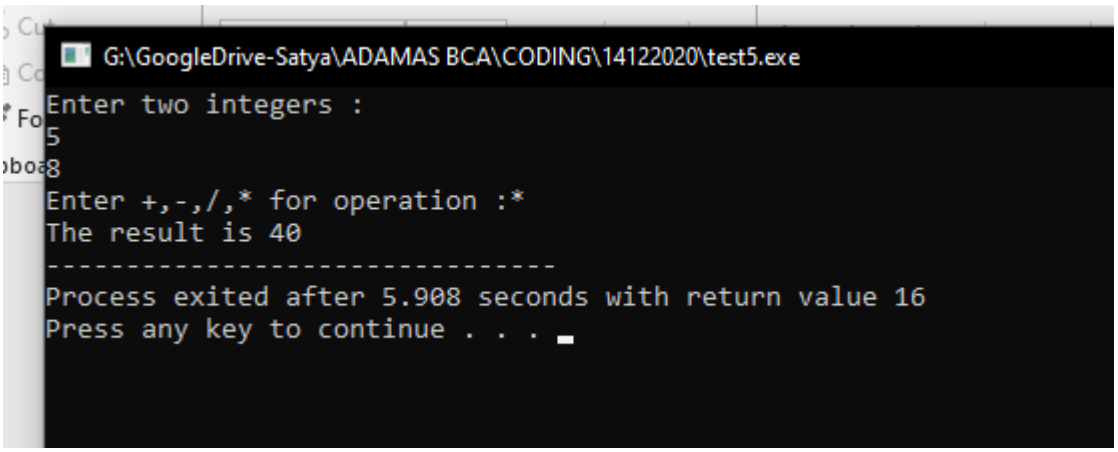


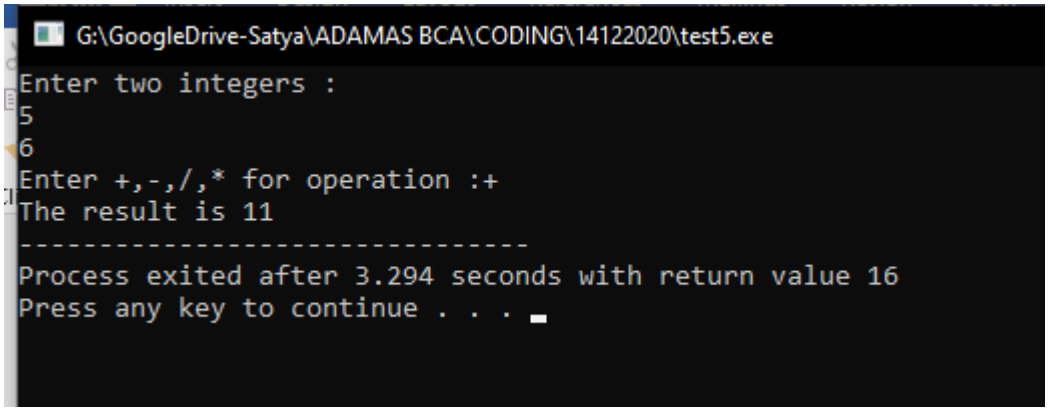
5. Write a program to add, subtract, multiply and divide two integers using user defined type function with return type.

```c
#include <stdio.h>
int add(int,int);
int sub(int,int);
int divide(int,int);
int multiply(int,int);
void main(){
    int n1,n2;
    char choice;
    printf("Enter two integers : \n");
    scanf("%d%d",&n1,&n2);
    printf("Enter +,-,/,* for operation :");
    scanf(" %c",&choice);
    switch (choice)
    {
    case '+':
    printf("The result is %d",add(n1,n2));
        break;
    case '-':
    printf("The result is %d",sub(n1,n2));
        break;
    case '/':
    printf("The result is %d",divide(n1,n2));
```

```
        break;
    case '*':
    printf("The result is %d",multiply(n1,n2));
        break;
    default:
    printf("Wrong input");
        break;
    }

}
int add(n1,n2){
    return n1+n2;
}
int sub(n1,n2){
    return n1-n2;
}
int divide(n1,n2){
    return n1/n2;
}
int multiply(n1,n2){
    return n1*n2;
}
```

OUTPUT

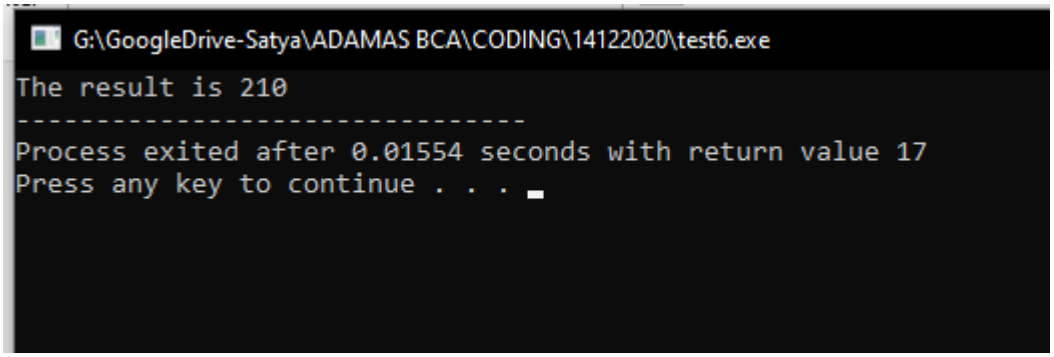




6. Write a program to calculate sum of first 20 natural numbers using recursive function.

```c
#include <stdio.h>
int naturalsum(num);
void main(){

    printf("The result is %d",naturalsum(20));

}
int naturalsum(num){
    while(num>=1){
    return num+naturalsum(num-1);
    }
}
```

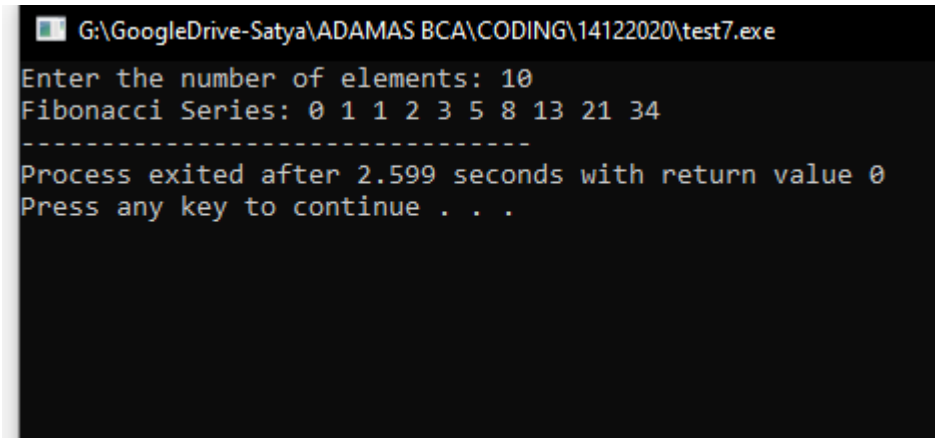
OUTPUT



7. Write a program to generate Fibonacci series using recursive function.

```c
 #include<stdio.h>
void printFibonacci(int n){
    static int n1=0,n2=1,n3;
    if(n>0){
         n3 = n1 + n2;
         n1 = n2;
         n2 = n3;
         printf("%d ",n3);
         printFibonacci(n-1);
    }
}
int main(){
    int n;
    printf("Enter the number of elements: ");
    scanf("%d",&n);
    printf("Fibonacci Series: ");
    printf("%d %d ",0,1);
    printFibonacci(n-2);
  return 0;
 }
```

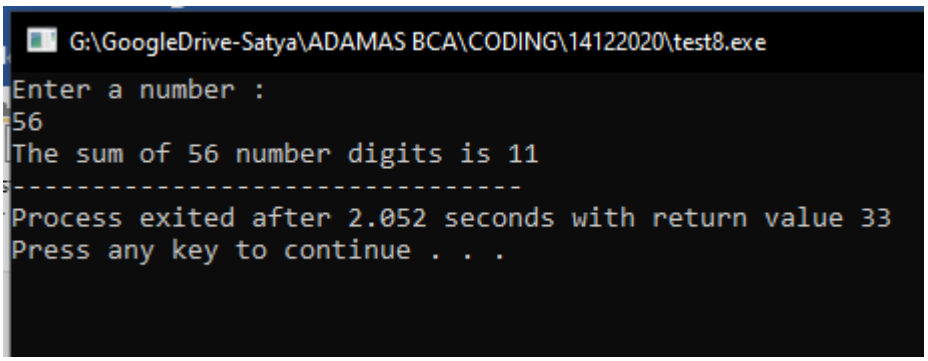
OUTPUT



8. Write a program to find sum of digits of the number using Recursive Function.

```c
#include <stdio.h>
int sum(int);
void main(){
    int num;
    printf("Enter a number :\n");
    scanf("%d",&num);
    int result=sum(num);
    printf("The sum of %d number digits is %d",num,result);


}
int sum(int num){
    int result=0;
    int rem=num%10;
    while(num>0){
    return rem+sum(num/10);
    }


}
```

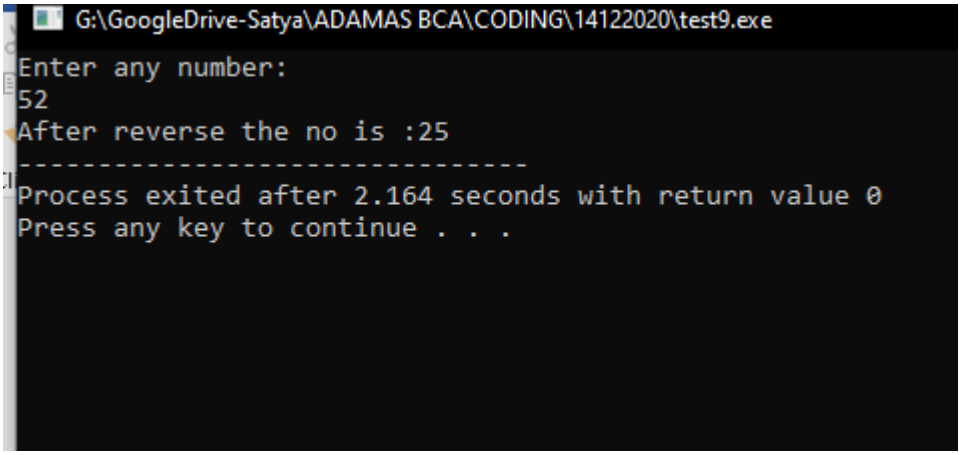
OUTPUT



9.Write a program to read an integer number and print the reverse of that number using recursion.

```c
#include<stdio.h>
int main(){
   int num,reverse_number;

   printf("Enter any number:\n");
   scanf("%d",&num);

   reverse_number=reverse_function(num);
   printf("After reverse the no is :%d",reverse_number);
   return 0;
}
int sum=0,rem;
reverse_function(int num){
   if(num){
      rem=num%10;
      sum=sum*10+rem;
      reverse_function(num/10);
   }
   return sum;
}
```

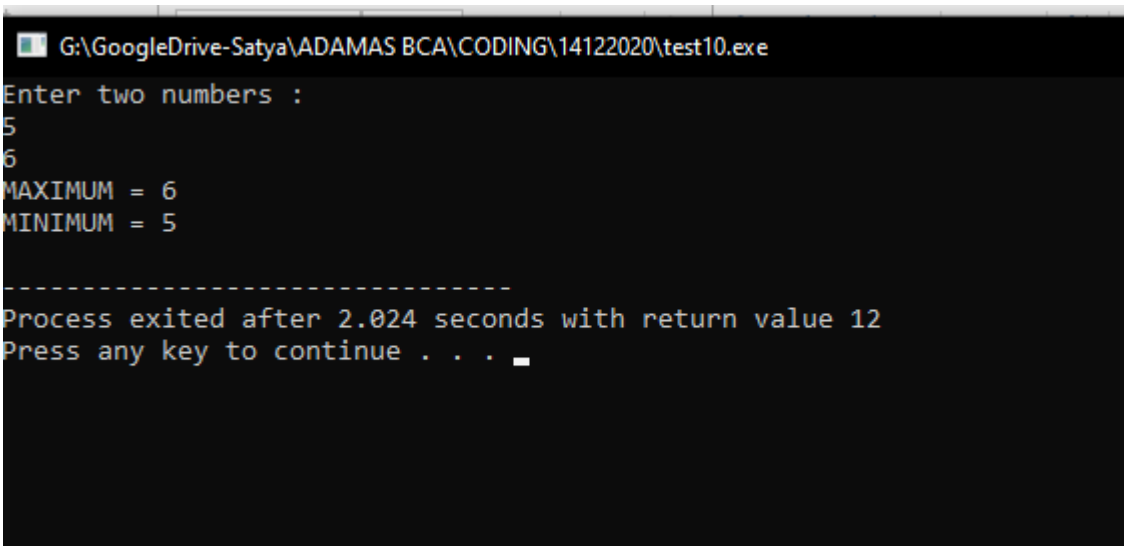
OUTPUT



10.C program to find maximum and minimum between 2 numbers using functions. Use Call by reference method during function call.

```c
#include <stdio.h>
int num1,num2;

void main(){

    printf("Enter two numbers :\n");
    scanf("%d%d",&num1,&num2);
    findmaxmin(&num1,&num2);
}
void findmaxmin(int *ptr1,int *ptr2){
    if(*ptr1>*ptr2){
        printf("MINIMUM = %d\n",*ptr2);
        printf("MAXIMUM = %d\n",*ptr1);
    }
    else{
        printf("MAXIMUM = %d\n",*ptr2);
        printf("MINIMUM = %d\n",*ptr1);


    }
}
```

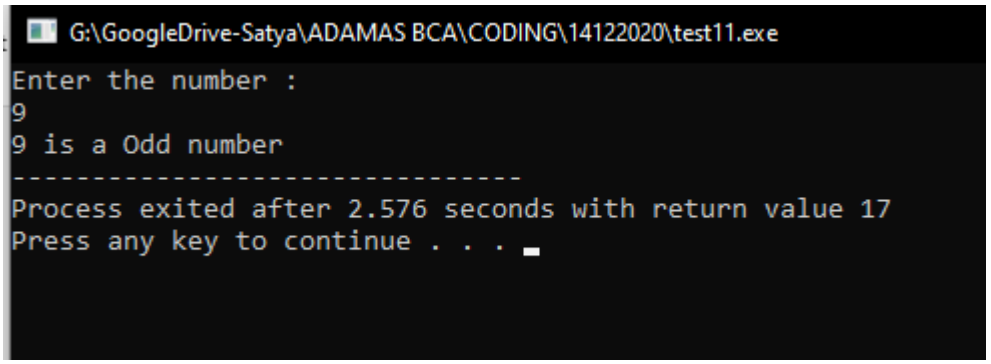
OUTPUT

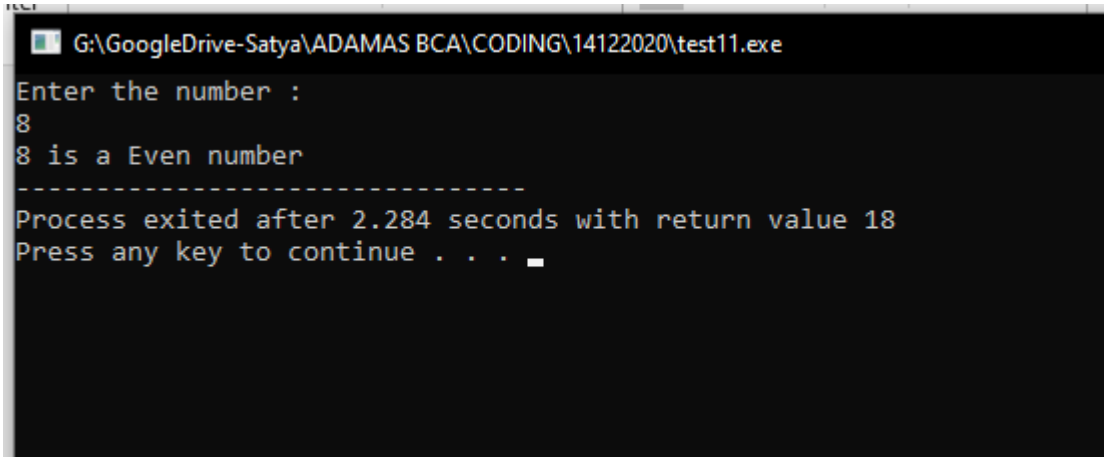


11. C program to check even or odd using functions

```c
#include <stdio.h>
int evenodd(int);
void main()
{
    int num;
    printf("Enter the number : \n");
    scanf("%d", &num);
    int result = evenodd(num);
    if (result == 1)
    {
        printf("%d is a Even number", num);
    }
    else if (result == 0)
    {
        printf("%d is a Odd number", num);
    }
}
int evenodd(int num)
{
    if (num % 2 == 0)
    {
        return 1;
    }
    else if (num % 2 != 0)
    {
        return 0;
    }
}
```

OUTPUT





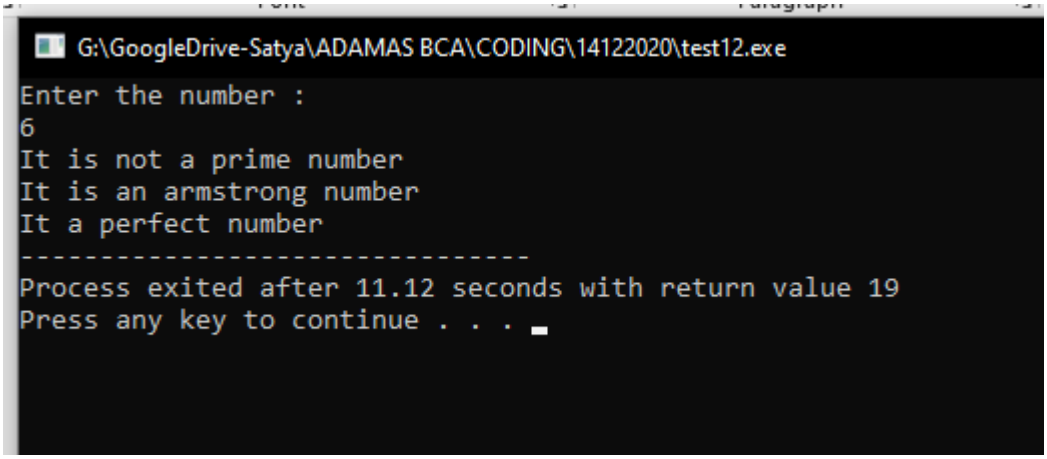
12. C program to check a user input number as prime, armstrong, perfect number using functions.

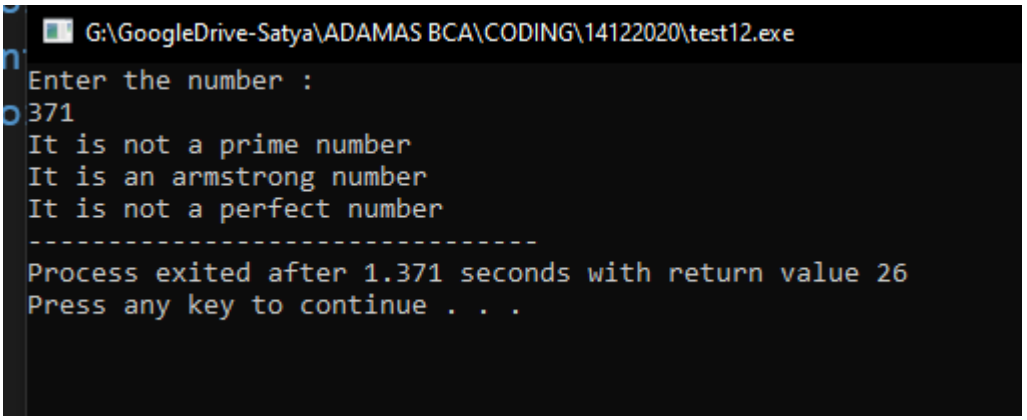
```c
#include <stdio.h>
#include <math.h>
void prime(int);
void armstrong(int,int);
void perfect(int);
int diginumber(int);
void main(){
    int num;
    printf("Enter the number :\n");
    scanf("%d",&num);
    prime(num);
    int count=diginumber(num);
    armstrong(num,count);
    perfect(num);
}
void prime(num){

    int i;
```

```
    int j=num/2;
    int flap=0;
    for(i=2;i<=j;i++){
        if(num%i==0){
            flap=1;
        }
    }
    if(flap==1){
        printf("It is not a prime number\n");
    }
    else if(flap==0){
        printf("It is a prime number\n");
    }


}
int diginumber(int n1)
{
    int count = 0;
    while (n1 != 0)
    {
        n1 = n1 / 10;
        count = count + 1;
    }
    return count;
}

void armstrong(int num,int count){
    int fixednum=num;
    int r=0;
    while(num!=0){
        int i=num%10;
        num=num/10;
        r=r+pow(i,count);

    }
    if(fixednum==r){
        printf("It is an armstrong number\n");
```

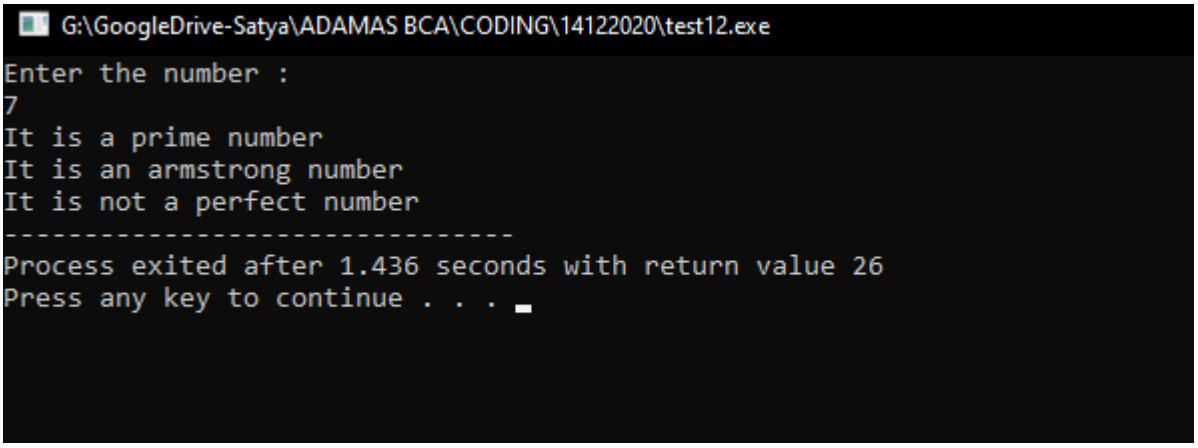
```
    }
    else{
        printf("It is not an armstrong number\n");
    }
}
void perfect(num){
    int i,r=0;
    for(i=1;i<=num;i++){
        if(num%i==0){
            r=r+i;
        }
    }
    if(num==(r-num)){
        printf("It a perfect number");
    }
    else{
        printf("It is not a perfect number");
    }


}
```

OUTPUT




G:\GoogleDrive-Satya\ADAMAS BCA\CODING\14122020\test12.exe
Enter the number :
371
It is not a prime number
It is an armstrong number
It is not a perfect number

Process exited after 1.371 seconds with return value 26
Press any key to continue . . .

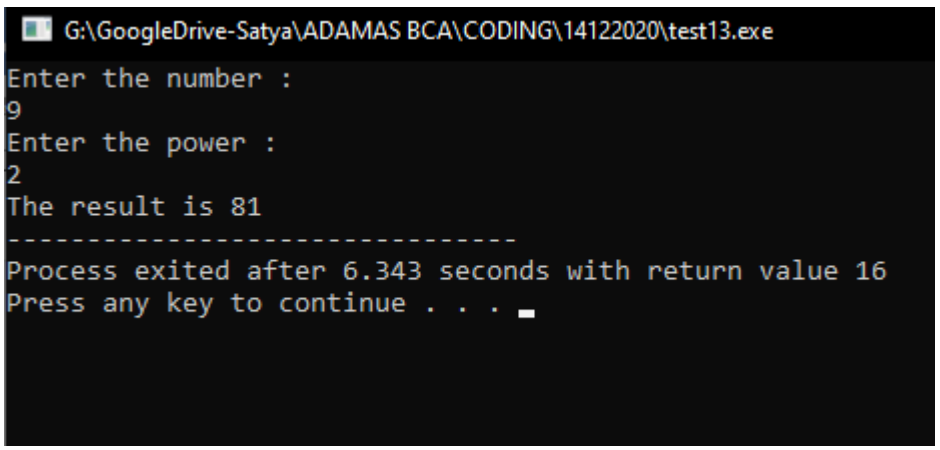

G:\GoogleDrive-Satya\ADAMAS BCA\CODING\14122020\test12.exe
Enter the number :
7
It is a prime number
It is an armstrong number
It is not a perfect number

Process exited after 1.436 seconds with return value 26
Press any key to continue . . .

13. C program to find power of a number using recursion

```c
#include <stdio.h>
int power(int, int);
void main()
{
    int num, pw;
    printf("Enter the number : \n");
    scanf("%d", &num);
    printf("Enter the power : \n");
    scanf("%d", &pw);
    int result=power(num,pw);
    printf("The result is %d", result);
}
int power(int num,int pw)
{
    if (pw >= 1)
    {
        return num * power(num, pw - 1);
    }
    else{
        return 1;
    }
}
```

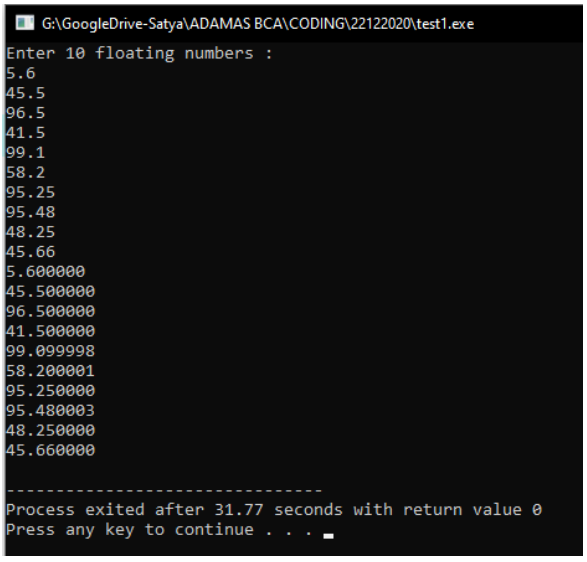
OUTPUT



1. Write a program to enter 10 floating numbers in an array and display it.

```c
#include <stdio.h>
int main(){
    int i;
    float arr[10];
    printf("Enter 10 floating numbers :\n");

    for(i=0;i<10;i++){
        scanf("%f",&arr[i]);
    }
    printf("\n");
    for(i=0;i<10;i++){
        printf("%f\n",arr[i]);
    }

    return 0;
}
```

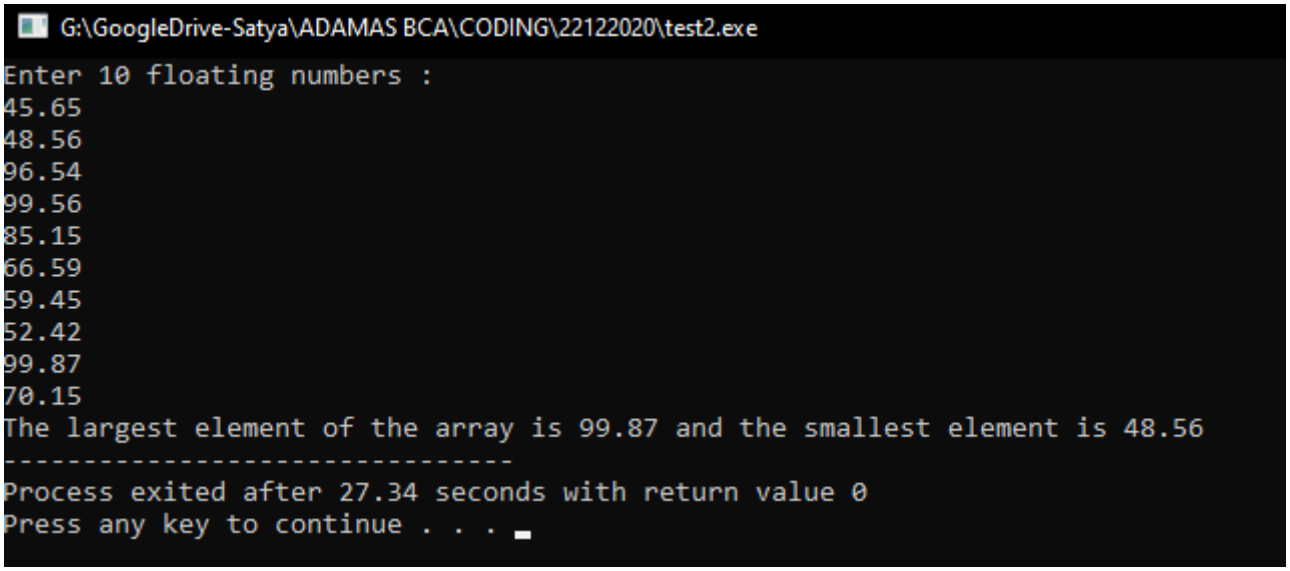
OUTPUT



2. Write a program to display largest and smallest element of an array defined in Q.No. 1.

```c
#include <stdio.h>
int main()
{
    int i;
    float arr[10], max, min;
    printf("Enter 10 floating numbers :\n");

    for (i = 0; i < 10; i++)
    {
        scanf("%f", &arr[i]);
    }

    //largest
    max=arr[1];
    for(i=1;i<10;i++){
        if(arr[i]>max){
            max=arr[i];
        }
    }

    //smallest
    min=arr[1];
    for(i=1;i<10;i++){
        if(arr[i]<min){
            min=arr[i];
        }
    }


    printf("The largest element of the array is %.2f and the smalle
st element is %.2f",max,min);

    }
```

OUTPUT

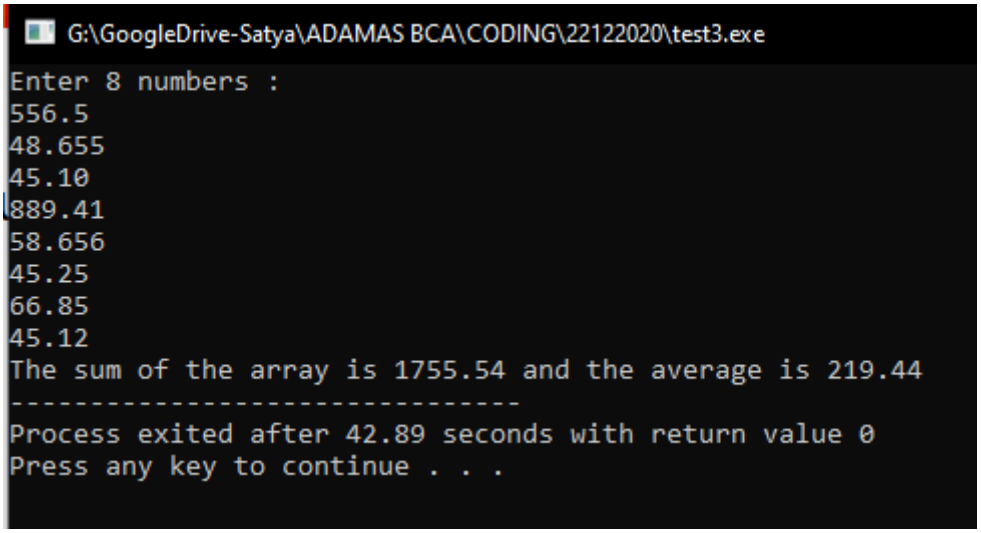


3. Write a program to initialize one dimensional array of size 8 and display the sum and

average of array elements

```c
#include <stdio.h>
int main(){
    int i;
    float arr[8],sum=0;
    printf("Enter 8 numbers :\n");

    for(i=0;i<8;i++){
        scanf("%f",&arr[i]);
    }

    for(i=0;i<8;i++){
        sum=sum+arr[i];

    }
    float average=sum/8;
    printf("The sum of the array is %.2f and the average is %.2f",s
um,average);
return 0;
}
```

OUTPUT



4. Write a program to read two matrices of order 3 * 2, add them and display the resultant

matrix in matrix form.

```c
#include <stdio.h>
void main()
{
    int arr1[3][2], arr2[3][2], i, j, sum[3][2];
    printf("Enter the values of first matrics :\n");
    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 2; j++)
        {
            scanf("%d", &arr1[i][j]);
        }
    }

    printf("Enter the values of second matrics :\n");
    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 2; j++)
        {
            scanf("%d", &arr2[i][j]);
        }
    }

    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 2; j++)
        {
```

```
            sum[i][j] = arr1[i][j] + arr2[i][j];
        }
    }

    printf("\n");
    printf("The sum of two array is \n");

    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 2; j++)
        {

            printf("%d\t",sum[i][j]);
        }
        printf("\n");
    }
}
```

OUTPUT

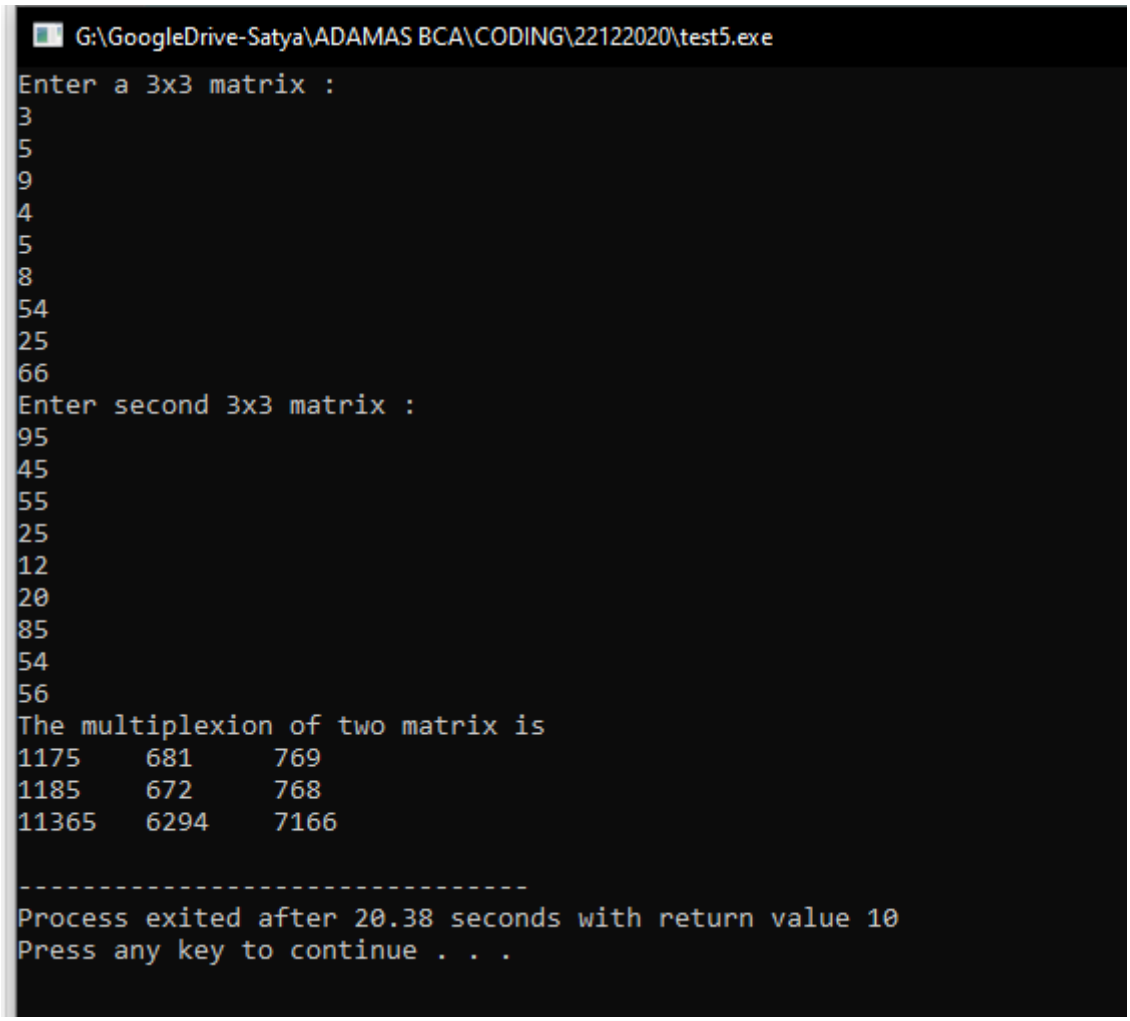
```
G:\GoogleDrive-Satya\ADAMAS BCA\CODING\22122020\test4.exe
Enter the values of first matrics :
2
6
45
99
52
58
Enter the values of second matrics :
15
65
99
56
85
25

The sum of two array is
17      71
144     155
137     83

--------------------------------
Process exited after 14.09 seconds with return value 10
Press any key to continue . . .
```

5. Write a program to multiply two 3*3 matrix.

```c
#include <stdio.h>

void main()
{
    int i, j,k,result[3][3], arr1[3][3], arr2[3][3];
    printf("Enter a 3x3 matrix :\n");
    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 3; j++)
        {
            scanf("%d", &arr1[i][j]);
        }
    }
    printf("Enter second 3x3 matrix :\n");
    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 3; j++)
        {
            scanf("%d", &arr2[i][j]);
        }
    }

    //logic

    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 3; j++)
        {
            result[i][j]=0;
            for(k=0;k<3;k++){
                result[i][j]+=arr1[i][k]*arr2[k][j];
            }
        }
    }


    //////
    printf("The multiplexion of two matrix is \n");
    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 3; j++)
```

```
        {
            printf("%d\t", result[i][j]);
        }
        printf("\n");
    }



}
```

OUTPUT



1. Write a program to input name, marks of 5 subjects of a student and display the name of the student, the total marks scored, percentage scored and the class of result.

```c
#include <stdio.h>
void main(){
    printf("Enter the student name : ");
    char name[50];
    gets(name);
    float mark[5];
    printf("Enter the marks of 5 different subject \n");
    int i;
    float totalmarks;
    for(i=0;i<5;i++){
    scanf("%f",&mark[i]);
    totalmarks=totalmarks+mark[i]; //total marks

    }
    //percentage

    float percentange = (totalmarks/500)*100;

    //class of result
    char grade;
    if(percentange>=75){
        grade='A';
    }
    else if(percentange>=35){
        grade='B';
    }
    else if(percentange<35){
        grade='C';
    }

    //outputs

    printf("\n\n");
    printf("The name of the student is : %s\n",name);
    printf("Total marks : %.2f\n",totalmarks);
    printf("The percentage is : %.2f\n",percentange);
    printf("The class of result : %c\n",grade);
```

```
}
```

OUTPUT

```
G:\GoogleDrive-Satya\ADAMAS BCA\CODING\05012021\test1.exe
Enter the student name : satyajit ghosh
Enter the marks of 5 different subject
75
47
56
55
47


The name of the student is : satyajit ghosh
Total marks : 280.00
The percentage is : 56.00
The class of result : B

--------------------------------
Process exited after 26.33 seconds with return value 24
Press any key to continue . . .
```

```
G:\GoogleDrive-Satya\ADAMAS BCA\CODING\05012021\test1.exe
Enter the student name : satyajit ghosh
Enter the marks of 5 different subject
93
92
91
90
89


The name of the student is : satyajit ghosh
Total marks : 455.00
The percentage is : 91.00
The class of result : A

--------------------------------
Process exited after 16.88 seconds with return value 24
Press any key to continue . . .
```

2. Write a program to compute grade of students using if else adder. The grades are assigned as followed:

Marks <50 F

50≤marks< 60 C

60≤marks<70 B

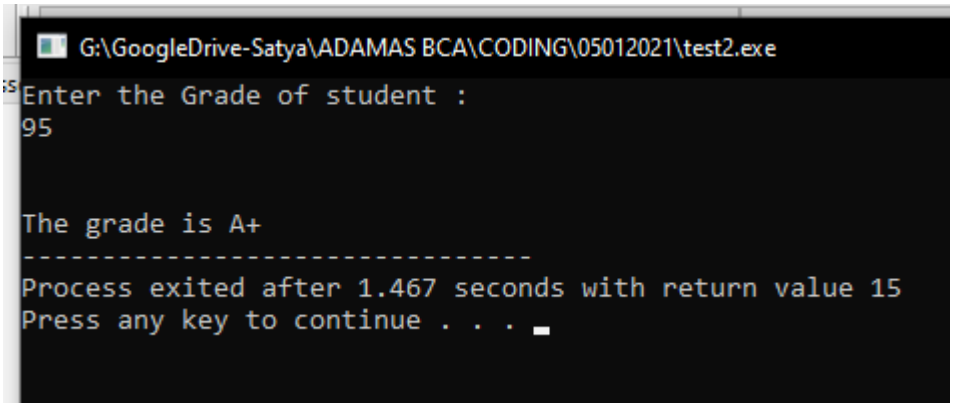
70≤marks<80 B+

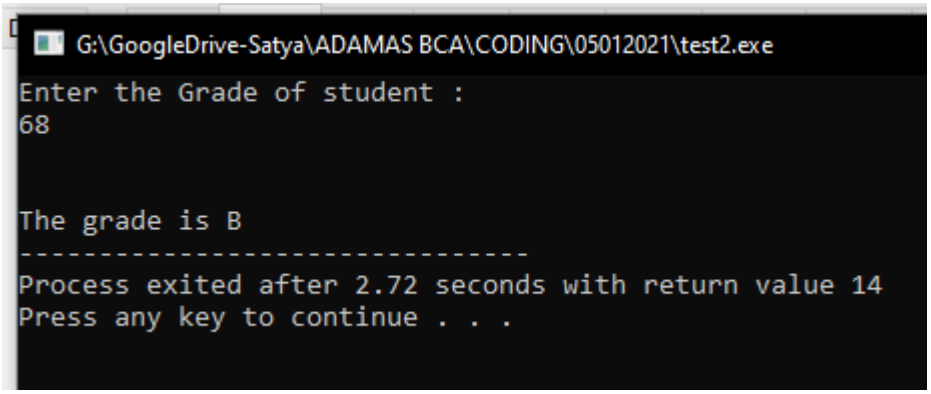
80≤marks<90 A

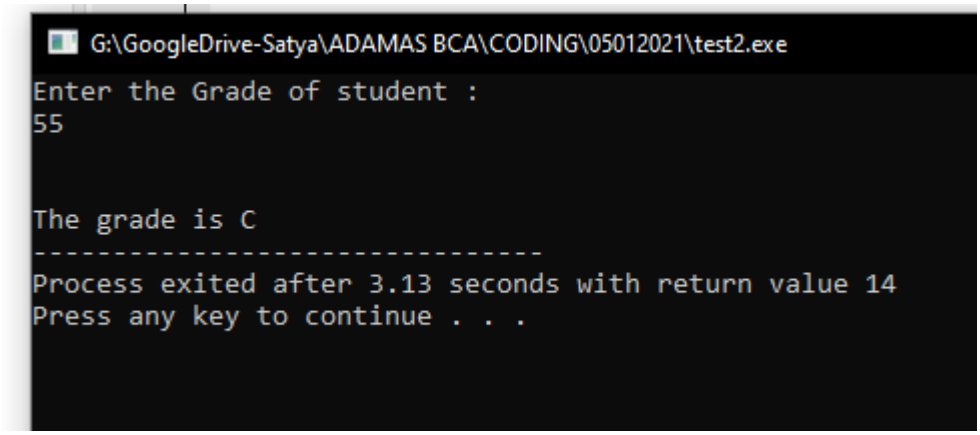
90≤marks≤ 100 A+

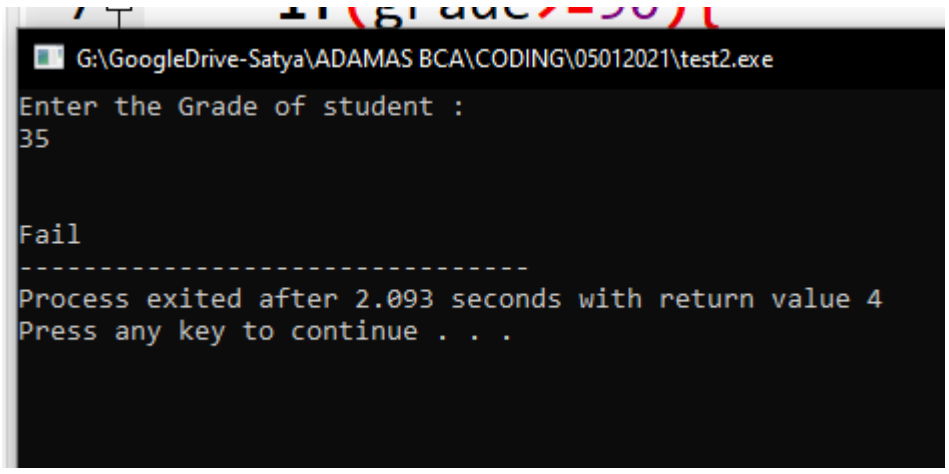
```c
#include <stdio.h>
void main(){
    float grade;
    printf("Enter the Grade of student : \n");
    scanf("%f",&grade);
    printf("\n");
    if(grade>=90){
        printf("The grade is A+");

    }
    else if(grade>=80){
        printf("The grade is A");

    }
    else if(grade>=70){
        printf("The grade is B+");

    }
    else if(grade>=60){
        printf("The grade is B");
    }
    else if(grade>=50){
        printf("The grade is C");

    }
    else
    {
        printf("Fail");
    }

}
```

OUTPUT


G:\GoogleDrive-Satya\ADAMAS BCA\CODING\05012021\test2.exe
Enter the Grade of student :
95
The grade is A+
Process exited after 1.467 seconds with return value 15
Press any key to continue . . .


G:\GoogleDrive-Satya\ADAMAS BCA\CODING\05012021\test2.exe
Enter the Grade of student :
68
The grade is B
Process exited after 2.72 seconds with return value 14
Press any key to continue . . .


G:\GoogleDrive-Satya\ADAMAS BCA\CODING\05012021\test2.exe
Enter the Grade of student :
55
The grade is C
Process exited after 3.13 seconds with return value 14
Press any key to continue . . .

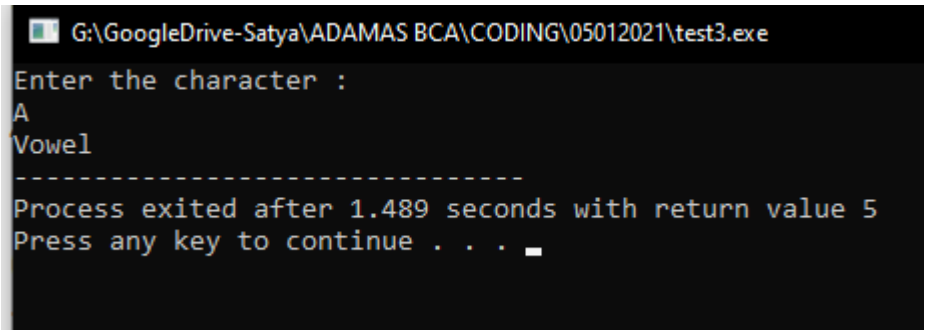

G:\GoogleDrive-Satya\ADAMAS BCA\CODING\05012021\test2.exe
Enter the Grade of student :
35
Fail
Process exited after 2.093 seconds with return value 4
Press any key to continue . . .

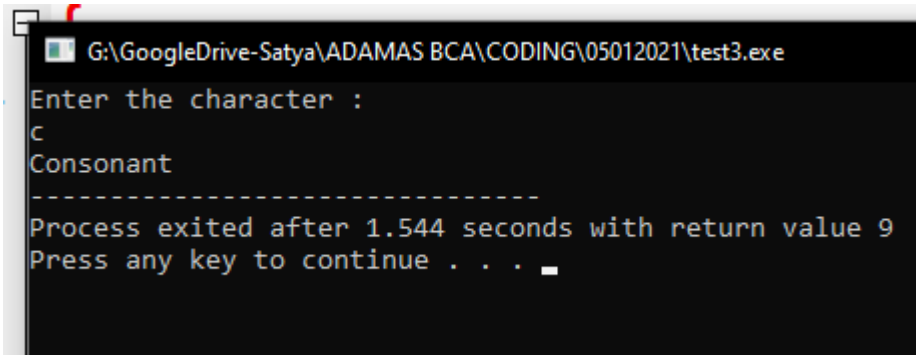
3. Write a program to find whether a character is consonant or vowel using switch statement

```c
#include <stdio.h>
void main()
{
    char charc;
    printf("Enter the character : \n");
    scanf(" %c", &charc);

    switch (charc)
    {
    case 'A':
        printf("Vowel");

        break;
    case 'a':
        printf("Vowel");

        break;

    case 'E':
        printf("Vowel");

        break;

    case 'e':
        printf("Vowel");

        break;

    case 'I':
        printf("Vowel");

        break;

    case 'i':
        printf("Vowel");

        break;

    case 'O':
        printf("Vowel");

        break;

    case 'o':
        printf("Vowel");

        break;

    case 'U':
        printf("Vowel");
```

```
        break;
    case 'u':
        printf("Vowel");
    default:
        printf("Consonant");
        break;
    }
}
```

OUTPUT



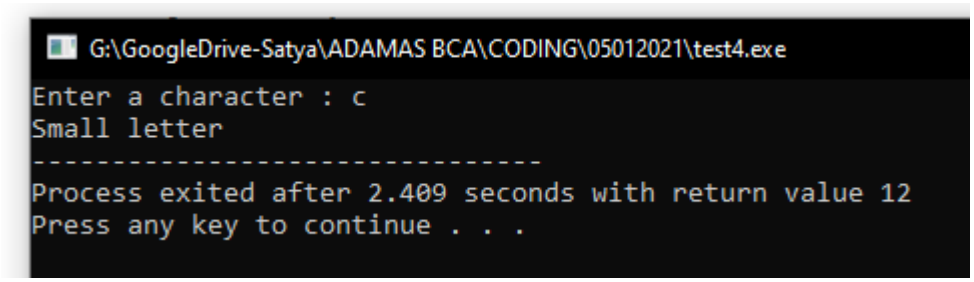


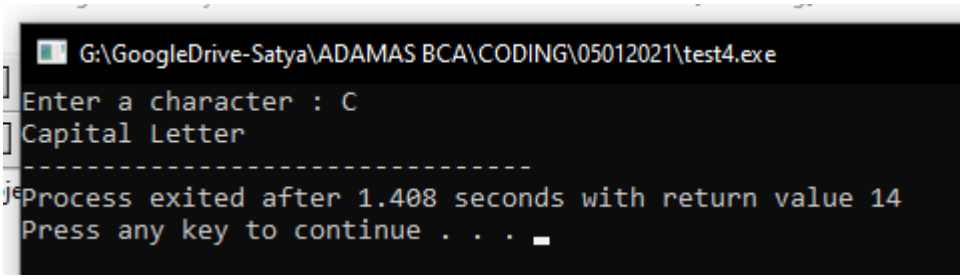
4.Write a program to determine whether the input character is capital or small letter, digits or special symbol.

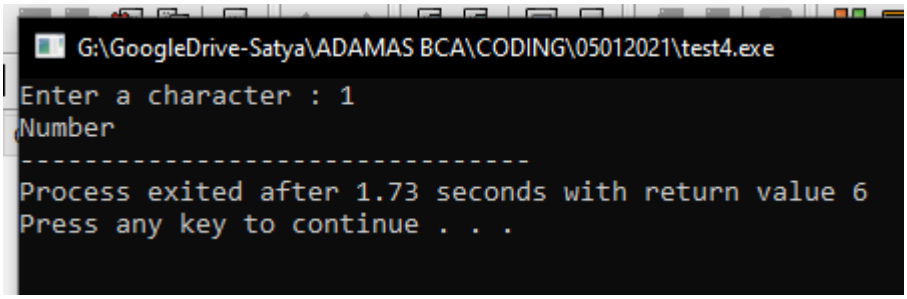
```
#include <stdio.h>
void main(){
    printf("Enter a character : ");
    char charc;
    scanf(" %c",&charc);
    int ascii = charc;
    if(ascii>=65 && ascii<=90){
        printf("Capital Letter");
    }
    else if(ascii>=97 && ascii<=122){
        printf("Small letter");
    }
    else if(ascii>=48 && ascii<=57){
        printf("Number");
    }
```

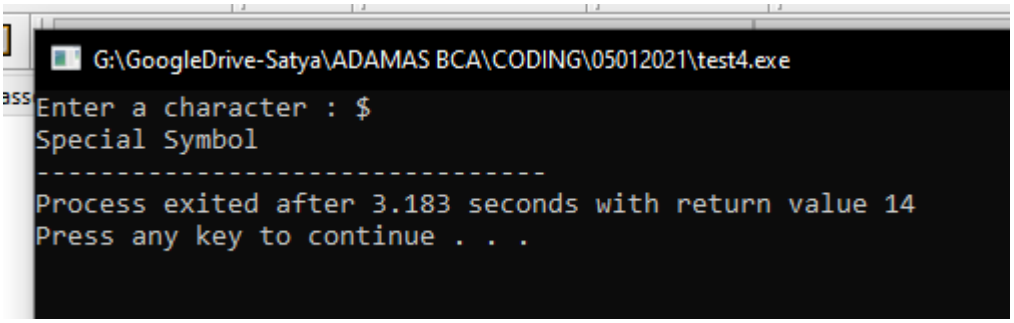
```
    else
    {
        printf("Special Symbol");
    }


}
```

OUTPUT







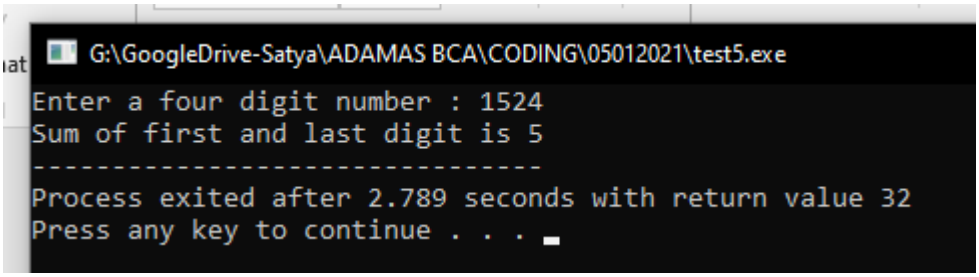


5. If a four-digit number is input through the keyboard, write a program to obtain the sum of the first and last digit of this number

```
#include <stdio.h>
void main(){
    int num,i,arr[4];
    printf("Enter a four digit number : ");
    scanf("%d",&num);
    for(i=0;i<=3;i++){
        arr[i]=num%10;
        num=num/10;
```

```
    }
    int result=arr[0]+arr[3];

    printf("Sum of first and last digit is %d",result);

}
```

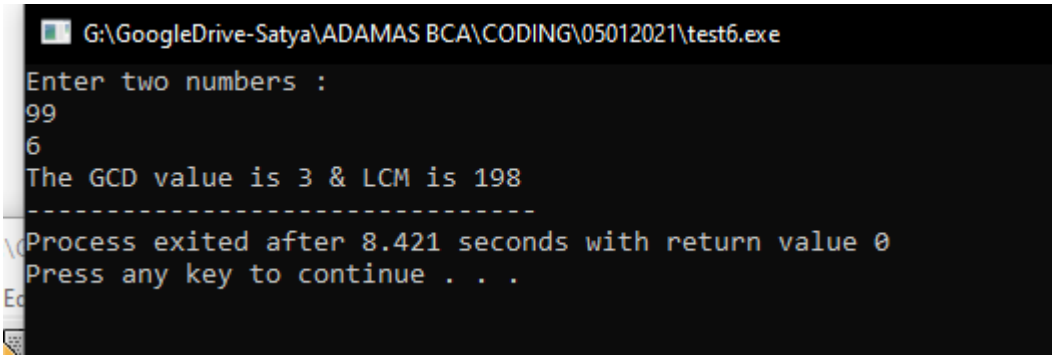
OUTPUT



6. Write a program to find GCD (greatest common divisor or HCF) and LCM (least common multiple) of two numbers.

```
#include <stdio.h>
int gcd(int a, int b);
int lcm(int a, int b);

int main()
{   int num1,num2;
    printf("Enter two numbers :\n");
    scanf("%d%d",&num1,&num2);
    printf("The GCD value is %d & LCM is %d",gcd(num1,num2),lcm(num1,num2));


    return 0;
}

int gcd(int a, int b)
{
    if (a == 0)
        return b;
    return gcd(b % a, a);
}


int lcm(int a, int b)
{
    return (a / gcd(a, b)) * b;
}
```

OUTPUT



7. Print the following pattern:

a.

```
    *
   **
  ***
 ****
*****
 ****
  ***
   **
    *
```

```c
#include <stdio.h>

int main()
{
    int i, j, N;
    int star, spaces;

    printf("Enter number of columns : ");
    scanf("%d", &N);


    spaces = N-1;
    star = 1;

    for(i=1; i<N*2; i++)
    {

        for(j=1; j<=spaces; j++)
            printf(" ");


        for(j=1; j<=star; j++)
            printf("*");


        printf("\n");

        if(i < N)
        {
            star++;
            spaces--;
```

```
        }
        else
        {
            star--;
            spaces++;
        }
    }

    return 0;
}
```

OUTPUT

```
G:\GoogleDrive-Satya\ADAMAS BCA\CODING\05012021\test7a.exe
Enter number of columns : 5
    *
   **
  ***
 ****
*****
 ****
  ***
   **
    *

--------------------------------
Process exited after 2.347 seconds with return value 0
Press any key to continue . . .
```

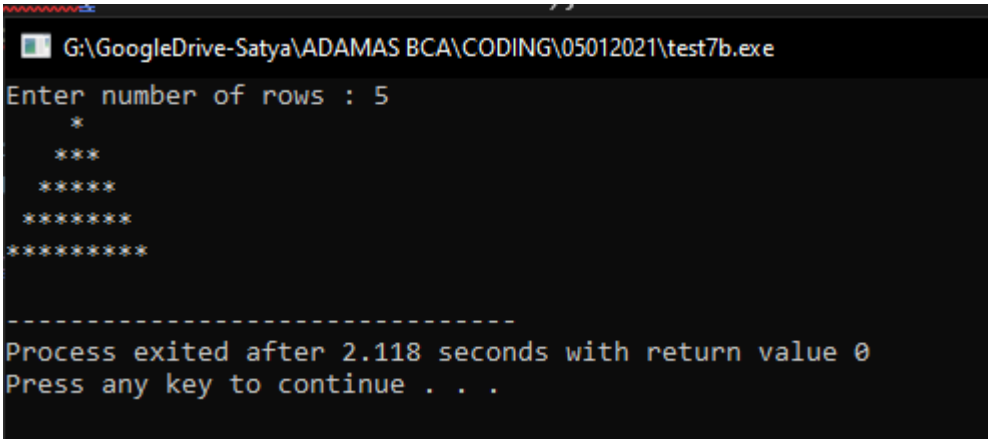
b.

```
    *
   ***
  *****
 *******
*********
```

```
#include <stdio.h>

int main()
{
    int i, j, rows;

    printf("Enter number of rows : ");
    scanf("%d", &rows);

    for(i=1; i<=rows; i++)
    {
        for(j=i; j<rows; j++)
        {
            printf(" ");
```

```
        }

        for(j=1; j<=(2*i-1); j++)
        {
            printf("*");
        }

        printf("\n");
    }

    return 0;
}
```

OUTPUT



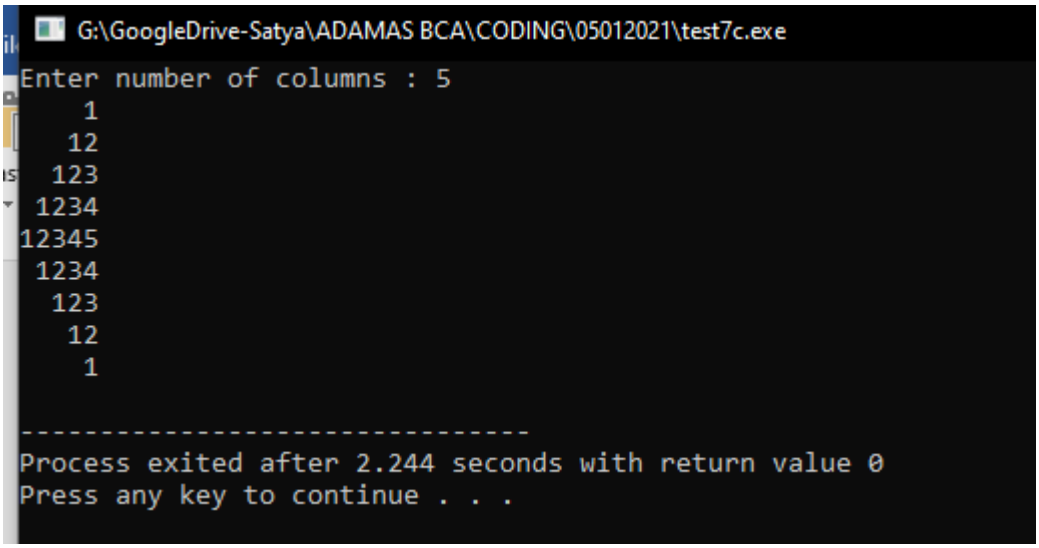
c.

```
    1
   12
  123
 1234
  123
   12
    1
```

```
#include <stdio.h>

int main()
{
    int i, j, N;
    int star, spaces;

    printf("Enter number of columns : ");
    scanf("%d", &N);


    spaces = N-1;
    star = 1;
```

```
    for(i=1; i<N*2; i++)
    {

        for(j=1; j<=spaces; j++)
            printf(" ");


        for(j=1; j<=star; j++)
            printf("%d",j);


        printf("\n");

        if(i < N)
        {
            star++;
            spaces--;
        }
        else
        {
            star--;
            spaces++;
        }
    }

    return 0;
}
```

OUTPUT

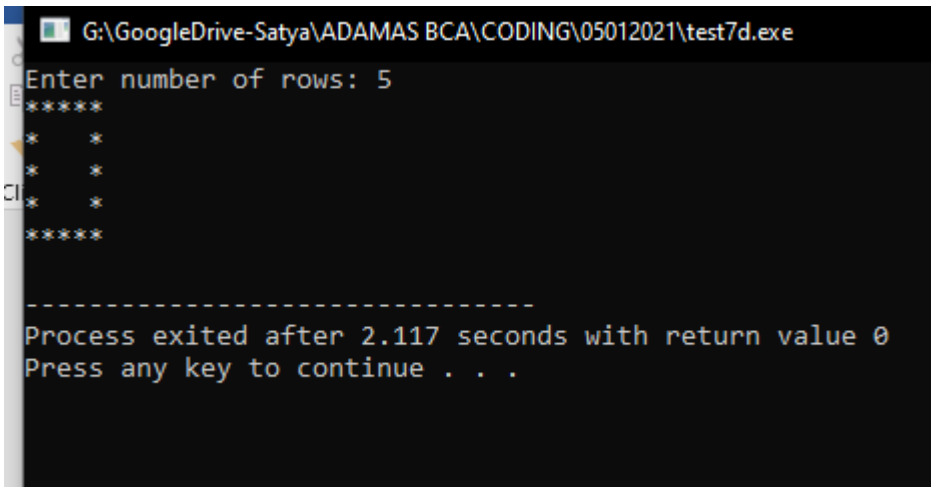


d.

```
*****
*   *
*   *
*   *
*****
```

```c
#include <stdio.h>

int main()
{
    int i, j, N;


    printf("Enter number of rows: ");
    scanf("%d", &N);


    for(i=1; i<=N; i++)
    {

        for(j=1; j<=N; j++)
        {
            if(i==1 || i==N || j==1 || j==N)
            {

                printf("*");
            }
            else
            {
                printf(" ");
            }
        }

        printf("\n");
    }

    return 0;
}
```

OUTPUT

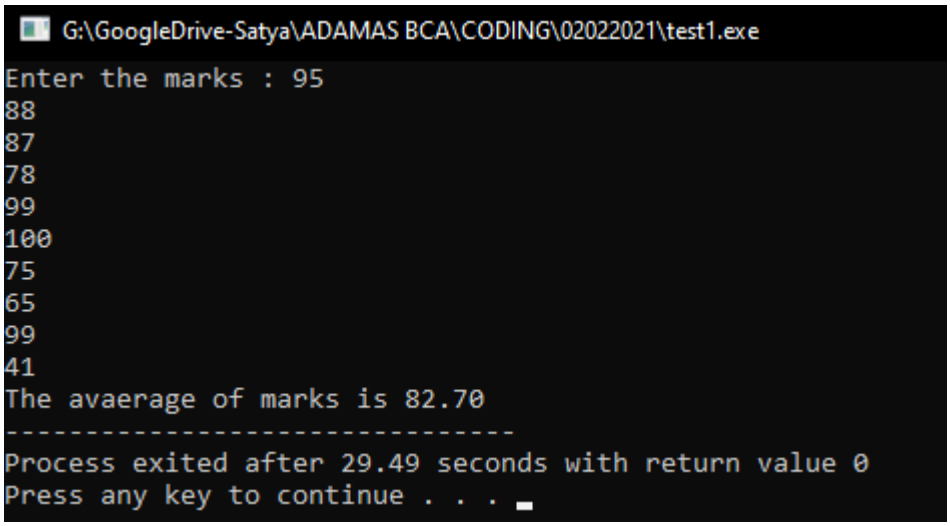


END

1. The marks obtained by 10 student of a class are entered through keyboard. Calculate and print the average marks of the students.

```c
#include <stdio.h>
int main(){
    int i;
    float marks[10],sum;
    printf("Enter the marks : ");
    for(i=0;i<10;i++){
        float n1;
        scanf("%f",&n1);
        marks[i]=n1;

    }
    for(i=0;i<10;i++){
        sum+=marks[i];

    }
    float average=sum/10;
    printf("The average of marks is %.2f",average);
    return 0;
}
```

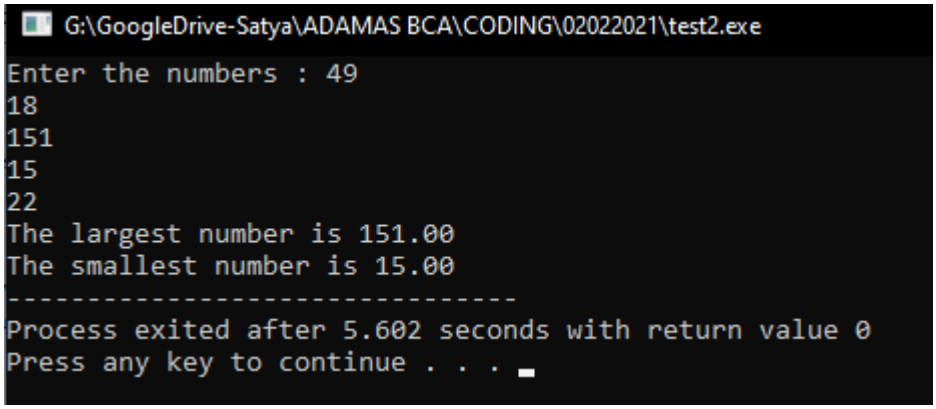
OUTPUT



2. Input an array of 5 elements through keyboard. Find out the largest and smallest element of the array.

```c
#include <stdio.h>
int main(){
    int i;
    float num[5];
    printf("Enter the numbers : ");
    for(i=0;i<5;i++){
        float n1;
        scanf("%f",&n1);
        num[i]=n1;

    }
    //smallest
    float small=num[0];
    for(i=0;i<5;i++){
        if(num[i]<small){
            small=num[i];
        }
    }
    //largest
    float large=num[0];
    for(i=0;i<5;i++){
        if(num[i]>large){
            large=num[i];
        }
    }

    //output
    printf("The largest number is %.2f\n",large);
    printf("The smallest number is %.2f",small);
return 0;
}
```

OUTPUT



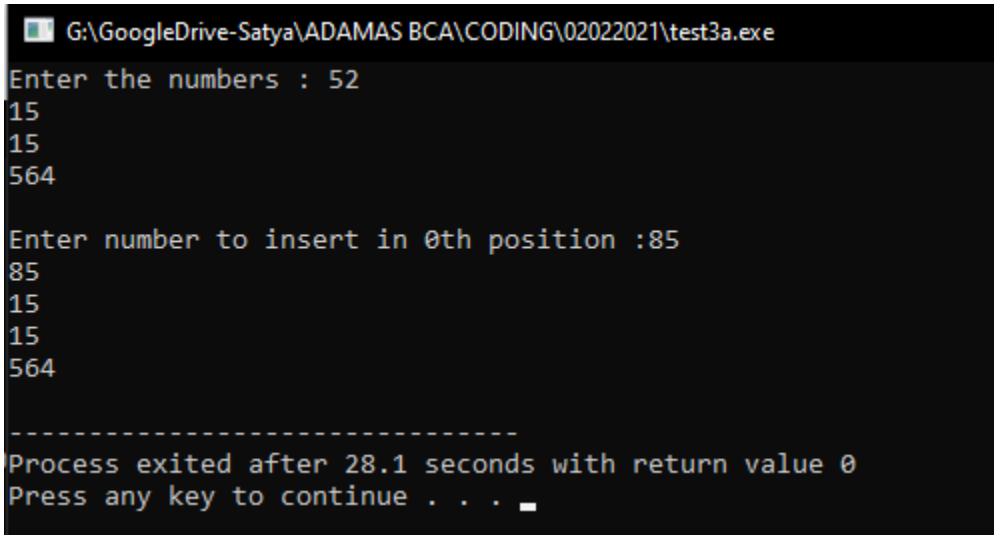
3.

a) Create an array of 4 integers and insert the elements through keyboard. Then insert an element at 0^{th} position of the array.

b) Insert an element at Xth position of an array of integer.

```c
#include <stdio.h>
int main(){
    int i;
    int num[4];
    printf("Enter the numbers : ");
    for(i=0;i<4;i++){
        int n1;
        scanf("%d",&n1);
        num[i]=n1;

    }
    printf("\n");
    printf("Enter number to insert in 0th position :");
    int number;
    scanf("%d",&number);
    num[0]=number;


    //printing the array
        for(i=0;i<4;i++){
        printf("%d\n",num[i]);

    }
    return 0;
}
```

OUTPUT

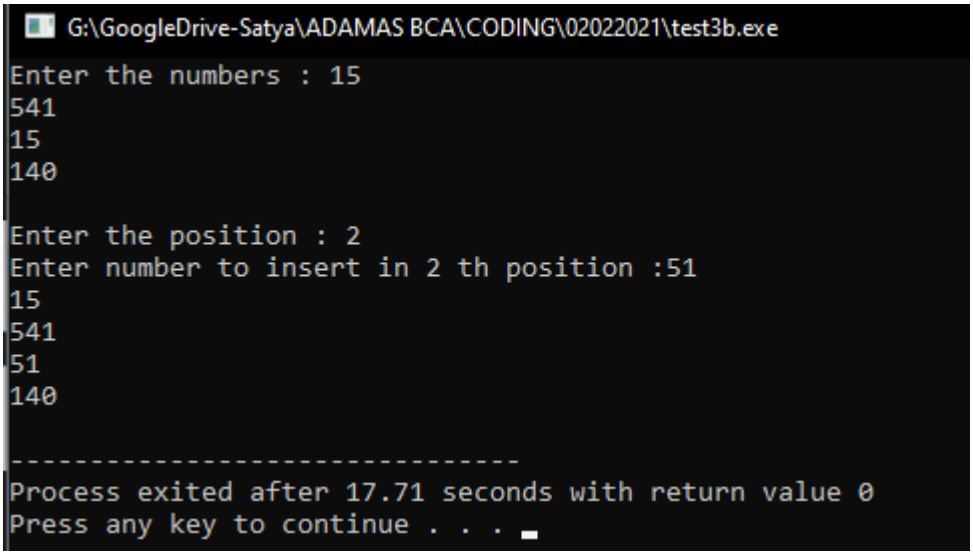


B

```c
#include <stdio.h>
int main(){
    int i;
    int num[4];
    printf("Enter the numbers : ");
    for(i=0;i<4;i++){
        int n1;
        scanf("%d",&n1);
        num[i]=n1;

    }
    printf("\n");
    printf("Enter the position : ");
    int position;
    scanf("%d",&position);
    printf("Enter number to insert in %d th position :",position);
    int number;
    scanf("%d",&number);
    num[position]=number;


    //printing the array
        for(i=0;i<4;i++){
        printf("%d\n",num[i]);
```

```
    }
    return 0;

}
```

OUTPUT

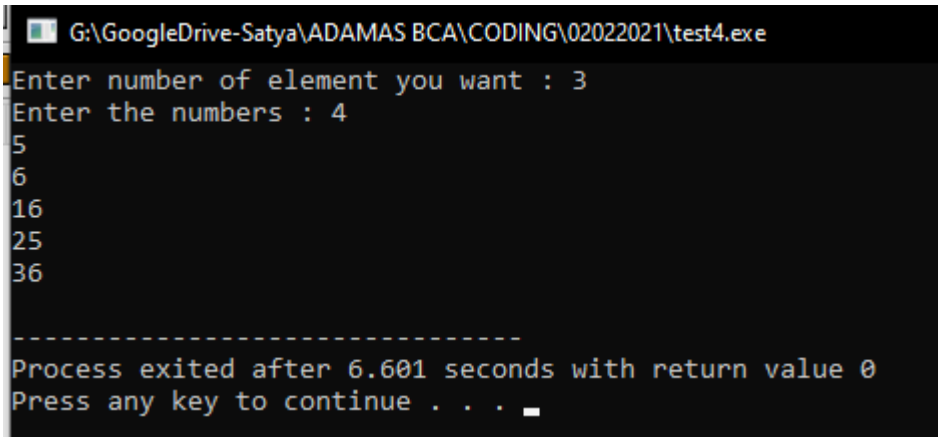


4.Pass the elements of an array to a function which finds the square of each element and then prints it.

```
#include <stdio.h>
int i, elements;
void squre(int num[]);
int main()
{
    printf("Enter number of element you want : ");
    scanf("%d", &elements);

    int num[elements];
    printf("Enter the numbers : ");
    for (i = 0; i < elements; i++)
    {
        int n1;
        scanf("%d", &n1);
        num[i] = n1;
    }
    squre(num);
    return 0;
```

```
}
void squre(int num[])
{
    for (i = 0; i < elements; i++)
    {
        printf("%d\n", num[i] * num[i]);
    }
}
```

OUTPUT

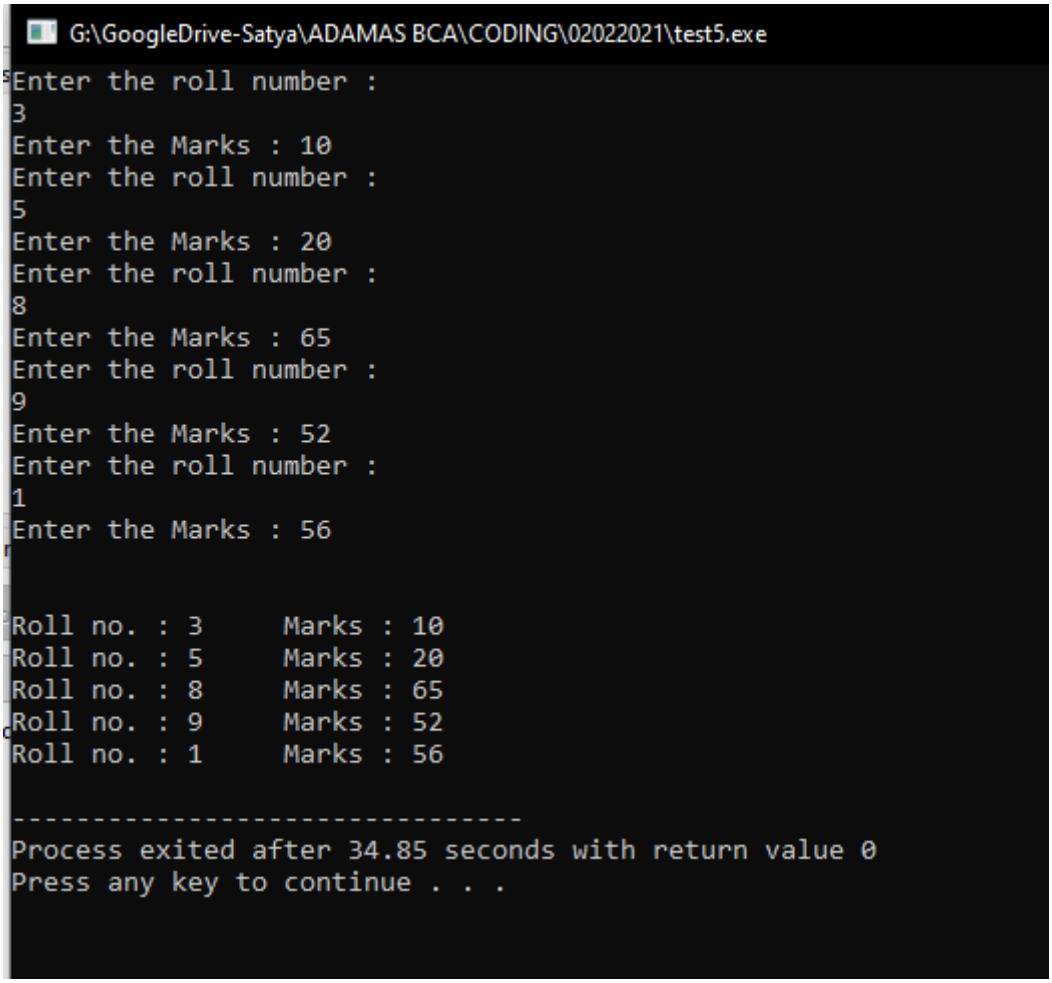


5.Print the roll number and corresponding marks of 5 students of a class using 2-D array.

```
#include <stdio.h>
int main(){
     //taking input
     int i,roll,marks,students[5][5];
     for(i=0;i<5;i++){
         printf("Enter the roll number :\n");
         scanf("%d",&roll);
         students[i][0]=roll;
         printf("Enter the Marks : ");
         scanf("%d",&marks);
         students[i][1]=marks;
     }

     //output

     printf("\n\n");
     for(i=0;i<5;i++){
```

```
        printf("Roll no. : %d \t Marks : %d\n",students[i][0],stude
nts[i][1]);
     }
    return 0;
}
```

OUTPUT



6. Print the resultant matrix in both the following cases. The elements are user input.

a) Add the following two 2x2 matrices.

A= 3 2 B = 4 7

5 5 2 4

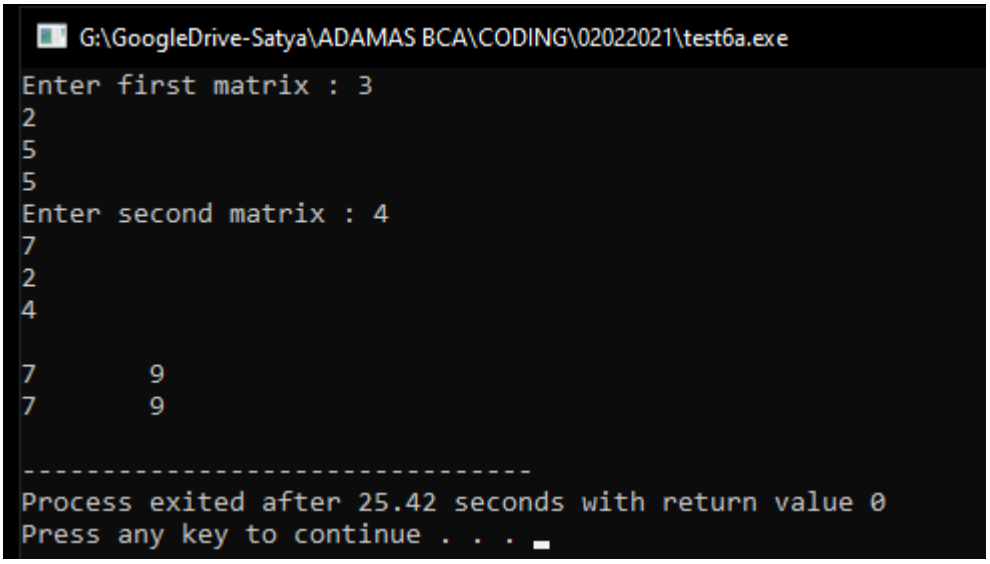
b) Subtract the following two 2x2 matrices.

A= 6 3 B = 7 5

2 6 1 3

```c
#include <stdio.h>
int main()
{
    int mat1[2][2];
    int mat2[2][2];
    int i, j;

    printf("Enter first matrix : ");

    for (i = 0; i < 2; i++)
    {
        for (j = 0; j < 2; j++)
        {
            scanf("%d", &mat1[i][j]);
        }
    }
    printf("Enter second matrix : ");

    for (i = 0; i < 2; i++)
    {
        for (j = 0; j < 2; j++)
        {
            scanf("%d", &mat2[i][j]);
        }
    }
    printf("\n");
    for (i = 0; i < 2; i++)
    {
        for (j = 0; j < 2; j++)
        {
            printf("%d\t", mat1[i][j] + mat2[i][j]);
        }
        printf("\n");
    }
    return 0;
}
```

OUTPUT



B

```c
#include <stdio.h>
int main()
{
    int mat1[2][2];
    int mat2[2][2];
    int i, j;

    printf("Enter first matrix : ");

    for (i = 0; i < 2; i++)
    {
        for (j = 0; j < 2; j++)
        {
            scanf("%d", &mat1[i][j]);
        }
    }
    printf("Enter second matrix : ");

    for (i = 0; i < 2; i++)
    {
        for (j = 0; j < 2; j++)
        {
            scanf("%d", &mat2[i][j]);
```

```
        }
    }
    printf("\n");
    for (i = 0; i < 2; i++)
    {
        for (j = 0; j < 2; j++)
        {
            printf("%d\t", mat1[i][j] - mat2[i][j]);
        }
        printf("\n");
    }
    return 0;
}
```

OUTPUT

```
G:\GoogleDrive-Satya\ADAMAS BCA\CODING\02022021\test6b.exe
Enter first matrix : 6
3
2
6
Enter second matrix : 7
5
1
3

-1      -2
1       3

--------------------------------
Process exited after 22.78 seconds with return value 0
Press any key to continue . . .
```

7. Multiply the following matrices. At first check whether they are multiplication compatible or not. Print the resultant matrix. The elements are user input.

A = 1 2 B = 3 2 7

3 4 5 3 5

```
#include <stdio.h>

void enterData(int firstMatrix[][10], int secondMatrix[][10], int rowFirst, int columnFirst, int rowSecond, int column
Second);
void multiplyMatrices(int firstMatrix[][10], int secondMatrix[][10], int multResult[][10], int rowFirst, int columnFir
st, int rowSecond, int columnSecond);
void display(int mult[][10], int rowFirst, int columnSecond);

int main()
{
```

```c
    int firstMatrix[10][10], secondMatrix[10][10], mult[10][10], rowFirst, columnFirst, rowSecond, columnSecond, i, j,
 k;

    printf("Enter rows and column for first matrix: ");
    scanf("%d %d", &rowFirst, &columnFirst);

    printf("Enter rows and column for second matrix: ");
    scanf("%d %d", &rowSecond, &columnSecond);

    while (columnFirst != rowSecond)
    {
        printf("Error! column of first matrix not equal to row of second.\n");
        printf("Enter rows and column for first matrix: ");
        scanf("%d%d", &rowFirst, &columnFirst);
        printf("Enter rows and column for second matrix: ");
        scanf("%d%d", &rowSecond, &columnSecond);
    }

        enterData(firstMatrix, secondMatrix, rowFirst, columnFirst, rowSecond, columnSecond);

        multiplyMatrices(firstMatrix, secondMatrix, mult, rowFirst, columnFirst, rowSecond, columnSecond);

        display(mult, rowFirst, columnSecond);

    return 0;
}

void enterData(int firstMatrix[][10], int secondMatrix[][10], int rowFirst, int columnFirst, int rowSecond, int column
Second)
{
    int i, j;
    printf("\nEnter elements of matrix 1:\n");
    for(i = 0; i < rowFirst; ++i)
    {
        for(j = 0; j < columnFirst; ++j)
        {
            printf("Enter elements a%d%d: ", i + 1, j + 1);
            scanf("%d", &firstMatrix[i][j]);
        }
    }

    printf("\nEnter elements of matrix 2:\n");
    for(i = 0; i < rowSecond; ++i)
    {
        for(j = 0; j < columnSecond; ++j)
        {
            printf("Enter elements b%d%d: ", i + 1, j + 1);
            scanf("%d", &secondMatrix[i][j]);
        }
    }
}

void multiplyMatrices(int firstMatrix[][10], int secondMatrix[][10], int mult[][10], int rowFirst, int columnFirst, in
t rowSecond, int columnSecond)
{
    int i, j, k;

    for(i = 0; i < rowFirst; ++i)
    {
        for(j = 0; j < columnSecond; ++j)
        {
            mult[i][j] = 0;
        }
    }

    for(i = 0; i < rowFirst; ++i)
    {
        for(j = 0; j < columnSecond; ++j)
        {
            for(k=0; k<columnFirst; ++k)
            {
                mult[i][j] += firstMatrix[i][k] * secondMatrix[k][j];
            }
```

```
        }
    }
}

void display(int mult[][10], int rowFirst, int columnSecond)
{
    int i, j;
    printf("\nOutput Matrix:\n");
    for(i = 0; i < rowFirst; ++i)
    {
        for(j = 0; j < columnSecond; ++j)
        {
            printf("%d  ", mult[i][j]);
            if(j == columnSecond - 1)
                printf("\n\n");
        }
    }
}
```

OUTPUT

```
G:\GoogleDrive-Satya\ADAMAS BCA\CODING\02022021\test7.exe
Enter rows and column for first matrix: 2
2
Enter rows and column for second matrix: 2
3

Enter elements of matrix 1:
Enter elements a11: 1
Enter elements a12: 2
Enter elements a21: 3
Enter elements a22: 4

Enter elements of matrix 2:
Enter elements b11: 3
Enter elements b12: 2
Enter elements b13: 7
Enter elements b21: 5
Enter elements b22: 3
Enter elements b23: 5

Output Matrix:
13  8  17

29  18  41


--------------------------------
Process exited after 57.58 seconds with return value 0
Press any key to continue . . .
```

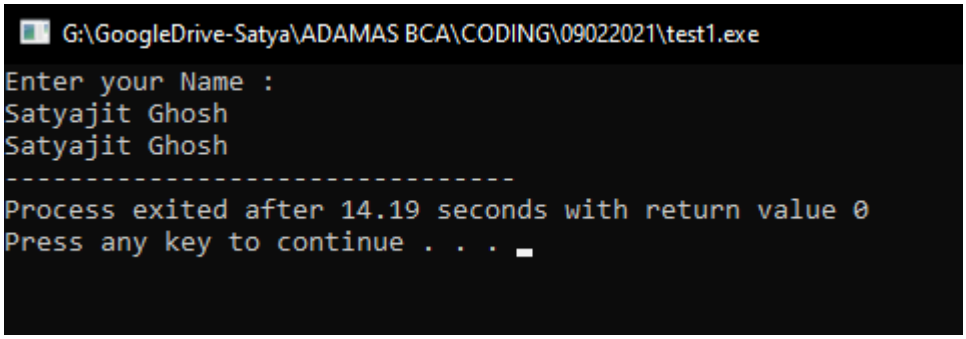
```
G:\GoogleDrive-Satya\ADAMAS BCA\CODING\02022021\test7.exe
Enter rows and column for first matrix: 3
1
Enter rows and column for second matrix: 2
5
Error! column of first matrix not equal to row of second.
Enter rows and column for first matrix:
```

END

1. Enter your full name from the keyboard and print it.

```c
#include <stdio.h>
int main(){
    printf("Enter your Name : \n");
    char name[25];
    gets(name);
    printf("%s",name);

    return 0;
}
```

OUTPUT

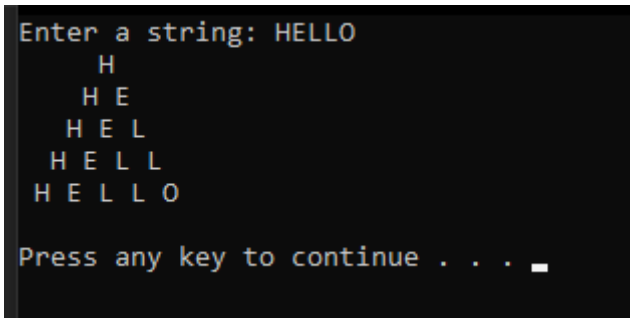


2. Take a string from the user (e.g. HELLO) and print it in the following pattern.

```
    H
   H E
  H E L
 H E L L
H E L L O
```

```c
#include <stdio.h>
int main()
{
    char str[20];
    int i, j, k;

    printf("Enter a string: ");
    scanf("%s", str);

    for (i = 0; i <= 4; i++)
    {
        for (j = 0; j <= 4 - i; j++)
            printf(" ");

        for (k = 0; k <= i; k++)
            printf("%c ", str[k]);

        printf("\n");
    }
    return 0;
}
```

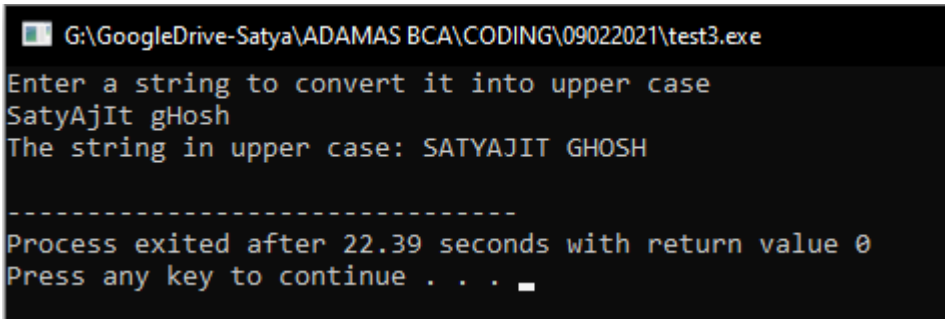
OUTPUT



3. Convert lower case character of a string into uppercase character. [Hint: ASCII(Uppercase character)=ASCII(Lowercase character) -32]

```c
#include <stdio.h>
void upper_string(char []);
int main()
{
char string[100];
printf("Enter a string to convert it into upper case\n"
);
gets(string);
upper_string(string);
printf("The string in upper case: %s\n", string);
return 0;
}
void upper_string(char s[]) {
int c = 0;
while (s[c] != '\0') {
if (s[c] >= 'a' && s[c] <= 'z') {
s[c] = s[c] - 32;
}
c++;
}
}
```

OUTPUT



4. Count the number of vowels, words and blanks of a given string.

```c
#include <stdio.h>
int main() {
    char line[150];
    int vowels, consonant, digit, space;

    vowels = consonant = digit = space = 0;

    printf("Enter a line of string: ");
    fgets(line, sizeof(line), stdin);

    for (int i = 0; line[i] != '\0'; ++i) {
        if (line[i] == 'a' || line[i] == 'e' || line[i]
 == 'i' ||
            line[i] == 'o' || line[i] == 'u' || line[i]
 == 'A' ||
            line[i] == 'E' || line[i] == 'I' || line[i]
 == 'O' ||
            line[i] == 'U') {
            ++vowels;
        } else if ((line[i] >= 'a' && line[i] <= 'z') |
| (line[i] >= 'A' && line[i] <= 'Z')) {
            ++consonant;
        } else if (line[i] >= '0' && line[i] <= '9') {
            ++digit;
        } else if (line[i] == ' ') {
            ++space;
        }
    }

    printf("Vowels: %d", vowels);
    printf("\nConsonants: %d", consonant);
    printf("\nDigits: %d", digit);
```

```
    printf("\nWhite spaces: %d", space);
    return 0;
}
```

OUTPUT

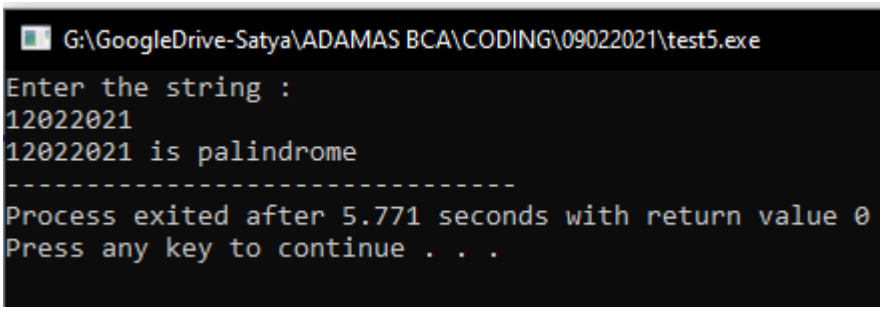
```
G:\GoogleDrive-Satya\ADAMAS BCA\CODING\09022021\test4.exe
Enter a line of string: Hello world @ 2021
Vowels: 3
Consonants: 7
Digits: 4
White spaces: 3
--------------------------------
Process exited after 14.32 seconds with return value 0
Press any key to continue . . .
```

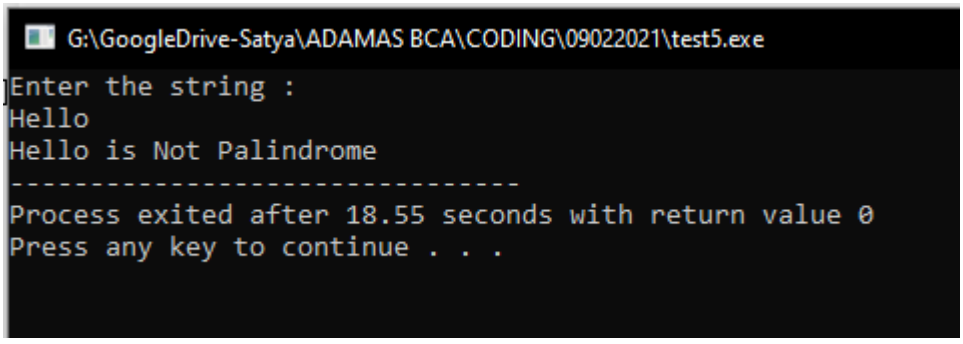
5. Check whether a string is palindrome or not.

```
#include <stdio.h>
#include <string.h>

void isPalindrome(char str[])
{

    int l = 0;
    int h = strlen(str) - 1;

    while (h > l)
    {
        if (str[l++] != str[h--])
        {
            printf("%s is Not Palindrome", str);
            return;
        }
    }
    printf("%s is palindrome", str);
}
```

```c
int main()
{
    char string[100];
    printf("Enter the string : \n");
    gets(string);
    isPalindrome(string);

    return 0;
}
```

OUTPUT



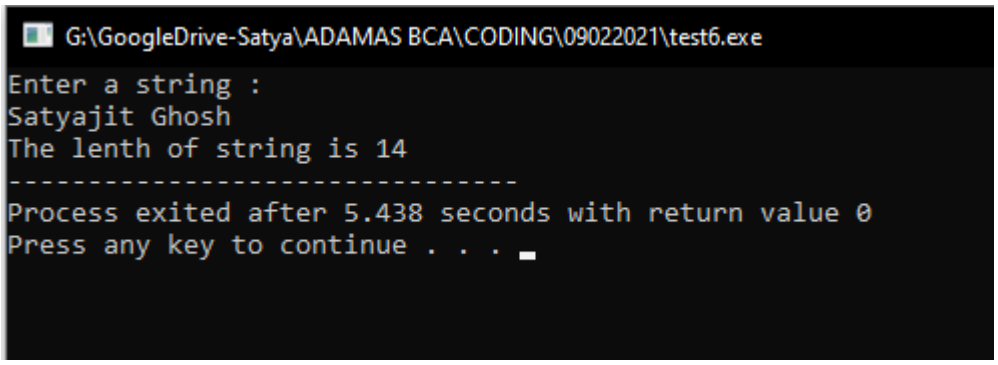


6. Find the length of a string without using any string library function.

```c
#include <string.h>
int main(){
    printf("Enter a string : \n");
    char string[100];
    gets(string);
    int i;
    for(i=0;string[i]!='\0';i++);
```

```
    printf("The lenth of string is %d",i);
    return 0;
}
```

OUTPUT



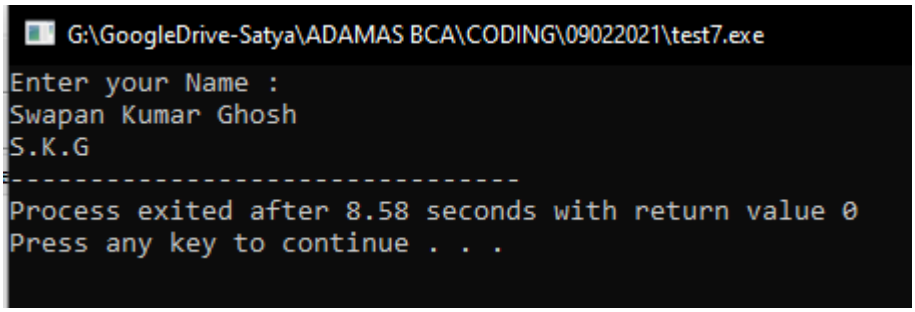
7. Print the initial of your full name.

e.g. Input: Abir Kumar Roy

Output: A.K.R

```
#include <stdio.h>
#include <string.h>
int main(){
    printf("Enter your Name : \n");
    char name[25];
    gets(name);
    int i;
    printf("%c",name[0]);
    for(i=0;name[i]!='\0';i++){
        if(name[i]==' '){
            printf(".");
            printf("%c",name[i+1]);
        }
    }
    return 0;
}
```

OUTPUT


G:\GoogleDrive-Satya\ADAMAS BCA\CODING\09022021\test7.exe
Enter your Name :
Swapan Kumar Ghosh
S.K.G

Process exited after 8.58 seconds with return value 0
Press any key to continue . . .