DELHI TECHNOLOGICAL UNIVERSITY

(Formerly Delhi College of Engineering) Shahbad Daulatpur, Bawana Road, Delhi 110042

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

s

CO102: Programming Fundamentals
Lab File

Submitted To:
Dr. Ashish Girdhar
Assistant Professor
Department of Computer Science and Engineering

Submitted By:
Sanskar Verma
B.Tech (ME) 1st Year
Roll NO:2K20/A10/62

INDEX

17.	Program to find factorial of a number using recursion		
18.	Program to find the length of the string without using strlen and then pass the string to characters		
19.	Program to count the number of vowels in a given string		
20.	Program to check if a given string is palindrome or not		
21.	Program to string concatenation.		
22.	Program to string comparison.		
23.	Program to string reverse.		
24.	Program to convert a string from lower case to upper case and vice versa.		
25.	Program for addition of two 3 x 3 matrices		
26.	Program to multiply two 3 x 3 matrices		
27.	Program to swap two numbers using pointers.		
28.	Program to generate employee details using structure		
29.	Program to find the area and perimeter of a circle, square, rectangle and triangle using functions		
30.	Program to pass and return pointer to a function hence calculate average of an array		
31.	Program to pass an array as pointer to a function that		

	calculates the sum of all elements of array		
32.	Program to demonstrate the example of array of pointers		
33.	Program which copies one file contents to other		
34.	Program to find size of a given file		
35.	Program to read a file and after converting all lower case to upper case letters write it to another file.		
36.	Program to find the size of a given file.		

EXPERIMENT-1

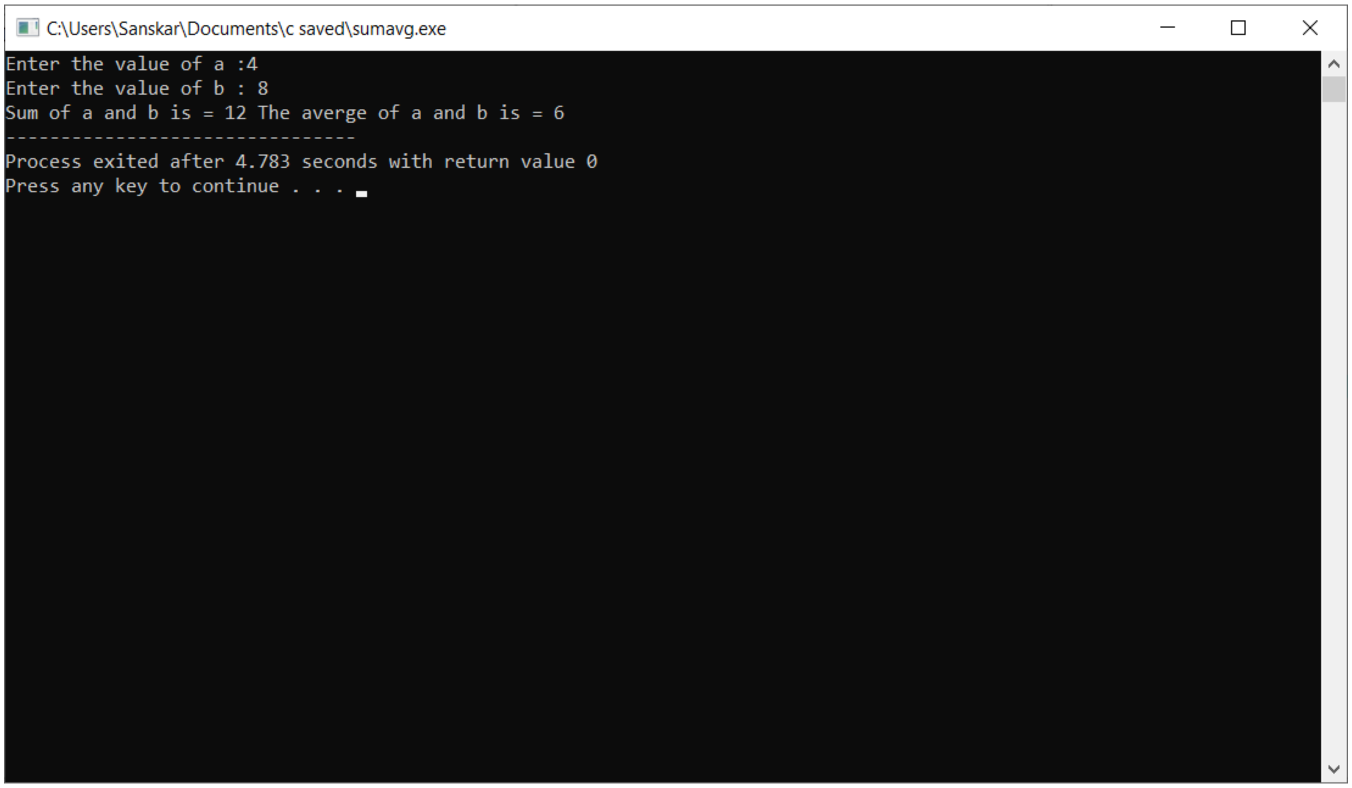
OBJECTIVE- Program to find the sum and average of two numbers.

INTRODUCTION- To find the sum of two numbers we use the ‘+’ operator, and for average we divide the sum of the numbers using ‘/’operator.

PROGRAM CODE-

```
#include<stdio.h>
int main()
{
	int a,b,c,d;
	printf("Enter the value of a :");
	scanf("%d",&a);
	printf("Enter the value of b : ");
	scanf("%d",&b);
	c=a+b; // variable c stores the sum of a and b
	printf("Sum of a and b is = %d ",c);
	d= c/2; // variable d stores the value of average of a and b
printf("The averge of a and b is = %d",d);
return 0;
}
```

OUTPUT-



C:\Users\Sanskar\Documents\c saved\sumavg.exe

```
Enter the value of a :4
Enter the value of b : 8
Sum of a and b is = 12 The averge of a and b is = 6
--------------------------------
Process exited after 4.783 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-2

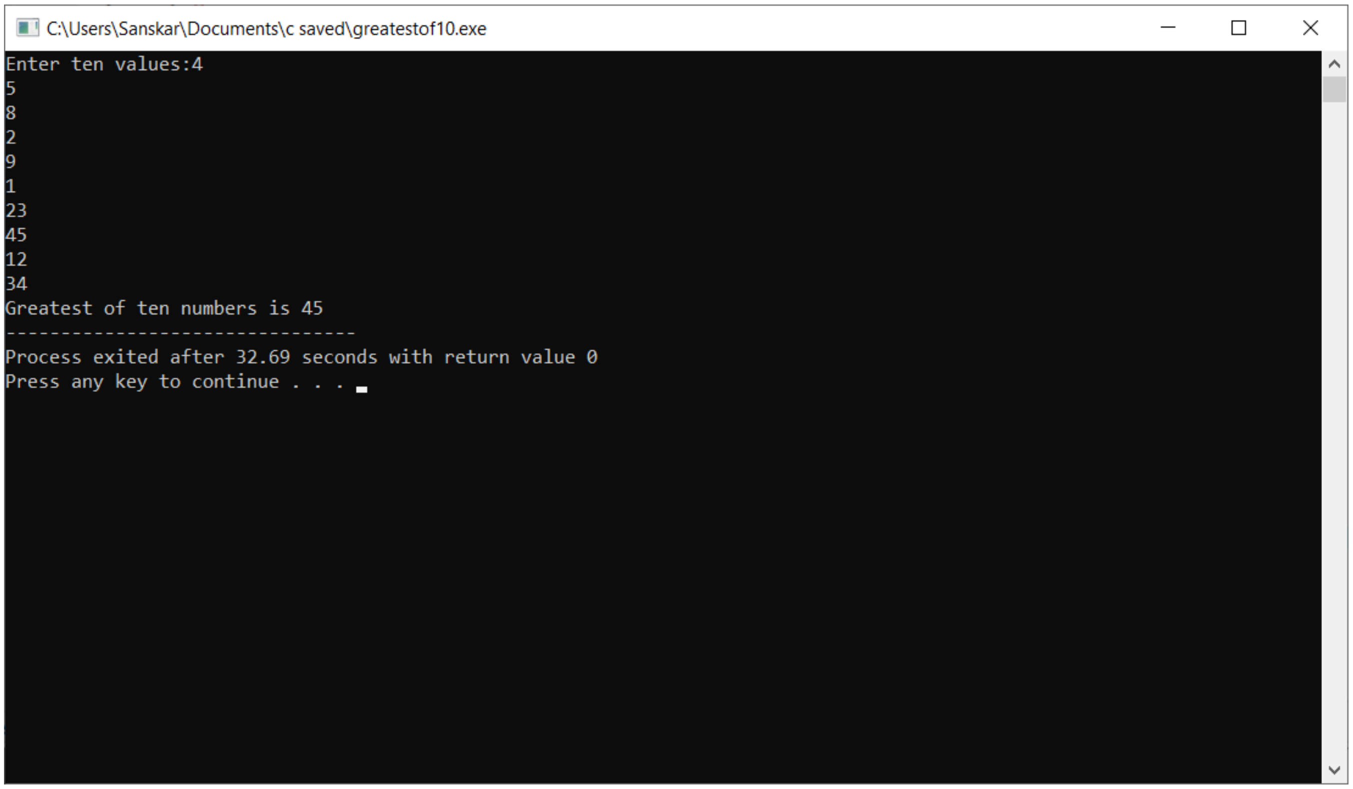
OBJECTIVE-Program to find the greatest of 10 numbers.

INTRODUCTION- To take input of 10 numbers, we make an 1D integer array (contains all elements of same data type) with 10 elements. Then we use a loop to input the numbers. After taking input we assume the first element (a [0]) to be the greatest, then we use a loop to compare the greatest value with the rest of the array elements, if any element is greater than the assumed greatest, we update the value of the greatest variable, we run this loop till the end of the array.

PROGRAM CODE-

```
#include <stdio.h>
  int main()
  {
    int a[10]; // taking array of 10 elements
    int i;
    int greatest;
    printf("Enter ten values:");
    //Store 10 numbers in an array
    for (i = 0; i < 10; i++)
            {
    scanf("%d", &a[i]);
    }
    //Assuming  that a[0] is greatest
    greatest = a[0];
    for (i = 0; i < 10; i++) {
if (a[i] > greatest)
 {
greatest = a[i];
    }
    }
    printf("Greatest of ten numbers is %d", greatest);
    return 0;
  }
```

OUTPUT-


C:\Users\Sanskar\Documents\c saved\greatestof10.exe

```
Enter ten values:4
5
8
2
9
1
23
45
12
34
Greatest of ten numbers is 45
--------------------------------
Process exited after 32.69 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-3

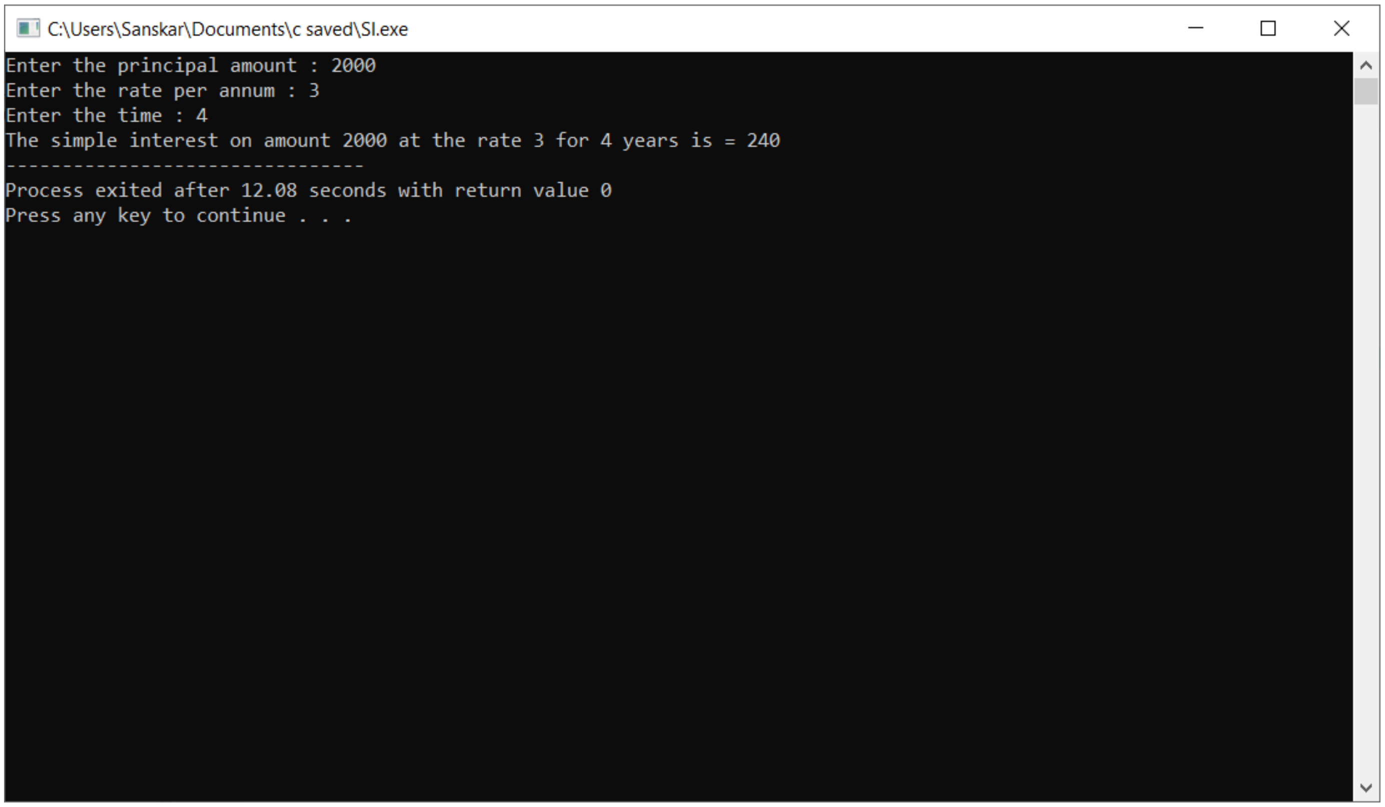
OBJECTIVE-Program to find the Simple Interest

INTRODUCTION- The formula for simple interest is (p*r*t)/100 [p is the principal amount, r is the rate, t is the time period, we use the ‘*’and ‘/’operators.

PROGRAM CODE-

```
#include<stdio.h>
int main()
{
        int p,r,t,si;
        printf("Enter the principal amount : ");
        scanf("%d",&p);
        printf("Enter the rate per annum : ");
        scanf("%d",&r);
        printf("Enter the time : ");
        scanf("%d",&t);
si = (p*r*t)/100;


printf("The simple interest on amount %d at the rate %d for %d years is = %d",p,r,t,si);
return 0;
}
```

OUTPUT-



```
Enter the principal amount : 2000
Enter the rate per annum : 3
Enter the time : 4
The simple interest on amount 2000 at the rate 3 for 4 years is = 240
--------------------------------
Process exited after 12.08 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-4

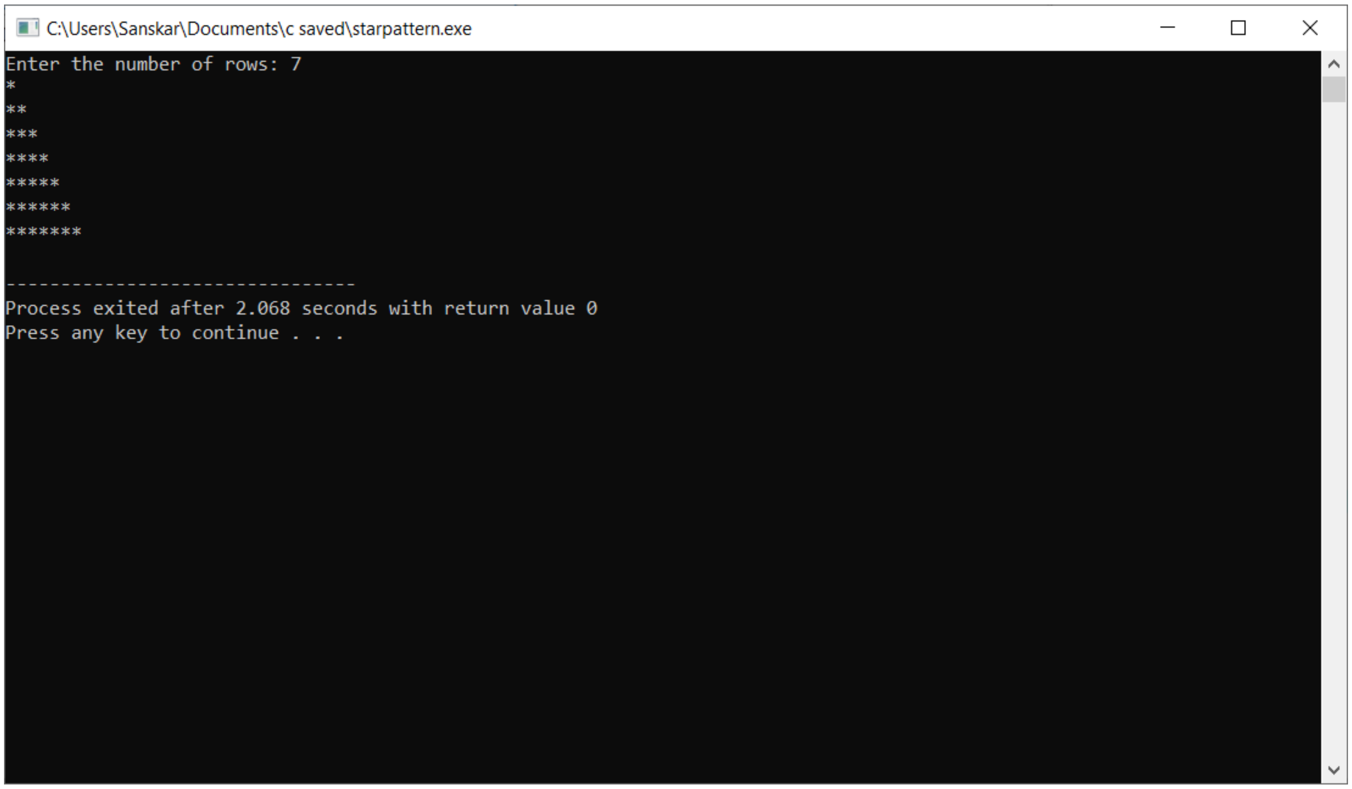
OBJECTIVE- Program to print the triangle of stars

INTRODUCTION- In this program we use the concept of nested loops. The main(outer) loop runs from 1 till the value of rows that user has input, and the inner loop runs from 1 to ‘i’ for every value of i.

PROGRAM CODE-

```
#include <stdio.h>
int main()
{
   int i, j, rows;
   printf("Enter the number of rows: ");


 scanf("%d", &rows); //taking input from user
   for (i = 1; i <= rows; ++i)
   {
      for (j = 1; j <= i; ++j) //using for loop to print the stars
              {
         printf("*");
      }
      printf("\n");
   }
   return 0;
}
```

OUTPUT-



```
Enter the number of rows: 7
*
**
***
****
*****
******
*******


--------------------------------
Process exited after 2.068 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-5

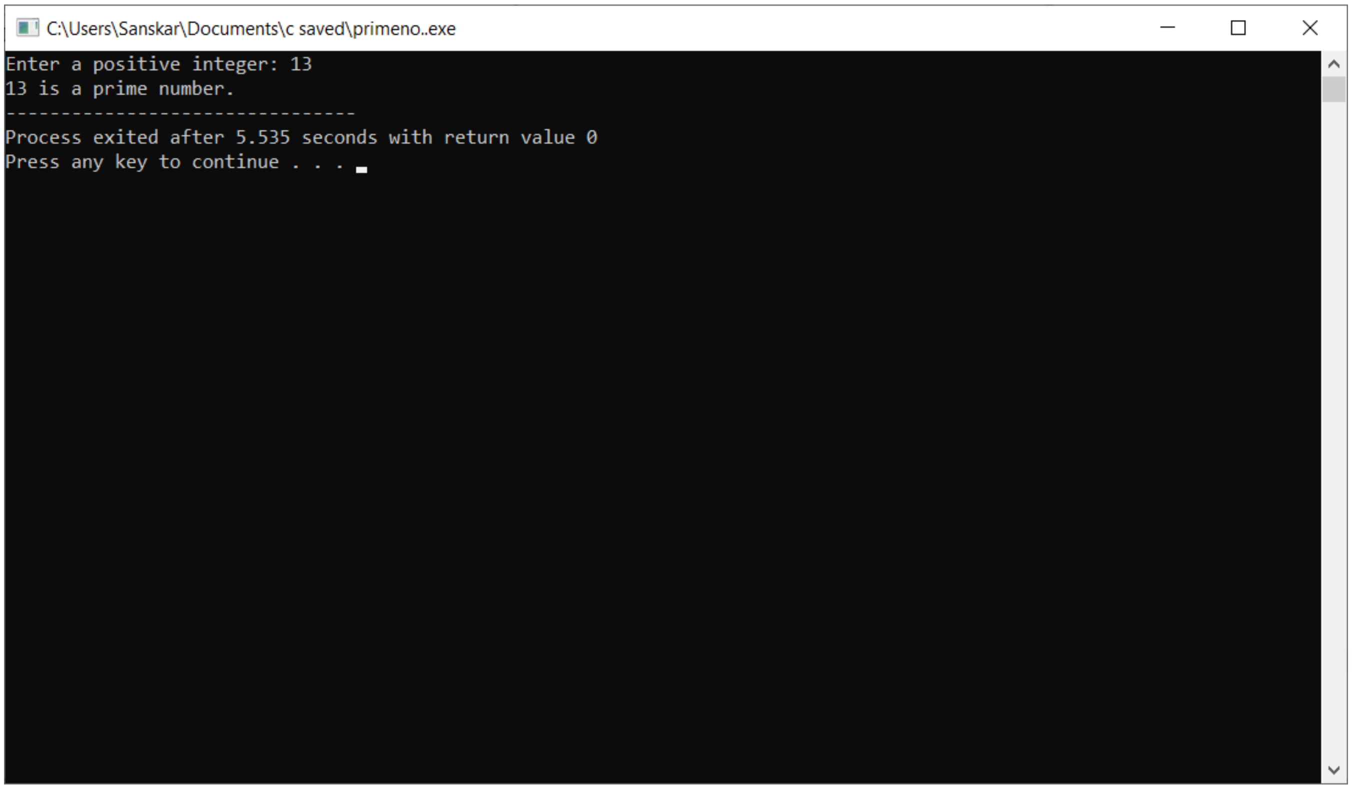
OBJECTIVE- Program to find whether the given number is prime

INTRODUCTION- To check whether the given number (n) is prime or not, we divide the number by all integral values from 1 to n/2, if the remainder for any one of these cases comes out to be 0, then the number is not prime, otherwise it is prime. Special case – when n=1, the number the neither prime nor composite.

PROGRAM CODE-

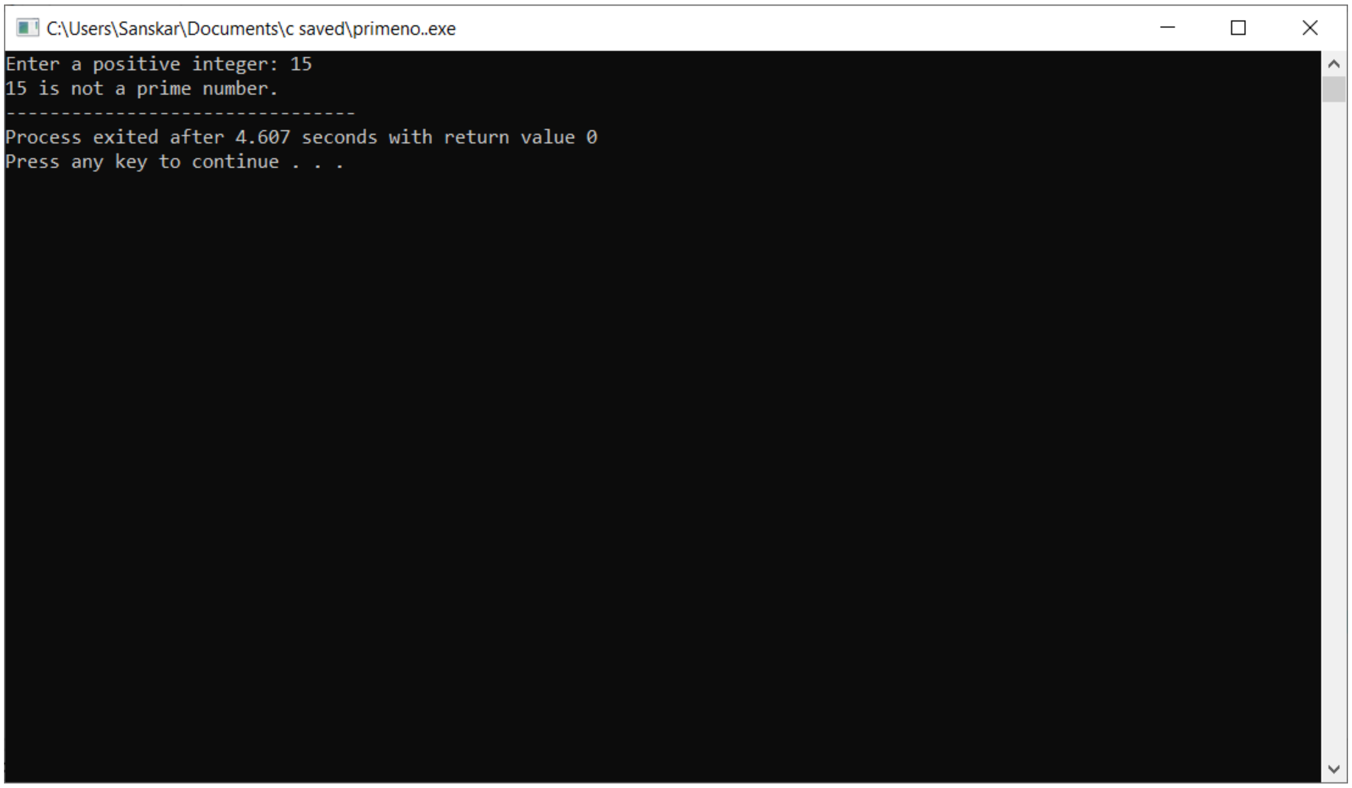
```
#include <stdio.h>
int main() {
  int n, i, num = 0;
  printf("Enter a positive integer: ");
  scanf("%d", &n);

  for (i = 2; i <= n / 2; ++i) {
    // condition for non-prime
    if (n % i == 0) // loop to find if their is any factor
             {
      num = 1;
      break;
    }
  }

  if (n == 1) {
    printf("1 is neither prime nor composite.");
  }
  else {
    if (num == 0)
      printf("%d is a prime number.", n);
    else
      printf("%d is not a prime number.", n);
  }
  return 0;
}
```

OUTPUT-



C:\Users\Sanskar\Documents\c saved\primeno..exe

```
Enter a positive integer: 13
13 is a prime number.
--------------------------------
Process exited after 5.535 seconds with return value 0
Press any key to continue . . .
```



C:\Users\Sanskar\Documents\c saved\primeno..exe

```
Enter a positive integer: 15
15 is not a prime number.
--------------------------------
Process exited after 4.607 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-6

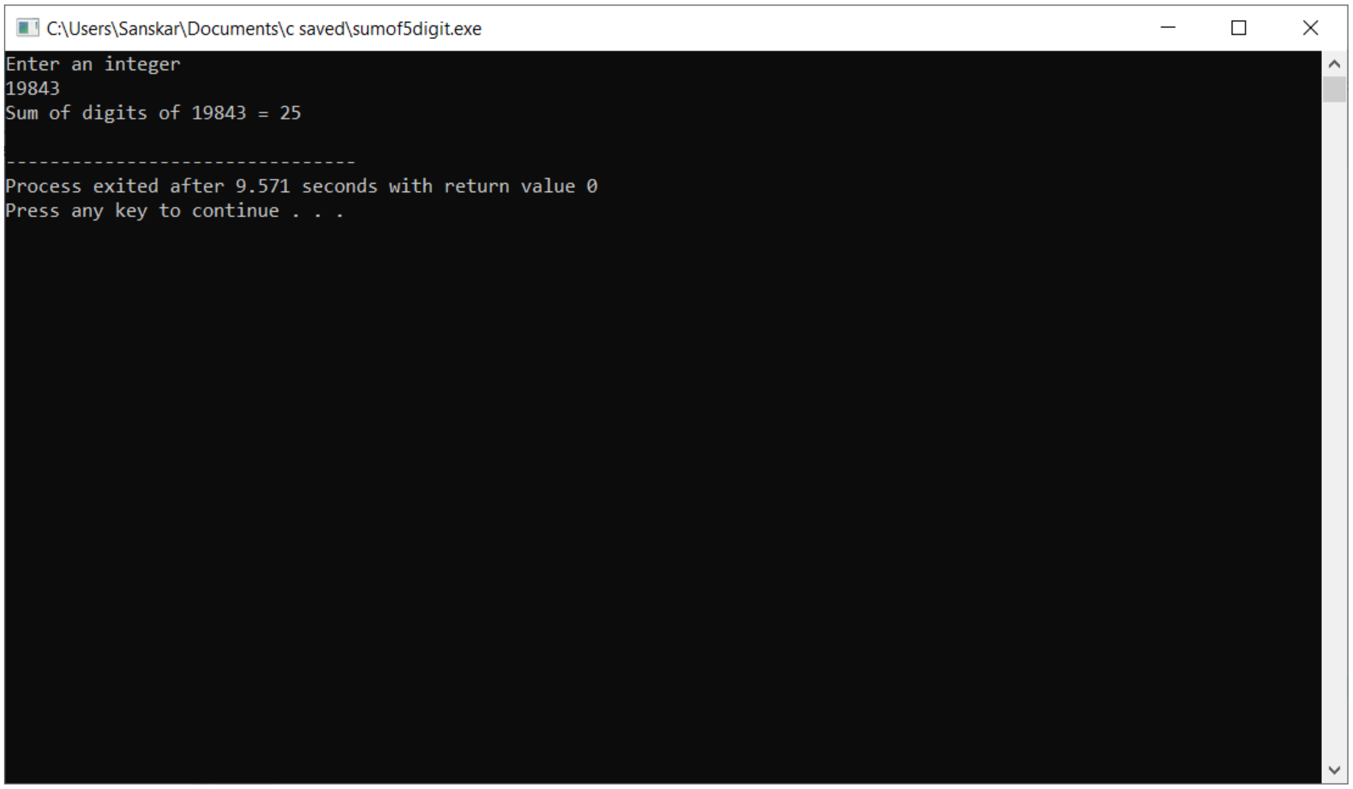
OBJECTIVE-Program to find the sum of a five-digit number

INTRODUCTION- To find the sum of digits of a five-digit number, we will divide the number by 10 then store the value of the remainder in ‘sum’ variable, then we will keep on repeating this loop and keep updating the value of sum as sum = sum + remainder, till we get the remainder = 0.

PROGRAM CODE-

```
#include <stdio.h>
int main()
{
   int n, t, sum = 0, remainder;

   printf("Enter an integer\n");
   scanf("%d", &n);

   t = n;

   while (t != 0)


{
      remainder = t % 10;
      sum       = sum + remainder;
      t         = t / 10;
   }
   printf("Sum of digits of %d = %d\n", n, sum);
   return 0;
}
```

OUTPUT-


C:\Users\Sanskar\Documents\c saved\sumof5digit.exe

```
Enter an integer
19843
Sum of digits of 19843 = 25

--------------------------------
Process exited after 9.571 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-7

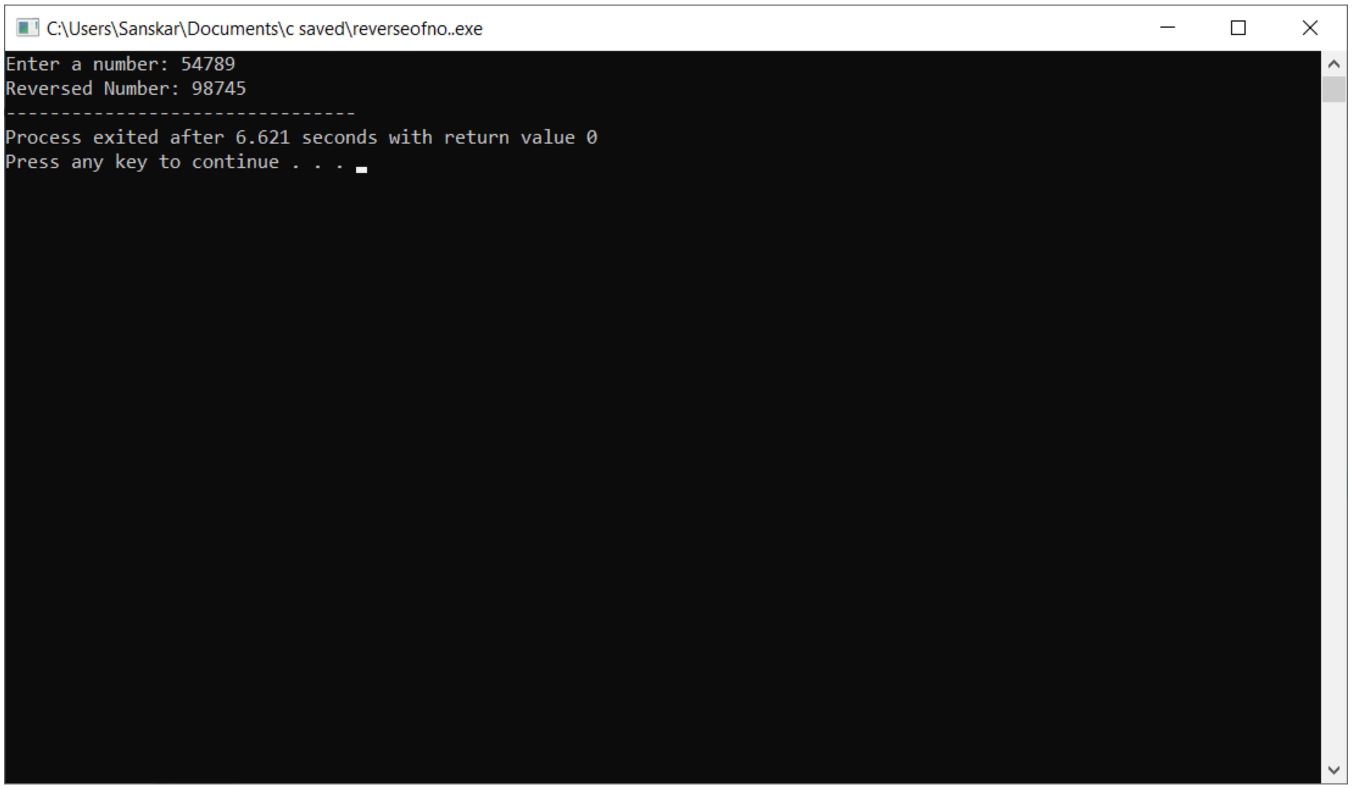
OBJECTIVE-Program to reverse a five-digit number

INTRODUCTION- To reverse a five-digit number, we divide it by 10 (n =n/10) then we put variable reverse = remainder, then we divide the number by 10 again and then put reverse = reverse*10 + remainder, and we keep on repeating this loop till n/10 = 0

PROGRAM CODE-

```
#include<stdio.h>
 int main()
{
int n, reverse=0, rem;
printf("Enter a number: ");
  scanf("%d", &n);
  while(n!=0)
  {
     rem=n%10;
     reverse=reverse*10+rem;
     n/=10;
  }
  printf("Reversed Number: %d",reverse);
return 0;
}
```

OUTPUT-



C:\Users\Sanskar\Documents\c saved\reverseofno..exe

```
Enter a number: 54789
Reversed Number: 98745
--------------------------------
Process exited after 6.621 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-8

OBJECTIVE – Program to convert decimal to binary and vice versa

INTRODUCTION – Decimal to Binary conversion involves a number getting divided by 2 and the remainder noted, now the quotient of previous calculation is treated as a decimal and the process is repeated. As long as quotient is either 0 or 1, this process is repeated. The remainders are noted together and the reverse of this is the binary form of given decimal number. Binary to Decimal conversion: The total number of terms in binary is noted, say n. To get decimal, the first term is multiplied by 2n-1 , second by 2n-2 , and so on till n=1. The sum of all these is taken and the resulting number is the decimal

PROGRAM CODE –

Binary to decimal-

```
#include <math.h>
#include <stdio.h>
int convert(long long n);
int main() {
   long long n;
   printf("Enter a binary number: "); // enter binary number
   scanf("%lld", &n);
   printf("%lld in binary = %d in decimal", n, convert(n));
   return 0;
}

int convert(long long n) {
   int dec = 0, i = 0, rem;
   while (n != 0) {
      rem = n % 10;
      n /= 10;
      dec += rem * pow(2, i);
      ++i;
   }
   return dec; // return the decimal value
}
```

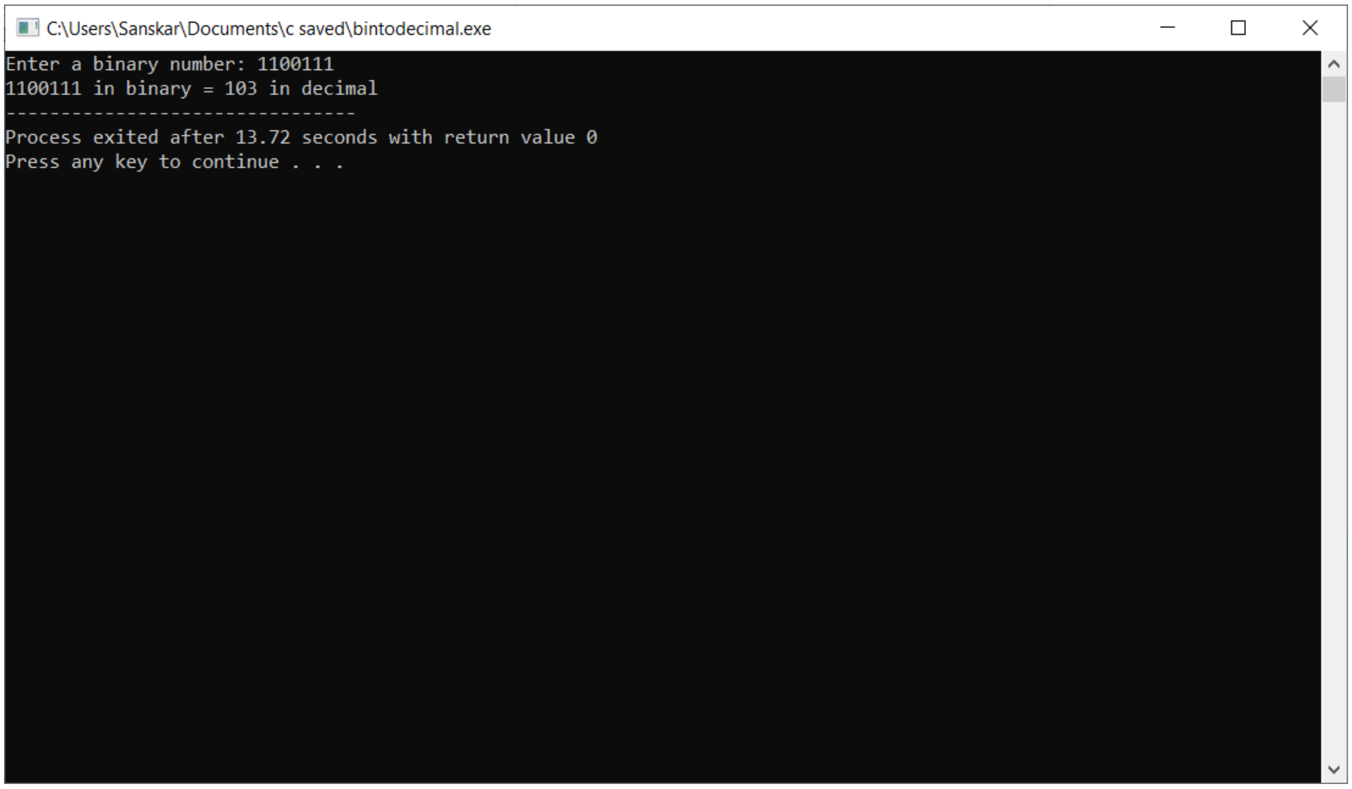
Decimal to binary –

```
#include <math.h>
#include <stdio.h>
long long convert(int a);
int main() {
   int a;
```

```
    printf("Enter a decimal number: "); // enter decimal value
    scanf("%d", &a);
    printf("\n %d in decimal = %lld in binary", a, convert(a));
    return 0;
}

long long convert(int a) {
    long long binary = 0;
    int rem, i = 1, step = 1;
    while (a != 0) {
        rem = a % 2;
        printf(" \n Step %d: %d/2, Remainder = %d, Quotient = %d\a", step++, a, rem, a / 2);
        a /= 2;
        binary += rem * i;
        i *= 10;
    }
    return binary; // returning binary value
}
```

OUTPUT –

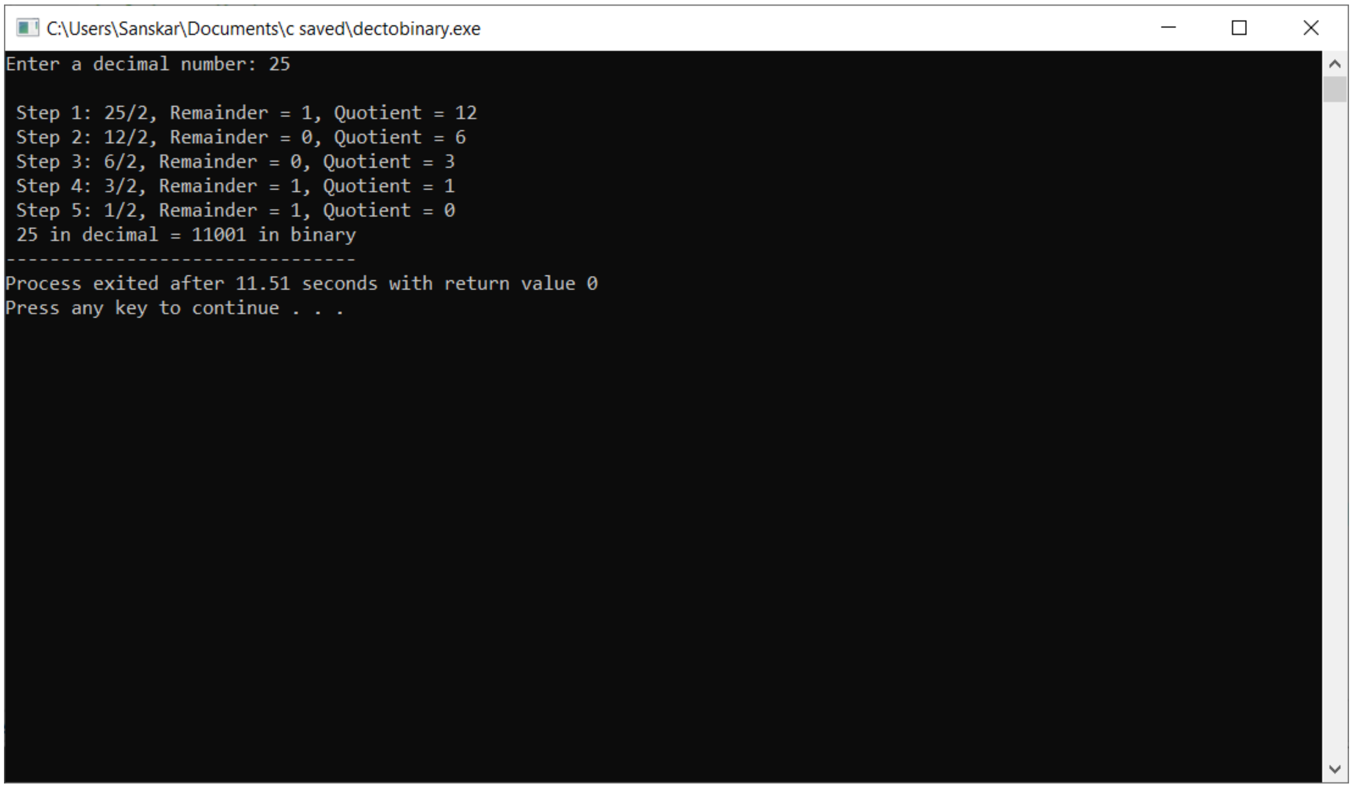
Binary to decimal-



C:\Users\Sanskar\Documents\c saved\bintodecimal.exe

```
Enter a binary number: 1100111
1100111 in binary = 103 in decimal
--------------------------------
Process exited after 13.72 seconds with return value 0
Press any key to continue . . .
```

Decimal to binary-



```
Enter a decimal number: 25

 Step 1: 25/2, Remainder = 1, Quotient = 12
 Step 2: 12/2, Remainder = 0, Quotient = 6
 Step 3: 6/2, Remainder = 0, Quotient = 3
 Step 4: 3/2, Remainder = 1, Quotient = 1
 Step 5: 1/2, Remainder = 1, Quotient = 0
 25 in decimal = 11001 in binary
--------------------------------
Process exited after 11.51 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-9

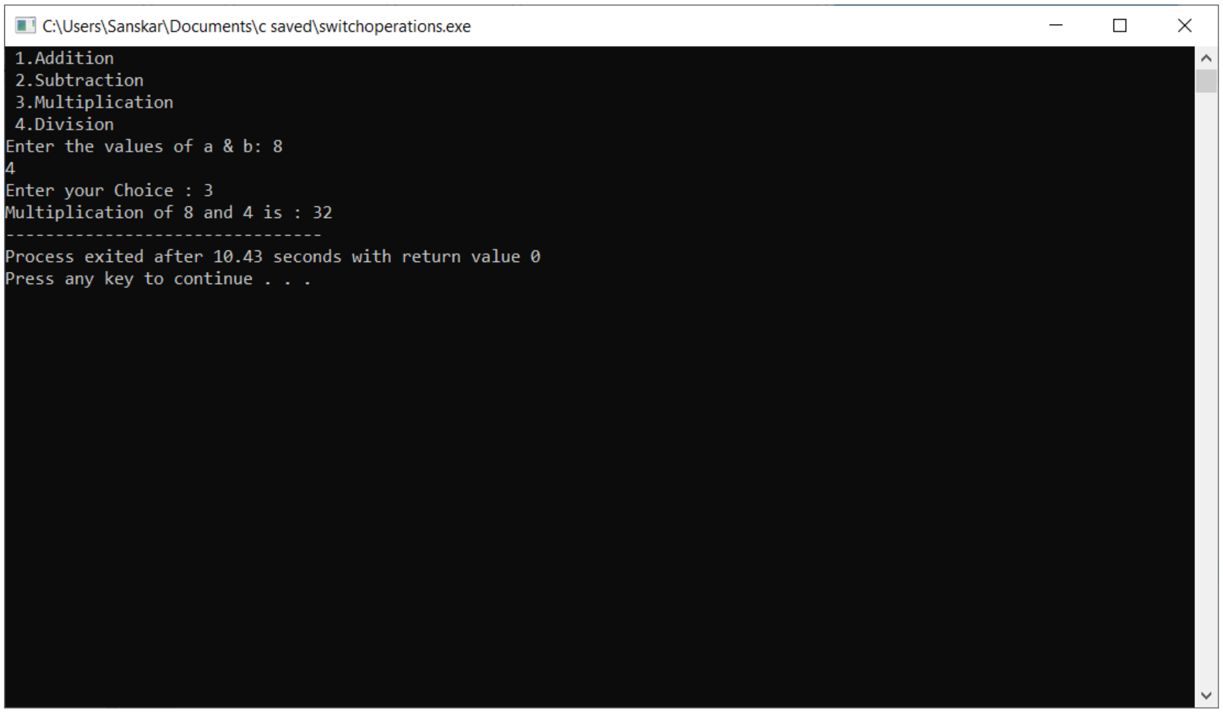
OBJECTIVE – Program to implement switch case statement

INTRODUCTION – A switch allows a variable to be tested for equality against a list of values. Each value is called case, and the variable being switched on is checked for each switch case. The break; statement causes an immediate exit from the switch.

PROGRAM CODE –

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
int a,b,op;
printf(" 1.Addition\n 2.Subtraction\n 3.Multiplication\n 4.Division\n");
printf("Enter the values of a & b: ");
scanf("%d %d",&a,&b);
printf("Enter your Choice : ");
scanf("%d",&op);
switch(op)
{
case 1 :
printf("Sum of %d and %d is : %d",a,b,a+b);
break;
case 2 :
printf("Difference of %d and %d is : %d",a,b,a-b);
break;
case 3 :
printf("Multiplication of %d and %d is : %d",a,b,a*b);
break;
case 4 :
printf("Division of Two Numbers is %d : ",a/b);
break;
default :
printf(" Enter Correct Choice.");
break;
}
return 0;
}
```

OUTPUT –


C:\Users\Sanskar\Documents\c saved\switchoperations.exe

```
 1.Addition
 2.Subtraction
 3.Multiplication
 4.Division
Enter the values of a & b: 8
4
Enter your Choice : 3
Multiplication of 8 and 4 is : 32
--------------------------------
Process exited after 10.43 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-10

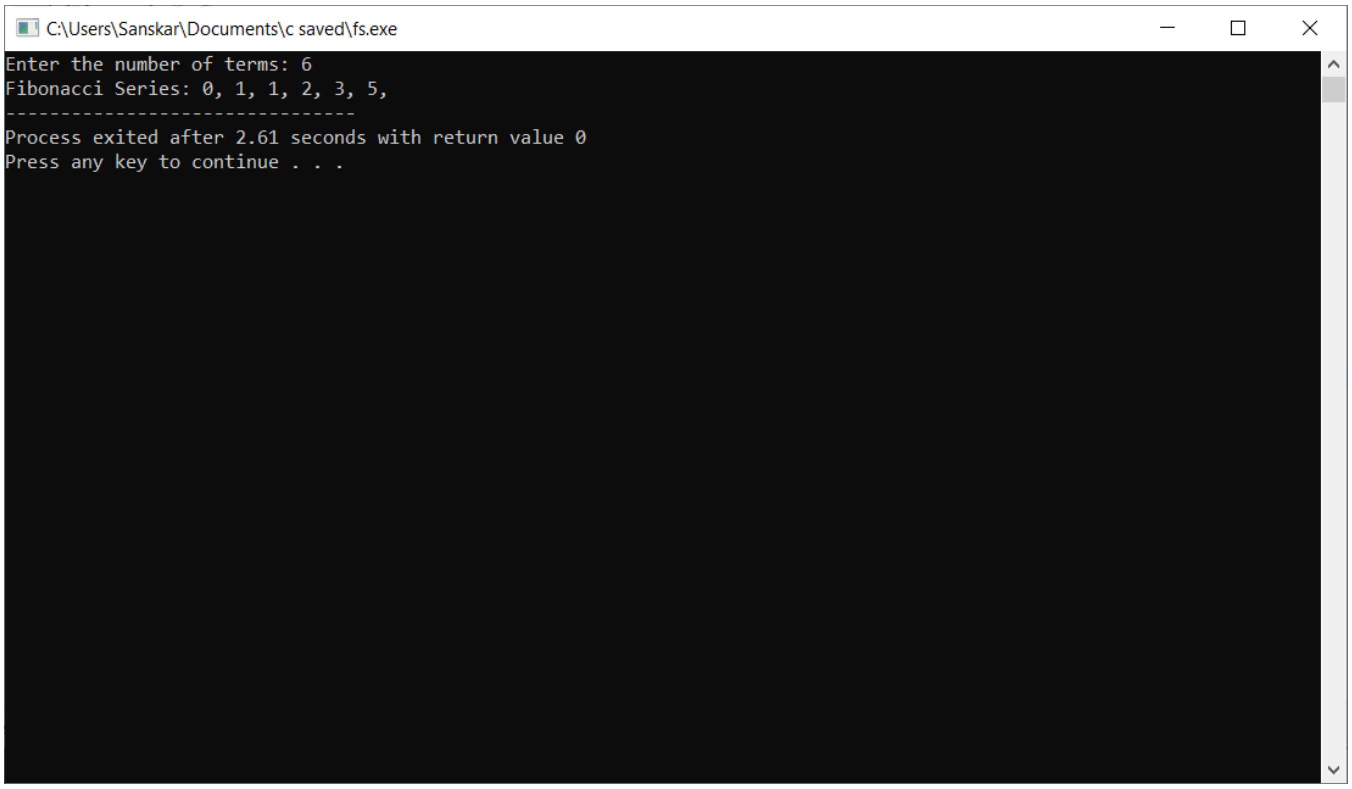
OBJECTIVE – Program to generate the Fibonacci sequence

INTRODUCTION – Fibonacci sequence is a sequence in which each n umber is the sum of the preceding two numbers. This series starts from 0 and 1

PROGRAM CODE –

```
#include <stdio.h>
int main() {
   int i, n, t1 = 0, t2 = 1, nextTerm;
   printf("Enter the number of terms: "); // number of terms
   scanf("%d", &n);
   printf("Fibonacci Series: ");

   for (i = 1; i <= n; ++i) // loop to generate series
         {
      printf("%d, ", t1);
      nextTerm = t1 + t2;
      t1 = t2;
      t2 = nextTerm;
   }

   return 0;
}
```

OUTPUT –



```
Enter the number of terms: 6
Fibonacci Series: 0, 1, 1, 2, 3, 5,
--------------------------------
Process exited after 2.61 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-11

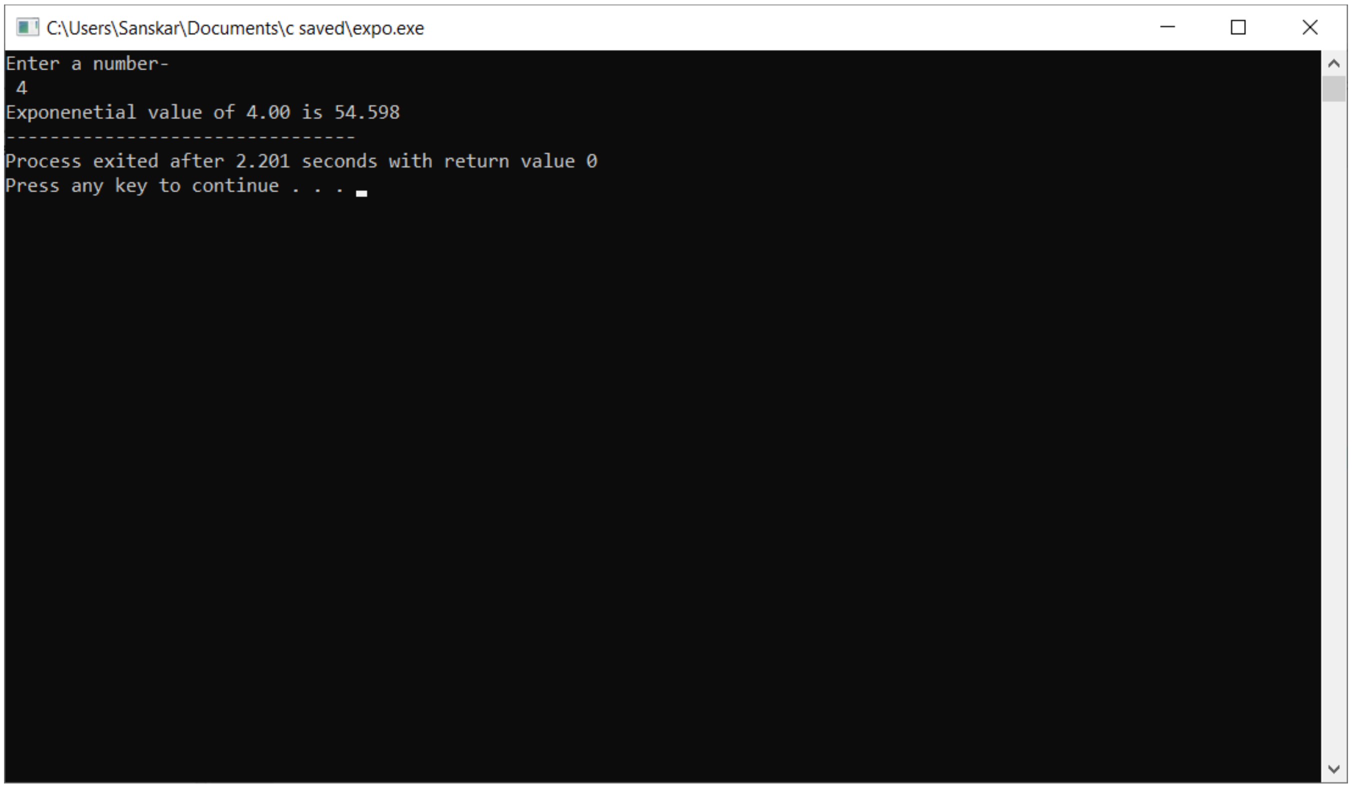
OBJECTIVE – To find exponential function

INTRODUCTION – We use the header file <math.h> which contains the declaration for mathematical operations.

PROGRAM CODE –

```
#include<stdio.h>
#include<math.h>
int main()
{
        double num,k;
        printf("Enter a number- \n ");
        scanf("%lf",&num);
        k=exp(num);
        printf("Exponenetial value of %.2lf is %.3lf" ,num ,k);
        return 0;

}
```

OUTPUT –



C:\Users\Sanskar\Documents\c saved\expo.exe

```
Enter a number-
 4
Exponenetial value of 4.00 is 54.598
--------------------------------
Process exited after 2.201 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-12

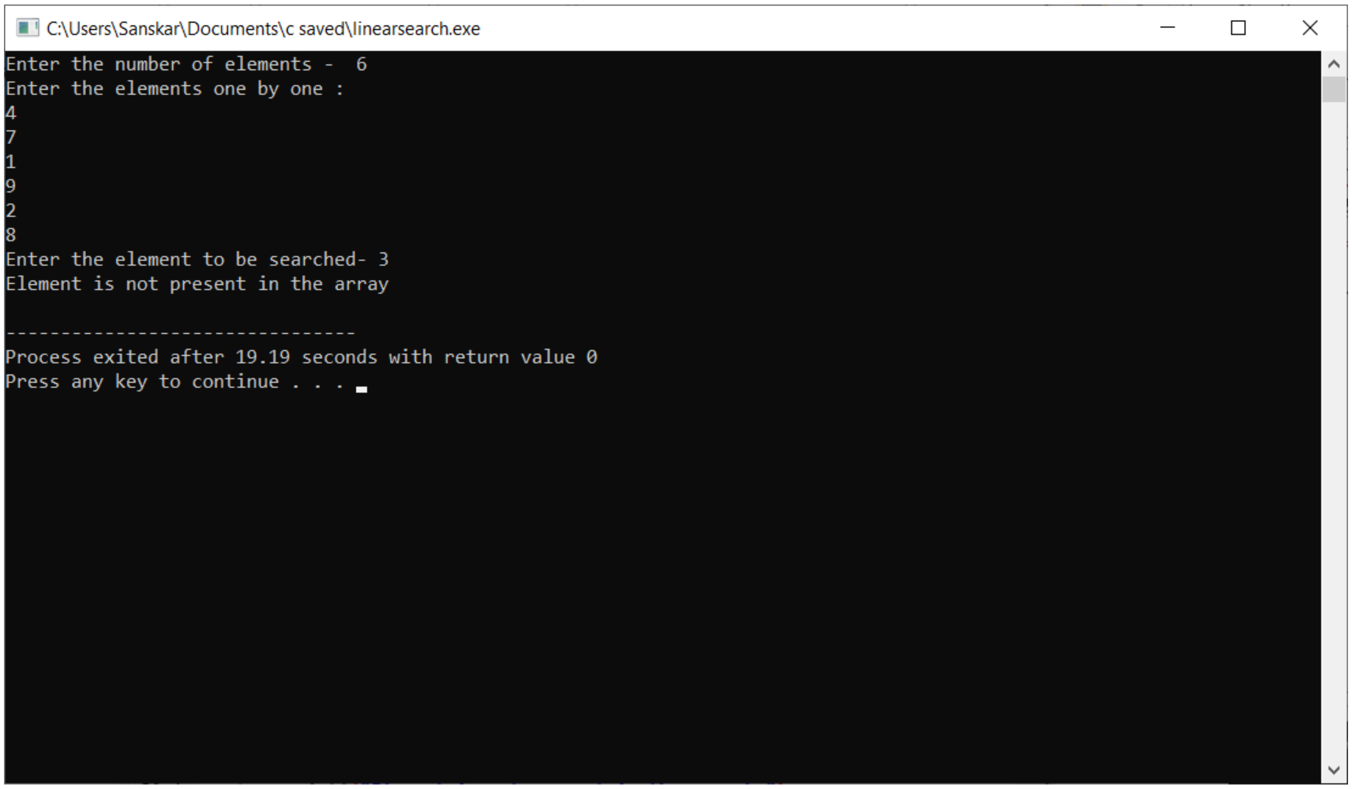
OBJECTIVE – Program to search a number from an array using linear search

INTRODUCTION – It is an important array application. With help of it we can find numbers in big data files. In Linear search it starts searching value from starting, comparing the with the given number and stops when the desired value is found.

PROGRAM CODE –

```
#include <stdio.h>

void main()
{  int num;

    int i,  tosearch, found = 0;

    printf("Enter the number of elements -  ");
    scanf("%d", &num);
    int array[num];
    printf("Enter the elements one by one : \n");
    for (i = 0; i < num; i++)
    {
        scanf("%d", &array[i]);
    }

    printf("Enter the element to be searched- ");
    scanf("%d", &tosearch);
    /*  Linear search begins */
    for (i = 0; i < num ; i++)
    {
        if (tosearch == array[i] )
        {
            found = 1;
            break;
        }
    }
    if (found == 1)
        printf("Element is present in the array at position %d",i+1);
    else
        printf("Element is not present in the array\n");
}
```

OUTPUT –



C:\Users\Sanskar\Documents\c saved\linearsearch.exe

```
Enter the number of elements -  6
Enter the elements one by one :
4
7
1
9
2
8
Enter the element to be searched- 3
Element is not present in the array

--------------------------------
Process exited after 19.19 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-13

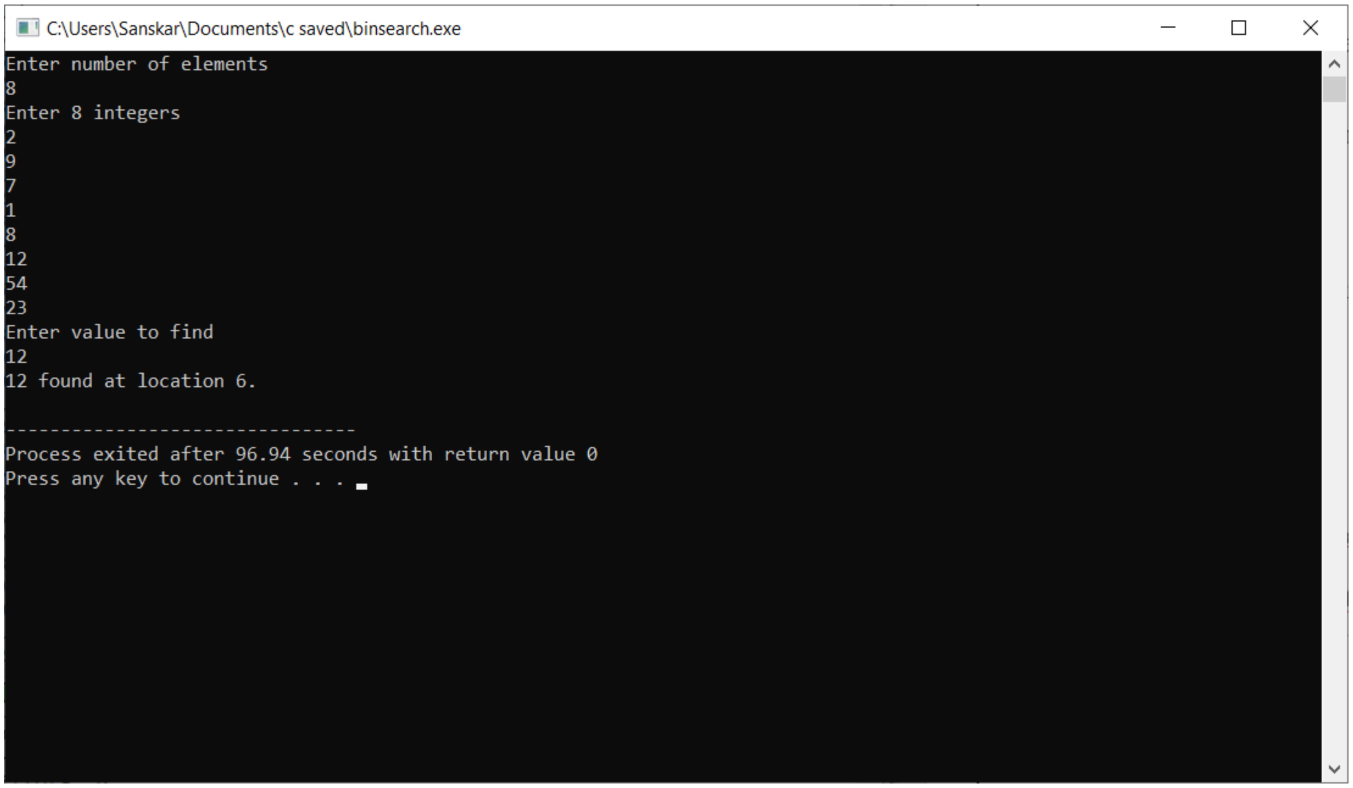
OBJECTIVE -Program to search a number from an array using binary search

INTRODUCTION – In Binary Search, we search a sorted array by repeatedly dividing the search interval in half. Begin with an interval covering the whole array. If the value of the search key is less than the item in the middle of the interval, narrow the interval to the lower half. Otherwise narrow it to the upper half. Repeatedly check until the value is found or the interval is empty.

PROGRAM CODE –

```
#include <stdio.h>
int main()
{
  int c, first, last, middle, n, tosearch, array[100];
  printf("Enter number of elements\n");
  scanf("%d", &n);

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

  for (c = 0; c < n; c++)
    scanf("%d", &array[c]);

  printf("Enter value to find\n");
  scanf("%d", &tosearch);

  first = 0;
  last = n - 1;
  middle = (first+last)/2;

  while (first <= last) {
    if (array[middle] < tosearch)
      first = middle + 1;
    else if (array[middle] == tosearch) {
      printf("%d found at location %d.\n", tosearch, middle+1);
      break;
    }
    else
      last = middle - 1;
    middle = (first + last)/2;
  }
  if (first > last)
    printf("Not found! %d isn't present in the list.\n", tosearch);
  return 0;
}
```

OUTPUT –



C:\Users\Sanskar\Documents\c saved\binsearch.exe

```
Enter number of elements
8
Enter 8 integers
2
9
7
1
8
12
54
23
Enter value to find
12
12 found at location 6.

--------------------------------
Process exited after 96.94 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-14

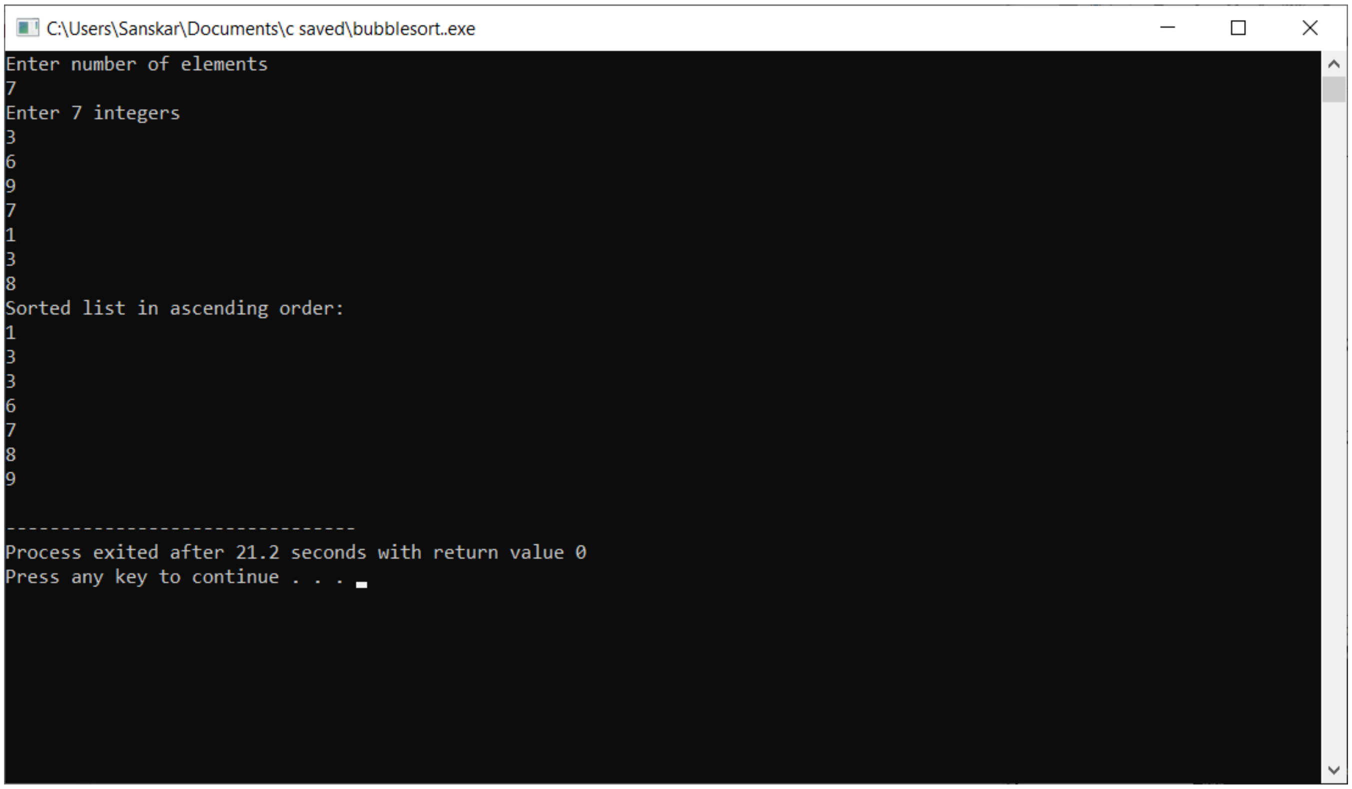
OBJECTIVE – Program to sort an array using bubble sort

INTRODUCTION -Bubble Sort is the simplest sorting algorithm that works by repeatedly swapping the adjacent elements if they are in the wrong order.

PROGRAM CODE –

```
#include <stdio.h>

int main()
{
  int array[100], n, c, d, swap;

  printf("Enter number of elements\n");
  scanf("%d", &n);

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

  for (c = 0; c < n; c++)
    scanf("%d", &array[c]);

  for (c = 0 ; c < n - 1; c++)
  {
    for (d = 0 ; d < n - c - 1; d++)
    {
      if (array[d] > array[d+1]) /* For decreasing order use '<' instead of '>' */
      {
        swap       = array[d];
        array[d]   = array[d+1];
        array[d+1] = swap;
      }
    }
  }

  printf("Sorted list in ascending order:\n");

  for (c = 0; c < n; c++)
     printf("%d\n", array[c]);

  return 0;
}
```

OUTPUT –



C:\Users\Sanskar\Documents\c saved\bubblesort..exe

```
Enter number of elements
7
Enter 7 integers
3
6
9
7
1
3
8
Sorted list in ascending order:
1
3
3
6
7
8
9

--------------------------------
Process exited after 21.2 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-15

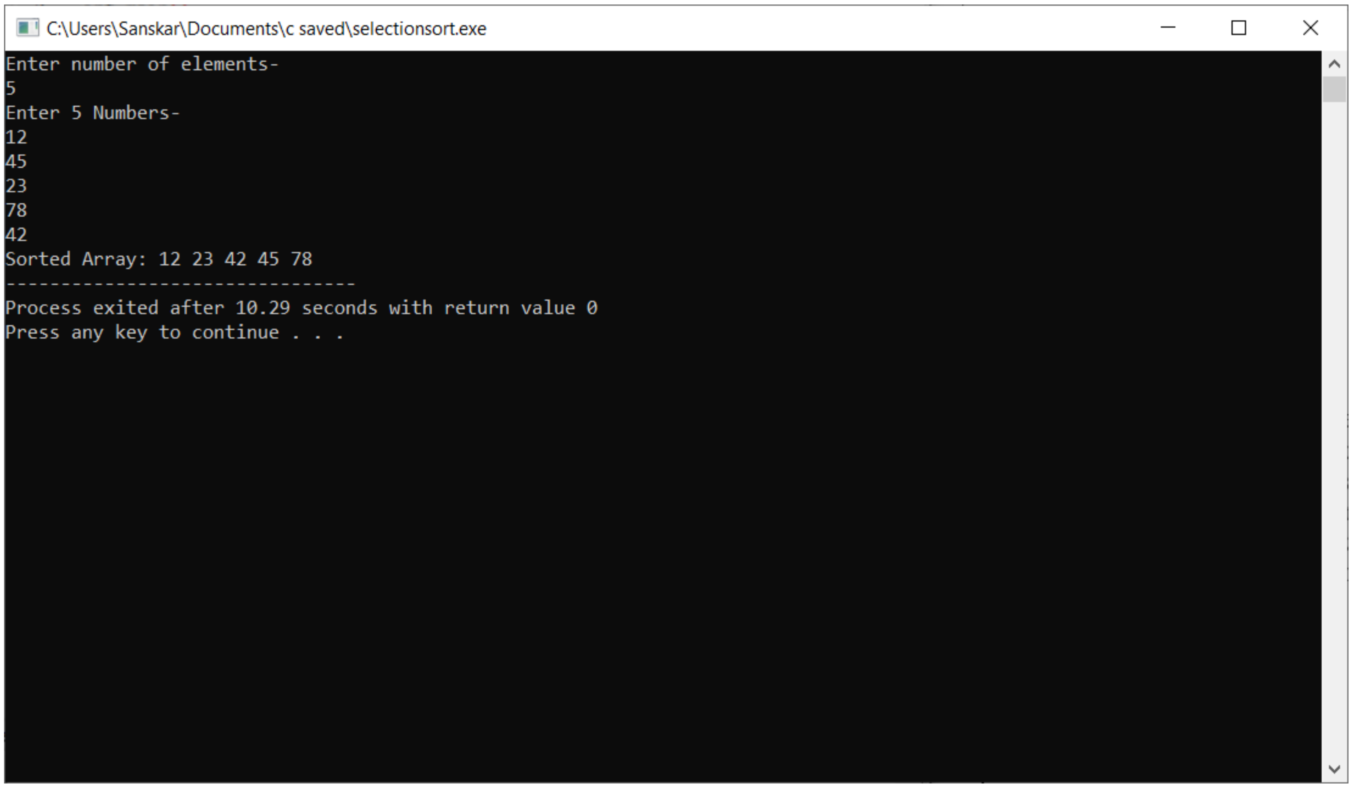
OBJECTIVE- Program to sort an array using selection sort

INTRODUCTION-The selection sort algorithm sorts an array by repeatedly finding the minimum element (considering ascending order) from unsorted part and putting it at the beginning. The algorithm maintains two subarrays in a given array.
1) The subarray which is already sorted.
2) Remaining subarray which is unsorted.
In every iteration of selection sort, the minimum element (considering ascending order) from the unsorted subarray is picked and moved to the sorted subarray.

PROGRAM CODE-

```
#include <stdio.h>
int main()
{
int a[100], n, i, j, position, swap;
printf("Enter number of elements-\n");
scanf("%d", &n);
printf("Enter %d Numbers- \n" , n);
for (i = 0; i < n; i++)
scanf("%d", &a[i]);
for(i = 0; i < n - 1; i++)
{
position=i;
for(j = i + 1; j < n; j++)
{
if(a[position] > a[j])
position=j;
}
if(position != i)
{
swap=a[i];
a[i]=a[position];
a[position]=swap;
}
}
printf("Sorted Array: ");
for(i = 0; i < n; i++)
printf("%d ", a[i]);
return 0;
}
```

OUTPUT-



```
Enter number of elements-
5
Enter 5 Numbers-
12
45
23
78
42
Sorted Array: 12 23 42 45 78
--------------------------------
Process exited after 10.29 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-16

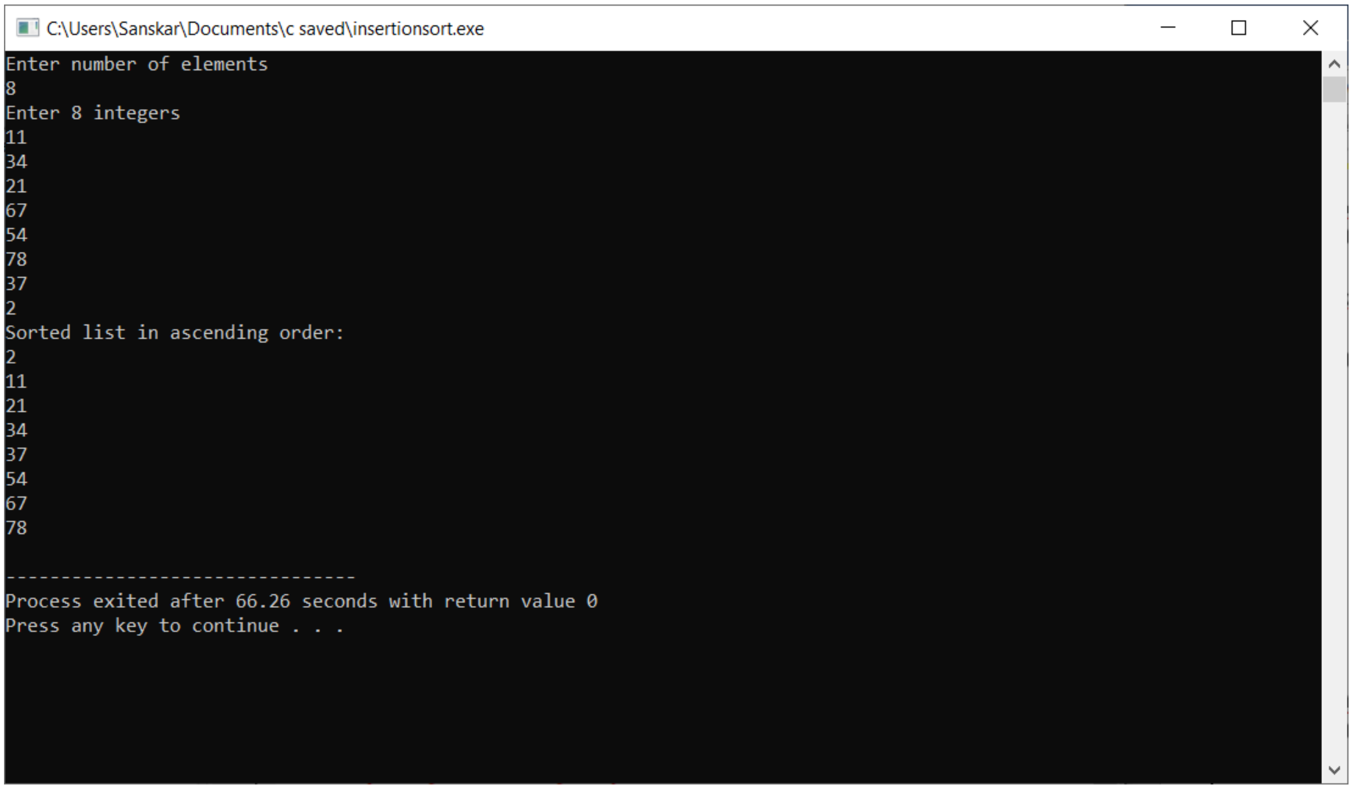
OBJECTIVE – Program to sort an array using insertion sort.

INTRODUCTION -Insertion sort algorithm picks elements one by one and places it to the right position where it belongs in the sorted list of elements.

PROGRAM CODE –

```
#include <stdio.h>
int main()
{
   int n, i, j, temp;
   int arr[64];

   printf("Enter number of elements\n");
   scanf("%d", &n);

   printf("Enter %d integers\n", n);
   for (i = 0; i < n; i++)
   {
      scanf("%d", &arr[i]);
   }
   for (i = 1 ; i <= n - 1; i++)
   {
            j = i;
         while ( j > 0 && arr[j-1] > arr[j])
         {
            temp     = arr[j];
            arr[j]   = arr[j-1];
            arr[j-1] = temp;
            j--;
         }
   }
   printf("Sorted list in ascending order:\n");
   for (i = 0; i <= n - 1; i++)
   {
      printf("%d\n", arr[i]);
   }
   return 0;
}
```

OUTPUT –



```
Enter number of elements
8
Enter 8 integers
11
34
21
67
54
78
37
2
Sorted list in ascending order:
2
11
21
34
37
54
67
78

--------------------------------
Process exited after 66.26 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-17

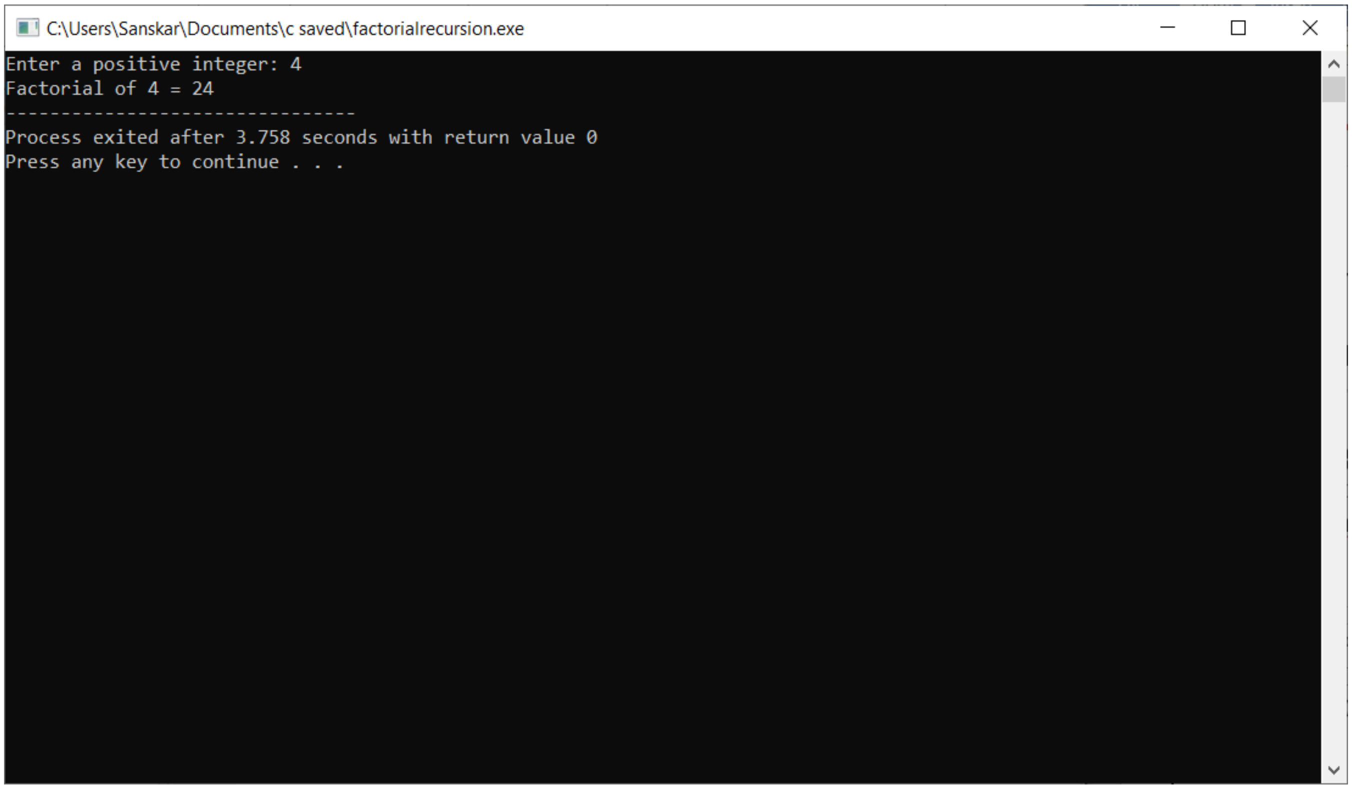
OBJECTIVE- Program to find factorial of a number using recursion

INTRODUCTION – n! means the product of all integers from 1 to n. To find the factorial we will use the concept of recursion in this program.

PROGRAM CODE -

```
#include<stdio.h>
long int multiplyNumbers(int n); // function declaration
int main() {
   int n;
   printf("Enter a positive integer: ");
   scanf("%d",&n);
   printf("Factorial of %d = %ld", n, multiplyNumbers(n));
   return 0;
}

long int multiplyNumbers(int n) // function defination
 {
   if (n>=1)
      return n*multiplyNumbers(n-1);
   else
      return 1;
}
```

OUTPUT –



```
Enter a positive integer: 4
Factorial of 4 = 24
--------------------------------
Process exited after 3.758 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-18

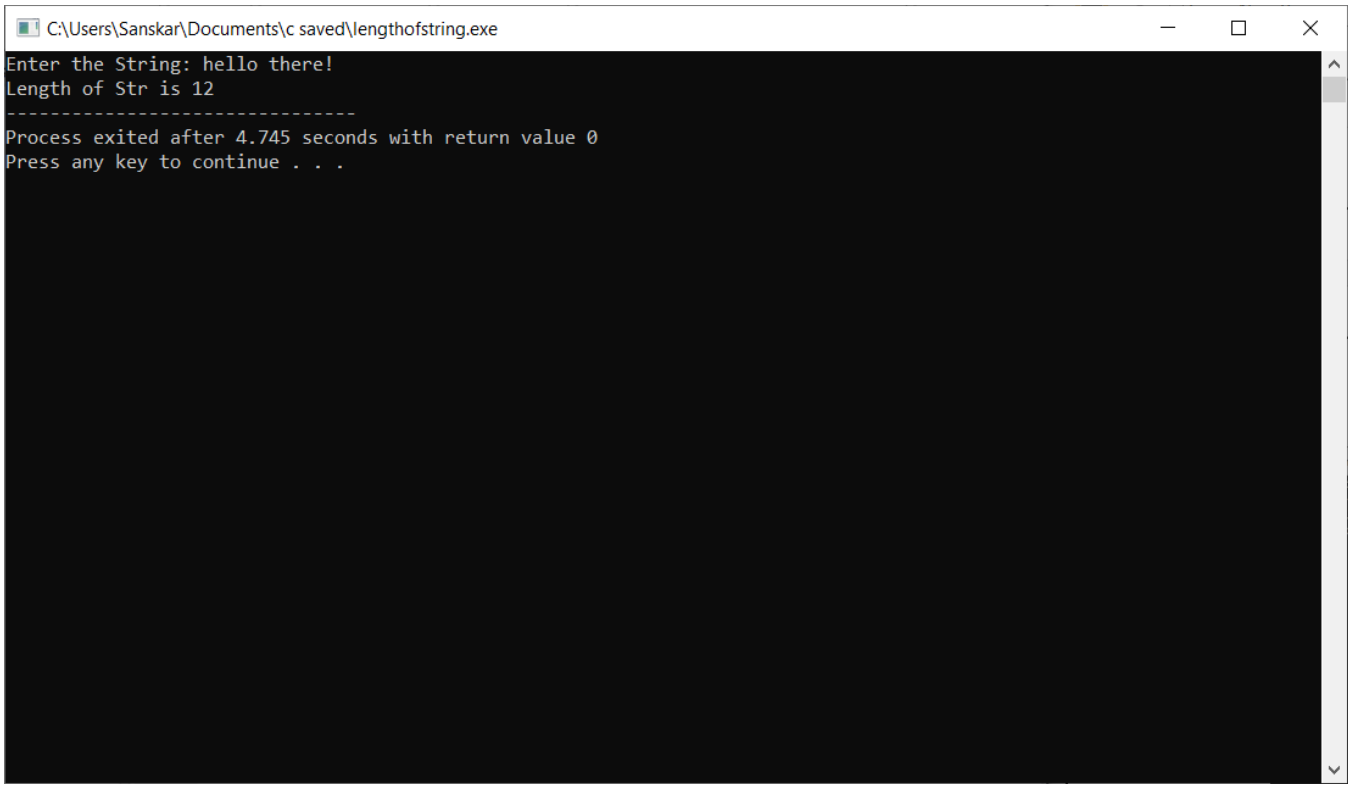
OBJECTIVE - Program to find the length of the string without using strlen and then pass the string to characters

INTRODUCTION – A string is a null terminated character array. We can find the length of a string using strlen function in C. However to do this without using the function , we need to use condition that a string ends with a null character.

PROGRAM CODE –

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

int main()
{
   char Str[1000];
   int i;

   printf("Enter the String: ");
   gets(Str) ;

   for (i = 0; Str[i] != '\0'; ++i);

   printf("Length of Str is %d", i);

   return 0;
}
```

OUTPUT –


C:\Users\Sanskar\Documents\c saved\lengthofstring.exe

```
Enter the String: hello there!
Length of Str is 12
--------------------------------
Process exited after 4.745 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-19

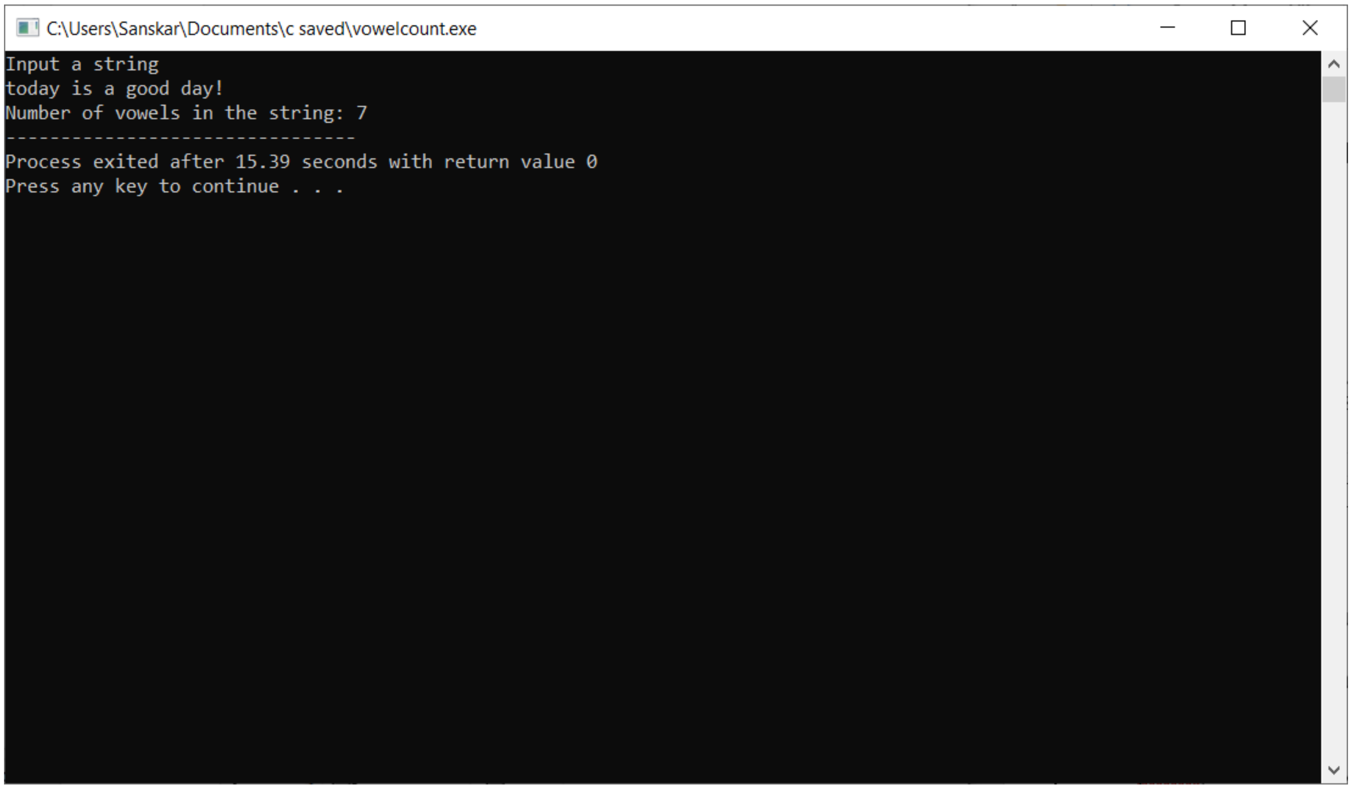
OBJECTIVE - Program to count the number of vowels in a given string.

INTRODUCTION – In English alphabets there are 5 vowels a , e, i , o u (A,E,I,O,U). In this program we will run a loop from starting of the string till the end and count all the vowels present. We will compare the characters with vowels and we will increment the count variable by 1 every time they match.

PROGRAM CODE –

```
#include <stdio.h>
int main()
{
  int c = 0, count = 0;
  char s[1000];

  printf("Input a string\n");
  gets(s); // using gets so that the spaces dont create a problem

  while (s[c] != '\0') {
    if (s[c] == 'a' || s[c] == 'A' || s[c] == 'e' || s[c] == 'E' || s[c] == 'i' || s[c] == 'I' || s[c] =='o' ||



s[c]=='O' || s[c] == 'u' || s[c] == 'U')
      count++; //count variable keeps the number of vowels
    c++; // this is the array index
  }

  printf("Number of vowels in the string: %d", count);

  return 0;
}
```

OUTPUT –



```
Input a string
today is a good day!
Number of vowels in the string: 7
--------------------------------
Process exited after 15.39 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-20

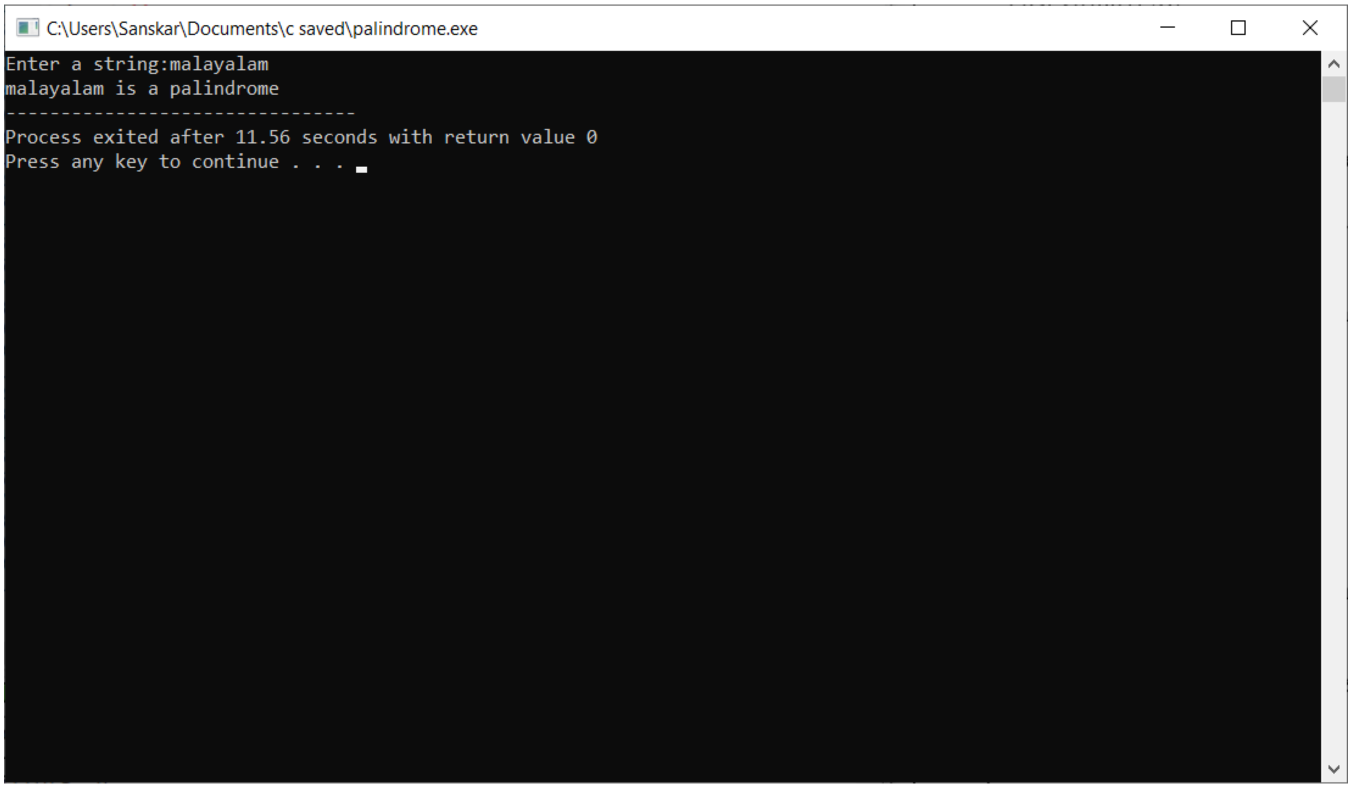
OBJECTIVE- Program to check if the given string is a palindrome or not

INTRODUCTION- A palindrome is a sequence which reads the same if we read it from start to end or from end to start.

PROGRAM CODE-

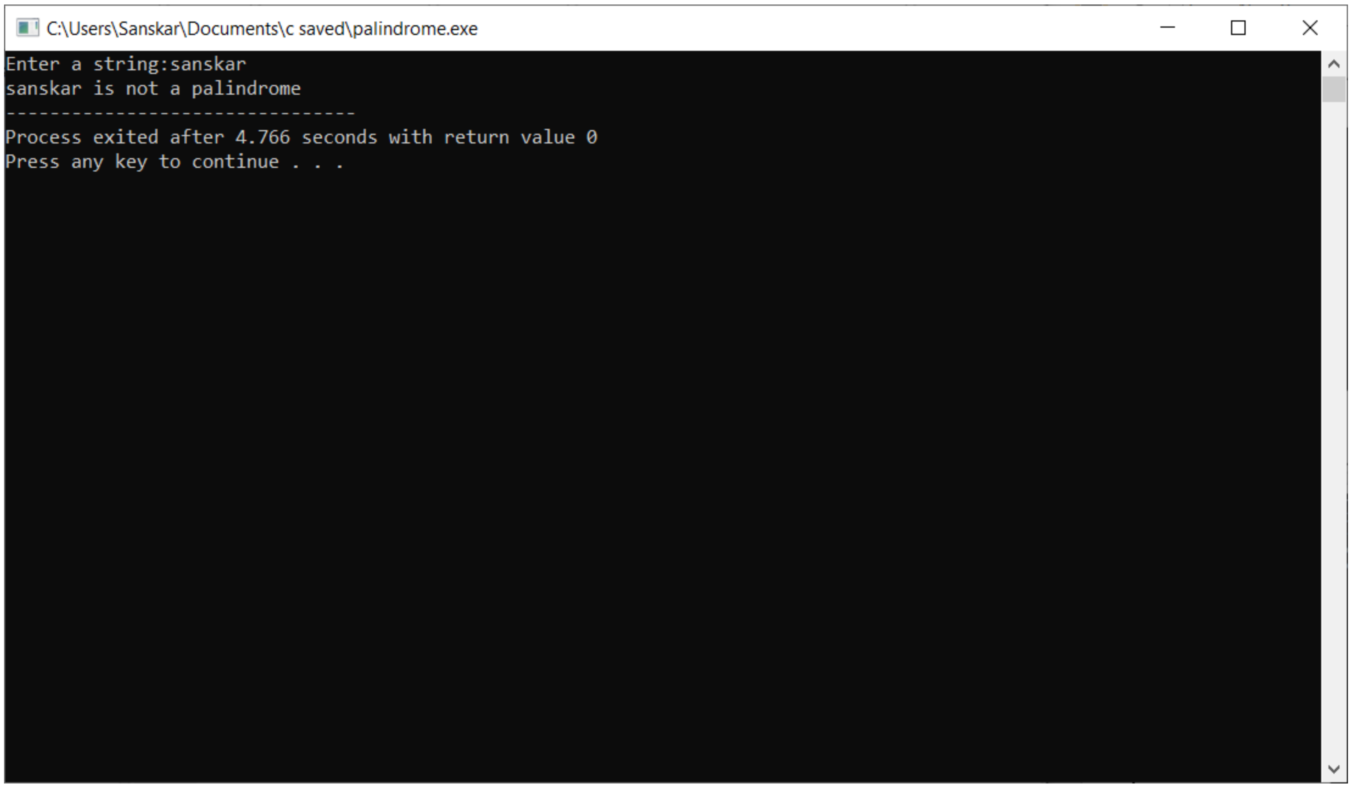
```
#include <stdio.h>
#include <string.h>

int main()
{
    char string1[20];
    int i, length;
    int flag = 0;

    printf("Enter a string:");
    scanf("%s", string1); // input the string to be checked

    length = strlen(string1); // calculate string length

    for(i=0;i < length ;i++){
        if(string1[i] != string1[length-i-1])// check for palindrome , if we find anyone mismatch we exit the
loop
                    {
            flag = 1;
            break;
   }
}

    if (flag) {
        printf("%s is not a palindrome", string1);
    }
    else {
        printf("%s is a palindrome", string1);
    }
    return 0;
}
```

OUTPUT-



C:\Users\Sanskar\Documents\c saved\palindrome.exe

```
Enter a string:malayalam
malayalam is a palindrome
--------------------------------
Process exited after 11.56 seconds with return value 0
Press any key to continue . . .
```



C:\Users\Sanskar\Documents\c saved\palindrome.exe

```
Enter a string:sanskar
sanskar is not a palindrome
--------------------------------
Process exited after 4.766 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-21

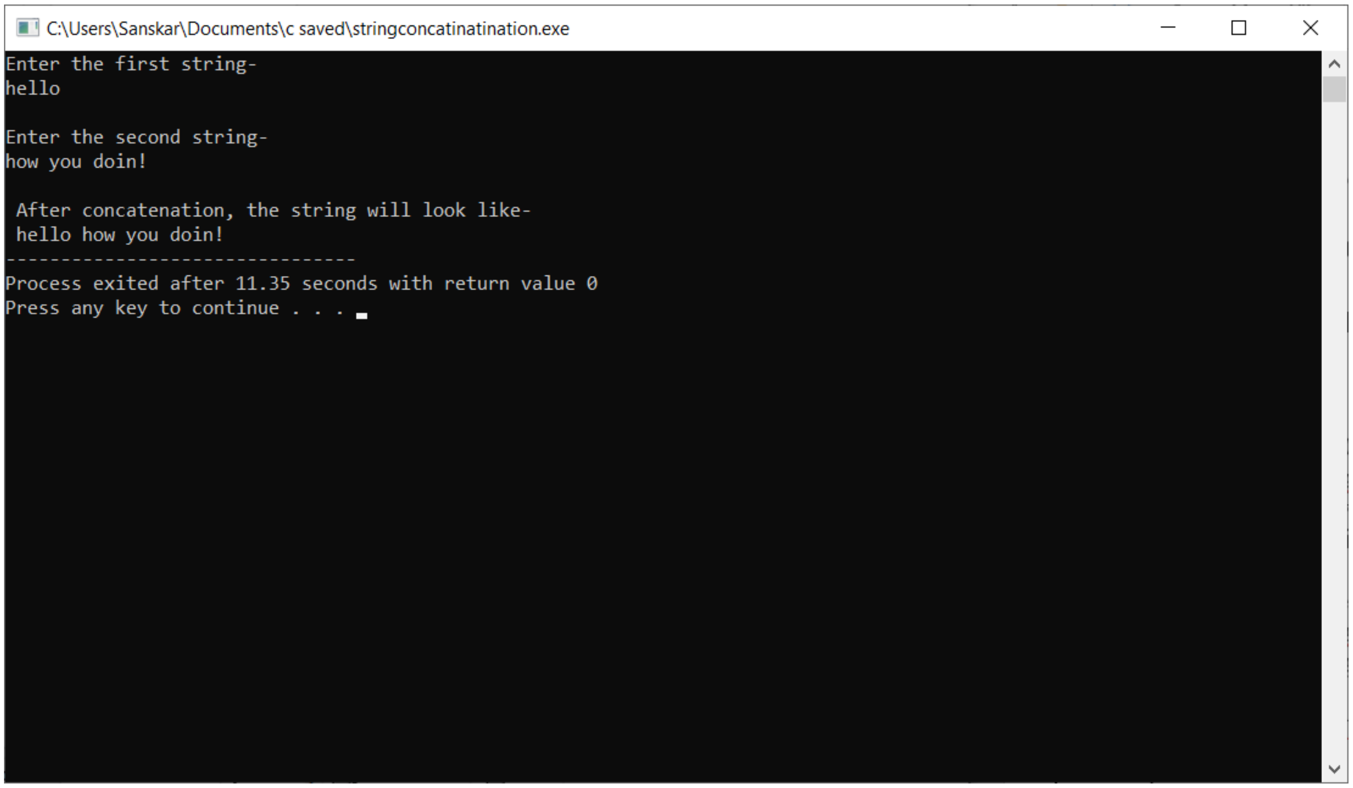
OBJECTIVE- Program to string concatenation

INTRODUCTION- String concatenation means joining 2 different strings to make a new string.

PROGRAM CODE-

```
#include <stdio.h>
int main()
{
    char first_string[20]; // declaration of char array variable
    char second_string[20]; // declaration of char array variable
    int i, j;  // integer variable declaration
    printf("Enter the first string-\n");
    gets(first_string);
    printf("\nEnter the second string-\n");
    gets(second_string);
    for(i=0;first_string[i]!='\0';i++);
 {
    for( j=0; second_string[j]!='\0'; j++)

   {

        first_string[i]=second_string[j];  //joining the strings
        i++;
    }
}
    first_string[i]='\0';
   printf("\n After concatenation, the string will look like- \n %s", first_string);
return 0;
}
```

OUTPUT-


C:\Users\Sanskar\Documents\c saved\stringconcatinatination.exe

```
Enter the first string-
hello

Enter the second string-
how you doin!

 After concatenation, the string will look like-
 hello how you doin!
--------------------------------
Process exited after 11.35 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-22

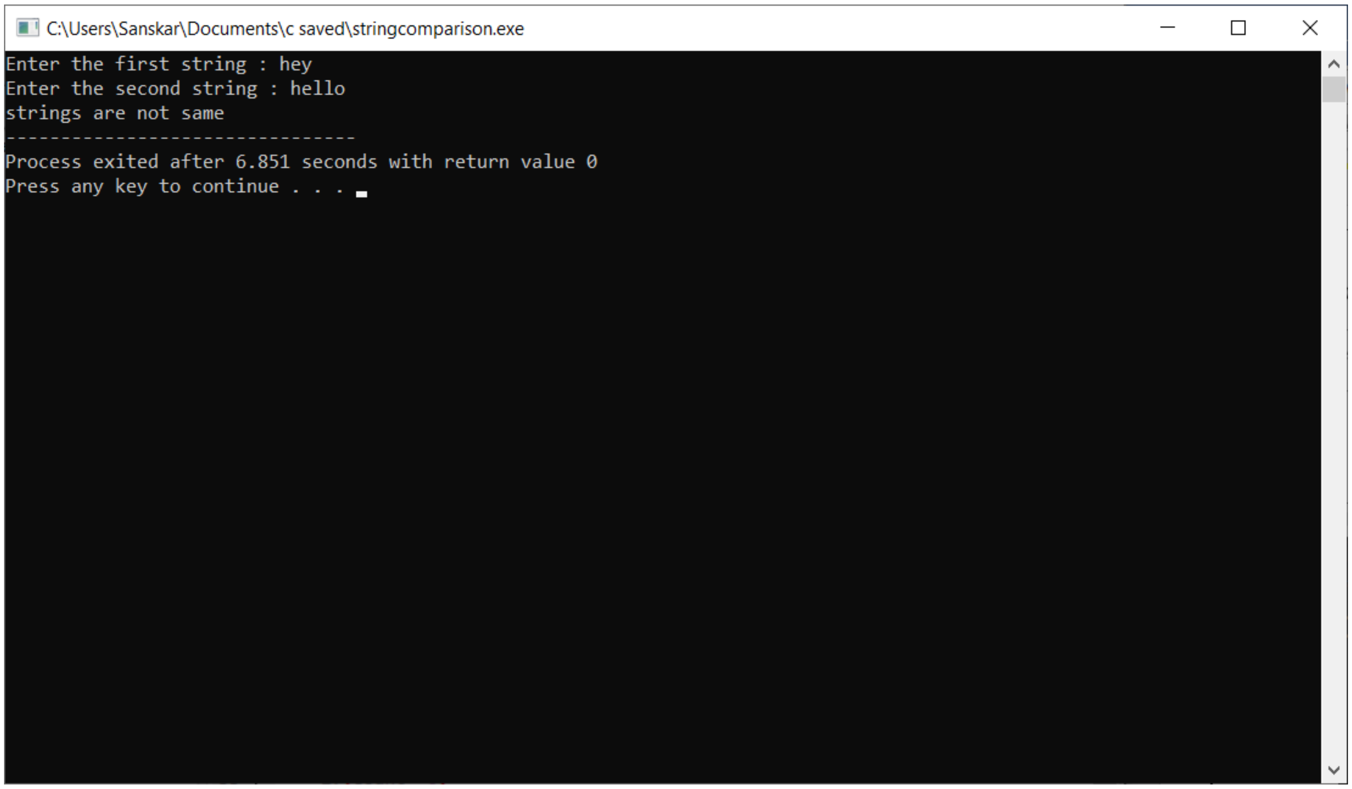
OBJECTIVE- Program to string comparison

INTRODUCTION- We compare two strings character by character and if we find a mis-match we exit the loop and print they aren’t the same.

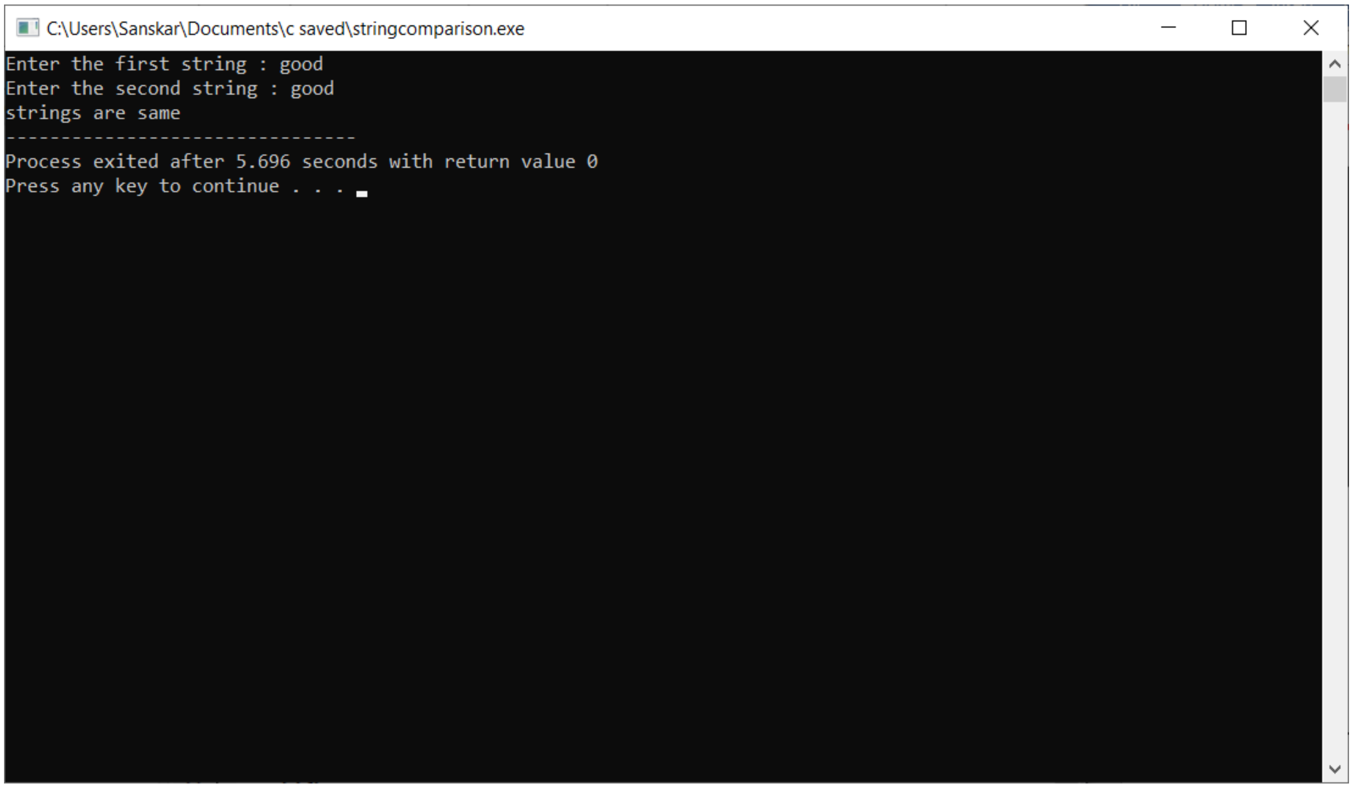
PROGRAM CODE-

```
#include <stdio.h>
int compare(char[],char[]);
int main()
{
   char str1[20]; // declaration of char array
   char str2[20]; // declaration of char array
   printf("Enter the first string : ");
   gets(str1);
   printf("Enter the second string : ");
  gets(str2);
   int c= compare(str1,str2); // calling compare() function
   if(c==0)
   printf("strings are same");
   else
   printf("strings are not same");
    return 0;
}

// Comparing both the strings.
int compare(char a[],char b[])
{
    int count=0,i=0;  // integer variables declaration
    while(a[i]!='\0' &&b[i]!='\0')  // while loop
    {
       if(a[i]!=b[i])
       {
           count=1;
           break;
       }
       i++;
    }
    if(count==0)
    return 0;
    else
    return 1;
}
```

OUTPUT-


C:\Users\Sanskar\Documents\c saved\stringcomparison.exe

```
Enter the first string : hey
Enter the second string : hello
strings are not same
--------------------------------
Process exited after 6.851 seconds with return value 0
Press any key to continue . . .
```


C:\Users\Sanskar\Documents\c saved\stringcomparison.exe

```
Enter the first string : good
Enter the second string : good
strings are same
--------------------------------
Process exited after 5.696 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-23

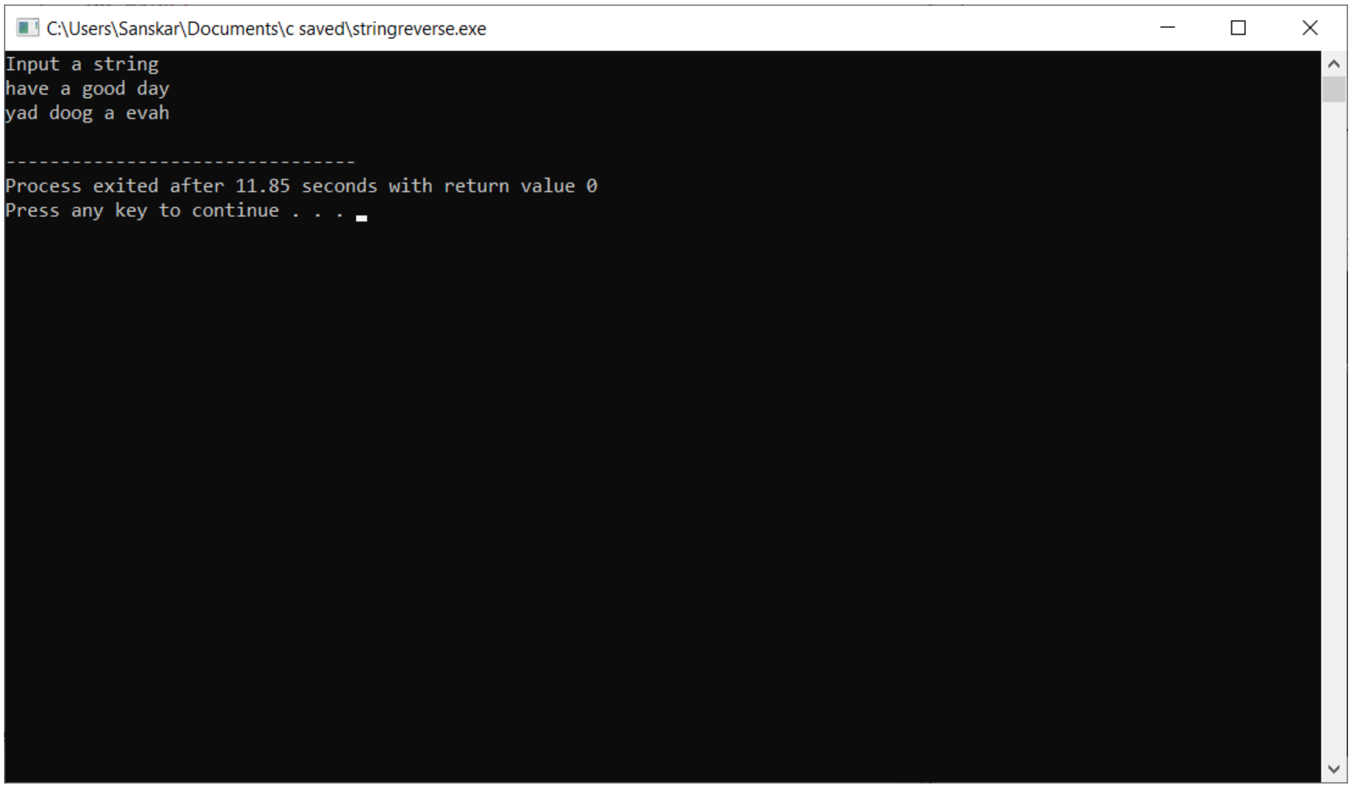
OBJECTIVE- Program to reverse a string

INTRODUCTION- In this program we reverse the input string. For this we use 2 arrays one for the input string and one for the reverse.

PROGRAM CODE-

```
#include <stdio.h>
int main()
{
   char s[1000], r[1000];
   int begin, end, count = 0;

   printf("Input a string\n"); // taking input string
   gets(s);

   // Calculating string length

   while (s[count] != '\0')
      count++;

   end = count - 1;

   for (begin = 0; begin < count; begin++) {
      r[begin] = s[end];
      end--;
   }

   r[begin] = '\0';

   printf("%s\n", r);

   return 0;
}
```

OUTPUT-



C:\Users\Sanskar\Documents\c saved\stringreverse.exe

```
Input a string
have a good day
yad doog a evah

--------------------------------
Process exited after 11.85 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-24

OBJECTIVE- Program to convert a string from lower case to upper case and vice versa

INTRODUCTION – The ASCII value of lower-case letters starts from a = 97 and so on. The ASCII value of upper-case letters starts from A= 65.

PROGRAM CODE –

Upper case to lower case-

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

int main() {
   char s[100];
   int i;

   printf("\nEnter a string : "); // input string
   gets(s);

   for (i = 0; s[i]!='\0'; i++) {
      if(s[i] >= 'A' && s[i] <= 'Z') {
         s[i] = s[i] + 32; // adding 32 to ASCII values
      }
   }

   printf("\nString in Lower Case = %s", s);
   return 0;
}
```

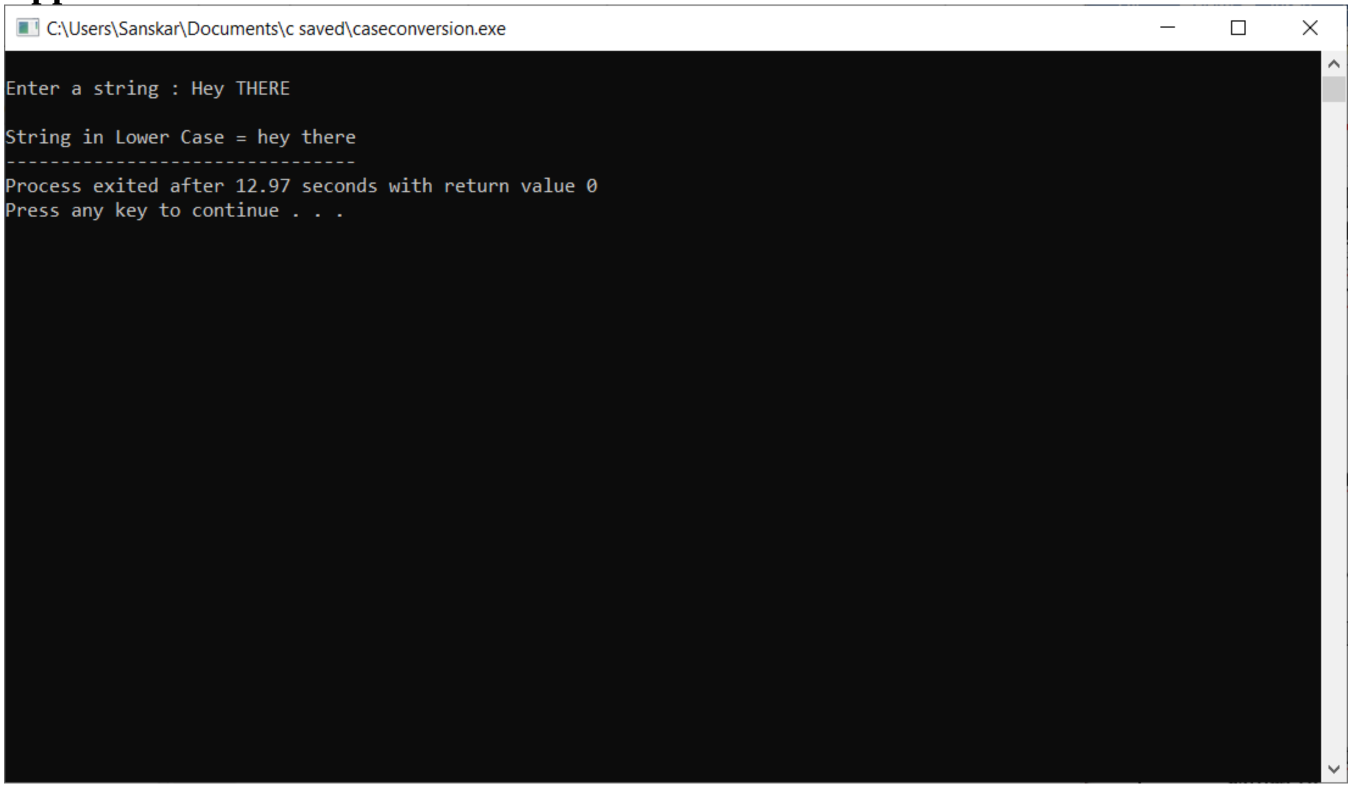
Lower case to upper case-

```
#include <stdio.h>
#include <string.h>
int main() {
   char s[100];
   int i;
```

```
 printf("\nEnter a string : "); // input string
   gets(s);

   for (i = 0; s[i]!='\0'; i++) {
      if(s[i] >= 'A' && s[i] <= 'Z') {
         s[i] = s[i] + 32; // adding 32 to ASCII values
      }
   }

   printf("\nString in Lower Case = %s", s);
   return 0;
}
```

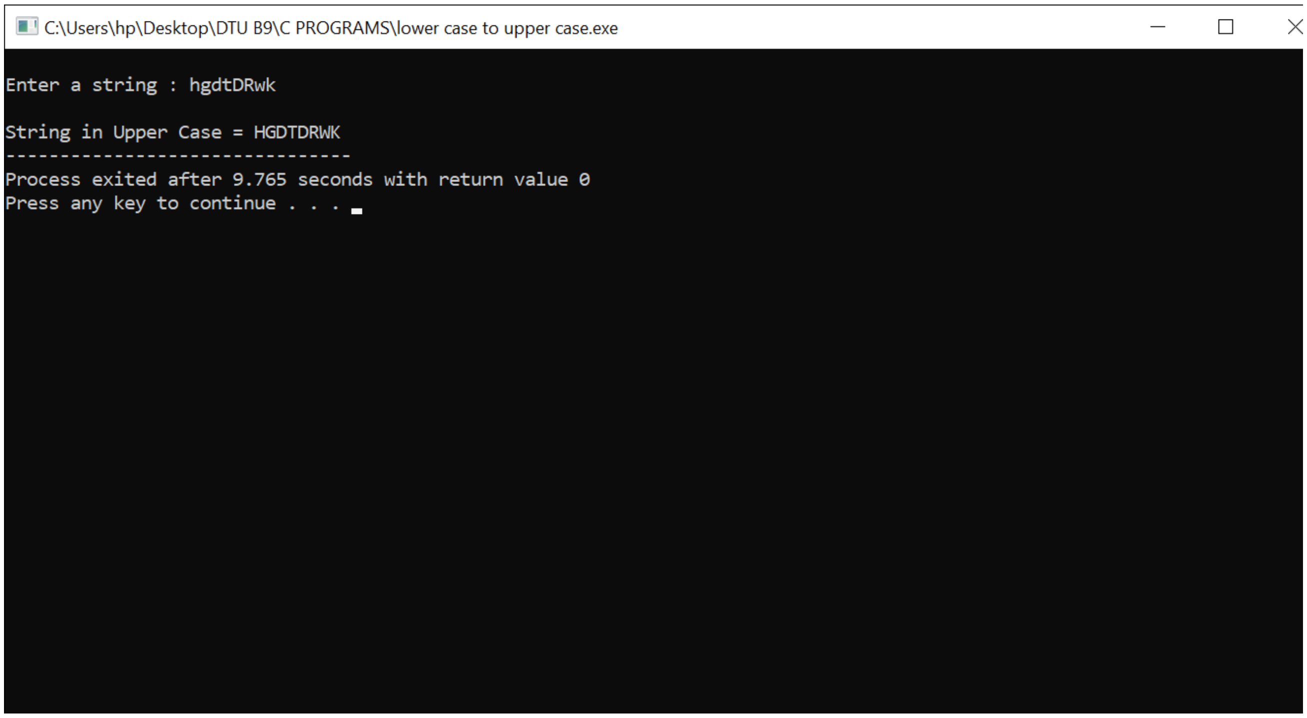
OUTPUT-

Upper case to lower case



```
C:\Users\Sanskar\Documents\c saved\caseconversion.exe

Enter a string : Hey THERE

String in Lower Case = hey there
--------------------------------
Process exited after 12.97 seconds with return value 0
Press any key to continue . . .
```

Lower-case to upper case-


C:\Users\hp\Desktop\DTU B9\C PROGRAMS\lower case to upper case.exe

```
Enter a string : hgdtDRwk

String in Upper Case = HGDTDRWK
--------------------------------
Process exited after 9.765 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-25

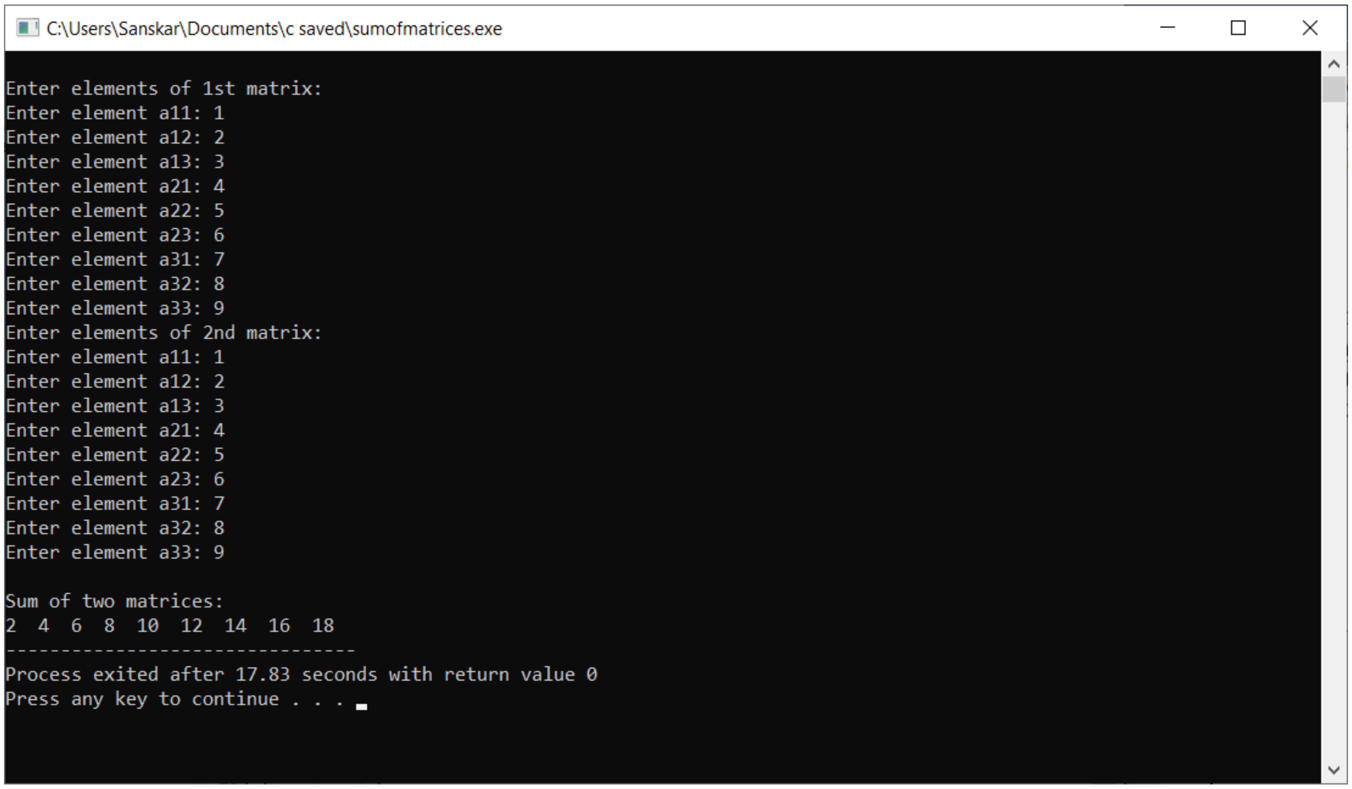
OBJECTIVE- Program for addition of two 3x3 matrices

INTRODUCTION- To add 2 matrices we declare and initialize 3 matrices. Two of them for input from the user and the third one to store the sum.

PROGRAM CODE-

```
#include <stdio.h>
int main() {
    int  a[3][3], b[3][3], sum[3][3], i, j; // declaring two 3x3 matrices

    printf("\nEnter elements of 1st matrix:\n");
    for (i = 0; i < 3; ++i) // enter elements of 1st  matrix
        for (j = 0; j < 3; ++j) {
            printf("Enter element a%d%d: ", i + 1, j + 1);
            scanf("%d", &a[i][j]);
        }

    printf("Enter elements of 2nd matrix:\n");
    for (i = 0; i < 3; ++i) // enter elements of 2nd matrix
        for (j = 0; j < 3; ++j) {
            printf("Enter element a%d%d: ", i + 1, j + 1);
            scanf("%d", &b[i][j]);
        }

    // adding two matrices
    for (i = 0; i < 3; ++i)
        for (j = 0; j < 3; ++j) {
            sum[i][j] = a[i][j] + b[i][j];
        }
  // printing the result
    printf("\nSum of two matrices: \n");
    for (i = 0; i < 3; ++i)
        for (j = 0; j < 3; ++j)
                         {
            printf("%d  ", sum[i][j]);
          }

            return 0;
}
```

OUTPUT-



C:\Users\Sanskar\Documents\c saved\sumofmatrices.exe

```
Enter elements of 1st matrix:
Enter element a11: 1
Enter element a12: 2
Enter element a13: 3
Enter element a21: 4
Enter element a22: 5
Enter element a23: 6
Enter element a31: 7
Enter element a32: 8
Enter element a33: 9
Enter elements of 2nd matrix:
Enter element a11: 1
Enter element a12: 2
Enter element a13: 3
Enter element a21: 4
Enter element a22: 5
Enter element a23: 6
Enter element a31: 7
Enter element a32: 8
Enter element a33: 9

Sum of two matrices:
2  4  6  8  10  12  14  16  18
--------------------------------
Process exited after 17.83 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-26

OBJECTIVE- Program to multiply two 3x3 matrices

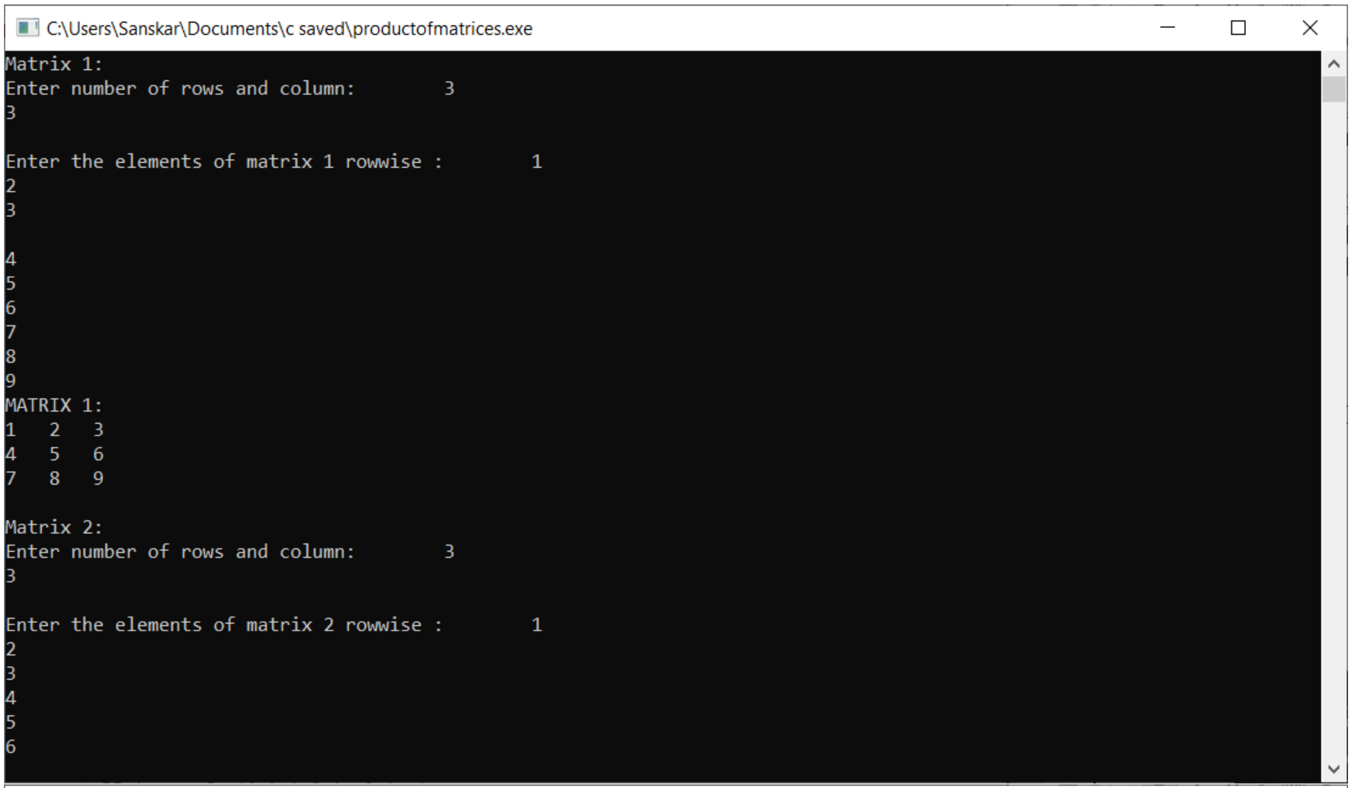
INTRODUCTION- We are using 2-D arrays to multiply 2 arrays**.**

PROGRAM CODE-

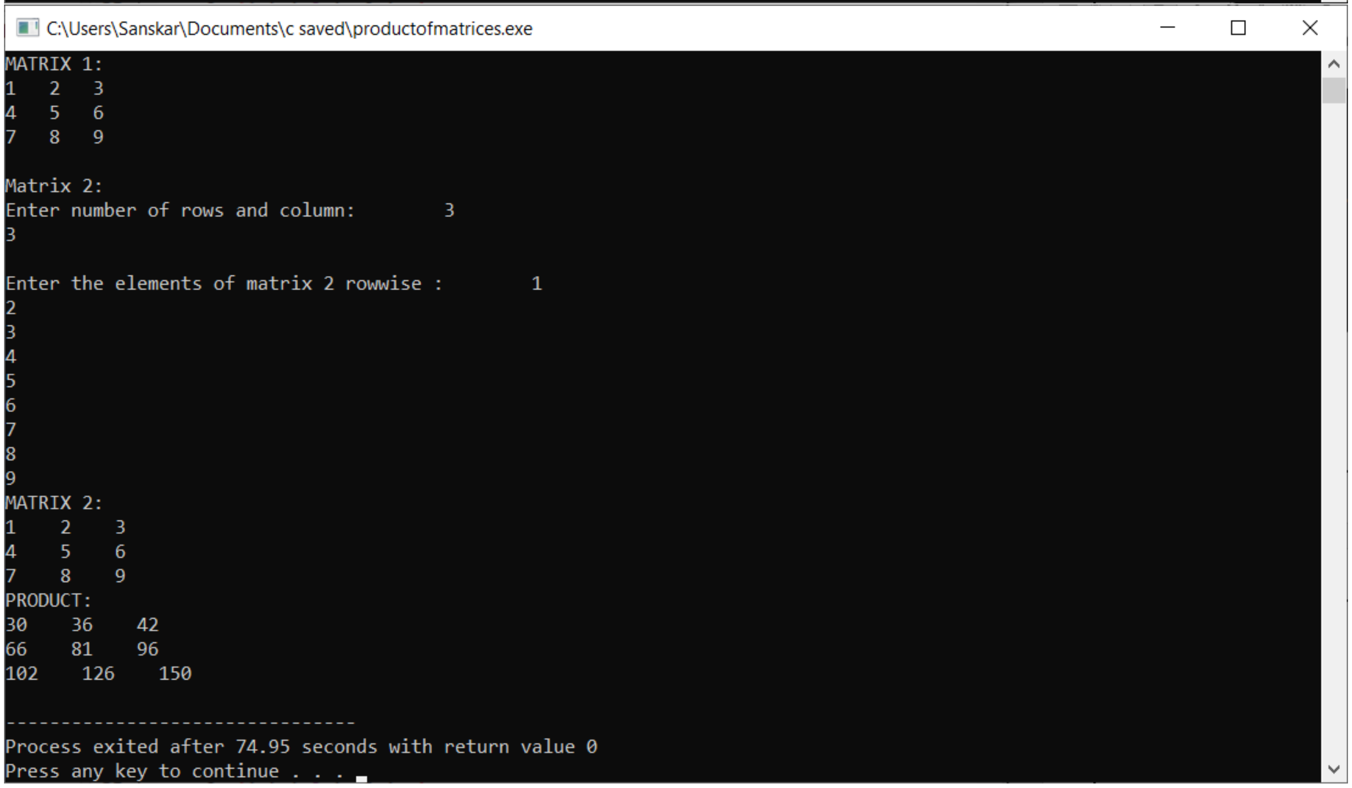
```
#include<stdio.h>
int main()
{
   //MATRIX 1 INPUT
   int r1,c1;
   printf("\nMatrix 1:\nEnter number of rows and column:\t");
   scanf("%d%d",&r1,&c1);
   int a[r1][c1];
   printf("\nEnter the elements of matrix 1 rowwise :\t");
   for(int i=0;i<r1;i++)
   {
      for(int j=0;j<c1;j++)
         scanf("%d",&a[i][j]);
   }
   printf("MATRIX 1:\n");
   for(int i=0;i<r1;i++)
   {
      for(int j=0;j<c1;j++)
         printf("%d   ",a[i][j]);
      printf("\n");
   }

   //MATRIX 2 INPUT
   int r2,c2;
   printf("\nMatrix 2:\nEnter number of rows and column:\t");
   scanf("%d%d",&r2,&c2);
   int b[r2][c2];
   printf("\nEnter the elements of matrix 2 rowwise :\t");
   for(int i=0;i<r2;i++)
   {
      for(int j=0;j<c2;j++)
         scanf("%d",&b[i][j]);
   }
   printf("MATRIX 2:\n");
   for(int i=0;i<r2;i++)
   {
      for(int j=0;j<c2;j++)
```

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

    if (r2!=c1)
        {
            printf("\nMULTIPLICATION NOT POSSIBLE");
        }
    else
    {
        //multiplying 2 matrices

        int mult[r1][c2];
        for(int i=0;i<r1;i++)
        {
            for(int j=0;j<c2;j++)
              mult[i][j]=0;
        }
        for(int i=0;i<r1;i++)
        {
           for(int j=0;j<c2;j++)


  {
               for(int k=0;k<c1;k++)
                  mult[i][j]+=a[i][k]*b[k][j];
           }
        }

        //OUTPUT

        printf("PRODUCT:\n");
        for(int i=0;i<r1;i++)
        {
            for(int j=0;j<c2;j++)
               printf("%d    ",mult[i][j]);
               printf("\n");
        }

    }

    return 0;
}
```

OUTPUT-


C:\Users\Sanskar\Documents\c saved\productofmatrices.exe

```
Matrix 1:
Enter number of rows and column:        3
3

Enter the elements of matrix 1 rowwise :        1
2
3

4
5
6
7
8
9
MATRIX 1:
1   2   3
4   5   6
7   8   9

Matrix 2:
Enter number of rows and column:        3
3

Enter the elements of matrix 2 rowwise :        1
2
3
4
5
6
```


C:\Users\Sanskar\Documents\c saved\productofmatrices.exe

```
MATRIX 1:
1   2   3
4   5   6
7   8   9

Matrix 2:
Enter number of rows and column:        3
3

Enter the elements of matrix 2 rowwise :        1
2
3
4
5
6
7
8
9
MATRIX 2:
1    2    3
4    5    6
7    8    9
PRODUCT:
30    36    42
66    81    96
102    126    150

--------------------------------
Process exited after 74.95 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-27

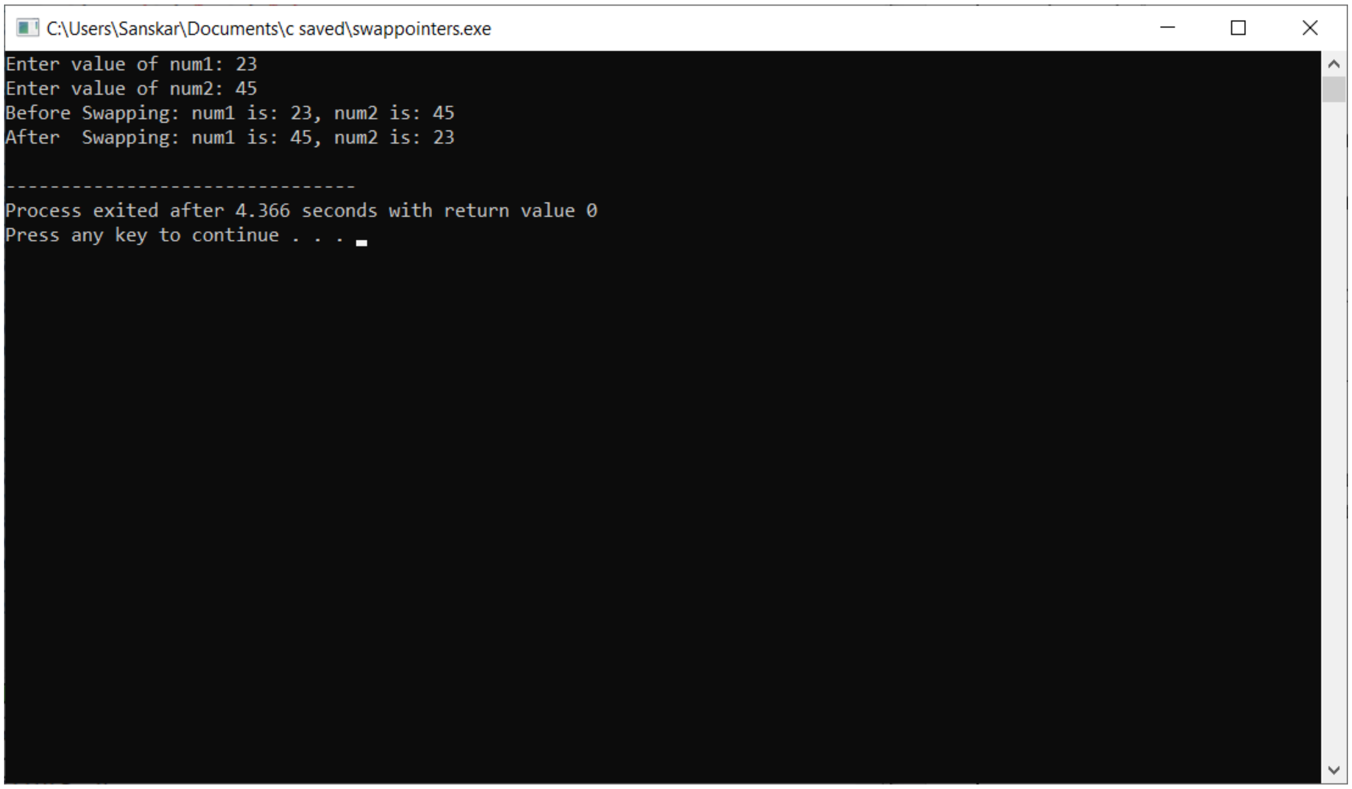
OBJECTIVE- Program to swap two numbers using pointers

INTRODUCTION- Two swap two numbers we have to swap the values at the address for that we use pointers.

PROGRAM CODE-

```
#include <stdio.h>

// function to swap the two numbers
void swap(int *x,int *y)
{
    int t;
     t   = *x;
    *x   = *y;
    *y   =  t;
}

int main()
{
    int num1,num2;

    printf("Enter value of num1: ");
    scanf("%d",&num1);
    printf("Enter value of num2: ");
    scanf("%d",&num2);

    //displaying numbers before swapping
    printf("Before Swapping: num1 is: %d, num2 is: %d\n",num1,num2);

    //calling by referance the user defined function swap()
    swap(&num1,&num2);

    //displaying numbers after swapping
    printf("After  Swapping: num1 is: %d, num2 is: %d\n",num1,num2);

    return 0;
}
```

OUTPUT-



C:\Users\Sanskar\Documents\c saved\swappointers.exe

```
Enter value of num1: 23
Enter value of num2: 45
Before Swapping: num1 is: 23, num2 is: 45
After  Swapping: num1 is: 45, num2 is: 23

--------------------------------
Process exited after 4.366 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-28

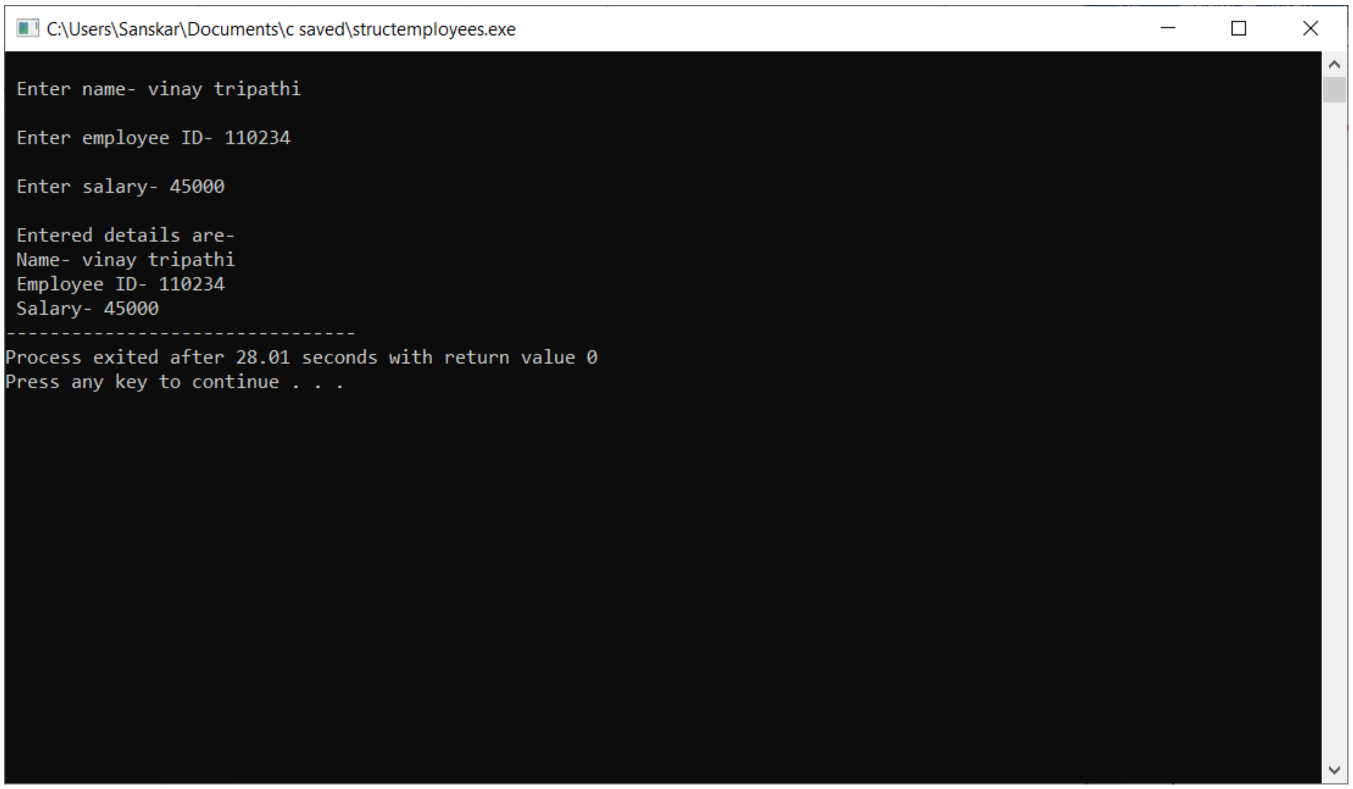
OBJECTIVE- Program to generate employee details using structures

INTRODUCTION- We are using the structure function to generate employee details.

PROGRAM CODE-

```
#include<stdio.h>
struct employee
{
char name[32];
int employee_ID;
int salary;
}E;
int main()
{
//Enter your name
printf("\n Enter name- ");
gets(E.name);
//Enter your employee ID
printf("\n Enter employee ID- ");
scanf("%d",&E.employee_ID);


getchar();
printf("\n Enter salary- ");
scanf("%d",&E.salary);
printf("\n Entered details are- ");
printf("\n Name- ");
puts(E.name);
printf(" Employee ID- %d",E.employee_ID);
printf("\n Salary- %d",E.salary);
}
```

OUTPUT-



C:\Users\Sanskar\Documents\c saved\structemployees.exe

```
 Enter name- vinay tripathi

 Enter employee ID- 110234

 Enter salary- 45000

 Entered details are-
 Name- vinay tripathi
 Employee ID- 110234
 Salary- 45000
--------------------------------
Process exited after 28.01 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-29

OBJECTIVE-Program to find the area and perimeter of a circle, square, rectangle and triangle using functions

INTRODUCTION- We will find the area and perimeter of circle, square, rectangle and triangle.

PROGRAM CODE-

Area and perimeter of circle-

```
#include<stdio.h>
#define  PI 3.14
float circle_area(int r)
{
     float area;
     area= PI*r*r;
     return area;
}
float circle_perimeter(int r)
{
     float p;
     p=2*PI*r;
     return p;
}
int main()
{
     float a,x,y;
     printf("Enter the radius of the Circle : ");
     scanf("%f",&a);

     x=circle_area(a); // calling function circle_area
     y=circle_perimeter(a); // calling circle_perimeter
     printf("\nArea of circle = %f\n\nPerimeter of circle = %f",x,y);
     return 0;
}
```

Area and perimeter of Square-

```
#include<stdio.h>
int sqr_area(int l)
{
     int area;
     area=l*l;
     return area;
}
int sqr_perimeter(int l)
{
     int p;
```

```
    p=4*l;
    return p;
}
int main()
{
    int a,x,y;
    printf("Enter Length of side of Square : ");
    scanf("%d",&a);

    x=sqr_area(a); // calling function sqr_area
    y=sqr_perimeter(a); // calling sqr_perimeter


 printf("\nArea of Square = %d\n\nPerimeter of Square = %d",x,y);
    return 0;
}
```

Area and perimeter of Rectangle-

```
#include<stdio.h>
int rect_area(int l,int w)
{
    int area;
    area=l*w;
    return area;
}
int rect_perimeter(int l,int w)
{
    int p;
    p=2*(l+w);
    return p;
}
int main()
{
    int a,b,x,y;
    printf("Enter Length of Rectangle : ");
    scanf("%d",&a);
    printf("\nEnter Width of Rectangle : ");
    scanf("%d",&b);
    x=rect_area(a,b); // calling function rect_area
    y=rect_perimeter(a,b); // calling function perimeter
    printf("\nArea of Rectangle = %d\n\nPerimeter of Rectangle = %d",x,y);
    return 0;
}
```

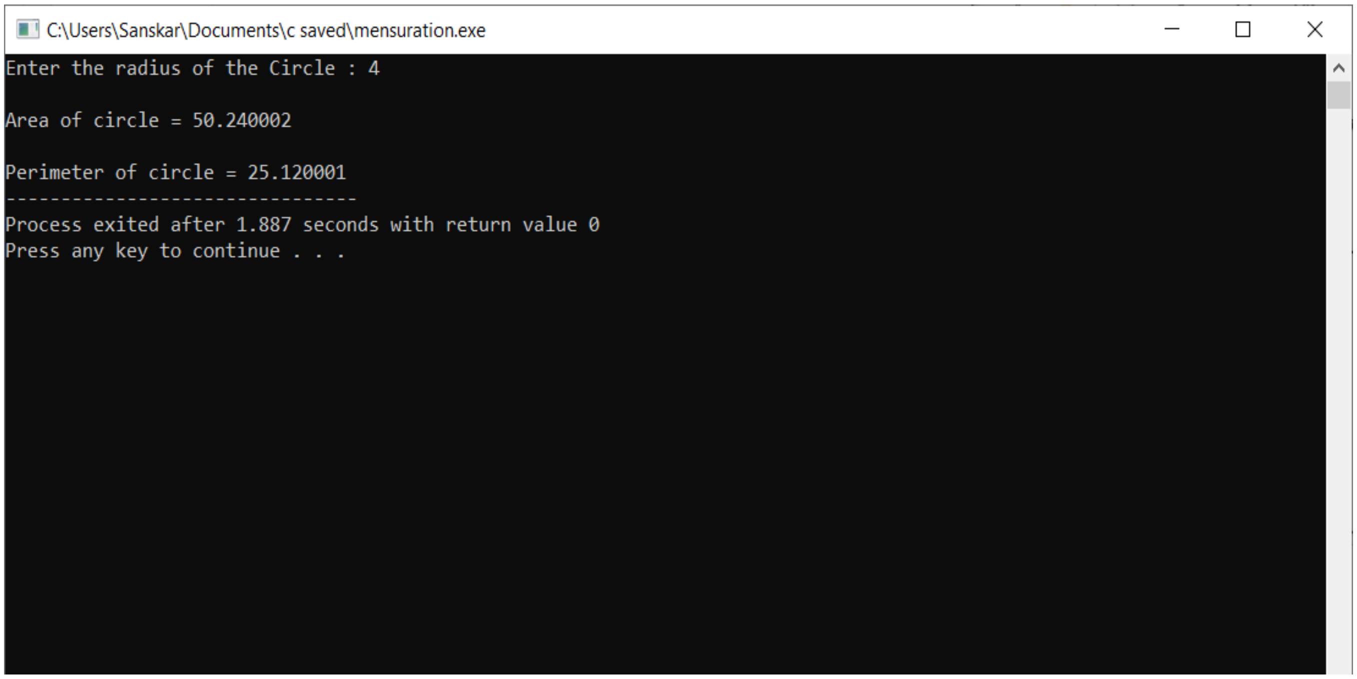
Area and perimeter if Triangle-

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

```
double area_of_triangle(double, double, double);

int main()
{
  double a, b, c, area, perimeter_of_triangle;

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

  scanf("%lf%lf%lf", &a, &b, &c);
  perimeter_of_triangle = a+b+c ;
  printf("Perimeter of the triangle is- %lf \n ", perimeter_of_triangle);

  area = area_of_triangle(a, b, c);

  printf("Area of the triangle = %.2lf\n", area);



return 0;
}

double area_of_triangle(double a, double b, double c)
{
  double s, area;

  s = (a+b+c)/2;

  area = sqrt(s*(s-a)*(s-b)*(s-c));
  return area;
}
```

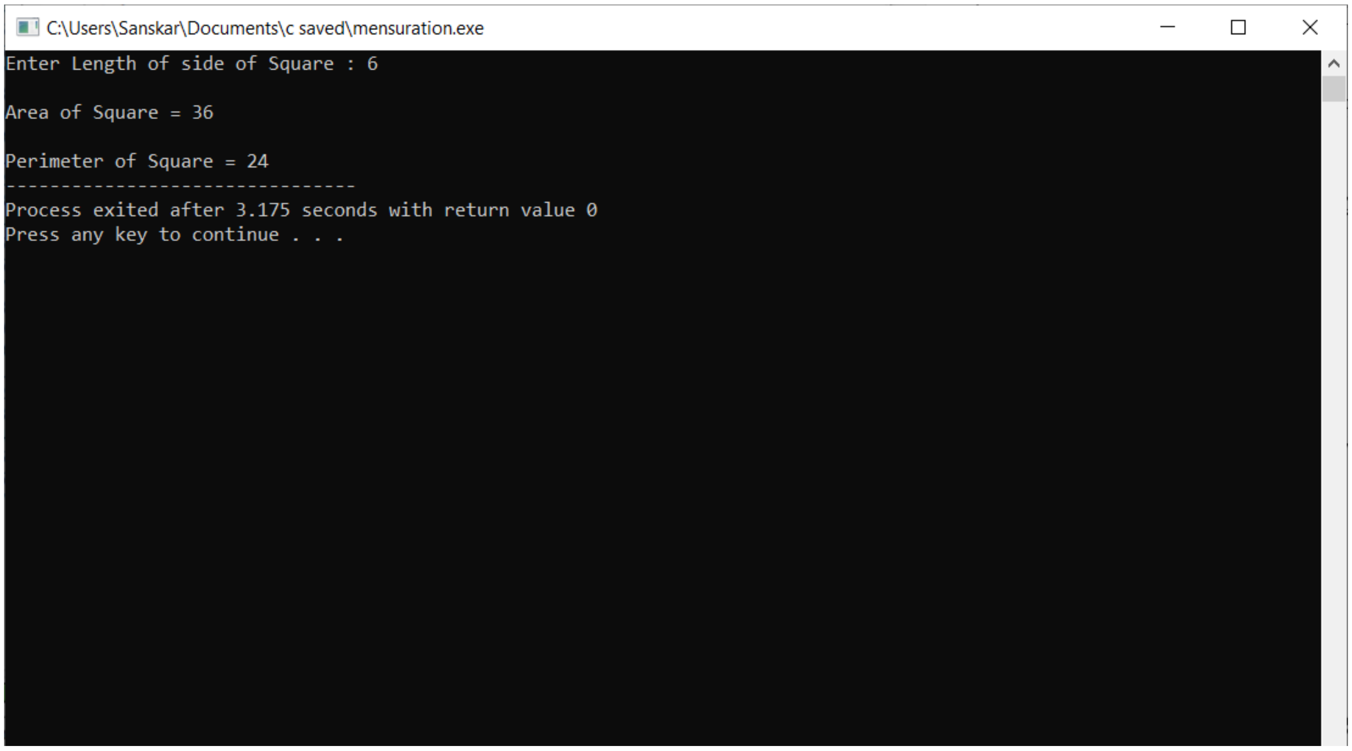
OUTPUT-

Area and perimeter of circle-


C:\Users\Sanskar\Documents\c saved\mensuration.exe

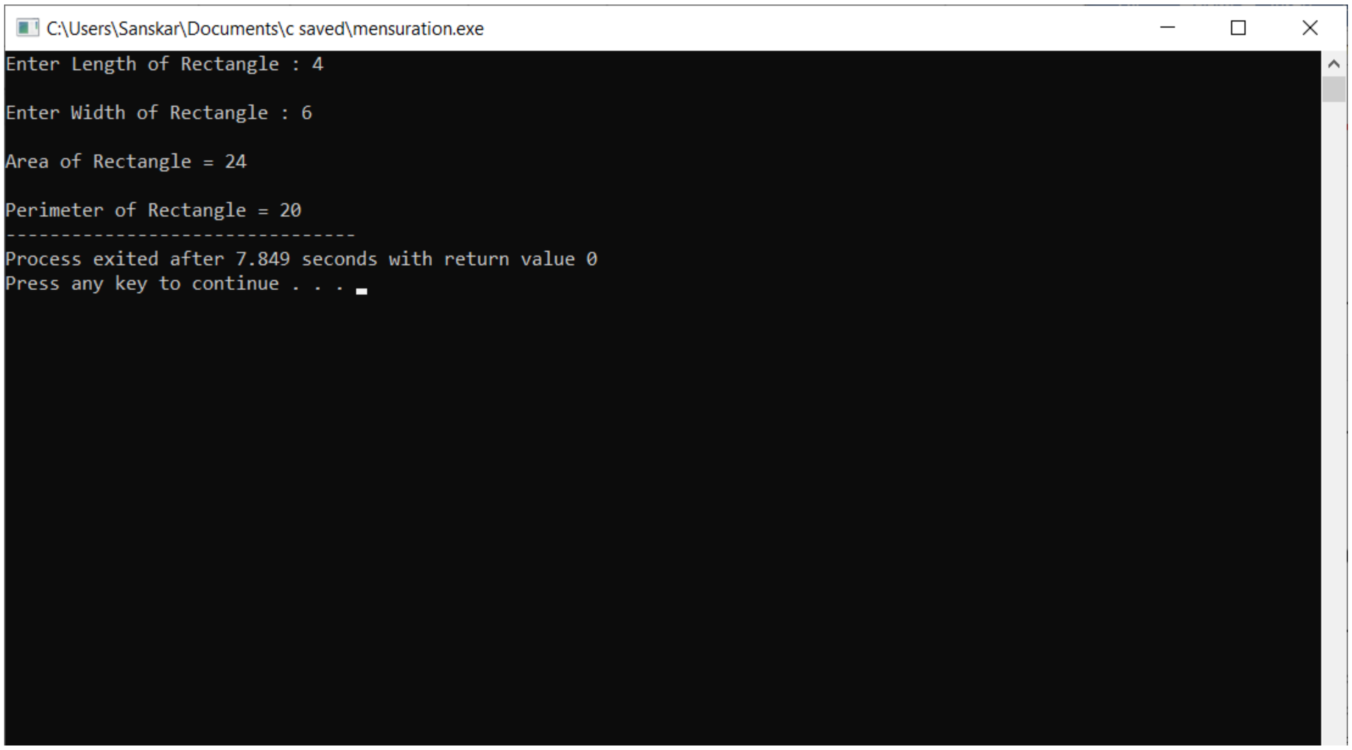
```
Enter the radius of the Circle : 4

Area of circle = 50.240002

Perimeter of circle = 25.120001
--------------------------------
Process exited after 1.887 seconds with return value 0
Press any key to continue . . .
```

Area and perimeter of square-


C:\Users\Sanskar\Documents\c saved\mensuration.exe

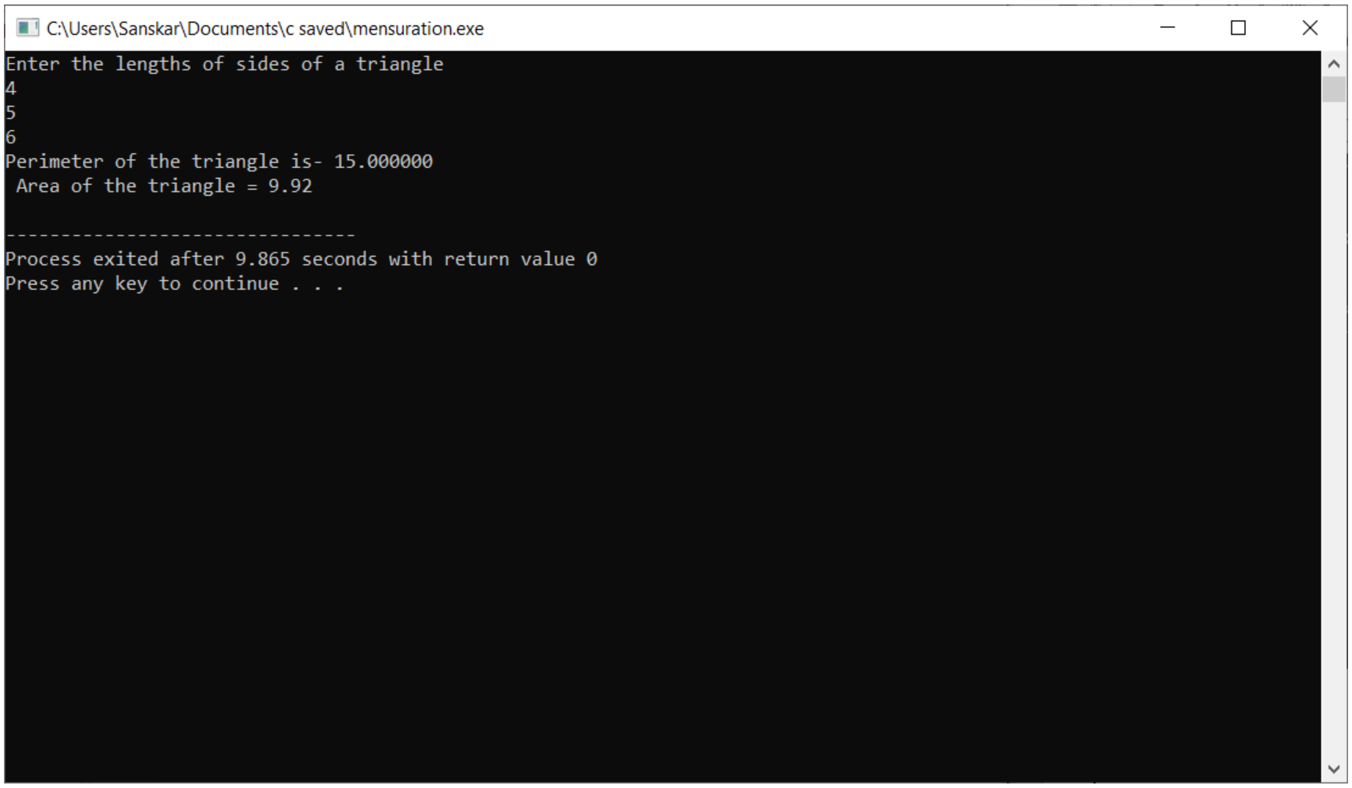
```
Enter Length of side of Square : 6

Area of Square = 36

Perimeter of Square = 24
--------------------------------
Process exited after 3.175 seconds with return value 0
Press any key to continue . . .
```

Area and perimeter of rectangle-



```
Enter Length of Rectangle : 4

Enter Width of Rectangle : 6

Area of Rectangle = 24

Perimeter of Rectangle = 20
--------------------------------
Process exited after 7.849 seconds with return value 0
Press any key to continue . . .
```

Area and Perimeter of triangle-



```
Enter the lengths of sides of a triangle
4
5
6
Perimeter of the triangle is- 15.000000
 Area of the triangle = 9.92

--------------------------------
Process exited after 9.865 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-30

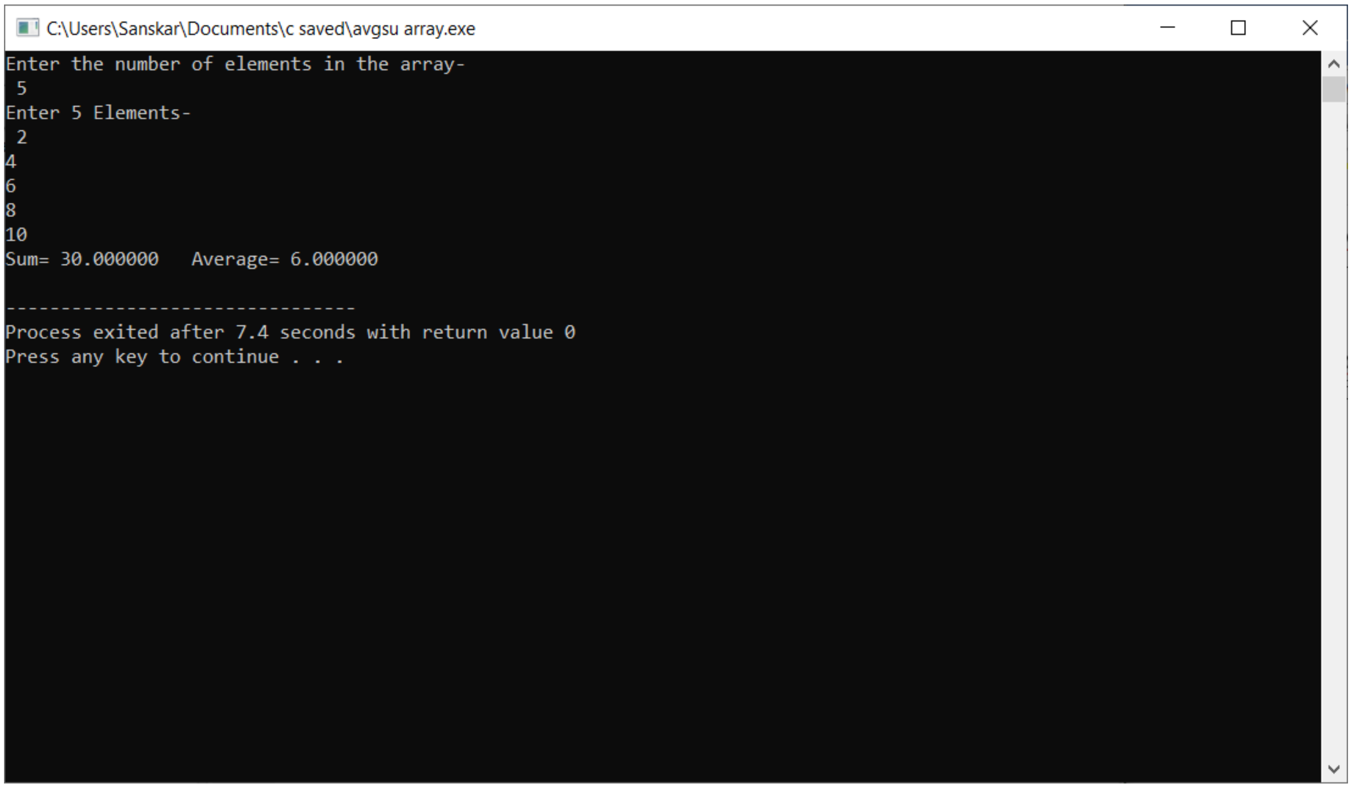
OBJECTIVE- Program to pass and return pointer to a function hence calculate the average of an array.

INTRODUCTION- We are using the concepts of arrays and pointers so as to find the average of the elements of the array.

PROGRAM CODE-

```
#include <stdio.h>
int main()
{
    float a[50], sum = 0.0, avg;
    int i,num ;
    float *pointera, *pointersum, *pointeravg;

    pointera = &a[0]; //  Or, px = &x;


pointersum = &sum, pointeravg = &avg;
printf("Enter the number of elements in the array-\n ");
scanf("%d", &num);
    printf("Enter %d Elements- \n " , num );
    for (i = 0; i < num; i++)
    {
        scanf("%f", (pointera + i));
        *pointersum += *(pointera + i);
    }

    *pointeravg = *pointersum / 5;
    printf("Sum= %f \t Average= %f\n", *pointersum, *pointeravg);
    return 0;
}
```

OUTPUT-



C:\Users\Sanskar\Documents\c saved\avgsu array.exe

```
Enter the number of elements in the array-
 5
Enter 5 Elements-
 2
4
6
8
10
Sum= 30.000000   Average= 6.000000

--------------------------------
Process exited after 7.4 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-31

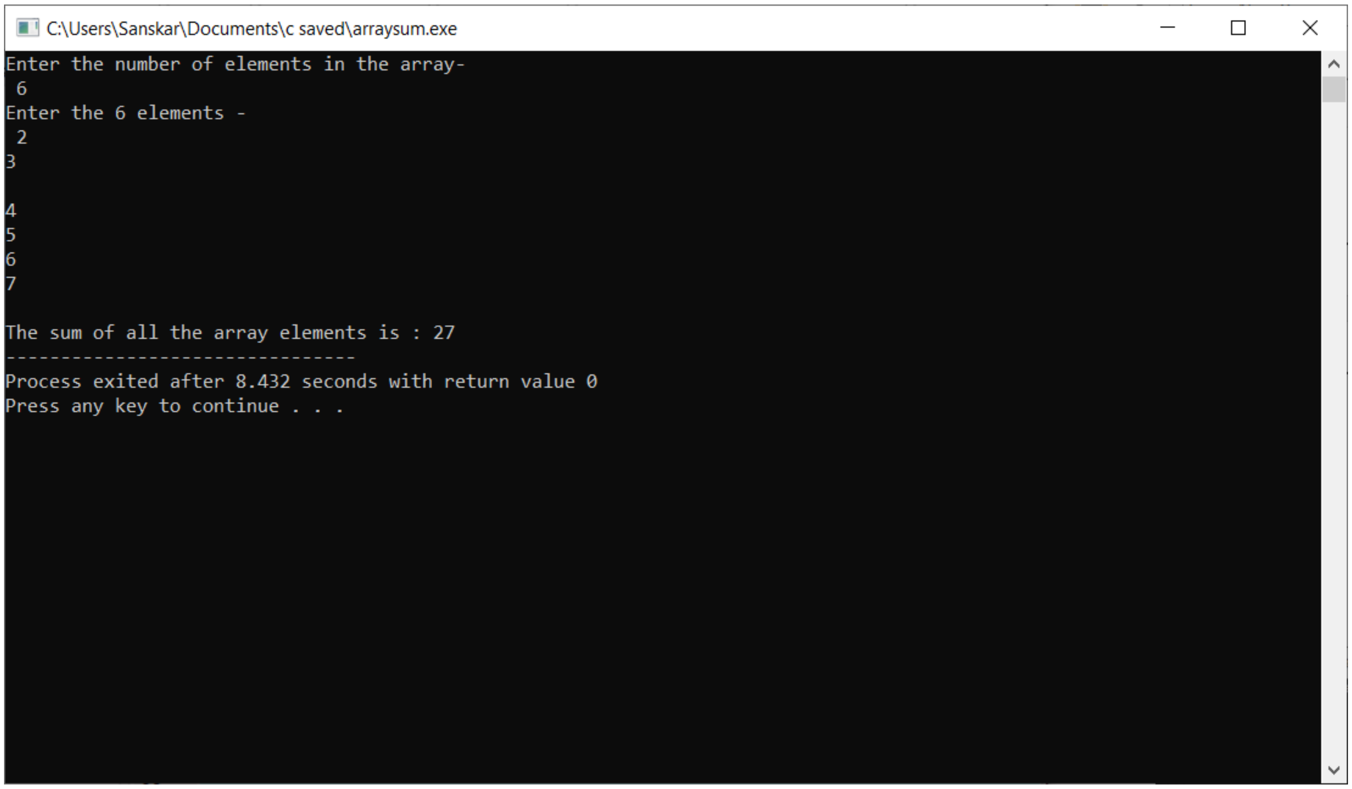
OBJECTIVE- Program to pass an array as pointer to a function that calculates the sum of all elements.

INTRODUCTION-Just like variables, array can also be passed to a function as an argument using pointers. The program calls a function to add all the element of an array and passes the array argument as a pointer. The program should dynamically allocate a piece of memory for that array and use a pointer to point to that array memory as well as traverse that array using a pointer.

PROGRAM CODE-

```
#include <stdio.h>
int sum_of_elements(int *arr , int n) // sum function
{
    int i=0,sum=0 ;

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

    return sum;
}
int main()
{

    int total = 0, num, j;
    int array[50];
   printf("Enter the number of elements in the array-\n ");
 scanf("%d",&num);
 printf("Enter the %d elements -\n " , num );

    for (j = 0 ; j < num ; j++) // taking array elements input
            {
    scanf("%d", &array[j]);
    }

    total = sum_of_elements(array,num);

    printf("\nThe sum of all the array elements is : %d",total); // print sum as output

    return 0;
}
```

OUTPUT-



```
Enter the number of elements in the array-
 6
Enter the 6 elements -
 2
3

4
5
6
7

The sum of all the array elements is : 27
--------------------------------
Process exited after 8.432 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-32

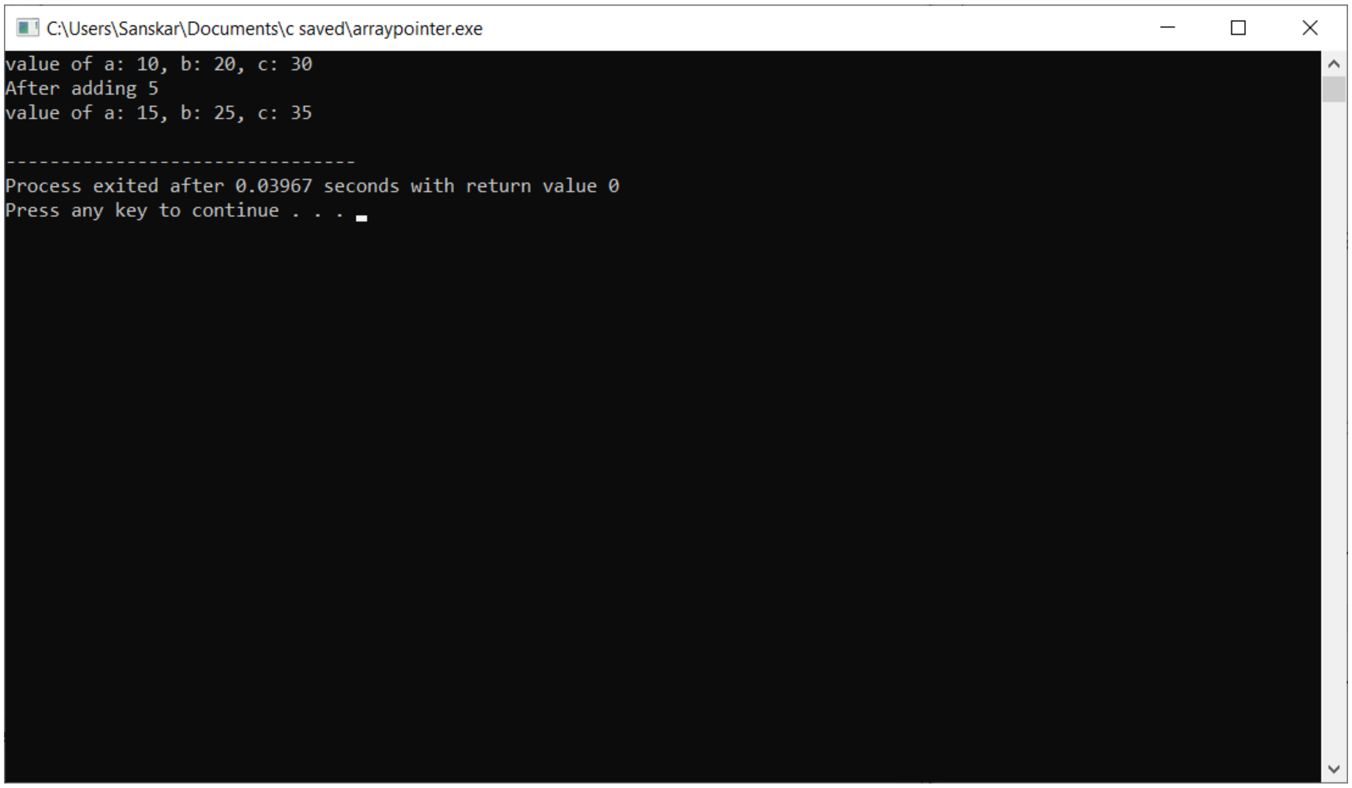
OBJECTIVE- Program to demonstrate the example of array of pointers.

INTRODUCTION- We can declare a pointer that can point to a whole array instead of only one element of the array. This pointer is useful when talking about multidimensional arrays.

PROGRAM CODE-

```
#include <stdio.h>

int main()
{
    /*declare same type of variables*/
    int a,b,c;

    /*we can create an integer pointer array to
  store the address of these integer variables*/
    int *ptr[3];

    /*assign the address of all integer variables to ptr*/
    ptr[0]= &a;
    ptr[1]= &b;
    ptr[2]= &c;

    /*assign the values to a,b,c*/
    a=10;
    b=20;
    c=30;

    /*print values using pointer variable*/
    printf("value of a: %d, b: %d, c: %d\n",*ptr[0],*ptr[1],*ptr[2]);

    /*add 10 to all values using pointer*/
    *ptr[0] +=5;
    *ptr[1] +=5;
    *ptr[2] +=5;
    printf("After adding 5\nvalue of a: %d, b: %d, c: %d\n",*ptr[0],*ptr[1],*ptr[2]);

    return 0;
}
```

OUTPUT-


C:\Users\Sanskar\Documents\c saved\arraypointer.exe

```
value of a: 10, b: 20, c: 30
After adding 5
value of a: 15, b: 25, c: 35

--------------------------------
Process exited after 0.03967 seconds with return value 0
Press any key to continue . . .
```

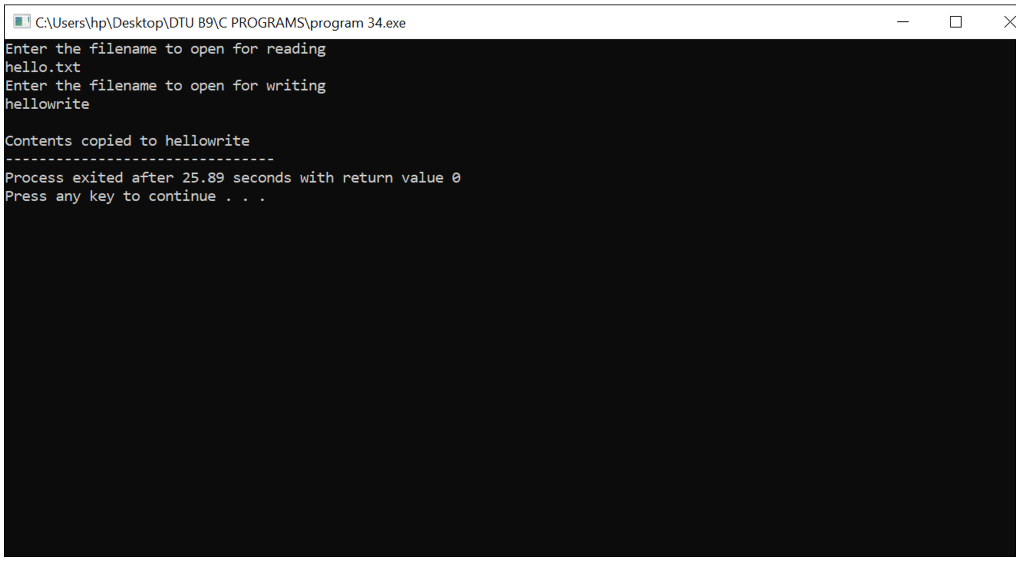
EXPERIMENT-33

OBJECTIVE- Program which copies one file contents to other.

INTRODUCTION- We are doing this program with the help of fseek(), fopen(), fclose(), fputc() functions.

PROGRAM CODE-
```
#include <stdio.h>
#include <stdlib.h> // For exit()

int main()
{
    FILE *fptr1, *fptr2;
    char filename[100], c;

    printf("Enter the filename to open for reading \n");
    scanf("%s", filename);

    // Open one file for reading
    fptr1 = fopen(filename, "r");
    if (fptr1 == NULL)
    {
        printf("Cannot open file %s \n", filename);
        exit(0);
    }

    printf("Enter the filename to open for writing \n");
    scanf("%s", filename);

    // Open another file for writing
    fptr2 = fopen(filename, "w");
    if (fptr2 == NULL)
    {
        printf("Cannot open file %s \n", filename);
        exit(0);
    }

    // Read contents from file
    c = fgetc(fptr1);
    while (c != EOF)
    {
        fputc(c, fptr2);
        c = fgetc(fptr1);
    }

    printf("\nContents copied to %s", filename);

    fclose(fptr1);
    fclose(fptr2);
    return 0;
}
```

OUTPUT-



C:\Users\hp\Desktop\DTU B9\C PROGRAMS\program 34.exe

```
Enter the filename to open for reading
hello.txt
Enter the filename to open for writing
hellowrite

Contents copied to hellowrite
--------------------------------
Process exited after 25.89 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-34

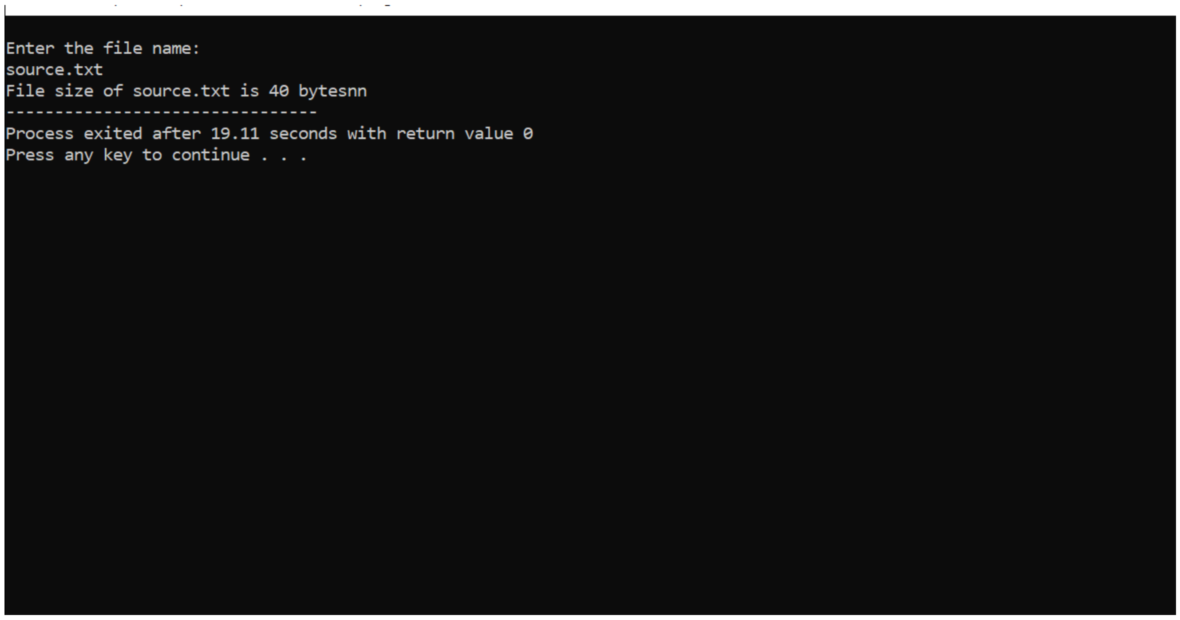
OBJECTIVE- Program to find size of a given file

INTRODUCTION- We are doing this program so as to find the size of a given file. We use fseek (), fopen (), fclose () functions.

PROGRAM CODE-

```
#include<stdio.h>
#include<process.h>
long file_size(FILE *fp)
 {


  long len;


   //move file pointer to end of the file */
    fseek(fp, 0L, 2);
    //Obtain the current position of file pointer
    len = ftell(fp);
    return len;
 }
void main(void)
 {
   FILE *fp;
   char filename[20];
   printf("\nEnter the file name:\n");
   scanf("%s",filename);

   fp = fopen(filename, "r");

   if(fp == NULL)
    {
       printf("Error:  file not found!\n");
       exit(0);
    }
  printf("File size of %s is %ld bytesnn",filename, file_size(fp));
  fclose(fp);
 }
```

OUTPUT-



```
Enter the file name:
source.txt
File size of source.txt is 40 bytesnn
--------------------------------
Process exited after 19.11 seconds with return value 0
Press any key to continue . . .
```

EXPERIMENT-35

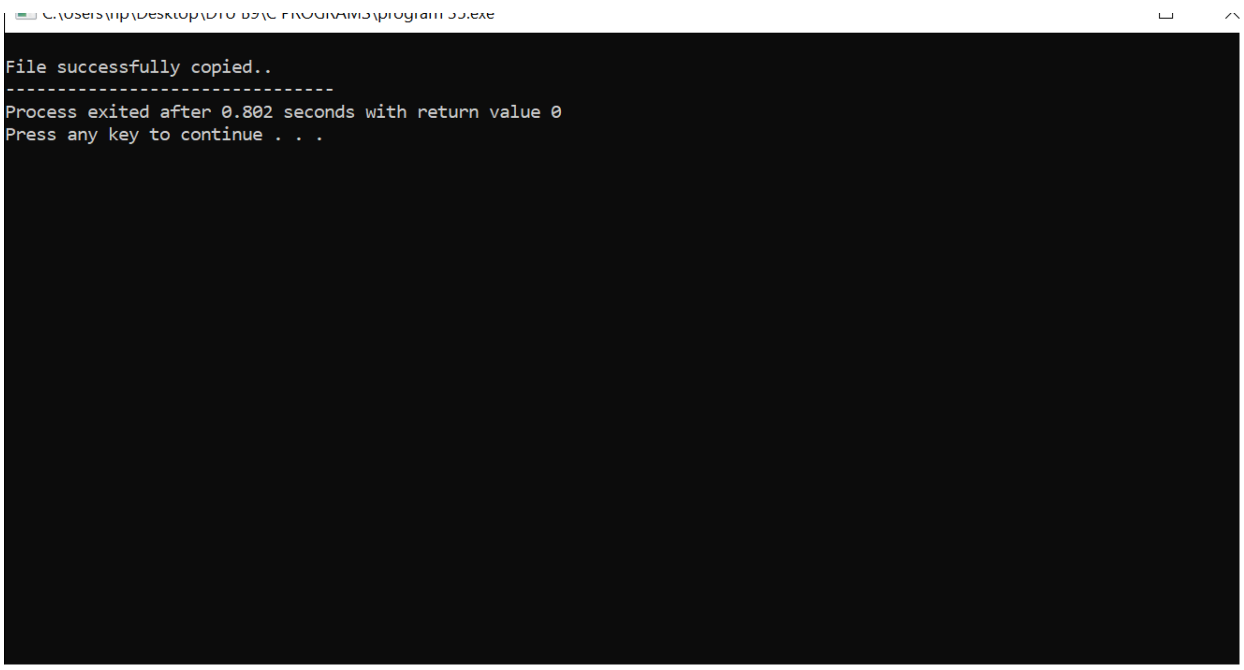
OBJECTIVE- Program to read a file and after converting all lower case to upper case letters write it to another file.

INTRODUCTION- Program to read a file and after converting all lower case to upper case letters, write it to another file.

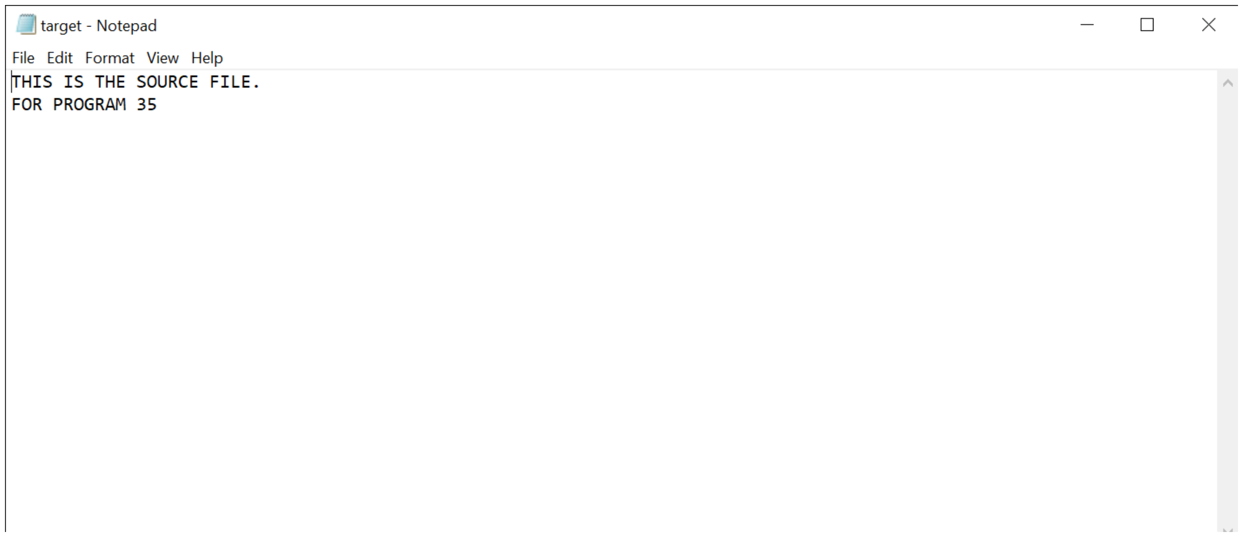
PROGRAM CODE-

```
#include<stdio.h>
#include<stdlib.h>
#include<ctype.h>
int main()
{
    FILE *fp1, *fp2;
    char ch;
    fp1 = fopen("source.txt", "r");
    if (fp1 == NULL)
    {
        puts("File does not exist..");
        exit(1);
    }
    fp2 = fopen("target.txt", "w");
    if (fp2 == NULL)
    {
        puts("File does not exist..");
        fclose(fp1);
        exit(1);
    }
    while((ch=fgetc(fp1))!=EOF)
    {
        ch = toupper(ch);
        fputc(ch,fp2);
    }
    printf("\nFile successfully copied..");
    return 0;
}
```

OUTPUT-



```
File successfully copied..
--------------------------------
Process exited after 0.802 seconds with return value 0
Press any key to continue . . .
```



```
THIS IS THE SOURCE FILE.
FOR PROGRAM 35
```

EXPERIMENT-36

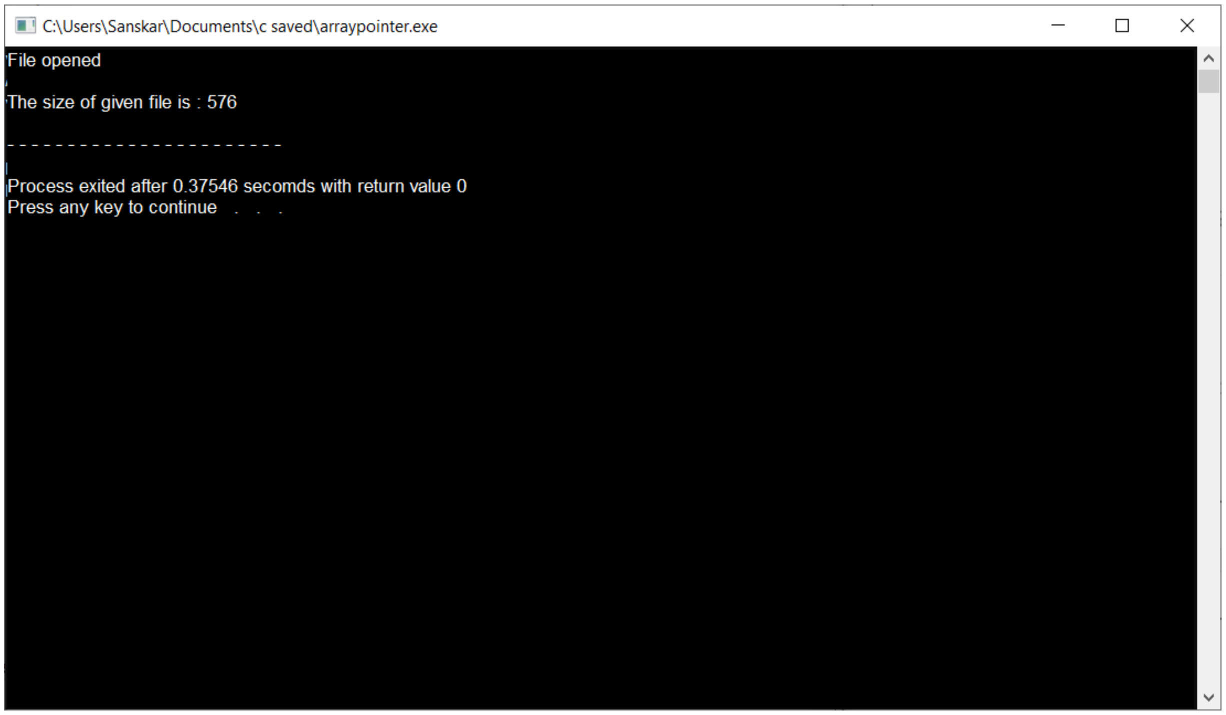
OBJECTIVE- Program to find the size of a given file.

INTRODUCTION- Program to read a file and calculate its size.

PROGRAM CODE-

```
#include <stdio.h>

int main()
{
   FILE *fp;
   char ch;
   int size = 0;
   char * arrr = "C:\\Users\\acer\\Documents\\file4.txt";
   fp = fopen(arrr, "r");
   if (fp == NULL)
       printf("\nFile unable to open ");
   else
       printf("\nFile opened ");
   fseek(fp, 0, 2);    /* file pointer at the end of file */
   size = ftell(fp);   /* take a position of file pointer un size variable */
   printf("The size of given file is : %d\n", size);
   fclose(fp);

   return 0;
}
```

OUTPUT-



C:\Users\Sanskar\Documents\c saved\arraypointer.exe

```
File opened

The size of given file is : 576

- - - - - - - - - - - - - - - - - - - - - - -

Process exited after 0.37546 secomds with return value 0
Press any key to continue . . .
```