RAJKIYA ENGINEERING COLLEGE AMBEDKAR NAGAR

BRANCH:

(Department of Applied Science and Humanities)

PRACTICAL FILE

ON

PRINCIPLE OF PROGRAMMING LANGUAGE (KCS-151P)

SESSION 2021-2022

SUBMITTED TO:

SUBMITTED BY:

ROLL NO:

BRANCH:

SEMESTER:

(INDEX)

10.	Write a program to find the sum of following series 1-X1/1!+X2/2!-……Xn/n!.			
11.	Write a program to print the entire prime no between 1 and 300.			
12.	Write a program to print out all the Armstrong number between 100 and 500.			
13.	Write a program to draw the following figure: 3 2 1 21 1 * ** ***			
14.	Write a program to receive a five-digit no and display as like 24689: 2 4 6 8 9			
15.	Write a function that return sum of all the odd digits of a given positive no entered through keyboard.			
16.	Write a program to print area of rectangle using function & return its value to main function.			
17.	Write a program to calculate the factorial for given number using function.			
18.	Write a program to find sum of Fibonacci series using function.			
19.	Write factorial function & use the function to find the sum of series S=1!+2!+-----n!.			

20.	Write a program to find the factorial of given number using recursion.			
21.	Write a program to find the sum of digits of a 5 digit number using recursion.			
22.	Write a program to calculate the GCD of given numbers using recursion.			
23.	Write a program to convert decimal number in to binary number.			
24.	Write a program to convert binary number in to decimal number.			
25.	Write a program to delete duplicate element in a list of 10 elements & display it on screen.			
26.	Write a program to merge two sorted array & no element is repeated during merging.			
27.	Write a program to evaluate the addition of diagonal elements of two square matrixes.			
28.	Write a program to find the transpose of a given matrix & check whether it is symmetric or not.			
29.	Write a program to print the multiplication of two N*N (Square) matrix.			
30.	Write a program in C to check whether the given string is a palindrome or not.			
31.	Write program to sort the array of character (String) in alphabetical order like STRING in GINRST.			
32.	Write a program to remove all the blank space from the string & print it, also count the no of characters.			
33.	Write a program to store the following string “zero”, “one” ------- “five”. Print the no in words, given in figure as 3205.			
34.	Write a program to compare two given dates. To store a date uses a structure that contains three members namely day, month and year. If the dates are equal then display message equal otherwise unequal.			
35.	Define a structure that can describe a hotel. It should have the member that includes the name, address, grade, room charge and number of rooms. Write a function to print out hotel of given grade in order of room charges.			
36.	Define a structure called cricket with player name, team name, batting average, for 50 players & 5 teams. Print team wise list contains names of player with their batting average.			
37.	Write a c program to copy & count the character content of one file says a.txt to another file b.txt.			
38.	Write a program to take 10 integers from file and write square of these integer in other file.			
39.	Write a program to read number from file and then write all ‘odd’ number to file ODD.txt & all even to file EVEN.txt.			
40.	Write a program to print all the prime number, between 1 to 100 in file prime.txt.			
41.	Write the following C program using pointer: a) To sort the list of numbers through pointer b) To reverse the string through pointer.			

42.	Write a program to find the largest no among 20 integers array using dynamic memory allocation.			
43.	Using Dynamic Memory Allocation, Write a program to find the transpose of given matrix.			
44.	Write a program to find the factorial of given number using command line argument.			
45.	Write a program to find the sum of digits of a 5 digit number using command line argument.			

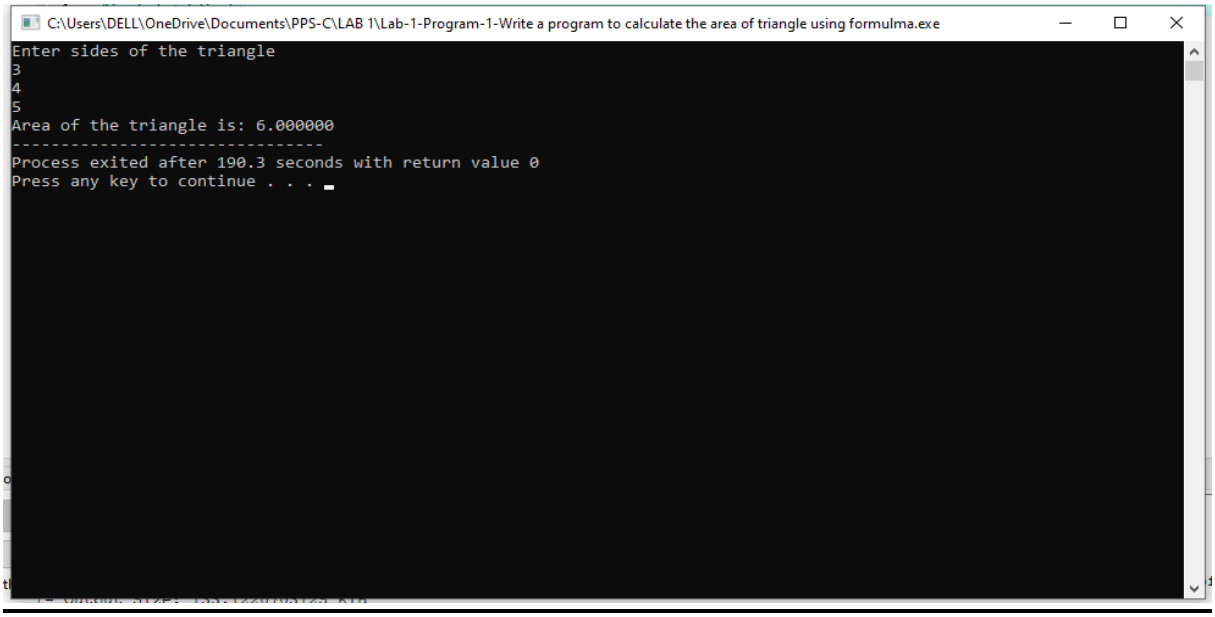
Lab-1

Program-1: Write a program to calculate the area of triangle using formula at=√s(s-a)(s-b)(s-c)

Code:

```
#include<stdio.h>
#include<math.h>
int main()
{
   float s,a,b,c,area;
   printf("Enter sides of the triangle\n");
   scanf("%f%f%f",&a,&b,&c);
   s=(a+b+c)/2;
   area=sqrt(s*(s-a)*(s-b)*(s-c));
   printf("Area of the triangle is: %f",area);
   return 0;
}
```

Output:

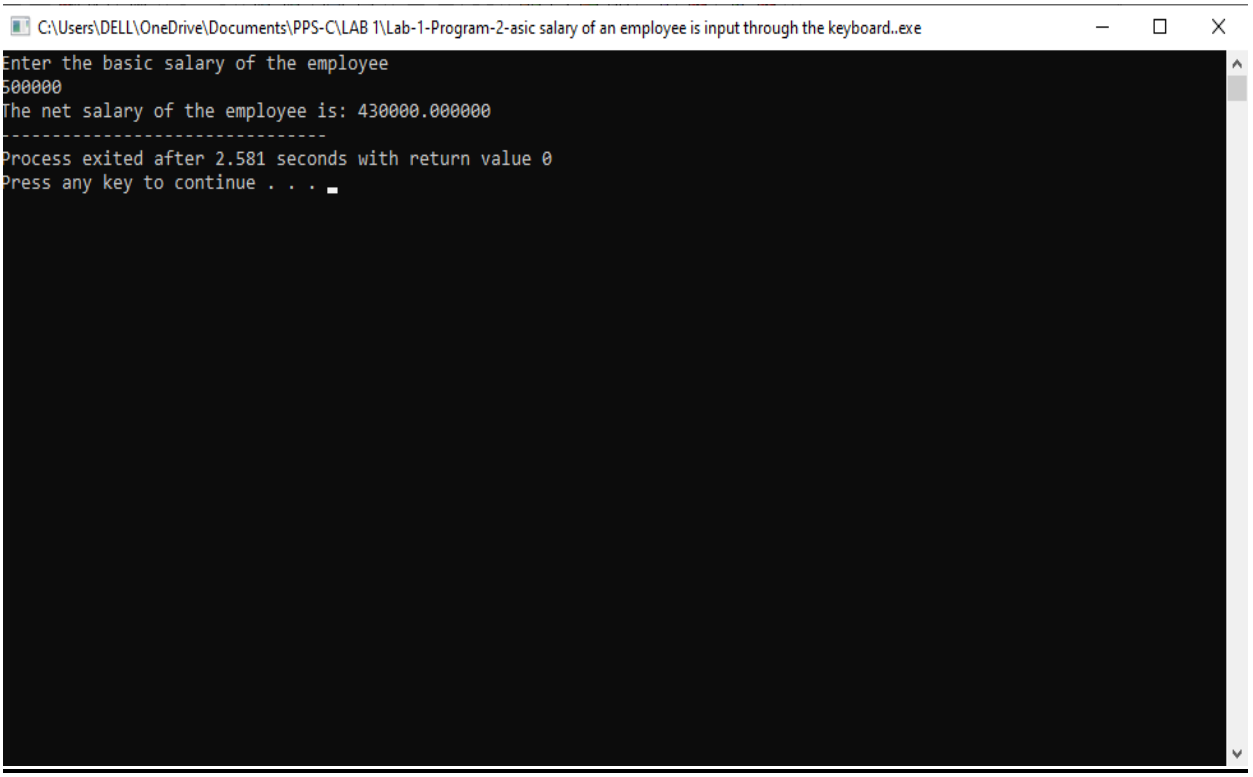


Program-2: Basic salary of an employee is input through the keyboard. The DA is 25% of the basic salary while the HRA is 15% of the basic salary. Provident Fund is deducted at the rate of 10% of the gross salary (BS+DA+HRA). Program to calculate the Net Salary.

Code:

```
#include<stdio.h>
#include<math.h>
int main()
{
   float BS,DA,HRA,Net_salary;
   printf("Enter the basic salary of the employee\n");
   scanf("%f",&BS);
   DA=0.25*BS;  // 25 percent of the basic salary
   HRA=0.15*BS;  // 15 percent of the basic salary
   Net_salary=BS-(0.10*(BS+DA+HRA));
   printf("The net salary of the employee is: %f",Net_salary);
   return 0;
}
```

Output:

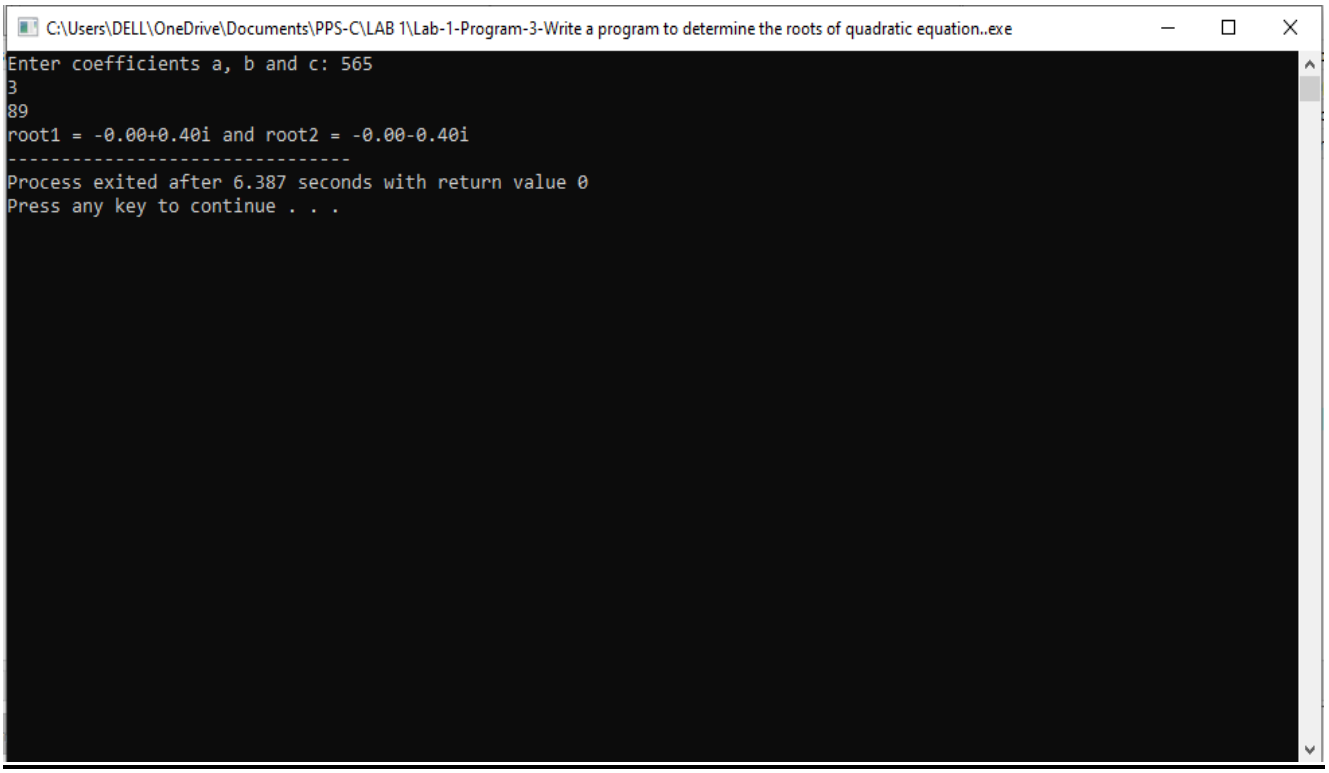


Program-3: Write a program to determine the roots of quadratic equation.

Code:

```
#include <math.h>
#include <stdio.h>
int main() {
   double a, b, c, discriminant, root1, root2, realPart, imagPart;
   printf("Enter coefficients a, b and c: ");
   scanf("%lf %lf %lf", &a, &b, &c);

   discriminant = b * b - 4 * a * c;

   // condition for real and different roots
   if (discriminant > 0) {
      root1 = (-b + sqrt(discriminant)) / (2 * a);
      root2 = (-b - sqrt(discriminant)) / (2 * a);
      printf("root1 = %.2lf and root2 = %.2lf", root1, root2);
   }

   // condition for real and equal roots
   else if (discriminant == 0) {
      root1 = root2 = -b / (2 * a);
      printf("root1 = root2 = %.2lf;", root1);
   }

   // if roots are not real
   else {
      realPart = -b / (2 * a);
      imagPart = sqrt(-discriminant) / (2 * a);
      printf("root1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imagPart, realPart, imagPart);
   }

   return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 1\Lab-1-Program-3-Write a program to determine the roots of quadratic equation..exe
Enter coefficients a, b and c: 565
3
89
root1 = -0.00+0.40i and root2 = -0.00-0.40i

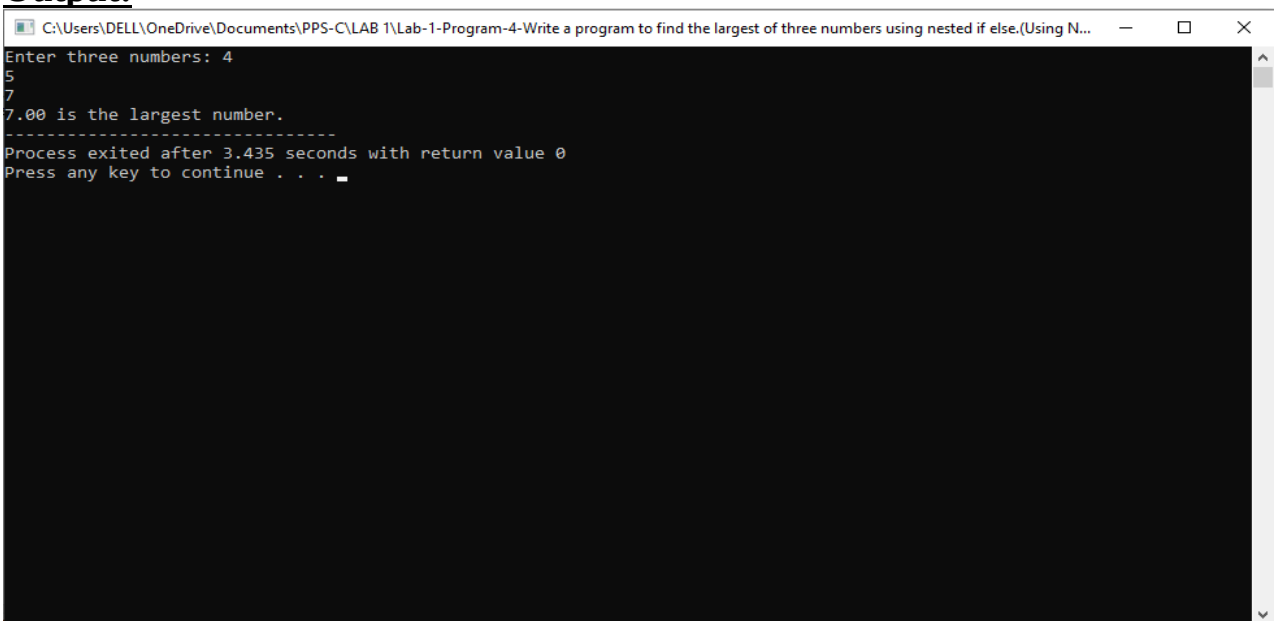
Process exited after 6.387 seconds with return value 0
Press any key to continue . . .

Program-4: Write a program to find the largest of three numbers using nested if else.

Code:

```
#include <stdio.h>
int main() {
  double n1, n2, n3;
  printf("Enter three numbers: ");
  scanf("%lf %lf %lf", &n1, &n2, &n3);
  // outer if statement
  if (n1 >= n2) {
    // inner if...else
    if (n1 >= n3)
      printf("%.2lf is the largest number.", n1);
    else
      printf("%.2lf is the largest number.", n3);
  }
  // outer else statement
  else {
    // inner if...else
    if (n2 >= n3)
      printf("%.2lf is the largest number.", n2);
    else
      printf("%.2lf is the largest number.", n3);
  }
  return 0;
}
```

Output:



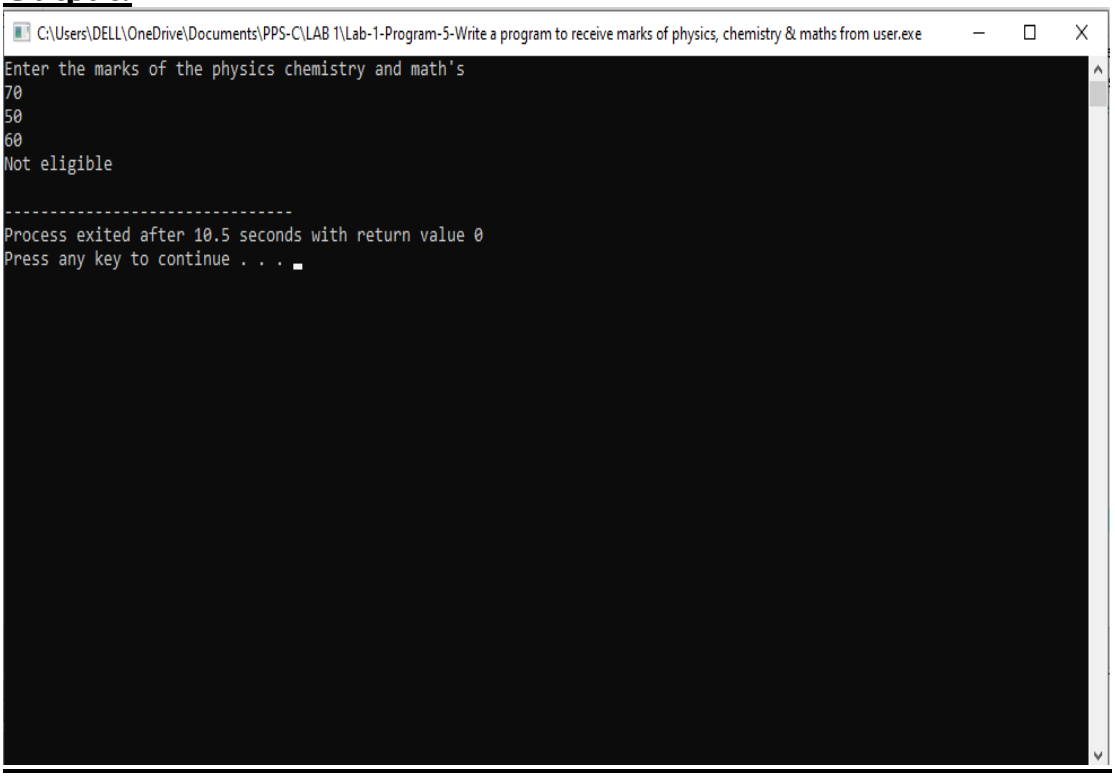
Program-5: Write a program to receive marks of physics, chemistry & maths from user & check its eligibility for course if

a) Marks of physics > 40
b) Marks of chemistry > 50
c) Marks of math's > 60
d) Total of physics & math's marks > 150 or
e) Total of three subjects marks > 200

Code:

```
#include<stdio.h>
#include<math.h>
int main()
{
   int phy,che,math,total,PM;
   printf("Enter the marks of the physics chemistry and math's\n");
   scanf("%d%d%d",&phy,&che,&math);
   total=(phy+che+math);
   PM=phy+math;
   if(phy>40 && che>50 && math>60 && (PM>150||total>200))
   {
      printf("You are eligible for the course\n");
   }
   else
    printf("Not eligible\n");
   return 0;
}
```

Output:



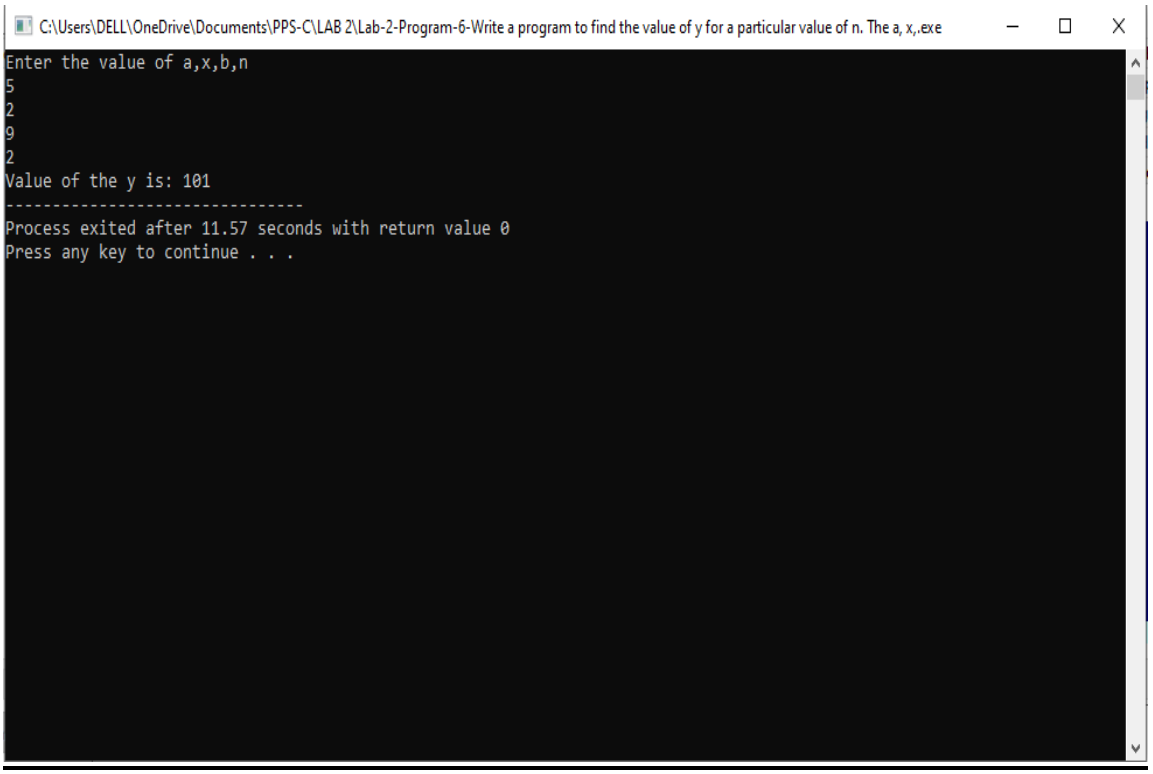
Lab-2

Program-6: Write a program to find the value of y for a particular value of n. The a, x, b, n is input by user if n=1 y=ax%b if n=2 y=ax2+b2 if n=3 y=a-bx if n=4 y=a+x/b

Code:

```
/*Write a program to find the value of y for a particular value of n. The a, x,
b, n is input by user
if n=1 y=ax%b
if n=2 y=ax2+b2
if n=3 y=a-bx
if n=4 y=a+x/b */

#include<stdio.h>
#include<math.h>
int main()
{
   int a,x,b,n,y;
   printf("Enter the value of a,x,b,n\n");
   scanf("%d%d%d%d",&a,&x,&b,&n);
   if(n==1)
     y=(a*x)%b;
   if(n==2)
     y=(a*x*x)+(b*b);
   if(n==3)
     y=a-b*x;
   if(n==4)
     y=a+(x/b);
   printf("Value of the y is: %d",y);
   return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 2\Lab-2-Program-6-Write a program to find the value of y for a particular value of n. The a, x,.exe
Enter the value of a,x,b,n
5
2
9
2
Value of the y is: 101

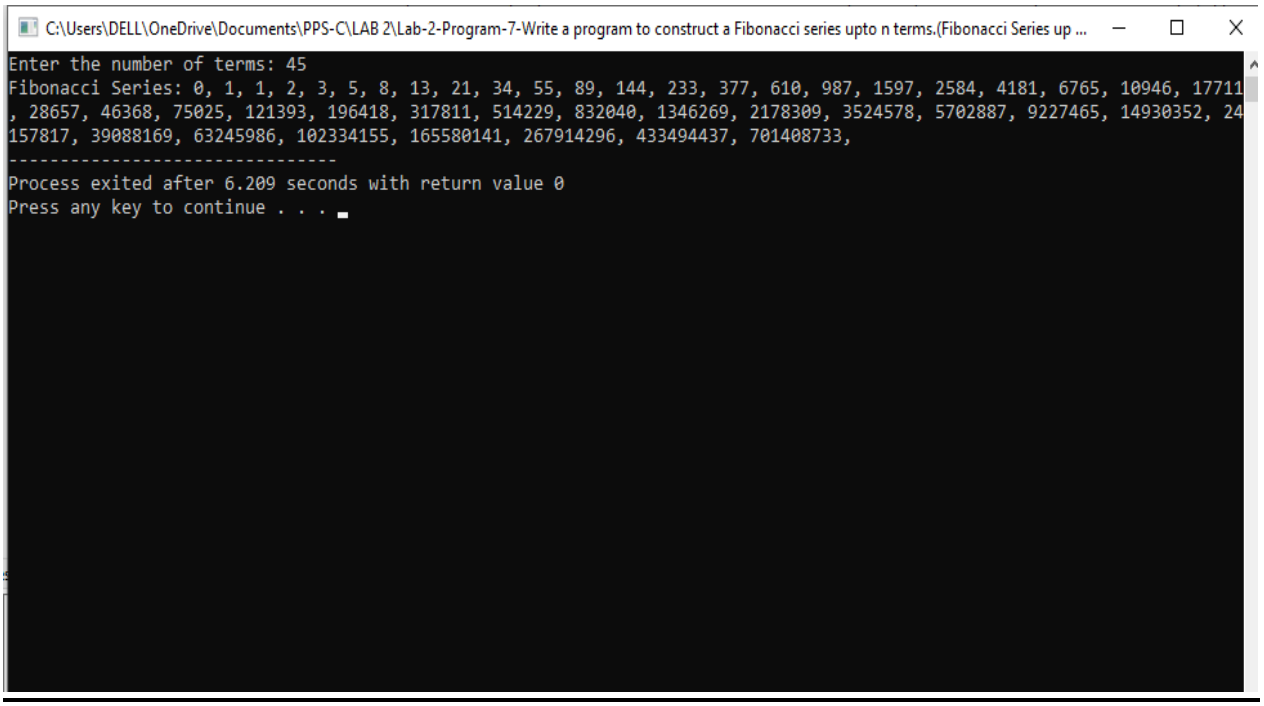
Process exited after 11.57 seconds with return value 0
Press any key to continue . . .

Program-7: Write a program to construct a Fibonacci series upto n terms.

Code:

```
//Write a program to construct a Fibonacci series upto n terms.
//Fibonacci Series up to n terms
#include <stdio.h>
int main() {

  int i, n;

  // initialize first and second terms
  int t1 = 0, t2 = 1;

  // initialize the next term (3rd term)
  int nextTerm = t1 + t2;

  // get no. of terms from user
  printf("Enter the number of terms: ");
  scanf("%d", &n);

  // print the first two terms t1 and t2
  printf("Fibonacci Series: %d, %d, ", t1, t2);

  // print 3rd to nth terms
  for (i = 3; i <= n; ++i) {
    printf("%d, ", nextTerm);
    t1 = t2;
    t2 = nextTerm;
    nextTerm = t1 + t2;
  }

  return 0;
}
```

Output:

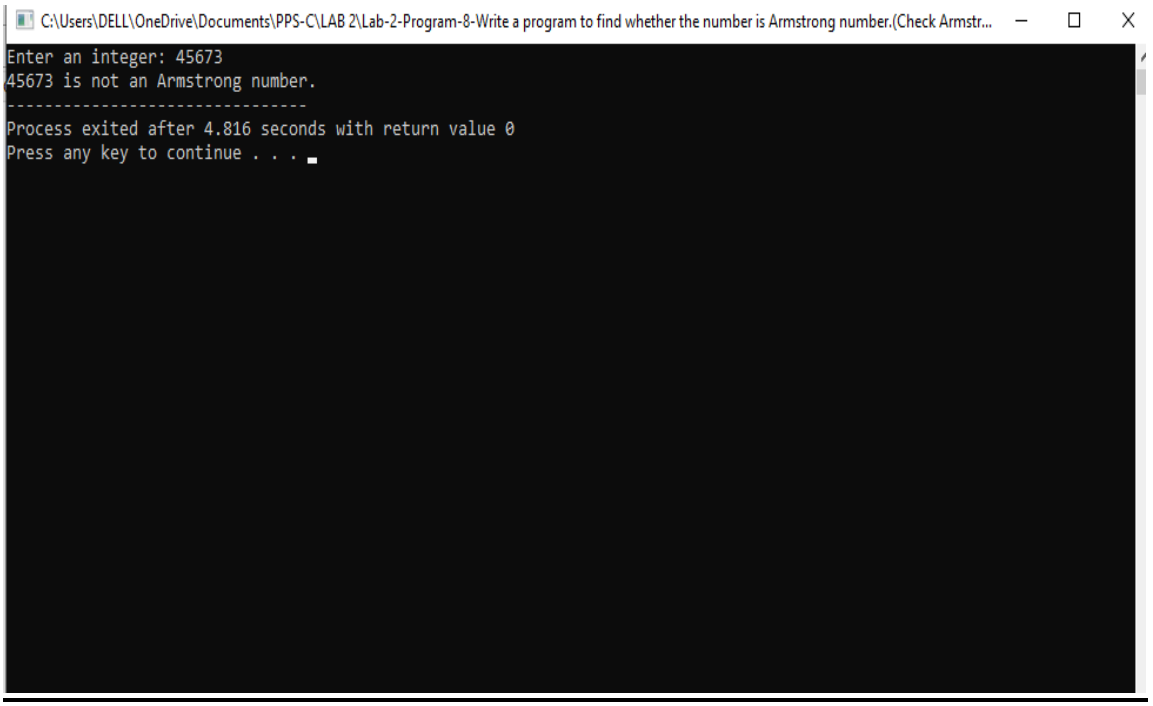

C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 2\Lab-2-Program-7-Write a program to construct a Fibonacci series upto n terms.(Fibonacci Series up ...
Enter the number of terms: 45
Fibonacci Series: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, 17711
, 28657, 46368, 75025, 121393, 196418, 317811, 514229, 832040, 1346269, 2178309, 3524578, 5702887, 9227465, 14930352, 24
157817, 39088169, 63245986, 102334155, 165580141, 267914296, 433494437, 701408733,
----
Process exited after 6.209 seconds with return value 0
Press any key to continue . . .

Program-8: Write a program to find whether the number is Armstrong number.

Code:

```
//Write a program to find whether the number is Armstrong number.
//Check Armstrong Number of n digits
#include <math.h>
#include <stdio.h>

int main() {
  int num, originalNum, remainder, n = 0;
  float result = 0.0;

  printf("Enter an integer: ");
  scanf("%d", &num);

  originalNum = num;

  // store the number of digits of num in n
  for (originalNum = num; originalNum != 0; ++n) {
     originalNum /= 10;
  }

  for (originalNum = num; originalNum != 0; originalNum /= 10) {
     remainder = originalNum % 10;

    // store the sum of the power of individual digits in result
    result += pow(remainder, n);
  }

  // if num is equal to result, the number is an Armstrong number
  if ((int)result == num)
   printf("%d is an Armstrong number.", num);
  else
   printf("%d is not an Armstrong number.", num);
  return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 2\Lab-2-Program-8-Write a program to find whether the number is Armstrong number.(Check Armstr...
Enter an integer: 45673
45673 is not an Armstrong number.

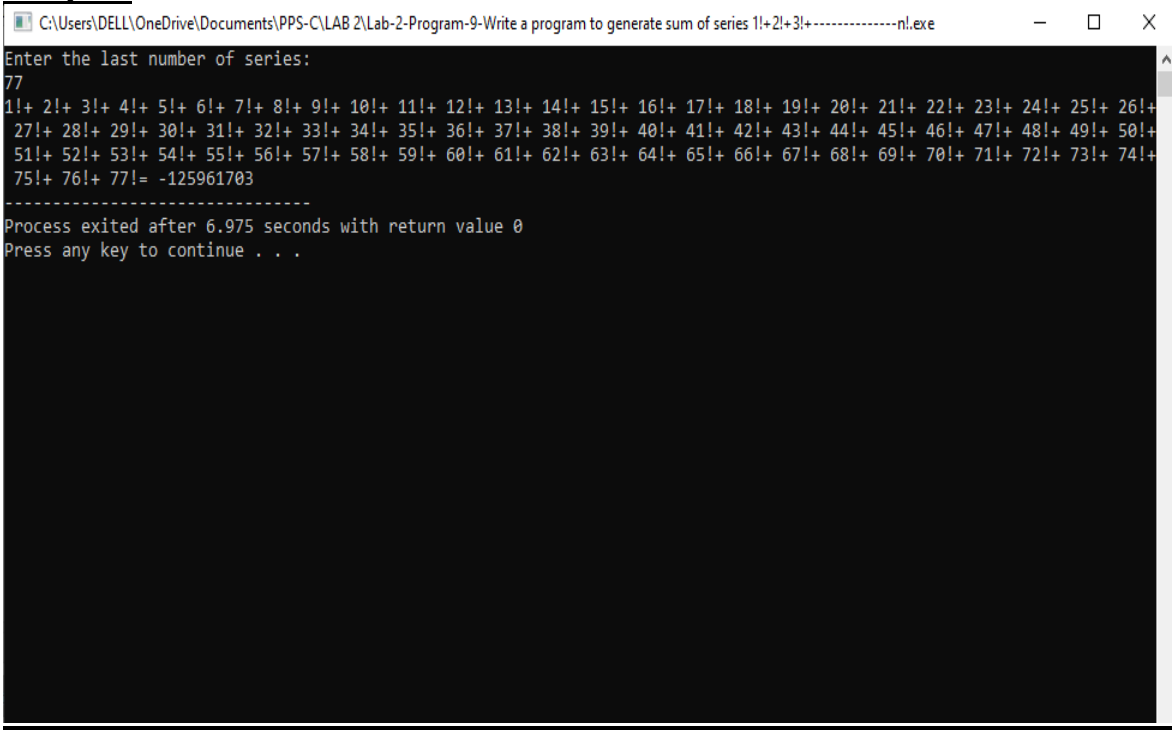
Process exited after 4.816 seconds with return value 0
Press any key to continue . . .

Program-9: Write a program to generate sum of series 1!+2!+3!+----------n!

Code:

```
//Write a program to generate sum of series 1!+2!+3!+----------n!
#include<stdio.h>
int main()
{
	int num,i,j,fact,sum=0;//variables
	printf("Enter the last number of series:\n");
	scanf("%d",&num);//last number of series
	for(i=1;i<=num;i++)//loop for finding factorial and sum
	{
		fact=1;
		if(i!=num)
			printf("%d!+ ",i);
		else
			printf("%d!= ",i);
		for(j=1;j<=i;j++)
			fact=fact*j;
		sum=sum+fact;
	}
	printf("%d",sum);
	return 0;
}
```

Output:

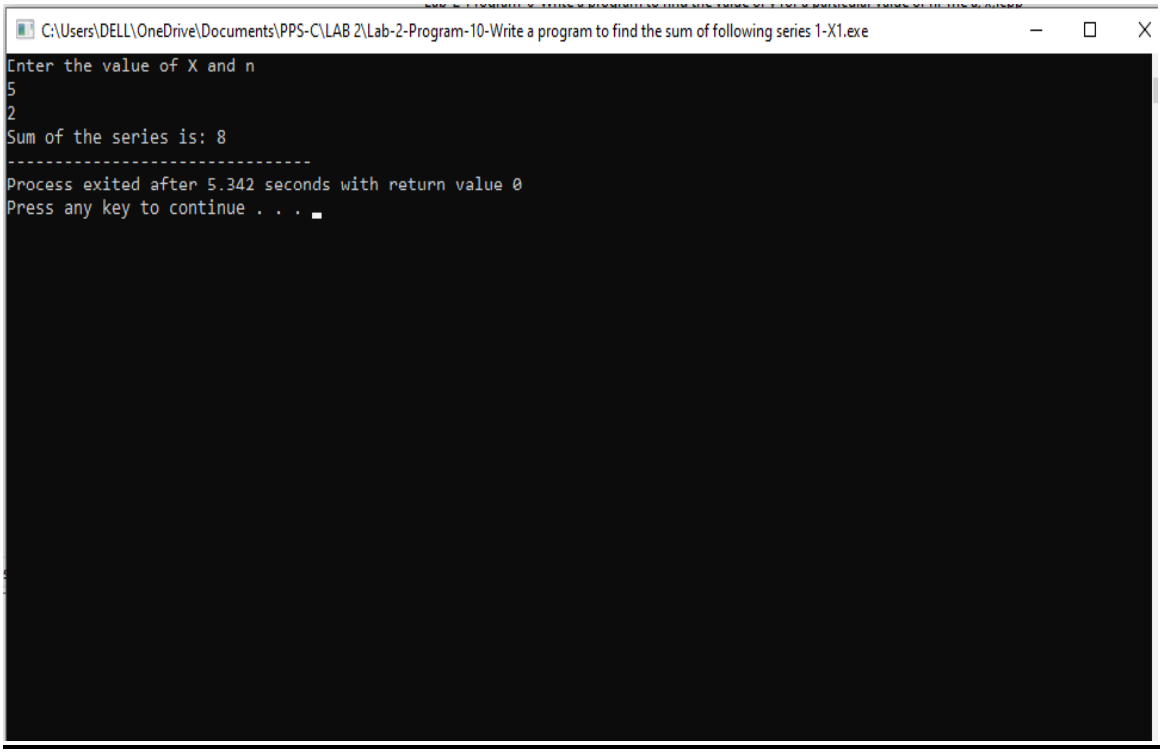


Program-10: Write a program to find the sum of following series 1-X1/1!+X2/2!-……Xn/n!.

Code:

```
/*Write a program to find the sum of following series 1-X1/1!+X2/2!-
……Xn/n!.*/
#include<stdio.h>
#include<math.h>

// function for finding factorial
int fact(int n)
{
   int i,f=1;
   for(i=1;i<=n;i++)
     f=f*i;
   return f;
}

// driver function

int main()
{
   int n,sum=1,i,f,X,p;
   printf("Enter the value of X and n\n");
   scanf("%d%d",&X,&n);
   for(i=1;i<=n;i++)
   {
      f=fact(i);
      p=pow(X,i);
      if(i%2==0)
        sum=sum+(p/f);
      else
        sum=sum-(p/f);
   }
   printf("Sum of the series is: %d",sum);
   return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 2\Lab-2-Program-10-Write a program to find the sum of following series 1-X1.exe
Enter the value of X and n
5
2
Sum of the series is: 8

Process exited after 5.342 seconds with return value 0
Press any key to continue . . .

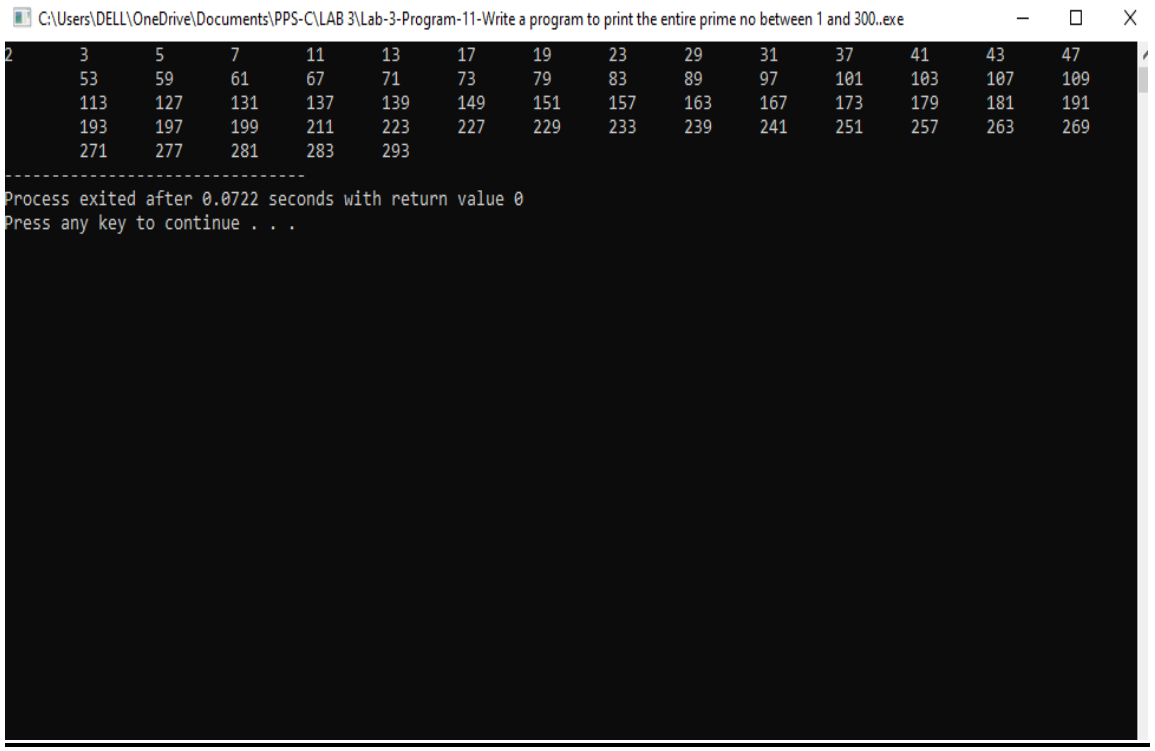
Lab-3

Program-11: Write a program to print the entire prime no between 1 and 300.

Code:

```
//Write a program to print the entire prime no between 1 and 300.
#include<stdio.h>
#include<conio.h>
int main()
{
   int num, max=300, i, flag;

   //create a for loop to run a counter from 1 to 300.

   for(num=1;num<=max;num++)
   {
      flag=0;
      //second for loop to check the number from 1 to 300 is prime or not.
      for(i=2;i<=num/2;i++)
      {
         if(num%i==0)
         {
            flag=1;
            break;
         }
      }

      if(flag==0 & num!=1) // we remove 1 from this condition
         printf("%d\t", num);
   }

}
```

Output:

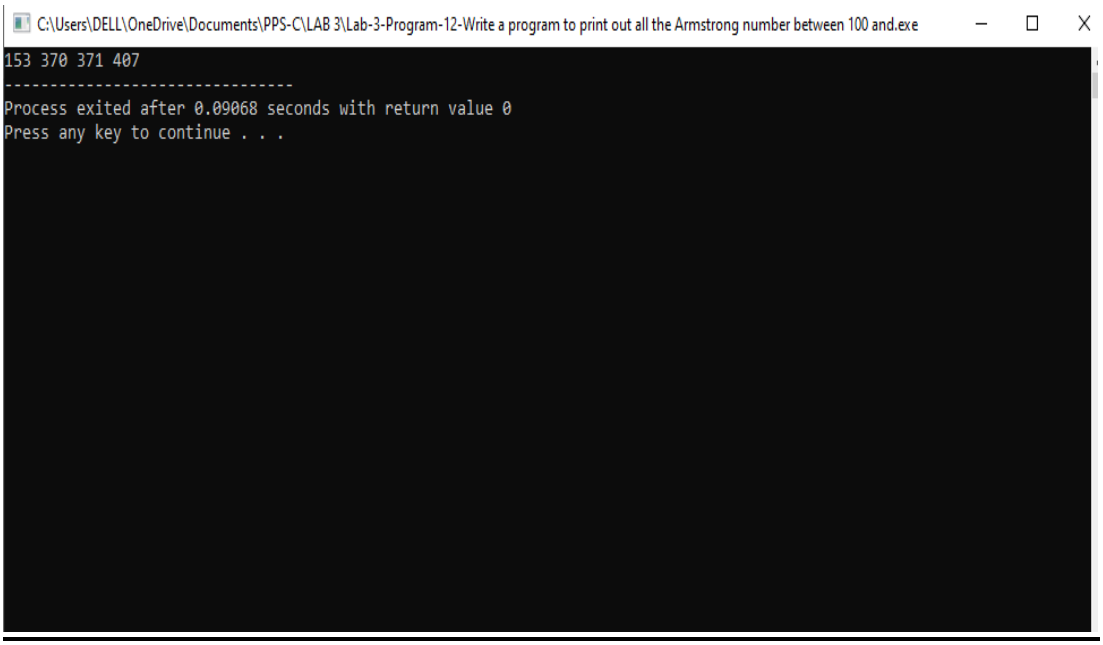

C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 3\Lab-3-Program-11-Write a program to print the entire prime no between 1 and 300..exe
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47
53 59 61 67 71 73 79 83 89 97 101 103 107 109
113 127 131 137 139 149 151 157 163 167 173 179 181 191
193 197 199 211 223 227 229 233 239 241 251 257 263 269
271 277 281 283 293
Process exited after 0.0722 seconds with return value 0
Press any key to continue . . .

Program-12: Write a program to print out all the Armstrong number between 100 and 500.

Code:

```
//Write a program to print out all the Armstrong number between 100 and 500.
// USING FUNCTION
#include<stdio.h>
#include<conio.h>

//  function for check Armstrong

int checkArm(int n)
{
   int n1,n2,r,s=1,sum=0; //r=reminder
   n1=n;
   n2=n;
   while(n!=0)
    {
        r=n%10;
        n=n/10;
        while(n1!=0)
         {
             s=s*r;
              n1=n1/10;
          }
         sum=sum+s;
          s=1;
          n1=n2;
    }
   if(sum==n2)
     return 1;
   else
     return 0;

}

// Driver function
int main()
{
   int i,a;
   for(i=100;i<=500;i++)
   {
      a=checkArm(i);
      if(a==1)
        printf("%d ",i);
   }
   return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 3\Lab-3-Program-12-Write a program to print out all the Armstrong number between 100 and.exe
153 370 371 407

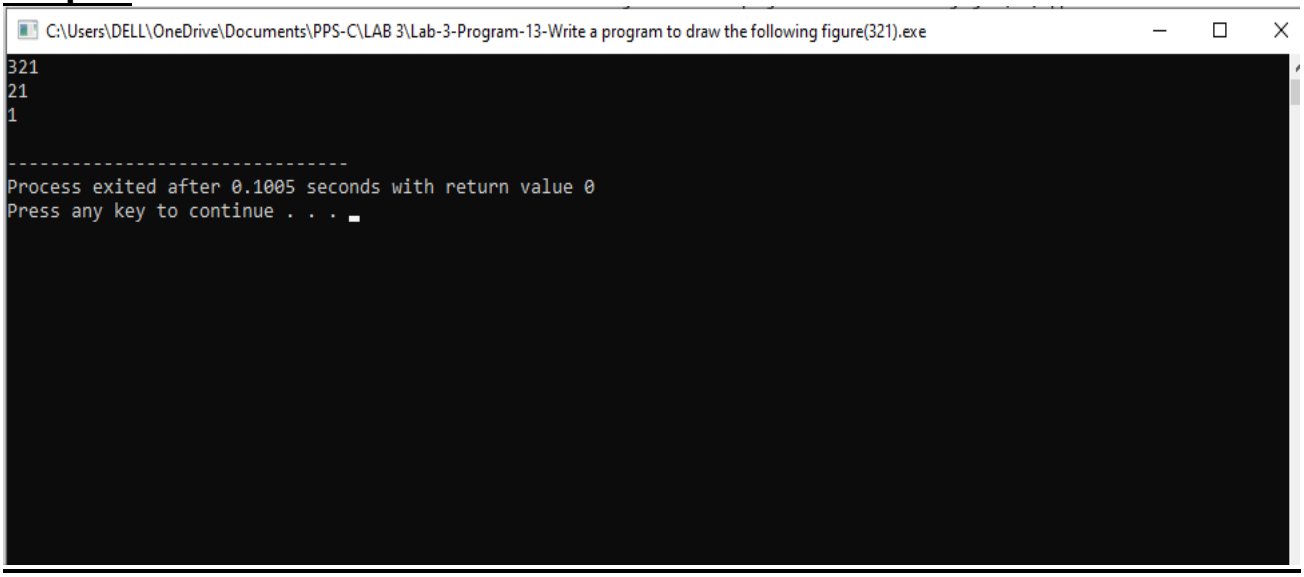
Process exited after 0.09068 seconds with return value 0
Press any key to continue . . .

Program-13: Write a program to draw the following figure: 3 2 1 21 1 * ** ***

Code:

```
/*
Write a program to draw the following figure:
3 2 1
21
1
 *
 **
***
*/
#include<stdio.h>

int main()
{
   int i,j,x;
   for(i=3;i>=1;i--)
   {
      x=i;
      for(j=1;j<=i;j++)
      {
         printf("%d",x);
         x--;
      }
      printf("\n");
   }
   return 0;
}
```

Output:

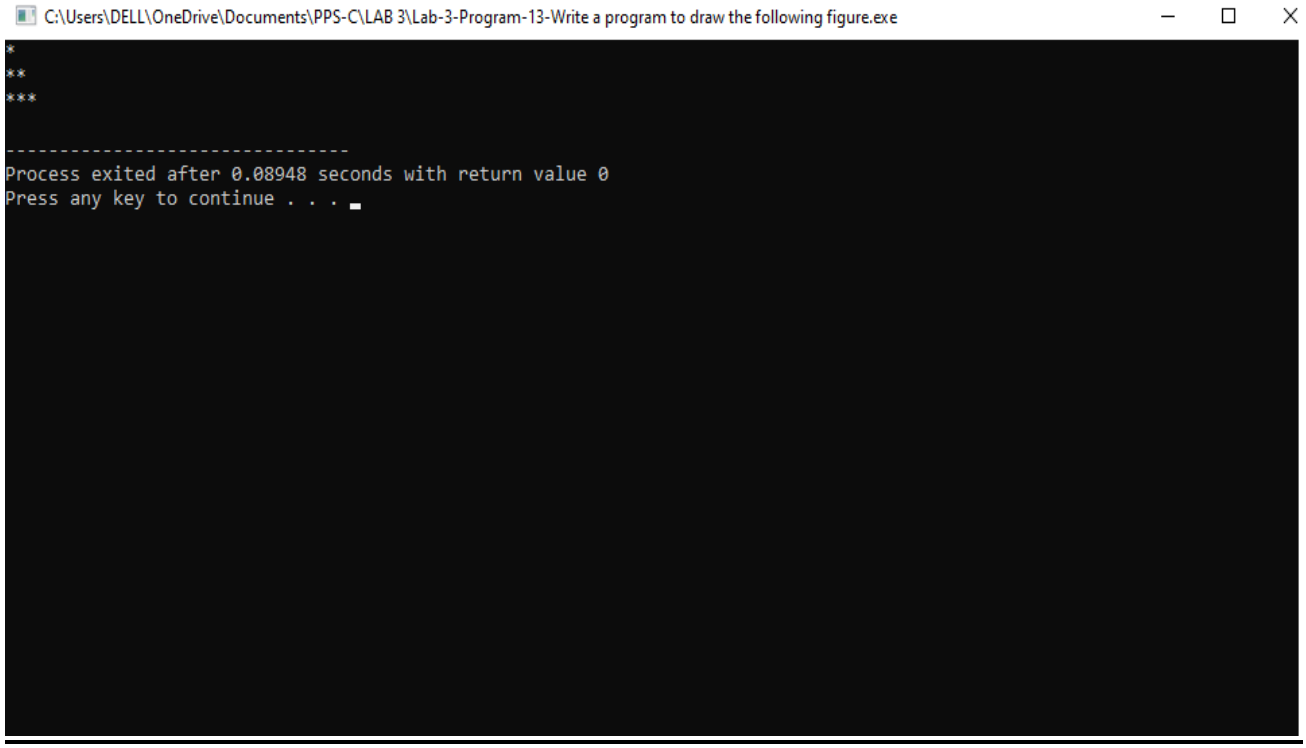


Code:

```
/*
Write a program to draw the following figure:
3 2 1
21
```

```
1
 *
 **
***
*/
#include<stdio.h>

int main()
{
   int i,j;
   for(i=1;i<=3;i++)
   {
      for(j=1;j<=i;j++)
      {
         printf("*");
      }
      printf("\n");
   }
   return 0;
}
```

Output:

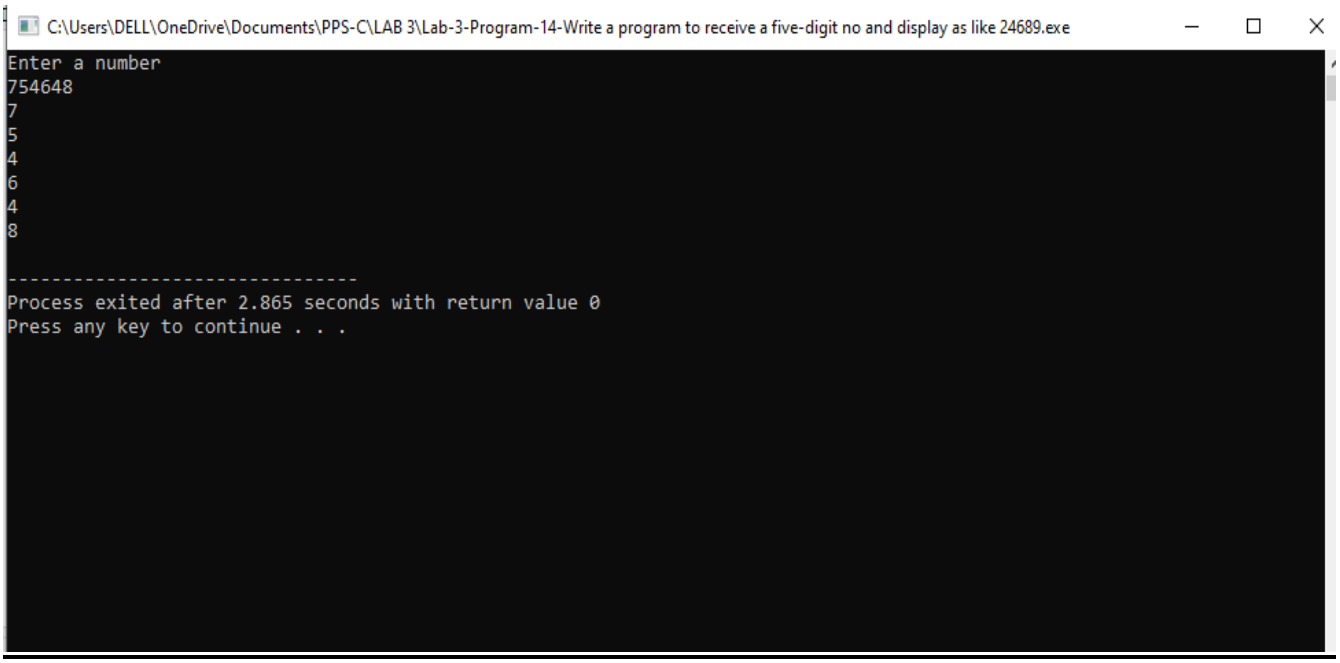


Program-14: Write a program to receive a five-digit no and display as like 24689: 2 4 6 8 9

Code:

```
/*Write a program to receive a five-digit no and display as like 24689:
2
4
6
8
9*/
#include<stdio.h>

int main()
{
   int n,r,rev=0;
   printf("Enter a number\n");
   scanf("%d",&n);
   // finding reverse
   while(n!=0)
   {
      r=n%10;
      rev=rev*10+r;
      n=n/10;
   }

   // printing of number
   while(rev!=0)
   {
      r=rev%10;
      rev=rev/10;
      printf("%d\n",r);
   }
   return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 3\Lab-3-Program-14-Write a program to receive a five-digit no and display as like 24689.exe
Enter a number
754648
7
5
4
6
4
8

Process exited after 2.865 seconds with return value 0
Press any key to continue . . .

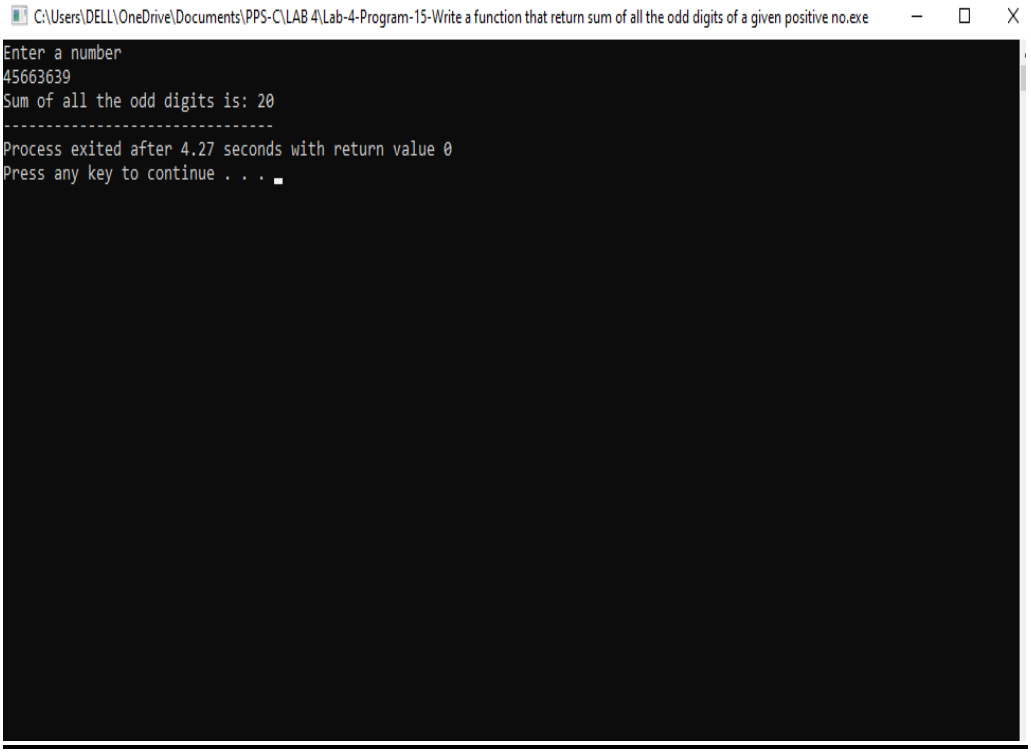
Lab-4

Program-15: Write a function that return sum of all the odd digits of a given positive no entered through keyboard.

Code:

```
//Write a function that return sum of all the odd digits of a given positive no entered through keyboard.
#include<stdio.h>

// function for add digits

int Add_odd(int n)
{
   int r,sum=0;
   while(n!=0)
   {
      r=n%10;
      if(r%2!=0)
       sum=sum+r;
      n=n/10;
   }
   return sum;
}

//Driver function
int main()
{
   int n;
   printf("Enter a number\n");
   scanf("%d",&n);
   printf("Sum of all the odd digits is: %d",Add_odd(n));
   return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 4\Lab-4-Program-15-Write a function that return sum of all the odd digits of a given positive no.exe
Enter a number
45663639
Sum of all the odd digits is: 20

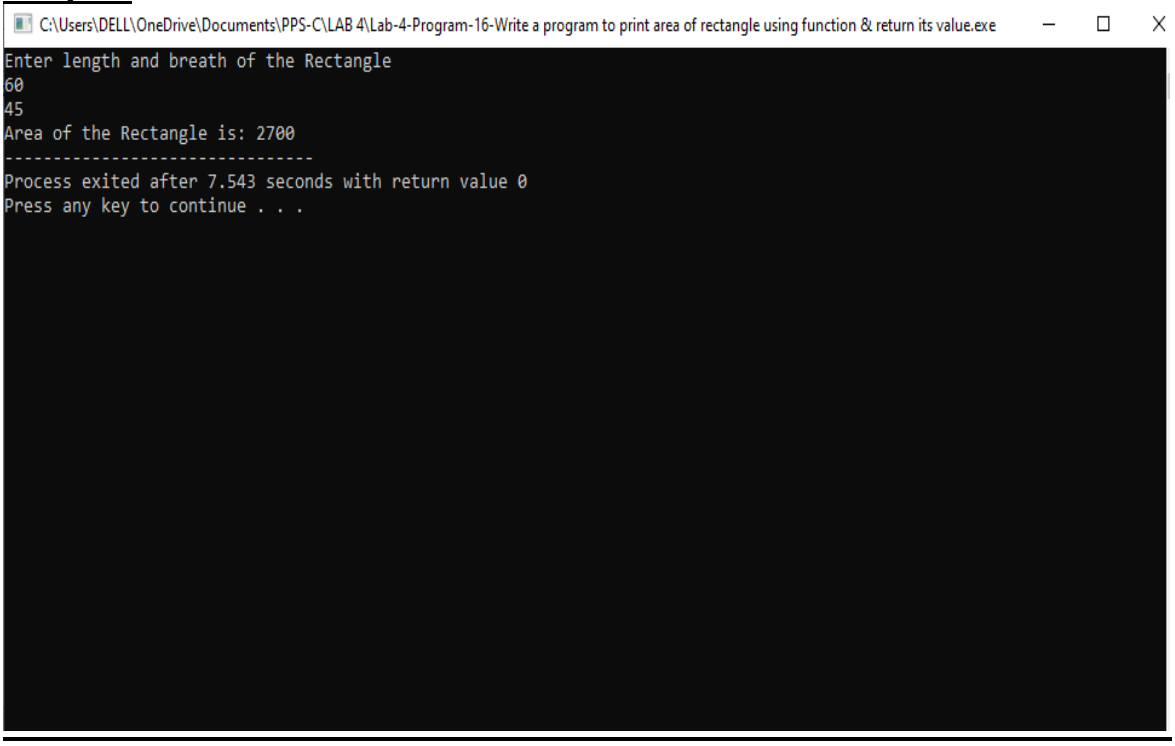
Process exited after 4.27 seconds with return value 0
Press any key to continue . . .

Program-16: Write a program to print area of rectangle using function & return its value to main function.

Code:

```
//Write a program to print area of rectangle using function & return its value to main function.
#include<stdio.h>

// function for calculating the area of rectangle

int Area(int l,int b)
{
   int a;
   a=l*b;
   return a;
}

//Driver function
int main()
{

  int length,breath,A;
  printf("Enter length and breath of the Rectangle\n");
  scanf("%d%d",&length,&breath);
  A=Area(length,breath);  // function calculating
  printf("Area of the Rectangle is: %d",A);
    return 0;
}
```

Output:

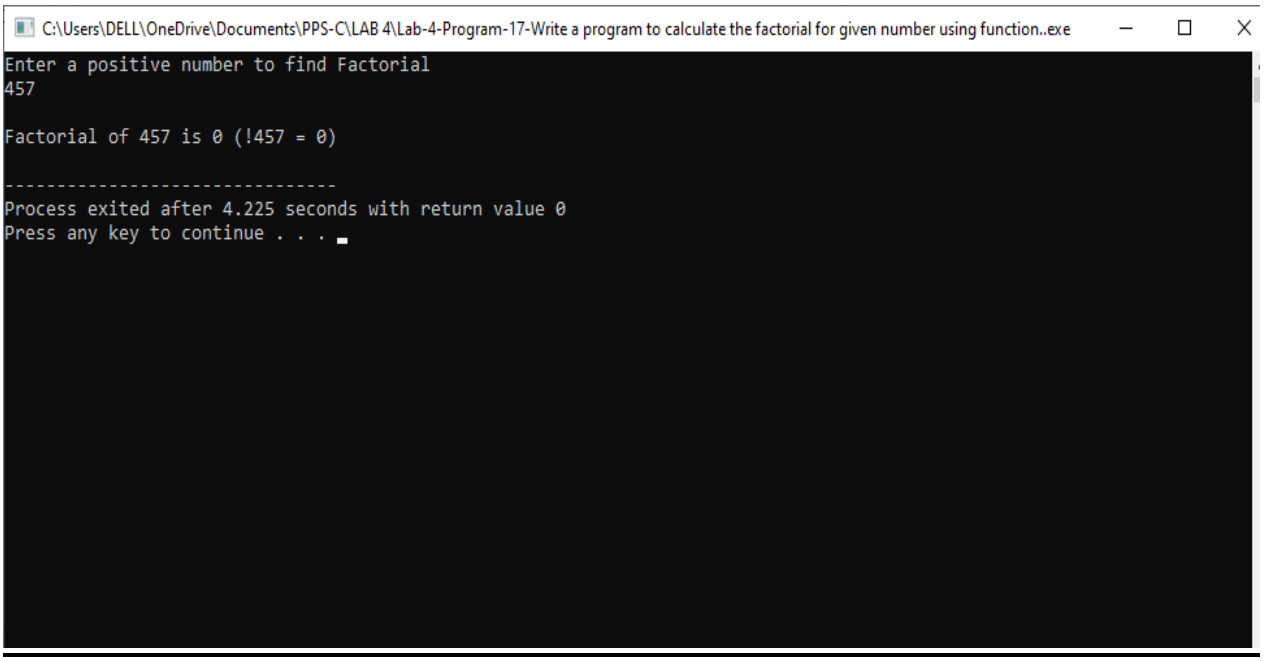


Program-17: Write a program to calculate the factorial for given number using function.

Code:

```
//Write a program to calculate the factorial for given number using function.
#include<stdio.h>

void factorial(int);

int main()
{
   int num;

   printf("Enter a positive number to find Factorial\n");
   scanf("%d", &num);

   factorial(num);

   return 0;
}

void factorial(int num)
{
   int count, fact = 1;

   if(num == 0)
   {
      printf("Factorial of 0 is 1 (!0 = 1)\n");
   }
   else
   {
      for(count = 1; count <= num; count++)
      {
         fact = fact * count;
      }

      printf("\nFactorial of %d is %d (!%d = %d)\n", num, fact, num, fact);
   }
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 4\Lab-4-Program-17-Write a program to calculate the factorial for given number using function..exe
Enter a positive number to find Factorial
457
Factorial of 457 is 0 (!457 = 0)

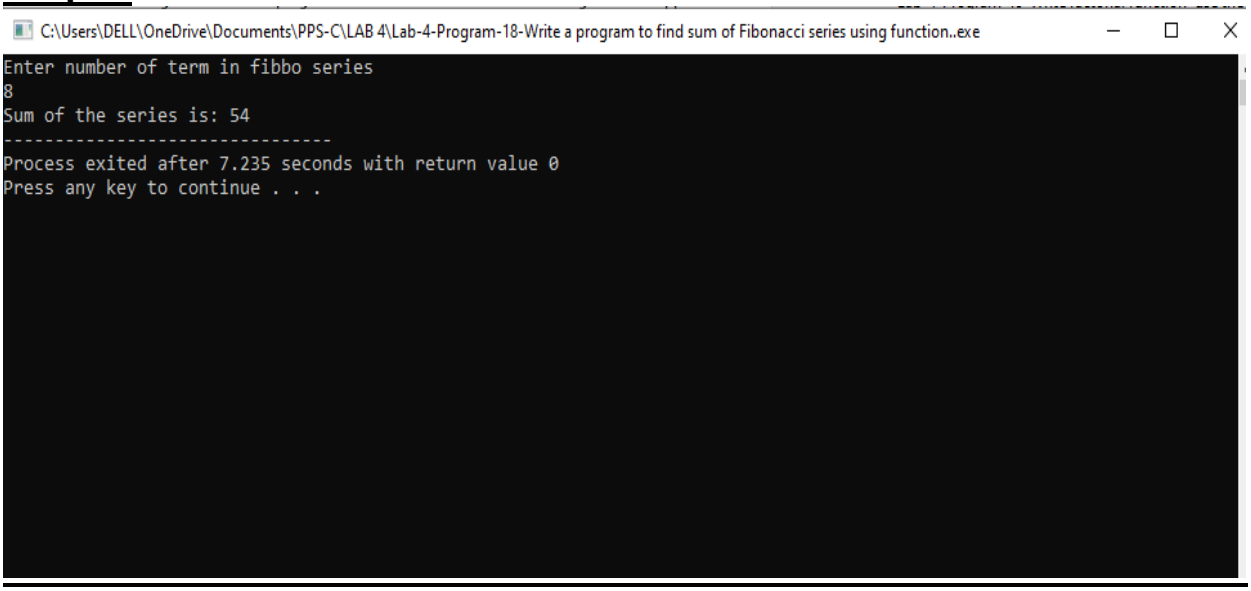
Process exited after 4.225 seconds with return value 0
Press any key to continue . . .

Program-18: Write a program to find sum of Fibonacci series using function.

Code:

```
//Write a program to find sum of Fibonacci series using function.
#include<stdio.h>
 int fib(int n)
 {
  if(n==1||n==2)
   return 1;
  return (fib(n-1)+fib(n-2));
 }
 int main()
 {
   int n,i,sum=0;
   printf("Enter number of term in fibbo series\n");
   scanf("%d",&n);
   for(i=1;i<=n;i++)
   {
     sum=sum+fib(i);
   }
   printf("Sum of the series is: %d",sum);
   return 0;
 }
```

Output:

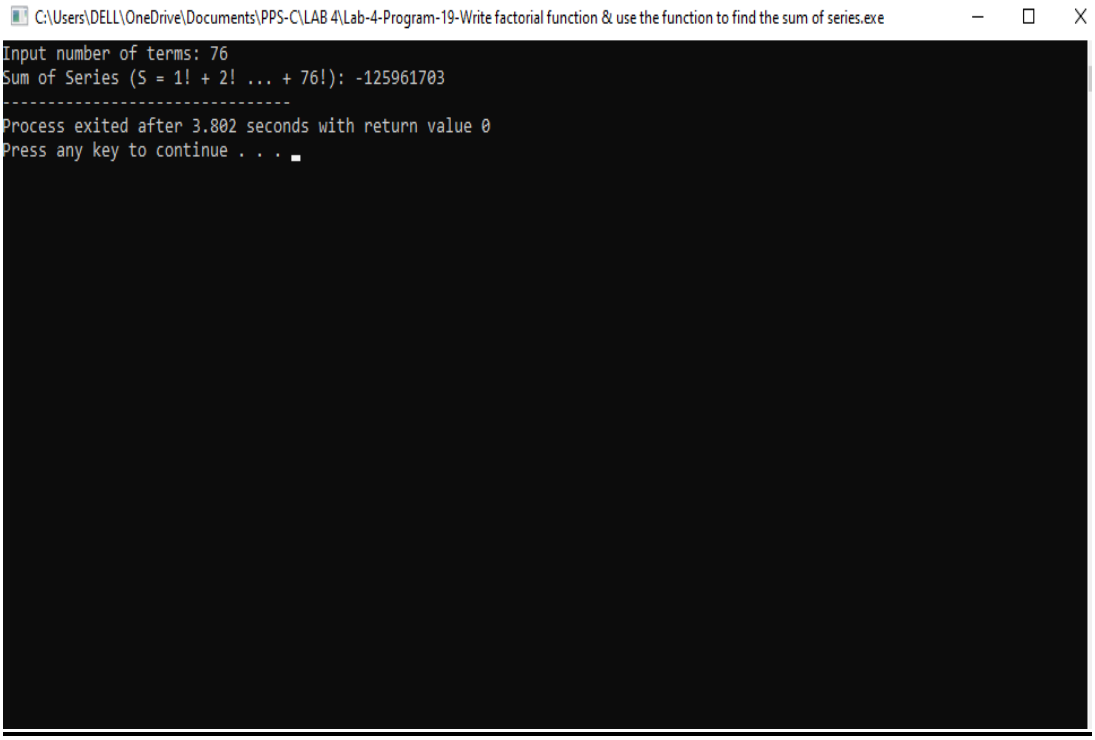


Program-19: Write factorial function & use the function to find the sum of series S=1!+2!+-----n!.

Code:

```
//Write factorial function & use the function to find the sum of series S=1!+2!+-----n!.
#include <stdio.h>

int factorial (int);

int main (void)
{
   int terms;
   int sum;
   int i;

   //Input number of terms
   printf ("Input number of terms: ");
   scanf ("%d", &terms);

   //Calculate sum of series
   sum = 0;
   for (i = 1; i <= terms; i++)
      sum = sum + factorial (i);

   //Print result
   printf ("Sum of Series (S = 1! + 2! ... + %d!): %d", terms, sum);

   return 0;
};

int factorial (int num)
{
   int fact;
   int i;

   //Calculate factorial
   fact = 1;
   for (i = 1; i <= num; i++)
      fact = fact * i;

   //Return factorial
   return fact;
};
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 4\Lab-4-Program-19-Write factorial function & use the function to find the sum of series.exe
Input number of terms: 76
Sum of Series (S = 1! + 2! ... + 76!): -125961703

Process exited after 3.802 seconds with return value 0
Press any key to continue . . .

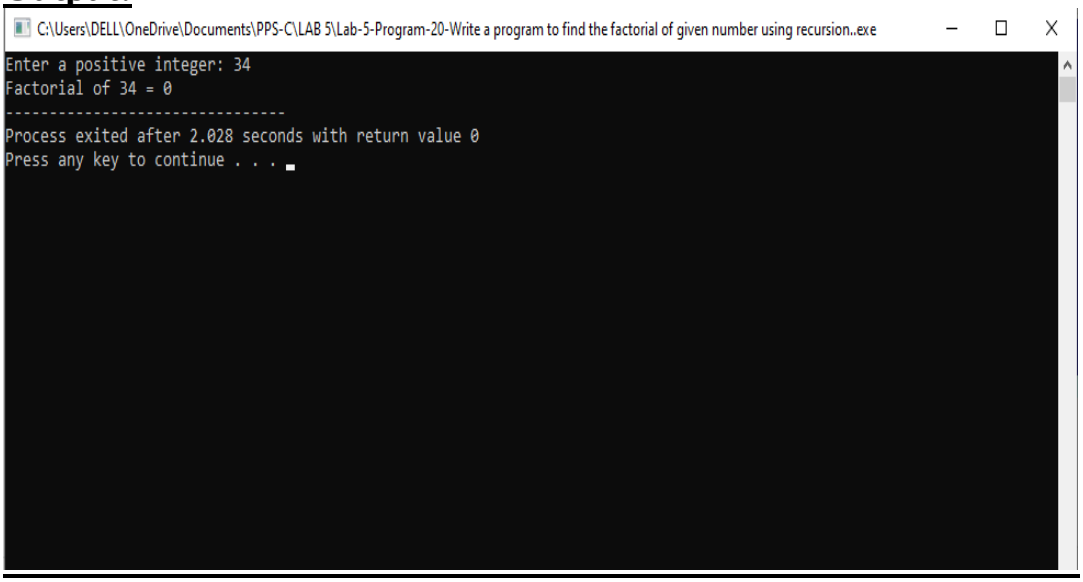
Lab-5

Program-20: Write a program to find the factorial of given number using recursion.

Code:

```
//Write a program to find the factorial of given number using recursion.
#include<stdio.h>
long int multiplyNumbers(int n);
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) {
   if (n>=1)
      return n*multiplyNumbers(n-1);
   else
      return 1;
}
```

Output:

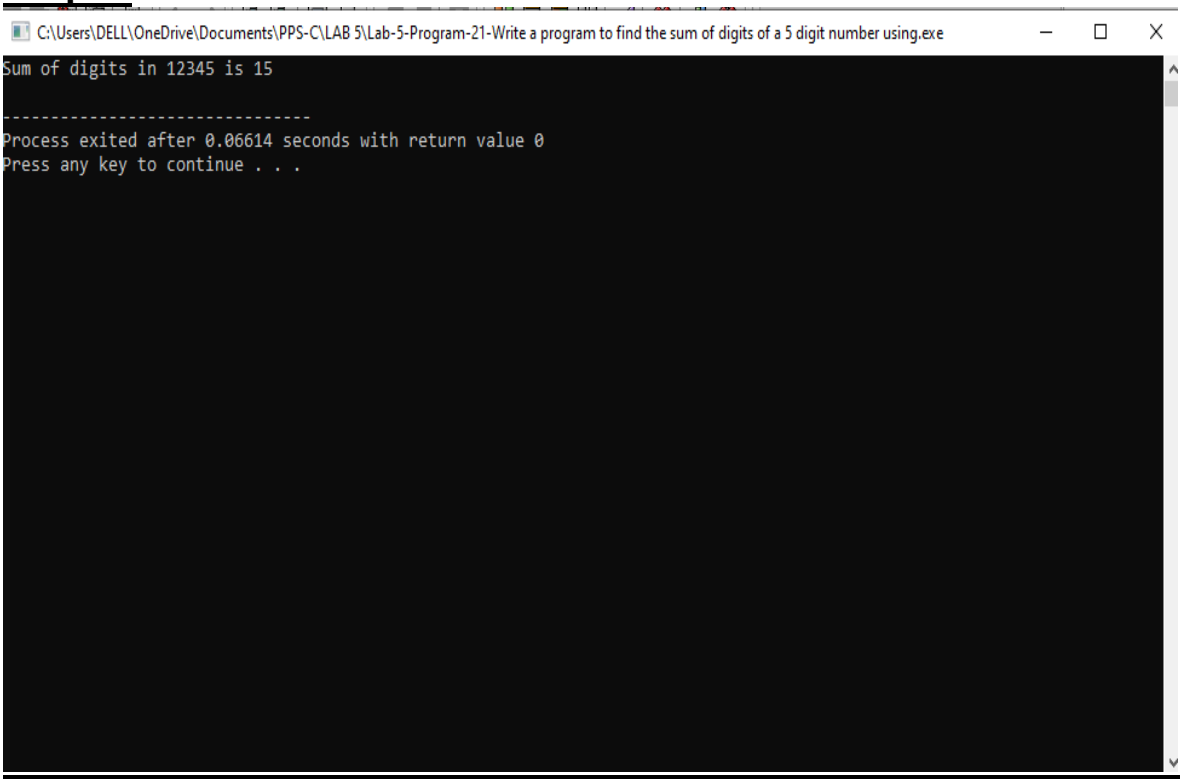


Program-21: Write a program to find the sum of digits of a 5 digit number using recursion.

Code:

```
//Write a program to find the sum of digits of a 5 digit number using recursion.
// Recursive C program to find sum of digits
// of a number
#include <stdio.h>

// Function to check sum of digit using recursion
int sum_of_digit(int n)
{
        if (n == 0)
        return 0;
        return (n % 10 + sum_of_digit(n / 10));
}

// Driven Program to check above
int main()
{
        int num = 12345;
        int result = sum_of_digit(num);
        printf("Sum of digits in %d is %d\n", num, result);
        return 0;
}
```

Output:

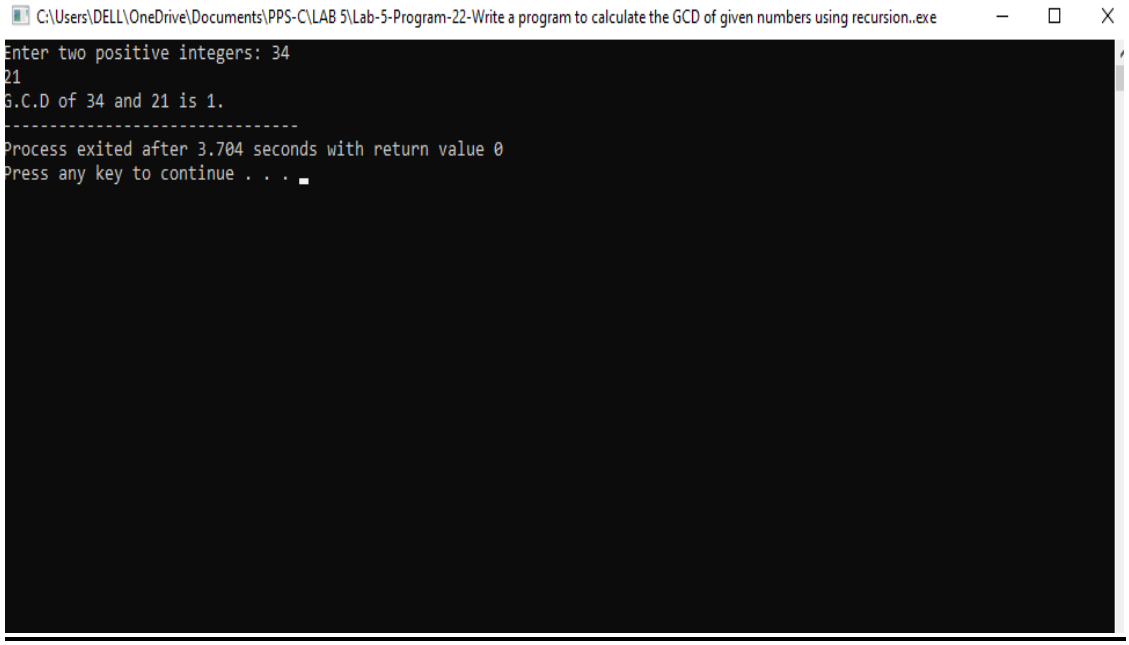


Program-22: Write a program to calculate the GCD of given numbers using recursion.

Code:

```
//Write a program to calculate the GCD of given numbers using recursion.
#include <stdio.h>
int hcf(int n1, int n2);
int main() {
   int n1, n2;
   printf("Enter two positive integers: ");
   scanf("%d %d", &n1, &n2);
   printf("G.C.D of %d and %d is %d.", n1, n2, hcf(n1, n2));
   return 0;
}

int hcf(int n1, int n2) {
   if (n2 != 0)
      return hcf(n2, n1 % n2);
   else
      return n1;
}
```

Output:

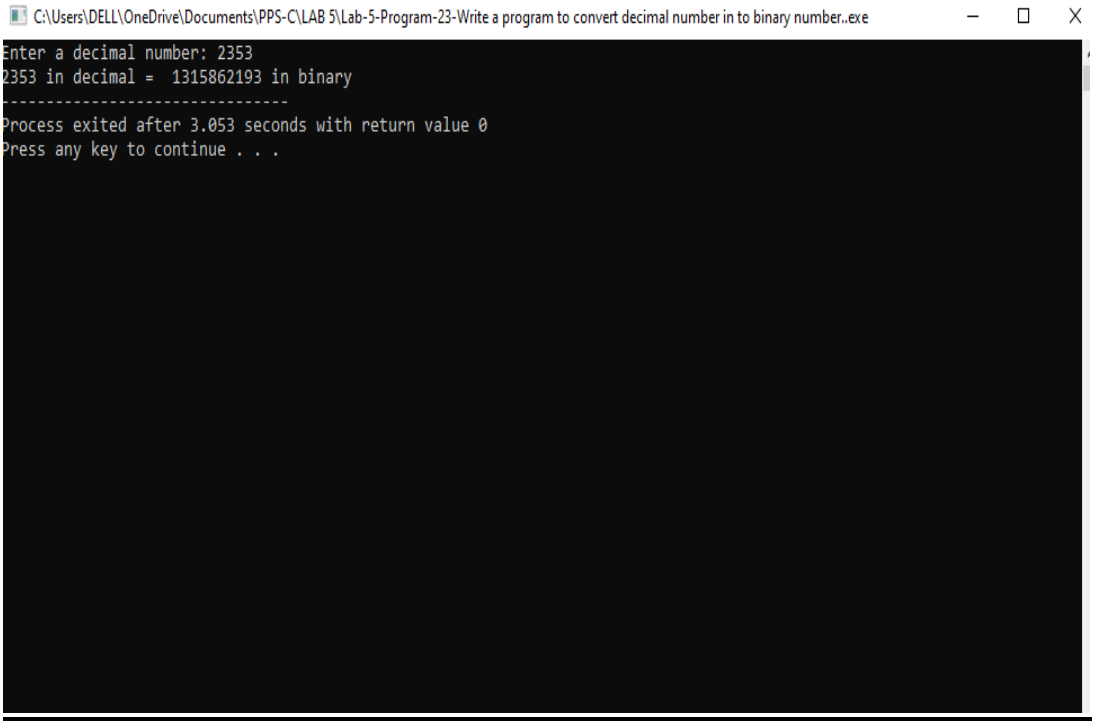


Program-23: Write a program to convert decimal number in to binary number.

Code:

```
//Write a program to convert decimal number in to binary number.
// convert decimal to binary

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

long long convert(int);

int main() {
  int n, bin;
  printf("Enter a decimal number: ");
  scanf("%d", &n);
  bin = convert(n);
  printf("%d in decimal =  %lld in binary", n, bin);
  return 0;
}

long long convert(int n) {
  long long bin = 0;
  int rem, i = 1;

  while (n!=0) {
    rem = n % 2;
    n /= 2;
    bin += rem * i;
    i *= 10;
  }

  return bin;
}
```

Output:

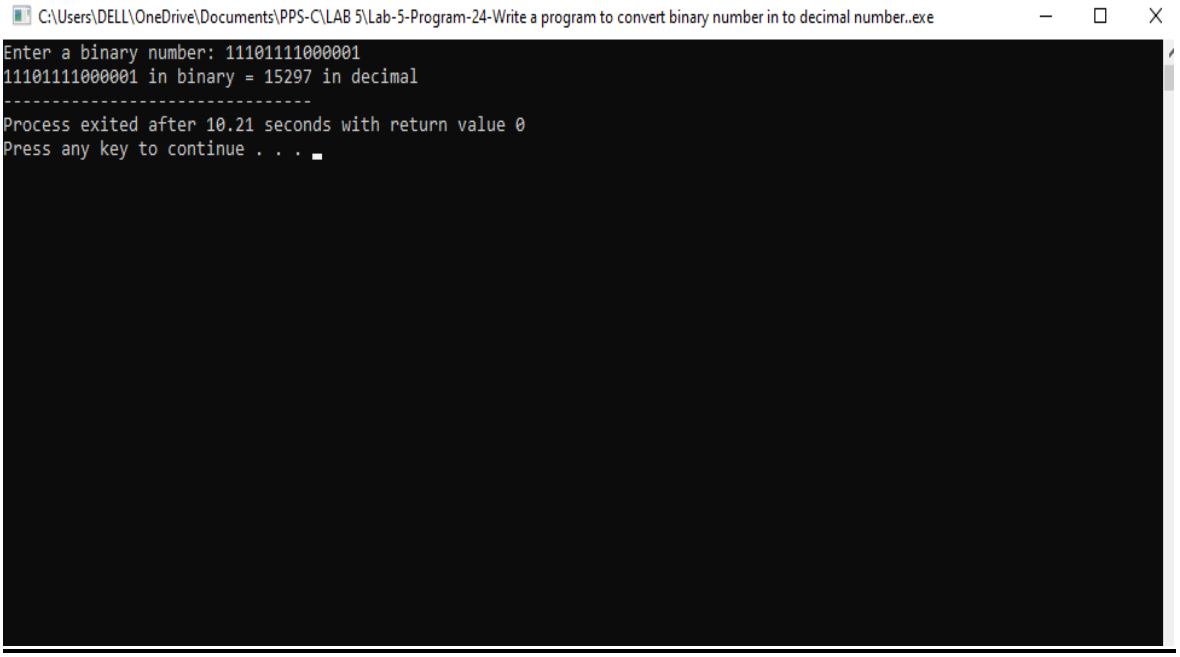

C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 5\Lab-5-Program-23-Write a program to convert decimal number in to binary number..exe
Enter a decimal number: 2353
2353 in decimal = 1315862193 in binary
Process exited after 3.053 seconds with return value 0
Press any key to continue . . .

Program-24: Write a program to convert binary number in to decimal number.

Code:

```
//Write a program to convert binary number in to decimal number.
// convert binary to decimal

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

// function prototype
int convert(long long);

int main() {
  long long n;
  printf("Enter a binary number: ");
  scanf("%lld", &n);
  printf("%lld in binary = %d in decimal", n, convert(n));
  return 0;
}

// function definition
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;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 5\Lab-5-Program-24-Write a program to convert binary number in to decimal number..exe
Enter a binary number: 11101111000001
11101111000001 in binary = 15297 in decimal

Process exited after 10.21 seconds with return value 0
Press any key to continue . . .

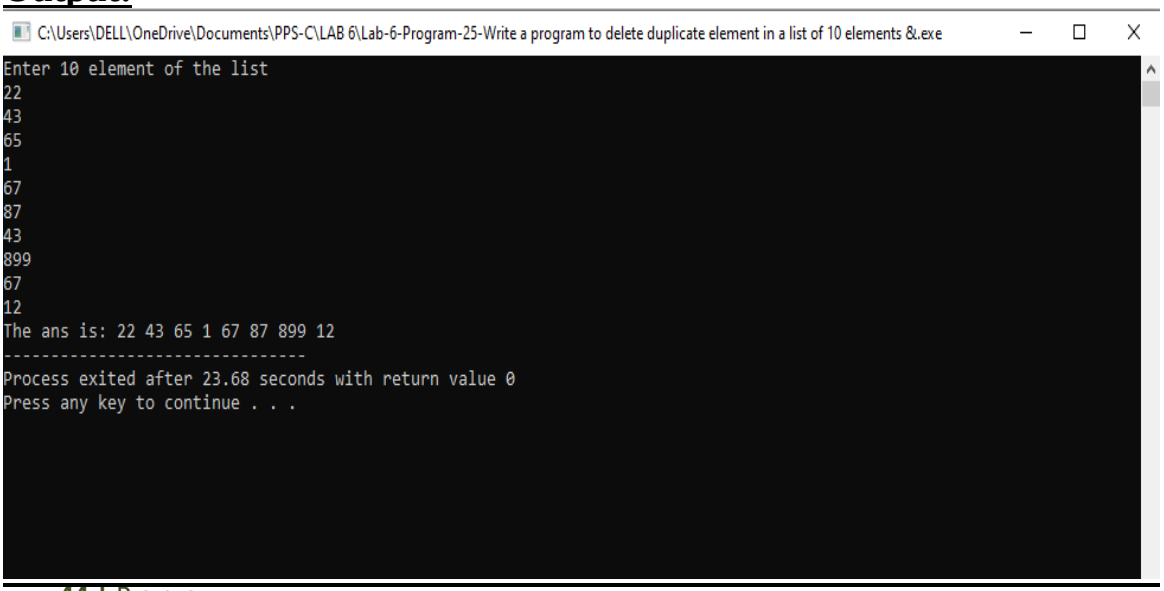
Lab-6

Program-25: Write a program to delete duplicate element in a list of 10 elements & display it on screen.

Code:

```
//Write a program to delete duplicate element in a list of 10 elements & display it on screen.
#include<stdio.h>
int main()
{
   int a[10],b[10],i,j,k=0;
   printf("Enter 10 element of the list\n");
   for(i=0;i<10;i++)
    scanf("%d",&a[i]);

   // logic for deleting duplicates
   for(i=0;i<10;i++)
   {
      for(j=0;j<k;j++)
      {
         if(b[j]==a[i])
          break;
      }
      if(j==k)
      {
         b[k]=a[i];
         k++;
      }
   }
   printf("The ans is: ");
   for(i=0;i<k;i++)
     printf("%d ",b[i]);
   return 0;
}
```

Output:



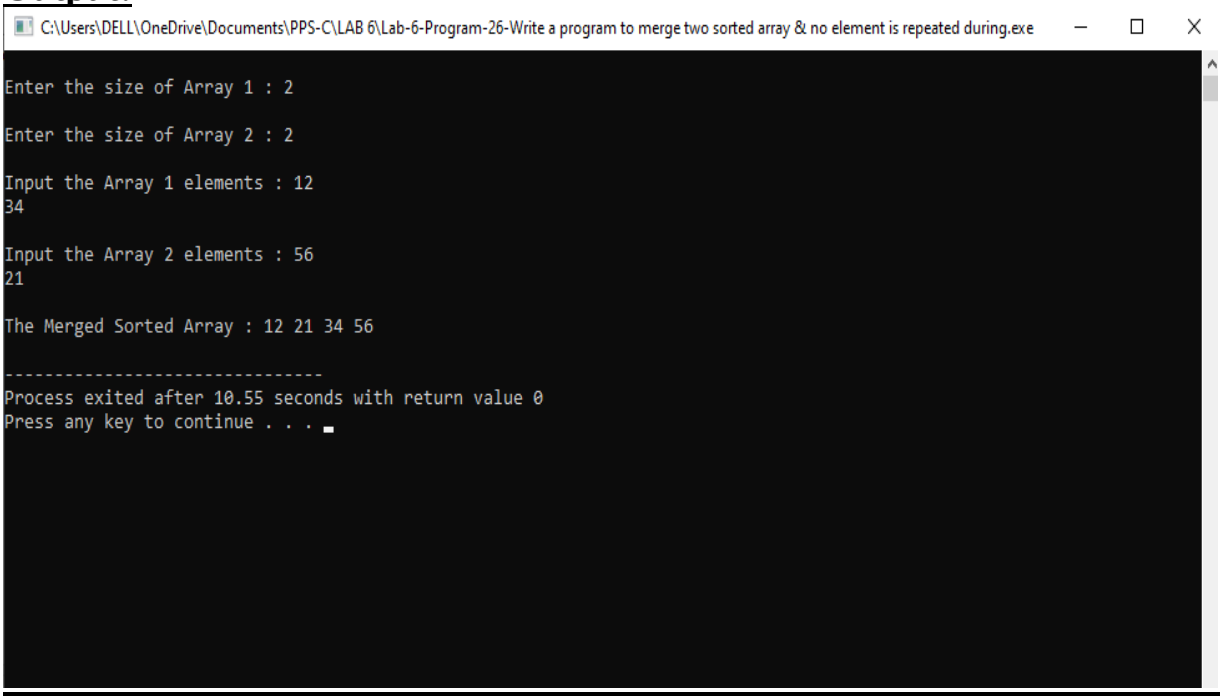
Program-26: Write a program to merge two sorted array & no element is repeated during merging.

Code:

```
//Write a program to merge two sorted array & no element is repeated during merging.
#include <stdio.h>
#include<stdlib.h>
int merge_arrays(int arr1[], int arr2[], int arr3[], int m, int n)
{
int i,j;
for(i = 0; i < m; i++)
{
arr3[i] = arr1[i];
}
for(i = m, j = 0 ; i < m + n; i++, j++)
{
arr3[i] = arr2[j];
}
}
int main()
{
int n,m;
printf("\nEnter the size of Array 1 : ");
scanf("%d",&m);
printf("\nEnter the size of Array 2 : ");
scanf("%d",&n);
int arr1[m],arr2[n];
int arr3[m+n];
int i;
printf("\nInput the Array 1 elements : ");
for(i = 0; i<m;i++)
{
scanf("%d",&arr1[i]);
}
printf("\nInput the Array 2 elements : ");
for(i = 0;i<n;i++)
{
scanf("%d",&arr2[i]);
}
merge_arrays(arr1,arr2,arr3,m,n);
printf("\nThe Merged Sorted Array : ");
for(i = 0; i < m+n-1; i++)
{
for(int j = 0; j < m+n-i-1; j++)
{
if(arr3[j] > arr3[j + 1])
{
int temp = arr3[j];
arr3[j ] = arr3[j + 1];
arr3[j + 1] = temp;
}
```

```
}
}
for(i = 0; i < n + m; i++)
{
printf("%d ",arr3[i]);
}
printf("\n");
return 0;
}
```

Output:

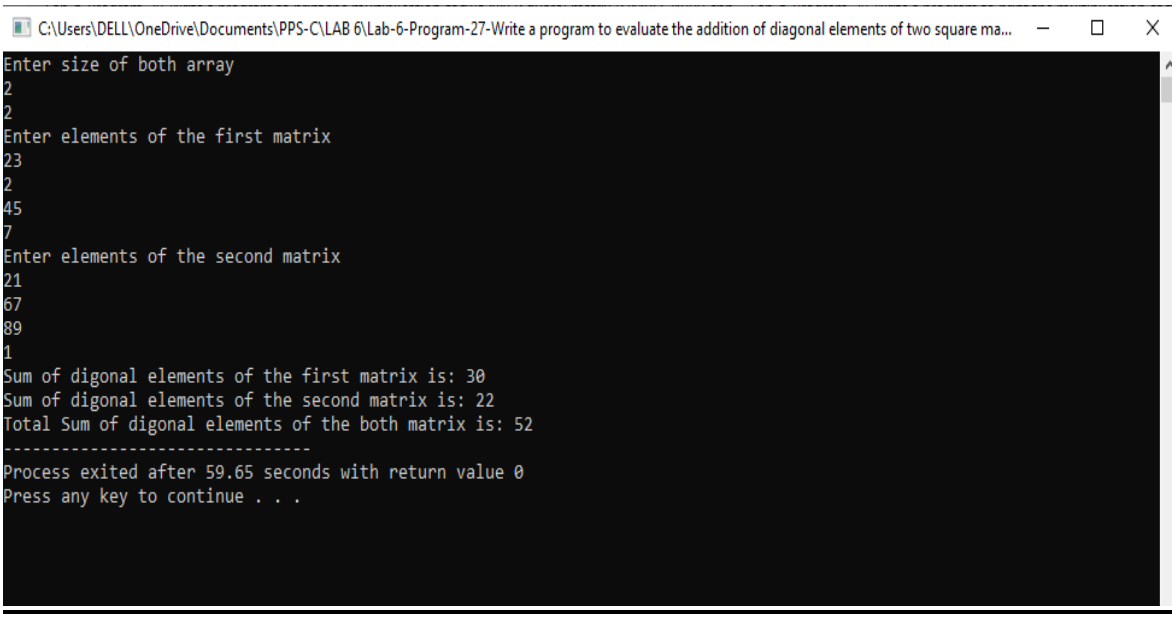


Program-27: Write a program to evaluate the addition of diagonal elements of two square matrixes.

Code:

```
//Write a program to evaluate the addition of diagonal elements of two square matrixes.
#include<stdio.h>
int main()
{
   int a[10][10],b[10][10],i,j,n1,n2,sum1=0,sum2=0;
   printf("Enter size of both array\n");
   scanf("%d%d",&n1,&n2);
   printf("Enter elements of the first matrix\n");
   for(i=0;i<n1;i++)
   {
      for(j=0;j<n1;j++)
        scanf("%d",&a[i][j]);
   }
    printf("Enter elements of the second matrix\n");
   for(i=0;i<n2;i++)
   {
      for(j=0;j<n2;j++)
        scanf("%d",&b[i][j]);
   }

   // logic for calculating sum of digonal of first matrix
   for(i=0;i<n1;i++)
   {
      for(j=0;j<n1;j++)
      {
         if(j==i)
           sum1=sum1+a[i][j];
      }
   }


   // logic for calculating sum of digonal of second matrix
   for(i=0;i<n2;i++)
   {
      for(j=0;j<n2;j++)
      {
         if(j==i)
           sum2=sum2+b[i][j];
      }
   }

   printf("Sum of digonal elements of the first matrix is: %d\n",sum1);
   printf("Sum of digonal elements of the second matrix is: %d\n",sum2);
   printf("Total Sum of digonal elements of the both matrix is: %d",sum1+sum2);
   return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 6\Lab-6-Program-27-Write a program to evaluate the addition of diagonal elements of two square ma...
Enter size of both array
2
2
Enter elements of the first matrix
23
2
45
7
Enter elements of the second matrix
21
67
89
1
Sum of digonal elements of the first matrix is: 30
Sum of digonal elements of the second matrix is: 22
Total Sum of digonal elements of the both matrix is: 52

Process exited after 59.65 seconds with return value 0
Press any key to continue . . .

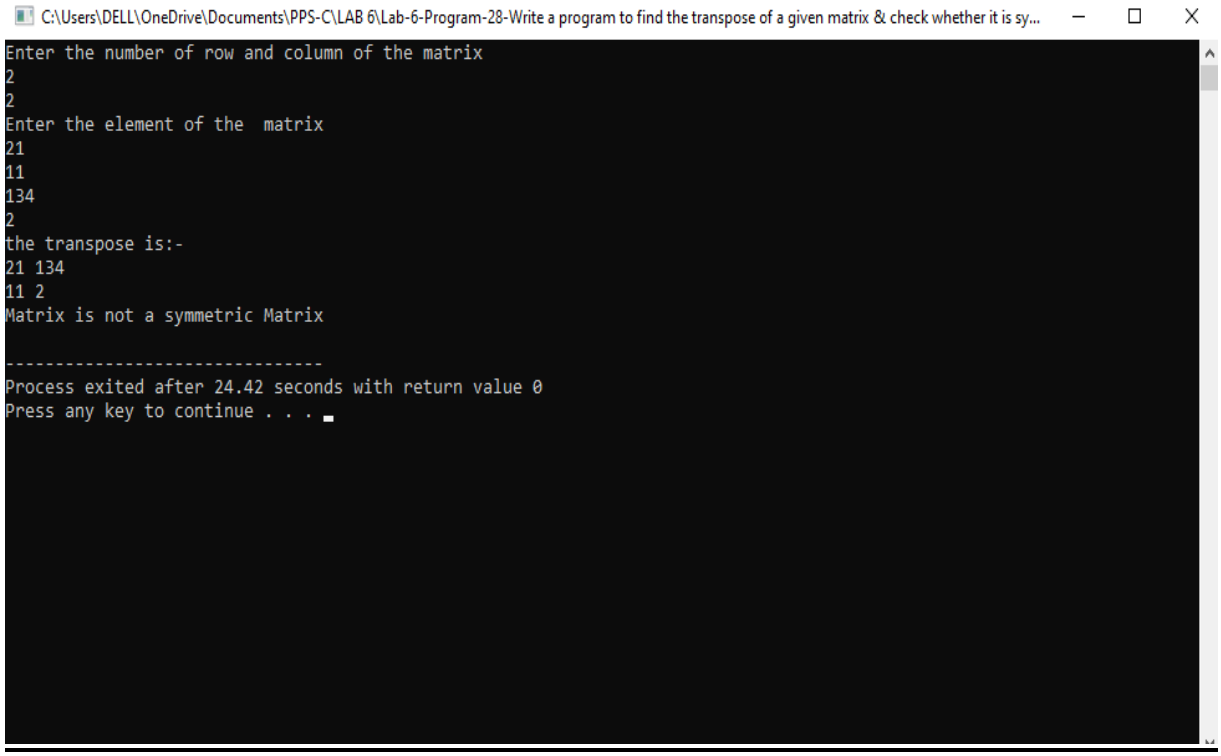
Program-28: Write a program to find the transpose of a given matrix & check whether it is symmetric or not.

Code:

```
//Write a program to find the transpose of a given matrix & check whether it is symmetric or not.
#include<stdio.h>
int main()
{
   int a[10][10],t[10][10],i,j,flag=0;
   int r,c;
   printf("Enter the number of row and column of the matrix\n");
   scanf("%d%d",&r,&c);
   printf("Enter the element of the  matrix\n");
   // Input matrix a[][]
   for(i=0;i<r;i++)
   {
      for(j=0;j<c;j++)
        scanf("%d",&a[i][j]);
   }

   // logic for compute transpose
   for(i=0;i<c;i++)
   {
      for(j=0;j<r;j++)
      {
         t[i][j]=a[j][i];
      }
   }

   // Display the transpose
   printf("the transpose is:-\n");
   for(i=0;i<c;i++)
   {
      for(j=0;j<r;j++)
        printf("%d ",t[i][j]);
      printf("\n");
   }

   //logic for checking matrix is symmetric or not
   if(r!=c)
     printf("Matrix is not symmetric\n");
   else
   {
      for(i=0;i<r;i++)
      {
         for(j=0;j<c;j++)
         {
            if(t[i][j]!=a[i][j]);
            {
               flag=1;
               break;
```

```
            }
          }
          if(flag==1)
            break;

        }
        if(flag==0)
          printf("Matrix is symmetric Matrix\n");
        else
         printf("Matrix is not a symmetric Matrix\n");
    }
    return 0;
}
```

Output:



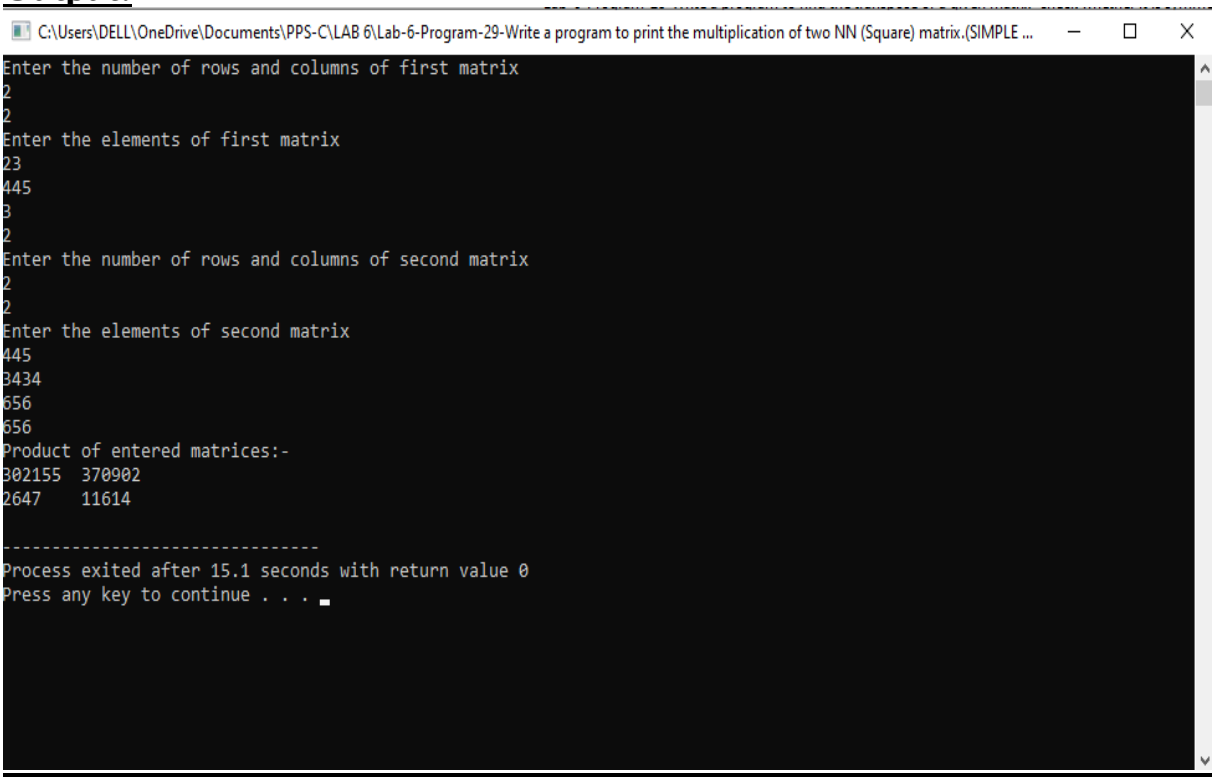
Program-29: Write a program to print the multiplication of two N*N (Square) matrix.

Code:

```
#include <stdio.h>

int main()
{
  int m, n, p, q, c, d, k, sum = 0;
  int first[10][10], second[10][10], multiply[10][10];

  printf("Enter the number of rows and columns of first matrix\n");
  scanf("%d%d", &m, &n);
  printf("Enter the elements of first matrix\n");

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

  printf("Enter the number of rows and columns of second matrix\n");
  scanf("%d%d", &p, &q);

  if ( n != p )
    printf("Matrices with entered orders can't be multiplied with each other.\n");
  else
  {
    printf("Enter the elements of second matrix\n");

    for ( c = 0 ; c < p ; c++ )
      for ( d = 0 ; d < q ; d++ )
        scanf("%d", &second[c][d]);

    for ( c = 0 ; c < m ; c++ )
    {
      for ( d = 0 ; d < q ; d++ )
      {
        for ( k = 0 ; k < p ; k++ )
        {
          sum = sum + first[c][k]*second[k][d];
        }

        multiply[c][d] = sum;
        sum = 0;
      }
    }

    printf("Product of entered matrices:-\n");

    for ( c = 0 ; c < m ; c++ )
    {
      for ( d = 0 ; d < q ; d++ )
        printf("%d\t", multiply[c][d]);
```

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

  return 0;
}
```

Output:



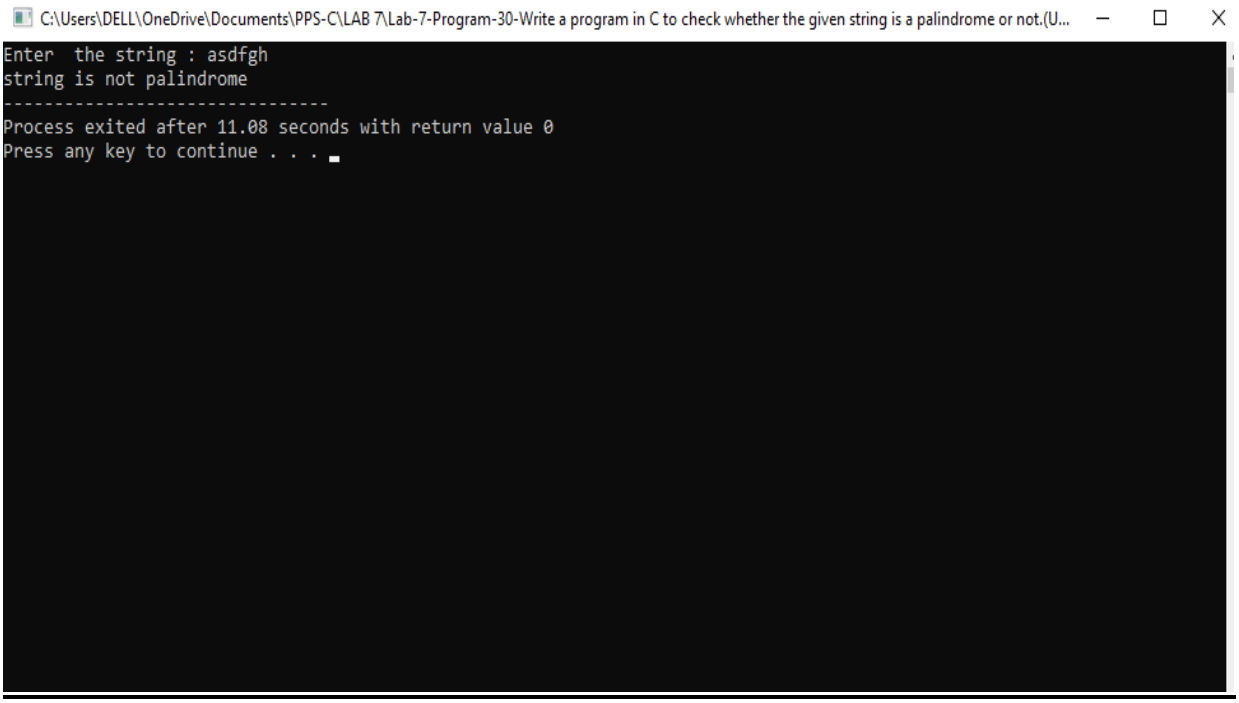
Lab-7

Program-30: Write a program in C to check whether the given string is a palindrome or not.

Code:

```
//Write a program in C to check whether the given string is a palindrome or not.
//Using Standard Method
#include <stdio.h>
#include <string.h>

int main()
{
   char s[1000];
   int i,n,c=0;

   printf("Enter  the string : ");
   gets(s);
   n=strlen(s);

   for(i=0;i<n/2;i++)
   {
         if(s[i]==s[n-i-1])
         c++;

         }
         if(c==i)
            printf("string is palindrome");
   else
      printf("string is not palindrome");



   return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 7\Lab-7-Program-30-Write a program in C to check whether the given string is a palindrome or not.(U...
Enter the string : asdfgh
string is not palindrome

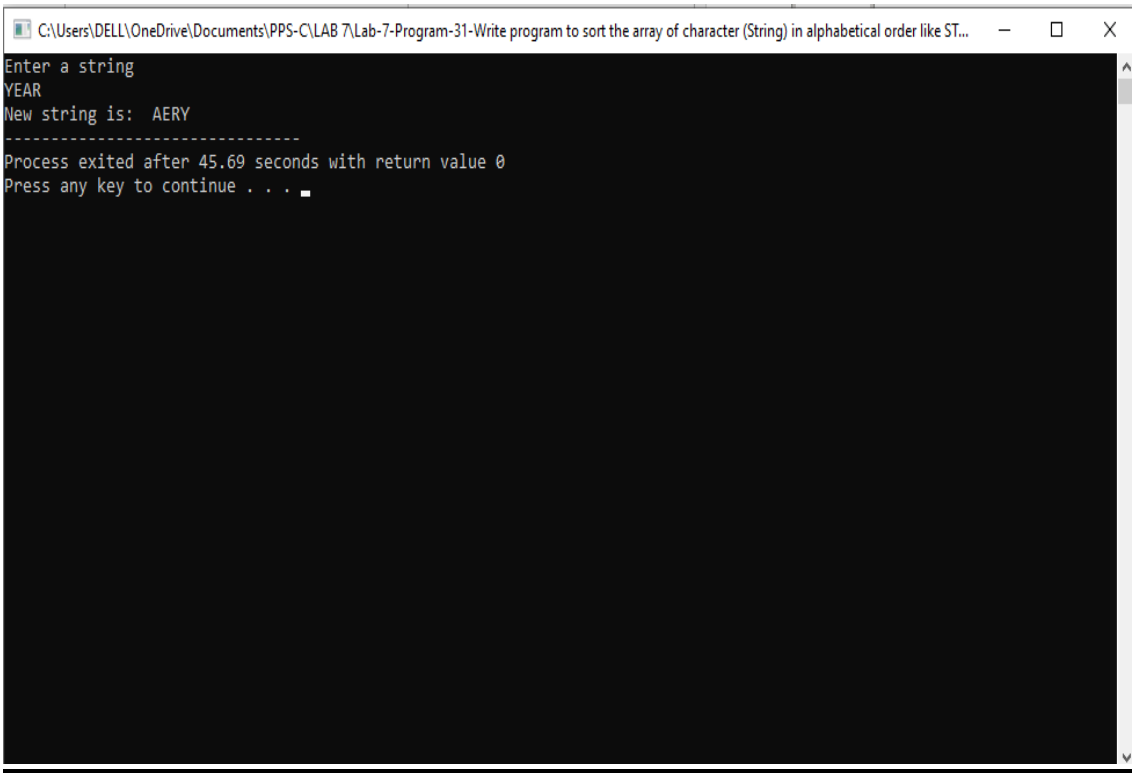
Process exited after 11.08 seconds with return value 0
Press any key to continue . . .

Program-31: Write program to sort the array of character (String) in alphabetical order like STRING in GINRST.

Code:

```
#include<stdio.h>
//Write program to sort the array of character (String) in alphabetical order like STRING in GINRST.
#include<string.h>
int main()
{
   int i,x,j,k=0,len;
   char string[50],alpha[50];
   printf("Enter a string\n");
   scanf("%[^\n]",string);
   len=strlen(string);
   x=65;
   while(x<=90 && k<len)
   {
      for(i=0;string[i];i++)
      {
         j=string[i];
         if(j==x || j==x+32)
         {
            alpha[k]=string[i];
            k++;
         }
      }
      x++;
   }
   alpha[k]='\0';
   printf("New string is:\t%s",alpha);
   return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 7\Lab-7-Program-31-Write program to sort the array of character (String) in alphabetical order like ST...
Enter a string
YEAR
New string is: AERY

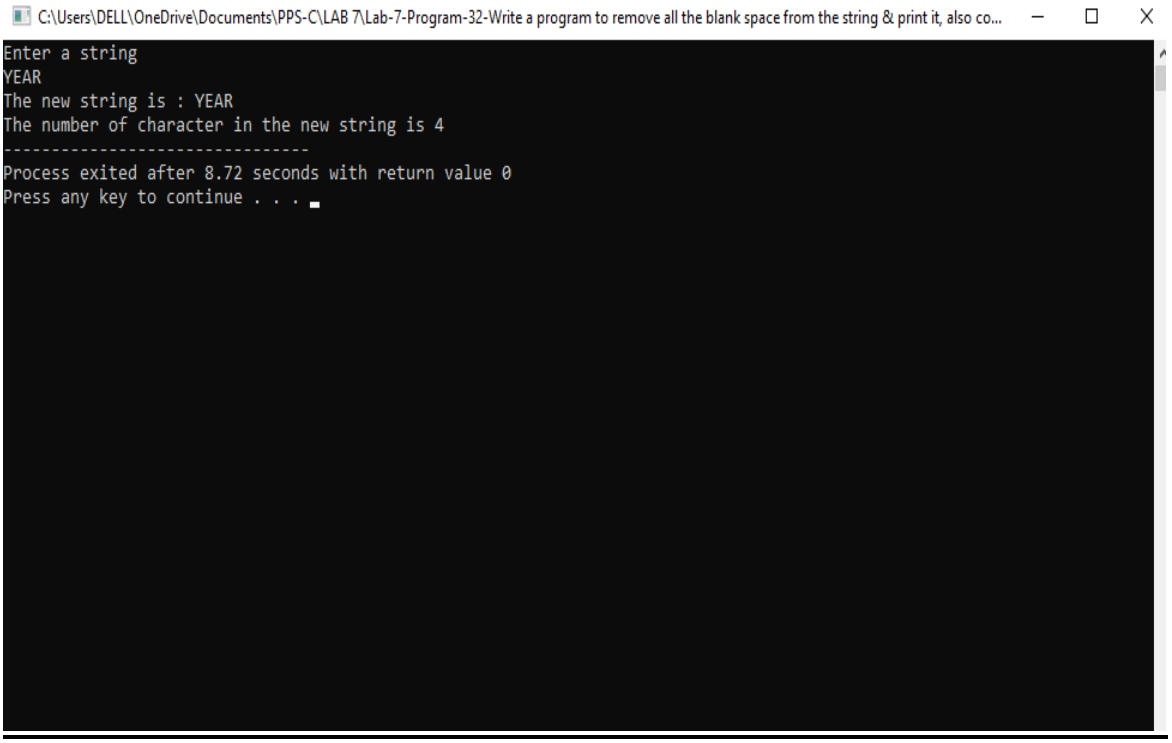
Process exited after 45.69 seconds with return value 0
Press any key to continue . . .

Program-32: Write a program to remove all the blank space from the string & print it, also count the no of characters.

Code:

```
//Write a program to remove all the blank space from the string & print it, also count the no of characters.
#include<stdio.h>
#include<string.h>
int main()
{
   char string[50],newS[50];
   int i,count,j=0;
   printf("Enter a string\n");
   scanf("%[^\n]",string);
   for(i=0;string[i];i++)
   {
      if(string[i]!=' ')
      {
         newS[j]=string[i];
         j++;
      }
   }
   newS[j]='\0';  // It is important to put null at
                  // the end of string
   strcpy(string,newS); // copy new string into prev
   printf("The new string is : %s",string);
   count=strlen(string);
   printf("\nThe number of character in the new string is %d",count);
   return 0;
}
```

Output:



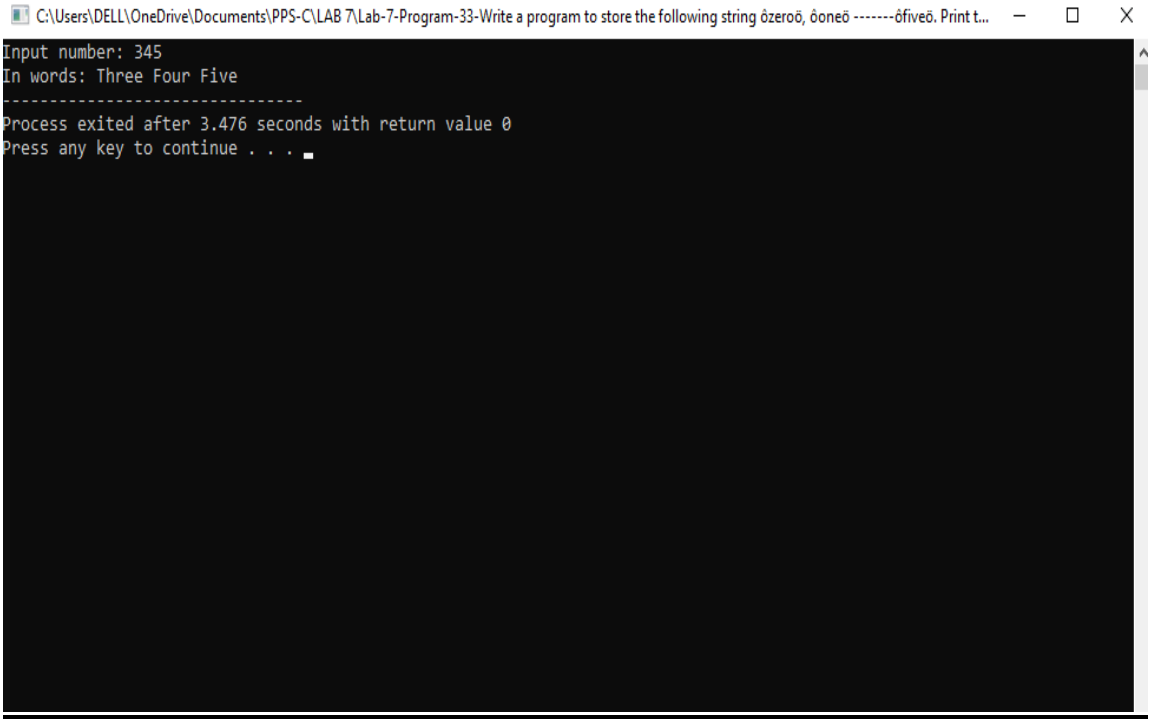
Program-33: Write a program to store the following string “zero”, “one” -------“five”. Print the no in words, given in figure as 3205.

Code:

```
//Write a program to store the following string “zero”, “one” -------“five”. Print the no in words, given in figure as 3205.
#include <stdio.h>
#include <string.h>

char* num_to_word (int);
int main (void)
{
    int num = 0;
    int temp;
    int digit;
    char digit_in_word[100];
    char num_in_words[500];

    //Empty string
    num_in_words[0] = '\0';

    //Input number
    printf ("Input number: ");
    scanf ("%d", &num);

    //Convert number to word
    temp = num;
    do
    {
        digit = temp % 10;
        switch (digit)
        {
            case 0:
                strcpy (digit_in_word, "Zero ");
                break;
            case 1:
                strcpy (digit_in_word, "One ");
                break;
            case 2:
                strcpy (digit_in_word, "Two ");
                break;
            case 3:
                strcpy (digit_in_word, "Three ");
                break;
            case 4:
                strcpy (digit_in_word, "Four ");
                break;
            case 5:
                strcpy (digit_in_word, "Five ");
                break;
            case 6:
```

```
            strcpy (digit_in_word, "Six ");
            break;
        case 7:
            strcpy (digit_in_word, "Seven ");
            break;
        case 8:
            strcpy (digit_in_word, "Eight ");
            break;
        case 9:
            strcpy (digit_in_word, "Nine ");
            break;
      }
      strcat (digit_in_word, num_in_words);
      strcpy (num_in_words, digit_in_word);
      temp = temp / 10;
   }while (temp != 0);

   //Print number in words
   printf ("In words: %s", num_in_words);

   return 0;
};
```

Output:



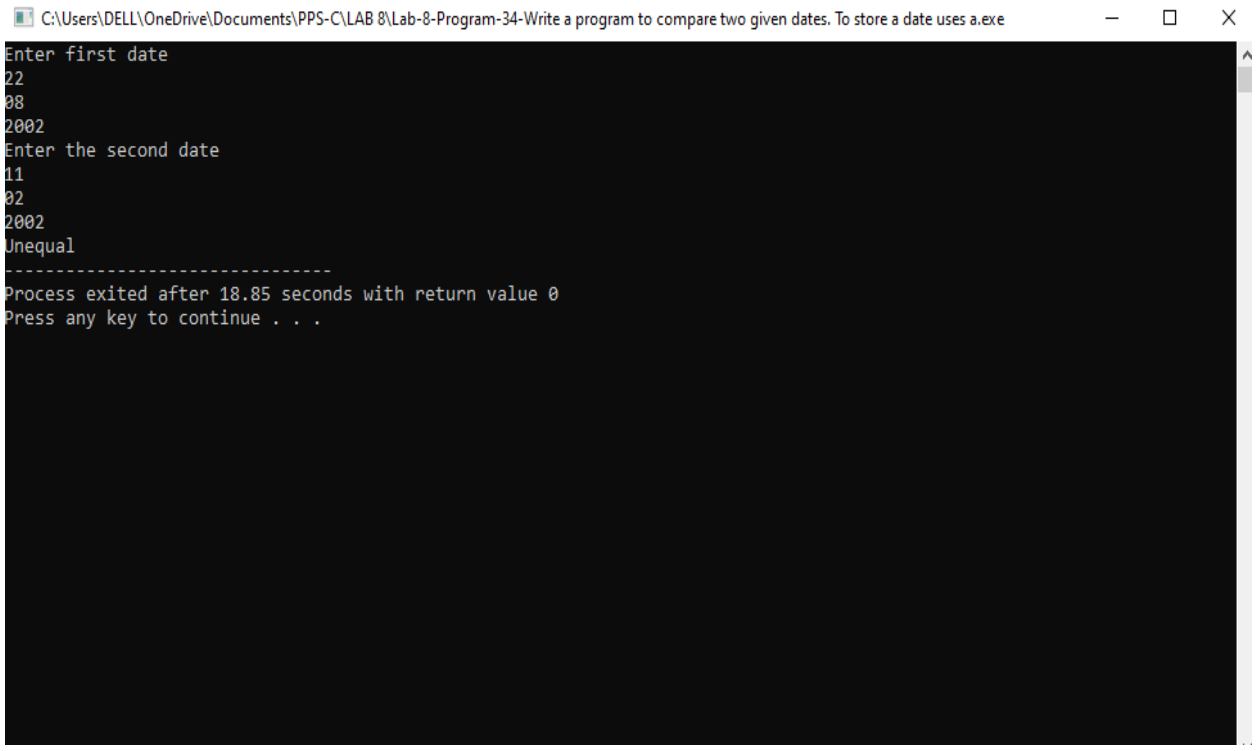
Lab-8

Program-34: Write a program to compare two given dates. To store a date uses a structure that contains three members namely day, month and year.
If the dates are equal then display message equal otherwise unequal.

Code:

```
//Write a program to compare two given dates. To store a date uses a structure that contains three members namely day, month and year. If the dates are equal then display message equal otherwise unequal.
#include<stdio.h>

struct data
{
   int day,month,year;
}d1,d2;

int main()
{
   printf("Enter first date\n");
   scanf("%d%d%d",&d1.day,&d1.month,&d1.year);
   printf("Enter the second date\n");
   scanf("%d%d%d",&d2.day,&d2.month,&d2.year);
   if(d1.day==d2.day && d1.month==d2.month && d1.year==d2.year)
    printf("Equal\n");
   else
    printf("Unequal");
   return 0;
}
```

Output:



Program-35: Define a structure that can describe a hotel. It should have the member that includes the name, address, grade, room charge and number of rooms.
Write a function to print out hotel of given grade in order of room charges.

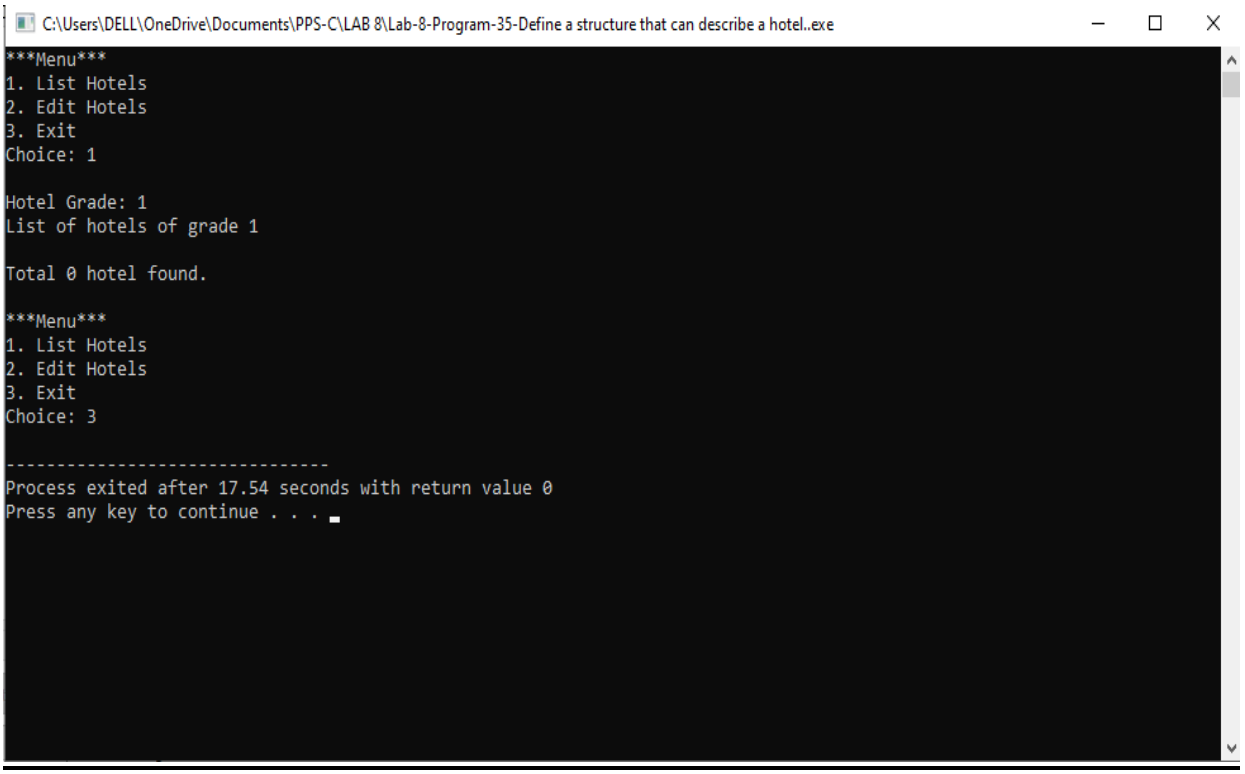
Code:

```
/*Define a structure that can describe a hotel. It should have the member that
includes the name, address, grade, room charge and number of rooms.
Write a function to print out hotel of given grade in order of room charges. */
#include <stdio.h>
#include <string.h>

typedef struct hotel
{
    char name[30];
    char add[200];
    char grade;
    float charge;
    int no_of_rooms;
} hotel;

int main (void)
{
    hotel list[100];
    hotel key;
    int no_of_hotels = 0;
    int choice;
    int success;
    char del_name[30];
    char grd;
    int i, j;

    while (1)
    {
        //Menu
        printf ("***Menu***\n");
        printf ("1. List Hotels\n");
        printf ("2. Edit Hotels\n");
        printf ("3. Exit\n");
        printf ("Choice: ");
        scanf ("%d", &choice);

        //Exit
        if (choice == 3)
            break;

        switch (choice)
        {
            //List hotels
            case 1:
                printf ("\nHotel Grade: ");
                fflush (stdin);
```

```
        scanf ("%c", & grd);

        printf ("List of hotels of grade %c\n\n", grd);
        for (i = 0, j= 1; i <= no_of_hotels - 1; i++)
        {
            if (list[i].grade == grd)
            {
                printf ("%d. %s\n", j++, list[i].name);
                printf ("%s\n", list[i].add);
                printf ("No of Rooms: %d\n", list[i].no_of_rooms);
                printf ("Rent: Rs. %.2f\n\n", list[i].charge);
            }
        }
        printf ("Total %d hotel found.\n\n", j - 1);
        break;

    //Edit Hotels
    case 2:
        while (1)
        {
            //Hotel Edit Menu
            printf ("\n***Hotel Edit Menu***\n");
            printf ("1. Add Hotel\n");
            printf ("2. Delete Hotel\n");
            printf ("3. Exit Hotel Edit Menu\n");
            printf ("Choice: ");
            scanf ("%d", &choice);

            //Exit loop
            if (choice == 3)
            {
                printf ("\n");
                break;
            }

            switch (choice)
            {
                //Add Hotel
                case 1:
                    printf ("\nAdd Hotel\n");
                    printf ("Input Grade: ");
                    fflush (stdin);
                    scanf ("%c", &key.grade);
                    printf ("Input Name: ");
                    fflush (stdin);
                    gets (key.name);
                    printf ("Input Address: ");
                    fflush (stdin);
                    gets (key.add);
                    printf ("Input Number of Rooms: ");
                    scanf ("%d", &key.no_of_rooms);
```

```
                printf ("Input Rent: Rs. ");
                scanf ("%f", &key.charge);

                //Sorting
                for (i = no_of_hotels - 1; i >= 0 && key.charge < list[i].charge; i--)
                    list[i + 1] = list[i];
                list[i + 1] = key;
                printf ("%s added successfully.\n\n", list[i + 1].name);
                no_of_hotels++;
                break;

            //Delete Hotel
            case 2:
                printf ("\nDelete Hotel\n");
                printf ("Input Name: ");
                fflush (stdin);
                gets (del_name);
                printf ("Input Grade: ");
                fflush (stdin);
                scanf ("%c", &grd);

                success = 0;
                for (i = 0; i <= no_of_hotels - 1; i++)
                    if (!strcmp (del_name, list[i].name) && grd == list[i].grade)
                    {
                        for (j = i; j <= no_of_hotels - 2; j++)
                            list[j] = list[j + 1];
                        success = 1;
                        no_of_hotels--;
                    }

                if (success)
                    printf ("Hotel %s deleted successfully.\n\n", del_name);
                else
                    printf ("Hotel %s is not found.\n\n", del_name);
                break;

            default:
                printf ("Error! Wrong Choice. Try Again\n");
            }
        }
        break;

    default:
        printf ("Error! Wrong Choice. Try Again\n\n");
    }
}

return 0;
};
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 8\Lab-8-Program-35-Define a structure that can describe a hotel..exe
Menu
1. List Hotels
2. Edit Hotels
3. Exit
Choice: 1
Hotel Grade: 1
List of hotels of grade 1
Total 0 hotel found.
Menu
1. List Hotels
2. Edit Hotels
3. Exit
Choice: 3

Process exited after 17.54 seconds with return value 0
Press any key to continue . . .

Program-36: Define a structure called cricket with player name, team name, batting average, for 50 players & 5 teams. Print team wise list contains names of player with their batting average.

Code:

```
/*Define a structure called cricket with player name, team name, batting
average, for 50 players & 5 teams. Print team wise list contains names of
player with their batting average.*/
/*player name
team name
batting average
Using cricket, declare an array player with 5 elements and write a program to
read the information about tall the 5 players and print a team-wise list containing names of player with their
batting average.*/
#include <stdio.h>
#include <string.h>

struct cricket
{
 char player_name[20];
 char team_name[20];
 float batting_avg;
}p[50],t;

int main(void)
{
 int i=0,j=0,n=50;

 for(i=0;i<n;i++)
 {
  printf("\n Enter Player Name : ");
  scanf("%s",p[i].player_name);
  printf("\n Enter Team Name : ");
  scanf("%s",p[i].team_name);
  printf("\n Enter Batting Average : ");
  scanf("%f",&p[i].batting_avg);
 }

 //Sorting of Data based on Team
 for(i=0;i<n-1;i++)
 {
  for(j=i;j<n;j++)
  {
   if(strcmp(p[i].team_name,p[j].team_name)>0)
   {
    t=p[i];
    p[i]=p[j];
    p[j]=t;
   }
  }
```

```
 }

 j=0;
 for(i=0;i<n;i++)
 {
  if(strcmp(p[i].team_name,p[j].team_name)!=0 || i==0)
  {
   printf("\n Team Name: %s",p[i].team_name);
   j=i;
  }
  printf("\n Player Name     = %s",p[i].player_name);
  printf("\n Batting Average = %f",p[i].batting_avg);
 }
 return 0;
}
```

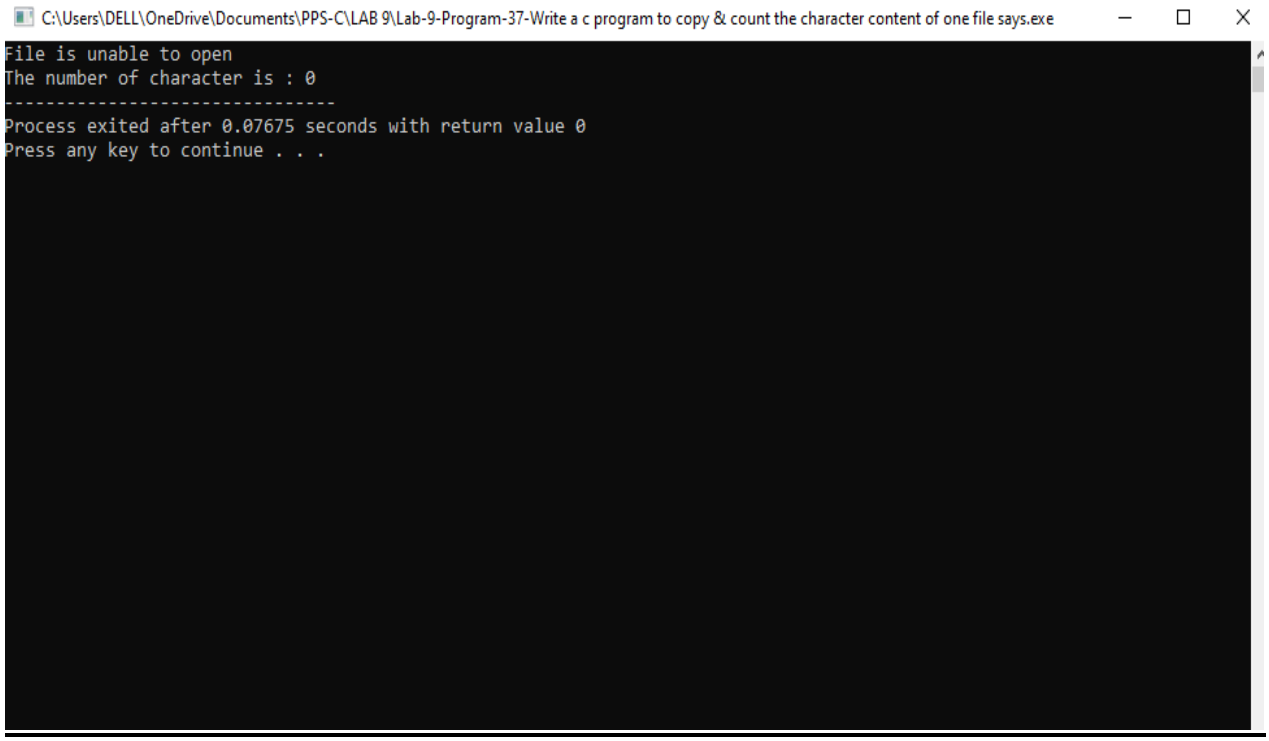
Lab-9

Program-37: Write a c program to copy & count the character content of one file says a.txt to another file b.txt.

Code:

```
/*Write a c program to copy & count the character content of one file says
a.txt to another file b.txt. */
#include<stdio.h>
FILE *fp,*ft;

int main()
{
   int count=0;
   char ch;
   fp=fopen("a.txt","r");
   ft=fopen("b.txt","w");
   if(fp==NULL || ft==NULL)
     printf("File is unable to open\n");
   else
   {
      while((ch=fgetc(fp))!=EOF)
      {
         fputc(ch,ft);
         count++;
      }
   }
   // It is important to close the file after operation
   fclose(fp);
   fclose(ft);
   printf("The number of character is : %d",count);
   return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 9\Lab-9-Program-37-Write a c program to copy & count the character content of one file says.exe
File is unable to open
The number of character is : 0

Process exited after 0.07675 seconds with return value 0
Press any key to continue . . .

Program-38: Write a program to take 10 integers from file and write square of these integer in other file.

Code:

```
/*Write a program to take 10 integers from file and write square of these
integer in other file. */
#include <stdio.h>

int main (void)
{
    FILE *f_ptr_1, *f_ptr_2;
    char path_1[256], path_2[256];
    int num;
    int i;

    //Input first file path
    printf ("Input first file path: ");
    fflush (stdin);
    scanf ("%s", path_1);

    //Open first file
    f_ptr_1 = fopen (path_1, "r");
    if (f_ptr_1 == NULL)
    {
        printf ("Error! Unable to open first file.");
        return 0;
    }

    //Input second file path
    printf ("Input second file path: ");
    fflush (stdin);
    scanf ("%s", path_2);

    //Open second file
    f_ptr_2 = fopen (path_2, "w");
    if (f_ptr_2 == NULL)
    {
        printf ("Error! Unable to open second file.");
        return 0;
    }

    //Read integer from first file and write square in second file
    for (i = 0; i <= 9; i++)
    {
        if (fscanf (f_ptr_1, "%d", &num) != EOF)
            fprintf (f_ptr_2, "%d ", num * num);
        else
            break;
    }

    //Close files
```

```
    fclose (f_ptr_1);
    fclose (f_ptr_2);
    printf ("File Saved Successfully.");

    return 0;
};
```

Program-39: Write a program to read number from file and then write all ‘odd’ number to file ODD.txt & all even to file EVEN.txt.

Code:

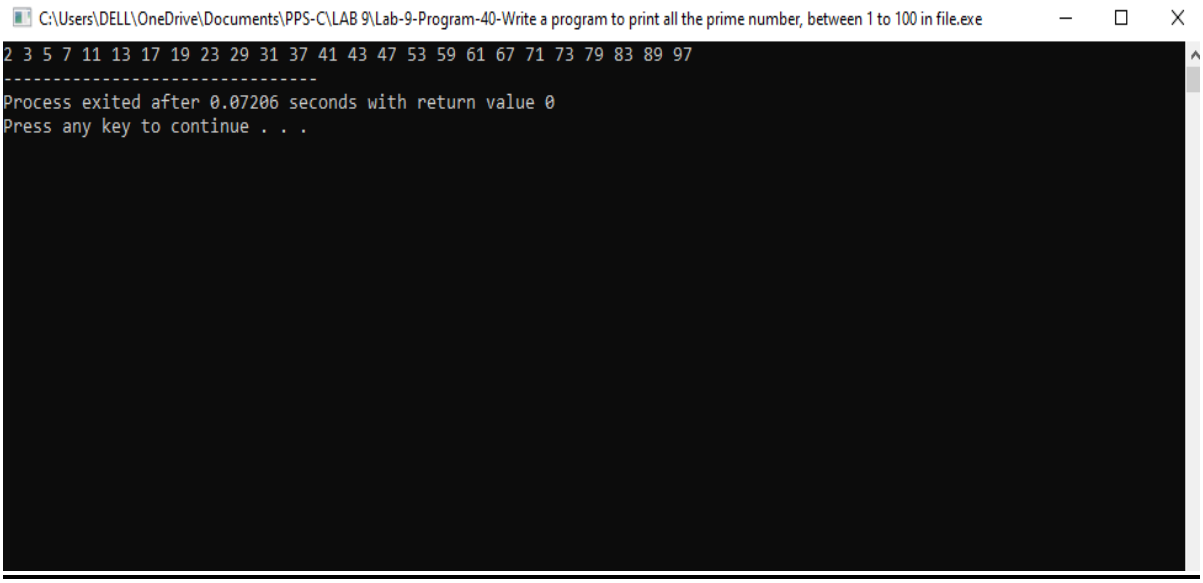
```
/*Write a program to read number from file and then write all ‘odd’ number
to file ODD.txt & all even to file EVEN.txt.
*/
#include <stdio.h>
main()
{
  FILE *f1, *f2, *f3;
  int number, i;
  printf("Contents of DATA file\n\n");
  f1 = fopen("DATA", "w"); /* Create DATA file */
  for(i = 1; i <= 30; i++)
  {
    scanf("%d", &number);
    if(number == -1) break;
    putw(number,f1);
  }
fclose(f1);

f1 = fopen("DATA", "r");
f2 = fopen("ODD", "w");
f3 = fopen("EVEN", "w");

/* Read from DATA file */
while((number = getw(f1)) != EOF)
{
   if(number %2 == 0)
     putw(number, f3); /* Write to EVEN file */
   else
     putw(number, f2); /* Write to ODD file */
}
fclose(f1);
fclose(f2);
fclose(f3);

f2 = fopen("ODD","r");
f3 = fopen("EVEN", "r");
printf("\n\nContents of ODD file\n\n");

while((number = getw(f2)) != EOF)
    printf("%4d", number);
printf("\n\nContents of EVEN file\n\n");

while((number = getw(f3)) != EOF)
    printf("%4d", number);
fclose(f2);
fclose(f3);
}
```

Program-40: Write a program to print all the prime number, between 1 to 100 in file prime.txt.

Code:

```
/*Write a program to print all the prime number, between 1 to 100 in file
prime.txt.
*/
#include <stdio.h>
int main()
{
   int ct=0,n=0,i=1,j=1;
   while(n<25)
   {
      j=1;
      ct=0;
      while(j<=i)
      {
         if(i%j==0)
         ct++;
         j++;
      }
      if(ct==2)
      {
         printf("%d ",i);
         n++;
      }
      i++;
}
}
```

Output:



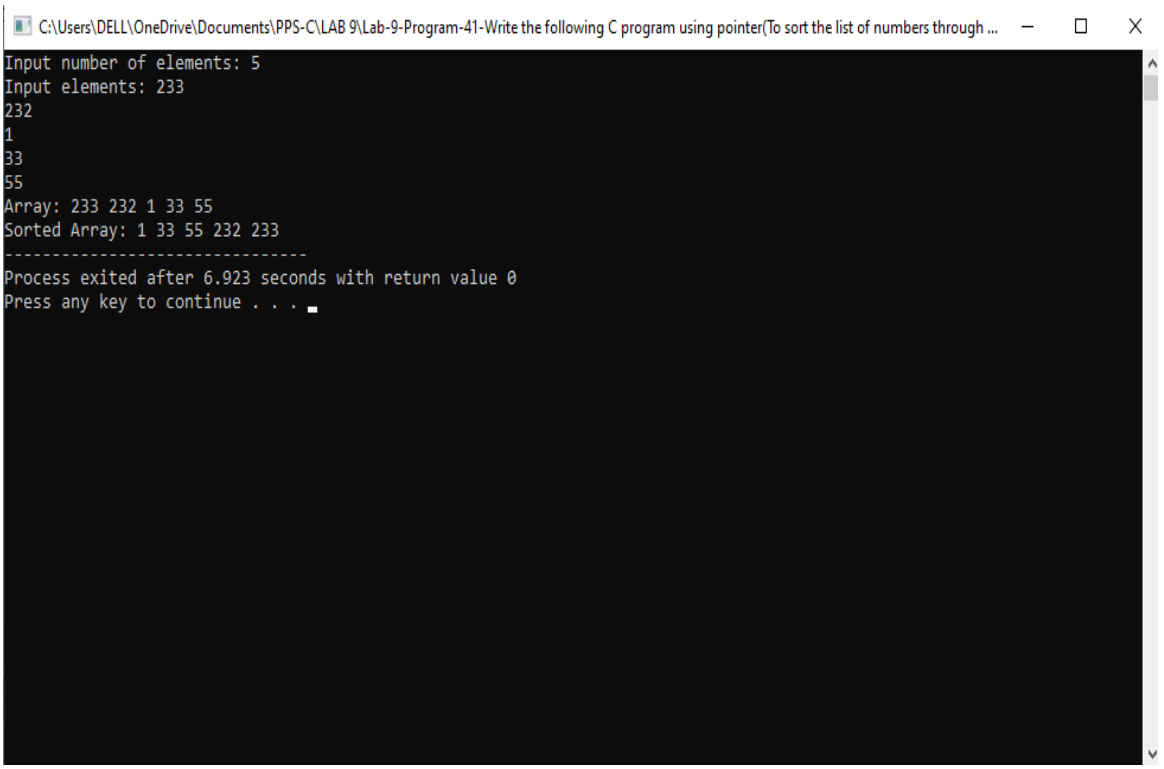
Program-41: Write the following C program using pointer: a) To sort the list of numbers through pointer b) To reverse the string through pointer.

Code:

```
/*Write the following C program using pointer:
a) To sort the list of numbers through pointer
b) To reverse the string through pointer.
*/
//To sort the list of numbers through pointer
#include <stdio.h>

int main (void)
{
    int ar[20];
    int no_of_elements;
    int key;
    int i, j;

    //Input no of elements
    printf ("Input number of elements: ");
    scanf ("%d", &no_of_elements);

    //Input array
/*Write the following C program using pointer:
a) To sort the list of numbers through pointer
b) To reverse the string through pointer.
*/
//To reverse the string through pointer.
#include <stdio.h>

int main (void)
{
    char str[20];
    int length;
    char temp;
    int i, j;

    //Input string
    printf ("Input string: ");
    fflush (stdin);
    scanf ("%s", str);
    //fgets(str, 20, stdin);

    //Calculate string length
    length = 0;
    while (*(str + length) != '\0')
        length++;

    //Reverse string
    for (i = 0; i <= length / 2 - 1; i++)
    {
```

```
        temp = *(str + i);
        *(str + i) = *(str + length - 1 - i);
        *(str + length - 1 - i) = temp;
    }

    //Print reverse string
    printf ("Reverse String: ");
    puts (str);

    return 0;
};    for (i = 0; i <= no_of_elements - 1; i++)
        scanf ("%d", &ar[i]);

    //Print Array
    printf ("Array: ");
    for (i = 0; i <= no_of_elements - 1; i++)
        printf ("%d ", ar[i]);

    //Sorting
    for (i = 1; i <= no_of_elements - 1; i++)
    {
        key = *(ar + i);
        for (j = i - 1; j >= 0 && *(ar + j) > key; j--)
            *(ar + j + 1) = *(ar + j);
        *(ar + j + 1) = key;
    }

    //Print Array after sorting
    printf ("\nSorted Array: ");
    for (i = 0; i <= no_of_elements - 1; i++)
        printf ("%d ", ar[i]);

    return 0;
};
```

Output:

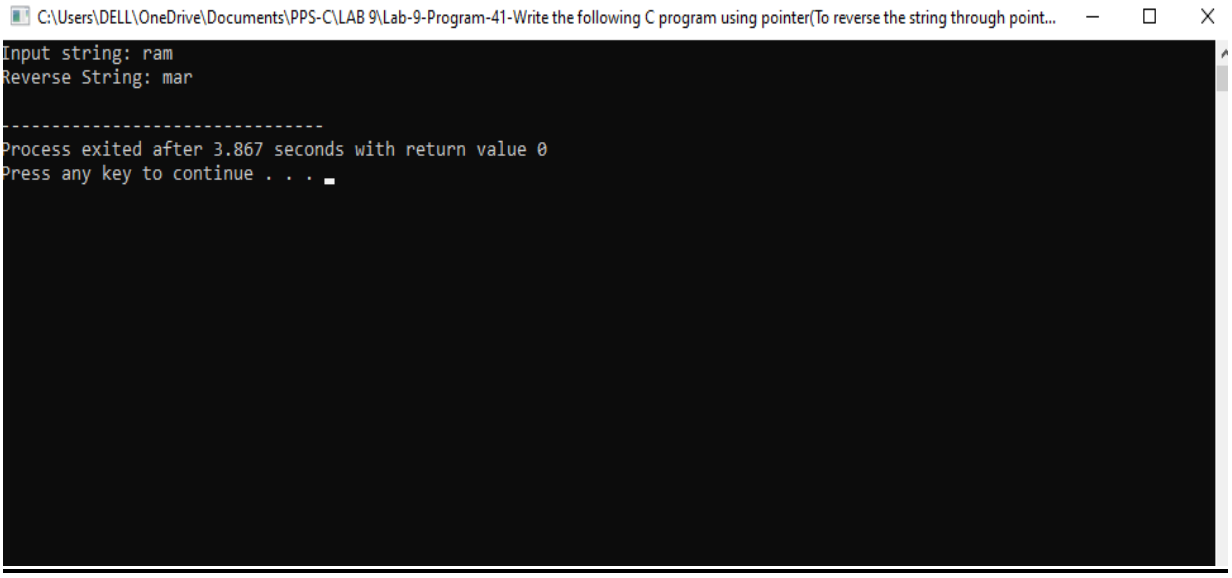


Code:

```
/*Write the following C program using pointer:
a) To sort the list of numbers through pointer
b) To reverse the string through pointer.
*/
//To reverse the string through pointer.
#include <stdio.h>

int main (void)
{
    char str[20];
    int length;
    char temp;
    int i, j;

    //Input string
    printf ("Input string: ");
    fflush (stdin);
    scanf ("%s", str);
    //fgets(str, 20, stdin);

    //Calculate string length
    length = 0;
    while (*(str + length) != '\0')
        length++;

    //Reverse string
    for (i = 0; i <= length / 2 - 1; i++)
    {
        temp = *(str + i);
```

```
        *(str + i) = *(str + length - 1 - i);
        *(str + length - 1 - i) = temp;
    }

    //Print reverse string
    printf ("Reverse String: ");
    puts (str);

    return 0;
};
```

Output:



Lab-10

Program-42: Write a program to find the largest no among 20 integers array using dynamic memory allocation.

Code:

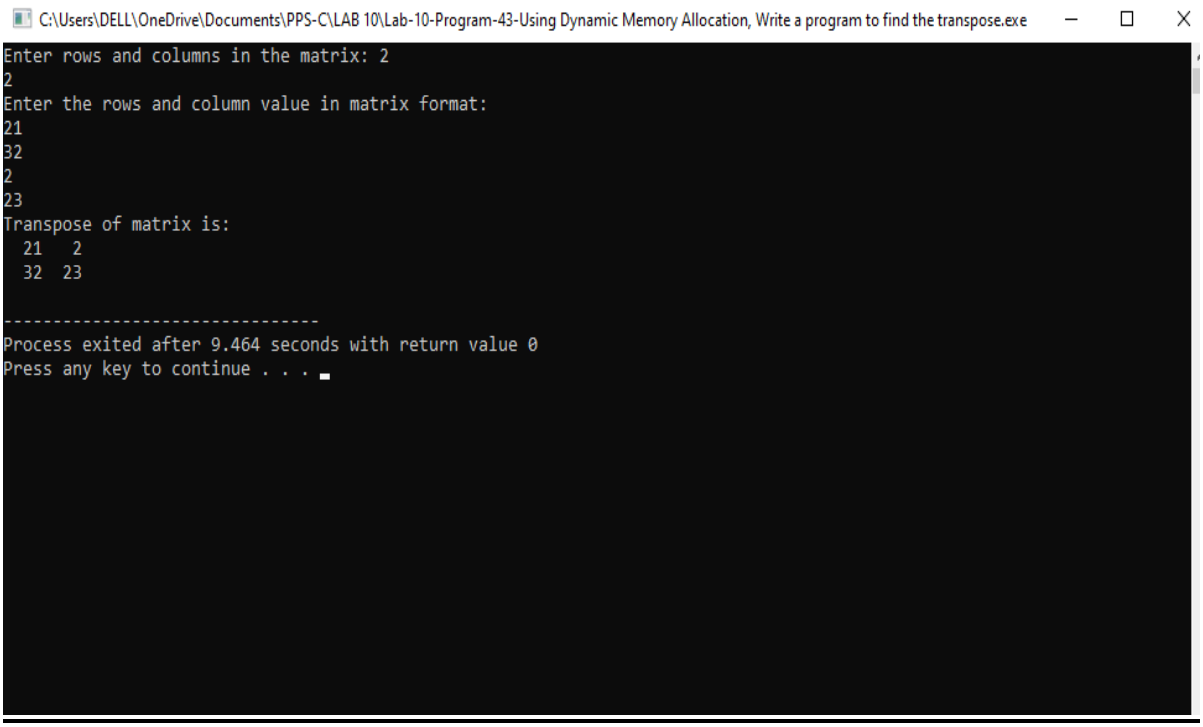
```
#include<stdio.h>
#include<stdlib.h>
int main()
{
  int i, num;
  float *data;

  printf("Enter total number of elements(1 to 100): ");
  scanf("%d",&num);

  // allocates the memory for 'num' elements
  data=(float*)calloc(num,sizeof(float));

  if(data==NULL)
  {
    printf("Error! Memory not Allocated.");
    exit(0);
  }

  printf("\n");

  // store the number entered by the User
  for(i=0;i<num;i++)
  {
    printf("Enter element %d:",i+1);
    scanf("%f",data+i);
  }

  // store largest number at address data
  for(i=0;i<num;i++)
  {
    if( *data < *(data+i))
      *data = *(data+i);
  }

  printf("Largest Element = %.2f",*data);

  return 0;
}
```

Program-43: Using Dynamic Memory Allocation, Write a program to find the transpose of given matrix.

Code:

```
/*Using Dynamic Memory Allocation, Write a program to find the transpose
of given matrix.
*/
#include <stdio.h>
#include <stdlib.h>

int main()
{
   //declaring pointers
   int *tranMatrix;
   int row, col;

   printf("Enter rows and columns in the matrix: ");
   scanf("%d%d", &row, &col);

   //memory allocating for matrix using dynamic memory allocation
   tranMatrix = (int *)calloc(row * col, sizeof(int));

   printf("Enter the rows and column value in matrix format: \n");
   for (int i = 0; i < row; i++)
   {
      for (int j = 0; j < col; j++)
      {
         scanf("%d", tranMatrix + (i * col + j) * sizeof(int));
      }
   }

   printf("Transpose of matrix is: \n");
   for (int i = 0; i < col; i++)
   {
      for (int j = 0; j < row; j++)
      {
         printf("%4d", *(tranMatrix + (j * col + i) * sizeof(int)));
      }
      printf("\n");
   }

   return 0;
}
```

Output:

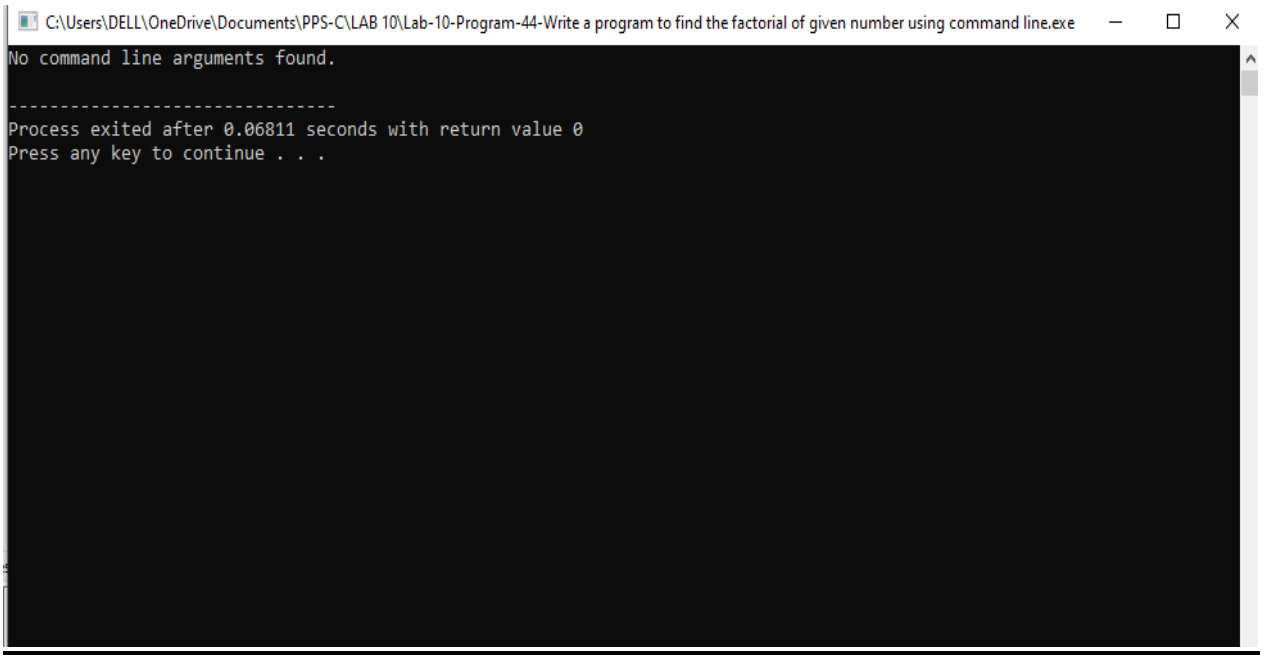

C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 10\Lab-10-Program-43-Using Dynamic Memory Allocation, Write a program to find the transpose.exe
Enter rows and columns in the matrix: 2
2
Enter the rows and column value in matrix format:
21
32
2
23
Transpose of matrix is:
21 2
32 23
Process exited after 9.464 seconds with return value 0
Press any key to continue . . .

Program-44: Write a program to find the factorial of given number using command line argument.

Code:

```
/*
Write a program to find the factorial of given number using command line
argument.
*/
// C program to find factorial of a number
// using command line arguments

#include <stdio.h>
#include <stdlib.h> /* atoi */

// Function to find factorial of given number
unsigned int factorial(unsigned int n)
{
	int res = 1, i;
	for (i = 2; i <= n; i++)
		res *= i;
	return res;
}

// Driver code
int main(int argc, char* argv[])
{

	int num, res = 0;

	// Check if the length of args array is 1
	if (argc == 1)
		printf("No command line arguments found.\n");

	else {

		// Get the command line argument and
		// Convert it from string type to integer type
		// using function "atoi( argument)"
		num = atoi(argv[1]);

		// Find the factorial
		printf("%d\n", factorial(num));
	}
	return 0;
}
```

Output:


C:\Users\DELL\OneDrive\Documents\PPS-C\LAB 10\Lab-10-Program-44-Write a program to find the factorial of given number using command line.exe
No command line arguments found.

Process exited after 0.06811 seconds with return value 0
Press any key to continue . . .

Program-45: Write a program to find the sum of digits of a 5 digit number using command line argument.

Code:

```
/*
Write a program to find the sum of digits of a 5 digit number using
command line argument.
*/
#include <stdio.h>
#include <stdlib.h>

int main(int argc, char * argv[])
{
   long num, temp, digit, sum = 0;
   if(argc == 1 ||  argc > 2)
   {
       printf("Enter the number\n");
       exit(1);
   }
   num = atoi (argv[1]) ;
   temp = num;
   while (num > 0)
   {
      digit = num % 10;
      sum  = sum + digit;
      num /= 10;
   }
   printf("Sum of the digits of %ld = %ld\n", temp, sum);
   return 0;
}
```