CO 101

Programming Fundamentals Lab File

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(ASSTT. PROFESSOR)

DONE BY:

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Contents

Problem 1: Program to find sum and average of two numbers.

ALGORITHM:

Step 1 : Start

Step 2 : Input number1, number2

Step 3 : Calculate sum = (number1 + number2)

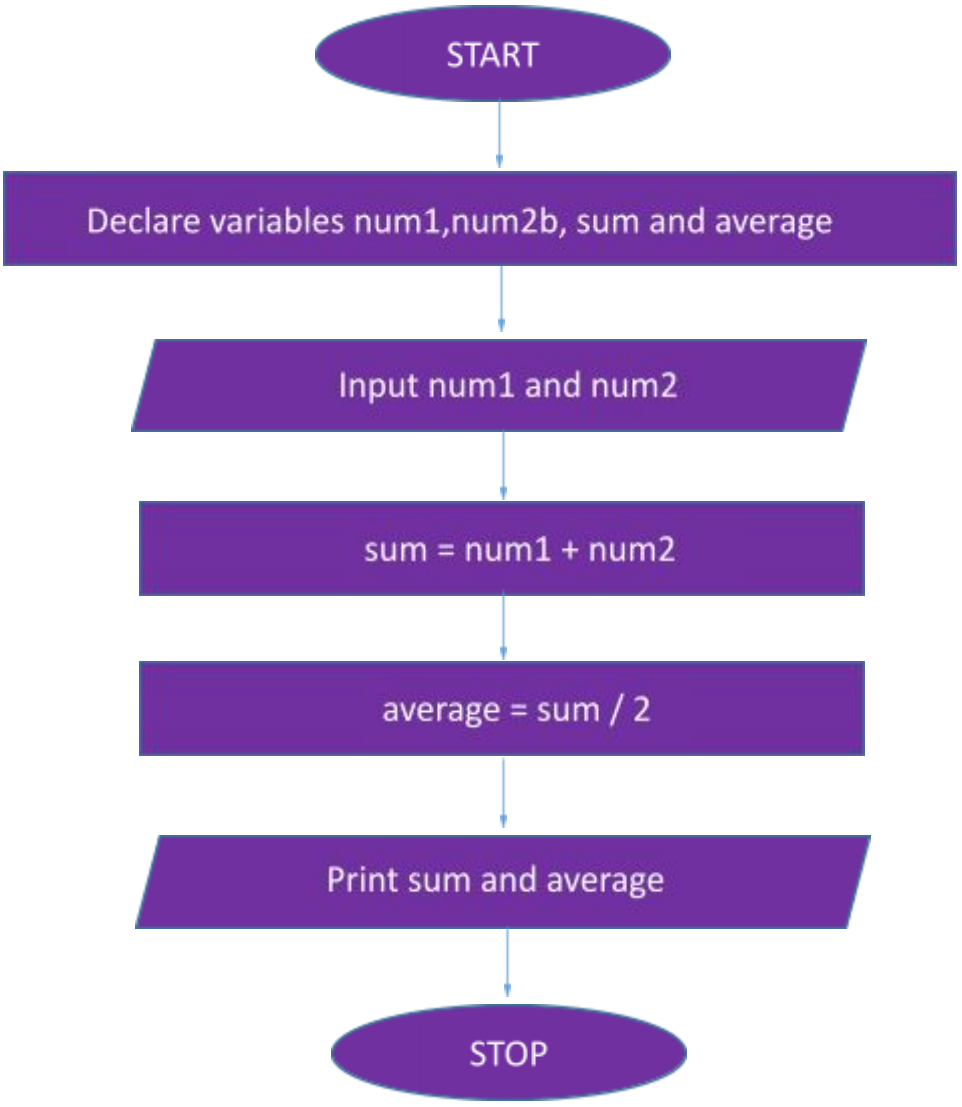
Step 4 : Calculate avg = sum / 2

Step 5 : Print sum and avg of two numbers

Step 6 : Stop

2K20/B5/37

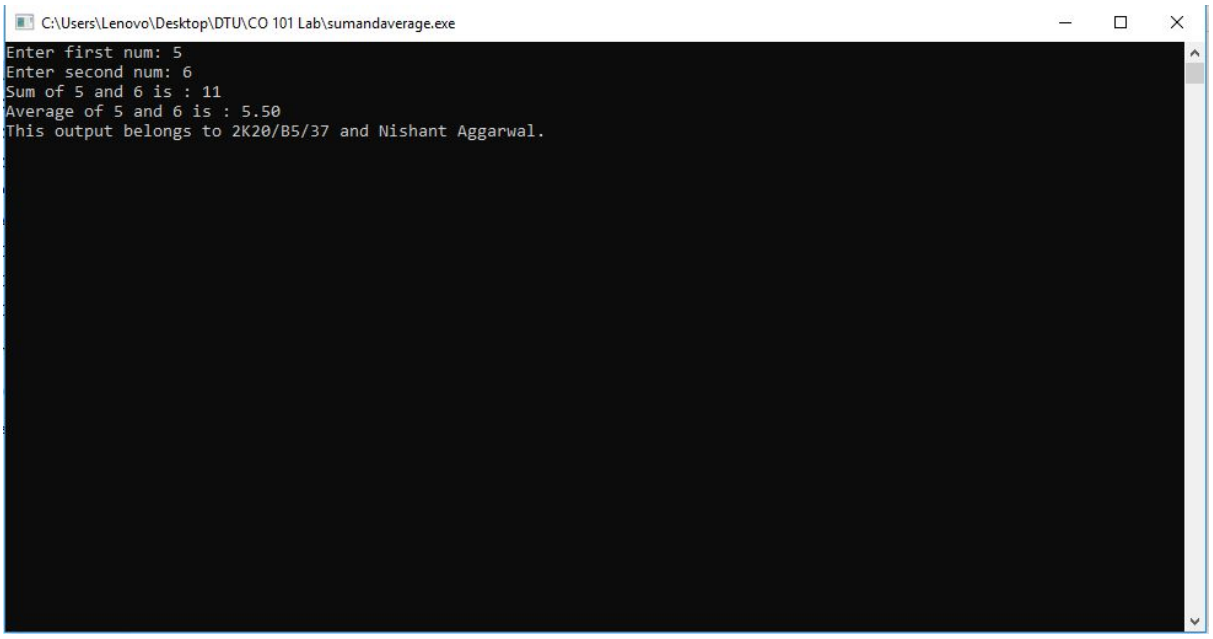
FLOWCHART:


START
Declare variables num1,num2b, sum and average
Input num1 and num2
sum = num1 + num2
average = sum / 2
Print sum and average
STOP

PROGRAM:

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

int main()
{
        int num1, num2;                                          //input variables
        int sum = 0;                                             // output variables
        float avg = 0.0;

        printf("Enter first num: ") ;
        scanf("%d" , &num1);                                     //input first number
        printf("Enter second num: ");
        scanf("%d" , &num2);                                     //input second number

        sum = num1 + num2; //calculate sum
        avg = (float) (num1 + num2) / 2 ;                        // calculate avg

        printf("Sum of %d and %d is : %d \n", num1, num2, sum);  //print sum
        printf("Average of %d and %d is : %.2f \n", num1, num2, avg);  //print avg
        printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );

        getch();
        return 0;

}
```

OUTPUT:


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\sumandaverage.exe
Enter first num: 5
Enter second num: 6
Sum of 5 and 6 is : 11
Average of 5 and 6 is : 5.50
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

Problem 2: Program to find greatest of 10 numbers.

ALGORITHM:

Step 1 : Start

Step 2 : Input array a[10] of 10 numbers

Step 3 : Initialise max=a[0]

Step 4 : for each item i in a[10]

if a[i] > max

max = a[i]

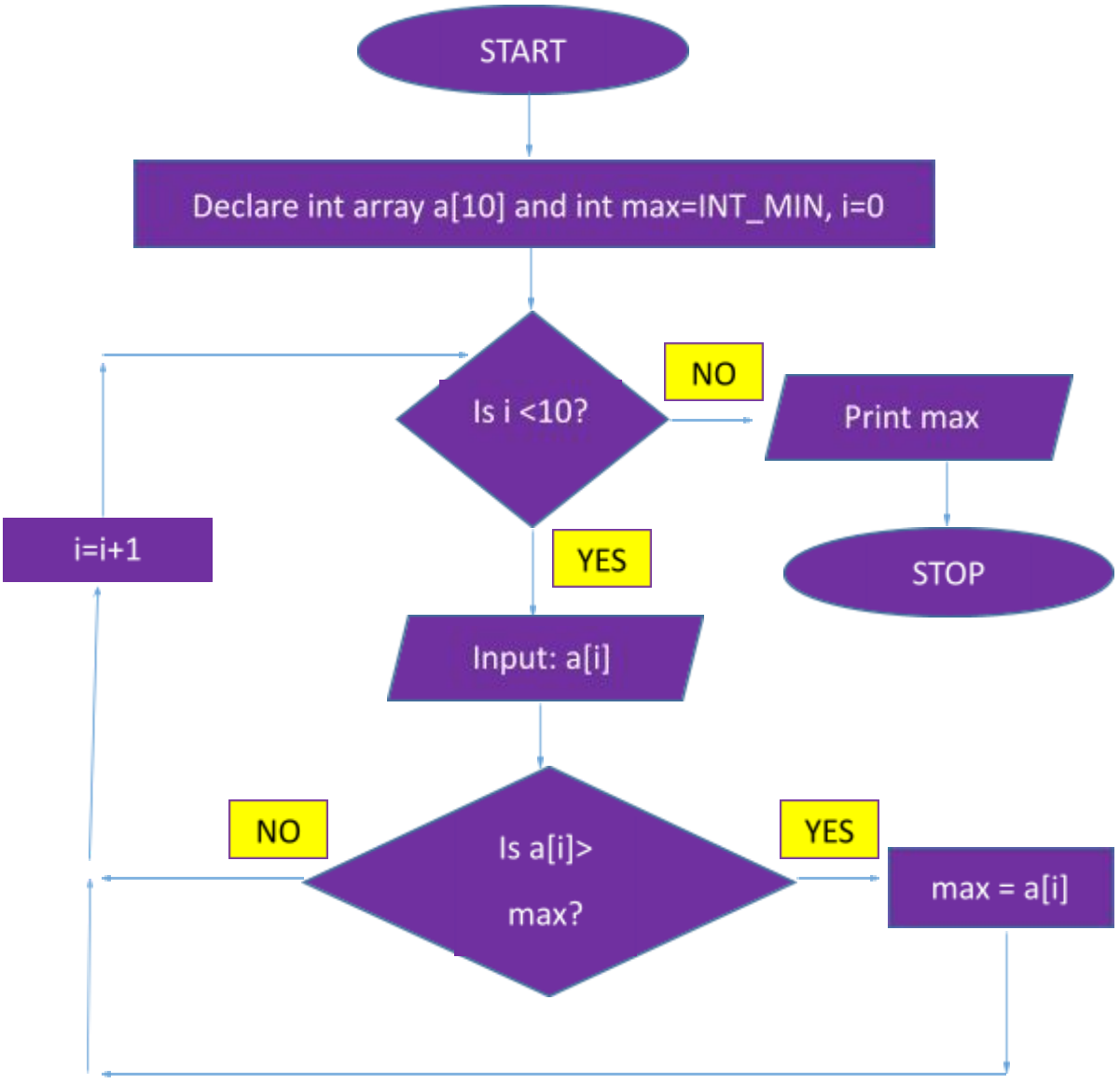
else

continue to next item

Step 5 : Print max of ten numbers

Step 6 : Stop

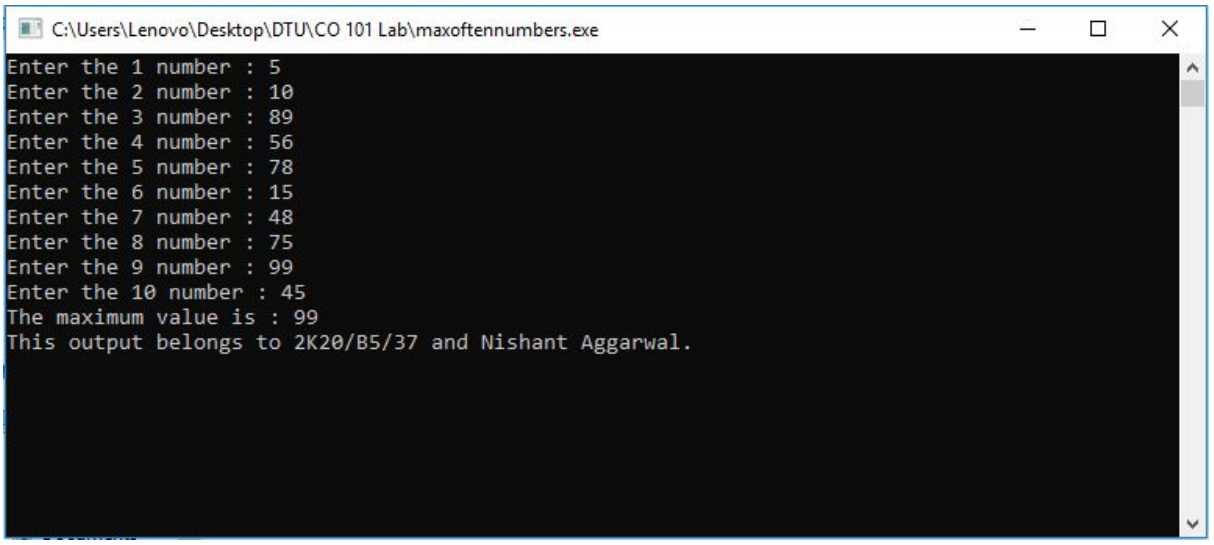
FLOWCHART:


START
Declare int array a[10] and int max=INT_MIN, i=0
Is i <10?
NO
Print max
STOP
YES
Input: a[i]
Is a[i]> max?
NO
YES
max = a[i]
i=i+1

PROGRAM:

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

int main()
{
	int a[10];

	//Taking array input from user
	for(int i=0;i<10;i++)
	{
		printf("Enter the %d number : ", i+1);
		scanf("%d",&a[i]);
	}

  int max= a[0];
  //Finding max
	for(int i=1;i<10;i++)
	{
		if(a[i] > max)
			max=a[i];
	}

	printf("The maximum value is : %d \n",max); //Printing max

	printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal.");

	getch();
	return 0;
}
```

OUTPUT:


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\maxoftennumbers.exe
Enter the 1 number : 5
Enter the 2 number : 10
Enter the 3 number : 89
Enter the 4 number : 56
Enter the 5 number : 78
Enter the 6 number : 15
Enter the 7 number : 48
Enter the 8 number : 75
Enter the 9 number : 99
Enter the 10 number : 45
The maximum value is : 99
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

Problem 3: Program to find simple interest.

ALGORITHM:

Step 1 : Start

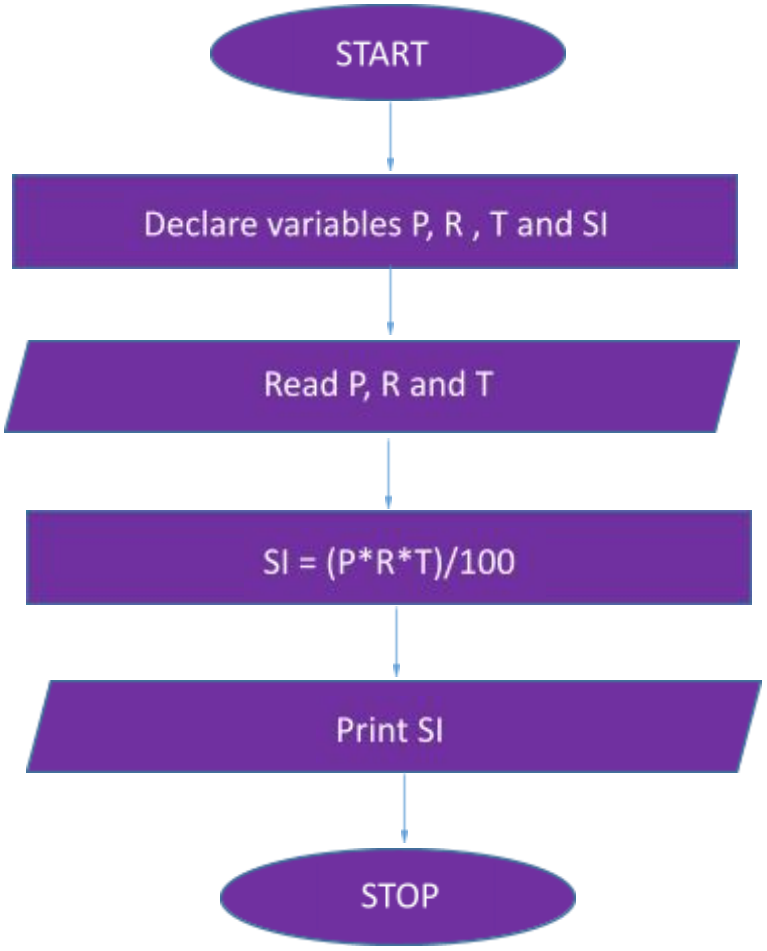
Step 2 : Input principal(p) , rate (r) and time (t)

Step 3 : Calculate si = (p*r*t)/100

Step 4 : Print simple interest

Step 5 : Stop

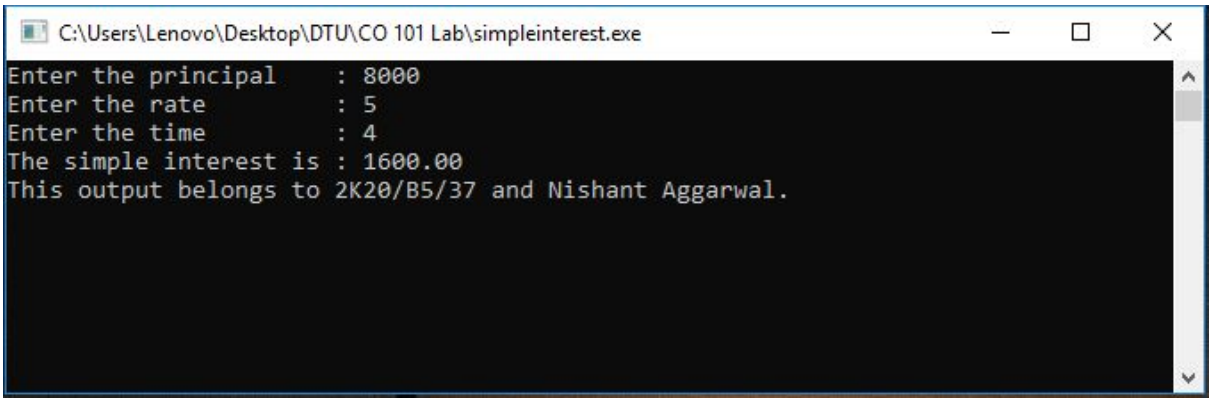
FLOWCHART:


START
Declare variables P, R , T and SI
Read P, R and T
SI = (P*R*T)/100
Print SI
STOP

PROGRAM:

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

int main()
{
        int p,r,t;
        float si;

        //Taking input
        printf("Enter the principal    : ");
        scanf("%d",&p);
        printf("Enter the rate        : ");
        scanf("%d",&r);
        printf("Enter the time        : ");
        scanf("%d",&t);

        si=(float)(p*r*t)/100;  //Calculating simple interest
        printf("The simple interest is : %.2f",si); //Printing si

        printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal.");

        getch();
        return 0;
}
```

OUTPUT:


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\simpleinterest.exe
Enter the principal : 8000
Enter the rate : 5
Enter the time : 4
The simple interest is : 1600.00
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

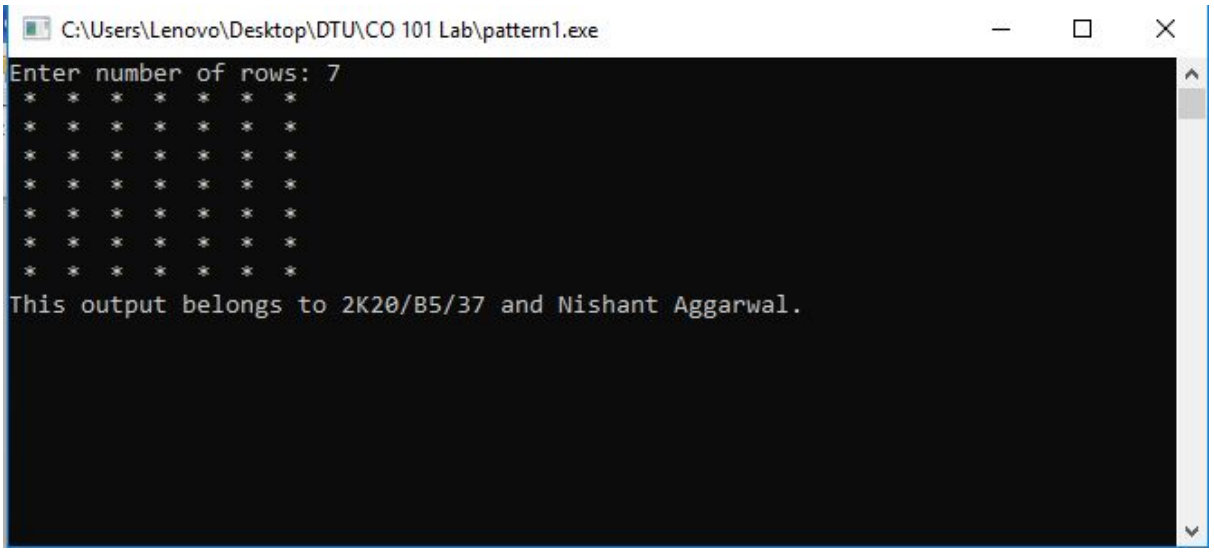
Problem 4: Program to print following pattern.

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

PROGRAM:

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

int main()
{
   int n;
   printf("Enter number of rows: ") ;
   scanf("%d" , &n);

   int i, j;
   for (i = 0; i < n; i++)
   {
      for (j = 0; j < n; j++)
      {
         printf(" * ");
      }
      printf("\n");
   }

   printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );

   getch();
   return 0;
}
```

OUTPUT:


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\pattern1.exe
Enter number of rows: 7
* * * * * * *
* * * * * * *
* * * * * * *
* * * * * * *
* * * * * * *
* * * * * * *
* * * * * * *
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

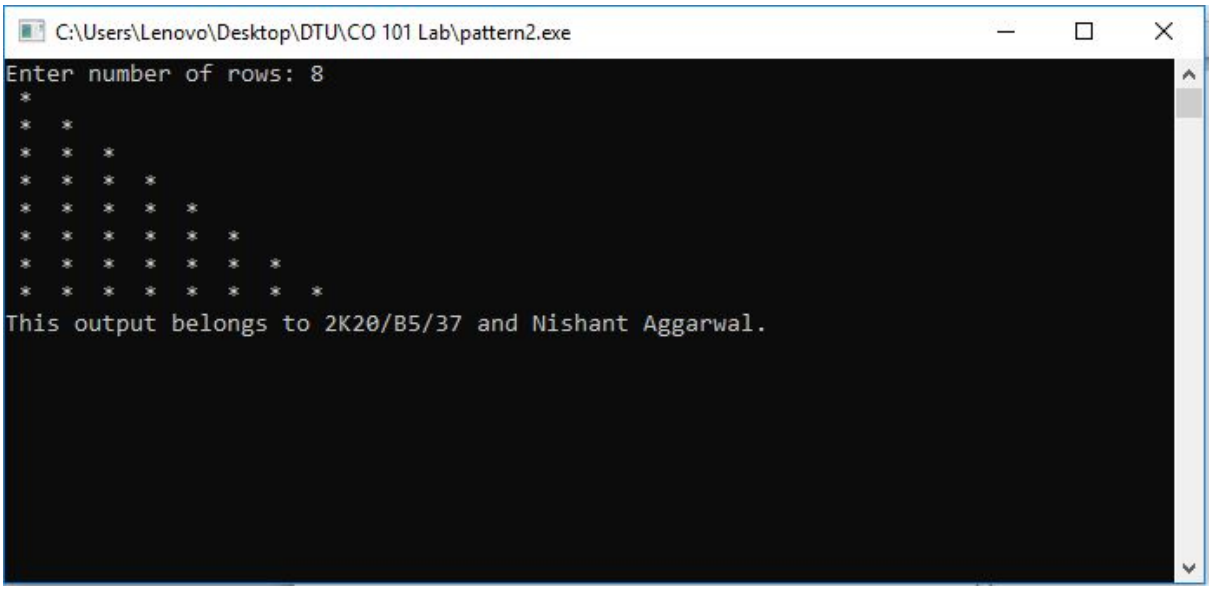
Problem 4: Program to print following pattern.

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

PROGRAM:

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

int main()
{

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

   int i, j;
   for (i = 0; i < n; i++)
   {
      for (j = 0; j <= i ; j++)
      {
         printf(" * ");
      }
      printf("\n");
   }

   printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );

   getch();
   return 0;

}
```

OUTPUT:


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\pattern2.exe
Enter number of rows: 8
*
* *
* * *
* * * *
* * * * *
* * * * * *
* * * * * * *
* * * * * * * *
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

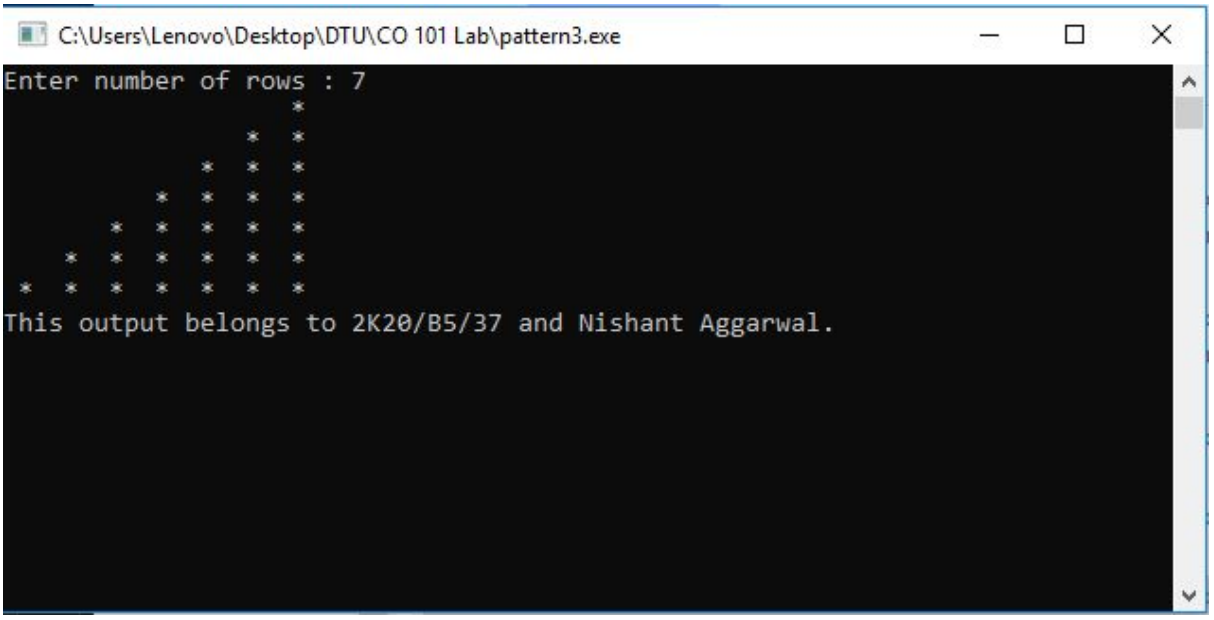
Problem 4: Program to print following pattern.

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

PROGRAM:

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

int main()
{
        int i,j,n;
        printf("Enter number of rows : ");
        scanf("%d",&n);
        for(i=1;i<=n;i++)
        {
                for(j=1;j<=n;j++)
                {       if(i+j >= n+1)
                        {       printf(" * ");      }
                        else
                        {       printf("   ");      }
                }
                printf("\n");
        }
   printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );

        getch();
        return 0;
}
```

OUTPUT:


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\pattern3.exe
Enter number of rows : 7
*
* *
* * *
* * * *
* * * * *
* * * * * *
* * * * * * *
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

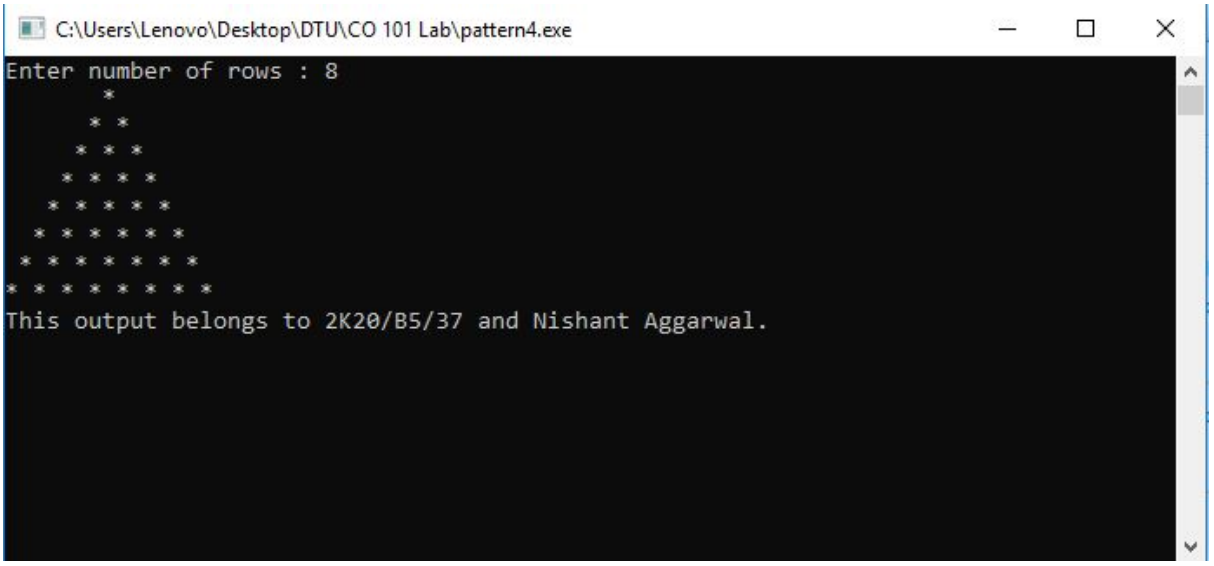
Problem 4: Program to print following pattern.

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

PROGRAM:

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

int main()
{
        int i,j,n;
        printf("Enter number of rows : ");
        scanf("%d",&n);

        for(i=1;i<=n;i++)
        {
                for(j=1;j<=n-i;j++)
                {
                                printf(" ");
                }
                for(j=1;j<=i;j++)
                        printf("* ");
                printf("\n");
        }
        printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );
        getch();
        return 0;
}
```

OUTPUT:


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\pattern4.exe
Enter number of rows : 8
*
* *
* * *
* * * *
* * * * *
* * * * * *
* * * * * * *
* * * * * * * *
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

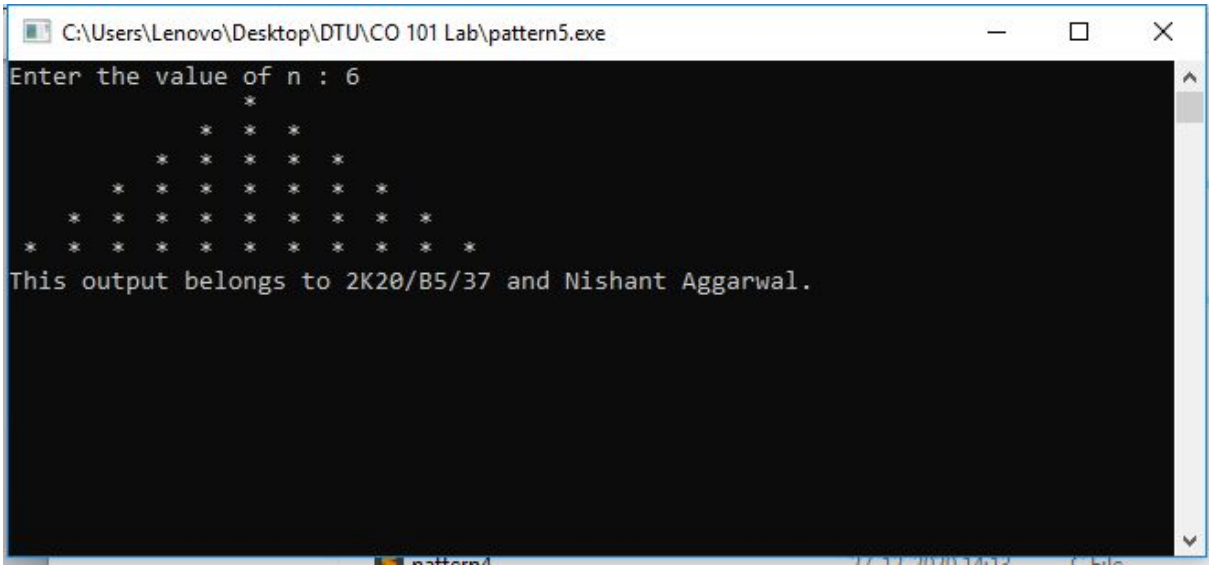
Problem 4: Program to print following pattern.

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

PROGRAM:

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

int main()
{
        int r,i,j,n;
        printf("Enter the value of n : ");
        scanf("%d",&n);
        for(r=1;r<=n;r++)
        {
                // to print spaces
                for(i=1;i<=n-r;i++)
                {       printf("   ");         }
                // to print stars
                for(j=1;j<=2*r-1;j++)
                {       printf(" * ");         }
                printf("\n");
        }
  printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );

        getch();
        return 0;
}
```

OUTPUT:

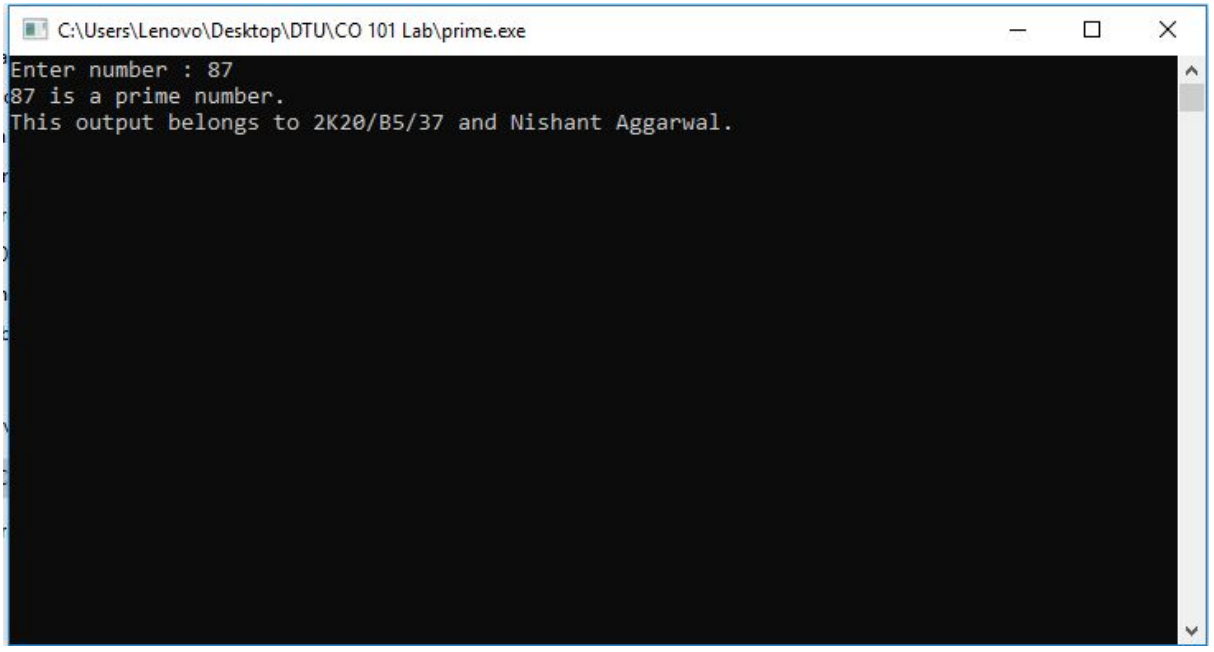

C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\pattern5.exe
Enter the value of n : 6
*
* * *
* * * * *
* * * * * * *
* * * * * * * * *
* * * * * * * * * * *
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

Problem 5: Program to find whether number is prime or not.

PROGRAM:

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

int main()
{
   int n,i,flag=1;
   printf("Enter number : ") ;
   scanf("%d" , &n);
   for (i = 2; i < sqrt(n) ; i++)
   {          if(n%i == 0)
              {
                   flag = 0;
                  break;
              }
   }

   if(n<=1)
      flag =0;
   else if(n==2)
      flag = 1;
   if(flag ==1)
      printf("%d is a prime number. \n", n);
   else if(flag ==0)
      printf("%d is a prime number.\n", n);
   printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );

   getch();
   return 0;
}
```

OUTPUT:

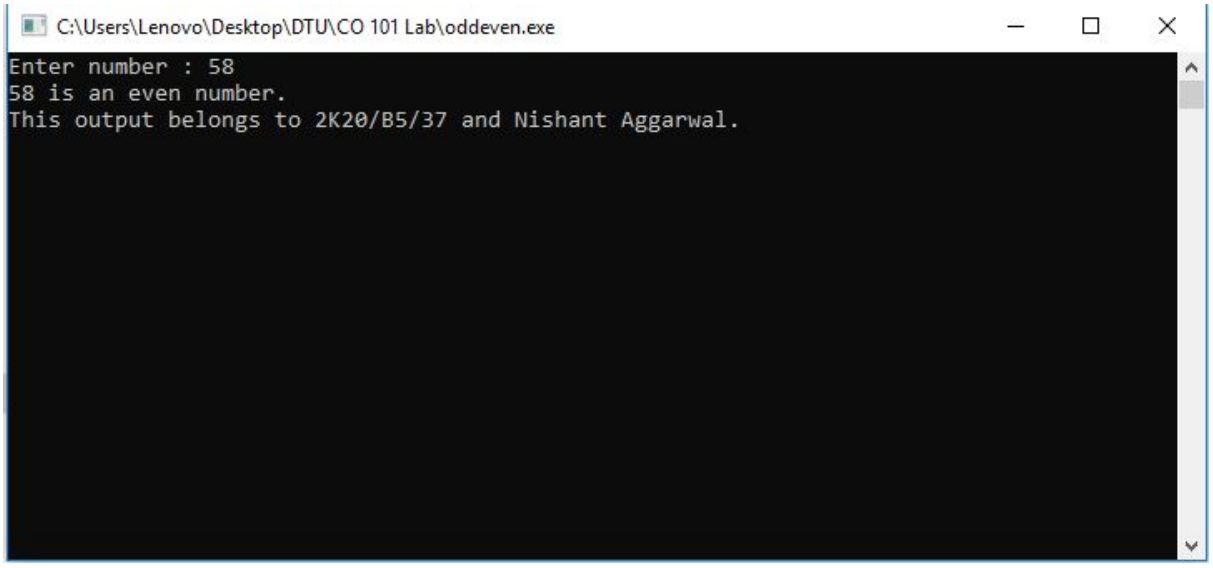

C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\prime.exe
Enter number : 87
87 is a prime number.
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

Problem 6: Program to find whether number is even or not.

PROGRAM:

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

int main()
{
   int n;
   printf("Enter number : ") ;
   scanf("%d" , &n);

   if(n%2 ==0)
   printf("%d is an even number. \n", n);
   else
   printf("%d is a odd number.\n", n);

   printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );

   getch();
   return 0;
}
```

OUTPUT:

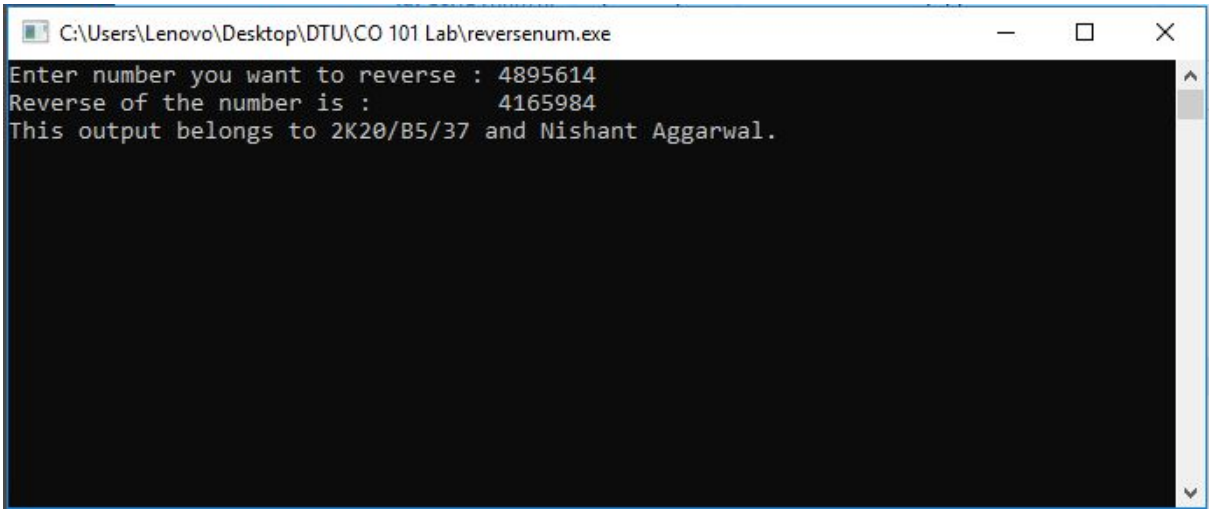

C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\oddeven.exe
Enter number : 58
58 is an even number.
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

Problem 7: Program to reverse digits of a number.

PROGRAM:

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

int main()
{

   int n;
   printf("Enter number you want to reverse : ");
   scanf("%d",&n) ;
   int reverse=0,lastdigit;
   while(n>0)
   {
      lastdigit=n%10;
      reverse = reverse*10 + lastdigit;
      n /=10;
   }

   printf("Reverse of the number is :        %d \n",reverse);

   printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );

   getch();
   return 0;
}
```

OUTPUT:

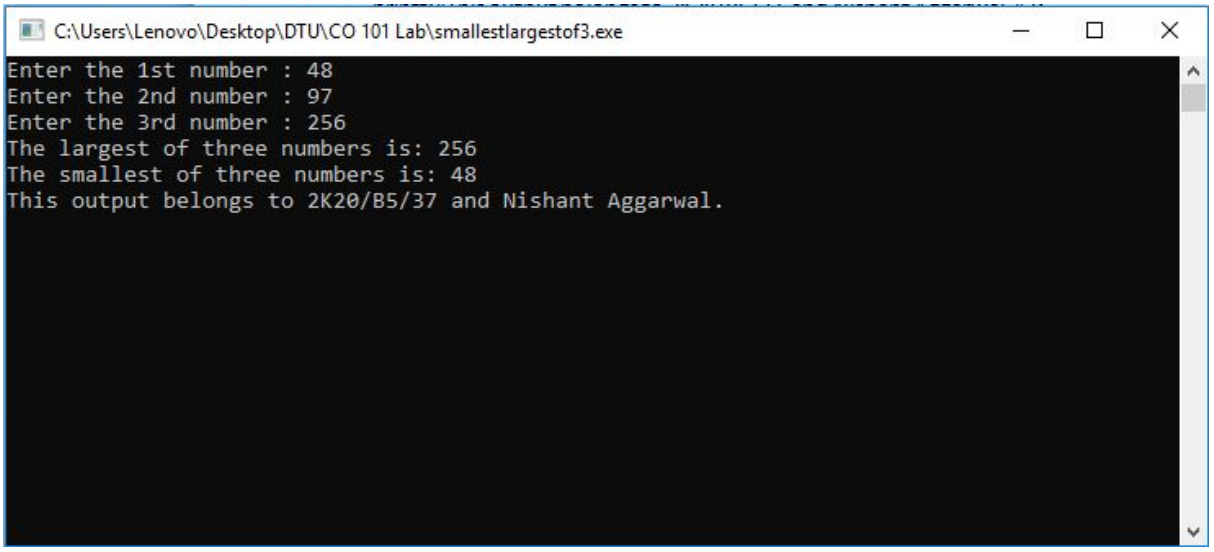

C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\reversenum.exe
Enter number you want to reverse : 4895614
Reverse of the number is : 4165984
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

Problem 8: Program to find largest and smallest of 3 numbers.

PROGRAM:

```
#include<stdio.h>

#include<conio.h>

int main()

{

   //Taking input

   int a,b,c;

   printf("Enter the 1st number : ");

   scanf("%d",&a);

   printf("Enter the 2nd number : ");

   scanf("%d",&b);

   printf("Enter the 3rd number : ");

   scanf("%d",&c);


   // nested conditional expression to find maximum of 3 numbers

   (a > b) ? ((a > c)?printf("The largest of three numbers is: %d \n",a):printf("The largest of three
numbers is: %d \n",c)):((b >

   c)?printf("The largest of three numbers is: %d \n",b):printf("The largest of three numbers is: %d
\n",c));


   // nested conditional expression to find minimum of 3 numbers

   (a < b) ? ((c < a)?printf("The smallest of three numbers is: %d \n",c):printf("The smallest of three
numbers is: %d \n",a)):((c <

   b)?printf("The smallest of three numbers is: %d \n",c):printf("The smallest of three numbers is: %d
\n",b));


   printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );


   getch();

   return 0;

}
```

OUTPUT:


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\smallestlargestof3.exe
Enter the 1st number : 48
Enter the 2nd number : 97
Enter the 3rd number : 256
The largest of three numbers is: 256
The smallest of three numbers is: 48
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

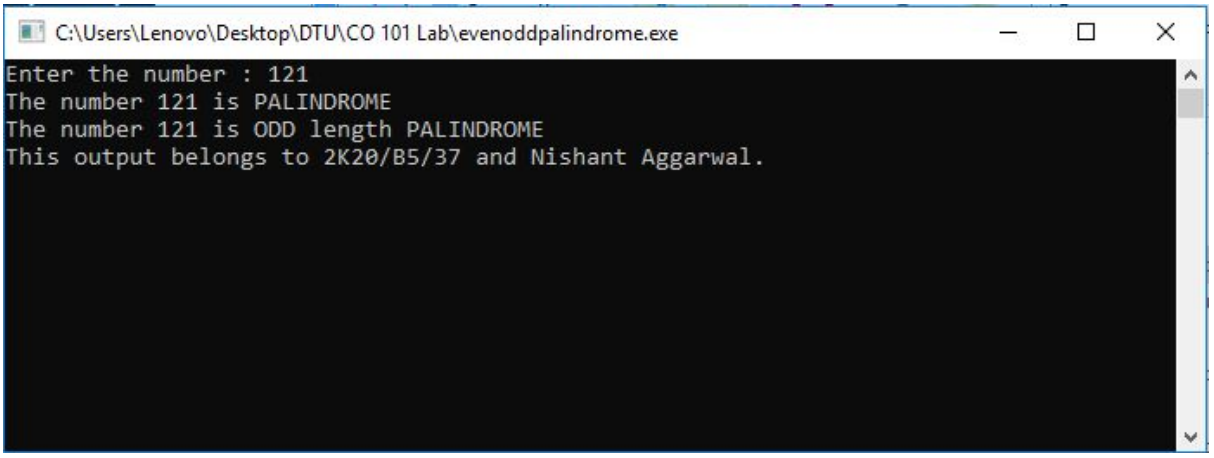
Problem 9: Program to find if the given number is palindrome or not and if it is a palindrome then find it is a even-length or odd-length palindrome.

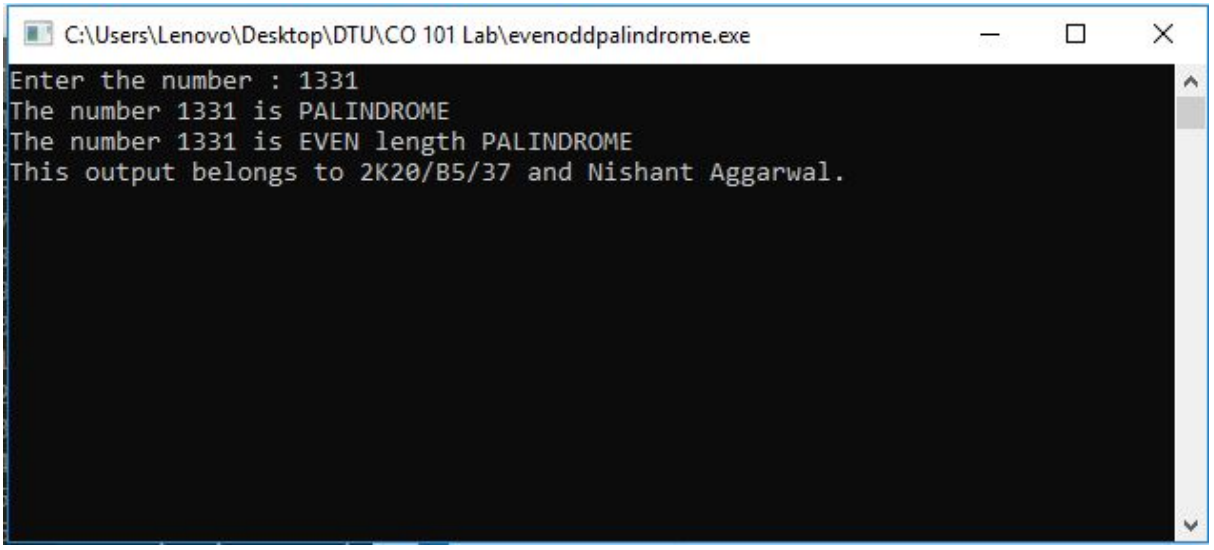
PROGRAM:

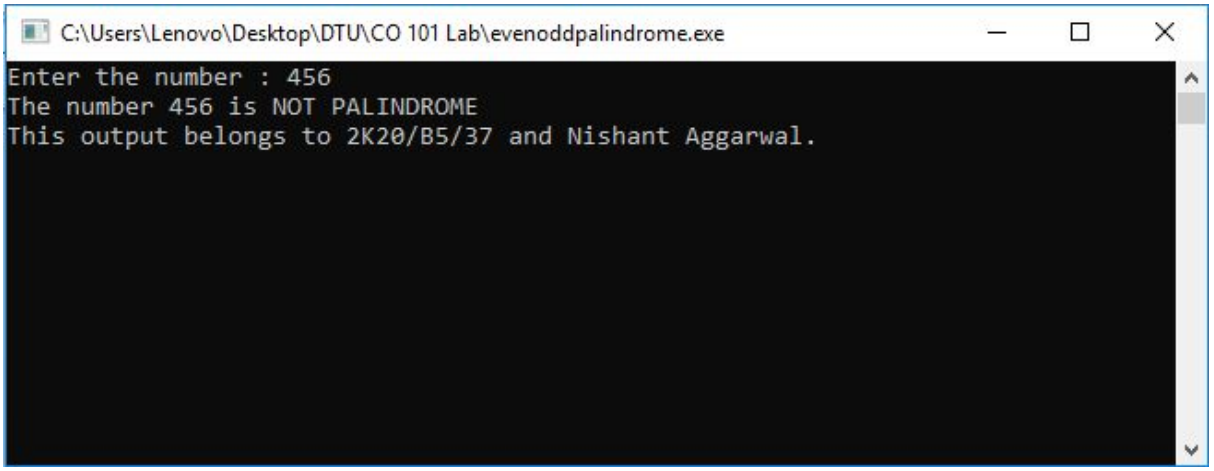
```
#include<stdio.h>
#include<conio.h>

int main()
{
   int num,rev=0,temp,length=0;
   printf("Enter the number : ");
   scanf("%d",&num);
   temp=num;
   while(num!=0)
   {
      rev=rev*10 + num%10;
      num=num/10;
      length++;
   }
   if(temp == rev)
   {
      printf("The number %d is PALINDROME \n",temp);
      if(length%2 == 0)
      {
         printf("The number %d is EVEN length PALINDROME \n",temp);
      }
      else
      {
         printf("The number %d is ODD length PALINDROME \n",temp);
      }
   }
   else
```

```
    {
       printf("The number %d is NOT PALINDROME \n",temp);
    }

    printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );


    getch();
    return 0;

}
```

OUTPUT:


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\evenoddpalindrome.exe
Enter the number : 121
The number 121 is PALINDROME
The number 121 is ODD length PALINDROME
This output belongs to 2K20/B5/37 and Nishant Aggarwal.


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\evenoddpalindrome.exe
Enter the number : 1331
The number 1331 is PALINDROME
The number 1331 is EVEN length PALINDROME
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

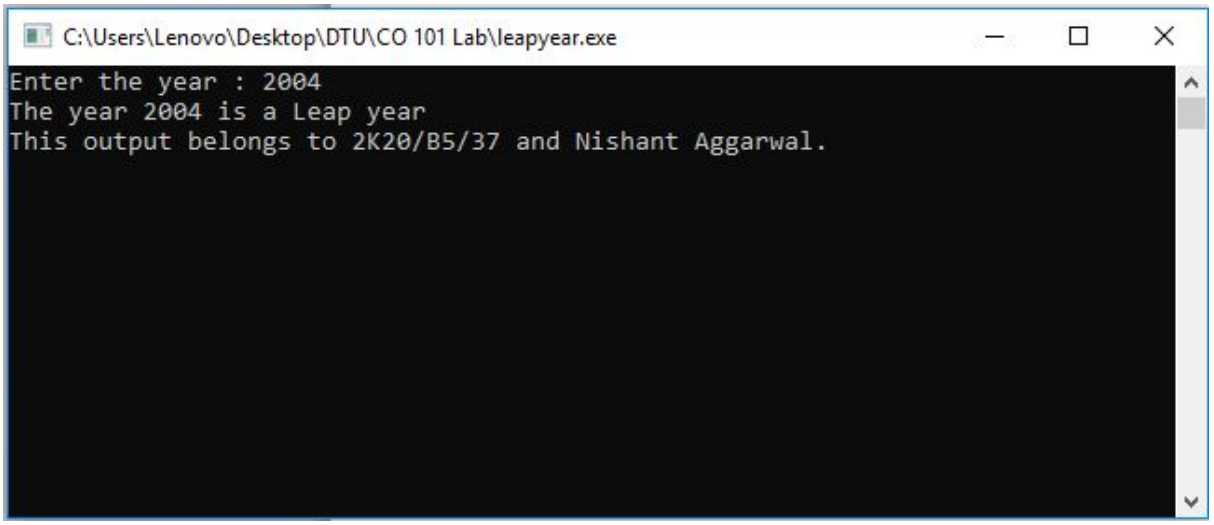

C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\evenoddpalindrome.exe
Enter the number : 456
The number 456 is NOT PALINDROME
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

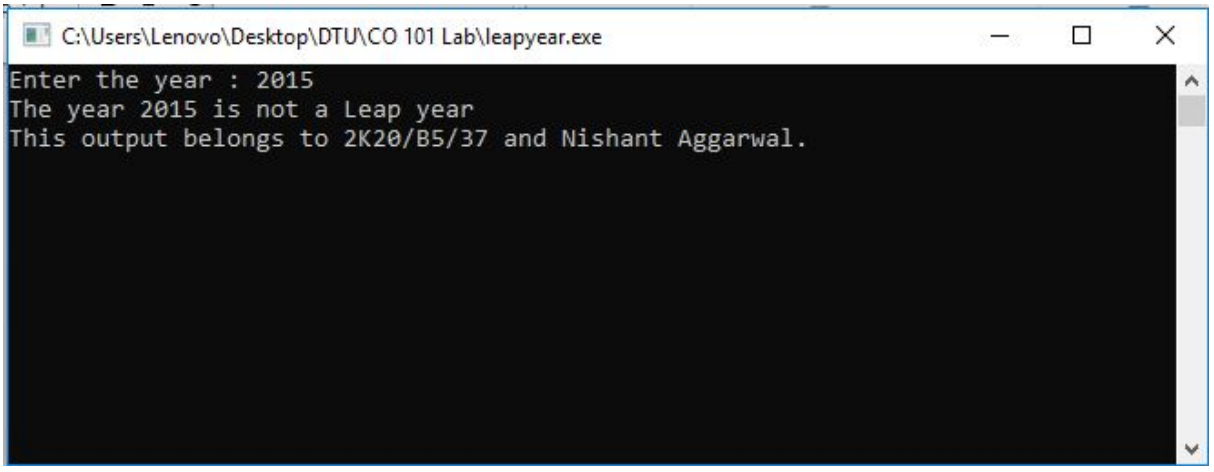
Problem 10: Program to check if the given year is a leap year.

PROGRAM:

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

int main()
{
   int year;
   printf("Enter the year : ");
   scanf("%d",&year);

   if((year%400 == 0) || ((year%4 == 0) && (year%100 != 0)))
   {
      printf("The year %d is a Leap year \n",year);
   }
   else
   {
      printf("The year %d is not a Leap year \n",year);
   }

   printf("This output belongs to 2K20/B5/37 and Nishant Aggarwal. " );

   getch();
   return 0;
}
```

OUTPUT:


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\leapyear.exe
Enter the year : 2004
The year 2004 is a Leap year
This output belongs to 2K20/B5/37 and Nishant Aggarwal.


C:\Users\Lenovo\Desktop\DTU\CO 101 Lab\leapyear.exe
Enter the year : 2015
The year 2015 is not a Leap year
This output belongs to 2K20/B5/37 and Nishant Aggarwal.

Problem 11: Programs for BINARY CONVERSIONS

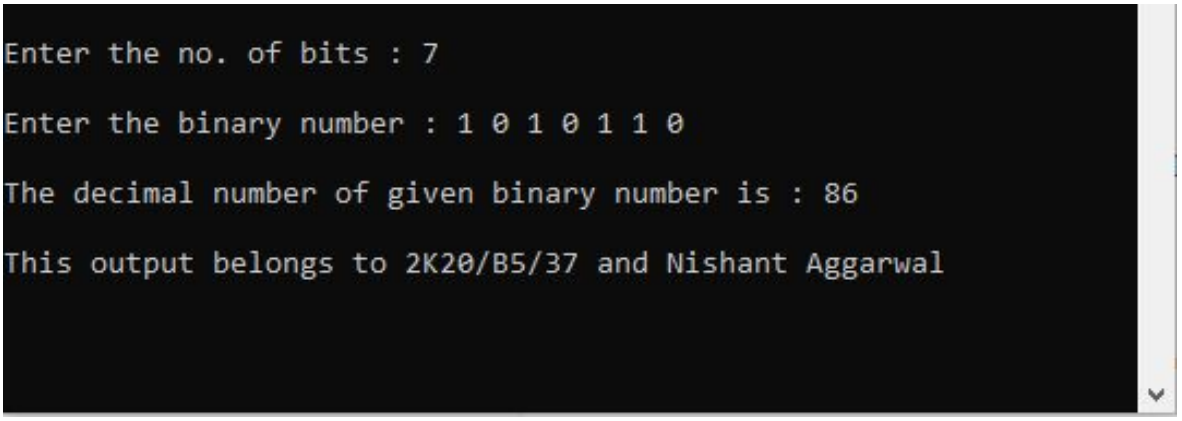
A) Program to convert binary number to decimal number.

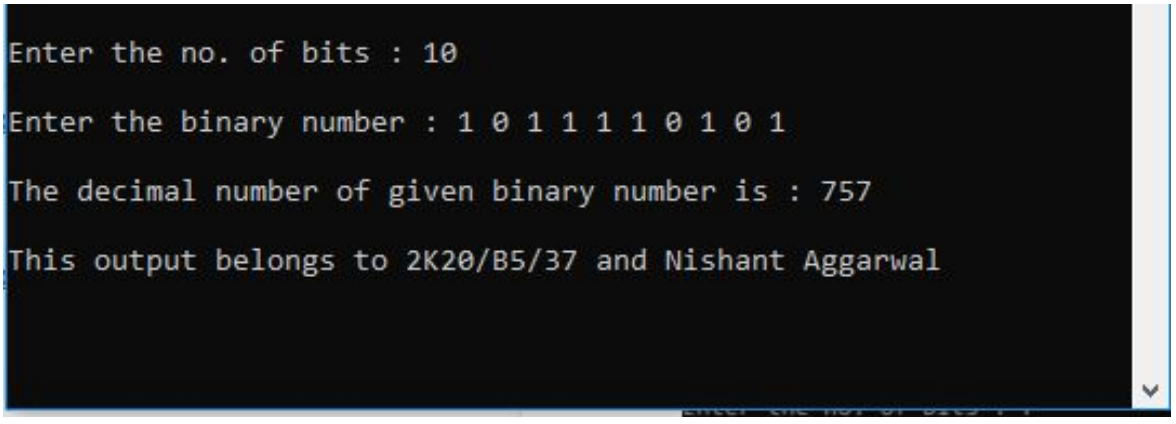
PROGRAM:

```
#include<stdio.h>
#include<math.h>
#include<conio.h>
int main()
{
        // Taking number of bits as input
   int n;
   printf("\nEnter the no. of bits : ");
   scanf("%d",&n);

   // Taking binary number as input in the form of array
   int binary_num[10000];
   int decimal_num=0,i;
   printf("\nEnter the binary number : ");
   for(i=0;i<n;i++)
   {
      scanf("%d",&binary_num[i]);
   }

   // Converting binary to decimal
   for(i=n-1;i>=0;i--)
   {
      decimal_num += pow(2,n-(i+1)) * binary_num[i];
   }
   printf("\nThe decimal number of given binary number is : %d",decimal_num);
```

```
    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

    getch();
    return 0;
}
```

OUTPUT:





Problem 11

B) Program to convert decimal number to binary number.

PROGRAM:

```
#include<stdio.h>
#include<conio.h>
int main()
{
   // Taking decimal number as input
   long decimal_num;
   printf("\nEnter the decimal number : ");
   scanf("%ld",&decimal_num);
   int binary_num[1000];
   int n=0,i;

   // Converting decimal number to binary number
   while(decimal_num != 0)
   {
      binary_num[n++] = decimal_num % 2;
      decimal_num /= 2;
   }
   printf("\nThe binary number of given decimal number : ");
   for(i=n-1;i>=0;i--)
   {
      printf("%d ",binary_num[i]);
   }

   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal. " );

   getch();
   return 0;
```

}

OUTPUT:

```
Enter the decimal number : 99

The binary number of given decimal number : 1 1 0 0 0 1 1

This output belongs to 2K20/B5/37 and Nishant Aggarwal.
```

```
Enter the decimal number : 1000

The binary number of given decimal number : 1 1 1 1 1 0 1 0 0 0

This output belongs to 2K20/B5/37 and Nishant Aggarwal.
```

Problem 11

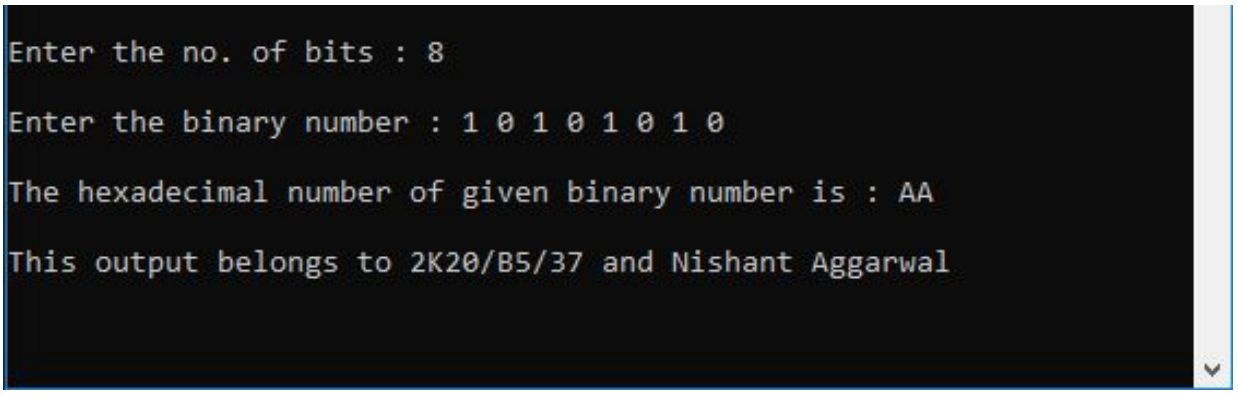
C) Program to convert binary number to hexadecimal number.

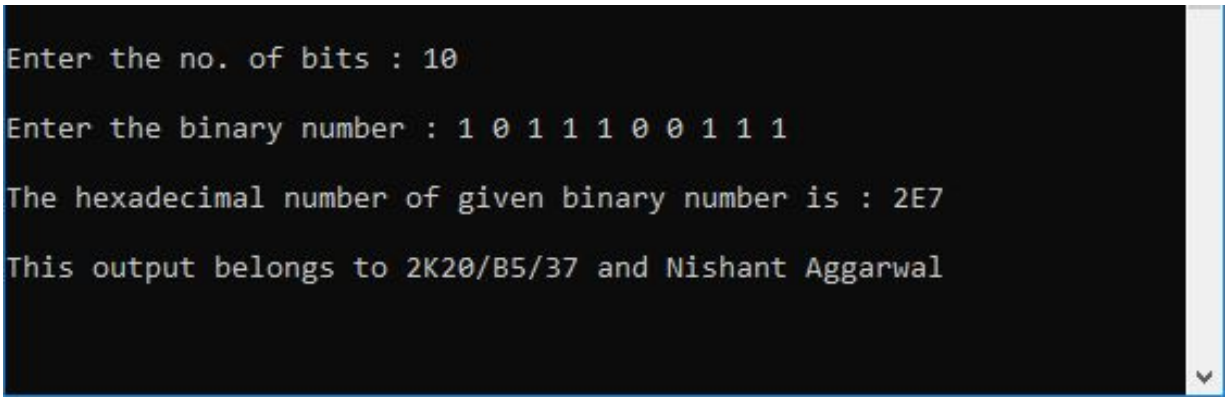
PROGRAM:

```
#include<stdio.h>
#include<math.h>
#include<conio.h>
int main()
{
        // Taking number of bits as input
  int n;
  printf("\nEnter the no. of bits : ");
  scanf("%d",&n);

  // Taking binary number as input in the form of array
  int binary_num[10000];
  int decimal_num=0,i;
  printf("\nEnter the binary number : ");
  for(i=0;i<n;i++)
  {
    scanf("%d",&binary_num[i]);
  }

  // Converting binary to decimal
  for(i=n-1;i>=0;i--)
  {
    decimal_num += pow(2,n-(i+1)) * binary_num[i];
  }

  // char array to store hexadecimal number
  char hexa[100];
```

```
    int k = 0;
    while(decimal_num!=0)
    {
        int temp  = 0;
        temp = decimal_num % 16;

        if(temp < 10)
        {
            hexa[k] = temp + 48;
            k++;
        }
        else
        {
            hexa[k] = temp + 55;
            k++;
        }

        decimal_num /= 16;
    }
    printf("\nThe hexadecimal number of given binary number is : ");
    for(int j=k-1; j>=0; j--)
        {
            printf("%c", hexa[j]);
        }

    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

    getch();
    return 0;
}
```

OUTPUT:


Enter the no. of bits : 8
Enter the binary number : 1 0 1 0 1 0 1 0
The hexadecimal number of given binary number is : AA
This output belongs to 2K20/B5/37 and Nishant Aggarwal


Enter the no. of bits : 10
Enter the binary number : 1 0 1 1 1 0 0 1 1 1
The hexadecimal number of given binary number is : 2E7
This output belongs to 2K20/B5/37 and Nishant Aggarwal

Problem 11

D) Program to convert hexadecimal number to binary number.

PROGRAM:

```
#include<stdio.h>
#include<math.h>
#include<conio.h>
int main()
{
   char bit;
   int n=0;
   int hexa[1000];
   printf("\nEnter the hexadecimal number : ");
   bit=getchar();
   while(bit != '\n')
   {
      if(bit >='0' && bit <='9')
      {
         hexa[n++]=bit-'0';
      }
      else
      {
         hexa[n++]=bit-55;
      }
      bit=getchar();
   }
   // Converting hexadecimal number to decimal number
   long decimal =0;
   for(int i=0;i<n;i++)
   {
```

```
    decimal += (hexa[i])*pow(16, n- (i+1) );
  }

  // Converting decimal number to binary number
  int binary_num[1000];
  int n1=0,i;
  while(decimal != 0)
  {
    binary_num[n1++] = decimal%2;
    decimal/=2;
  }

  printf("\nThe binary number of given hexadecimal number is : ");
  for(i=n1-1;i>=0;i--)
  {
    printf("%d ",binary_num[i]);
  }

  printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

  getch();
  return 0;
}
```

OUTPUT:

```
Enter the hexadecimal number : A7B

The binary number of given hexadecimal number is : 1 0 1 0 0 1 1 1 1 0 1 1

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the hexadecimal number : 1F1

The binary number of given hexadecimal number is : 1 1 1 1 1 0 0 0 1

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the hexadecimal number : 1ABA

The binary number of given hexadecimal number is : 1 1 0 1 0 1 0 1 1 1 0 1 0

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 11

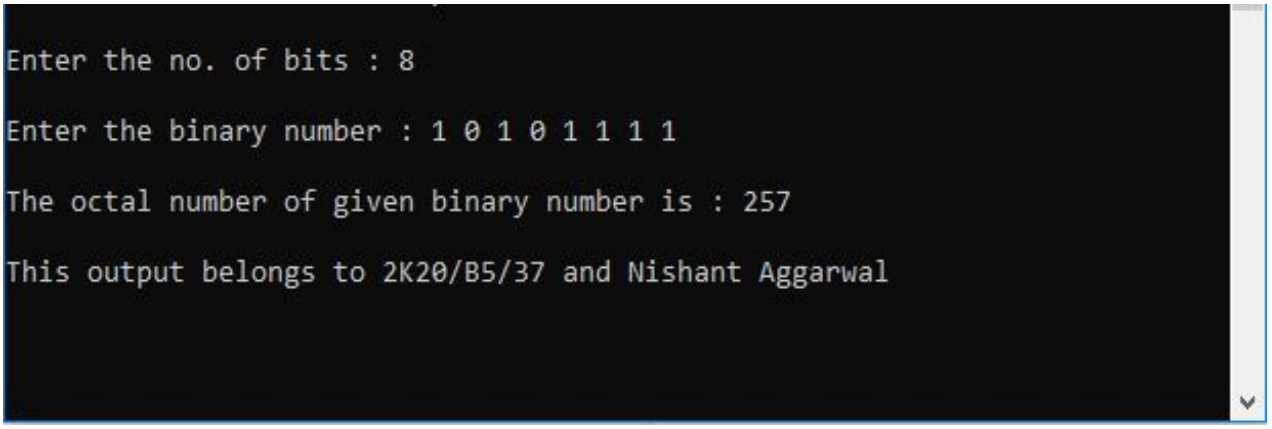
E) Program to convert binary number to octal number.

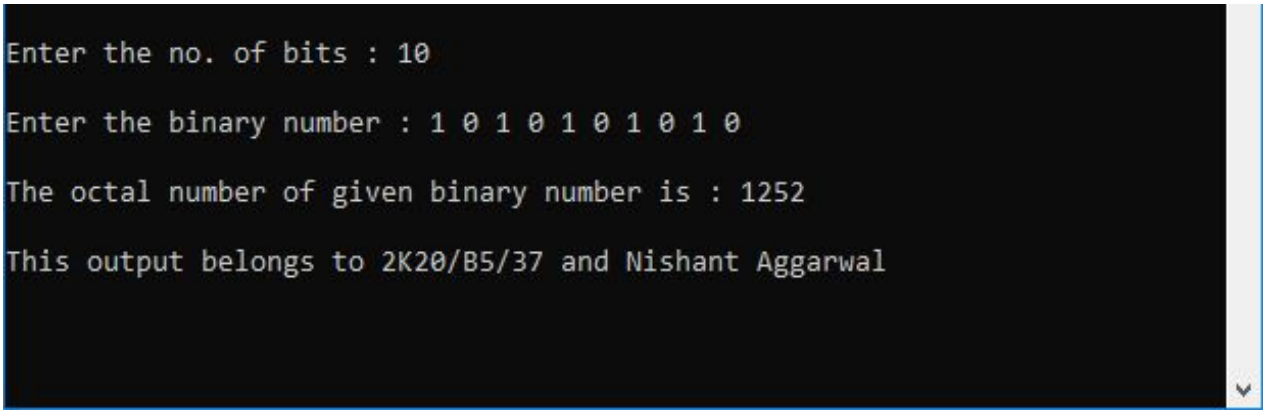
PROGRAM:

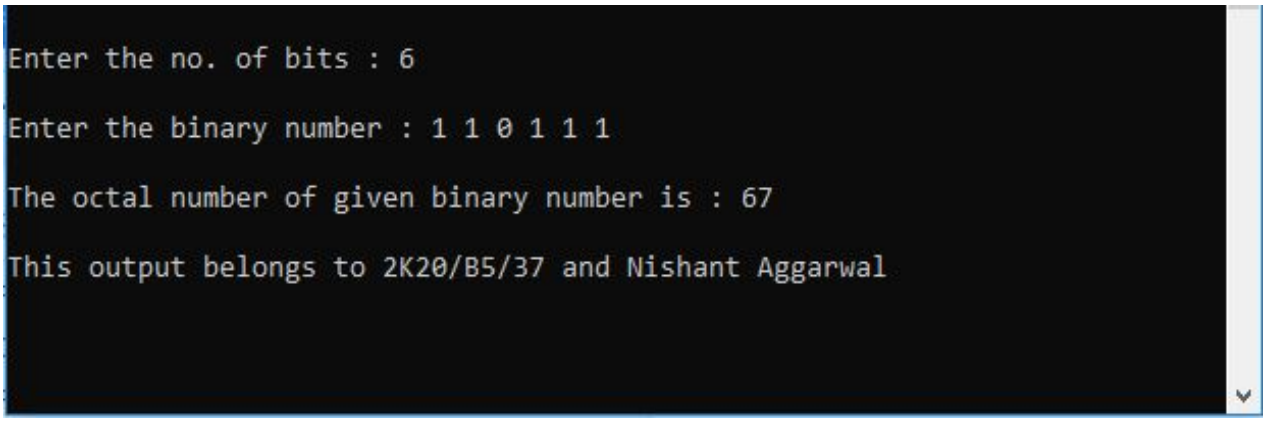
```
#include<stdio.h>
#include<math.h>
#include<conio.h>
int main()
{
        // Taking number of bits as input
   int n;
   printf("\nEnter the no. of bits : ");
   scanf("%d",&n);

   // Taking binary number as input in the form of array
   int binary_num[10000];
   int decimal_num=0,i;
   printf("\nEnter the binary number : ");
   for(i=0;i<n;i++)
   {
      scanf("%d",&binary_num[i]);
   }

   // Converting binary to decimal
   for(i=n-1;i>=0;i--)
   {
      decimal_num += pow(2,n-(i+1)) * binary_num[i];
   }

   // int array to store octal number
   int octal[100];
```

```
    // Converting decimal to octal
    int k = 0;
    while(decimal_num!=0)
    {
       int temp  = 0;
       temp = decimal_num % 8;
       octal[k] = temp ;

       decimal_num /= 8;
       k++;
    }
    printf("\nThe octal number of given binary number is : ");

    for(int j=k-1; j>=0; j--)
       {
          printf("%d", octal[j]);
       }

    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

    getch();
    return 0;
}
```

OUTPUT:


Enter the no. of bits : 8
Enter the binary number : 1 0 1 0 1 1 1 1
The octal number of given binary number is : 257
This output belongs to 2K20/B5/37 and Nishant Aggarwal


Enter the no. of bits : 10
Enter the binary number : 1 0 1 0 1 0 1 0 1 0
The octal number of given binary number is : 1252
This output belongs to 2K20/B5/37 and Nishant Aggarwal


Enter the no. of bits : 6
Enter the binary number : 1 1 0 1 1 1
The octal number of given binary number is : 67
This output belongs to 2K20/B5/37 and Nishant Aggarwal

Problem 11

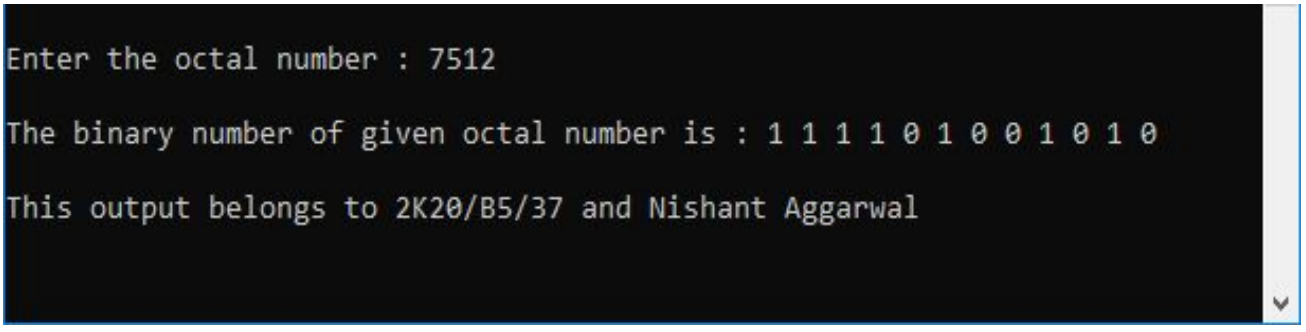
F) Program to convert octal number to binary number.

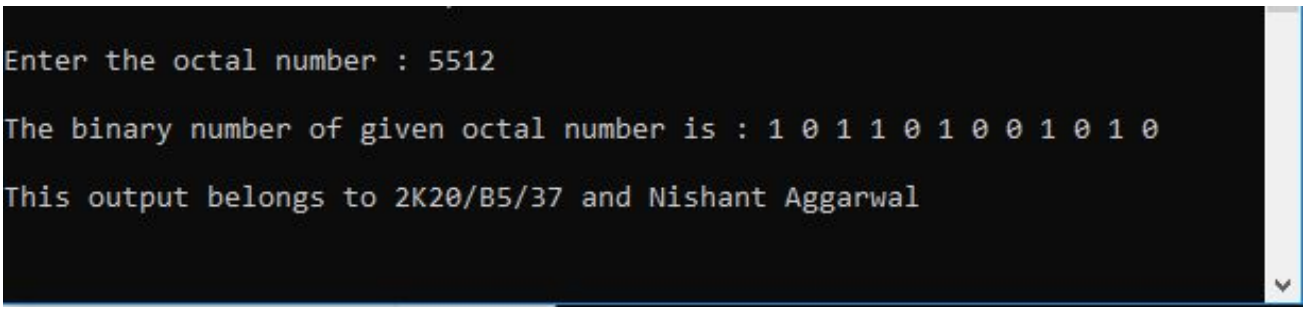
PROGRAM:

```
#include<stdio.h>
#include<math.h>
#include<conio.h>
int main()
{
   char bit;
   int n=0;
   int octal[1000];
   printf("\nEnter the octal number : ");
   bit=getchar();
   while(bit != '\n')
   {
      octal[n++]=bit-'0';
      bit=getchar();
   }

   // Converting octal number to decimal number
   long decimal =0;
   for(int i=0;i<n;i++)
   {
      decimal += (octal[i])*pow(8, n- (i+1) );
   }

   // Converting decimal number to binary number
   int binary_num[1000];
   int n1=0,i;
   while(decimal != 0)
   {
```

```
        binary_num[n1++] = decimal%2;
        decimal/=2;
    }

    printf("\nThe binary number of given octal number is : ");
    for(i=n1-1;i>=0;i--)
    {
        printf("%d ",binary_num[i]);
    }

    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

    getch();
    return 0;
}
```

OUTPUT:





Problem 11

G) Program to convert signed binary number to decimal number.

PROGRAM:

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

   int n;
   printf("\nEnter the number of bits : ");
   scanf("%d",&n);
   int binary[1000];
   printf("\nEnter the binary number : ");
   for(int i=0;i<n;i++)
   {
      scanf("%d",&binary[i]);
   }
   long decimal = binary[0]*(-pow(2,n-1));
   for(int i=1;i<n;i++)
   {
      decimal += binary[i]*(pow(2,n-(i+1)));
   }
   printf("\nThe decimal number of given binary number is : %ld",decimal);

   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

   getch();
   return 0;
}
```

OUTPUT:

```
Enter the number of bits : 8

Enter the binary number : 1 1 1 1 0 1 1 0

The decimal number of given binary number is : -10

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the number of bits : 6

Enter the binary number : 1 0 0 0 0 1

The decimal number of given binary number is : -31

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the number of bits : 10

Enter the binary number : 0 1 0 1 1 0 0 0 1 1

The decimal number of given binary number is : 355

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 11

H) Program to convert signed decimal number to binary number.

PROGRAM:

```
#include<stdio.h>
#include<math.h>
// for signed decimal to binary
// 8 Bit Representation
int main()
{
   int sb_num[8];
   int d_num;
   printf("\nEnter the decimal number : ");
   scanf("%d",&d_num);
   if(d_num>=0)
   {
      for(int i=7;i>=0;i--)
      {
         sb_num[i]=d_num%2;
         d_num/=2;
      }
      printf("The binary number of given number : ");
      for(int i=0;i<8;i++)
      {
         printf("%d ",sb_num[i]);
      }
   }
   else
   {
      d_num*=(-1);
      // bit pattern for given positive number
      for(int i=7;i>=0;i--)
```

```
    {
       sb_num[i]=d_num%2;
       d_num/=2;
    }
    // taking 1's complement
    for(int i=0;i<8;i++)
    {
       sb_num[i]=1-sb_num[i];
    }
    // adding 1 to LSB to get 2's complement
    int carry=0;  sb_num[7]+=1;
    for(int i=7;i>=0;i--)
    {
       sb_num[i]+=carry;
       if(sb_num[i]==2)
       {
          sb_num[i]=0;
          carry=1;
       }
       else{
             break;      }
    }
    printf("The binary number of given number : ");
    for(int i=0;i<8;i++)
    {
       printf("%d ",sb_num[i]);
    }
  }
  printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n\n" );

  return 0;
}
```

OUTPUT:

```
Enter the decimal number : -15
The binary number of given number : 1 1 1 1 0 0 0 1

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the decimal number : 10
The binary number of given number : 0 0 0 0 1 0 1 0

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the decimal number : -25
The binary number of given number : 1 1 1 0 0 1 1 1

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the decimal number : 25
The binary number of given number : 0 0 0 1 1 0 0 1

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the decimal number : -60
The binary number of given number : 1 1 0 0 0 1 0 0

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

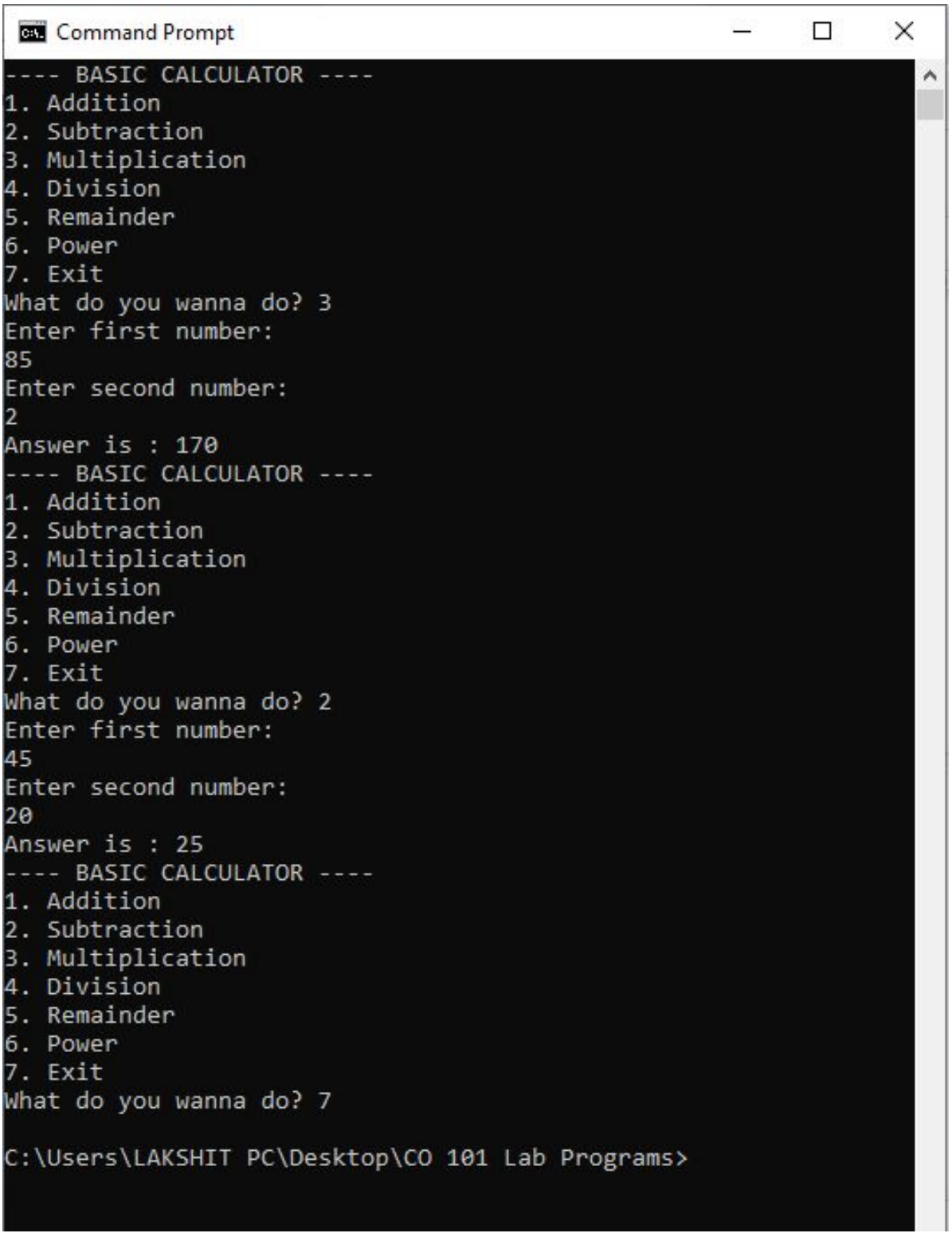
Problem 12: Program to make simple calculator

PROGRAM:

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

   int choice = 0 ;
   do
   {
      printf("---- BASIC CALCULATOR ---- \n");
      printf("1. Addition \n");
      printf("2. Subtraction \n");
      printf("3. Multiplication \n");
      printf("4. Division \n");
      printf("5. Remainder \n");
      printf("6. Power \n");
      printf("7. Exit \n");
      printf("What do you wanna do? ");
      scanf("%d", &choice);
      int n1, n2;
      if (choice >= 1 && choice <= 6)
      {
         printf("Enter first number: \n");
         scanf("%d", &n1);
         printf("Enter second number: \n");
         scanf("%d", &n2);
      }
      switch(choice)
```

```
    {
      case 1 :
            printf("Answer is : %d", n1+n2);
            break;
      case 2 :
            printf("Answer is : %d", n1-n2 ) ;
            break;
      case 3 :
            printf("Answer is : %d", n1*n2) ;
            break;
      case 4 :
            printf("Answer is : %d", n1/n2);
            break;
      case 5 :
            printf("Answer is : %d", n1%n2) ;
            break;
      case 6 :
            printf("Answer is : %lf", pow(n1,n2) ) ;
            break;
      case 7 :
            exit(0) ;
    }
    printf("\n");

  } while(choice>=1 && choice <=6);
  return 0;
}
```

OUTPUT:


Command Prompt
---- BASIC CALCULATOR ----
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Remainder
6. Power
7. Exit
What do you wanna do? 3
Enter first number:
85
Enter second number:
2
Answer is : 170
---- BASIC CALCULATOR ----
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Remainder
6. Power
7. Exit
What do you wanna do? 2
Enter first number:
45
Enter second number:
20
Answer is : 25
---- BASIC CALCULATOR ----
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Remainder
6. Power
7. Exit
What do you wanna do? 7
C:\Users\LAKSHIT PC\Desktop\CO 101 Lab Programs>

Problem 13: Program to output the day on inputted day considering it was Monday on 1 January,1990

PROGRAM:

```
#include<stdio.h>

int main()
{

   int month_array[12]={31,28,31,30,31,30,31,31,30,31,30,31};
   int date,year,month;
   long total_days=0;
   printf("Enter the date : ");
   scanf("%d",&date);
   printf("Enter the month : ");
   scanf("%d",&month);
   printf("Enter the year : ");
   scanf("%d",&year);
   int i;

   // taken 1 Jan 1900 as Monday (Reference)
   // to calculate days according to year

   for(i=1900;i<year;i++)
   {
      // check for leap year
      if((i%400 == 0) || ((i%4 == 0) && (i%100 != 0)))
      {
         total_days+=366;
      }
      else
```

```
   {
      total_days+=365;
   }
}

// to calculate remaining days according to month
// to increment the number of days in feb if year is leap year

if((year%400 == 0) || ((year%4 == 0) && (year%100 != 0)))
{
   month_array[1]++;
}
for(i=0;i<month-1;i++)
{
   total_days+=month_array[i];
}
// to calculate remaining days according to date
total_days+=date;
// to calculate the day
int day=total_days%7;
switch(day)
{

   case 1:printf("The day on %d-%d-%d is : Monday",date,month,year);
   break;
   case 2:printf("The day on %d-%d-%d is : Tuesday",date,month,year);
   break;
   case 3:printf("The day on %d-%d-%d is : Wednesday",date,month,year);
   break;
   case 4:printf("The day on %d-%d-%d is : Thursday",date,month,year);
   break;
   case 5:printf("The day on %d-%d-%d is : Friday",date,month,year);
```

```
        break;
        case 6:printf("The day on %d-%d-%d is : Saturday",date,month,year);
        break;
        case 0:printf("The day on %d-%d-%d is : Sunday",date,month,year);
        break;

    }
    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n\n" );

    return 0;
}
```

OUTPUT:

```
Enter the date : 12
Enter the month : 12
Enter the year : 2020
The day on 12-12-2020 is : Saturday

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the date : 4
Enter the month : 9
Enter the year : 2020
The day on 4-9-2020 is : Friday

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the date : 07
Enter the month : 03
Enter the year : 2019
The day on 7-3-2019 is : Thursday

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 14: Program for Linear Search

PROGRAM:

```
#include<stdio.h>
#include<conio.h>
int main()
{
   int n;
   printf("\nEnter number of elements in array : ");
   scanf("%d",&n);
   int arr[1000];
   for(int i=0; i<n; i++)
   {
      printf("Enter element at %d position: ",i+1 );
      scanf("%d", &arr[i]);
   }
   int key;
   printf("\nEnter element you want to find : ");
   scanf("%d", &key);
   bool flag=0;
   for(int i=0; i<n; i++){
         if(key == arr[i]){
               printf("\nElement found at %d position.\n",i+1 );
               flag++;
         }
   }
   if(flag ==0){
         printf("\nElement not found.\n");
   }
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );
```

```
    getch();
    return 0;
}
```

OUTPUT:

```
Enter number of elements in array : 8
Enter element at 1 position: 4
Enter element at 2 position: 5
Enter element at 3 position: 9
Enter element at 4 position: 7
Enter element at 5 position: 6
Enter element at 6 position: 1
Enter element at 7 position: 3
Enter element at 8 position: 2

Enter element you want to find : 6

Element found at 5 position.


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter number of elements in array : 7
Enter element at 1 position: 45
Enter element at 2 position: 78
Enter element at 3 position: 96
Enter element at 4 position: 57
Enter element at 5 position: 26
Enter element at 6 position: 15
Enter element at 7 position: 89

Enter element you want to find : 101

Element not found.


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 15: Program for Binary Search

PROGRAM:

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

int main()
{
   int n;
   printf("\nEnter number of elements in array : ");
   scanf("%d",&n);
   int arr[1000];
   for(int i=0; i<n; i++)
   {
      printf("Enter element at %d position: ",i+1 );
      scanf("%d", &arr[i]);
   }
   int key;
   printf("\nEnter element you want to find : ");
   scanf("%d", &key);
   bool flag=0;

   int start = 0, end = n-1;
   while(start<=end)
   {
      int mid = (start+end)/2;
      if(arr[mid] == key)
      {
         printf("\nElement found at %d position.\n",mid+1 );
         flag=1;
```

```
            break;
        }
        else if(arr[mid] > key)
        {
            end = mid-1;
        }
        else{
            start = mid +1;
        }
    }

    if(flag ==0)
    {
            printf("\nElement not found.\n");
    }

    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

            getch();
            return 0;
}
```

OUTPUT:

```
Enter number of elements in array : 6
Enter element at 1 position: 1
Enter element at 2 position: 3
Enter element at 3 position: 5
Enter element at 4 position: 7
Enter element at 5 position: 9
Enter element at 6 position: 11

Enter element you want to find : 11

Element found at 6 position.


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter number of elements in array : 10
Enter element at 1 position: 2
Enter element at 2 position: 4
Enter element at 3 position: 6
Enter element at 4 position: 8
Enter element at 5 position: 12
Enter element at 6 position: 14
Enter element at 7 position: 19
Enter element at 8 position: 25
Enter element at 9 position: 82
Enter element at 10 position: 194

Enter element you want to find : 4

Element found at 2 position.


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 16: Program to sort an array using Bubble Sort

PROGRAM:

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

int main()
{
   int n;
   printf("\nEnter number of elements in array : ");
   scanf("%d",&n);
   int arr[1000];
   for(int i=0; i<n; i++)
   {
      printf("Enter element at %d position: ",i+1 );
      scanf("%d", &arr[i]);
   }

   for(int i=0; i<=n-2; i++)
   {
         // printf("Loop running %d time \n",n-i );
         int check = 0;
         for(int j=0;j<=n-2-i; j++)
         {
               if(arr[j] > arr[j+1])
               {
                     int temp = arr[j];
                     arr[j] = arr [j+1];
                     arr[j+1] = temp;
                     check++ ;
               }
```

```
            }
            if(check == 0)
            {
                        break;
            }
        printf("Array after Pass %d : ",i+1);
        for(int i=0;i<n;i++)
        {
           printf("%d ",arr[i]);
        }
        printf("\n");
    }
    printf("\n\nSorted Array : ");

    for(int i=0; i<n; i++)
    {
        printf("%d ", arr[i]);
    }

    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

            getch();
            return 0;
}
```

OUTPUT:

```
Enter number of elements in array : 8
Enter element at 1 position: 7
Enter element at 2 position: 9
Enter element at 3 position: 4
Enter element at 4 position: 3
Enter element at 5 position: 5
Enter element at 6 position: 1
Enter element at 7 position: 10
Enter element at 8 position: 11
Array after Pass 1 : 7 4 3 5 1 9 10 11
Array after Pass 2 : 4 3 5 1 7 9 10 11
Array after Pass 3 : 3 4 1 5 7 9 10 11
Array after Pass 4 : 3 1 4 5 7 9 10 11
Array after Pass 5 : 1 3 4 5 7 9 10 11


Sorted Array : 1 3 4 5 7 9 10 11

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter number of elements in array : 5
Enter element at 1 position: 5
Enter element at 2 position: 4
Enter element at 3 position: 3
Enter element at 4 position: 9
Enter element at 5 position: 8
Array after Pass 1 : 4 3 5 8 9
Array after Pass 2 : 3 4 5 8 9


Sorted Array : 3 4 5 8 9

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 17:
A) Program to find the factorial of inputted number (iterative method)

PROGRAM:

```
#include<stdio.h>
#include<conio.h>
// factorial function using iteration
int factorial(int n)
{
   int fact = 1;
   for(int i=2; i<=n; i++)
   {
      fact *= i;
   }
   return fact;
}
int main()
{
   int n;
   printf("\nEnter number : ");
   scanf("%d",&n);

   printf("\nFactorial of %d is : ", n);
   printf("%d\n", factorial(n) );

   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

          getch();
          return 0;
}
```

OUTPUT:

```
Enter number : 8

Factorial of 8 is : 40320

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter number : 10

Factorial of 10 is : 3628800

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter number : 5

Factorial of 5 is : 120

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 17:
B) Program to find the factorial of inputted number (recursive method)

PROGRAM:

```
#include<stdio.h>
#include<conio.h>
int n;
int fact = n;

int factorial(int n)
{
   while(n>1)
   {
      fact *= (n-1);
      factorial(n-1);
   }
   return fact;
}

int main()
{
   printf("\nEnter number : ");
   scanf("%d",&n);

   printf("\nFactorial of %d is : ", n);
   printf("%d\n", factorial(n) );

   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );
          getch();
          return 0;
}
```

OUTPUT:

```
Enter number : 5

Factorial of 5 is : 120

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter number : 8

Factorial of 8 is : 40320

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

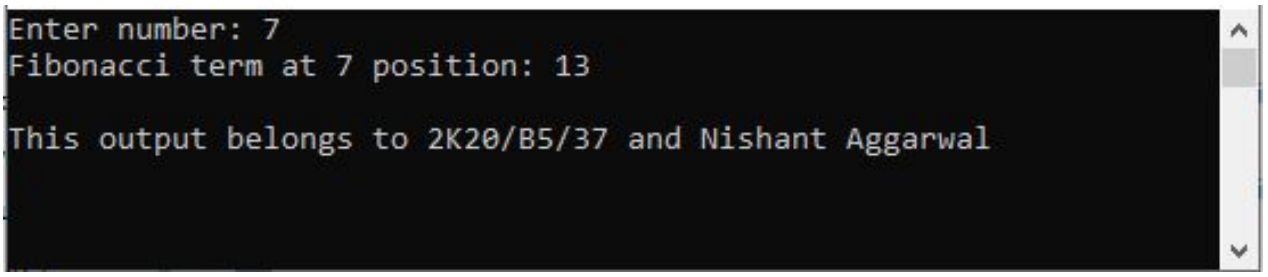
```
Enter number : 10

Factorial of 10 is : 3628800

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

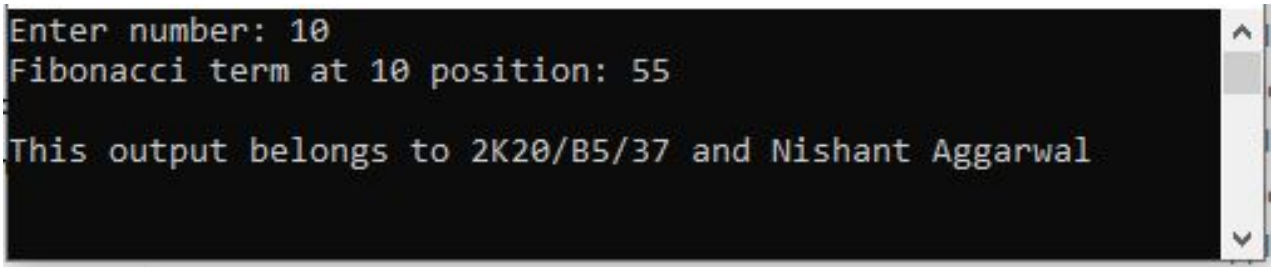
Problem 18:
A) Program to find nth term of fibonacci series (using iterative method)

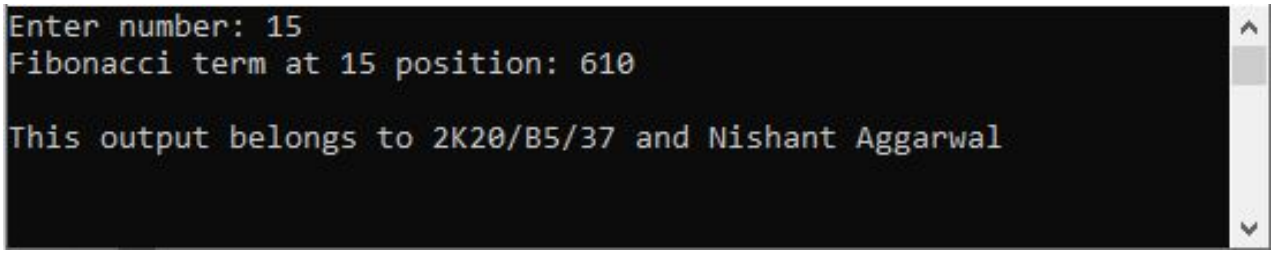
PROGRAM:

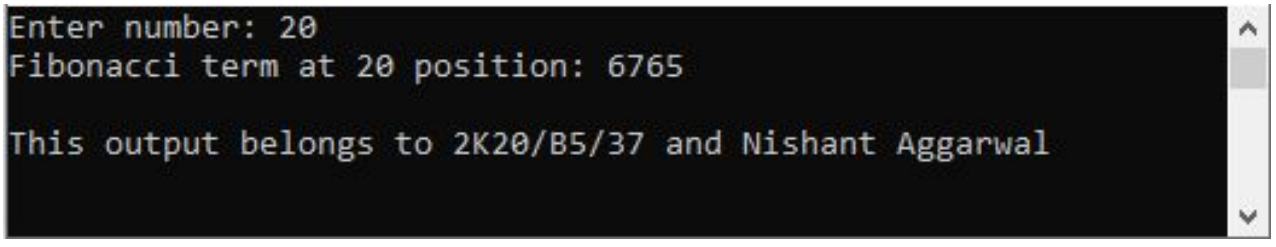
```
#include<stdio.h>
#include<conio.h>

int main()
{
	//fibonacci using iteration
	int n;
	printf("Enter number: ");
	scanf("%d",&n);

	int t1=1, t2=1;
	for(int i=1; i<=n; i++)
	{
		if(i==n)
		   printf("Fibonacci term at %d position: %d ",n, t1);

		int temp = t1;
		t1=t2;
		t2= t2 + temp;
	}

   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );
	getch();
	return 0;
}
```

OUTPUT:


Enter number: 7
Fibonacci term at 7 position: 13
This output belongs to 2K20/B5/37 and Nishant Aggarwal


Enter number: 10
Fibonacci term at 10 position: 55
This output belongs to 2K20/B5/37 and Nishant Aggarwal


Enter number: 15
Fibonacci term at 15 position: 610
This output belongs to 2K20/B5/37 and Nishant Aggarwal


Enter number: 20
Fibonacci term at 20 position: 6765
This output belongs to 2K20/B5/37 and Nishant Aggarwal

Problem 18:
B) Program to find nth term of fibonacci series (using recursive method)

PROGRAM:

```
#include<stdio.h>

int fibonaci(int n)
{
   // base case
   if (n==1 || n==2)
   {
      return 1;
   }
   // recursive case
   return ( fibonaci(n-1) + fibonaci(n-2) );
}

int main()
{
   int n;
   printf("\nEnter the value of n : ");
   scanf("%d",&n);
   int ans=fibonaci(n);
   printf("\nThe %d term of the fibonaci series is : %d",n,ans);
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

   return 0;
}
```

OUTPUT:

```
Enter the value of n : 7

The 7 term of the fibonaci series is : 13

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the value of n : 9

The 9 term of the fibonaci series is : 34

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the value of n : 8

The 8 term of the fibonaci series is : 21

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 19: Program for exponential function (e^x)

PROGRAM:

```
#include<stdio.h>
#include<math.h>
// function to compute factorial
double factorial(int n)
{
   double product=1;
   for(int i=1;i<=n;i++)
   {
      product*=i;
   }
   return (product);
}
int main()
{
   int n;
   double x;
   printf("\nEnter the value of n : ");
   scanf("%d",&n);
   printf("\nEnter the value of x : ");
   scanf("%lf",&x);
   double sum=0;
   for(int i=0;i<=n;i++)
   {
      sum+=(pow(x,i)*(1.0))/(factorial(i));
   }
   printf("\nThe value of e^%lf is : %lf",x,sum);
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );
```

```
return 0;
}
```

OUTPUT:

```
Enter the value of n : 100
Enter the value of x : 5
The value of e^5.000000 is : 148.413159
This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the value of n : 100
Enter the value of x : 8
The value of e^8.000000 is : 2980.957987
This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the value of n : 100
Enter the value of x : 0
The value of e^0.000000 is : 1.000000
This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 20: Program to sort an array using Selection Sort

PROGRAM:

```
#include<stdio.h>
int main()
{
	int arr[100];
	int n;

	// input of array :
	printf("\nEnter the number of elements : ");
	scanf("%d",&n);
	printf("\nEnter the elements of array : ");
	for(int i=0;i<n;i++)
	{
		scanf("%d",&arr[i]);
	}

	// selection sort
	for(int i=0;i<=n-2;i++)
	{
		int min=i;
		for(int j=i+1;j<=n-1;j++)
		{
			if( arr[min] > arr[j] )
			{
				min=j;
			}
		}

		if(min != i)
```

```
                {
                        int temp=arr[min];
                        arr[min]=arr[i];
                        arr[i]=temp;
                }
        }
        printf("\nSorted array :\n");
        for(int i=0;i<n;i++)
        {
                printf("%d    ",arr[i]);
        }
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );


        return 0;
}
```

OUTPUT:

```
Enter the number of elements : 8

Enter the elements of array : 8 -9 5 7 3 1 0 15

Sorted array :
-9    0    1    3    5    7    8    15

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the number of elements : 5

Enter the elements of array : 7 8 46 59 2

Sorted array :
2    7    8    46    59

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the number of elements : 4

Enter the elements of array : 0 5 1 3

Sorted array :
0    1    3    5

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 21: Program to sort an array using Insertion Sort

PROGRAM:

```
#include<stdio.h>

int main()
{
	int arr[100];
	int n;

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

	for(int i=1;i<=n-1;i++)
	{
		int temp=arr[i];
		int j=i-1;
		while( (arr[j] > temp) && j>=0 )
		{
			arr[j+1]=arr[j];
			j--;
		}
		arr[j+1]=temp;
	}
```

```
        printf("\nSorted array :\n");
        for(int i=0;i<n;i++)
        {
                printf("%d    ",arr[i]);
        }
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

        return 0;
}
```

OUTPUT:

```
Enter the number of elements : 5

Enter the elements of array : 2 1 19 14 11

Sorted array :
1    2    11    14    19

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the number of elements : 8

Enter the elements of array : 19 14 16 25 48 97 10 2

Sorted array :
2    10    14    16    19    25    48    97

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 22: Program to find the length of string without strlen() and then pass the string to characters.

PROGRAM:

```
#include<stdio.h>
int main()
{
   char str[]="Delhi Technological University";

   int length=0;
   // calculating length of string
   for(int i=0;str[i]!='\0';i++)
   {
      length++;
   }
   // printing string character by character
   printf("\nThe string is : ");
   for(int i=0;str[i]!='\0';i++)
   {
      printf("%c",str[i]);
   }
   printf("\n\nThe length of string is : %d",length);
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

   return 0;
}
```

OUTPUT:

```
The string is : Delhi Technological University

The length of string is : 30

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 23: Program to count the number of vowels in a string

PROGRAM:

```
#include<stdio.h>
int main()
{
   char str[100];
   printf("\nEnter the string : ");
   gets(str);
   //calculating the total number of vowels
   int vowel=0;
   for(int i=0;str[i]!='\0';i++)
   {
      switch(str[i])
      {
         case 'a' :
         case 'A' :
         case 'e' :
         case 'E' :
         case 'i' :
         case 'I' :
         case 'o' :
         case 'O' :
         case 'u' :
         case 'U' : vowel++;
      }
   }
   //output
   printf("\nString : %s\n",str);
   printf("\nThe number of vowels : %d",vowel);
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );
```

```
    return 0;
}
```

OUTPUT:

```
Enter the string : dsnvlfbvqoar

String : dsnvlfbvqoar

The number of vowels : 2

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the string : Nishant Aggarwal

String : Nishant Aggarwal

The number of vowels : 5

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

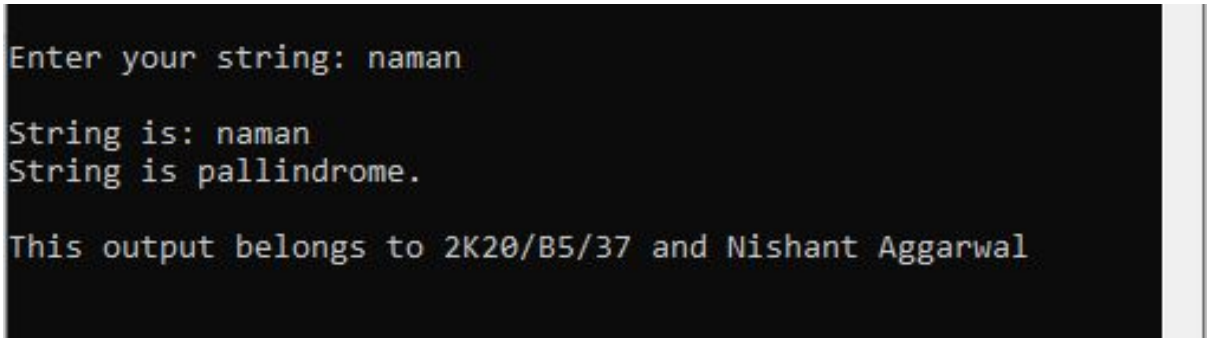
Problem 24: Program to check if the given string is pallindrome or not

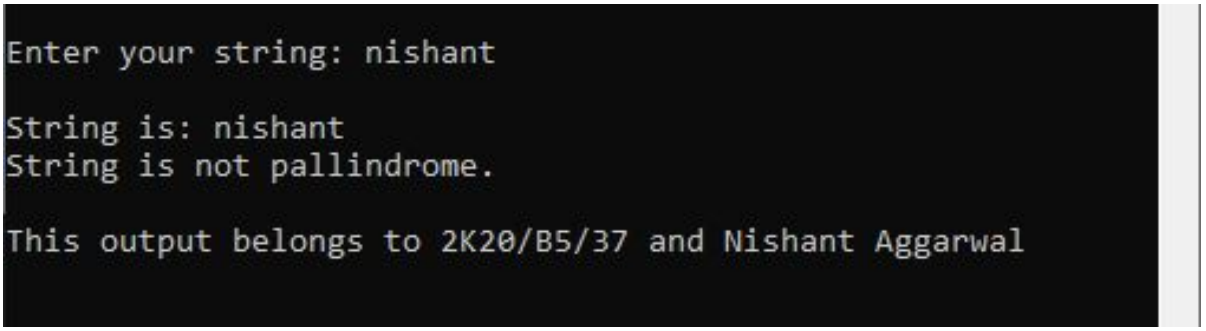
PROGRAM:

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

int main()
{
   char str[100];
   printf("\nEnter your string: ");
   gets(str);
   printf("\nString is: ");
   int len=0;
   for(int i=0; str[i]!='\0'; i++)
   {
      len++;
      printf("%c",str[i]);
   }
   int flag=1;
   for(int i=0,j=len-1; i<j; i++,j--)
   {
      if(str[i] != str[j])
      {
         flag=0;
         break;
      }
   }
   if(flag==1)
   {
      printf("\nString is pallindrome.\n");
```

```
    }
    else
    {
       printf("\nString is not pallindrome.\n");
    }
    printf("\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

          getch();
          return 0;
}
```

OUTPUT:





Problem 25: Program for string concatenation

PROGRAM:

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

int main()
{
   char a[100];
   printf("Enter your first string: ");
   gets(a);
   printf("First string is: ");
   int alen=0;
   for(int i=0; a[i]!='\0'; i++)
   {
      alen++;
      printf("%c",a[i]);
   }
   char b[100];
   printf("\n\nEnter your second string: ");
   gets(b);
   printf("Second string is: ");
   int blen=0;
   for(int i=0; b[i]!='\0'; i++)
   {
      blen++;
      printf("%c",b[i]);
   }
   char c[200];
   for(int j=0; j<alen; j++)
```

```
    {
       c[j]= a[j];
    }
    for(int j=alen,k=0; k<blen; j++,k++)
    {
       c[j]=b[k];
    }
    printf("\n\n");
    printf("Concatenated string is: ");
    puts(c);


    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

            getch();
            return 0;
}
```

OUTPUT:

```
Enter your first string: nishant
First string is: nishant

Enter your second string: aggarwal
Second string is: aggarwal

Concatenated string is: nishantaggarwal


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter your first string: delhitechnological
First string is: delhitechnological

Enter your second string: university
Second string is: university

Concatenated string is: delhitechnologicaluniversity


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 26: Program for String Comparison

PROGRAM:

```
#include<stdio.h>

int main()
{
	char str_1[100];
	char str_2[100];
	printf("\nEnter the string 1 : ");
	gets(str_1);
	printf("\nEnter the string 2 : ");
	gets(str_2);

	// string comparison
	for(int i=0;((str_1[i] != '\0') || (str_2[i] != '\0'));i++)
	{
		if(str_1[i]-str_2[i] > 0)
		{
			printf("\nBoth strings are UNEQUAL !\n");
			printf("The string 1 is larger than string 2\n");
			return 0;
		}
		else if(str_1[i]-str_2[i] < 0)
		{
			printf("\nBoth strings are UNEQUAL !\n");
			printf("The string 2 is larger than string 1\n");
			return 0;
		}
	}
	printf("\nBoth strings are EQUAL !\n");
```

```
    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

        return 0;
}
```

OUTPUT:

```
Enter the string 1 : Nishant

Enter the string 2 : Nishant

Both strings are EQUAL !


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the string 1 : Delhi

Enter the string 2 : Technological

Both strings are UNEQUAL !
The string 2 is larger than string 1

C:\Users\LAKSHIT PC\Desktop\CO 101 Lab Programs>
```

Problem 27: Program for String Reverse

PROGRAM:

```
#include<stdio.h>
#include<string.h>
int main()
{
   char str[100];
   printf("\nEnter the string : ");
   gets(str);
   int length=strlen(str);
   for(int i=0;i<=(length-1)/2;i++)
   {
      char temp=str[i];
      str[i]=str[length-1-i];
      str[length-1-i]=temp;
   }
   printf("\nThe reversed string is : %s",str);
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

   return 0;
}
```

OUTPUT:

```
Enter the string : Nishant

The reversed string is : tnahsiN

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the string : Delhi

The reversed string is : ihleD

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 28: Program to convert a string from Lowercase to Uppercase and vice versa

PROGRAM:

```
#include<stdio.h>
int main()
{
	char str[100];
	printf("\nEnter the string : ");
	gets(str);
	for(int i=0;str[i]!='\0';i++)
	{
		if( str[i]>=65 && str[i]<=90 )
		{
			str[i]+=32;
		}
		else if( str[i]>=97 && str[i]<=122 )
		{
			str[i]-=32;
		}
	}
	printf("\nThe converted string is : %s",str);
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

	return 0;
}
```

OUTPUT:

```
Enter the string : NIShant

The converted string is : nisHANT

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the string : DeLhI

The converted string is : dElHi

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the string : CompUTer EngINEERing

The converted string is : cOMPutER eNGineerING

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 29: Program for Matrix Addition of 3*3 matrix

PROGRAM:

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

int main()
{
   int a[3][3], b[3][3], c[3][3] ;
   printf("Enter elements of Matrix 1 : " );
   for(int i=0; i<3; i++)
   {
      for(int j=0; j<3; j++)
      {
         scanf("%d", &a[i][j]);
      }
   }
   printf("\n\n");
   printf("Enter elements of Matrix 2 : " );
   for(int i=0; i<3; i++)
   {
      for(int j=0; j<3; j++)
      {
         scanf("%d", &b[i][j]);
      }
   }
   printf("\n\n");

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

```
        {
            c[i][j] = a[i][j] + b[i][j];
        }
    }

    printf("Addition of Matrix 1 and Matrix 2 is : \n");

    for(int i=0; i<3; i++)
    {
        for(int j=0; j<3; j++)
        {
            printf("%d ", c[i][j]);
        }
        printf("\n");
    }
    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

            getch();
            return 0;
}
```

OUTPUT:

```
Enter elements of Matrix 1 :
4 5 9
7 8 6
1 3 2


Enter elements of Matrix 2 :
7 5 3
1 9 8
4 6 2


Addition of Matrix 1 and Matrix 2 is :
11 10 12
8 17 14
5 9 4


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter elements of Matrix 1 :
78 59 46
12 48 57
14 53 37


Enter elements of Matrix 2 :
15 48 39
76 53 19
34 28 91


Addition of Matrix 1 and Matrix 2 is :
93 107 85
88 101 76
48 81 128


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 30: Program for Matrix Multiplication of 3*3 matrix

PROGRAM:

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

int main()
{
   int a[3][3], b[3][3], c[3][3] ;
   printf("Enter elements of Matrix 1 : " );
   for(int i=0; i<3; i++)
   {
      for(int j=0; j<3; j++)
      {
         scanf("%d", &a[i][j]);
      }
   }
   printf("\n\n");
   printf("Enter elements of Matrix 2 : " );
   for(int i=0; i<3; i++)
   {
      for(int j=0; j<3; j++)
      {
         scanf("%d", &b[i][j]);
      }
   }
   printf("\n\n");

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

```
    for(int j=0; j<3; j++)
    {
        c[i][j] = 0;
        for(int k=0; k<3; k++)
        {
            c[i][j] += a[i][k]*b[k][j];
        }
    }
}

printf("Multiplication of Matrix 1 and Matrix 2 is : \n");

for(int i=0; i<3; i++)
{
    for(int j=0; j<3; j++)
    {
        printf("%d ", c[i][j]);
    }
    printf("\n");
}

printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

        getch();
        return 0;
}
```

OUTPUT:

```
Enter elements of Matrix 1 :
4 2 3
1 4 6
5 2 1


Enter elements of Matrix 2 :
6 5 4
2 1 3
5 1 3


Multiplication of Matrix 1 and Matrix 2 is :
43 25 31
44 15 34
39 28 29


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter elements of Matrix 1 :
7 8 9
15 4 6
2 8 4


Enter elements of Matrix 2 :
14 15 36
5 2 1
7 9 3


Multiplication of Matrix 1 and Matrix 2 is :
201 202 287
272 287 562
96 82 92


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 31: Program to swap 2 numbers using pointers

PROGRAM:

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

void swap(int *a, int *b)
{
   *a = *a + *b;
   *b = *a - *b;
   *a = *a - *b;
}
int main()
{
   int n1,n2;
   printf("Enter number 1 : ");
   scanf("%d", &n1);
   printf("\n");
   printf("Enter number 2 : ");
   scanf("%d", &n2);
   printf("\n\n");

   printf("------------Before Swap------------\n");
   printf("Number 1 : %d \n", n1);
   printf("Number 2 : %d \n", n2);
   printf("\n\n");

   swap(&n1,&n2);

   printf("------------After Swap------------\n");
```

```
    printf("Number 1 : %d \n", n1);
    printf("Number 2 : %d \n", n2);

    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

        getch();
        return 0;
}
```

OUTPUT:

Problem 32: Program to generate the employee details using structure

PROGRAM:

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

struct employee
{
        char first_name[100];
        char last_name[100];
        int id;
        int salary ;
        char designation[100];
};

int main()
{
        struct employee a;

        // input of employee details
        printf("\nEnter the first name of employee : ");
        gets(a.first_name);
        printf("Enter the last name of employee : ");
        gets(a.last_name);
        printf("Enter the designation of employee : ");
        gets(a.designation);
        printf("Enter the id of employee : ");
        fflush(stdin);
        scanf("%d",&a.id);
        printf("Enter the salary of employee : ");
        fflush(stdin);
```

```
        scanf("%d",&a.salary);
        printf("\n\n");

        // printing output
        printf("-------------EMPLOYEE DETAILS -------------\n\n");
        printf("First name  : %s\n",a.first_name);
        printf("Last name   : %s\n",a.last_name);
        printf("Designation : %s\n",a.designation);
        printf("Employee id : %d\n",a.id);
        printf("Salary      : %d\n",a.salary);

    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

        return 0;
}
```

OUTPUT:

```
Enter the first name of employee : Nishant
Enter the last name of employee : Aggarwal
Enter the designation of employee : CEO
Enter the id of employee : 9156
Enter the salary of employee : 1000000


-------------EMPLOYEE DETAILS -------------

First name  : Nishant
Last name   : Aggarwal
Designation : CEO
Employee id : 9156
Salary      : 1000000


This output belongs to 2K20/B5/37 and Nishant Aggarwal

C:\Users\LAKSHIT PC\Desktop\CO 101 Lab Programs>
```

```
Enter the first name of employee : Ram
Enter the last name of employee : Kapoor
Enter the designation of employee : Manager
Enter the id of employee : 9786
Enter the salary of employee : 100000


-------------EMPLOYEE DETAILS -------------

First name  : Ram
Last name   : Kapoor
Designation : Manager
Employee id : 9786
Salary      : 100000


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 33: Program to find the area of square, rectangle, circle and triangle using functions

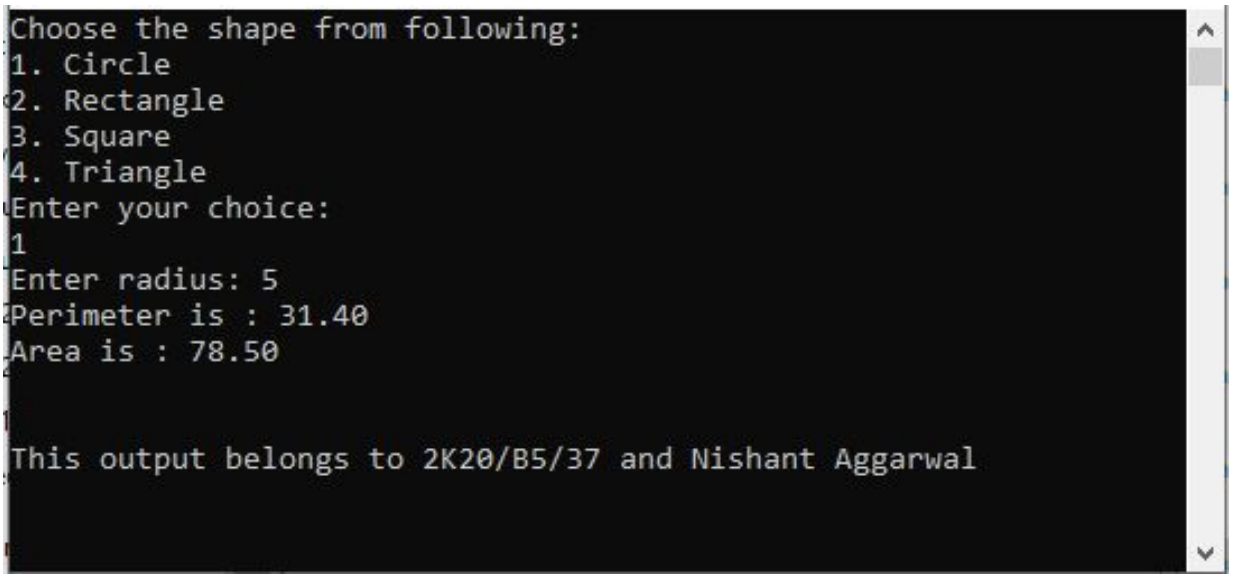
PROGRAM:

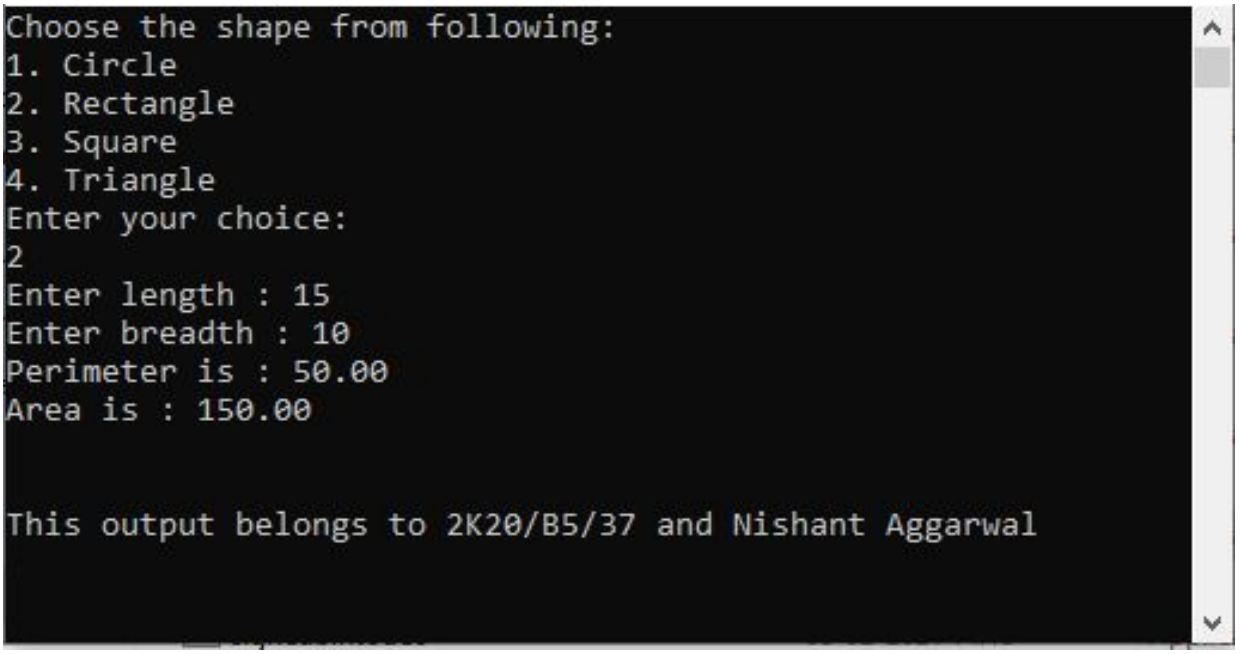
```
#include<stdio.h>
#include<conio.h>
#include<math.h>
void circle()
{
   int r;
   printf("Enter radius: ");
   scanf("%d",&r);
   printf("Perimeter is : %0.2f \n", 2*3.14*r);
   printf("Area is : %0.2f \n", 3.14*r*r);
}
void rectangle()
{
   int l;
   printf("Enter length : ");
   scanf("%d",&l);

   int b;
   printf("Enter breadth : ");
   scanf("%d",&b);

   printf("Perimeter is : %0.2f \n",(float) 2*(l+b) );
   printf("Area is : %0.2f \n",(float) l*b );

}

void square()
{
```

```
    int s;
    printf("Enter side: ");
    scanf("%d",&s);
    printf("Perimeter is : %0.2f \n",(float) 4*s);
    printf("Area is : %0.2f \n",(float) s*s);
}

void triangle()
{
    int s1;
    printf("Enter side 1 : ");
    scanf("%d",&s1);
    int s2;
    printf("Enter side 2 : ");
    scanf("%d",&s2);
    int s3;
    printf("Enter side 3 : ");
    scanf("%d",&s3);
    float s = (s1+s2+s3)/2;
    printf("Perimeter is : %0.2f \n", (float) s1 + s2 + s3);
    printf("Area is : %0.2f \n", sqrt(s*(s-s1)*(s-s2)*(s-s3) ) );
}

int main()
{
    int n;
    printf("Choose the shape from following: \n" );
    printf("1. Circle \n");
    printf("2. Rectangle \n");
    printf("3. Square \n");
    printf("4. Triangle\n");
    printf("Enter your choice: \n");
```

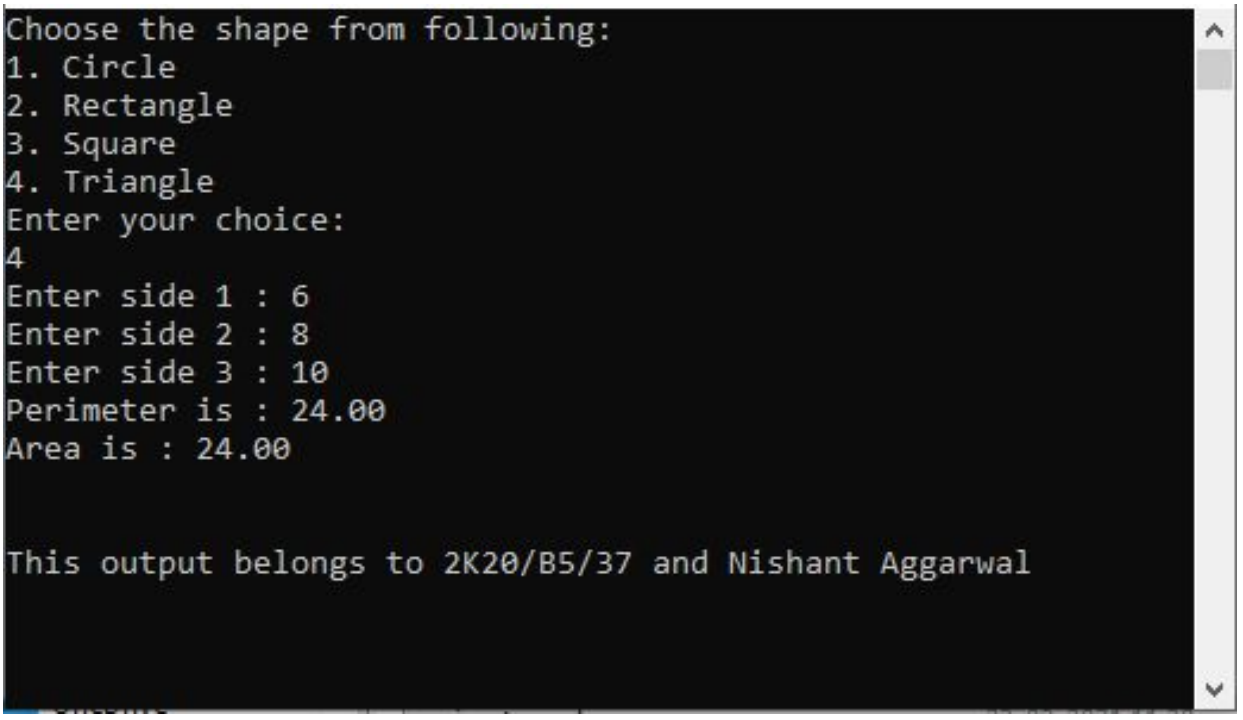
```
    scanf("%d", &n);

    switch(n)
    {
       case 1 : circle();
                break;
       case 2 : rectangle();
                break;
       case 3 : square();
                break;
       case 4 : triangle();
                break;
       default : printf("Enter valid choice. \n");
    }

    printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal " );

            getch();
            return 0;
}
```

OUTPUT:


Choose the shape from following:
1. Circle
2. Rectangle
3. Square
4. Triangle
Enter your choice:
1
Enter radius: 5
Perimeter is : 31.40
Area is : 78.50
This output belongs to 2K20/B5/37 and Nishant Aggarwal


Choose the shape from following:
1. Circle
2. Rectangle
3. Square
4. Triangle
Enter your choice:
2
Enter length : 15
Enter breadth : 10
Perimeter is : 50.00
Area is : 150.00
This output belongs to 2K20/B5/37 and Nishant Aggarwal


Choose the shape from following:
1. Circle
2. Rectangle
3. Square
4. Triangle
Enter your choice:
3
Enter side: 6
Perimeter is : 24.00
Area is : 36.00
This output belongs to 2K20/B5/37 and Nishant Aggarwal


Choose the shape from following:
1. Circle
2. Rectangle
3. Square
4. Triangle
Enter your choice:
4
Enter side 1 : 6
Enter side 2 : 8
Enter side 3 : 10
Perimeter is : 24.00
Area is : 24.00
This output belongs to 2K20/B5/37 and Nishant Aggarwal

Problem 34: Program to pass and return pointer to function hence calculate average of an array

PROGRAM:

```
#include<stdio.h>

float avg;          // global variable and it will store the average of the array

float* avg_array(int *ptr, int n)
{
        int sum=0;
        for(int i=0;i<n;i++)
        {
                sum+=*(ptr+i);  // *(ptr+i) -> ptr[i]
        }
        avg=(sum*1.0)/n;
        float *avg_ptr=&avg;
        return (avg_ptr);
}

int main()
{
        int n;
        printf("\nEnter the number of elements : ");
        scanf("%d",&n);
        int arr[100];
        printf("\nEnter the elements of array : ");
        for(int i=0;i<n;i++)
        {
                scanf("%d",&arr[i]);
        }
```

```
        float *fptr=avg_array(arr,n);
        printf("\nThe average of the array is : %0.2f\n",*fptr);
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

        return 0;
}
```

OUTPUT:

```
Enter the number of elements : 5
Enter the elements of array : 1 4 8 9 14
The average of the array is : 7.20

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the number of elements : 6
Enter the elements of array : 1 4 8 5 7 3
The average of the array is : 4.67

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 35: Program to pass an array as pointer to a function that calculates the sum of all elements of the array.

PROGRAM:

```
#include<stdio.h>


int sum_array(int *ptr, int n)
{
	int sum=0;
	for(int i=0;i<n;i++)
	{
		sum+=*(ptr+i);
	}
	return (sum);
}

int main()
{
	int n;
	printf("\nEnter the number of elements : ");
	scanf("%d",&n);
	int arr[100];
	printf("\nEnter the elements of array : ");
	for(int i=0;i<n;i++)
	{
		scanf("%d",&arr[i]);
	}
	int sum=sum_array(arr,n);
	printf("\nThe sum of all the elements of the array is : %d\n",sum);
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

	return 0;
```

```
}
```

OUTPUT:

```
Enter the number of elements : 5

Enter the elements of array : 1 2 3 4 5

The sum of all the elements of the array is : 15

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

```
Enter the number of elements : 7

Enter the elements of array : 4 5 8 9 7 4 1

The sum of all the elements of the array is : 38

This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 36: Program to demonstrate the example of array of pointers.

PROGRAM:

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

        int arr_1[6]={1,2,3,4,5,8};
        int arr_2[6]={6,3,8,2,4,1};
        int arr_3[6]={9,1,3,4,5,2};

        int *a_ptr[3];
        a_ptr[0]=arr_1;
        a_ptr[1]=arr_2;
        a_ptr[2]=arr_3;

        // calculating product
        for(int i=0;i<3;i++)
        {
                int product=1;
                for(int j=0;j<6;j++)
                {
                        product*=(*(a_ptr[i] + j));
                }
                printf("The product of the elements of %d array is : %d\n",i+1,product);
        }
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

        return 0;
}
```

OUTPUT:

```
The product of the elements of 1 array is : 960
The product of the elements of 2 array is : 1152
The product of the elements of 3 array is : 1080


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

Problem 37: Program to create a file called emp.txt and store information about a person, in terms of his name, age and salary.

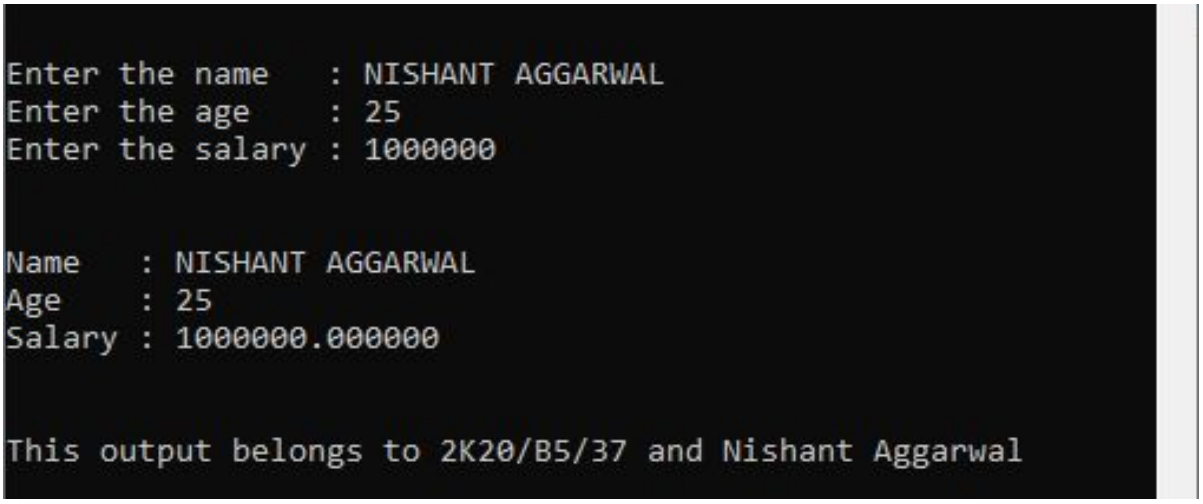
PROGRAM:

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

void print( char name[] )
{
	FILE *fp;
	fp=fopen(name,"r");
	if(fp == NULL)
	{
		printf("File not opened !\n");
	}
	else
	{
		char data;
		while(1)
		{
			data=fgetc(fp);
			printf("%c",data);
			if(feof(fp))
			{
				break;
			}
		}
	}
	fclose(fp);
}
```

```
int main()
{
	FILE *fp;
	fp=fopen("emp.txt","w");
	if(fp == NULL)
	{
		printf("File not opened !\n");
	}
	else
	{
		// inputting details
		char name[100];
		int age;
		float salary;
		printf("\nEnter the name   : ");
		gets(name);
		printf("Enter the age    : ");
		scanf("%d",&age);
		printf("Enter the salary : ");
		scanf("%f",&salary);

		// writting in the file
		fprintf(fp,"Name   : %s\n",name);
		fprintf(fp,"Age    : %d\n",age);
		fprintf(fp,"Salary : %f\n",salary);
	}
	fclose(fp);
	printf("\n\n");
	print("emp.txt");
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );
```

```
    getch();
        return 0;
}
```

OUTPUT:



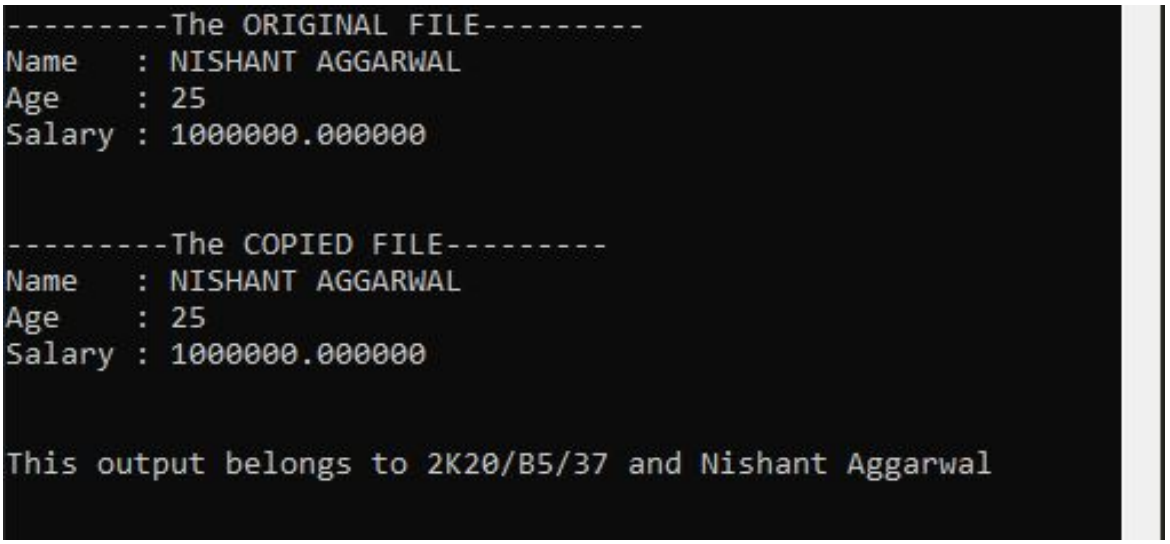
Problem 38: Program which copies one file contents to another file.

PROGRAM:

```
#include<stdio.h>
#include<conio.h>
void print( char name[] )
{
	FILE *fp;
	fp=fopen(name,"r");
	if(fp == NULL)
	{
		printf("File not opened !\n");
	}
	else
	{
		char data;
		while(1)
		{
			data=fgetc(fp);
			printf("%c",data);
			if(feof(fp))
			{
				break;
			}
		}
	}
	fclose(fp);
}
```

```
int main()
{
	FILE *p;
	p=fopen("emp.txt","r");
	if(p == NULL)
	{
		printf("File not opened !\n");
	}
	else
	{
		// printing the original file
		printf("---------The ORIGINAL FILE---------\n");
		print("emp.txt");
		printf("\n\n");
		FILE *s;
		s=fopen("copy.txt","w");
		while( !(feof(p)) )
		{
			char data=fgetc(p);
			fputc(data,s);
		}
		fclose(s);
	}
	fclose(p);

	// printing the copied file
	printf("---------The COPIED FILE---------\n");
	print("copy.txt");
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );
   getch();
	return 0;
}
```

OUTPUT:


---------The ORIGINAL FILE----------
Name   : NISHANT AGGARWAL
Age   : 25
Salary : 1000000.000000
---------The COPIED FILE---------
Name   : NISHANT AGGARWAL
Age   : 25
Salary : 1000000.000000
This output belongs to 2K20/B5/37 and Nishant Aggarwal

Problem 39: Program to read a file and after converting all lower case to upper case letters write it to another file.

PROGRAM:

```
#include<stdio.h>



void print( char name[] )
{
	FILE *fp;
	fp=fopen(name,"r");
	if(fp == NULL)
	{
		printf("File not opened !\n");
	}
	else
	{
		char data;
		while(1)
		{
			data=fgetc(fp);
			printf("%c",data);
			if(feof(fp))
			{
				break;
			}
		}
	}
	fclose(fp);
}
```

```
int main()
{
	FILE *p;
	p=fopen("emp.txt","rw+");
	if(p == NULL)
	{
		printf("File not opened !\n");
	}
	else
	{
		// printing the original file
		printf("----------The ORIGINAL FILE----------\n");
		print("emp.txt");
		printf("\n\n");
		char data;
		FILE *s;
		s=fopen("modified.txt","w");
		while( !(feof(p)) )
		{
			data=fgetc(p);
			if( data >='a' && data <='z' )
			{
				data-=32;
			}
			fputc(data,s);
		}
		fclose(s);
	}
	fclose(p);
```

```
        // printing the modified file
        printf("-----------The MODIFIED FILE-----------\n");
        print("modified.txt");
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

        return 0;
}
```

OUTPUT:

```
-----------The ORIGINAL FILE-----------
Name   : NISHANT AGGARWAL
Age    : 25
Salary : 1000000.000000


-----------The MODIFIED FILE-----------
NAME   : NISHANT AGGARWAL
AGE    : 25
SALARY : 1000000.000000


This output belongs to 2K20/B5/37 and Nishant Aggarwal
```

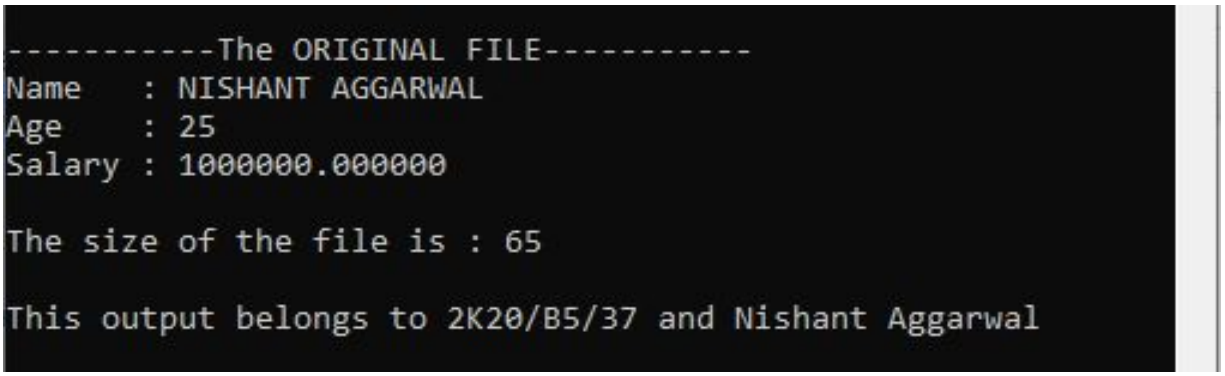
Problem 40: Program to find the size of a given file.

PROGRAM:

```
#include<stdio.h>

void print( char name[] )
{
	FILE *fp;
	fp=fopen(name,"r");
	if(fp == NULL)
	{
		printf("File not opened !\n");
	}
	else
	{
		char data;
		while(1)
		{
			data=fgetc(fp);
			printf("%c",data);
			if(feof(fp))
			{
				break;
			}
		}
	}
	fclose(fp);
}
```

```
int main()
{
	FILE *fp;
	fp=fopen("emp.txt","r");
	if( fp == NULL )
	{
		printf("File not opened !\n");
	}
	else
	{
		// printing the original file
		printf("\n----------The ORIGINAL FILE----------\n");
		print("emp.txt");
		int size;
		size=fseek(fp, 0, SEEK_END);
		size=ftell(fp);
		printf("\nThe size of the file is : %d",size);
	}
	fclose(fp);
   printf("\n\nThis output belongs to 2K20/B5/37 and Nishant Aggarwal \n" );

	return 0;
}
```

OUTPUT:


----------The ORIGINAL FILE----------
Name : NISHANT AGGARWAL
Age : 25
Salary : 1000000.000000
The size of the file is : 65
This output belongs to 2K20/B5/37 and Nishant Aggarwal