VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JnanaSangama", Belgaum -590014, Karnataka.

C PROGRAMMING LAB RECORD

Submitted by

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Under the Guidance of
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in partial fulfillment for the award of the degree of
BACHELOR OF ENGINEERING
in
COMPUTER SCIENCE AND ENGINEERING

B.M.S. COLLEGE OF ENGINEERING
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BENGALURU-560019
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B.M.S. COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECALARATION

I,AAAA , student of 2nd Semester, B.E, Department of Computer Science and Engineering, B. M. S. College of Engineering, Bangalore, hereby declare that, this laboratory work for "C Programming" course has been carried out by us under the guidance of Prof. Rekha G S ,Assistant Professor, Department of CSE, B. M. S. College of Engineering, Bangalore during the academic semester April-2021-June-2021

We also declare that to the best of our knowledge and belief, the development reported here is not from part of any other report by any other students.

CHERRISHA U SHETTY (1BM20CS033)

All 10 programs to be included:

Program Name

Program complete code

Program output screenshot

Each program should start on a fresh page

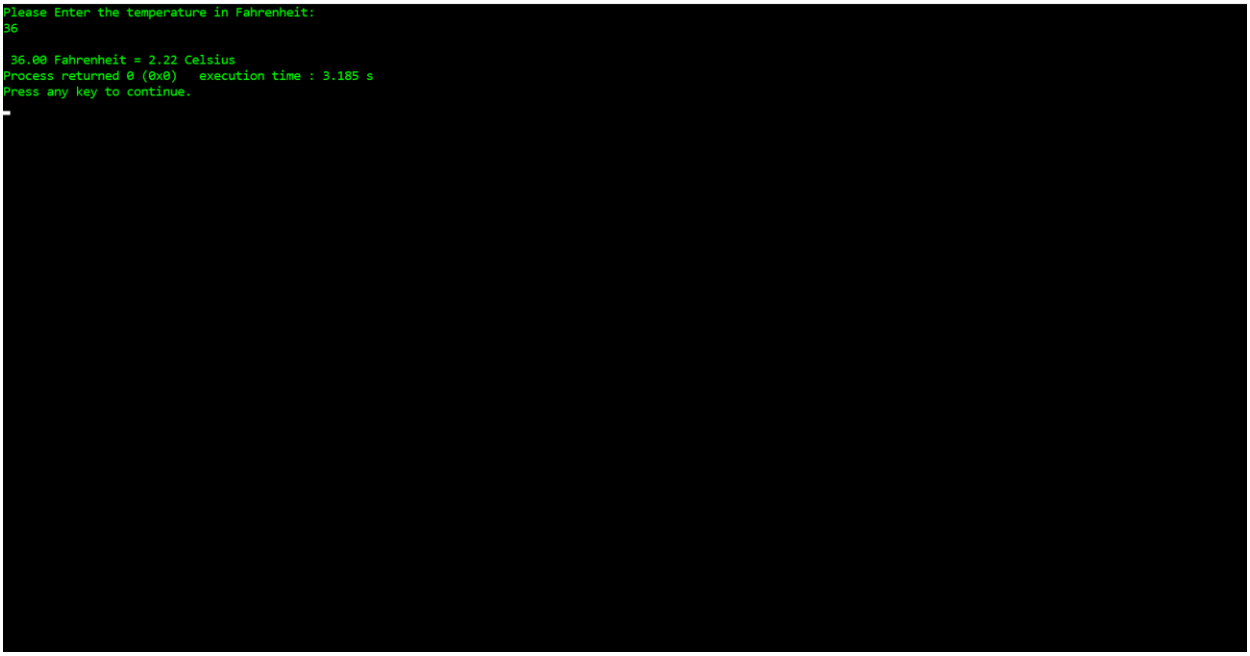
PROGRAM 1

Program: Develop a C program to convert degrees Fahrenheit into degrees Celsius.

Program complete code:

```
#include <stdio.h>

int main()
{
   float celsius, fahrenheit;

   printf("Please Enter the temperature in Fahrenheit: \n");
   scanf("%f", &fahrenheit);

   celsius = (fahrenheit - 32) * 5 / 9;

   printf("\n %.2f Fahrenheit = %.2f Celsius", fahrenheit, celsius);

   return 0;
}
```

Program output screenshot:



PROGRAM 2

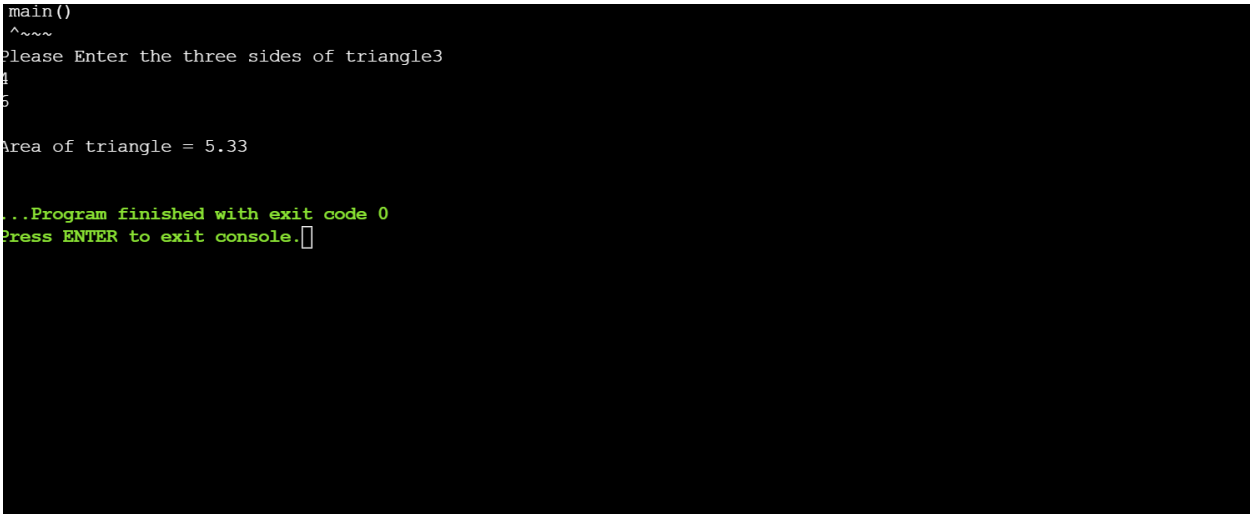
Program: Develop a C program to find the area of a triangle given its sides as input using functions.

Program complete code:

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

float AreaofaTriangle(float, float, float);

main()
{
  float a, b, c, ar;

  printf("Please Enter the three sides of triangle");
  scanf("%f%f%f",&a,&b,&c);

  ar = AreaofaTriangle(a, b, c);
  printf("\nArea of triangle = %.2f\n", ar);

  return 0;
}
```

```
float AreaofaTriangle( float a, float b, float c )
{
   float s, ar;

   s = (a+b+c)/2;
   ar = sqrt(s*(s-a)*(s-b)*(s-c));
   return ar;
}
```

Program output screenshot:



PROGRAM 3

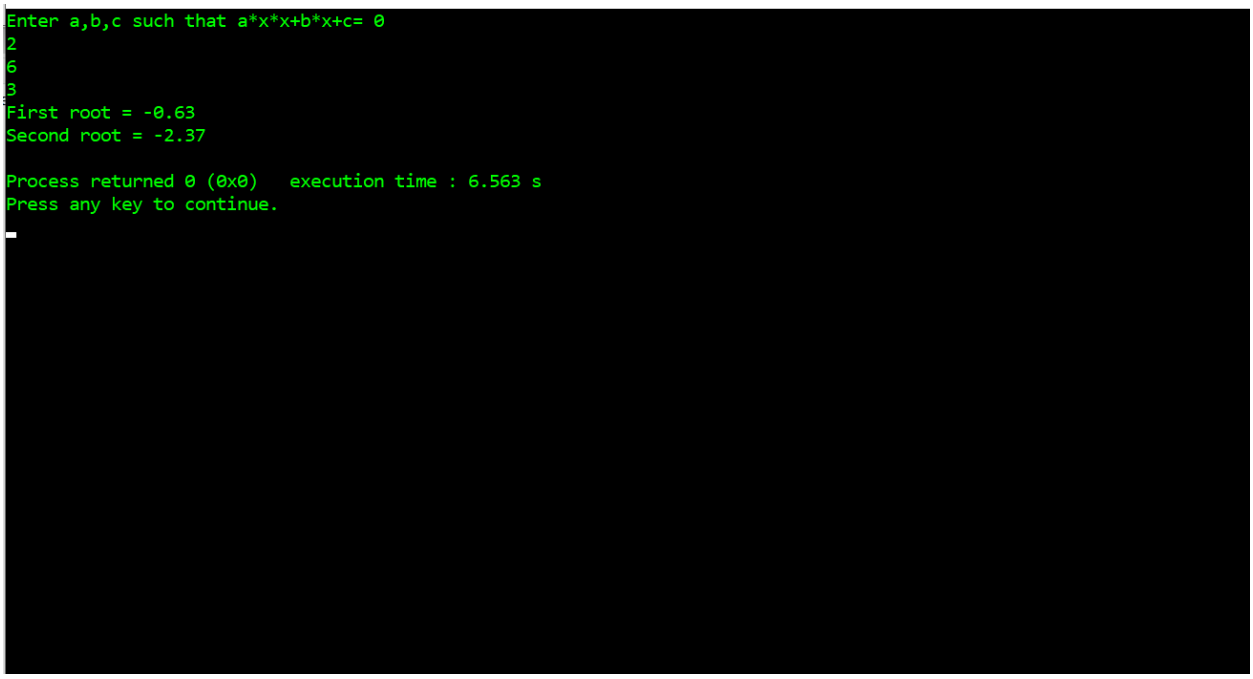
Program: Develop a C program to find all possible roots of a quadratic equation.

Program complete code:

```
#include <stdio.h>
#include <math.h>
int main()
{
  int a,b,c,d;
  double root1,root2;

  printf("Enter a,b,c such that a*x*x+b*x+c= 0\n");
  scanf("%d%d%d", &a, &b, &c);

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

  if (d < 0) { // complex roots, i is for iota (√-1, square root of -1)
    printf("First root = %.2lf + i%.2lf\n", -b/(double)(2*a), sqrt(-d)/(2*a));
    printf("Second root = %.2lf - i%.2lf\n", -b/(double)(2*a), sqrt(-
d)/(2*a));
  }
  else { // real roots
    root1 = (-b + sqrt(d))/(2*a);
```

```
    root2 = (-b - sqrt(d))/(2*a);

    printf("First root = %.2lf\n", root1);
    printf("Second root = %.2lf\n", root2);
  }

  return 0;
}
```

Program output screenshot:



PROGRAM 4

Program: Develop a C program to determine whether the entered character is a vowel or consonant using switch case statement.

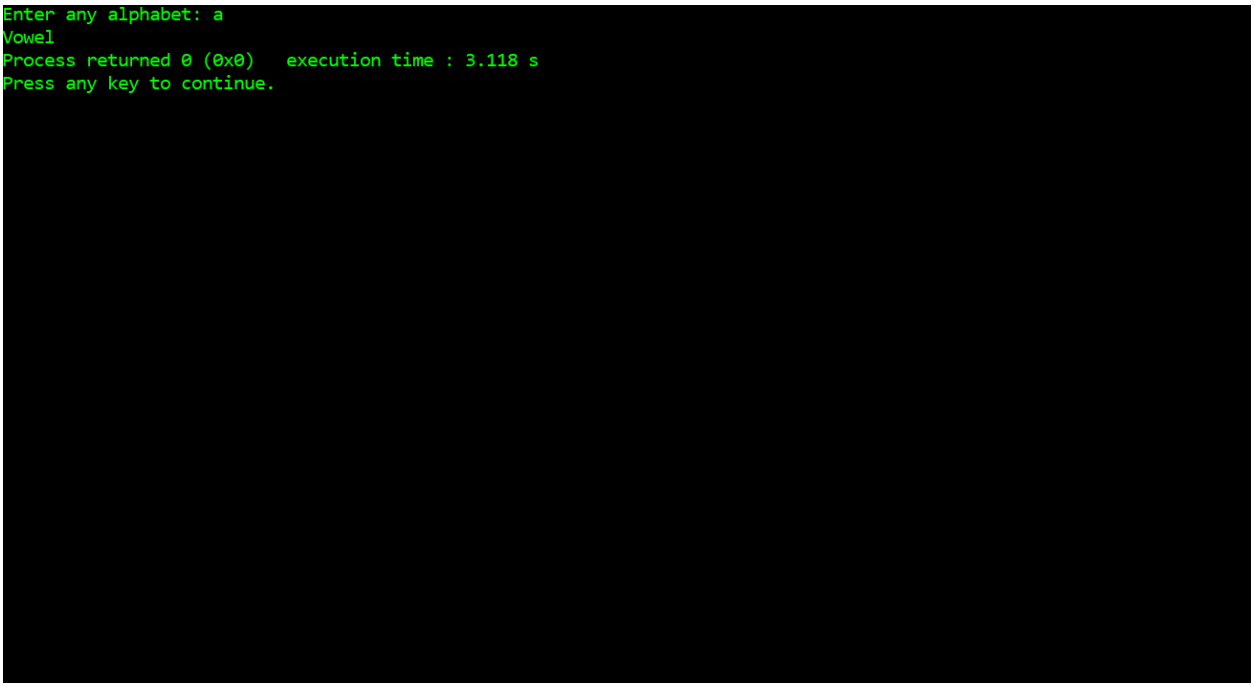
Program complete code:

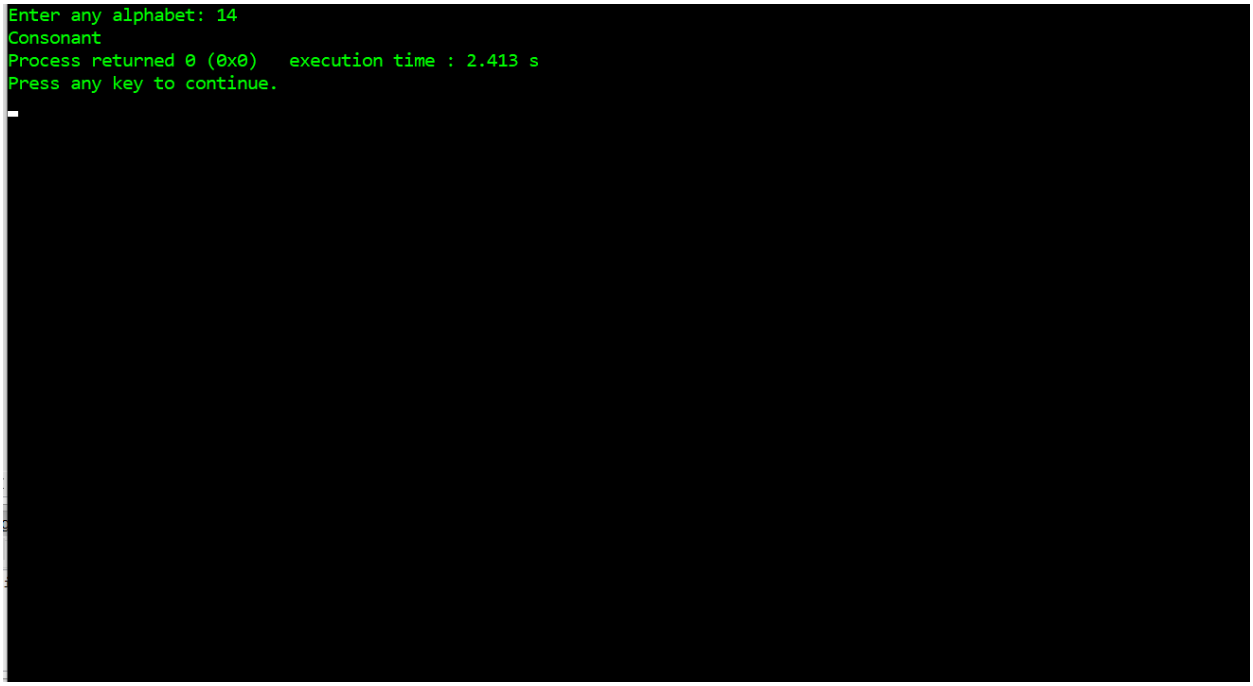
```
#include <stdio.h>


int main()
{
   char ch;
   printf("Enter any alphabet: ");
   scanf("%c", &ch);
   switch(ch)
   {
      case 'a':
         printf("Vowel");
         break;
      case 'e':
         printf("Vowel");
         break;
      case 'i':
         printf("Vowel");
         break;
      case 'o':
         printf("Vowel");
```

```
        break;
    case 'u':
        printf("Vowel");
        break;
    case 'A':
        printf("Vowel");
        break;
    case 'E':
        printf("Vowel");
        break;
    case 'I':
        printf("Vowel");
        break;
    case 'O':
        printf("Vowel");
        break;
    case 'U':
        printf("Vowel");
        break;
    default:
        printf("Consonant");
}
```

```
    return 0;
}
```

Program output screenshot:





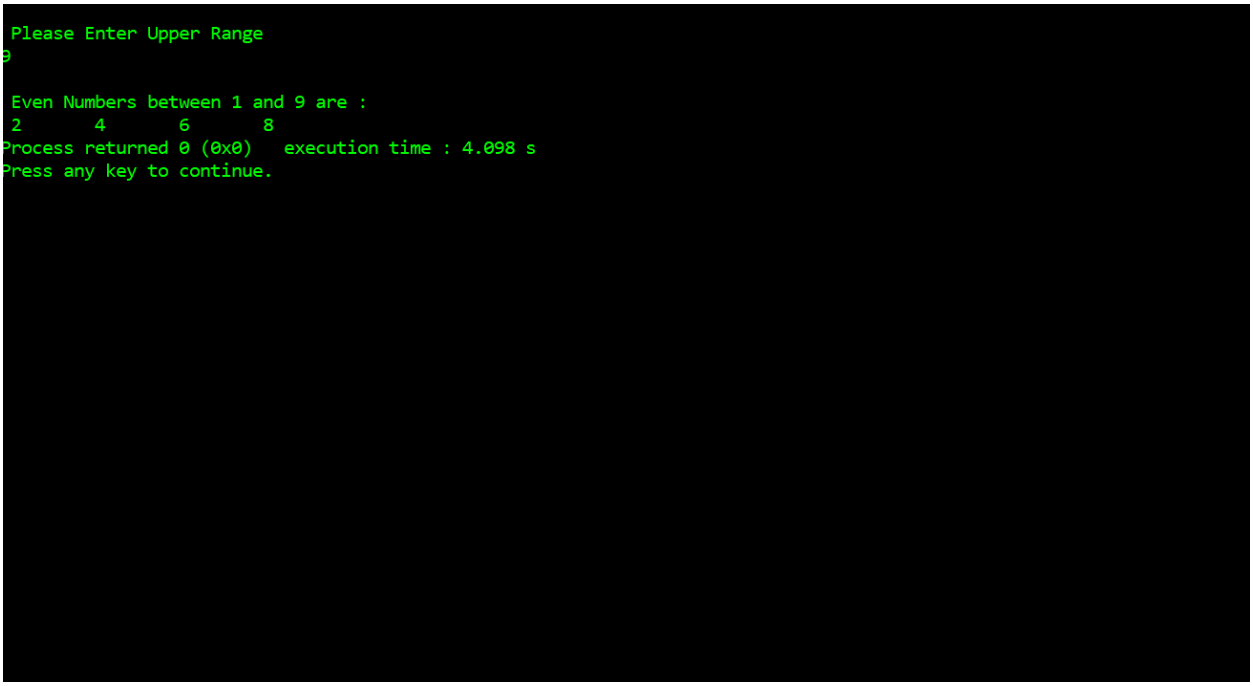
PROGRAM 5

Program: Develop a C program to print even numbers from M to N.

Program complete code:

```
#include<stdio.h>

int main()
{
	int i, num;
	printf("\n Please Enter Upper Range:\n");
	scanf("%d", &num);
	printf("\n Even Numbers between 1 and %d are : \n", num);
	for(i = 2; i <= num; i= i+2)
	{
		printf(" %d\t", i);
	}

	return 0;
}
```

Program output screenshot:



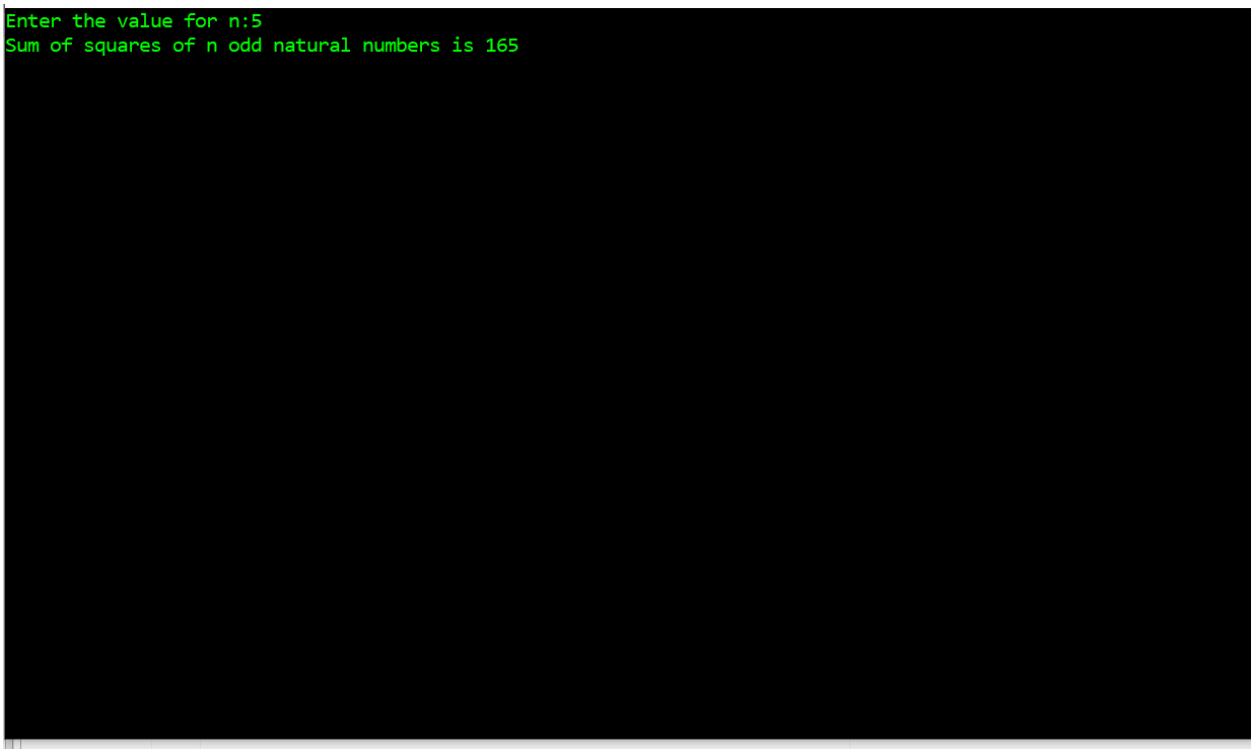
PROGRAM 6

Program: Develop a program to calculate the sum of squares of first n odd numbers.

Program complete code:

```
#include <stdio.h>


#include<conio.h>
int main()
 {
  int num, sum = 0, i;
  printf("Enter the value for n:");
  scanf("%d", &num);
  for(i=1; i<=num;i++)
   {
  sum +=(2*i-1)*(2*i-1);
   }
  printf("Sum of squares of n odd natural numbers is %d\n", sum);
  getch();
 return (0);
}
```

Program output screenshot:



PROGRAM 7

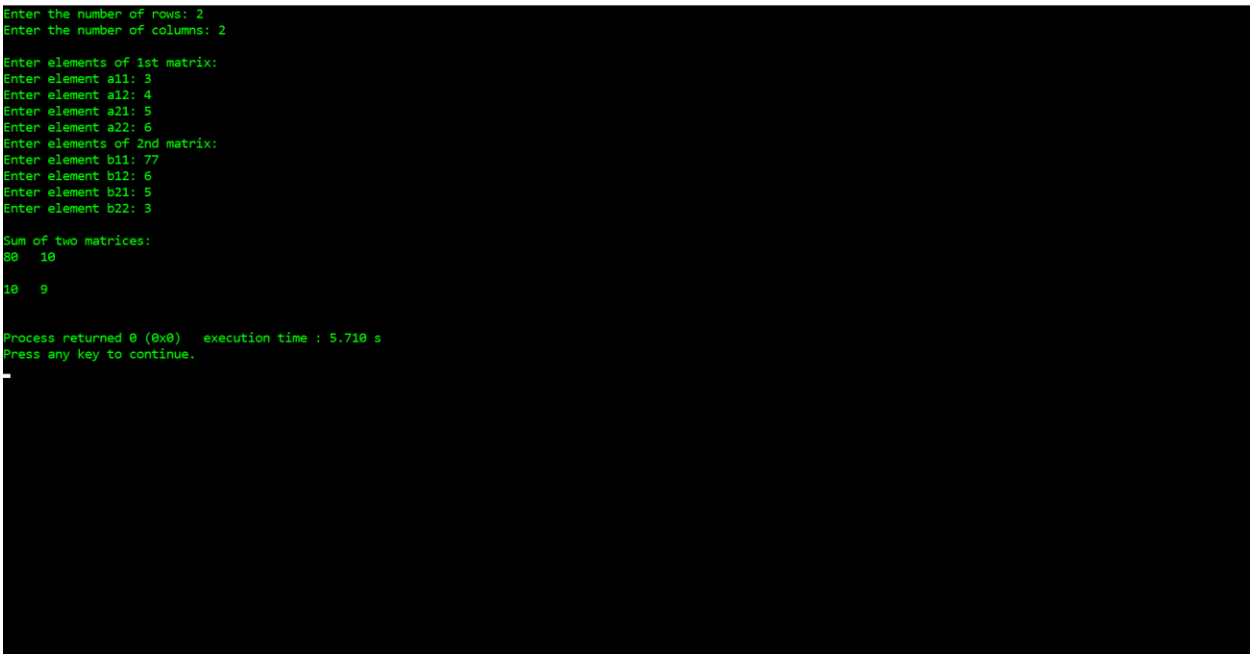
Program: Develop a program to perform addition of two Matrices.

Program complete code:

```
#include <stdio.h>
int main() {
  int r, c, a[100][100], b[100][100], sum[100][100], i, j;
  printf("Enter the number of rows: ");
  scanf("%d", &r);
  printf("Enter the number of columns: ");
  scanf("%d", &c);

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

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

```
    for (j = 0; j < c; ++j) {
      sum[i][j] = a[i][j] + b[i][j];
    }

  printf("\nSum of two matrices: \n");
  for (i = 0; i < r; ++i)
    for (j = 0; j < c; ++j) {
      printf("%d   ", sum[i][j]);
      if (j == c - 1) {
        printf("\n\n");
      }
    }

  return 0;
}
```

Program output screenshot:



PROGRAM 8

Program: Develop a C program to copy one string to another string and find its length without using built in functions.

Program complete code:

```
#include<stdio.h>
 int main()
{
   char a[100], b[100];
   int i;
   {
   printf("\nEnter the string :");
   gets(a);

   i = 0;
   while (a[i] != '\0')
       {
     b[i] = a[i];
     i++;
       }

   b[i] = '\0';
   printf("\nCopied String is %s ", b);

   printf("\nLength of string: %d",i);
    scanf("%s",b);
    for(i=0; b[i]!='\0'; ++i);
```

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

Program output screenshot:

PROGRAM 9

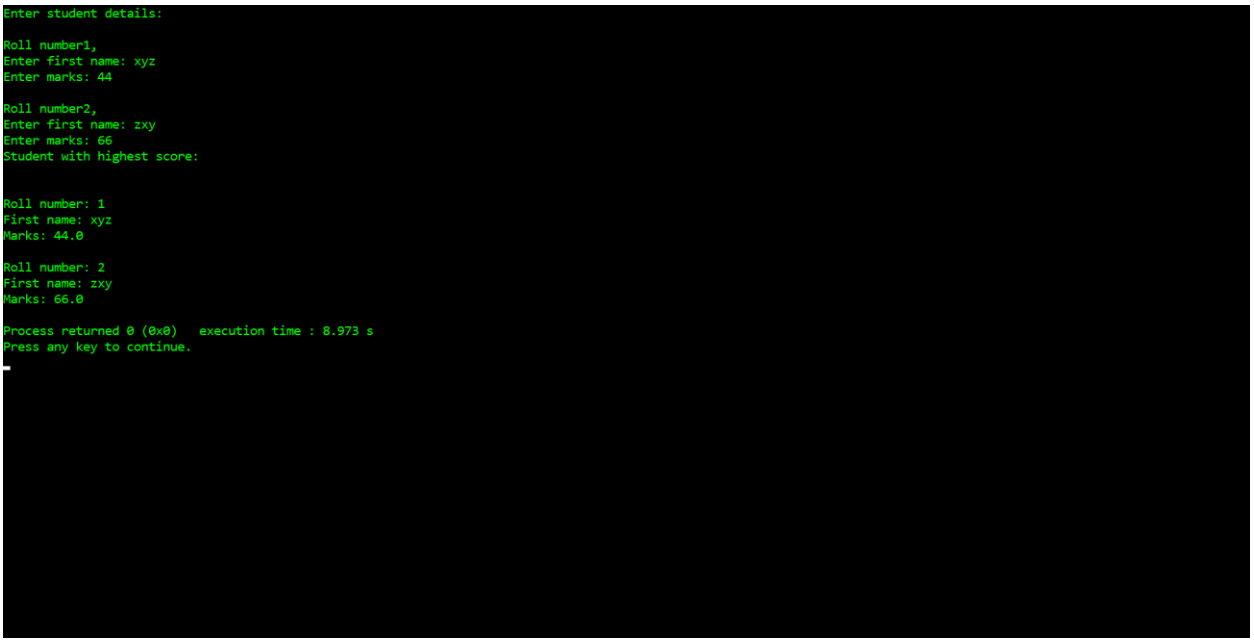
Program: Develop a C program to create student structure, read two student details(Student, roll number, name, section, department, fees, and results i.e., total marks obtained) and print the student details who has scored the highest.

Program complete code:

```
#include <stdio.h>
struct student
 {
    char firstName[50];
    int roll;
    float marks;
 }
s[10];
int main()
{
    int i;
    printf("Enter student details:\n");
    for (i = 0; i < 2; ++i)
        {
        s[i].roll = i + 1;
        printf("\nRoll number%d,\n", s[i].roll);
        printf("Enter first name: ");
        scanf("%s", s[i].firstName);
        printf("Enter marks: ");
        scanf("%f", &s[i].marks);
```

```
        }
    printf("Student with highest score:\n\n");
    for (i = 0; i < 2; ++i)
        {
        printf("\nRoll number: %d\n", i + 1);
        printf("First name: ");
        puts(s[i].firstName);
        printf("Marks: %.1f", s[i].marks);
        printf("\n");
        }
    return 0;
}
```

Program output screenshot:



PROGRAM 10

Program: Develop a C program to perform arithmetic operations (addition, subtraction, multiplication, division and remainder) on two integers using pointers.

Program complete code:

```
int main()
{
  int num1, num2, add, subtract, multiply, remainder;
  float divide;

  printf("Enter two integers\n");
  scanf("%d%d", &num1, &num2);

  add = num1 + num2;
  subtract = num1 - num2;
  multiply = num1 * num2;
  divide = num1 / (float)num2;
  remainder= num1 % num2;

  printf("Sum = %d\n", add);
  printf("Difference = %d\n", subtract);
  printf("Multiplication = %d\n", multiply);
  printf("Division = %.2f\n", divide);
  printf("Remainder= %d\n", remainder);
```

```
    return 0;
}
```

Program output screenshot: