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
ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

B.M.S. COLLEGE OF ENGINEERING
(Autonomous Institution under VTU)
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B.M.S. COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECALARATION

I, SAI KRISHNA MANOJ ALAPATI, student of 2nd Semester, B.E, Department of AIML 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.

SAI KRISHNA MANOJ ALAPATI (1BM20AI047)

1) Develop a C program to convert degrees Fahrenheit into degrees celsius.

```
#include<stdio.h>
#include<conio.h>
void main()
{
float fah,cel;
printf("Enter the temp in fahrenheit= ");
scanf("%f",&fah);
cel=(5.0/9)*(fah-32);
printf("%.2f fahreheit in celsius is %.2f C", fah, cel);
getch();
}
```

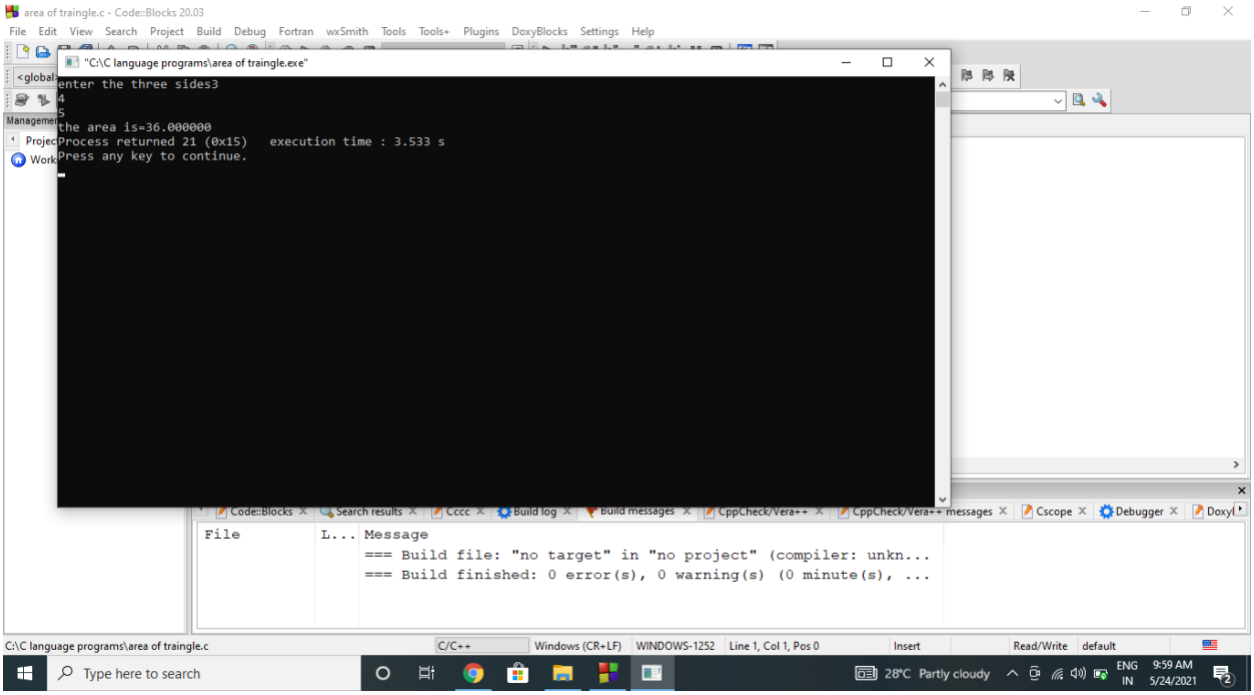
OUTPUT:


enter the temp in fahrenheit32
/n the temp in celsius is : 0.000000

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

```
#include <stdio.h>
#include <math.h>
int areacalculate(int a,int b,int c)
{
float s , area , s1;
s1=a+b+c;
s = s1/2;
area = sqrt(s*(s-a)*(s-b)*(s-c));
printf("Area of Triangle of given sides is %0.2f",area);
return 0;
}
int main(){
int a1,b1,c1;
printf("Enter three side of triangle\n");
scanf("%d %d %d",&a1,&b1,&c1);
areacalculate(a1,b1,c1);
return 0;
}
```

OUTPUT:


area of traingle.c - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
"C:\C language programs\area of traingle.exe"
enter the three sides3
4
5
the area is=36.000000
Process returned 21 (0x15) execution time : 3.533 s
Press any key to continue.
Code::Blocks
Search results
Cccc
Build log
Build messages
CppCheck/Vera++
CppCheck/Vera++ messages
Cscope
Debugger
File
L...
Message
=== Build file: "no target" in "no project" (compiler: unkn...
=== Build finished: 0 error(s), 0 warning(s) (0 minute(s), ...
C:\C language programs\area of traingle.c
C/C++
Windows (CR+LF)
WINDOWS-1252
Line 1, Col 1, Pos 0
Insert
Read/Write
default
Type here to search
28°C Partly cloudy
ENG
IN
9:59 AM
5/24/2021

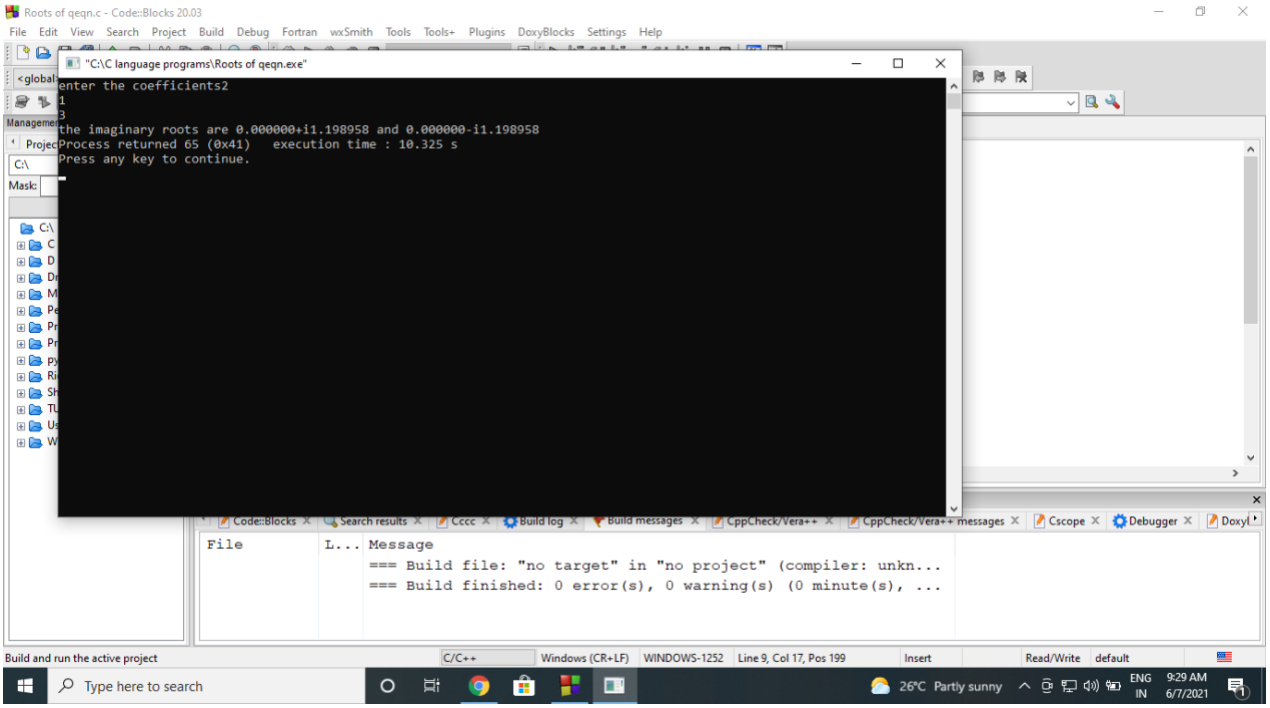
3) Develop a C program to find all possible roots of a quadratic equation.

```
#include<stdio.h>
#include<math.h>
float func(int,int,int);
void main()
{
   float a,b,c,d,r1,r2;
   printf("enter the coefficients");
   scanf("%f %f %f",&a,&b,&c);
   func(a,b,c);
}
float func(int a,int b,int c)
{
   float d,r1,r2,realp,imgp;
   d=b*b-4*a*c;
   if(d>0)
   {
      r1=(-b+sqrt(d))/2*a;
      r2=(-b-sqrt(d))/2*a;
      printf("the roots are %f and %f",r1,r2);
   }
  else if(d==0)
  {
```

```
        r1=r2=-b/(2*a);
        printf("the roots are %f and %f",r1,r2);
    }
    else
    {
        realp=-b/(2*a);
        imgp=sqrt(-d)/(2*a);
        printf("the imaginary roots are %f+i%f and %f-
i%f",realp,imgp,realp,imgp);
    }
     return(0);

}
```

OUTPUT:

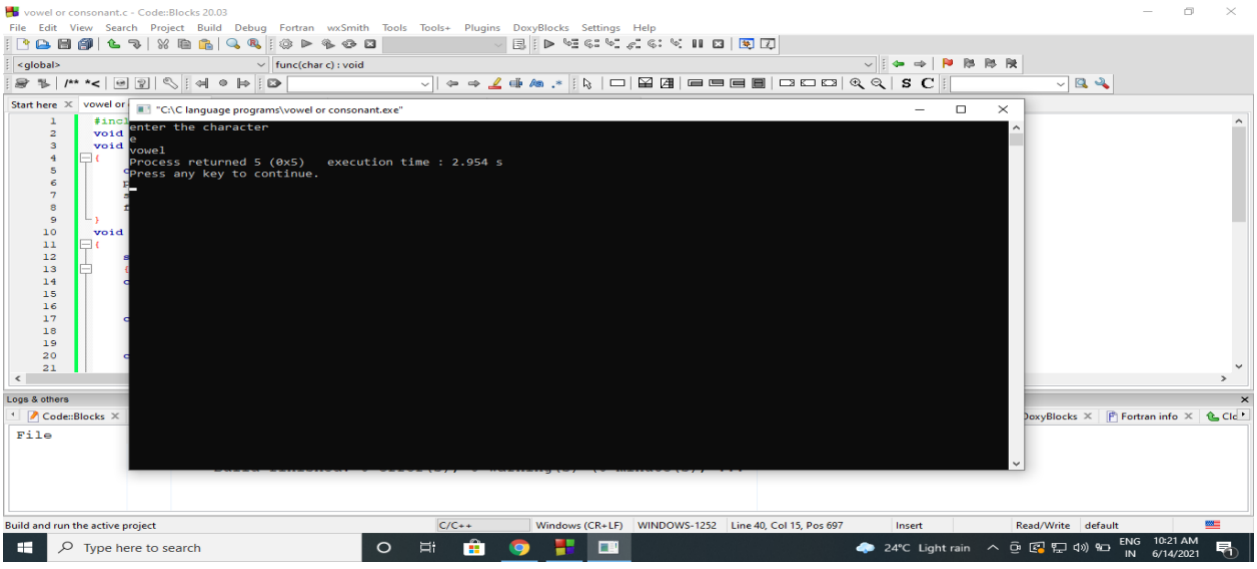


4) Determine whether the entered character is a vowel or consonant using switch case statement.

```
include<stdio.h>
void func(char);
void main()
{
   char c;
   printf("enter the character\n");
   scanf("%c",&c);
   func(c);
}
void func(char c)
{
   switch(c)
   {
   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("consonat");
  }}
```

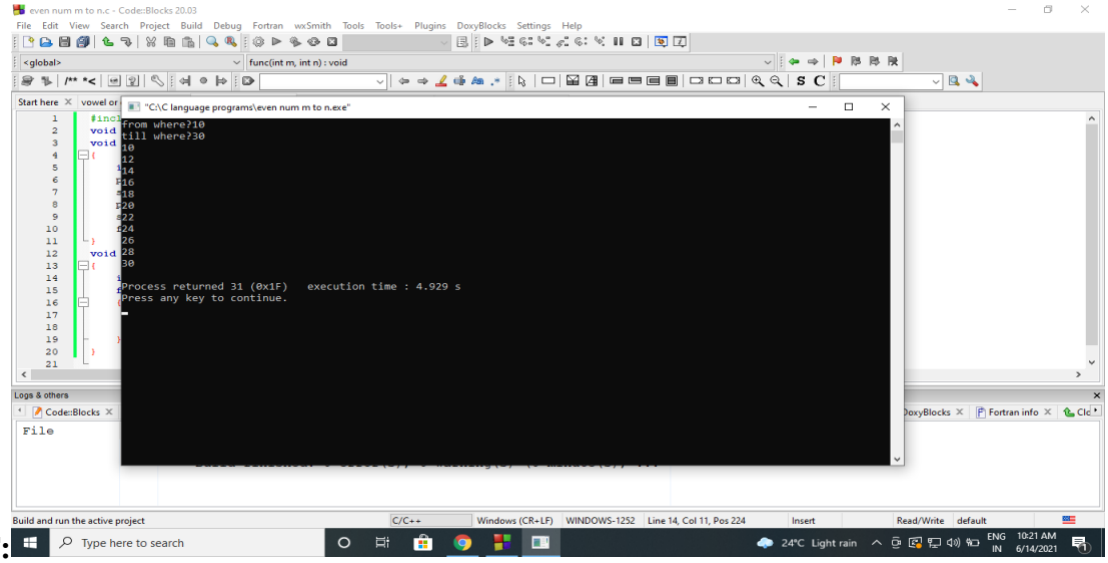
OUTPUT:



5) Develop a C program to print even numbers from M to N.

```
#include<stdio.h>
void func(int,int);
void main()
{
   int m,n;
   printf("from where?");
   scanf("%d",&m);
   printf("till where?");
   scanf("%d",&n);
   func(m,n);
}
void func(int m,int n)
{
   int i;
   for(i=m;i<=n;i++)
   {
      if(i%2==0)
      printf("%d\n",i); }}
```

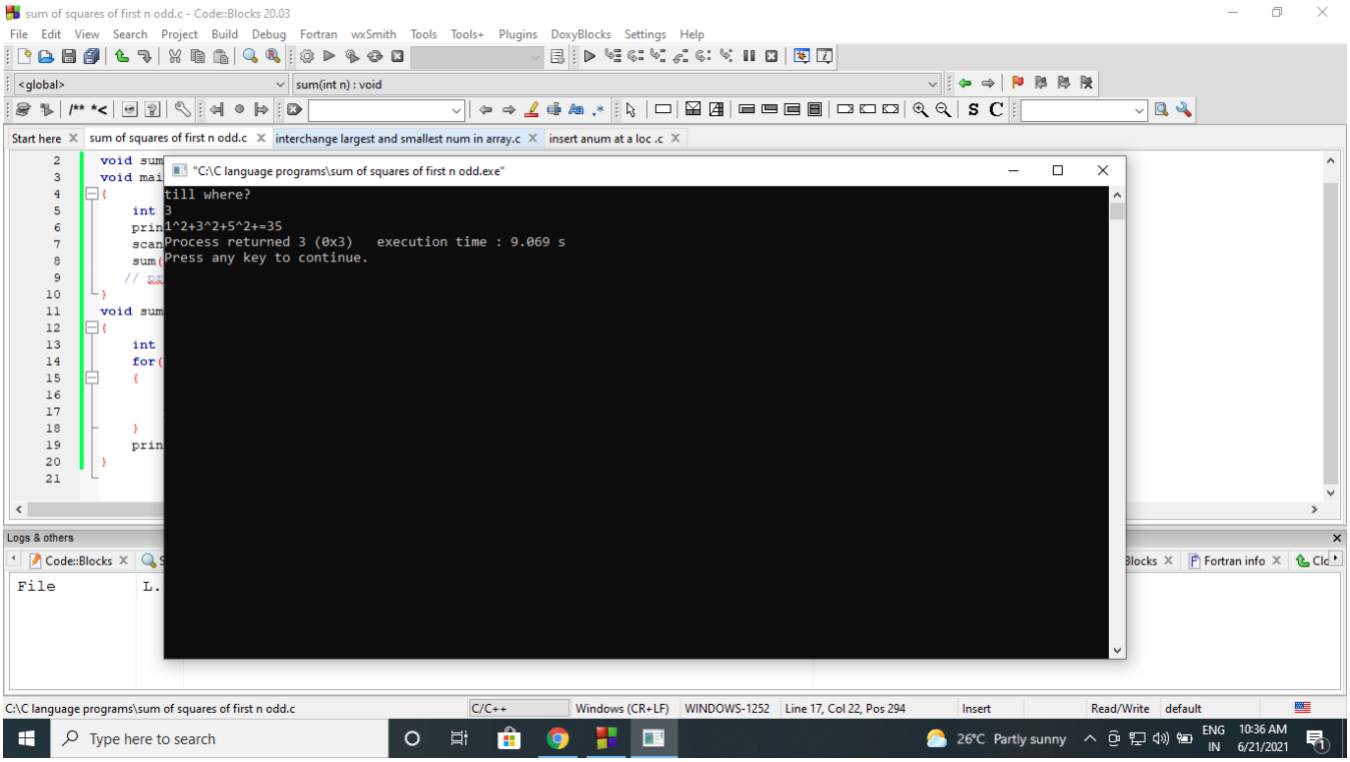
OUTPUT:



6) Develop a program to calculate the sum of squares of first n odd numbers.

```
#include<stdio.h>
void sum(int);
void main()
{
   int n,final;
   printf("till where?\n");
   scanf("%d",&n);
   sum(n);
}
void sum(int n)
{
   int i,s=0;
   for(i=0;i<=n-1;i++)
   {
      s=s+(2*i+1)*(2*i+1);
      printf("%d^2+",2*i+1);
   }
   printf("=%d",s);
}
```

OUTPUT:

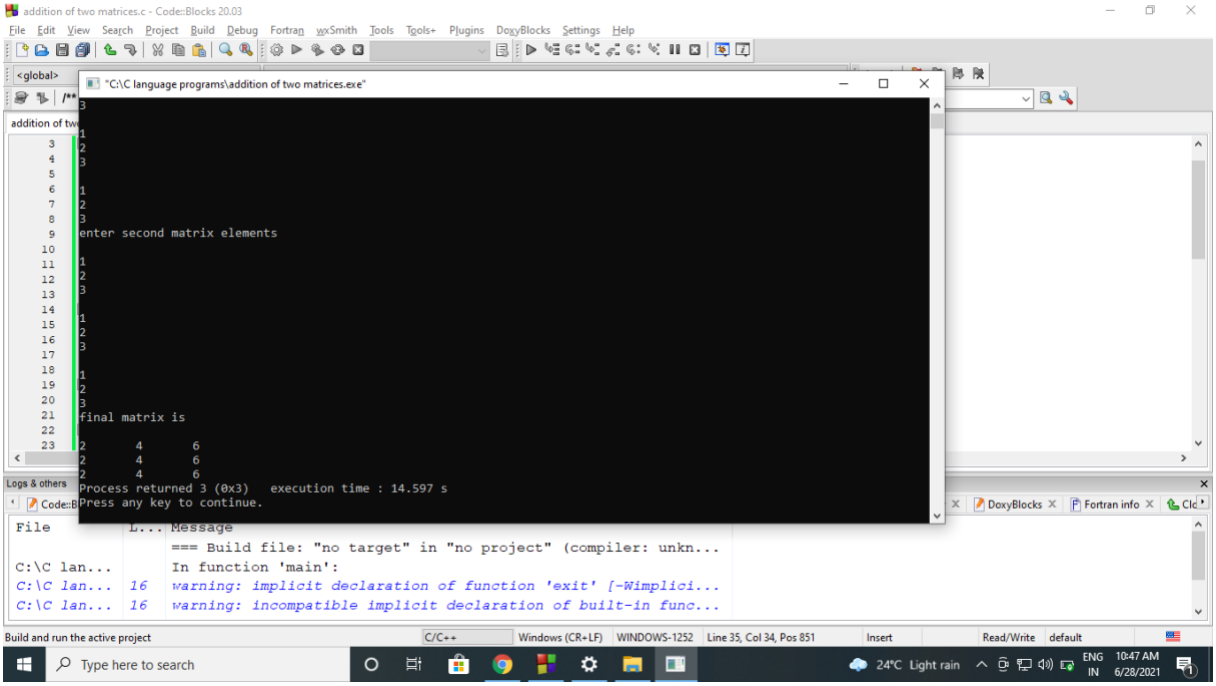

sum of squares of first n odd.c - Code::Blocks 20.03
"C:\C language programs\sum of squares of first n odd.exe"
till where?
3
1^2+3^2+5^2+=35
Process returned 3 (0x3)   execution time : 9.069 s
Press any key to continue.
Type here to search

7) Develop a program to perform addition of two Matrices.

```
#include<stdio.h>
void main()
{
   int a[10][10],b[10][10],c[10][10],i,j,r1,r2,c1,c2;
   printf("enter the number of rows in 1st matrix\n");
   scanf("%d",&r1);
   printf("enter no of columns in 1st matrix\n");
   scanf("%d",&c1);
   printf("no of rows in  2nd matrix\n");
   scanf("%d",&r2);
   printf("no of columns in 2nd matrix\n");
   scanf("%d",&c2);
   if(r1!=r2 || c1!=c2)
   {
      printf("invalid addition");
      exit(0);
   }
   else
   {
   printf("enter first matrix elements\n");
   for(i=0;i<r1;i++)
   {
      printf("\n");
      for(j=0;j<c1;j++)
      {
         scanf("%d",&a[i][j]);
      }
   }
   printf("enter second matrix elements\n");
   for(i=0;i<r2;i++)
   {
      printf("\n");
      for(j=0;j<c2;j++)
      {
         scanf("%d",&b[i][j]);
```

```
    }
  }
  for(i=0;i<r1;i++)
  {
    for(j=0;j<c1;j++)
    {
      c[i][j]=a[i][j]+b[i][j];
    }
  }
  printf("final matrix is\n");
  for(i=0;i<r1;i++)
  {
    printf("\n");
    for(j=0;j<c1;j++)
    {
      printf("%d",c[i][j]);
      printf("\t");
    }
  }
  }
}
```

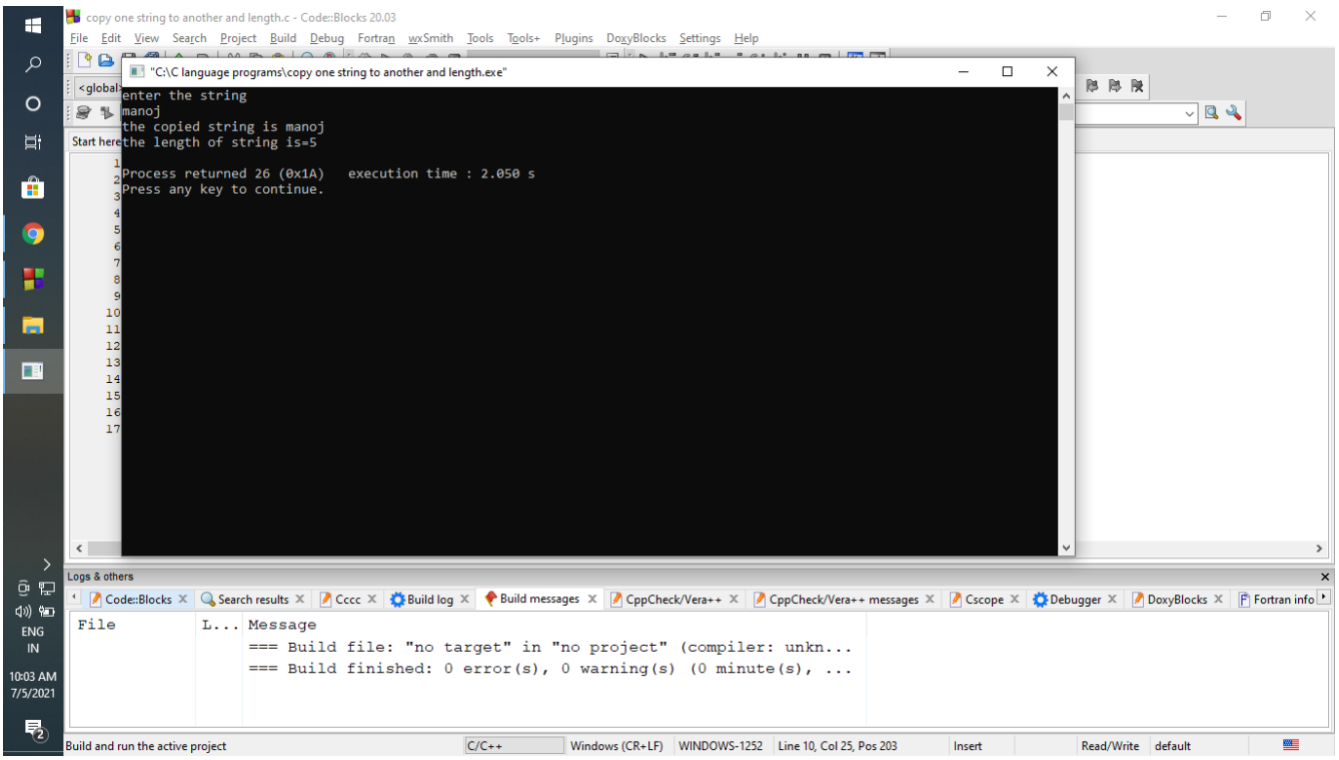
OUTPUT:



8) Develop a C program to copy one string to another string and find its length without using built in functions

```
#include<stdio.h>
void main()
{
   char str1[20],str2[20];
   int i,len=0;
   printf("enter the string\n");
   scanf("%s",str1);
   for(i=0;str1[i]!='\0';i++)
   {
      str2[i]=str1[i];
      len=i;
   }
   str2[i]='\0';
   printf("the copied string is %s\n",str2);
   printf("the length of string is=%d\n",len+1);
}
```

OUTPUT:

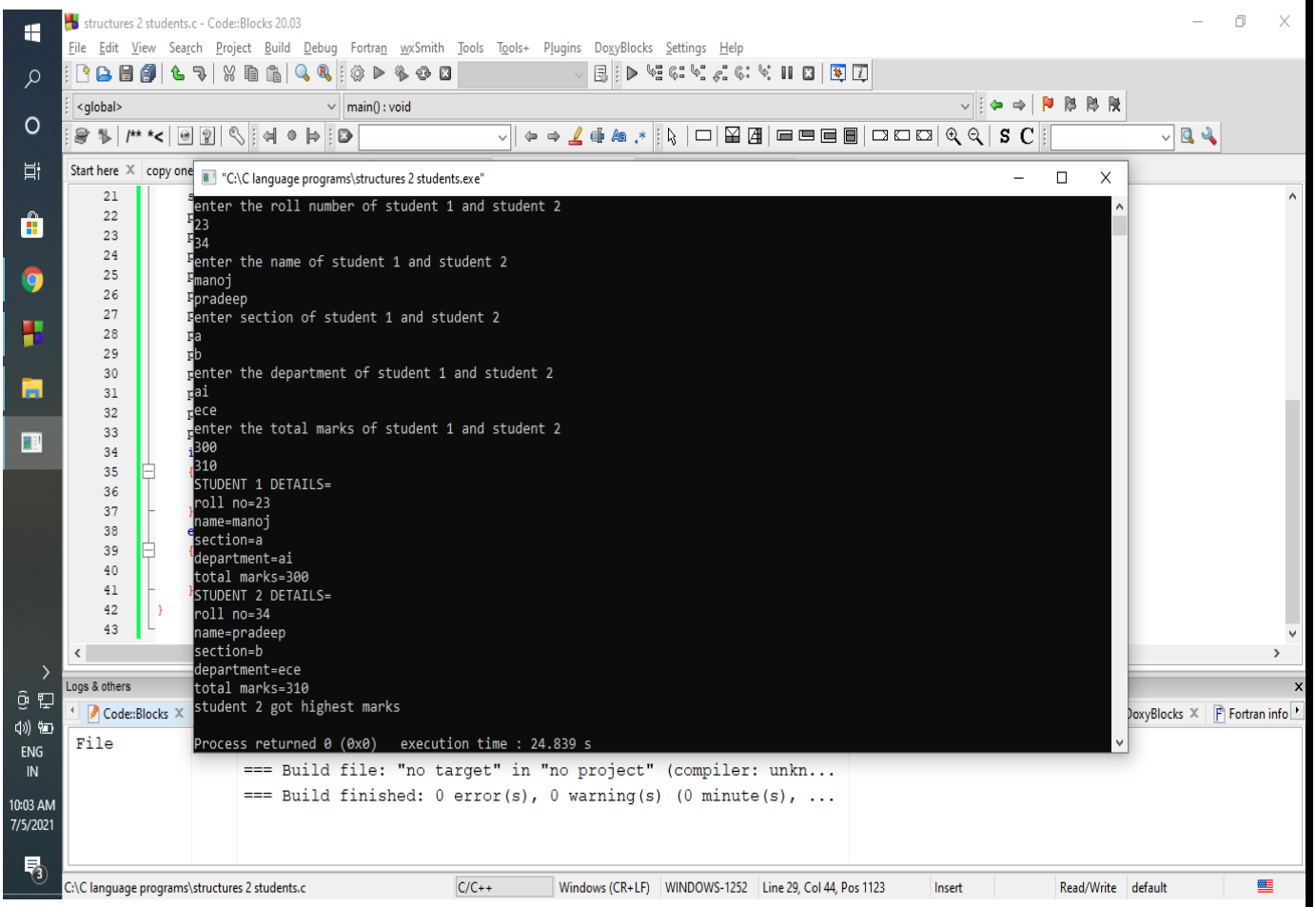

copy one string to another and length.c - Code::Blocks 20.03
"C:\C language programs\copy one string to another and length.exe"
enter the string
manoj
the copied string is manoj
the length of string is=5
Process returned 26 (0x1A) execution time : 2.050 s
Press any key to continue.
Logs & others
Code::Blocks
Search results
Cccc
Build log
Build messages
CppCheck/Vera++
CppCheck/Vera++ messages
Cscope
Debugger
DoxyBlocks
Fortran info
File
L...
Message
=== Build file: "no target" in "no project" (compiler: unkn...
=== Build finished: 0 error(s), 0 warning(s) (0 minute(s), ...
Build and run the active project
C/C++
Windows (CR+LF)
WINDOWS-1252
Line 10, Col 25, Pos 203
Insert
Read/Write
default

9) .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.

```
#include<stdio.h>
void main()
{
   struct student
   {
      int rollno;
      char name[20];
      char sec[3];
      char dept[20];
      int totalmarks;
   }student1,student2;
   printf("enter the roll number of student 1 and student 2\n");
   scanf("%d%d",&student1.rollno,&student2.rollno);
   printf("enter the name of student 1 and student 2\n");
   scanf("%s%s",student1.name,student2.name);
   printf("enter section of student 1 and student 2\n");
   scanf("%s%s",student1.sec,student2.sec);
   printf("enter the department of student 1 and student 2\n");
   scanf("%s%s",student1.dept,student2.dept);
   printf("enter the total marks of student 1 and student 2\n");
   scanf("%d%d",&student1.totalmarks,&student2.totalmarks);
   printf("STUDENT 1 DETAILS=\n");
   printf("roll no=%d\n",student1.rollno);
   printf("name=%s\n",student1.name);
   printf("section=%s\n",student1.sec);
   printf("department=%s\n",student1.dept);
   printf("total marks=%d\n",student1.totalmarks);
   printf("STUDENT 2 DETAILS=\n");
   printf("roll no=%d\n",student2.rollno);
```

```
    printf("name=%s\n",student2.name);
    printf("section=%s\n",student2.sec);
    printf("department=%s\n",student2.dept);
    printf("total marks=%d\n",student2.totalmarks);
    if(student1.totalmarks>student2.totalmarks)
    {
       printf("student 1 got highest marks\n");
    }
    else
    {
       printf("student 2 got highest marks\n");
    }
}
```

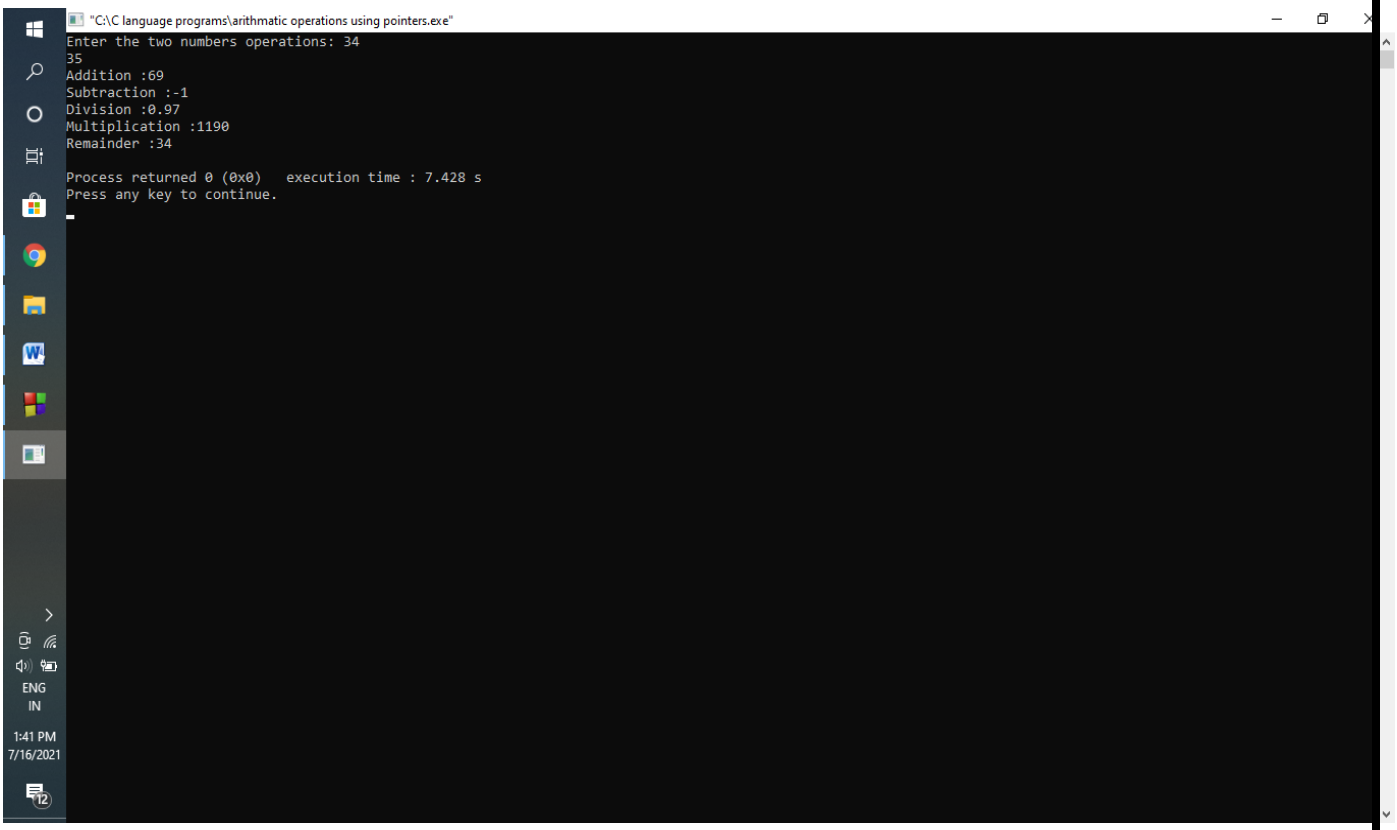
OUTPUT:


structures 2 students.c - Code::Blocks 20.03
"C:\C language programs\structures 2 students.exe"
enter the roll number of student 1 and student 2
23
34
enter the name of student 1 and student 2
manoj
pradeep
enter section of student 1 and student 2
a
b
enter the department of student 1 and student 2
ai
ece
enter the total marks of student 1 and student 2
300
310
STUDENT 1 DETAILS=
roll no=23
name=manoj
section=a
department=ai
total marks=300
STUDENT 2 DETAILS=
roll no=34
name=pradeep
section=b
department=ece
total marks=310
student 2 got highest marks
Process returned 0 (0x0) execution time : 24.839 s
=== Build file: "no target" in "no project" (compiler: unkn...
=== Build finished: 0 error(s), 0 warning(s) (0 minute(s), ...

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

```
#include<stdio.h>
int operations(int *, int *, int *, int *, int*, float
*, int *);
int main()
{
int a,b;
int add,sub,multiplication,rem;
float division;
printf("Enter the two numbers operations: ");
scanf("%d %d",&a,&b);
operations(&a, &b, &add, &sub, &multiplication,&division, &rem);
printf("Addition :%d\n",add);
printf("Subtraction :%d\n",sub);
printf("Division :%0.2f\n",division);
printf("Multiplication :%d\n",multiplication);
printf("Remainder :%d\n",rem);
return 0;
}
int operations(int *a, int *b, int *add, int *sub, int
*multiplication, float *division, int *rem)
{
*add=*a+*b;
*sub=*a-*b;
*multiplication=*a**b;
*division=(float)(*a)/(*b);
*rem=(*a)%(*b);
return 0;
}
```

OUTPUT:


"C:\C language programs\arithmatic operations using pointers.exe"
Enter the two numbers operations: 34
35
Addition :69
Subtraction :-1
Division :0.97
Multiplication :1190
Remainder :34
Process returned 0 (0x0) execution time : 7.428 s
Press any key to continue.
ENG
IN
1:41 PM
7/16/2021

All 10 programs to be included:

Program Name

Program complete code

Program output screenshot

Each program should start on a fresh page