# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

**"JnanaSangama", Belgaum -590014, Karnataka.**

## C PROGRAMMING LAB RECORD

*Submitted by*


**JYOTHSNA.R**


*Under the Guidance of*
**Prof. Rekha G S**
**Assistant Professor,**
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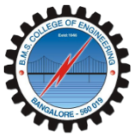
**BMSCE**

*in partial fulfillment for the award of the degree of*
**BACHELOR OF ENGINEERING**
*in*
**INFORMATION SCIENCE AND ENGINEERING**



**B.M.S. COLLEGE OF ENGINEERING**
**(Autonomous Institution under VTU)**
**BENGALURU-560019**
**April-2021 to June-2021**

# B.M.S. COLLEGE OF ENGINEERING

## DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

***DECALARATION***

I,JYOTHSNA.R , student of 2nd Semester, B.E, Department of Information 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.

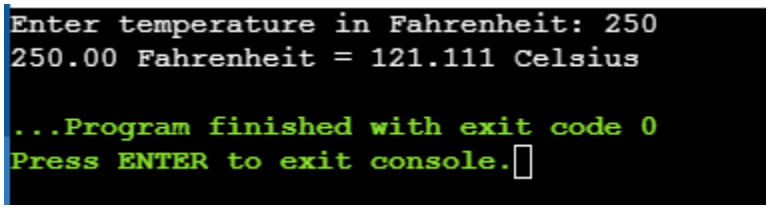
JYOTHSNA.R (1BM20IS057)

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

```
#include <stdio.h>

int main()
{
   float celsius, fahrenheit;
   printf("Enter temperature in Fahrenheit: ");
   scanf("%f", &fahrenheit);
   celsius = (fahrenheit - 32) * 5 / 9;
   printf("%.2f Fahrenheit = %.3f Celsius", fahrenheit, celsius);
   return 0;
}
```

**Program output:**



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>

float AreaofaTriangle(float, float, float);

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

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

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

  return 0;
}

float areaofaTriangle( float a, float b, float c )
{
  float s, Area;

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

**Program output:**

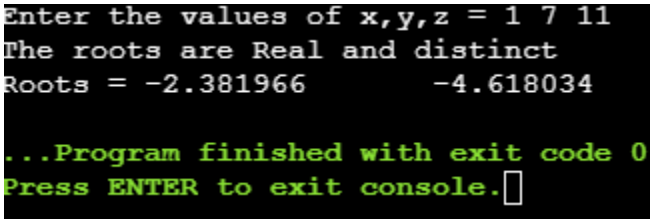
```
 Please Enter the three sides of triangle
5
6
7

Area of triangle = 14.70
```

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

```
#include<stdio.h>
#include<math.h>
void main()
{
int x;
int y;
int z;
double k;
double i;
double j;
int denominator;
printf("Enter the values of x,y,z = ");
scanf("%d%d%d",&x,&y,&z);
k=(y*y)-4*x*z;
denominator=2*x;
if(k>0)
{
i=(-y+sqrt(k))/denominator;
j=(-y-sqrt(k))/denominator;
printf("The roots are Real and distinct \nRoots = %lf\t%lf",i,j);
}
else if(k==0)
{
i=-y/denominator;
printf("The roots are Real and Equal \nRoots = %lf",i);
}
else
{
i=y/denominator;
j=-y/denominator;
printf("The roots are Imaginary \nRoots = %lf\t%lf",i,j);
}
}
```

**Program output:**



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

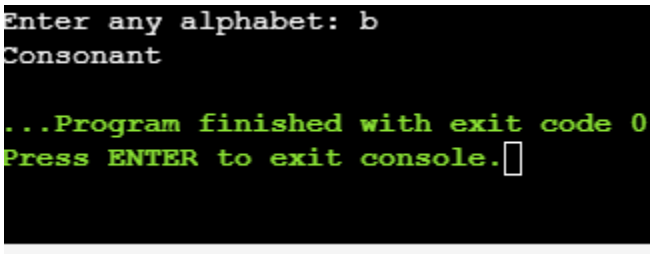
```
#include <stdio.h>

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:**



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

```
#include <stdio.h>
int main()
{
int m;
int n;
int i;
printf("Enter the value of m = ");
scanf("%d",&m);
printf("Enter the value of n = ");
scanf("%d",&n);
for(i=m;i<=n;i++)
{
if(i%2==0)
{
printf("Even numbers from %d to %d = %d\n",m,n,i);
}
}
return 0;
}
```

**Program output:**

```
Enter the value of n = 20
Even numbers from 1 to 20 = 2
Even numbers from 1 to 20 = 4
Even numbers from 1 to 20 = 6
Even numbers from 1 to 20 = 8
Even numbers from 1 to 20 = 10
Even numbers from 1 to 20 = 12
Even numbers from 1 to 20 = 14
Even numbers from 1 to 20 = 16
Even numbers from 1 to 20 = 18
Even numbers from 1 to 20 = 20
```

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

```
#include <stdio.h>
int main()
{
int i, n,sum=0;
printf("Enter any number = ");
scanf("%d", &n);
for(i=1; i<=n;i++)
{
sum += (2*i - 1) * (2*i - 1);
}
printf("Sum of square of odd numbers = %d", sum);
return 0;
}
```

**Program output:**

```
Enter any number = 5
Sum of square of odd numbers = 165

...Program finished with exit code 0
Press ENTER to exit console.
```

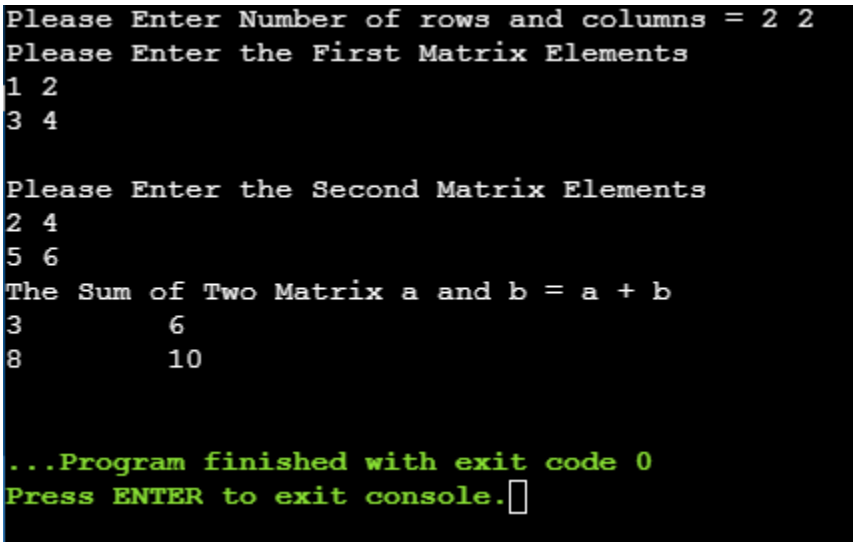
7. Develop a program to perform addition of two Matrices.

```
#include<stdio.h>
int main()
{
int i,j,r,c,a[10][10], b[10][10];
int add[10][10];
printf("Please Enter Number of rows and columns = ");
scanf("%d %d", &i, &j);
printf("Please Enter the First Matrix Elements\n");
for(r=0;r<i;r++)
{
for(c=0;c<j;c++)
{
scanf("%d",&a[r][c]);
}
}
printf("\nPlease Enter the Second Matrix Elements\n");
for(r=0; r<i;r++)
{
for(c=0;c<j;c++)
{
scanf("%d", &b[r][c]);
}
}
for(r=0;r<i;r++)
{
for(c=0;c<j;c++)
{

add[r][c] = a[r][c] + b[r][c];
}
}
printf("The Sum of Two Matrix a and b = a + b \n");
for(r=0;r<i;r++)
{
for(c=0;c<j;c++)
{
printf("%d \t ", add[r][c]);
}
```

```
printf("\n");
}
return 0;
}
```

**Program 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>

int main()
{
char str1[100],str2[100];
int i;
printf("Enter string 1\n");
scanf("%s",str1);
printf("Enter string 2\n");
scanf("%s",str2);
for(i=0;str1[i]!='\0';i++)
{
str2[i] = str1[i];
}
str2[i]='\0';
printf("Copied String(str2) is %s and its length is %d",str2,i);
return 0;
}
```

**Program output:**

```
Enter string 1
jyothsna
Enter string 2
bangalore
Copied String(str2) is jyothsna and its length is 8

...Program finished with exit code 0
Press ENTER to exit console.
```

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 name of student 1 and student 2\n");
scanf("%s%s",student1.name,student2.name);
printf("Enter the roll number of student 1 and student 2\n");
scanf("%d%d",&student1.rollno,&student2.rollno);
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\n");
printf("Name = %s\n",student1.name);
printf("Roll no = %d\n",student1.rollno);
printf("Section = %s\n",student1.sec);
printf("Department = %s\n",student1.dept);
printf("Total marks = %d\n",student1.totalmarks);
printf("STUDENT 2\n");
printf("Name = %s\n",student2.name);
printf("Roll no = %d\n",student2.rollno);
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("\nStudent 1 scored highest marks\n");
}
else
{
printf("\nStudent 2 scored highest marks\n");
}
}
```

**Program output:**

```
JYOTHSNA ROSHNI
Enter the roll number of student 1 and student 2
57
61
Enter section of student 1 and student 2
CN
CA
Enter the department of student 1 and student 2
ISE
CSE
Enter the total marks of student 1 and student 2
95
99
STUDENT 1
Name = JYOTHSNA
Roll no = 57
Section = CN
Department = ISE
Total marks = 95
STUDENT 2
Name = ROSHNI
Roll no = 61
Section = CA
Department = CSE
Total marks = 99

Student 2 scored highest marks


...Program finished with exit code 0
Press ENTER to exit console.
```

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

```
#include <stdio.h>
int main()
{
int num1, num2;
int *ptr1, *ptr2;
int sum, diff, mul, div,remainder;
ptr1=&num1;
ptr2=&num2;
printf("Enter two numbers = ");
scanf("%d%d", ptr1, ptr2);
sum=(*ptr1) + (*ptr2);
diff=(*ptr1) - (*ptr2);
mul=(*ptr1) * (*ptr2);
div=(*ptr1) / (*ptr2);
remainder=((*ptr1) % (*ptr2));
printf("Sum = %d\n", sum);
printf("Difference = %d\n", diff);
printf("Product = %d\n", mul);
printf("Quotient = %d\n", div);
printf("Remainder = %d\n",remainder);
return 0;
}
```

**Program output:**