VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JnanaSangama", Belgaum -590014, Karnataka.

C PROGRAMMING LAB RECORD

Submitted by

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Under the Guidance of

Prof. Rekha G S Assistant Professor, Department of CSE,

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)

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B.M.S. COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECALARATION

I, Diya Shetty, 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

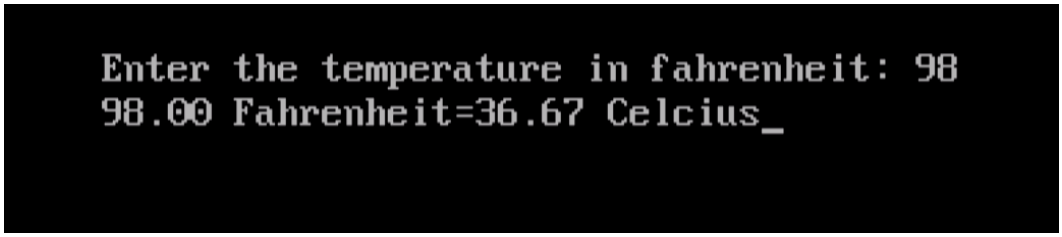
We also declare that to the best of our knowledge and belief, the development reported here is not from part of any other report by any other students.

Diya Shetty (1BM20IS033)

1. **Develop a C program to covert degrees Fahrenheit into degree celsius.**

```
#include<stdio.h>
#include<conio.h>
void main()
{
float C,F;
clrscr();
printf("\nEnter the temperature in fahrenheit: ");
scanf("%f",&F);
C=((F-32)*5)/9;
printf("%.2f Fahrenheit=%.2f Celcius",F,C);
getch();
}
```

OUTPUT

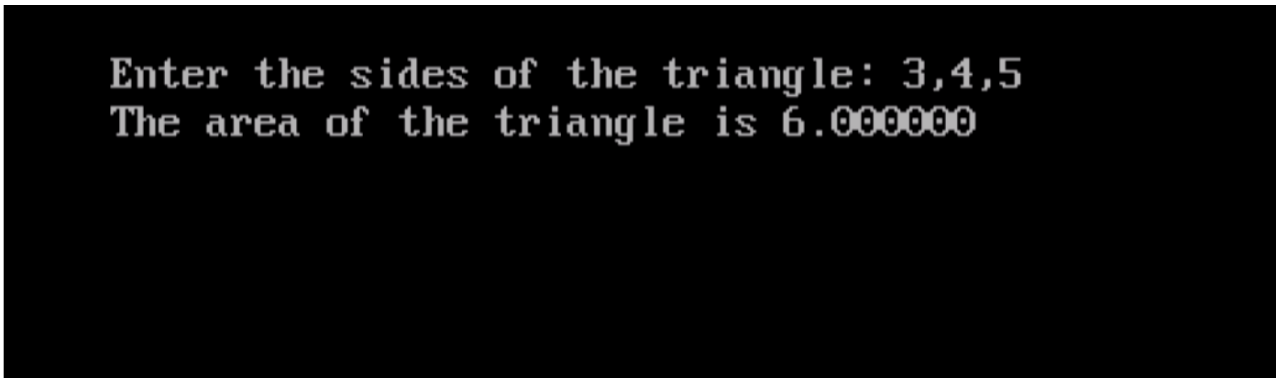


2. **Develop a C program to find the area of a triangle given its sides as input using functions.**

```
#include<conio.h>
#include<stdio.h>
#include<math.h>
float areaoftriangle(float a,float b,float c)
{
float s,area2;
s=(a+b+c)/2 ;
area2=sqrt(s*(s-a)*(s-b)*(s-c));
printf("The area of the triangle is %f",area2);
return 0 ;
}
void main()
{
float a,b,c;
clrscr();
printf("\nEnter the sides of the triangle: ");
scanf("%f,%f,%f",&a,&b,&c);
areaoftriangle(a,b,c);
getch();

}
```

OUTPUT

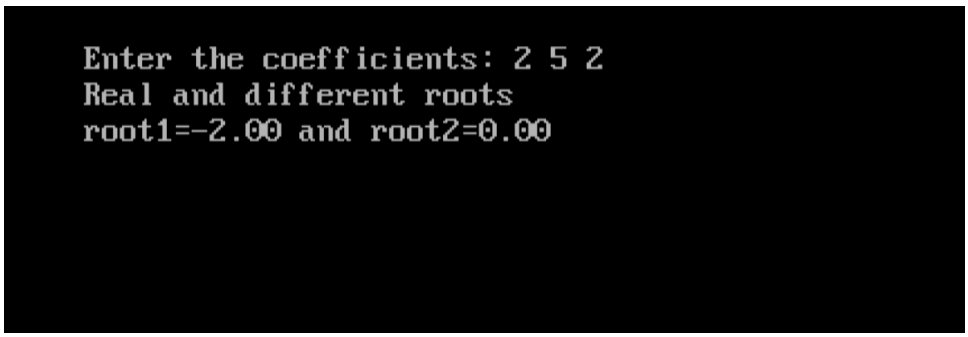

Enter the sides of the triangle: 3,4,5
The area of the triangle is 6.000000

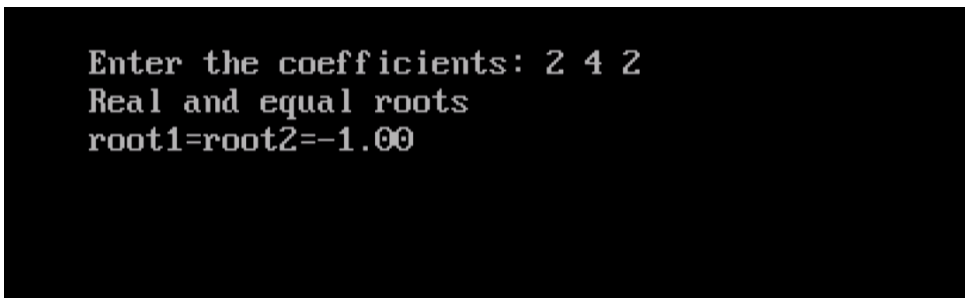
3. Develop a C program to find all possible roots of a quadratic equation

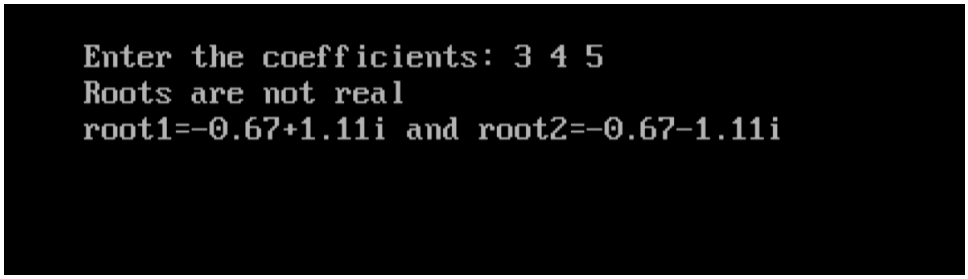
```
#include<stdio.h>
#include<conio.h>
#include<math.h>
double root(double a,double b,double c)
{
double discriminant,root1,root2,real_part,imaginary_part;
discriminant=(b*b)-4*a*c;
if(discriminant>0)
{
printf("Real and different roots\n");
root1=(-b+sqrt(discriminant))/(2*a);
root1=(-b-sqrt(discriminant))/(2*a);
printf("root1=%.2lf and root2=%.2lf",root1,root2);
}
else if(discriminant==0)
{
printf("Real and equal roots\n");
root1=root2=-b/(2*a);
printf("root1=root2=%.2lf",root1);
}
else
{
printf("Roots are not real\n");
real_part=-b/(2*a);
```

```
imaginary_part=sqrt(-discriminant)/(2*a);
printf("root1=%.2lf+%.2lfi and root2=%.2lf-
%.2lfi",real_part,imaginary_part,real_part,imaginary_part);
}
return 0;
}
void main()
{
double a,b,c;
clrscr();
printf("\nEnter the coefficients: ");
scanf("%lf %lf %lf",&a,&b,&c);
root(a,b,c);
getch();
}
```

OUTPUTS



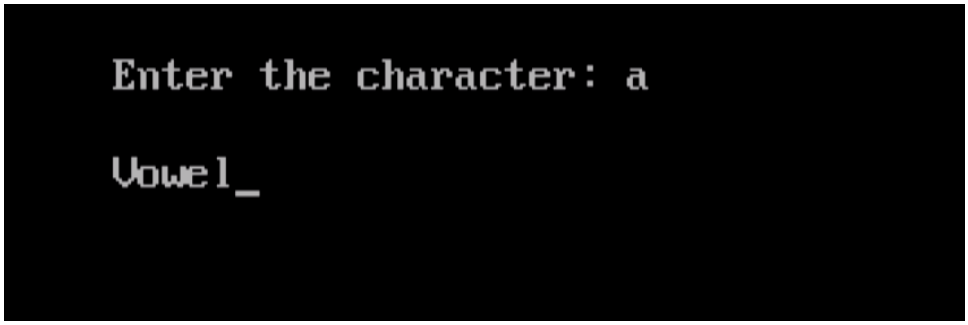


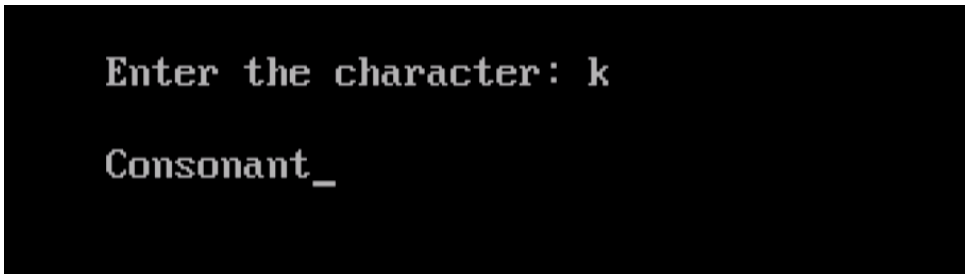

Enter the coefficients: 3 4 5
Roots are not real
root1=-0.67+1.11i and root2=-0.67-1.11i

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

```
#include<stdio.h>
#include<conio.h>
void main()
{
char a;
clrscr();
printf("\nEnter the character: ");
scanf("%c",&a);
switch(a)
{
case 'a':case 'e':case 'i':case 'o':case 'u':case 'A':
case 'E':case 'I':case 'O':
case 'U': printf("\nVowel");
break;
default: printf("\nConsonant");
break;
}
getch();
}
```

OUTPUTS

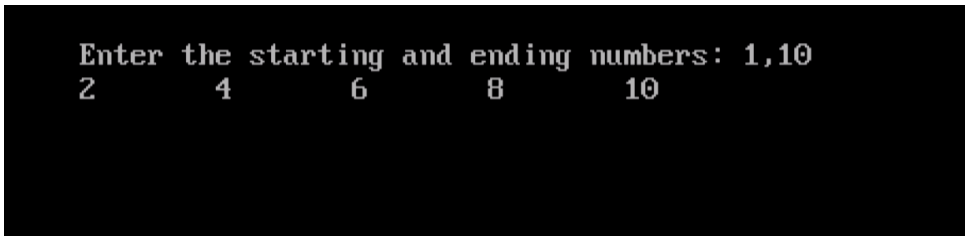

Enter the character: a
Vowel_


Enter the character: k
Consonant_

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

```
#include<stdio.h>
#include<conio.h>
void main()
{
int m,n,i;
clrscr();
printf("\nEnter the starting and ending numbers: ");
scanf("%d,%d",&m,&n);
for(i=m;i<=n;i++)
{
if(i%2==0)
printf("%d\t",i);
}
getch();
}
```

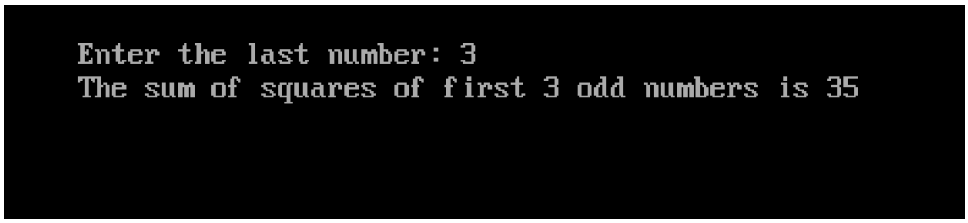
OUTPUT



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

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,sum=0;
clrscr();
printf("\nEnter the last number: ");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
sum=sum+(2*i-1)*(2*i-1);
}
printf("The sum of squares of first %d odd numbers is %d",n,sum);
getch();
}
```

OUTPUT

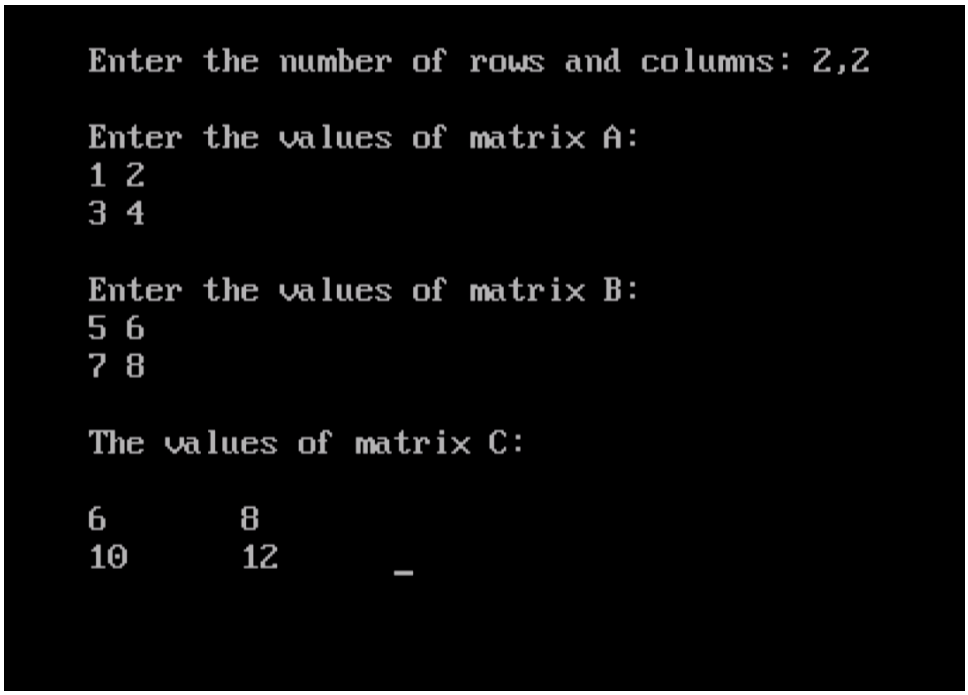


7. Develop a program to perform addition of two matrices

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],b[10][10],d[10][10],i,j,r,c;
clrscr();
printf("\nEnter the number of rows and columns: ");
scanf("%d,%d",&r,&c);
printf("\nEnter the values of matrix A:\n");
for(i=0;i<r;i++)
for(j=0;j<c;j++)
scanf("%d",&a[i][j]);
printf("\nEnter the values of matrix B:\n");
for(i=0;i<r;i++)
for(j=0;j<c;j++)
scanf("%d",&b[i][j]);
for(i=0;i<r;i++)
for(j=0;j<c;j++)
d[i][j]=a[i][j]+b[i][j];
printf("\nThe values of matrix C:\n");
for(i=0;i<r;i++)
{
printf("\n");
```

```
for(j=0;j<c;j++)
printf("%d\t",d[i][j]);
}
getch();
}
```

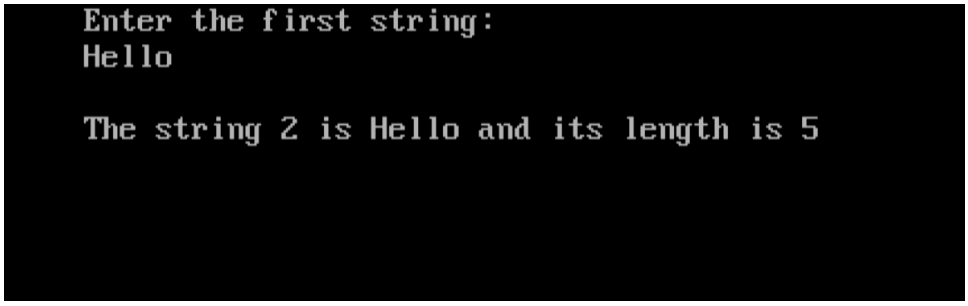
OUTPUT



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

```
#include<stdio.h>
#include<conio.h>
void main()
{
char str1[100],str2[50];
int i=0;
clrscr();
printf("Enter the first string:\n");
gets(str1);
while(str1[i]!='\0')
{
str2[i]=str1[i];
i++;
}
str2[i]='\0';
printf("\nThe string 2 is %s and its length is %d\n",str2,i);
getch();
}
```

OUTPUT


Enter the first string:
Hello
The string 2 is Hello and its length is 5

9. **Develop a C program to create student structure, read two student details (Student roll number, name, section, department, fees and results) and print the student details who has scored the highest.**

```
#include<stdio.h>
#include<conio.h>
void main()
{
struct student
{
int roll_no;
char name[50];
char sec[2];
char dept[50];
float fees;
int results;
}std1,std2;
clrscr();
printf("\nEnter the details of stduent 1:\n");
printf("The roll no: ");
scanf("%d",&std1.roll_no);
printf("The section: ");
scanf("%s",std1.sec);
printf("The name: ");
scanf("%s",std1.name);
printf("The department: ");
```

```
scanf("%s",std1.dept);
printf("The fees: ");
scanf("%f",&std1.fees);
printf("The results: ");
scanf("%d",&std1.results);
printf("\n\nEnter the details of stduent 2:\n");
printf("The roll no: ");
scanf("%d",&std2.roll_no);
printf("The section: ");
scanf("%s",std2.sec);
printf("The name: ");
scanf("%s",std2.name);
printf("The department: ");
scanf("%s",std2.dept);
printf("The fees: ");
scanf("%f",&std2.fees);
printf("The results: ");
scanf("%d",&std2.results);
if(std1.results>std2.results)
{
printf("\nThe student who scored the highest is student 1 and their
details:\n");
printf("The roll number is %d\n",std1.roll_no);
printf("The name is %s\n",std1.name);
printf("The section is %s\n",std1.sec);
printf("The department is %s\n",std1.dept);
printf("The fees is %.2f\n",std1.fees);
```

```
printf("The results is %d\n",std1.results);
}
else
{
printf("\nThe student who scored the highest is student 2 and their details:\n");
printf("The roll number is %d\n",std2.roll_no);
printf("The name is %s\n",std2.name);
printf("The section is %s\n",std2.sec);
printf("The department is %s\n",std2.dept);
printf("The fees is %.2f\n",std2.fees);
printf("The results is %d\n",std2.results);
}
getch();
}
```

OUTPUT

```
Enter the details of stduent 1:
The roll no: 1
The section: A
The name: Diya
The department: Comp
The fees: 12000
The results: 87


Enter the details of stduent 2:
The roll no: 2
The section: B
The name: Esha
The department: Comp
The fees: 12000
The results: 98

The student who scored the highest is student 2 and their details:
The roll number is 2
The name is Esha
The section is B
The department is Comp
The fees is 12000.00
The results is 98
_
```

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

```
#include<stdio.h>
#include<conio.h>
void add(int *a,int *b,int *sum)
{
*sum=*a+*b;
}
void sub(int *a,int *b,int *diff)
{
*diff=*a-*b;
}
void mul(int *a,int *b,int *pro)
{
*pro=(*a)*(*b);
}
void div(int *a,int *b,int *divi)
{
*divi=(*a)/(*b);
}
void remainder(int *a,int *b,int *rem)
{
*rem=(*a)%(*b);
}
```

```
void main()
{
int num1,num2,c,d,e,f,g;
clrscr();
printf("\n Enter the numbers: ");
scanf("%d,%d",&num1,&num2);
add(&num1,&num2,&c);
sub(&num1,&num2,&d);
mul(&num1,&num2,&e);
div(&num1,&num2,&f);
remainder(&num1,&num2,&g);
printf("Addition=%d \n Subtraction=%d \n Multiplication=%d \n Division=%d \n Remainder=%d",c,d,e,f,g);
getch();
}
```

OUTPUT