VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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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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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.

ANVITA PRAMOD BODHALE(1BM20IS023)

All 10 programs including:

Program Name

Program complete code

Program output screenshot

PROGRAM-1

Program name: Develop a C program to convert degrees Fahrenheit into degrees celsius**.**

Program complete code:

```
#include <stdio.h>

int main()

{

 float celsius, fahrenheit;

 clrscr();

 printf("enter the temperature in fahrenheit: \n");

 scanf("%f", &fahrenheit);

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

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

 return(0);

}
```

Program output screenshot:

PROGRAM-2

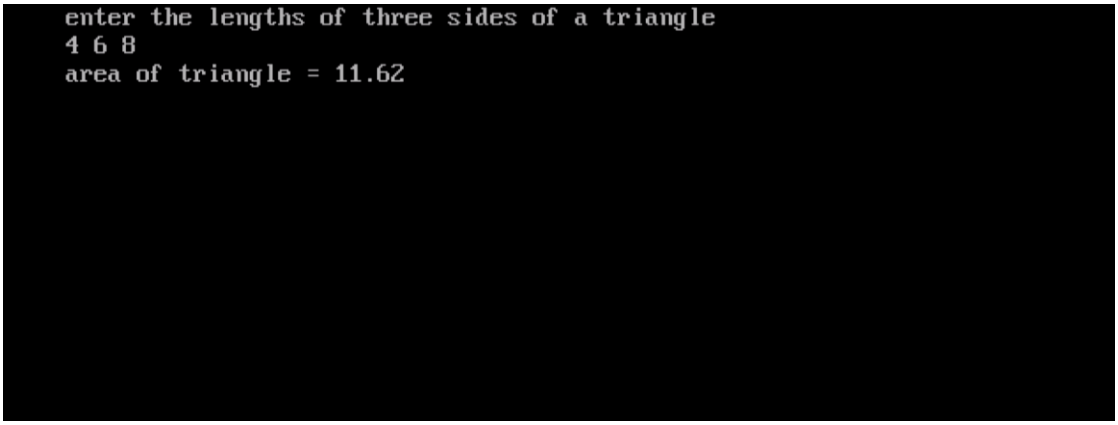
Program name: Develop a C program to find the area of a triangle given its sides as input using functions.

Program complete code:

```
#include <stdio.h>

#include <conio.h>

#include <math.h>

float areaoftriangle(float, float, float);

int main()

{

 float a, b, c, area;

 clrscr();

 printf("enter the lengths of three sides of a triangle\n");

 scanf("%f %f %f", &a, &b, &c);

 area=areaoftriangle(a, b, c);

 printf("area of triangle = %.2f\n", area);

 getch();

 return 0;

}

float areaoftriangle(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 screenshot:



PROGRAM-3

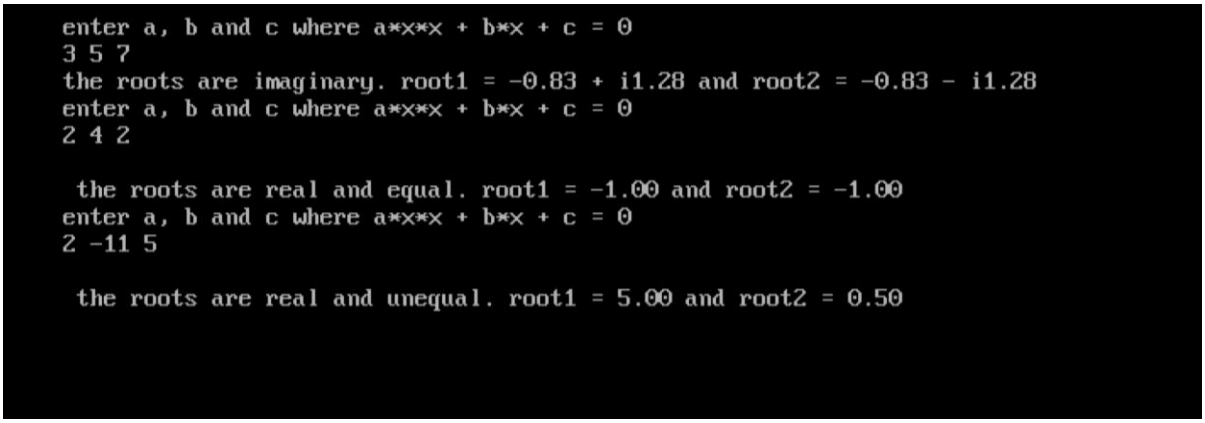
Program name: Develop a C program to find all possible roots of a quadratic equation.

Program complete code:

```
#include <stdio.h>

#include <math.h>

#include <conio.h>

void main()

{

 float a, b, c, d, root1, root2, r, imag;

 printf("\nenter a, b and c where a*x*x+ b*x + c = 0\n");

 scanf("%f %f %f", &a, &b, &c);

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


 //condition  for real and different roots

 if (d > 0) {

  root1 = (-b + sqrt(d))/(2*a);

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

  printf("\n the roots are real and unequal. root1 = %.2f and root2 = %.2f", root1, root2);

 }


 //condition  of real and equal roots

 else if (d == 0) {

  root1 = root2 = -b/(2*a);

  printf("\n the roots are real and equal. root1 = %.2f and root2 = %.2f", root1, root2);
```

```
}


//if roots imaginary
else {
 r = -b/(2*a);
 imag = sqrt(-d)/(2*a);
 printf("the roots are imaginary. root1 = %.2f + i%.2f and root2 = %.2f - i%.2f", r, imag, r, imag);
}
getch();
}
```

Program output screenshot:



PROGRAM-4

Program name: 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>

#include <conio.h>

int main()

{

 char ch;

 printf("\nenter any alphabet: ");

 scanf("%c", &ch);

 switch(ch)

 {

  case 'a':

  case 'e':

  case 'i':

  case 'o':

  case 'u':

  case 'A':

  case 'E':

  case 'I':

  case 'O':

  case 'U':

   printf("vowel");

   break;
```

```
 default:
  printf("consonant");
 getch();
 }
 return (0);
}
```

Program output screenshot:

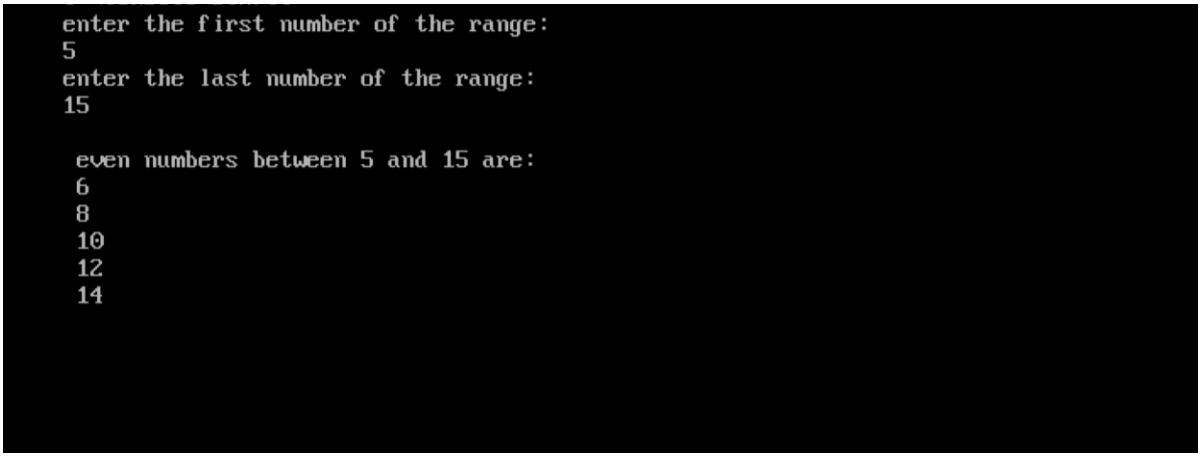
PROGRAM-5

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

Program complete code:

```
#include <stdio.h>

#include <conio.h>

int main()

{

 int n1, n2, rem, i;

 printf("enter the first number of the range: \n");

 scanf("%d", &n1);

 printf("enter the last number of the range: \n");

 scanf("%d", &n2);

 printf("\n even numbers between %d and %d are: ", n1, n2);

 for(i=n1; i<=n2; i++)

 {

  rem=i%2;

  if(rem==0)

  printf("\n %d",i);

  getch();

 }

 return (0);

}
```

Program output screenshot:



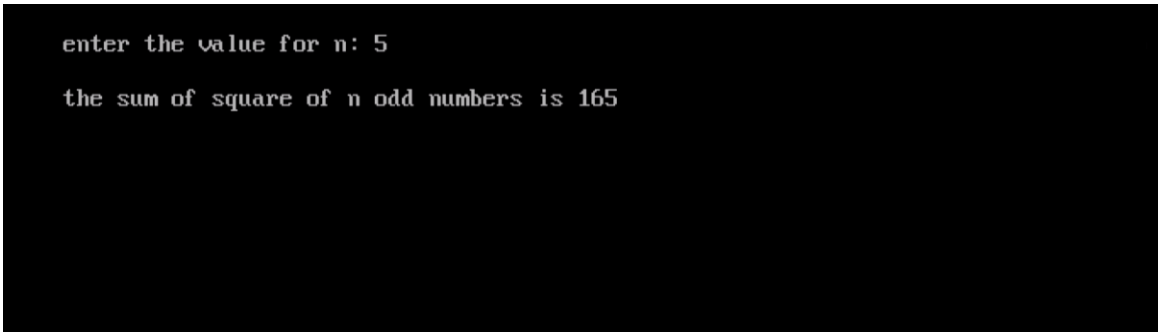
PROGRAM-6

Program name: 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, i, sum=0;
 clrscr();
 printf("\nenter the value for n: ");
 scanf("%d", &num);
 for(i=1; i<=num; i++)
 {
 sum +=(2*i-1)*(2*i-1);
 }
 printf("\nthe sum of square of n odd numbers is %d\n", sum);
 getch();
 return(0);
}
```

Program output screenshot:



PROGRAM-7

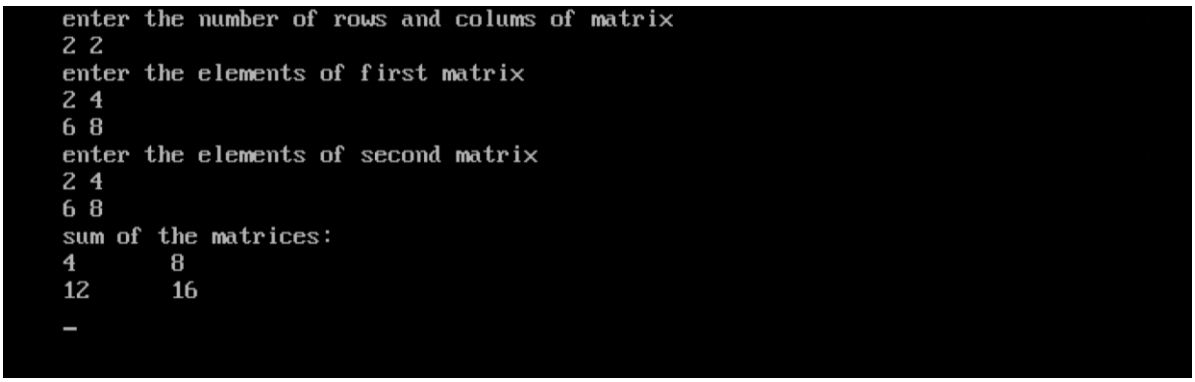
Program name: Develop a program to perform addition of two Matrices.

Program complete code:

```
#include <stdio.h>
#include <conio.h>
int main()
{
 int m, n, c, d, first[10][10], second[10][10], sum[10][10];
 clrscr();
 printf("enter the number of rows and colums of matrix\n");
 scanf("%d %d", &m, &n);
 printf("enter the elements of first matrix\n");
 for(c=0; c<m; c++)
  for(d=0; d<n; d++)
   scanf("%d", &first[c][d]);
 printf("enter the elements of second matrix\n");
 for(c=0; c<m; c++)
  for(d=0; d<n; d++)
   scanf("%d", &second[c][d]);
 printf("sum of the matrices:\n");
 for(c=0; c<m; c++)
 {
  for(d=0; d<n; d++)
  {
   sum[c][d]=first[c][d]+second[c][d];
   printf("%d\t", sum[c][d]);
  }
  printf("\n");
```

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

Program output screenshot:



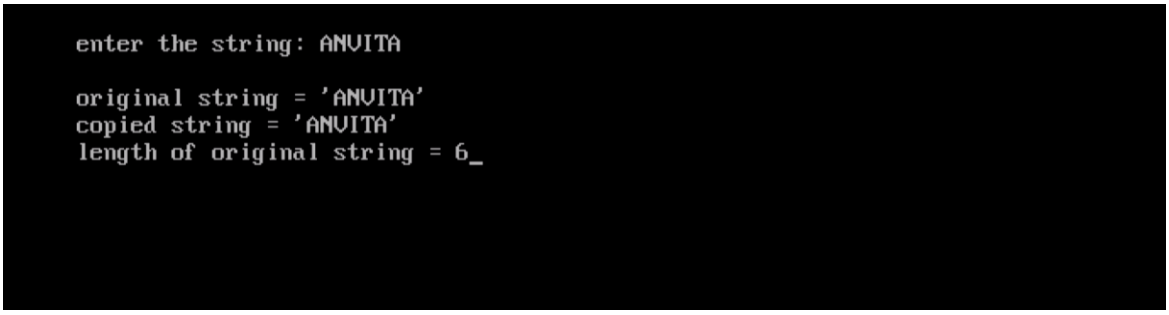
PROGRAM-8

Program name: 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>
#include <conio.h>
#include <string.h>
int main()
{
 char s1[1000], s2[1000];
 int i;
 clrscr();
 printf("\n enter the string: ");
 gets(s1);
 for(i=0; s1[i]!='\0'; i++)
 {
  s2[i]=s1[i];
 }
 printf("\n original string = '%s'", s1);
 printf("\n copied string = '%s'", s2);
 for(i=0; s1[i]!='\0';++i);
  printf("\n length of original string = %d", i);
 getch();
 return (0);
}
```

Program output screenshot:



PROGRAM-9

Program name: 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.

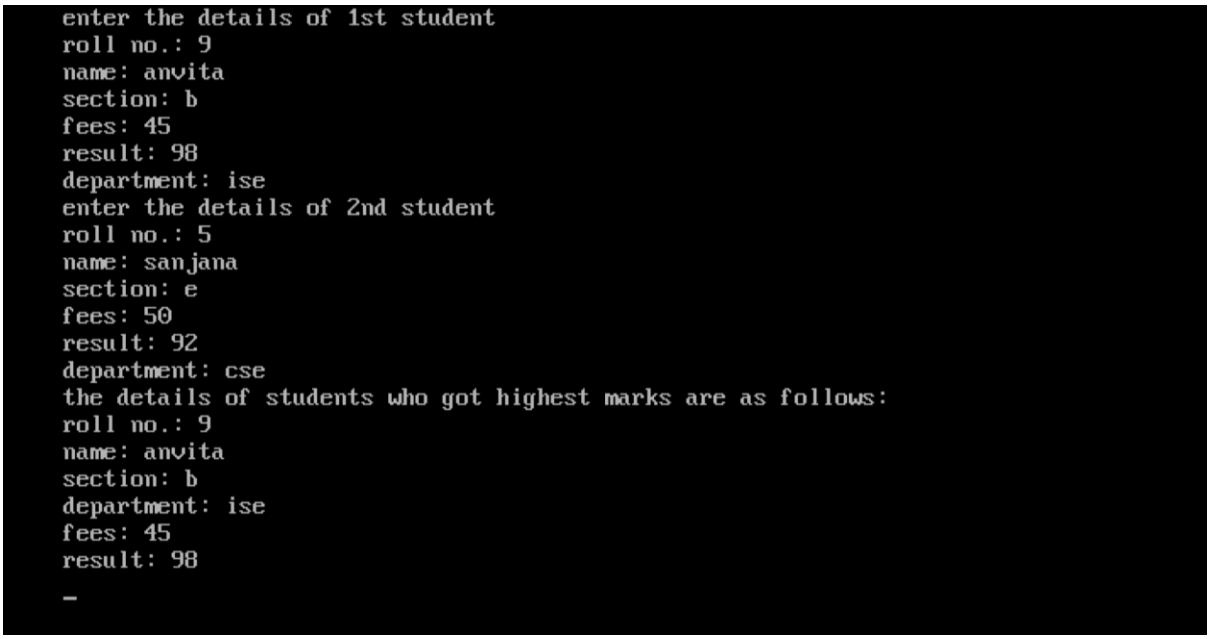
Program complete code:

```
#include <stdio.h>
#include <conio.h>
struct student
{
 int rollno;
 char name[30];
 char sec[30];
 char dept[30];
 int fees;
 int result;
};
struct student getinfo();
void print(struct student s1);
int main()
{
 struct student s1, s2;
 clrscr();
 printf("enter the details of 1st student\n");
 s1=getinfo();
 printf("enter the details of 2nd student\n");
 s2=getinfo();
 if(s1.result>s2.result)
```

```
 {
  print(s1);
 }
 else
 {
  print(s2);
 }
 getch();
 return (0);
};
struct student getinfo()
{
 struct student s1;
 printf("roll no.: ");
 scanf("%d",&s1.rollno);
 printf("name: ");
 scanf("%s",s1.name);
 printf("section: ");
 scanf("%s",s1.sec);
 printf("fees: ");
 scanf("%d",&s1.fees);
 printf("result: ");
 scanf("%d",&s1.result);
 printf("department: ");
 scanf("%s",s1.dept);
 return s1;
}
void print(struct student s1)
{
```

```
 printf("the details of students who got highest marks are as follows: \n");
 printf("roll no.: %d\n", s1.rollno);
 printf("name: %s\n", s1.name);
 printf("section: %s\n", s1.sec);
 printf("department: %s\n", s1.dept);
 printf("fees: %d\n", s1.fees);
 printf("result: %d\n", s1.result);
}
```

Program output screenshot:



PROGRAM-10

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

Program complete code:

```
#include <stdio.h>
#include <conio.h>
int main()
{
 int num1, num2;
 int *ptr1, *ptr2;
 int sum, sub, mult;
 float div;
 clrscr();
 printf("enter the first number: \n");
 scanf("%d", &num1);
 printf("enter the second number: \n");
 scanf("%d", &num2);
 ptr1=&num1;
 ptr2=&num2;
 sum=(*ptr1)+(*ptr2);
 sub=(*ptr1)-(*ptr2);
 mult=(*ptr1)*(*ptr2);
 div=(*ptr1)/(*ptr2);
 printf("sum = %d\n",sum);
 printf("subtraction = %d\n",sub);
 printf("multiplication = %d\n",mult);
 printf("division = %f\n",div);
```

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

Program output screenshot: