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

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECALARATION

I,NAKSHA D, 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.

NAKSHA D (1BM20IS081)

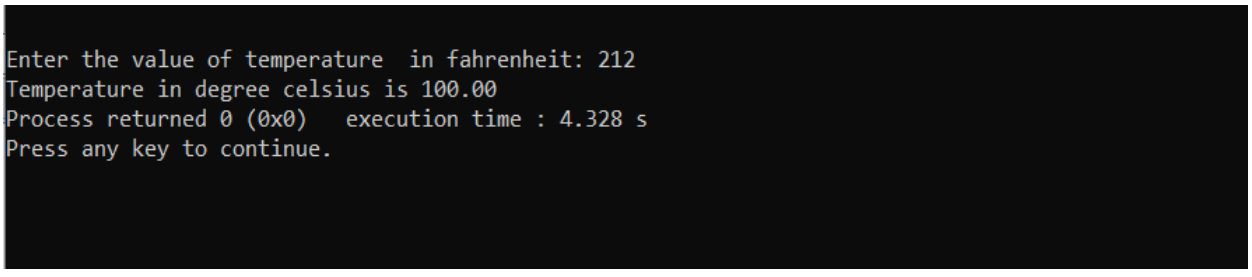
PROGRAM NAME:

1.CONVERSION OF DEGREES FAHRENHEIT INTO DEGREE CELSIUS

PROGRAM CODE:

```
#include <stdio.h>
#include <conio.h>
int main()
{
   float fahrenheit, celsius;
   printf("\nEnter the value of temperature in fahrenheit: ");
   scanf("%f", &fahrenheit);
   celsius = (5.0/9) * (fahrenheit - 32);
   printf("Temperature in degree celsius is %.2f", celsius);
   return 0;
}
```

PROGRAM OUTPUT SCREENSHOT:



PROGRAM NAME:

2.AREA OF A TRIANGLE USING FUNCTIONS

PROGRAM CODE:

```
#include <stdio.h>
#include <math.h>
float AreaofaTriangle(float,float,float);
int main()
{
    float a, b, c, Area;
   printf("\nEnter the three sides of a triangle:");
   scanf("%f %f %f", &a, &b, &c);
   Area= AreaofaTriangle(a,b,c);
   printf("\nArea of a triangle=%.2f",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 SCREENSHOT:

```
Enter the three sides of a triangle:5 7 8

Area of a triangle=17.32
Process returned 0 (0x0)   execution time : 4.457 s
Press any key to continue.
```

PROGRAM NAME:

3.ROOTS OF A QUADRATIC EQUATION

PROGRAM CODE:

```
#include <stdio.h>
#include <math.h>
int main()
 {
   double a, b, c, discriminant, root1, root2, realPart, imaginaryPart;
   printf ("\nEnter the values of a, b and c of a quadratic equation:" );
   scanf("%lf %lf %lf", &a, &b, &c);
   discriminant = b * b - 4 * a * c;
   if (discriminant > 0) {
   root1 = (-b + sqrt(discriminant)) / (2 * a);
    root2 = (-b - sqrt(discriminant)) / (2 * a);
  printf("Roots are real and distinct.\nroot1=%.2lf and root2=%2lf, root1, root2);

   }
   else if (discriminant == 0) {
      root1 = root2 = -b / (2 * a);
      printf("The roots are real and equal. \nroot1 = root2 = %.2lf;", root1);
   }
  else {
      realPart = -b / (2 * a);
      imaginaryPart = sqrt(-discriminant) / (2 * a);
```

```
        printf("The roots are imaginary.\nroot 1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imaginaryPart, realPart, imaginaryPart);
    }
return 0;
}
```

PROGRAM OUTPUT SCREENSHOT:

```
Enter the coefficients of a, b and c of a quadratic equation respectively: 3 4 5
The roots are imaginary.
root 1 = -0.67+1.11i and root2 = -0.67-1.11i
Process returned 0 (0x0)   execution time : 2.951 s
Press any key to continue.
```

```
Enter the coefficients of a, b and c of a quadratic equation respectively: 1 7 12
The roots are real and distinct.
root1 = -3.00 and root2 = -4.00
Process returned 0 (0x0)   execution time : 6.295 s
Press any key to continue.
```

PROGRAM NAME:

4.VOWEL OR CONSONANT USING SWITCH CASE

PROGRAM CODE:

```
#include <stdio.h>
int main()
{
   char ch;
   printf("\n Enter a character:");
   scanf("%c", &ch);
   switch(ch)
{
   case 'A':
   case 'a':
   printf("\n %c is a vowel.", ch);
   break;
   case 'E':
   case 'e':
   printf("\n %c is a vowel.", ch);
   break;
  case 'I':
   case 'i':
   printf("\n %c is a vowel.", ch);
   break;
```

```
    case 'O':
    case 'o':
    printf("\n %c is a vowel.", ch);
    break;

     case 'U':
     case 'u':
    printf("\n %c is a vowel.", ch);
    break;

    default:
    printf("%c is not a vowel.It is a consonant.", ch);
}
    return 0;
}
```

PROGRAM OUTPUT SCREENSHOT:

```
 Enter a character:E

 E is a vowel.
Process returned 0 (0x0)   execution time : 7.281 s
Press any key to continue.
```

```
 Enter a character:d
d is not a vowel.It is a consonant
Process returned 0 (0x0)   execution time : 14.168 s
Press any key to continue.
```

PROGRAM NAME:

5.EVEN NUMBERS FROM M TO N

PROGRAM CODE:

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

PROGRAM OUTPUT SCREENSHOT:

```
 Enter the value of m:5

 Enter the value of n:63
6       8       10      12      14      16      18      20      22      24      26      28      30      32      34
        36      38      40      42      44      46      48      50      52      54      56      58      60      62

Process returned 0 (0x0)   execution time : 6.850 s
Press any key to continue.
```

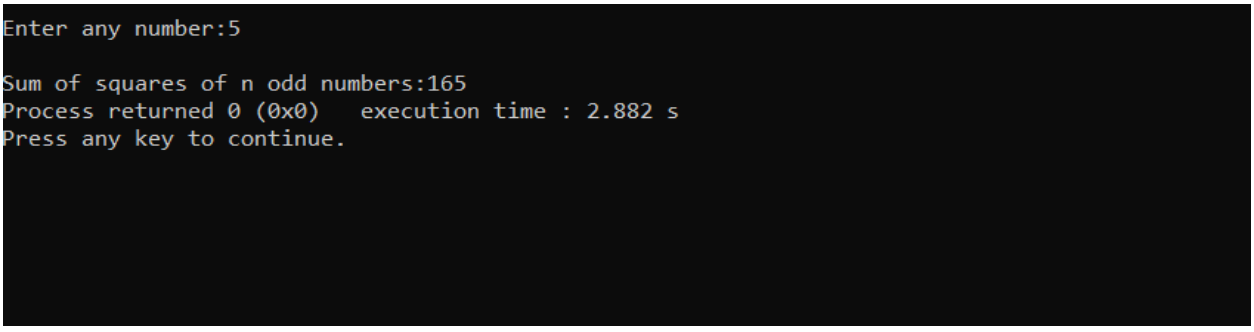
PROGRAM NAME:

6.SUM OF SQUARES OF ODD NUMBERS

PROGRAM CODE:

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

PROGRAM OUTPUT SCREENSHOT:



PROGRAM NAME:

7.ADDITION OF TWO MATRICES

PROGRAM CODE:

```
#include <stdio.h>
#include <conio.h>
int main()
{
   int i, j, r, c, a[10][10], b[10][10];
   int add[10][10];
   printf("Enter the number of rows and columns:");
   scanf("%d %d", &i, &j);
   printf("\n Enter the elements of first matrix:");
   for(r=0;r<i;r++)
   {
      for(c=0;c<j;c++)
      {
         scanf("%d", &a[r][c]);
      }
   }
   printf("\n Enter the elements of second matrix:");
    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 matrices 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 SCREENSHOT:

```
Enter the number of rows and columns:2 2

 Enter the elements of first matrix:
1 2
4 8

 Enter the elements of second matrix:
1 2
4 8
The sum of two matrices a and b = a + b
2       4
8       16

Process returned 0 (0x0)   execution time : 24.998 s
Press any key to continue.
```

```
Enter the number of rows and columns:3 3

 Enter the elements of first matrix:
1 2 3
4 5 6
7 8 9

 Enter the elements of second matrix:
0 2 4
4 6 8
6 8 9
The sum of two matrices a and b = a + b
1       4       7
8       11      14
13      16      18

Process returned 0 (0x0)   execution time : 47.417 s
Press any key to continue.
```

PROGRAM NAME:

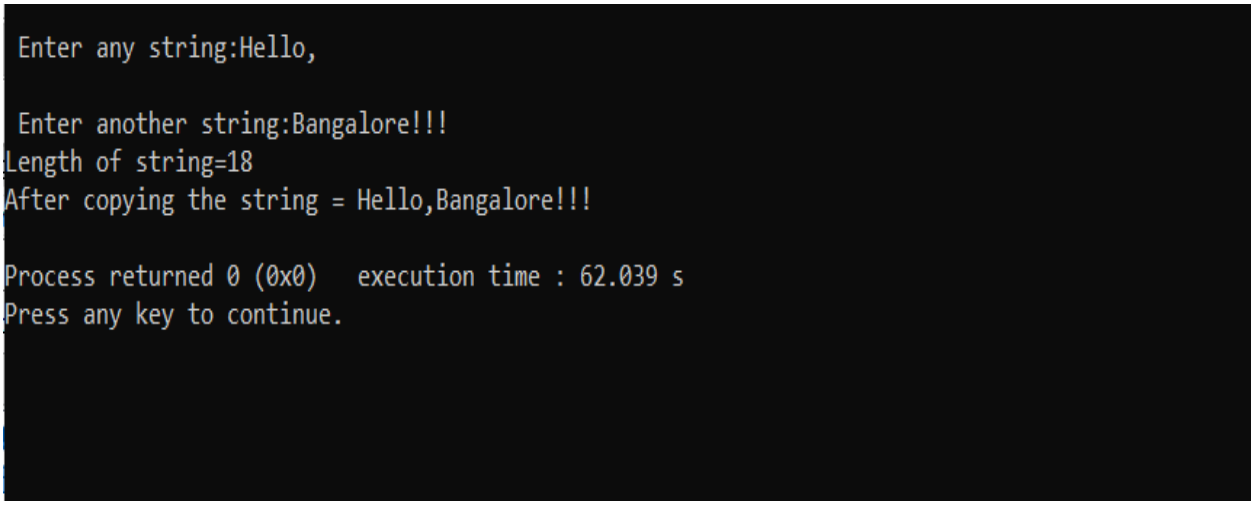
8.COPY ONE STRING TO ANOTHER AND FIND ITS LENGTH

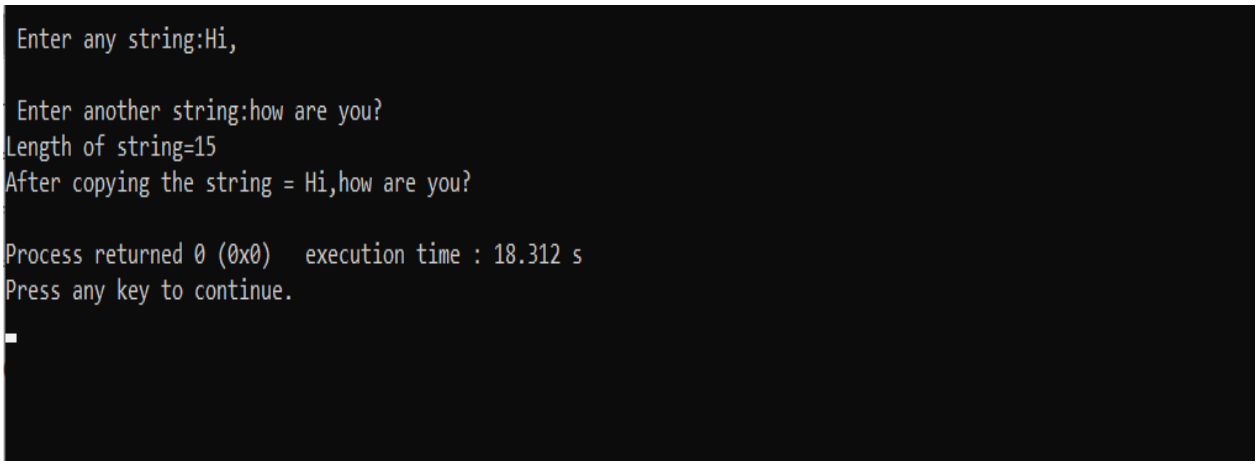
PROGRAM CODE:

```
#include <stdio.h>
int main()
{
   char s1[100], s2[50], i, j, l;
   printf("\n Enter any string:");
   gets(s1);
   printf("\n Enter another string:");
   gets(s2);
   while(s1[i]!='\0')
   i++;
   l=i;
   while(s2[j]!='\0')
   {
      s1[i]=s2[j];
      i++;
      j++;
   }
   l=i;
   printf("Length of string=%d\n", l);
   s1[i]='\0';
   printf("After copying the string = ");
```

```
    puts(s1);
    return 0;
}
```

PROGRAM OUTPUT SCREENSHOT:





PROGRAM NAME:

9.STUDENT DETAILS USING STRUCTURE

PROGRAM CODE:

```
#include<stdio.h>

int main()
{
struct student
{
int rollno;
char name[20];
char sec[3];
char dept[20];
int totalmarks;
}
student1,student2;
printf("\nEnter 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 DETAILS********\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 DETAILS********\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 has got highest marks\n");
}
else
{
printf("\nStudent 2 has got highest marks\n");
}
return 0;
}
```

PROGRAM OUTPUT SCREENSHOT:

```
Enter the name of student 1 and student 2:
NAKSHA SPATIKA
Enter the roll number of student 1 and student 2:
81 93
Enter section of student 1 and student 2:
B C
Enter the department of student 1 and student 2:
ISE CSE
Enter the total marks of student 1 and student 2:
97
94
********STUDENT 1 DETAILS********
Name = NAKSHA
Roll no = 81
Section = B
Department = ISE
Total marks = 97
********STUDENT 2 DETAILS********
Name = SPATIKA
Roll no = 93
Section = C
Department = CSE
Total marks = 94

Student 1 has got highest marks

Process returned 0 (0x0)   execution time : 57.854 s
Press any key to continue.
```

PROGRAM NAME:

10.ARITHMETIC OPERATIONS USING POINTERS

PROGRAM CODE:

```
#include <stdio.h>
#include <conio.h>
int main()
{
        int num1,num2;
        int *ptr1,*ptr2;
        int sum, subtraction, multiplication, rem;
        float division;
        printf("\nEnter the value of first number:");
        scanf("%d", &num1);
        printf("\nEnter the value of second number:");
        scanf("%d", &num2);
        ptr1 = &num1;
        ptr2 = &num2;

        sum=(*ptr1)+(*ptr2);
        subtraction=(*ptr1)-(*ptr2);
        multiplication=(*ptr1)*(*ptr2);
        division=(*ptr1)/(*ptr2);
        rem=(*ptr1)%(*ptr2);
```

```
    printf("sum= %d\n", sum);
    printf("subtraction= %d\n", subtraction);
    printf("Multiplication= %d\n", multiplication);
    printf("Division= %.2f\n", division);
    printf("Remainder=%d\n", rem);

    return 0;
}
```

PROGRAM OUTPUT SCREENSHOT: