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.

SAKSHI SUNIL HANAMSHETTI (1BM20CS140)

1.Deveop a C program to convert degrees Fahrenheit into degrees Celsius

```
#include<stdio.h>
int main()
{
  float fahrenheit,celsius;
  printf("Enter temperature in fahrenheit: ");
  scanf("%f",&fahrenheit);
  celsius=(0.56)*(fahrenheit-32);
  printf("%2f fahrenheit=%2f celsius\n",fahrenheit,celsius);
  return 0;
}
```

```
Enter temperature in fahrenheit: 78
78.000000 fahrenheit=25.760000 celsius
```

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 area(int a,int b,int c)
{
  float s,area;
  s=(a+b+c)/2;
  area=sqrt(s*(s-a)*(s-b)*(s-c));
  printf("area=%0.2f",area);
  return 0;
}
int main()
{
  int a1,b1,c1;
  printf("Enter three sides of triangle: ");
  scanf("%d %d %d",&a1,&b1,&c1);
  area(a1,b1,c1);
  return 0;
}
```

```
Enter three sides of triangle: 3 4 5
area=6.00
```

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

```
#include<stdio.h>
#include<math.h>
int main()
{
 float a,b,c,d,root1,root2,real,imaginary;
 printf("Enter values of a,b,c: ");
 scanf("%f %f %f",&a,&b,&c);
 d=(b*b)-(4*a*c);
 if(d>0)
 {
   root1=(-b+sqrt(d))/(2*a);
   root2=(-b-sqrt(d))/(2*a);
   printf("Two roots are:%.2f and %.2f",root1,root2);
 }
 else if(d==0)
 {
  root1=root2=-b/(2*a);
  printf("Two equal roots are:%.2f and %.2f",root1,root2);
 }
 else
 {
  real=-b/(2*a);
  imaginary=sqrt(-d)/(2*a);
  printf("Two complex roots are: %.2f+i%.2f and %.2f+i%.2f",real,imaginary,real,
  imaginary);
 }
 return 0;
}
```

```
Enter values of a,b,c: 1 -5 2
Two roots are:4.56 and 0.44
```

```
Enter values of a,b,c: 1 2 3
Two complex roots are: -1.00+i1.41 and -1.00+i1.41
```

```
Enter values of a,b,c: 4 -4 1
Two equal roots are:0.50 and 0.50
```

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;
}
```

```
Enter any alphabet: p
Consonant
```

```
Enter any alphabet: E
Vowel
```

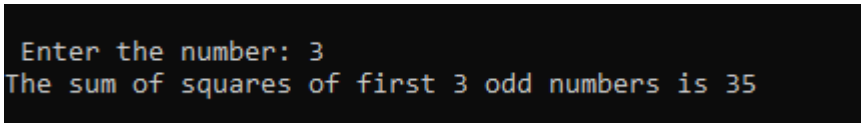
5.Develop a C program to print even numbers from M to N.

```
#include<stdio.h>
void main()
{
  int i,M,N;
  printf("Enter numbers M and N: ");
  scanf("%d %d",&M,&N);
  for(i=M;i<=N;i++)
  {
      if(i%2==0)
     {
      printf("%d\t",i);
     }
  }
}
```

```
Enter numbers M and N: 1 20
2       4       6       8       10      12      14      16      18      20
```

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

```
#include<stdio.h>
void main()
{
  int n,i,sum=0;
  printf("\n Enter the 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",n,sum);
}
```



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

```
#include<stdio.h>
void main()
{
 int r,c,i,j,a[10][10],b[10][10],sum[10][10];
 printf("Enter the number of rows: ");
 scanf("%d",&r);
 printf("Enter the number of columns: ");
 scanf("%d",&c);
 printf("\nEnter the elements of first matrix:\n");
 for(i=0;i<r;i++)
 for(j=0;j<c;j++)
 scanf("%d",&a[i][j]);
 printf("Enter the elements of second matrix:\n");
 for(i=0;i<r;i++)
 for(j=0;j<c;j++)
 scanf("%d",&b[i][j]);
 printf("Addition of matrices:\n");
 for(i=0;i<r;i++)
 {
    for(j=0;j<c;j++)
    {
       sum[i][j]=a[i][j]+b[i][j];
       printf("%4d",sum[i][j]);
    }
    printf("\n");
 }
}
```

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

Enter the elements of first matrix:
1  2
3  4
Enter the elements of second matrix:
5  6
7  8
Addition of matrices:
   6   8
  10  12
```

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 s1[100],s2[100];

  int i=0;

  printf("Enter the string: ");

  gets(s1);

  while(s1[i]!='\0')

  {

    s2[i]=s1[i];

    i++;

  }

  s2[i]='\0';

  printf("\nThe string 2 is %s and its length is %d\n",s2,i);

}
```

```
Enter the 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 i.e.,total marks obtained) and print the student details who has scored the highest.

```
#include<stdio.h>
void main()
{
 struct student
 {
  int roll_no;
  char name[20];
  char section[2];
  char dept[20];
  float fees;
  int result;
 }
 std1,std2;
 printf("\nEnter the details of std1:\n");
 printf("Roll no: ");
 scanf("%d",&std1.roll_no);
 printf("Name: ");
 scanf("%s",std1.name);
 printf("Section: ");
 scanf("%s",std1.section);
 printf("Department: ");
 scanf("%s",std1.dept);
 printf("Fees: ");
 scanf("%f",&std1.fees);
 printf("Result: ");
 scanf("%d",&std1.result);

 printf("\n\nEnter the details of student 2:\n");
 printf("Roll no: ");
 scanf("%d",&std2.roll_no);
 printf("Name: ");
 scanf("%s",std2.name);
 printf("Section: ");
 scanf("%s",std2.section);
 printf("Department: ");
 scanf("%s",std2.dept);
 printf("Fees: ");
 scanf("%f",&std2.fees);
 printf("Result: ");
 scanf("%d",&std2.result);
 if(std1.result>std2.result)
 {
  printf("\nThe student who scored the highest marks is student 1 and the details are:\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.section);
  printf("The department is %s\n",std1.dept);
  printf("The fees is %.2f\n",std1.fees);
  printf("The result is %d\n",std1.result);
 }
 else
 {
    printf("\nThe student who scored the highest marks is student 2 and the details are:\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.section);
  printf("The department is %s\n",std2.dept);
  printf("The fees is %.2f\n",std2.fees);
  printf("The result is %d\n",std2.result);
 }
}
```

```
Enter the details of std1:
Roll no: 1
Name: Sakshi
Section: A
Department: CSE
Fees: 15000
Result: 85


Enter the details of student 2:
Roll no: 2
Name: Shravani
Section: A
Department: CSE
Fees: 15000
Result: 95

The student who scored the highest marks is student 2 and the details are:
The roll number is 2
The name is Shravani
The section is A
The department is CSE
The fees is 15000.00
The result is 95
```

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

```
#include<stdio.h>
void addition(int *a,int *b,int *sum)
{
    *sum = *a + *b;
}
void subtraction(int *a,int *b,int *difference)
{
   *difference = *a - *b;
}
void multiplication(int *a,int *b,int *product)
{
   *product = (*a)*(*b);
}
void division(int *a,int *b,int *division)
{
   *division = (*a)/(*b);
}
void remainder(int *a,int *b,int *remainder)
{
   *remainder=(*a)%(*b);
}

void main()
{
  int num1,num2,c,d,e,f,g;
  printf("Enter the two numbers: ");
  scanf("%d %d",&num1,&num2);
  addition(&num1,&num2,&c);
  subtraction(&num1,&num2,&d);
  multiplication(&num1,&num2,&e);
  division(&num1,&num2,&f);
  remainder(&num1,&num2,&g);

printf("Addition=%d\nSubtraction=%d\nMultiplication=%d\nDivision=%d\nRemainder=%d",
c,d,e,f,g);
}
```

```
Enter the two numbers: 3 5
Addition=8
Subtraction=-2
Multiplication=15
Division=0
Remainder=3
```