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

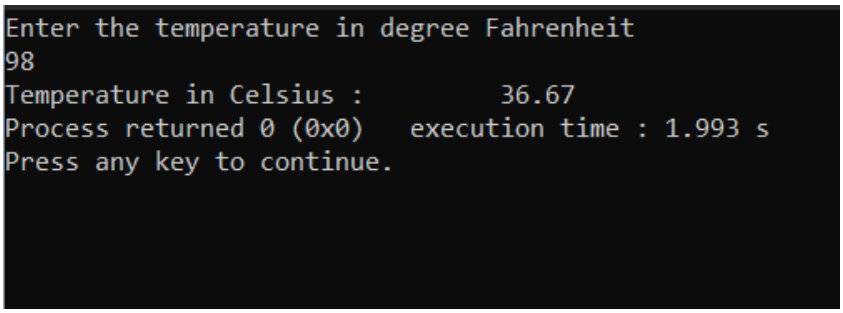
We also declare that to the best of our knowledge and belief, the development reported here is not from part of any other report by any other students.

Aaditya Maria (1BM20CS001)

Develop a C program to convert degrees Fahrenheit into degree Celsius

```
#include<stdio.h>
int main(){

float fahrenheit;
float celsius;
printf("Enter the temperature in degree Fahrenheit\n");
scanf("%f",&fahrenheit);
celsius=((fahrenheit-32)*5)/9;
printf("Temperature in Celsius :\t %0.2f",celsius);
return 0;

}
```

OUTPUT OF PROGRAM 1



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 areacalculate(int a,int b,int c)
{

float s , area , s1;
s1=a+b+c;
s = s1/2;
area = sqrt(s*(s-a)*(s-b)*(s-c));
printf("Area of Triangle of given sides is %0.2f",area);
return 0;

}
int main(){
int a1,b1,c1;
printf("Enter three side of triangle\n");
scanf("%d %d %d",&a1,&b1,&c1);
areacalculate(a1,b1,c1);
return 0;

}
```

OUTPUT OF PROGRAM 2

```
Enter three side of triangle
2 3 4
Area of Triangle of given sides is 2.90
Process returned 0 (0x0)   execution time : 3.623 s
Press any key to continue.
```

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

```
#include<stdio.h>
#include<math.h>
int roots(int a, int b,int c)
{
float d,r1,r2,img;
d=(b*b)-(4*a*c);
if(d>0){
r1=(-b + sqrt(d))/(2*a);
r2=(-b - sqrt(d))/(2*a);
printf("Roots are real and distinct %0.2f,%0.2f",r1,r1);
}
else if(d==0){
r1 = ((-b)/(2*a));
printf("Roots are real and equal %0.2f,%0.2f",r1,r1);
}
else if(d<0){
r1=(-b)/(2*a);
img= sqrt(-d)/(2*a);
printf("Roots are imaginary and distinct %0.2f + %0.2fi ,%0.2f - %0.2fi",r1,img,r1,img);
}
return 0;
}
int main()
{
int a,b,c;
printf("Enter the values of a,b,c");
scanf("%d %d %d",&a,&b,&c);
```

```
roots(a,b,c);

}
```

OUTPUT OF PROGRAM 3

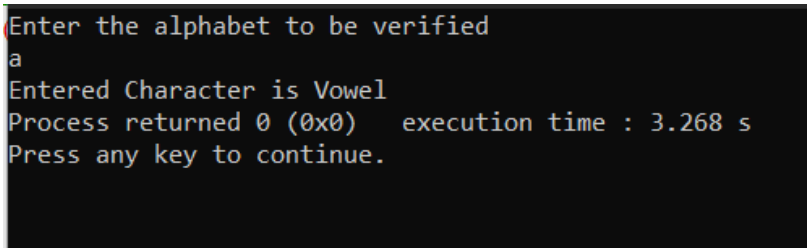
```
Enter the values of a,b,c
1 2 3
Roots are imaginary and distinct -1.00 + 1.41i ,-1.00 - 1.41i
Process returned 0 (0x0)   execution time : 21.778 s
Press any key to continue.
```

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

```
#include<stdio.h>
int vowel(char c)
{

switch(c)
{

case 'A':
case 'E':
case 'I':
case 'O':
case 'U':
case 'a':
case 'e':
case 'i':
case 'o':
case 'u':
printf("Entered Character is Vowel");
break;
default:
printf("Entered character is Consonent");
break;

}
return 0;
```

```
}
int main()
{

char c;
printf("Enter the alphabets to be verified \n");
scanf("%c",&c);
vowel(c);
return 0;

}
```

OUTPUT OF PROGRAM 4



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

```
int evenr(int m,int n)
{

int i;
printf("Even Numbers from range %d-%d is: \n",m,n);
if(m%2!=0)
{

m=2*m;

}
for(i=m;i<=n;i=i+2)
{

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

}
return 0;

}
int main()
{

int m,n;
printf("Enter the Range M-N to print even numbers\n");
scanf("%d %d",&m,&n);
```

```
evenr(m,n);
return 0;


}
```

OUTPUT OF PROGRAM 5

```
Enter the Range M-N to print even numbers
1 10
Even Numbers from range 1-10 is:
2
4
6
8
10

Process returned 0 (0x0)   execution time : 26.061 s
Press any key to continue.
```

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

```
int square(int a)
{

return (a*a);

}
int squareodd(int n)
{

int sumo=0;
for(int i=1;i<=2*n;i++)
{

if(i%2!=0)
{

sumo=sumo+square(i);

}

}
return sumo;

}
int main()
{
```

```
int n,sumo;
printf("Enter the value of N for which squares to be calculated");
scanf("%d",&n);
sumo=squareodd(n);
printf("Sum of squares of first %d odd numbers :%d ",n,sumo);
return 0;

}
```

OUTPUT OF PROGRAM 6

```
Enter the value of N for which squares to be calculated
10
Sum of squares of first 10 odd numbers :1330
Process returned 0 (0x0)   execution time : 18.146 s
Press any key to continue.
```

Develop a program to perform addition of two Matrices.

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
	int mat1[10][10],mat2[10][10],mat3[10][10]={0},n1,m1,n2,m2,n3,m3;
	printf("Enter number of Rows in 1st matrix\n");
	scanf("%d",&n1);
	printf("Enter Number of columns in 1st matrix\n");
	scanf("%d",&m1);
	printf("Enter number of Rows in 2nd matrix\n");
	scanf("%d",&n2);
	printf("Enter Number of columns in 2nd matrix\n");
	scanf("%d",&m2);
	if(n1!=n2 && m1!=m2)
	{
		printf("Enter correct number of rows and columns");
		exit(0);
	}
	printf("Enter the elements of the matrix1\n");
	for(int i=0;i<n1;i++)
	{
		for(int j=0;j<m1;j++)
		{
			scanf("%d",&mat1[i][j]);
		}
	}
	printf("Enter the elements of the matrix2\n");
```

```
for(int i=0;i<n2;i++)
{
	for(int j=0;j<m2;j++)
	{
		scanf("%d",&mat2[i][j]);
	}
}
if(n1==n2 && m1==m2)
{
	n3=n1;
	m3=m1;
	for(int i=0;i<n3;i++)
	{
		for(int j=0;j<m3;j++)
		{
			mat3[i][j]=mat1[i][j]+mat2[i][j];
		}
	}
	printf("Matrices sum is \n");
	for(int i=0;i<n3;i++)
	{
		printf("\n");
		for(int j=0;j<m3;j++)
		{
			printf("%d\t",mat3[i][j]);
		}
	}
}
```

```
    return 0;
}
```

OUTPUT OF PROGRAM 7

```
Enter number of Rows in 1st matrix
3
Enter Number of columns in 1st matrix
3
Enter number of Rows in 2nd matrix
3
Enter Number of columns in 2nd matrix
3
Enter the elements of the matrix1
1
2
3
4
5
6
7
8
9
Enter the elements of the matrix2
2
4
6
8
10
12
14
16
18
Matrices sum is

3       6       9
12      15      18
21      24      27
Process returned 0 (0x0)   execution time : 38.281 s
Press any key to continue.
```

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

```
#include<stdio.h>
int len(char str[20])
{
int i=0,count=0;
while(str[i]!='\0')
{
count += 1;
i++;
}
return count;
}
int main()
{
char str1[20],str2[20];
int i=0,j=0;
printf("Enter the string to be copied\n");
scanf("%s",str1);
while(str1[i] != '\0')
{
str2[j]=str1[i];
i++;
j++;
}str2[j]='\0';
printf("Original string is %s\n",str1);
printf("Copied string is %s\n",str2);
printf("Length of the string is %d\n",len(str1));
```

return 0;

}

OUTPUT OF PROGRAM 8

```
Enter the string to be copied
Aaditya
Original string is Aaditya
Copied string is Aaditya
Length of the string is 7

Process returned 0 (0x0)   execution time : 5.062 s
Press any key to continue.
```

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>
struct student{
int rollnumber;
char name[20];
char section[20];
char dept[10];
float fees;
int totalmarks;
};
int main()
{
int i;
struct student stud1,stud2;
printf("Enter Roll of student 1\n");
scanf("%d",&stud1.rollnumber);
printf("Enter name of student 1\n");
scanf("%s",stud1.name);
printf("Enter the Section of student 1\n");
scanf("%s",stud1.section);
printf("Enter the department of student 1\n");
scanf("%s",stud1.dept);
printf("Enter the fees of student 1\n");
scanf("%f",&stud1.fees);
printf("Enter total marks of student 1\n");
scanf("%d",&stud1.totalmarks);
```

```
printf("Enter Roll of student 2\n");
scanf("%d",&stud2.rollnumber);
printf("Enter name of student 2\n");
scanf("%s",stud2.name);
printf("Enter the Section of student 2\n");
scanf("%s",stud2.section);
printf("Enter the department of student 2\n");
scanf("%s",stud2.dept);
printf("Enter the fees of student 2\n");
scanf("%f",&stud2.fees);
printf("Enter total marks of student 2\n");
scanf("%d",&stud2.totalmarks);
printf("Roll Number of student 1 %d\n",stud1.rollnumber);
printf("Name of student 1 %s\n",stud1.name);
printf("Section of student 1 %s\n",stud1.section);
printf("Department of student1 %s\n",stud1.dept);
printf("Fees of student1 %0.2f\n",stud1.fees);
printf("Total marks of student 1 %d\n",stud1.totalmarks);
printf("Roll Number of student 2 %d\n",stud2.rollnumber);
printf("Name of student 2 %s\n",stud2.name);
printf("Section of student 2 %s\n",stud2.section);
printf("Department of student 2 %s\n",stud2.dept);
printf("Fees of student2 %0.2f\n",stud2.fees);
printf("Total marks of student 2 %d\n",stud2.totalmarks);
if(stud1.totalmarks>stud2.totalmarks)
{
printf("Student 1 secured highest marks");
}
```

```
else if(stud1.totalmarks==stud2.totalmarks)
{
printf("Student 1 and 2 secured same marks");
}
else
{
printf("Student 2 secured highest marks");
}
return 0;
}
```

OUTPUT OF PROGRAM 9

```
Enter total marks of student 1
500
Enter Roll of student 2
02
Enter name of student 2
Akash
Enter the Section of student 2
CN
Enter the department of student 2
CSE
Enter the fees of student 2
200000
Enter total marks of student 2
10
Roll Number of student 1 1
Name of student 1 Aaditya
Section of student 1 CN
Department of student1 CSE
Fees of student1 200000.00
Total marks of student 1 500
Roll Number of student 2 2
Name of student 2 Akash
Section of student 2 CN
Department of student 2 CSE
Fees of student2 200000.00
Total marks of student 2 10
Student 1 secured highest marks
Process returned 0 (0x0)   execution time : 38.771 s
Press any key to continue.
```

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

```
#include<stdio.h>
int operations(int *, int *, int *, int *, int*, float
*, int *);
int main()
{
int a,b;
int add,sub,multiplication,rem;
float division;
printf("Enter the two numbers operations: ");
scanf("%d %d",&a,&b);
operations(&a, &b, &add, &sub, &multiplication,
&division, &rem);
printf("Addition :%d\n",add);
printf("Subtraction :%d\n",sub);
printf("Division :%0.2f\n",division);
printf("Multiplication :%d\n",multiplication);
printf("Remainder :%d\n",rem);
return 0;
}
int operations(int *a, int *b, int *add, int *sub, int
*multiplication, float *division, int *rem)
{
*add=*a+*b;
*sub=*a-*b;
*multiplication=*a**b;
*division=(float)(*a)/(*b);
```

```
*rem=(*a)%(*b);
return 0;
}
```

OUTPUT OF PROGRAM 10

```
Enter the two numbers operations:
10 20
Addition :30
Subtraction :-10
Division :0.50
Multiplication :200
Remainder :10

Process returned 0 (0x0)   execution time : 15.739 s
Press any key to continue.
```