A Micro Project Report

on

Problem Solving using C Language

Submitted by

GUNTUPALLI RAMYA SRI (23471A05C4)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

NARASARAOPETA ENGINEERING COLLEGE: NARASARAOPET

(AUTONOMOUS)

Accredited by NAAC with A+ Grade and NBA under Tier-1

NIRF rank in the band of 201-300 and is an ISO 9001:2015 certified Approved by AICTE, New Delhi, Permanently affiliated to JNTU Kakinada, Approved by AICTE, Accredited by NBA and accredited 'A+' grade by NAAC Narasaraopet-522601, Palnadu(Dt.), Andhra Pradesh, India

2024-2025

NARASARAOPETA ENGINEERING COLLEGE: NARASARAOPET

(AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that GUNTUPALLI RAMYA SRI, Roll No: 23471A05C4, a Second Year Student of the Department of Computer Science and Engineering, has completed the Micro Project Satisfactorily in "Problem Solving using C Language" for the Academic Year 2024-2025..

Project Co-Ordinator
Mr. Shaik Rafi, M.Tech., (Ph.D).
Asst. Professor

HEAD OF THE DEPARTMENT
Dr. S. N. Tirumala Rao, M.Tech., Ph.D.
Professor

INDEX

S.No	Description
1	Read Records of n students & Display Details of Students Having Highest Marks
2	Read Records of n Different Students in Structures & Sort on the Basis of Marks in Ascending Order
3	Write a program which to find out the grace marks for a student using switch. The user should enter the class obtained by the student and the number of subjects he has failed in. - If the student gets first class and the number of subjects he failed in is greater than 3, then he does not get any grace. If the number of subjects he failed in is less than or equal to 3 then the grace is of 5 marks per subject. - If the student gets second class and the number of subjects he failed in is greater than 2, then he does not get any grace. If the number of subjects he failed in is less than or equal to 2 then the grace is of 4 marks per subject. - If the student gets third class and the number of subjects he failed in is greater than 1, then he does not get any grace. If the number of subjects he failed in is equal to 1 then the grace is of 5 marks per subject.

Read Records of n Students & Display Details of Student Having Highest Marks

AIM:

Write a C program To Read Records of n Students & Display Details of Student Having Highest Marks

Source Code:

```
#include <stdio.h>


struct Student {
   char name[50];
   int rollNumber;
   float marks;
};


int main()
{
   int n, i, topStudentIndex = 0;
   printf("Enter the number of students: ");
   scanf("%d", &n);
   struct Student students[n];
   for (i = 0; i < n; i++)
   {
      printf("\nEnter details for student %d:\n", i + 1);
```

```
        printf("Name: ");
        scanf(" %[^\n]s", students[i].name);
        printf("Roll Number: ");
        scanf("%d", &students[i].rollNumber);
        printf("Marks in C: ");
        scanf("%f", &students[i].marks);
        if (students[i].marks > students[topStudentIndex].marks) {
            topStudentIndex = i;
        }
    }
    printf("\nStudent with the highest marks in C:\n");
    printf("Name: %s\n", students[topStudentIndex].name);
    printf("Roll Number: %d\n", students[topStudentIndex].rollNumber);
    printf("Marks in C: %.2f\n", students[topStudentIndex].marks);

    return 0;
}
```

Output:

Enter the number of students: 4

Enter details for student 1:

Name: Ramya

Roll Number: 45

Marks in C: 99

Enter details for student 2:

Name: Dharani

Roll Number: 46

Marks in C: 91

Enter details for student 3:

Name: Sadiya

Roll Number: 47

Marks in C: 90

Enter details for student 4:

Name: Sowmya

Roll Number: 48

Marks in C: 95

Student with the highest marks in C:

Name: Ramya Sri

Roll Number: 45

Marks in C: 99.00

Read Records of n Different Students in Structures & Sort on the Basis of Marks in Ascending Order

AIM:

Read Records of n Different Students in Structures & Sort on the Basis of Marks in Ascending Order

Source Code:

```
#include<stdio.h>
struct student
{
 char name[30];
 int roll;
 float marks;
};

int main()
{
 struct student s[20], temp;
 int i,j,n;

 printf("Enter n:\n");
 scanf("%d",&n);
 for(i=0;i< n;i++)
 {
```

```
 printf("Enter name, roll and marks of student:\n");
 scanf("%s%d%f",s[i].name, &s[i].roll, &s[i].marks);
}
for(i=0;i< n-1;i++)
{
 for(j=i+1;j< n;j++)
 {
  if(s[i].marks>s[j].marks)
  {
   temp = s[i];
   s[i] = s[j];
   s[j] = temp;
  }
 }
}
printf("Sorted records are:\n");
for(i=0;i< n;i++)
{
 printf("Name: %s\n", s[i].name);
 printf("Roll: %d\n", s[i].roll);
 printf("Marks: %0.2f\n\n", s[i].marks);
}
return 0;
}
```

Output:

Enter n:

4

Enter name, roll and marks of student:

Ramya Sri

1

99

Enter name, roll and marks of student:

Dharani

2

91

Enter name, roll and marks of student:

Sadiya

3

90

Enter name, roll and marks of student:

Sowmya

4

95

Sorted records are:

Name: Sadiya

Roll: 3

Marks: 90.00

Name: Dharani

Roll: 2

Marks: 91.00

Name: Sowmya

Roll: 4

Marks: 95.00

Name: Ramya Sri

Roll: 1

Marks: 99.00

FINDING GRACE MARKS FOR A STUDENT

AIM:

Write a program which to find out the grace marks for a student using switch. The user should enter the class obtained by the student and the number of subjects he has failed in.

- If the student gets first class and the number of subjects he failed in is greater than 3, then he does not get any grace. If the number of subjects he failed in is less than or equal to 3 then the grace is of 5 marks per subject.
- If the student gets second class and the number of subjects he failed in is greater than 2, then he does not get any grace. If the number of subjects he failed in is less than or equal to 2 then the grace is of 4 marks per subject.
- If the student gets third class and the number of subjects he failed in is greater than 1, then he does not get any grace. If the number of subjects he failed in is equal to 2 then the grace is of 5 marks per subject.

Source Code:

```
#include <stdio.h>

int main()

{

   int studentClass, failedSubjects, graceMarks = 0;

   printf("Enter the class obtained (1 for First, 2 for Second, 3 for Third): ");

   scanf("%d", &studentClass);

   printf("Enter the number of subjects failed: ");

   scanf("%d", &failedSubjects);

   switch (studentClass)

    {

      case 1: // First class
```

```
        if (failedSubjects <= 3)
        {
            graceMarks = 5 * failedSubjects;
        }
        break;

    case 2: // Second class
        if (failedSubjects <= 2)
        {
            graceMarks = 4 * failedSubjects;
        }
        break;

    case 3: // Third class
        if (failedSubjects == 1)
        {
            graceMarks = 5 * failedSubjects;
        }
        break;

    default:
        printf("Invalid class entered.\n");
        return 1;
}
if (graceMarks > 0)
{
```

```
        printf("Grace marks awarded: %d\n", graceMarks);
    }
 else
    {
        printf("No grace marks awarded.\n");
    }
    return 0;
}
```

Output:

Enter the class obtained (1 for first,2 for second,3 for third):3

Enter the number of subjects failed:1

Grace marks Awarded:5