A Micro Project Report

on

Problem Solving using C Language

Submitted by

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

NARASARAOPETA ENGINEERING COLLEGE: NARASARAOPET

(AUTONOMOUS)

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2024-2025

NARASARAOPETA ENGINEERING COLLEGE: NARASARAOPET

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CERTIFICATE

This is to certify that Shaik Sameera, Roll No: 23471A05AS, 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..

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Frequency Count of Digits in String

Write a C program to given a string, consisting of alphabets and digits, find the frequency of each digit in the given string.

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
int
z=0,one=0,two=0,three=0,four=0,five=0,six=0,seven=0,eight=0,nine=0,i=
0;
char str[100];
printf("enter the string \n");
fgets(str,sizeof(str),stdin);
for(i=0;str[i]!='\0';i++)
{
       if(str[i]==48)
            z++;
      else if(str[i]==49)
          one++;
     else if(str[i]==50)
         two++;
     else if(str[i]==51)
       three++;
     else if(str[i]==52)
       four++;
     else if(str[i]==53)
       five++;
     else if(str[i]==54)
       six++;
     else if(str[i]==55)
       seven++;
```

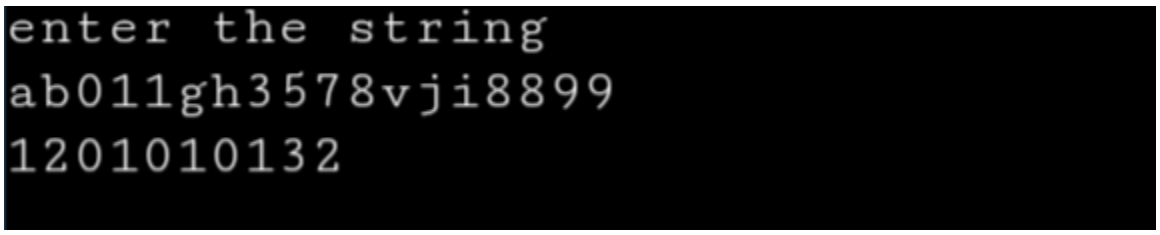
```
        else if(str[i]==56)
          eight++;
        else if(str[i]==57)
         nine++;
    }
    printf("%d%d%d%d%d%d%d%d%d%d",z,one,two,three,four,five,six,seve
    n,eight,nine);
    getch();
    }
```

Input:

Enter a string:

Output :ab011gh3578vji8899

1201010132



Each Word in a New Line

AIM:

Write a C Program Given a sentence, print each word of the sentence in a new line.

```
#include<stdio.h>
#include<string.h>
#include<conio.h>
void main()
 {
  char str[1000];
  int i;
 printf("Enter a sentence:");
 fgets(str,sizeof(str),stdin);
 for(i=0;str[i]!='\0';i++)
 {
  printf("%c",str[i]);
 if(str[i]==' ')
 {
  printf("\n");
 }
}
getch();
}
```

Input:

Enter a sentence: Have a nice day

Output :

Have

a

nice

day

```
Enter a sentence:Have a nice day
Have
a
nice
day
```

Areas of Triangle in Sorted Order

AIM:

You are given triangles, specifically, their sides, and print them in the same style but sorted by their areas from the smallest one to the largest one.it is guaranteed that all the areas are different.

```
 #include <stdio.h>
#include <math.h>
int main()
 {
   int n, i, j;
   scanf("%d", &n);
   double sides[n][3], areas[n];
   for(i = 0; i < n; i++)
{
      scanf("%lf %lf %lf", &sides[i][0], &sides[i][1], &sides[i][2]);
      double s = (sides[i][0] + sides[i][1] + sides[i][2]) / 2;
      areas[i] = sqrt(s * (s - sides[i][0]) * (s - sides[i][1]) * (s - sides[i][2]));
   }
   for(i = 0; i < n; i++)
      for(j = i + 1; j < n; j++)
         if(areas[i] > areas[j])
        {
          double temp_area = areas[i];
            areas[i] = areas[j];
            areas[j] = temp_area;
```

```
            for(int k = 0; k < 3; k++)
            {
                double temp_side = sides[i][k];
                sides[i][k] = sides[j][k];
                sides[j][k] = temp_side;
            }
        }
   for(i = 0; i < n; i++)
      printf("Triangle %d: %.2lf %.2lf %.2lf Area: %.2lf\n", i + 1, sides[i][0],
sides[i][1], sides[i][2], areas[i]);
     return 0;
}
```

Input

3

4 5 6

1 2 3

5 6 7

Output

Triangle 1: 1.00 2.00 3.00 Area: 0.00

Triangle 2: 4.00 5.00 6.00 Area: 9.92

Triangle 3: 5.00 6.00 7.00 Area: 14.70

```
3
4 5 6
1 2 3
5 6 7
Triangle 1: 1.00 2.00 3.00 Area: 0.
00
Triangle 2: 4.00 5.00 6.00 Area: 9.
92
Triangle 3: 5.00 6.00 7.00 Area: 14
.70
```

Matchstick game

Aim:

Write a program for a matchstick game being played between the computer and a user. Your program should ensure that the computer always wins. Rules for the game are as follows:

-There are 21 matchsticks.

-The computer asks the player to pick 1,2,3,or 4 matchsticks.

-After the person picks, the computer does its picking.

-Whoever is forced to pick up the last matchstick loses the game.

```
#include<stdio.h>
#include<conio.h>
int main()
{
 int m=21,p,c;
 clrscr();
 while(m>1)
 {
 printf("No.of matchsticks left: %d\n",m);
 printf("pick 1(or)2(or)3(or)4 matchsticks\n");
 scanf("%d",&p);
 if(p<=4||p>=1)
 m=m-p;
 printf("no.of matchsticks left: %d\n",m);
 c=5-p;
```

```
 printf("out of them computer pick:%d\n",c);
 m=m-c;
 }
 if(m<=1)
 {
 printf("no.of matchsticks left:%d\n",m);
 printf("you lost and computer won the match");
 }
 return 0;
}
```

Input:

No.of matchsticks left: 21

pick 1(or)2(or)3(or)4 matchsticks

3

Output :

no.of matchsticks left: 18

out of them computer pick:2

No.of matchsticks left: 16

pick 1(or)2(or)3(or)4 matchsticks

4

no.of matchsticks left: 12

out of them computer pick:1

No.of matchsticks left: 11

pick 1(or)2(or)3(or)4 matchsticks

2

no.of matchsticks left: 9

out of them computer pick:3

No.of matchsticks left: 6

pick 1(or)2(or)3(or)4 matchsticks

3

no.of matchsticks left: 3

out of them computer pick:2

no.of matchsticks left:1

you lost and computer won the match

```
No.of matchsticks left: 21
pick 1(or)2(or)3(or)4 matchsticks
3
no.of matchsticks left: 18
out of them computer pick:2
No.of matchsticks left: 16
pick 1(or)2(or)3(or)4 matchsticks
4
no.of matchsticks left: 12
out of them computer pick:1
No.of matchsticks left: 11
pick 1(or)2(or)3(or)4 matchsticks
2
no.of matchsticks left: 9
out of them computer pick:3
No.of matchsticks left: 6
pick 1(or)2(or)3(or)4 matchsticks
3
no.of matchsticks left: 3
out of them computer pick:2
no.of matchsticks left:1
you lost and computer won the match
```