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)

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

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2024-2025

NARASARAOPETA ENGINEERING COLLEGE: NARASARAOPET

(AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that Thalluri Vijay kumar, Roll No: 23471A05IK, 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

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Professor

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S. No	Description
1.	Display a monthly/annual calendar with current date highlighting

Monthly/Annual Calendar with Current Date Highlighting

AIM:

Write a Display a monthly/annual calendar with current date highlighting.

SOURCE CODE:

```
#include <stdio.h>
#include <time.h>

#define MAX_DAYS_IN_MONTH 31

int isLeapYear(int year)
 {
 if (year % 4 == 0)
 {
 if (year % 100 == 0)
 {
  if (year % 400 == 0)
              return 1;
else
return 0;
      }
else
          return 1;
   }
```

```
   else
return 0;
}

int getDaysInMonth(int month, int year)
{
   switch (month)
{
case 1: case 3: case 5: case 7: case 8: case 10: case 12:
return 31;
  case 4: case 6: case 9: case 11:
        return 30;
case 2:
        return isLeapYear(year) ? 29 : 28;
default:
        return 0;
}
}

int getFirstDayOfMonth(int month, int year)
{
 struct tm time_info = {0};
time_info.tm_year = year - 1900;
 time_info.tm_mon = month - 1;
time_info.tm_mday = 1;
 mktime(&time_info);

   return time_info.tm_wday;
```

```
}


void displayCalendar(int month, int year)
{
 const char *monthNames[] =
      {"January", "February", "March", "April", "May", "June",
      "July", "August", "September", "October", "November", "December"
   };

 int daysInMonth = getDaysInMonth(month, year);
  int firstDay = getFirstDayOfMonth(month, year);
printf("\n%s %d\n", monthNames[month - 1], year);
printf("Sun\tMon\tTue\tWed\tThu\tFri\tSat\n");
   for (int i = 0; i < firstDay; i++)
{
printf("\t");
   }

   for (int day = 1; day <= daysInMonth; day++)
{
      time_t t = time(NULL);
  struct tm tm = *localtime(&t);
 int today = tm.tm_mday;
 int currentMonth = tm.tm_mon + 1;
int currentYear = tm.tm_year + 1900;
if (day == today && month ==
currentMonth && year currentYear )
```

```
{
          printf("[%-2d]\t", day);
      } else
    {
          printf("%-2d\t", day);
      }

      if ((firstDay + day) % 7 == 0)
{
printf("\n");
      }
   }

   printf("\n");
}


void displayYear(int year)
{
   for (int row = 0; row < 4; row++)
{
   for (int col = 0; col < 3; col++)
{
    int month = row * 3 + col + 1;
if (month <= 12)
{
    displayCalendar(month, year);
```

```
            printf("\t\t");
          }
       }
       printf("\n");
   }
}

int main()
 {
    time_t t = time(NULL);
   struct tm tm = *localtime(&t);
   int currentYear = tm.tm_year + 1900;

    int choice;
    printf("1. Display Current Month\n");
printf("2. Display Full Year\n");
  printf("Enter your choice: ");
scanf("%d", &choice);

    if (choice == 1)
 {

       displayCalendar(tm.tm_mon + 1, currentYear);
    }
 else if (choice == 2)
{
       displayYear(currentYear);
```

```
    }
else
    {
       printf("Invalid choice.\n");
    }

    return 0;
}
```

Input:

1, 2

Output

1. Display Current Month 2. Display Full Year

Enter your choice: 1

November 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	
10 11	12	13	14	15	16	
[17]	18	19	20	21	22	23
24 25	26	27	28	29	30	

1. Display Current Month 2. Display Full Year

Enter your choice: 2

January 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

February 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

March 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2	3
	4	5	6	7	8	9	
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	
24	25	26	27	28	29	30	
31							

April 2024

Sun Mon Tue Wed Thu Fri
Sat 1 2 3 4 5 6

7 8 9 10 11 12 13

14 15 16 17 18 19 20

21 22 23 24 25 26 27

28 29 30

May
2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

June 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

July 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6

7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31

August 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

September 2024

Sun			Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7		
8	9		10	11	12	13	14	
15	16		17	18	19	20	21	
22	23		24	25	26	27	28	
29	30							

October 2024

Sun		Mon	Tue	Wed	Thu	Fri
	Sat	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26

27 28 29 30 31

November 2024

Sun Mon Tue Wed Thu Fri

Sat 1 2

3 4 5 6 7 8 9

10 11 12 13 14 15 16

[17] 18 19 20 21 22 23

24 25 26 27 28 29 30

December

2024

Sun Mon Tue Wed Thu Fri Sat

1 2 3 4 5 6 7 December 2024

Sun Mon Tue Wed Thu Fri Sat

1 2 3 4 5 6 7

8 9 10 11 12 13 14

15 16 17 18 19 20 21

22 23 24 25 26 27 28

29 30 31