# KIET Group of Institutions, Ghaziabad

# COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



#### PROJECT BASED LEARNING

on

#### **CALENDAR APPLICATION**

**SUBJECT: DATA STRUCTURE USING C LAB** 

(KCS-351)

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## **PROJECT ABSTRACT**

The calendar application presented here is a very simple console application developed using C programming language.

It is built without using graphics properties; instead it utilizes many windows properties to give the application a colorful look and feel

It is compiled in online compiler.

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#### **INTRODUCTION**

#### **PROBLEM STATEMENT:-**

TO IMPLEMENT CALENDAR APPLICATION USING C LANGUAGE

A calendar is a system of organizing days. This is done by giving names to periods of time, typically days, weeks, months and years. A date is the designation of a single and specific day within such a system. A calendar is also a physical record (often paper) of such a system.

Calendar, any system for dividing time over extended periods, such as days, months, or years, and arranging such divisions in a definite order. A calendar is convenient for regulating civil life and religious observances and for historical and scientific purposes. The word is derived from the Latin calendarium, meaning "interest register" or "account book," itself a derivation from calendae, the first day of the month in the Roman Republican calendar the day on which future market days, feasts, and other occasions were proclaimed.

## **REQUIREMENT ANALYSIS**

## THIS PROJECT WILL REQUIRE:-

- C COMPILER
- DATA STRUCTURE(ARRAY)

#### **DESIGN**

```
#include<stdio.h>
#define TRUE 1
#define FALSE 0
int days_in_month[]=\{0,31,28,31,30,31,30,31,30,31,30,31\};
char *months[]=
{
       "\n\nJanuary",
       '' \ n \ nFebruary'',
       "\n\n\n
       "\n\n
       "\n\n\nMay",
       "\n\nJune",
       "\n\nJuly",
       "\n\n\nAugust",
       ''\n\nSeptember'',
       "\n\n\color{} n\n\nOctober",
       '' \ n \ November'',
       '' \ n \ n
};
int inputyear(void)
{
      int year;
```

```
printf("Please enter a year (example: 1999) : ");
       scanf("%d", &year);
       return year;
}
int determinedaycode(int year)
{
       int daycode;
       int d1, d2, d3;
       d1 = (year - 1.)/4.0;
       d2 = (year - 1.)/100.;
       d3 = (year - 1.)/400.;
       daycode = (year + d1 - d2 + d3) \%7;
       return daycode;
}
int determineleapyear(int year)
{
       if(year% 4 == FALSE && year% 100 != FALSE || year% 400 == FALSE)
       {
              days_in_month[2] = 29;
              return TRUE;
       }
       else
       {
              days_in_month[2] = 28;
              return FALSE;
       }
}
```

```
void calendar(int year, int daycode)
       int month, day;
       for ( month = 1; month <= 12; month++ )
       {
              printf("%s", months[month]);
              printf("\n\nSun Mon Tue Wed Thu Fri Sat\n");
              // Correct the position for the first date
              for ( day = 1; day <= 1 + daycode * 5; day++ )
                      printf(" ");
              // Print all the dates for one month
              for ( day = 1; day <= days_in_month[month]; day++)
               {
                      printf("%2d", day );
                      // Is day before Sat? Else start next line Sun.
                      if ( ( day + daycode ) \% 7 > 0)
                             printf(" ");
                      else
                             printf("\n " );
               }
                      // Set position for next month
                      daycode = ( daycode + days_in_month[month] ) % 7;
       }
}
```

```
int main(void)
{
    int year, daycode, leapyear;

    year = inputyear();
    daycode = determinedaycode(year);
    determineleapyear(year);
    calendar(year, daycode);
    printf("\n");
}
```

#### **CODE IMPLEMENTATION**

```
15
                                                                      -<u>`</u>O-
main.c
                                                                              Run
 2 #include<stdio.h>
 3
 4 #define TRUE 1
 5 #define FALSE 0
 6
 7 int days_in_month[]={0,31,28,31,30,31,30,31,30,31,30,31};
 8 char *months[]=
 9 - {
10 " ",
11 "\n\n\nJanuary",
12 "\n\n\nFebruary",
13 "\n\n\nMarch",
14 "\n\n\nApril",
15 "\n\n\nMay",
16 "\n\n\nJune",
17 "\n\n\nJuly",
18 "\n\n\nAugust",
19 "\n\n\nSeptember",
20 "\n\n\n0ctober",
21 "\n\n\nNovember",
22 "\n\n\nDecember"
23 };
24
25
26 int inputyear(void)
```

```
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                                                                          -<u>`</u>Ó-
main.c
                                                                                 Run
27 - {
28 int year;
29
30 printf("Please enter a year (example: 1999) : ");
31 scanf("%d", &year);
32 return year;
33 }
34
35 int determinedaycode(int year)
36 - {
37 int daycode;
38 int d1, d2, d3;
39
40 d1 = (year - 1.)/4.0;
41 d2 = (year - 1.) / 100.;
42 d3 = (year - 1.) / 400.;
43 daycode = (year + d1 - d2 + d3) \%7;
44 return daycode;
45 }
46
47
48 int determineleapyear(int year)
49 - {
50 if(year% 4 == FALSE && year%100 != FALSE || year%400 == FALSE)
51 - {
52 days_in_month[2] = 29;
```



```
53 return TRUE;
54 }
55 else
56 - {
57 days_in_month[2] = 28;
58 return FALSE;
59 }
60 }
61
62 void calendar(int year, int daycode)
63 - {
64 int month, day;
65 for ( month = 1; month <= 12; month++ )
66 - {
67 printf("%s", months[month]);
68 printf("\n\nSun Mon Tue Wed Thu Fri Sat\n");
69
70 // Correct the position for the first date
71 for ( day = 1; day \leq 1 + daycode * 5; day++ )
72 - {
73 printf(" ");
74 }
75
76 // Print all the dates for one month
77 for ( day = 1; day <= days_in_month[month]; day++ )</pre>
78 - {
```

```
זר
                                                                        Ŏ.
main.c
                                                                               Run
10 // Print all the dates for one month
77 for ( day = 1; day <= days_in_month[month]; day++ )</pre>
78 {
79 printf("%2d", day );
80
81 // Is day before Sat? Else start next line Sun.
82 if ( ( day + daycode ) \% 7 > 0 )
83 printf(" ");
84 else
85 printf("\n " );
86 }
87 // Set position for next month
88 daycode = ( daycode + days_in_month[month] ) % 7;
89 }
90 }
91
92 int main(void)
93 - {
94 int year, daycode, leapyear;
95
96 year = inputyear();
97 daycode = determinedaycode(year);
98 determineleapyear(year);
99 calendar(year, daycode);
100 printf("\n");
101 }
102
```

## **RESULT/OUTPUT**

Ou	ıtput							
				(exa	mple:	1999)	: 2006	
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						
Febr	uary							
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						

Ou	ıtput						
Marc	h						
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		
Apri	1						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
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9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30							

Ou	itput					
May						
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						
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	

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

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5225							
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
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8	9	10	11	12	13	14	
15	16	17	18	19	20	21	
22	23	24	25	26	27	28	
29	30	31					

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

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- **2.** <a href="https://www.geeksforgeeks.org/what-is-array">https://www.geeksforgeeks.org/what-is-array</a>