MINI PROJECT

Calendar Application.

Project By:

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ABSTRACT :

This C program is to make a desired 'Calendar Application'. In this mini-project, you can find out the months, days, and dates by typing the requirement in the input. The source code would be simple, not complicated, and can be executed in an online GDB Compiler to get the desired output.

We use #include <stdio.h> and #include<stdlib.h> header files.

We use the void calendar to display the calendar. Here we use while and switch. there are 4 cases it means 4 choices for the user to choose the desired option for the output. then we use int isleapyear function to check whether the year is a leap year or not. Then we are using the void calendar function to display the months, date, year, and also notes that we saved.

   In the main function, we need to assign code based on the following,

1. You can find the day by entering the day, month and year.

2. It displays a nicely formatted calendar of every month.

3. You can add the note for a particular day.

4. If the given month has a note in it, it will display || on that day.

In 1. It displays the day when you enter the date month and year. For example, if you enter day = 29, month = 11, and year = 2022, it gives you the day 'Tuesday'.

2. if you type the month and year it displays the calendar of that month in the year

3 you can add notes for the particular date, by just typing month and date we you want to save notes. Then you can type notes there

4. you can see notes by pressing the 's' key.

These are the short form of the days

Sunday – Sun
Monday – Mon
Tuesday- tue
Wednesday – Wed
Thursday – Thu
Friday – Fri
Saturday – Sat

PROGRAM :

```c
#include <stdio.h>
#include <stdlib.h>

int isLeapYear( int year );      /* True if leap year */
int leapYears( int year );       /* The number of leap year */
int todayOf( int y, int m, int d); /* The number of days since the
beginning of the year */
long days( int y, int m, int d);   /* Total number of days */
void calendar(int y, int m);       /* display calendar */
int getDayNumber(int d,int m,int y);
char *getName(int day);

void flush()
{
   int c;
   while ((c = getchar()) != '\n' && c != EOF);
}

typedef struct {
 int day;
 int month;
 int year;
 char note[255];
} Note;

int main(int argc, char* argv[]){
   int year,month, day;
   char choice;
   Note note;
   FILE *fp;

   fp = fopen("note.bin", "r");
   if (fp == NULL) {
```

```c
    fp = fopen("note.bin", "w");
  }
  fclose(fp);

  while(1) {
   printf("1. Find the day\n");
   printf("2. Print calendar of a month\n");
   printf("3. Add Note\n");
   printf("4. Exit\n");
   printf("Enter your choice: ");
   scanf("\n%c", &choice);
   switch(choice) {
    case '1':
    printf("Enter the day, month and year: ");
    scanf("%d %d %d", &day, &month, &year);
    printf("The day is : %s\n", getName(getDayNumber(day, month,
year)));
     break;
     case '2':
     printf("Enter the month and year: ");
     scanf("%d %d", &month, &year);
     printf("Please enter 's' to see the notes\n Press any other letter
key and then press enter to continue\n");
     calendar(year, month);
     break;
     case '3':
     printf("Enter the day, month and year: ");
     scanf("%d %d %d", &note.day, &note.month, &note.year);
     flush();
     printf("Enter the note: ");
     fgets(note.note, 255, stdin);
     fp = fopen("note.bin", "a+");
     if (fp == NULL) {
      printf("File note.bin can not be opened\n");
      exit(1);
```

```c
      }
      fwrite(&note, sizeof(Note), 1, fp);
      printf("Note saved sucessfully\n");
      fclose(fp);
      break;
      case '4':
      printf("Bye!!");
      exit(0);
      break;
      default:
      printf("Not a valid option\n");
      break;
     }
    }
    return 0;
}

int isLeapYear( int y ){
   return(y % 400 == 0) || ((y % 4 == 0) && (y % 100 != 0));
}

int leapYears( int y ){
   return y/4 - y/100 + y/400;
}

int todayOf( int y, int m, int d) {
   static int DayOfMonth[] =
     { -1,0,31,59,90,120,151,181,212,243,273,304,334};
   return DayOfMonth[m] + d + ((m>2 && isLeapYear(y))? 1 : 0);
}

long days( int y, int m, int d){
   int lastYear;
   lastYear = y - 1;
   return 365L * lastYear + leapYears(lastYear) + todayOf(y,m,d);
```

```c
    }

void calendar(int y, int m){
    FILE *fp;
    Note* notes, note;
    int len, j, hasNote = 0;
    char choice;
    const char *NameOfMonth[] = { NULL,
        "January", "February", "March", "April", "May", "June",
        "July", "August", "September", "October", "November",
"December"
    };
    char Week[] = "Sun  Mon  Tue  Wed  Thur  Fri  Sat";
    int DayOfMonth[] = { -1,31,28,31,30,31,30,31,31,30,31,30,31 };
    int weekOfTopDay;
    int i,day;
    weekOfTopDay = days(y, m, 1) % 7;
    fp = fopen("note.bin", "rb");
    if (fp == NULL) {
     printf("Couldn't read notes\n");
    }
    len = 0;
    while(fread(&note, sizeof(Note), 1, fp)) {
     if (note.year == y && note.month == m) {
      len++;
     }
    }
    rewind(fp);
    j = 0;
    notes = (Note*) malloc (sizeof(Note) * len);
    while(fread(&note, sizeof(Note), 1, fp)) {
     if (note.year == y && note.month == m) {
      notes[j] = note;
      j++;
     }
```

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```c
      }
      fclose(fp);
      if(isLeapYear(y))
         DayOfMonth[2] = 29;
      printf("\n    %s %d\n%s\n", NameOfMonth[m], y, Week);
      for(i=0;i<weekOfTopDay;i++)
         printf("   ");
      for(i=weekOfTopDay,day=1;day <= DayOfMonth[m];i++,day++){
         hasNote = 0;
         for (j = 0; j < len; j++) {
           if (notes[j].day == day) {
             printf("|%2d| ",day);
             hasNote = 1;
             break;
           }
         }
         if (hasNote == 0) {
           printf("%2d   ",day);
         }
         if(i % 7 == 6)
             printf("\n");
      }
      printf("\n");
      scanf("\n%c", &choice);
      if (choice == 's') {
        printf("Here .... The notes you saved for %d %d\n", m, y);
        for (j = 0; j < len; j++) {
          printf("%d: %s\n", notes[j].day, notes[j].note);
        }
      } else {
        return;
      }
  }
  int getDayNumber(int d, int m, int y){
     static int t[] = {0, 3, 2, 5, 0, 3, 5, 1, 4, 6, 2, 4};
```

```c
    y -= m < 3;
    return (y + y/4 - y/100 + y/400 + t[m-1] + d) % 7;
}
 char *getName(int day){
  switch(day){
    case 0 :return("Sunday");
    case 1 :return("Monday");
    case 2 :return("Tuesday");
    case 3 :return("Wednesday");
    case 4 :return("Thursday");
    case 5 :return("Friday");
    case 6 :return("Saturday");
    default:return("Error: Invalid Argument Passed");
  }
}
```

OUTPUT :

Finding a day:

```
1. Find the day
2. Print calendar of a month
3. Add Note
4. Exit
Enter your choice: 1
Enter the day, month and year: 21 09 2003
The day is : Sunday
```

Printing calendar of month:

```
1. Find the day
2. Print calendar of a month
3. Add Note
4. Exit
Enter your choice: 2
Enter the month and year: 08 2003
Please enter 's' to see the notes
 Press any other letter key and then press enter to continue
Couldn't read notes

     August 2003
Sun   Mon   Tue   Wed   Thur   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
```

Adding a note:

```
1. Find the day
2. Print calendar of a month
3. Add Note
4. Exit
Enter your choice: 3
Enter the day, month and year: 08 08 2003
Enter the note: SHREYUS BIRTHDAY
Note saved sucessfully
```

Displaying notes:

```
1. Find the day
2. Print calendar of a month
3. Add Note
4. Exit
Enter your choice: 2
Enter the month and year: 08 2003
Please enter 's' to see the notes
 Press any other letter key and then press enter to continue

     August 2003
Sun   Mon   Tue   Wed   Thur   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
10    11    12    13    14    15    16
17    18    19    20    21    22    23
24    25    26    27    28    29    30
31
s
Here .... The notes you saved for 8 2003
8: SHREYUS BIRTHDAY
```