FAIZAN CHOUDHARY

20BCS021

PROGRAMMING LAB

8th November 2021

CODE: (code pasted in this format for readability)

```c
#include <stdio.h>

// 08-11-2021,09-05-1972    18080 days
// 06-01-2016,28-02-2020    1514 days
// 12-01-1880,14-10-2021    51775 days
// 08-01-2017,08-01-2021    1461 days

int isLeap(int y)
{
    if ((y%4==0 && y%100!=0) || (y%400==0))
        return 1;
    return 0;
}

long leapYear(int y1, int y2)
{
    long j, s=0;
    for (j=y1; j<y2; j++)
    {
        s+=365;
        if (isLeap(j)==1)
        // for 366 days
            s++;
    }
    return s;
}

long daysofyear (int d, int m, int y)
{
    long res, day[13];
    // initialising each month with the sum of its previous months
    day[1] = 0; day[2] = 31; day[3] = 59; day[4] = 90;
    day[5] = 120; day[6] = 151; day[7] = 181; day[8] = 212;
    day[9] = 243; day[10]= 273; day[11]= 304; day[12]= 334;
    res=day[m]+d;
    // since if the month is Jan or Feb, we wont include the leap day
    if(isLeap(y)==1 && (m>2))
        res++;
    return res;
}
```

```c
long daysdiff (int d1, int m1, int y1, int d2, int m2, int y2)
{
    long days;
    // finding out difference in dates
    days = daysofyear(d2, m2, y2) - daysofyear(d1, m1, y1);
    if (y1!=y2)
    {
        if (y1<y2)
            days+=leapYear(y1,y2);
        else
            days-=leapYear(y2,y1);
    }
    return days>0 ? days : -days;
}

int valid(int d, int m, int y)
{
    int is_valid = 1, is_leap = 0;

    if (y >= 1800 && y <= 2021)
    {
        if ((y % 4 == 0 && y % 100 != 0) || (y % 400 == 0))
        {
            is_leap = 1;
        }


        if (m >= 1 && m <= 12)
        {

            if (m == 2)
            {
                if (is_leap && d == 29)
                {
                    is_valid = 1;
                }
                else if (d > 28)
                {
                    is_valid = 0;
                }
            }


            else if (m == 4 || m == 6 || m == 9 || m == 11)
            {
                if (d > 30)
                {
                    is_valid = 0;
                }
            }

            else if (d > 31)
```

```c
                {
                    is_valid = 0;
                }
            }

            else
            {
                is_valid = 0;
            }
        }
        else
        {
            is_valid = 0;
        }

        return is_valid;
}

int main()
{
    char date[25], date1[11], date2[11], ch='y';
    int i;
    int d1=0, m1=0, y1=0, d2=0, m2=0, y2=0;
    printf("\nFAIZAN CHOUDHARY\n20BCS021\n\n");

    do
    {
        A:
        printf("\nEnter the string containing two dates (separated by comma): ");
        scanf("%s", &date);

        for (i=0; date[i]!=','; i++)
        {
            date1[i] = date[i];
            date2[i] = date[i+11];
        }

        d1 = (date1[0]-'0')*10 + date1[1]-'0';
        d2 = (date2[0]-'0')*10 + date2[1]-'0';

        m1 = (date1[3]-'0')*10 + date1[4]-'0';
        m2 = (date2[3]-'0')*10 + date2[4]-'0';

        y1 = (date1[6]-'0')*1000 + (date1[7]-'0')*100 + (date1[8]-'0')*10 + date1[9]-'0';
        y2 = (date2[6]-'0')*1000 + (date2[7]-'0')*100 + (date2[8]-'0')*10 + date2[9]-'0';

        if (!valid(d1,m1,y1))
        {
            printf("\nFirst date is invalid.\n");
            goto A;
        }

        if (!valid(d2,m2,y2))
        {
```

```
            printf("\nSecond date is invalid.\n");
            goto A;
        }

        // printf("\n%d %d %d\n", d1, m1, y1);
        // printf("\n%d %d %d\n", d2, m2, y2);
        long res = daysdiff(d1, m1, y1, d2, m2, y2);
        printf("\nNo of Days: %ld", res);

        printf("\nDo you want to enter more? (y/n) ");
        getchar();
        scanf("%c", &ch);
    } while(ch=='y'||ch=='Y');
}
```

OUTPUT:

```
FAIZAN CHOUDHARY
20BCS021


Enter the string containing two dates (separated by comma): 84-21-2110,19-11-2021

First date is invalid.

Enter the string containing two dates (separated by comma): 18-01-2021,09-13-1990

Second date is invalid.
```

```
Enter the string containing two dates (separated by comma): 08-11-2021,09-05-1972

No of Days: 18080
Do you want to enter more? (y/n) y

Enter the string containing two dates (separated by comma): 06-01-2016,28-02-2020

No of Days: 1514
Do you want to enter more? (y/n) y

Enter the string containing two dates (separated by comma): 12-01-1880,14-10-2021

No of Days: 51775
Do you want to enter more? (y/n) y

Enter the string containing two dates (separated by comma): 08-01-2017,08-01-2021

No of Days: 1461
Do you want to enter more? (y/n) n
```