**ASSIGNMENT NO.:**

**PROBLEM STATEMENT :**

Program in C to calculate the date difference between two dates.

**THEORY :**

Suppose two dates are given in a proper format (DD/MM/YYYY). This programs gives the flexibility to find out the diffence between two dates i.e., difference between them is shown in no. Of days. Here the leap year adjustments are also done i.e., if the user given year is a leap year then the total number of days counted in that year is 366 instead of 365. Some mathematical functions such as abs() has been used to find the absolute value of difference between dates.

**ALGORITHM :**

**Input:** Two dates with each date containing day, month and year where day is stored in variables dd1,dd2 , month is stored in variables mm1,mm2 and year is stored in variables yy1,yy2.

**Output:** Difference between two dates or Invalid input message.

**STEPS :**

**Algorithm for dater() function:**

STEP 1: Set y= 0

STEP 2: Switch(x) // x is the month which is given by the user in the corresponding dates.

case 1: y=0

break

case 2: y=31

break

case 3: y=59

break

case 4: y=90

break

case 5: y=120

break

case 6: y=151

break

case 7: y=181

break

case 8: y=212

break

case 9: y=243

break

case 10:y=273

break

case 11:y=304

break

case 12:y=334

break

STEP 3: return y

**Algorithm for main() function :**

STEP 1: Set ref = yy1

STEP 2: if(yy2<yy1)

STEP 3: Set ref = yy2

STEP 4: Set day1 = dater(mm1)// *dater() is a function that takes the month given by user as an* //*argument and returns it as days calculated from the starting* //*of an year.*

STEP 5*:* Set i = ref

STEP 6: Repeat through Step 7 to Step 9 for i= ref to yy1

STEP 7: if(i mod 4 = 0)

STEP 8: Set day1=day1+1

STEP 9: Set i=i+1

STEP 10: Set day1=day1+dd1+(yy1-ref)\*365

STEP 11: Set day2=dater(mm2)

STEP 12: Set i = ref

STEP 13: Repeat through Step 14 to Step 16 for i= ref to yy2

STEP 14: if(i mod 4 = 0)

STEP 15: Set day2=day2+1

STEP 16: Set i=i+1

STEP 17: Set day2=day2+dd2+(yy2-ref)\*365

**SOURCE CODE :**

#include<stdio.h>

#include<math.h>

int dater(int);

int main()

{

int dd1,mm1,yy1,dd2,mm2,yy2,day1=0,day2=0,ref,i;

printf("\nEnter the first date(DD/MM/YYY format):”);

scanf("%d%d%d",&dd1,&mm1,&yy1);

printf("\nEnter the second date(DD/MM/YYY format):");

scanf("%d%d%d",&dd2,&mm2,&yy2);

ref=yy1;

if(yy2<yy1)

ref=yy2;

day1=dater(mm1);

for(i=ref;i<yy1;i++)

{

if(i%4==0)

day1=day1+1;

}

day1=day1+dd1+(yy1-ref)\*365;

day2=dater(mm2);

for(i=ref;i<yy2;i++)

{

if(i%4==0)

day2=day2+1;

}

day2=day2+dd2+(yy2-ref)\*365;

printf("\nDifference between two dates= %d days\n",abs(day2-day1));

return 0;

}

int dater(int x)

{

int y=0;

switch(x)

{

case 1: y=0;

break;

case 2: y=31;

break;

case 3: y=59;

break;

case 4: y=90;

break;

case 5: y=120;

break;

case 6: y=151;

break;

case 7: y=181;

break;

case 8: y=212;

break;

case 9: y=243;

break;

case 10:y=273;

break;

case 11:y=304;

break;

case 12:y=334;

break;

default:printf("\nInvalid Input!!\n");

}

return(y);

}

**INPUT AND OUTPUT :**

**Set 1:** Enter the first date(DD/MM/YYY format):12 11 1997

Enter the second date(DD/MM/YYY format):10 11 1997

Difference between two dates= 2 days

**Set 2:** Enter the first date(DD/MM/YYY format):12 11 1997

Enter the second date(DD/MM/YYY format):2 8 1995

Difference between two dates= 833 days

**DISCUSSION:**

1. In this program the time will increase if the dates are the last days of a particular year, because for that the dater() function will take its max time of executing followed by increment of time of the whole program.
2. The added feature of checking the validity of date is not declared here.
3. The program is not efficient enough to convert the difference into years and months. But from this program it can be modified to do better results.
4. This program is basically focusing on the no of days only.
5. The Tyler-Durden’s solution can be used for further modification of this algorithm and that will also decrease the time complexity. For this the time complexity is O(1).