**3. Design, develop, code and run the program in any suitable language to implement the**

**NextDate function. Analyze it from the perspective of boundary value testing, derive**

**different test cases, execute these test cases and discuss the test results.**

#include<stdio.h>

int check(int day,int month)

{

if((month==4||month==6||month==9 ||month==11) && day==31) return 1;

else

return 0;

}

int isleap(int year)

{

if((year%4==0 && year%100!=0) || year%400==0) return 1;

else

return 0;

}

int main()

{

int day,month,year,tomm\_day,tomm\_month,tomm\_year;

char flag;

do

{

flag='y';

printf("\n enter the today's date in the form of dd mm yyyy\n"); scanf("%d%d%d",&day,&month,&year);

tomm\_month=month;

tomm\_year= year; if(day<1 || day>31)

{

printf("value of day, not in the range 1...31\n"); flag='n';

}

if(month<1 || month>12)

{

printf("value of month, not in the range 1....12\n"); flag='n';

}

else if(check(day,month))

{

printf("value of day, not in the range day<=30"); flag='n';

}

if(year<=1812 || year>2013)

{

printf("value of year, not in the range 1812.......2013\n");

flag='n';

}

if(month==2)

{

if(isleap(year) && day>29)

{

printf("invalid date input for leap year");

flag='n';

}

else if(!(isleap(year))&& day>28)

{

printf("invalid date input for not a leap year");

flag='n';

}

}

}while(flag=='n');

switch (month)

{

case 1:

case 3:

case 5:

case 7:

case 8:

case 10:if(day<31)

tomm\_day=day+1;

else

{

tomm\_day=1;

tomm\_month=month+1;

}

break;

case 4:

case 6:

case 9:

case 11: if(day<30)

tomm\_day=day+1;

else //day = 30

{

tomm\_day=1;

tomm\_month=month+1;

}

break;

case 12: if(day<31)

tomm\_day=day+1;

else

{

tomm\_day=1;

tomm\_month=1;

if(year==2012)

{

printf("the next day is out of boundary value of year\n"); tomm\_year=year+1;

}

else tomm\_year=year+1;

} break;

case 2:

if(day<28) tomm\_day=day+1;

else if(isleap(year)&& day==28) tomm\_day=day+1;

else if(day==28 || day==29)

{

tomm\_day=1; tomm\_month=3;

}

break;

}

printf("next day is : %d %d %d",tomm\_day,tomm\_month,tomm\_year); return 0;

}

**Test Case Name : Boundary Value Analysis test cases for NextDate Program**

**Test data :** Enter the three integer values representing day, month, year

**Pre-condition :** Month: 1 to 12 , DAY: 1 TO 31 AND YEAR: 1812 TO 2012

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Min** | **Min +1** | **Nominal** | **Max -** | **Max** |
| **Day** | 1 | 2 | 15 | 30 | 31 |
| **Month** | 1 | 2 | 6 | 11 | 12 |
| **Year** | 1812 | 1813 | 1912 | 2011 | 2012 |

**Next date Boundary Value Analysis Cases**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SL. NO.** | **Description** | **Input Data** | | | **Expected Output** | | | **Actual output** | | | **Status** |
| **Day** | **Month** | **Year** | **Day** | **Month** | **Year** | **Day** | **Month** | **Year** |
| **1** | Enter the min value for Day, nom value for Month and Year | 1 | 6 | 1912 | 2 | 6 | 1912 | 2 | 6 | 1912 | Test Pass |
| **2** | Enter the min+1 value for Day, nom value for Month and Year | 2 | 6 | 1912 | 3 | 6 | 1912 | 3 | 6 | 1912 | Test Pass |
| **3** | Enter the nom value for Day, Month and Year | 15 | 6 | 1912 | 16 | 6 | 1912 | 16 | 6 | 1912 | Test Pass |
| **4** | Enter the max- value for Day, nom value for Month and Year | 30 | 6 | 1912 | 1 | 7 | 1912 | 1 | 7 | 1912 | Test Pass |
| **5** | Enter the max value for Day, nom value for Month and Year | 31 | 6 | 1912 | Invalid Date | | | Invalid Date | | | Test Pass |
| **6** | Enter the min value for Month, nom value for Day and Year | 15 | 1 | 1912 | 16 | 1 | 1912 | 16 | 1 | 1912 | Test Pass |
| **7** | Enter the min+1 value for Month, nom value for Day and Year | 15 | 2 | 1912 | 16 | 2 | 1912 | 16 | 2 | 1912 | Test Pass |
| **8** | Enter the max- value for Month, nom value for Day and Year | 15 | 11 | 1912 | 16 | 11 | 1912 | 16 | 11 | 1912 | Test Pass |
| **9** | Enter the max value for Month, nom value for Day and Year | 15 | 12 | 1912 | 16 | 12 | 1912 | 16 | 12 | 1912 | Test Pass |
| **10** | Enter the min value for Year, nom value for Day and Month | 15 | 6 | 1812 | 16 | 6 | 1812 | 16 | 6 | 1812 | Test Pass |
| **11** | Enter the min+1 value for Year, nom value for Day and Month | 15 | 6 | 1813 | 16 | 6 | 1813 | 16 | 6 | 1813 | Test Pass |
| **12** | Enter the max- value for Year, nom value for Day and Month | 15 | 6 | 2011 | 16 | 6 | 2011 | 16 | 6 | 2011 | Test Pass |
| **13** | Enter the max value for Year, nom value for Day and Month | 15 | 6 | 2012 | 16 | 6 | 2012 | 16 | 6 | 2012 | Test Pass |