// CALENDAR APPLICATION - BATCH 15

#include <stdio.h>

#include <string.h>

#include <stdlib.h>

#include<stdbool.h>

//LIST OF WEEK DAYS

// invalid-0; monday-1; tuesday-2;.....SO ON

char ARRAY\_OF\_DAYS[][50] = { "invalid","Monday","Tuesday","Wednesday","Thursday","Friday","Saturday","Sunday"};

//FUNCTION THAT RETURNS THE INDEX OF DAY

int dayNumber(int day, int month, int year)

{

static int t[] = { 0, 3, 2, 5, 0, 3, 5, 1, 4, 6, 2, 4 };

year -= month < 3;

return (year + year / 4 - year / 100 + year / 400 + t[month - 1] + day) % 7;

}

//FUNCTION THAT RETURNS THE NAME OF THE MONTH

// JAN-0 FEB-1 MAR-3 SO ON

char\* getMonthName(int monthNumber)

{

char array[][10] = {"January","February", "March","April","May","June","July","August","September","October","November","December"};

char\* month = array[monthNumber];

return month;

}

// FUNCTION TO DETERMINE THE NUMBER OF DAYS IN MONTH

int numberOfDays(int monthNumber, int year)

{

// January

if (monthNumber == 0)

return (31);

// February

if (monthNumber == 1)

{

// If the year is leap then Feb has 29 days

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

return (29);

else

return (28);

}

if((monthNumber%2==0 && monthNumber <=6)|| (monthNumber == 7 || monthNumber == 9 || monthNumber == 11))

return(31);

if((monthNumber%2!=0 && monthNumber <=6) || ( monthNumber == 8|| monthNumber == 10))

return(30);

}

//FUNCTION TO PRINT CALENDAR OF WHOLE(USERINPUT) YEAR

void printCalendar(int year)

{

printf(" Calendar - %d\n\n", year);

int days; //IMP DAYS IN YEAR //ALLL DAYS IN SINGLE YEAR

// Index of the day from 0 to 6

int current = dayNumber(1, 1, year);

// i - Months

// j - Days

for (int i = 0; i < 12; i++)

{

days = numberOfDays(i, year);

// Print the current month name

printf("\n ------------%s-------------\n",getMonthName(i));

// Print the columns

printf(" Su Mo Tu We Th Fr Sa\n");

// Print appropriate spaces

int k;

for (k = 0; k < current; k++)

printf(" ");

for (int j = 1; j <= days; j++)

{

printf("%4d", j);

if (++k > 6)

{

k = 0;

printf("\n");

}

}

if (k)

printf("\n\n");

current = k;

}

return;

}

int dayofweek(int d, int m, int y)

{

static int t[] = { 0, 3, 2, 5, 0, 3, 5, 1, 4, 6, 2, 4 };

y -= m < 3;

return ( y + y/4 - y/100 + y/400 + t[m-1] + d) % 7;

}

void DayOFYearPrinter()

{

int DateForDay,MonthForDay,YearForDay;

printf("Input the date\n");

scanf("%d",&DateForDay);

printf("Input the month\n");

scanf("%d",&MonthForDay);

printf("Input the year\n");

scanf("%d",&YearForDay);

printf("The day is %s\n\n",ARRAY\_OF\_DAYS[dayofweek(DateForDay,MonthForDay,YearForDay)]);

}

//FUNCTION TO DETERMINE LEAP YEAR

void leapYear()

{

int year;

printf ("Enter the year :");

scanf ("%d",&year);

if (year%4==0)

printf ("LEAP YEAR\n");

else

printf ("Not a LEAP YEAR\n\n");

}

int holidays()

{

int m;

int d;

bool notHoliday = true;

printf("Enter the month number:");

scanf("%d",&m);

printf("Enter the date:");

scanf("%d",&d);

if(m<=12)

{

if(m==1)

{

if(d==1)

printf("NEW YEAR");

else if(d==12)

printf("SWAMI VIVEKANANDHA BIRTH DAY\nNatinal YOUTH Day");

else if(d==15)

printf("MAKARA SANKRANTHI");

else if(d==26)

printf("REPUBLIC DAY");

else if(d==23)

printf("Netaji Subhas Chandrabose Jayanthi");

else if(d==24)

printf("National GIRLCHILD Day");

else if(d==25)

printf("National VOTERS day\nNational TOURISM Day");

else if(d==30)

printf("MARTYRS Day");

else if(d==30)

printf("World LEPROSY ERADICATION Day");

else

notHoliday = false;

}

else if(m==2)

{

if(d==4)

printf("World CANCER Day");

else if(d==20)

printf("World SOCIAL JUSTICE Day");

else if(d==28)

printf("National SCIENCE Day");

else

notHoliday = false;

}

else if(m==3)

{

if(d==1)

printf("Zero DISCRIMINATION Day");

else if(d==8)

printf("International WOMEN'S Day");

else if(d==14)

printf("PI Day");

else if(d==21)

printf("World FORESTRY Day");

else if(d==22)

printf("World WATER Day");

else

notHoliday = false;

}

else if(m==4)

{

if(d==7)

printf("World HEALTH Day");

else if(d==14)

printf("B R AMBEDKAR Rememberance Day");

else if(d==22)

printf("World EARTH Day");

else if(d==30)

printf("AYUSHMAN BHARATH DIWAS");

else

notHoliday = false;

}

else if(m==5)

{

if(d==1)

printf("Labour Day");

else if(d==7)

printf("Birthday of RAVINDRANATH TAGORE");

else if(d==10)

printf("MOTHER'S DAY");

else

notHoliday = false;

}

else if (m==6)

{

if(d==1)

printf ("World MILK Day");

else if(d==3)

printf("FATHER'S DAY");

else if(d==5)

printf("World ENVIRONMENT Day");

else if(d==21)

printf("International YOGA Day");

else

notHoliday = false;

}

else if (m==7)

{

if (d==1)

printf ("National DOCTOR'S Day\nCHARTERED ACCOUNTANTS Day");

else if(d==4)

printf("Independence Day of USA");

else if(d==11)

printf("World POPULATION Day");

else if(d==17)

printf("International JUSTICE Day");

else if(d==18)

printf("International NELSON MANDELA Day");

else if(d==26)

printf("KARGIL VIJAY DIWAS\nNational PARENT'S Day");

else if(d==28)

printf("World NATURE CONSERVATION Day");

else

notHoliday = false;

}

else if(m==8)

{

if(d==2)

printf("Friendship Day");

else if(d==3)

printf("raksha bandhan");

else if(d==6)

printf("HIROSHIMA Day");

else if(d==8)

printf("QUIT INDIA MOVEMENT Day");

else if(d==12)

printf("International YOUTH Day");

else if(d==15)

printf("INDEPENDENCE DAY");

else if(d==20)

printf("INDIAN AKSHAY URJA Day");

else if(d==26)

printf("WOMEN'S EQUALITY Day");

else

notHoliday = false;

}

else if(m==9)

{

if (d==2)

printf("ONAM festival");

else if(d==5)

printf("TEACHER'S Day");

else if(d==7)

printf("BRAZILIAN INDEPENDENCE Day");

else if(d==8)

printf("International LITERACY Day");

else if(d==14)

printf("HINDI DIWAS");

else if(d==15)

printf("ENGINEER'S Day\nInternational DEMOCRACY Day");

else if(d==16)

printf("World OZONE Day");

else if(d==29)

printf("World HEART Day");

else

notHoliday = false;

}

else if(m==10)

{

if(d==1)

printf("International OLDER PERSON'S Day\nInternational COFFEE Day");

else if(d==2)

printf("GANDHI JAYANTHI\nInternational NON-VIOLENCE Day");

else if(d==5)

printf("World TEACHER'S Day");

else if(d==15)

printf("World STUDENTS' Day");

else if(d==16)

printf("World FOOD Day");

else if(d==17)

printf("International POVERTY ERADICATION Day");

else if(d==31)

printf("RASHTRIYA EKTHIYA DIWAS");

else

notHoliday = false;

}

else if(m==11)

{

if(d==1)

printf(" KANNADA RAJYOSTAVA");

else if(d==5)

printf("VIRAT KOHLI birthday");

else if(d==7)

printf("C V RAMAN birthday");

else if(d==14)

printf("JAWAHARLAL NEHRU Jayanthi\nCHILDRENS' DAY");

else if(d==19)

printf("International MENS' Day");

else if(d==26)

printf("CONSTITUTION Day Of INDIA");

else

notHoliday = false;

}

else if(m==12)

{

if(d==25)

printf("CHRISTMAS");

else if(d==1)

printf("World AIDS Day");

else if(d==4)

printf("INDIAN NAVY Day");

else if(d==10)

printf("HUMAN RIGHTS Day");

else if(d==22)

printf("National MATHEMATICS Day");

else if(d==23)

printf("KISAN DIWAS");

else

notHoliday = false;

}

if(notHoliday == false)

{

printf(" %d/%d does not correspond to a fixed date holiday",m,d);

}

}

else

{

printf("There are only 12 months in a year");

}

}

// MAIN DRIVER CODE

int main()

{

int userInput = 0;

int yearForCalendar;

printf("\nWELCOME TO THE PANNEL\n");

while(userInput != 4)

{

printf("1.Print Calender of a Year\n");

printf("2.Find the day\n");

printf("3.Determine leap year \n");

printf("4.Government Holidays/Events\n");

printf("5.Exit\n");

printf("Enter your choice :");

scanf("%d",&userInput);

switch(userInput)

{

case 1 : printf("Input the year\n");

scanf("%d",&yearForCalendar);

printCalendar(yearForCalendar);

break;

case 2 : DayOFYearPrinter();

break;

case 3 : leapYear();

break;

case 4: holidays();

break;

case 5 : printf("\nTHANK YOU!!!\n");

break;

default : printf("Invalid option\n");

break;

}

}

}