// C program to print the month by month

// calendar for the given year

#include<string.h>

#include<stdio.h>

#include<stdlib.h>

#define BUF\_SIZE 20

char\* one[] = { "", "One ", "Two ", "Three ", "Four ",

"Five ", "Six ", "Seven ", "Eight ",

"Nine ", "Ten ", "Eleven ", "Twelve ",

"Thirteen ", "Fourteen ", "Fifteen ",

"Sixteen ", "Seventeen ", "Eighteen ",

"Nineteen "

};

// strings at index 0 and 1 are not used, they is to

// make array indexing simple

char\* ten[] = { "", "", "Twenty ", "Thirty ", "Forty ",

"Fifty ", "Sixty ", "Seventy ", "Eighty ",

"Ninety "

};

char \* numToWords(int n, char\* s, char \*str, int len)

{

memset(str,0,len);

// if n is more than 19, divide it

if (n > 19)

{

strcat(str,ten[n / 10]);

strcat(str,one[n % 10]);

}

else

{

strcat(str,one[n]);

}

// if n is non-zero

if (n)

{

strcat(str,s);

}

return str;

}

// Function to print a given number in words

char\* convertToWords(long n, char \*out)

{

char str[BUF\_SIZE] = {0};

// handles digits at thousands and tens thousands

// places (if any)

strcat(out, numToWords(((n / 1000) % 100), "Thousand ",str,BUF\_SIZE));

// handles digit at hundreds places (if any)

strcat(out, numToWords(((n / 100) % 10), "Hundred ",str,BUF\_SIZE));

//Increase code readability

if (n > 100 && n % 100)

{

strcat(out, "And ");

}

// handles digits at ones and tens places (if any)

strcat(out, numToWords((n % 100), "",str,BUF\_SIZE));

return out;

}

// Function that returns the index of the

// day for date DD/MM/YYYY

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 for the given month Number

// January - 0, February - 1 and so on

char\* getMonthName(int monthNumber)

{

char\* month;

switch (monthNumber)

{

case 0:month = "January";

break;

case 1:month = "February";

break;

case 2:month = "March";

break;

case 3:month = "April";

break;

case 4:month = "May";

break;

case 5:month = "June";

break;

case 6:month = "July";

break;

case 7:month = "August";

break;

case 8:month = "September";

break;

case 9:month = "October";

break;

case 10:month = "November";

break;

case 11:month = "December";

break;

}

return month;

}

// Function to return the number of days

// in a 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);

}

// March

if (monthNumber == 2)

return (31);

// April

if (monthNumber == 3)

return (30);

// May

if (monthNumber == 4)

return (31);

// June

if (monthNumber == 5)

return (30);

// July

if (monthNumber == 6)

return (31);

// August

if (monthNumber == 7)

return (31);

// September

if (monthNumber == 8)

return (30);

// October

if (monthNumber == 9)

return (31);

// November

if (monthNumber == 10)

return (30);

// December

if (monthNumber == 11)

return (31);

}

// Function to print the calendar of

// the given year

void printCalendar(int year)

{

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

int days;

// Index of the day from 0 to 6

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

// i for Iterate through months

// j for Iterate through days

// of the month - i

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(" Sun Mon Tue Wed Thu Fri Sat\n");

// Print appropriate spaces

int k;

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

printf(" ");

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

{

printf("%5d", j);

if (++k > 6)

{

k = 0;

printf("\n");

}

}

if (k)

printf("\n");

current = k;

}

return;

}

//Day of the week

void datey()

{

int month[12] = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};

char week[7][10], mast[13][10];

int date, mon, i, r, s = 0 ;

long year;

char str[60] = {0};

//day cpy

strcpy(week[0], "Sunday") ;

strcpy(week[1], "Monday") ;

strcpy(week[2], "Tuesday") ;

strcpy(week[3], "Wednesday") ;

strcpy(week[4], "Thursday") ;

strcpy(week[5], "Friday") ;

strcpy(week[6], "Saturday") ;

printf("Enter a valid date (dd/mm/yyyy) : ") ;

scanf("%d / %d / %ld", &date, &mon, &year) ;

if((date>31)||(mon>12)||(year>9999))

{

printf("\nEnter the dates correctly!!!!\n");

return;

}

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

month[1] = 29 ;

for(i = 0 ; i < mon - 1 ; i++)

s = s + month[i] ;

s = s + (date + year + (year / 4) - 2) ;

s = s % 7 ;

//month cpy

strcpy(mast[1],"January");

strcpy(mast[2],"February");

strcpy(mast[3],"March");

strcpy(mast[4],"April");

strcpy(mast[5],"May");

strcpy(mast[6],"June");

strcpy(mast[7],"July");

strcpy(mast[8],"August");

strcpy(mast[9],"September");

strcpy(mast[10],"October");

strcpy(mast[11],"November");

strcpy(mast[12],"December");

printf("\nThe day is : %s\n The Month is: %s\n", week[s],mast[mon]) ;

printf("And the year is: %s\n",convertToWords(year,str));

}

void leapu()

{

int year;

printf("\nEnter a year: ");

scanf("%d", &year);

if(year>=9999||year<=0)

{

printf("\n Enter the years within four digits, positive integer number\n");

return;

}

// leap year if perfectly divisible by 400

if (year % 400 == 0)

{

printf("\n%d is a leap year.\n", year);

}

// not a leap year if divisible by 100

// but not divisible by 400

else if (year % 100 == 0)

{

printf("\n%d is not a leap year.\n", year);

}

// leap year if not divisible by 100

// but divisible by 4

else if (year % 4 == 0)

{

printf("\n%d is a leap year.\n", year);

}

// all other years are not leap years

else

{

printf("\n%d is not a leap year.\n", year);

}

return;

}

// Driver Code

int main()

{

int year,ch;

while(1)

{

printf("\n MENU \n");

printf("\n 1.See the calendar for a particular year");

printf("\n 2.View your day in which you were born");

printf("\n 3.To check if it is leap year or not");

printf("\n 4.Exit");

printf("\n Enter your choice:\t");

scanf("%d",&ch);

switch(ch)

{

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

scanf("%d",&year);

printCalendar(year);

break;

case 2:datey();

break;

case 3:leapu();

break;

case 4:exit(0);

default:printf("\n Enter the appropriate number!!!");

}

}

// Function Call

}