秦邦哲 U202413695

实验报告：日历系列

完整版日历系列：代码呈现

#include <stdio.h>

void calculateDayinWeek(void)//这个函数的意义是帮助我们计算输入的年份有多少天，便于我们打印日历

{

int year,month,day;

int s[13]={0,31,28,31,30,31,30,31,31,30,31,30,31};

int years[2025]={0};

printf("Please input year(1900-2024):\n");

scanf("%d",&year);

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

{

s[2]=29;

}

int i;

for(i=1900;i<=2024;i++)

{

if(i%100!=0)

{

if(i%4==0)//考虑是闰年的情况

{

years[i]=366;

}

else

{

years[i]=365;

}

}

else

{

if(i%400==0)

{

years[i]=366;

}

else

{

years[i]=365;

}

}

}

int yearfirstday;

yearfirstday=yearsfirstday(year,years);

printf("Please input month(1-12):\n");

scanf("%d",&month);

printf("Please input day(1-31):\n");

scanf("%d",&day);

isMonthDay(year,month,day,monthdaynum(monthfirstnum(yearfirstday,month,s),day),s);

}

void printMonthCalendar(void)//这个函数的意义在于帮助我们直接打印某个月的月历，可以直接使用

{

int year,month;

int x=1;

int n;

int s[13]={0,31,29,31,30,31,30,31,31,30,31,30,31};

int years[2025]={0};

printf("Please input year(1900-2024):\n");

scanf("%d",&year);

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

{

s[2]=29;

}

int i;

for(i=1900;i<=2024;i++)

{

if(i%100!=0)

{

if(i%4==0)

{

years[i]=366;

}

else

{

years[i]=365;

}

}

else

{

if(i%400==0)

{

years[i]=366;

}

else

{

years[i]=365;

}

}

}

printf("Please input month(1-12):\n");

scanf("%d",&month);

printf("%10s\t%10s\t%10s\t%10s\t%10s\t%10s\t%10s\t\n","Mon.","Tues.","Wend.","Thur","Fri.","Stat.","Sun.");

i=1;

int yearfirstday=yearsfirstday(year,years);

while(i<monthcalenderspace(yearfirstday,month,s))

{

printf("%10s\t"," ");

i=i+1;

}

for(n=1;n<=s[month];n=n+1)

{

printf("%10d\t",n);

if((n+monthcalenderspace(yearfirstday,month,s)-1)%7==0)

{

printf("\n");

}

}

}

void printWeekCalendar(void)//这个函数的意义是打印一年中某一周的周历

{

int weeknum,a,b,i,sum=0;

int month,day;

printf("输入周数；\n");

scanf("%d",&weeknum);

a=(weeknum-1)\*7+1;

b=weeknum\*7;

int s[13]={0,31,29,31,30,31,30,31,31,30,31,30,31};

for(i=0;a>sum;i=i+1)

{

sum=sum+s[i];

}

month=i-1;

int c=0;

int monthsum=0;

while(c<=i-2)

{

monthsum=monthsum+s[c];

c=c+1;

}

day=a-monthsum;

printf("#W");

printf("%13s\t%13s\t%13s\t%13s\t%13s\t%13s\t%13s\t\n","Mon.","Tues.","Wed.","Thur.","Fri.","Sat.","Sun.");

printf("%d",weeknum);

int e;

int h=1;

if(weeknum<=52)

{

printcalendar(b,monthsum,s,month,day,i-1);

}

else if(weeknum==53)

{

printf(" 12.30 12.31\n");

}

else if(weeknum>=53)

{

printf("输入周数错误\n");

}

}

void printFallsemesterCalender(void)//秋季校历

{

printf("这是秋季校历\n\n");

int weeknum,a,b,i,sum=0;

int month,day;

int s[13]={0,31,29,31,30,31,30,31,31,30,31,30,31};

int c=0;

int monthsum=0;

int e;

int h=1;

weeknum=36;

printf("#W\t");

printf("%12s\t%12s\t%12s\t%12s\t%12s\t%12s\t%12s\t\n","Mon.","Tues.","Wed.","Thur.","Fri.","Sat.","Sun.");

printf("9.1\n\n");

while(weeknum<=52)

{

a=(weeknum-1)\*7+1;

b=weeknum\*7;

for(i=0;a>sum;i=i+1)

{

sum=sum+s[i];

}

month=i-1;

while(c<=i-2)

{

monthsum=monthsum+s[c];

c=c+1;

}

day=a-monthsum;

printf("%d:\t",weeknum-35);

printcalendar(b,monthsum,s,month,day,i-1);

weeknum=weeknum+1;

i=1;

c=0;

monthsum=0;

sum=0;

}

printf("18:");

printf(" 12.30 12.31 1.1 1.2 1.3 ");

printf("1.4 1.5\n\n")

printf("19:");

printf(" 1.6 1.7 1.8 1.9 1.10 ");

printf("1.11 1.12\n\n");

printf("20:");

printf(" 1.13 1.14 1.15 1.16 \n\n");

}

#include<windows.h>

void calculateDayinWeek(void);

void printMonthCalendar(void);

void printWeekCalendar(void);

void printFallsemesterCalender(void);

void printYearsemesterCalender(void);

void printduration2018(void);

#endif

#include <stdio.h>

#include<windows.h>

void displayMenu()

{

printf("Please input your choice(0-6):\n");

printf("1=calculate the day in week \n");

printf("2=print the month calendar \n");

printf("3=print the week calendar \n");

printf("4=print the fall semester calendar \n");

printf("5=print the year semester calendar \n");

printf("6=print any duration in 2018 \n");

printf("0=exit \n");

printf("Your choice is :");

}

int main()

{

int k;

displayMenu();

scanf("%d",&k);

if(k==1)

{

calculateDayinWeek();

}

else if(k==2)

{

printMonthCalendar();

}

else if(k==3)

{

printWeekCalendar();

}

else if(k==4)

{

printFallsemesterCalender();

}

else if(k==5)

{

printFallsemesterCalender();

printYearsemesterCalender();

}

else if(k==6)

{

printduration2018();

}

else if(k==0)

{

printf("exit\n");

}

return 0;

}

#include<stdio.h>

#include"date.h"

int yearsfirstday(int year,int years[])

{

int i=0;

int sum=0;

for(i=1900;i<year;i++)

{

sum=sum+years[i];

}

int yearfirstday=sum%7+1;

return yearfirstday;

}

void isMonthDay(int year,int month,int day,int n,int s[])

{

if(

(year<1900||year>2024)||(month==1&&day>=32)||(month==2&&day>s[2])||(month==3&&day>=32)||(month==4&&day>=31)||(month==5&&day>=32)||(month==6&&day>=31)||(month==7&&day>=32)||

(month==8&&day>=32)||(month==9&&day>=31)||(month==10&&day>=32)||(month==11&&day>=31)||(month==12&&day>=32)||(month>12)){

printf("输入日期不合理\n");

}

else{

printf("%d-%d-%d is No.%d day in that week.\n",year,month,day,n);

if(n==1){

printf("Monday\n");

}

if(n==2){

printf("Tuesday\n");

}

if(n==3){

printf("Wednesday\n");

}

if(n==4){

printf("Thursday\n");

}

if(n==5){

printf("Friday\n");

}

if(n==6){

printf("Saturday\n");

}

if(n==7){

printf("Sunday\n");

}

}

}

int monthdaynum(int x,int day)

{

int n;

x=(day-1)%7+x;

n=x%7;

if(n==0)

{

n=7;

}

return n;

}

int monthfirstnum(int yearfirstday,int month,int s[])

{

int x,i;

int sum=0;

for(i=0;i<month;i++)

{

sum=sum+s[i];

}

x=(sum+yearfirstday-1)%7+1;

return x;

}

int monthcalenderspace(int yearfirstday,int month,int s[])

{

int x,i;

int sum=0;

for(i=0;i<month;i++)

{

sum=sum+s[i];

}

x=(sum+yearfirstday-1)%7+1;

return x;

}

周历部分代码呈现：这一段代码并没有使用函数，仅仅只是对不同情况进行的分类讨论，虽然有一点繁琐复杂，但是这样的练习，有利于我们掌握好基本功。

#include<stdio.h>

int main()

{

int week = 0;

int month = 0;

int day = 0;

printf("please input one week of the year (<=53)");

scanf\_s("%d", &week);

int theDayBefore = 0;

theDayBefore = (week - 1) \* 7;

if (theDayBefore <= 31)

{

month = 1;

day = theDayBefore + 1;

}

if (theDayBefore <=60&&theDayBefore>=32 )

{

month = 2;

day = theDayBefore + 1 - 31;

}

if (theDayBefore <= 91 && theDayBefore >= 61)

{

month = 3;

day = theDayBefore + 1 - 31 - 29;

}

if (theDayBefore <= 121 && theDayBefore >= 92)

{

month = 4;

day = theDayBefore + 1 - 31 - 29 - 31;

}

if (theDayBefore <= 152 && theDayBefore >= 122)

{

month = 5;

day = theDayBefore + 1 - 31 - 29 - 31 - 30;

}

if (theDayBefore <= 182 && theDayBefore >= 153)

{

month = 6;

day = theDayBefore + 1 - 31 - 29 - 31 - 30 - 31;

}

if (theDayBefore <= 213 && theDayBefore >= 183)

{

month = 7;

day = theDayBefore + 1 - 31 - 29 - 31 - 30 - 31 - 30;

}

if (theDayBefore <= 244 && theDayBefore >= 214)

{

month = 8;

day = theDayBefore + 1 - 31 - 29 - 31 - 30 - 31 - 30 - 31;

}

if (theDayBefore <= 274 && theDayBefore >= 245)

{

month = 9;

day = theDayBefore + 1 - 31 - 29 - 31 - 30 - 31 - 30 - 31 - 31;

}

if (theDayBefore <= 305&& theDayBefore >= 275)

{

month = 10;

day = theDayBefore + 1 - 31 - 29 - 31 - 30 - 31 - 30 - 31 - 31 - 30;

}

if (theDayBefore <= 335 && theDayBefore >= 306)

{

month = 11;

day = theDayBefore + 1 - 31 - 29 - 31 - 30 - 31 - 30 - 31 - 31 - 30 - 31;

}

if (theDayBefore <= 366 && theDayBefore >= 336)

{

month = 12;

day = theDayBefore + 1 - 31 - 29 - 31 - 30 - 31 - 30 - 31 - 31 - 30 - 31 - 30;

}

printf("the week is in the %d month\n",month);

printf("the first day is %d\n",day);

printf("Mon.\t Tue.\t Wed.\t Thur.\t Fri.\t Sat.\t Sun.\t\n");

int i = 1;

while (i <= 7)

{

printf("%d.%d\t",month,day);

i++;

day++;

if (month == 1)

{

if (day > 31)

{

month = month + 1;

day = 1;

}

}

if (month == 2)

{

if (day > 29)

{

month = month + 1;

day = 1;

}

}

if (month == 3)

{

if (day > 31)

{

month = month + 1;

day = 1;

}

}

if (month == 4)

{

if (day > 30)

{

month = month + 1;

day = 1;

}

}

if (month == 5)

{

if (day > 31)

{

month = month + 1;

day = 1;

}

}

if (month == 6)

{

if (day > 30)

{

month = month + 1;

day = 1;

}

}

if (month == 7)

{

if (day > 31)

{

month = month + 1;

day = 1;

}

}

if (month == 8)

{

if (day > 31)

{

month = month + 1;

day = 1;

}

}

if (month == 9)

{

if (day > 30)

{

month = month + 1;

day = 1;

}

}

if (month == 10)

{

if (day > 31)

{

month = month + 1;

day = 1;

}

}

if (month == 11)

{

if (day > 30)

{

month = month + 1;

day = 1;

}

}

if (month == 12)

{

if (day > 31)

{

month = 1;

day = 1;

}

}

}

return 0;

}

感悟：对于本学期进行的日历系列实验，从最开始的计算一年中的某一天是星期几，到后来能够完整的实现呈现一年周历、校历、年历，其中最重要的是将整个复杂的问题拆解成一个一个小函数，分板块进行完成。例如计算某月的第几天是周几这个函数将一直贯穿整个实验流程，因为无论是最简单的查找还是复杂的打印月历校历，通过函数计算出这一天是星期几对于整个流程而言，是至关重要的一步，其余的也是相同的道理。将复杂的问题拆解成一个一个小的版块，用可以实现的方式来完成，这就是本学期日历实验给我带来的最大的启示。