

計算機概論與程式設計

Week 3 (2022/09/26)

LAB2 Expression & Selection

Lab: EC447

助教:

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注意事項

1. 一定要來上課，課堂中Demo
2. 沒有回家作業，課堂中未Demo以0分計算
3. 若因課堂時間因故無法到場，請於課前寄email向助教請假
4. Lab寫完找助教Demo完畢上傳至E3 以LABX_學號.c作為檔名
5. Demo完可以提早離開
6. 寫lab時遇到問題可以舉手
7. 請勿在電腦教室飲食

Lab2

◆ Question:

Write a C program to calculate interval between two dates.

There are three levels for this lab:

1. Your program can calculate interval between two dates within same month
2. Your program can calculate interval between two dates that are nearly a month old
3. Your program can calculate interval between two dates in the same year

Requirement

1. Your program should keep running until input equal EOF or your input choice equal 0

Using this

```
while (scanf("%d", &choice) != EOF){  
    |  
}
```

2. Your program should input function choices to meet requirements of different levels
3. Your input data should follow the format yyyy/mm/dd
4. Both order date1=2022/09/15, date2=2022/09/22
and date1=2022/09/22, date2=2022/09/15
are valid input

Notice: The interval between 2022/09/26-2022/09/26 is 0

The interval between 2022/09/15-2022/09/22 is 7

Sample input

```
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 0  
Got function 0, exit
```

```
-----  
Process exited after 30.11 seconds with return value 0  
請按任意鍵繼續 . . .
```

Input 0 would terminate

```
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 1  
Enter first date(yyyy/mm/dd): 2022/09/15  
Enter second date(yyyy/mm/dd): 2022/09/22  
The interval between 2022/9/15 and 2022/9/22 is 7  
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 1  
Enter first date(yyyy/mm/dd): 2022/09/22  
Enter second date(yyyy/mm/dd): 2022/09/15  
The interval between 2022/9/15 and 2022/9/22 is 7
```


Sample output

```
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 1
Enter first date(yyyy/mm/dd): 2022/09/15
Enter second date(yyyy/mm/dd): 2022/09/22
The interval between 2022/9/15 and 2022/9/22 is 7
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 1
Enter first date(yyyy/mm/dd): 2022/09/22
Enter second date(yyyy/mm/dd): 2022/09/15
The interval between 2022/9/15 and 2022/9/22 is 7
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 2
Enter first date(yyyy/mm/dd): 2020/02/26
Enter second date(yyyy/mm/dd): 2020/03/01
The interval between 2020/2/26 and 2020/3/1 is 4
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 2
Enter first date(yyyy/mm/dd): 2022/02/26
Enter second date(yyyy/mm/dd): 2022/03/01
The interval between 2022/2/26 and 2022/3/1 is 3
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 3
Enter first date(yyyy/mm/dd): 2020/01/01
Enter second date(yyyy/mm/dd): 2020/12/31
The interval between 2020/1/1 and 2020/12/31 is 365
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 3
Enter first date(yyyy/mm/dd): 2022/01/01
Enter second date(yyyy/mm/dd): 2022/12/31
The interval between 2022/1/1 and 2022/12/31 is 364
```

Test case-level1

◆ Input 1

0

```
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 0
Got function 0, exit
```

```
-----
Process exited after 30.11 seconds with return value 0
請按任意鍵繼續 . . .
```

◆ Input 2

1

2022/09/15

2022/09/22

```
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 1
Enter first date(yyyy/mm/dd): 2022/09/15
Enter second date(yyyy/mm/dd): 2022/09/22
The interval between 2022/9/15 and 2022/9/22 is 7
```

Test case-level1

◇ Input 3

1

2022/09/22

2022/09/15

```
Enter first date(yyyy/mm/dd): 2022/09/22
Enter second date(yyyy/mm/dd): 2022/09/15
The interval between 2022/9/15 and 2022/9/22 is 7
```


Test case-level2

◆ Input 1

2

2020/02/26

2020/03/01

```
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 2
Enter first date(yyyy/mm/dd): 2020/02/26
Enter second date(yyyy/mm/dd): 2020/03/01
The interval between 2020/2/26 and 2020/3/1 is 4
```

◆ Input 2

2

2022/02/26

2022/03/01

```
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 2
Enter first date(yyyy/mm/dd): 2022/02/26
Enter second date(yyyy/mm/dd): 2022/03/01
The interval between 2022/2/26 and 2022/3/1 is 3
```

Test case-level3

◆ Input 1

3

2020/01/01

2020/12/31

```
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 3
Enter first date(yyyy/mm/dd): 2020/01/01
Enter second date(yyyy/mm/dd): 2020/12/31
The interval between 2020/1/1 and 2020/12/31 is 365
```

◆ Input 2

3

2022/01/01

2022/12/31

```
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 3
Enter first date(yyyy/mm/dd): 2022/01/01
Enter second date(yyyy/mm/dd): 2022/12/31
The interval between 2022/1/1 and 2022/12/31 is 364
```

Test case-level3

◆ Input 3

3

2022/06/15

2022/09/12

```
Enter the function you want(0: Terminate. 1: Interval of same month. 2:Interval of two near month. 3: Interval of same year): 3
Enter first date(yyyy/mm/dd): 2022/06/15
Enter second date(yyyy/mm/dd): 2022/09/12
The interval between 2022/6/15 and 2022/9/12 is 89
```

Guide to pass each level

- ◆ To pass level1, you should notice which date comes first. e.g. input 2022/09/22 and 2022/09/15, you can change two dates, or use other variable to record them.
- ◆ To pass level2, recommend you to use switch and case, so that you can get number of days for given month, be careful with leap year

(Hint: if the year can meet the condition

1. That year is divisible by 4 and is not divisible by 100
2. That year is divisible by 4 and is divisible by 400

is leap year)

- ◆ To pass level3, you can accumulate all days before given month first, and then calculate the result

Grading

- | | |
|--|--------|
| 1. Pass all level1 test cases | (70%) |
| 2. Pass both level1 and level2 test cases | (30%) |
| 3. Pass all level1, level2 and leve3 cases | (15%) |
| Total | (115%) |