

Introduction to Programming EE2310 Homework 4

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Problem

In Q1, let the user input the status of the weather. Then decide whether a game will continue or not by the decision tree given in the homework page.

In Q2, create a step-by-step system of the above program, including guidance and help information. The user can select an option without entering the full name.

My Solution

For Q1, use nested `if-else` to decide and print out the result.

For Q2, let users decide the name of the target file first by using a `char` array to save it temporarily. Then use `switch-case` to decide and print out the result (because users didn't input the full name of every options). Also, users can choose whether they want to print out their choice in the end by using a simple `if` function.

Additional Features

- (Q1) I've wrote another program (4-1-2.cpp) base on the original one. The new one will read in the data from hw4_weather_data.txt and do the decision process. In the end, it will print out the data table and the decision result to compare if the process is correct.
- (Q2) The screen will automatically cleared after all the variables are entered by using the `system("cls");` command.
- (Q2) When users entered invalid values, the program will let users enter again instead of continuing the program.

Program Flow & Structure — Question 1

LINE	int main()															
08~13	1) Define and read in the variables.															
15~25	2) Using if to decide the result and print it out:															
	<table><tr><td>if outlook="sunny"</td><td>→ humid<=75</td><td>→ play=Yes</td></tr><tr><td></td><td>→ else</td><td>→ play=No</td></tr><tr><td>else if outlook= "overcast"</td><td></td><td>→ play=Yes</td></tr><tr><td>else</td><td>→ windy==0</td><td>→ play=Yes</td></tr><tr><td></td><td>→ else</td><td>→ play=No</td></tr></table>	if outlook="sunny"	→ humid<=75	→ play=Yes		→ else	→ play=No	else if outlook= "overcast"		→ play=Yes	else	→ windy==0	→ play=Yes		→ else	→ play=No
if outlook="sunny"	→ humid<=75	→ play=Yes														
	→ else	→ play=No														
else if outlook= "overcast"		→ play=Yes														
else	→ windy==0	→ play=Yes														
	→ else	→ play=No														

Program Flow & Structure — Question 2

LINE	int main()
08~09	1) Define the variables.
10	2) Print out the guide information and the complete tree.
12~15	3) Let users input the target file name and open the file.
17~18	4) Ask if users want to print their choices out in the end.
19~24	5) Read in the three variables of the weather status.
28~34	6) If user choose to print out their choices, print them out. If not, the program continues.
36~51	7) Use switch-case and if-else to choose the result and save the result to file. Close the file in the end.

Output Result

(Q1)

```
C:\Users\淳佑\OneDrive\文件\課程\計算機程式設計\Homework\hw4\Test\4-... - □ ×
Enter outlook, temp, humid and windy(bool): sunny 85 85 0
"play"="no"
-----
Process exited after 24.03 seconds with return value 0
請按任意鍵繼續 . . .
```

(4-1-2.cpp)(Q1 Additional)

```
C:\Users\淳佑\OneDrive\文件\課程\計算機程式設計\Homework\hw4\Test\4-... - □ ×
No.  Outlook  Temp  Humid  Windy  Play  CorrectAns
1    sunny    85    85    FALSE  no    no
2    sunny    80    90    TRUE   no    no
3    overcast 83    86    FALSE  yes   yes
4    rainy    70    96    FALSE  yes   yes
5    rainy    68    80    FALSE  yes   yes
6    rainy    65    70    TRUE   no    no
7    overcast 64    65    TRUE   yes   yes
8    sunny    72    95    FALSE  no    no
9    sunny    69    70    FALSE  yes   yes
10   rainy    75    80    FALSE  yes   yes
11   sunny    75    70    TRUE   yes   yes
12   overcast 72    90    TRUE   yes   yes
13   overcast 81    75    FALSE  yes   yes
14   rainy    71    91    TRUE   no    no
14   rainy    71    91    TRUE   no    no
-----
Process exited after 0.02657 seconds with return value 0
請按任意鍵繼續 . . .
```

(Q2)

```
C:\Users\淳佑\OneDrive\文件\課程\計算機程式設計\Homework\hw4\Test\4-... - □ ×
-----INSTRUCTION-----
Enter what's the weather like and decide if a game will continue to play or not.

-----DECISION TREE-----
                                |-- '=FALSE' -- 'yes'
                                |-- '=TRUE' -- 'no'
OUTLOOK --|-- '=rainy' -- WINDY --|-- '=TRUE' -- 'no'
                                |-- '=overcast' -- 'yes'
                                |-- '=sunny' -- HUMIDITY --|-- '>75' -- 'no'
                                                |-- '<=75' -- 'yes'

-----> TARGET FILE NAME <-----
Enter the target text file name you want. Add ".txt" in the end.
test.txt
-----> OPTION <-----
Do you want to print your decision on the screen? 0>NO 1>YES
1
-----> OUTLOOK <-----
1>sunny 2>overcast 3>rainy
1
-----> HUMIDITY <-----
Enter the value directly.
85
-----> WINDY <-----
0>FALSE 1>TRUE.
0
```

```
C:\Users\淳佑\OneDrive\文件\課程\計算機程式設計\Homework\hw4\Test\4-... - □ ×
----- RESULT -----
outlook == sunny, humidity == 85, windy == FALSE

The result has been saved to test.txt
-----
Process exited after 30.38 seconds with return value 0
請按任意鍵繼續 . . .
```