程式設計(一) - 作業 5

NCKU Program Design I Homework 5

The key focus of this Assignment

- Loops

- if/else statement

- special character

Before Start

- Don't attack any system otherwise you will fail this course.

- One instances of severe plagiarism, hiring someone to write assignments, or similar activities are detected, the semester's assignment scores will be calculated as 0 point across the board.

Before Start

- If you have any question about this homework tasks (*ex.* problem description), please feel free to contact me
- (資訊 115 陳俊安, f74114744@gs.ncku.edu.tw).

DeadLine: 10/26 00:00

- 建議這個作業早一點寫

- I recommend starting this assignment earlier.

Submission

- Login the system by your personal account. (Use the ssh command)
- Create an directory with name "HW5" in your home directory.
- You can use the "pwd" command to confirm your current directory.
- The "mkdir [name]" command can create a directory with the name [name]
- In HW5 directory, you need to create 1 files with name "hw5.c".
- You need to compile your program by yourself, and create one executable files with the filenames "hw5"
- gcc -o hw5 hw5.c

Homework 5: NCKU Kirby Shop !

- You have opened a store selling Kirby merchandise at NCKU, and you need to design a program for automated checkouts.

Homework 5: NCKU PD1 Kirby Shop !

- In this Kirby shop, there are three types of Kirby

- If you purchase a total of x, y, and z different types of Kirby, the price will be x + y + z.

Homework 5: NCKU PD1 Kirby Shop！

- However, there is currently a promotional offer. (促銷活動)
  - 如果三種類型的卡比各買了 a,b,c 隻，可以把他們打包成好幾個箱子，每一個箱子裡面的內容物必須一樣，且所有卡比都必須被裝進其中一個箱子裡
  - If you buy a, b, and c of the three types of Kirby, you can package them into several boxes, with each box containing the same contents and all Kirby must be placed in one of the boxes.

Homework 5: NCKU PD1 Kirby Shop！

- 如果總共裝了 T 箱，總價格可以再減少 2T

- If a total of T boxes are used, the total price can be further reduced by 2T.

  - Example:

    - {10,20,30} -> {1,2,3} * 10 = (10 + 20 + 30) - 10 * 2

    - {8,9,10} -> {8,9,10} * 1 = (8 + 9 + 10) - 1 * 2

    - {12,36,18} -> {2,6,3} * 6 = (12 + 36 + 18) - 6 * 2

Homework 5: NCKU PD1 Kirby Shop !

- Your program must have four functions
    - Openning
    - List
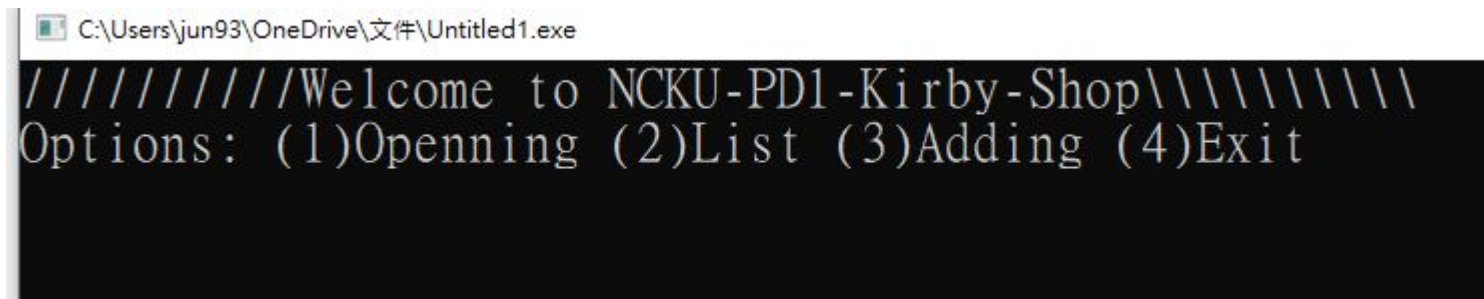   - Adding
    - Exit

Homework 5: NCKU PD1 Kirby Shop !

- At the beginning, your program must first output the following text:
  - //////////Welcome to NCKU-PD1-Kirby-Shop\\\\\\\\\\
    - Remember to add a line break.

C:\Users\jun93\OneDrive\文件\Untitled1.exe

//////////Welcome to NCKU-PD1-Kirby-Shop\\\\\\\\\\
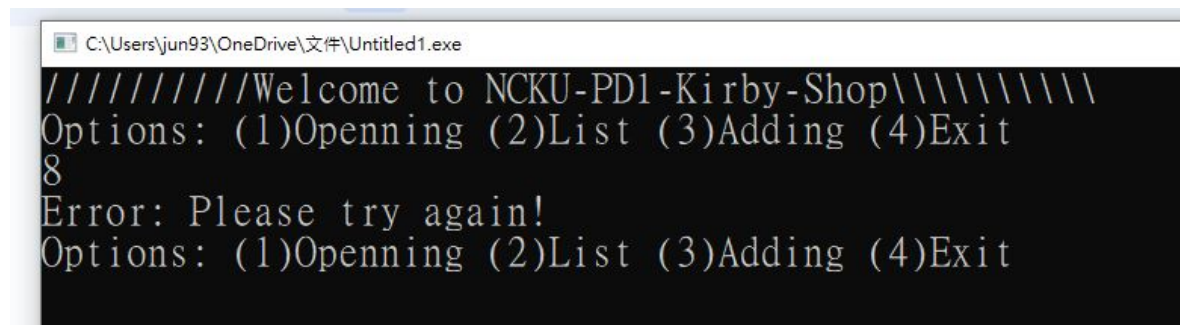
Homework 5: NCKU PD1 Kirby Shop !

- Next, before each operation, you must output the following text:
  - Options: (1)Openning (2)List (3)Adding (4)Exit
    - Remember to add a line break.
- And wait for user input.


```
C:\Users\jun93\OneDrive\文件\Untitled1.exe
/////////Welcome to NCKU-PD1-Kirby-Shop\\\\\\\\\\
Options: (1)Openning (2)List (3)Adding (4)Exit
```

Homework 5: NCKU PD1 Kirby Shop !

- Perform the corresponding operation based on the user's input (1 to 4).
- If the user enters something else, please output the following text (with a line break):
  - Error: Please try again!


```
C:\Users\jun93\OneDrive\文件\Untitled1.exe
//////////Welcome to NCKU-PD1-Kirby-Shop\\\\\\\\\\
Options: (1)Openning (2)List (3)Adding (4)Exit
8
Error: Please try again!
Options: (1)Openning (2)List (3)Adding (4)Exit
```

Options: Openning

- If the shop hasn't opened yet, output the following text:
    - Your shop is openning!
- If the shop is already open, but this operation is executed again, then output the following text:
    - Your Kirby shop has already opened :(
- Remember to add a line break.

Options: Openning

Options: List

- List the current sale conditions in the following format:

- Remember to add a line break.


```
Options: (1)Openning (2)List (3)Adding (4)Exit
2

=================================================
Kirby-A: 0
Kirby-B: 0
Kirby-C: 0
Kirby: 0, Money: 0
=================================================
Options: (1)Openning (2)List (3)Adding (4)Exit
```

Options: List

- 這個地方給你們複製可能會用到的東西

- This place provides you with copies of things that may come in handy.

  - printf("====================================\n");

  - "Kirby-A: %d\n"

  - "Kirby: %d, Money: %d\n"

Options: Adding

- This operation signifies that a customer is currently buying Kirby, and you need to calculate the price for them.

- You must then have the user input three numbers, representing the quantity of each type of Kirby purchased.

  - Before inputting the purchase quantities, you must first output the following text:

    - "Please enter three numbers: " (Without double quotation marks.)

```
Options: (1)Openning (2)List (3)Adding (4)Exit
3
Please enter three numbers:
```

Options: Adding

- After the user inputs, it is necessary to determine whether the input is correct (判斷輸入是否正確)
  - If the input is correct, output how many boxes were packed and how many Kirby are in each box
  - Next, output the price.
  - Remember to add a line break.

```
Options: (1)Openning (2)List (3)Adding (4)Exit
3
Please enter three numbers: 10 20 30
Divide these Kirbys into 10 boxes, with the number of Kirby in each box being 1, 2, and 3
Price: 40
Options: (1)Openning (2)List (3)Adding (4)Exit
```

Options: Adding

- 這個地方給你們複製可能會用到的東西

- This place provides you with copies of things that may come in handy.

  - "Divide these Kirbys into %d boxes, with the number of Kirby in each box being %d, %d, and %d\n"

  - "Price: %d\n"

Options: Adding (Hints)

- 怎麼計算這些卡比最多可以裝幾個箱子？

- How do you calculate how many boxes these Kirby can be maximally packed into?

- Ans: 最大公因數 (Greatest Common Divisor, GCD)

Options: Adding

- After the user inputs, it is necessary to determine whether the input is correct (判斷輸入是否正確)
  - If there is an input error, you must output the following text and prompt the user to input again, until the input is correct.
  - 如果輸入錯誤，必須輸出以下文字，並讓使用者再輸入一次，直到輸入正確
  - "Error: Please try again or enter '-1 -1 -1' to make a new options: "
  - (Without double quotation marks.)

Options: Adding

```
Options: (1)Openning (2)List (3)Adding (4)Exit
3
Please enter three numbers: 10 20 30
Divide these Kirbys into 10 boxes, with the number of Kirby in each box being 1, 2, and 3
Price: 40
Options: (1)Openning (2)List (3)Adding (4)Exit
3
Please enter three numbers: 10 $ 10
Error: Please try again or enter '-1 -1 -1' to make a new options: $ $ $
Error: Please try again or enter '-1 -1 -1' to make a new options: 10 20 /*
Error: Please try again or enter '-1 -1 -1' to make a new options: - - -
Error: Please try again or enter '-1 -1 -1' to make a new options: 10 20 30
Divide these Kirbys into 10 boxes, with the number of Kirby in each box being 1, 2, and 3
Price: 40
Options: (1)Openning (2)List (3)Adding (4)Exit
```

Options: Adding

- 如果在輸入錯誤的情況下，使用者輸入 -1 -1 -1，必須退回到選擇選項的功能
- If, in the case of an incorrect input, the user enters -1 -1 -1, it must return to the option selection function.

```
Options: (1)Openning (2)List (3)Adding (4)Exit
3
Please enter three numbers: -1 -1 -1
Error: Please try again or enter '-1 -1 -1' to make a new options: 2 3 /
Error: Please try again or enter '-1 -1 -1' to make a new options: -1 -1 -1
Options: (1)Openning (2)List (3)Adding (4)Exit
```

Options: Adding

- 輸入錯誤的情況：輸入非正整數或其他非相關字元

- Error in input: entering a non-positive integer or any other unrelated characters.

Options: Adding

- If this operation is used when the shop is not open yet, you must output the following text:
  - "Your Kirby shop has not opened"
  - Remember to add a line break.

```
Options: (1)Openning (2)List (3)Adding (4)Exit
3
Your Kirby shop has not opened
Options: (1)Openning (2)List (3)Adding (4)Exit
```

Options: Exit

● 結束程式

● Terminate the program.

Grading (100pt)

- Subtask 1 (5 %)
  - Can output //////////Welcome to NCKU-PD1-Kirby-Shop\\\\\\\\\\ Correctly
- Subtask 2 (10 %)

  - Options 1 is correct.
- Subtask 3 (40 %)

  - Options 3 is correct.
- Subtask 4 (45 %)

  - All options and subtasks are correct.

Sample Demo


```
C:\Users\jun93\OneDrive\文件\Untitled1.exe
//////////Welcome to NCKU-PD1-Kirby-Shop\\\\\\\\\\
Options: (1)Openning (2)List (3)Adding (4)Exit
3
Your Kirby shop has not opened
Options: (1)Openning (2)List (3)Adding (4)Exit
1
Your shop is openning!
Options: (1)Openning (2)List (3)Adding (4)Exit
1
Your Kirby shop has already opened :(
Options: (1)Openning (2)List (3)Adding (4)Exit
3
Please enter three numbers: -8 9 10
Error: Please try again or enter '-1 -1 -1' to make a new options: 10 20 30
Divide these Kirbys into 10 boxes, with the number of Kirby in each box being 1, 2, and 3
Price: 40
Options: (1)Openning (2)List (3)Adding (4)Exit
3
Please enter three numbers: 20 30 40
Divide these Kirbys into 10 boxes, with the number of Kirby in each box being 2, 3, and 4
Price: 70
Options: (1)Openning (2)List (3)Adding (4)Exit
2
================================
Kirby-A: 30
Kirby-B: 50
Kirby-C: 70
Kirby: 150, Money: 110
================================
Options: (1)Openning (2)List (3)Adding (4)Exit
4

--------------------------------
Process exited after 35.86 seconds with return value 0
請按任意鍵繼續 . . .
```