

介面格式建議同學可以設計一個「可連續操作的主選單」當作操作的主要介面，而選單包含各個本次作業要求的功能。每次操作完單一功能後，就回到主選單，再繼續操作其他功能。以下測資以本次作業的 product.txt 為例：

一、一般功能：

(一) The dataset is initially read from a text file. Each line in the file contains the information of a product (separated by spaces). The order of the products in the input file is random. (at least 20 products) (20 分)。

(二) Search for a product by the product number: Read in the product number and show all the information of the product if the product is found. (10 分).

Press "N" key to show the next product information in increasing order of product number until "R" key is pressed. (10 分)

測資編號	輸入	輸出
1.	051	product number: 051 price: 329 amount: 25
	N	product number: 070 price: 1099 amount: 23
	N	product number: 092 price: 489 amount: 99
	R	Return to the menu.
2.	456	The product you want to search is not exists in database.

(三) Import products. Read in the product number and the amount. (10 分)

測資編號	輸入	輸出
1.	051 32	product number: 051 price: 329 amount: 25 === inserted: === product number: 051 price: 329 amount: 57
2.	666 66	The product you want to insert is not in the database. Please input the price:
	6	=== you have inserted: === product number: 666 price: 6 amount: 66

		==== into the tree ====
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(四) Delete a product: Read in the product number and delete the product from the tree if the product is found. (10 分)

測資編號	輸入	輸出
1.	051	==== you have just deleted: ==== product number: 051 price: 329 amount: 25
2.	666	The product you want to delete is not exists in database.

(五) Export products. Read in the product number and amount. The amount of the product is decreased if the product is found and the amount is enough. Show error message if the amount is not enough. (10 分)

測資編號	輸入	輸出
1.	051 25	==== you have just export: ==== product number: 051 price: 329 amount: 25 ==== remains: ==== product number: 051 price: 329 amount: 0
2.	051 32	The product you want to export is not enough in database.
3.	666 25	The product you want to export is not exists in database.

(六) List all product information in increasing order of product number. (10 分)

輸出
product number: 012, price: 159, amount: 10. product number: 023, price: 79, amount: 84. product number: 034, price: 159, amount: 1. ...

二、擴展功能

(一) Add a function to modify the product number of a product. (5 分)

測資編號	輸入	輸出
1.	051 052	==== you have just modified the product number of product 051: ==== ==== the new data is ==== product number: 052 price: 329 amount: 99
2.	666 72	The product you want to modify the number is not exist in database.

(二) Search for a product with the highest price and output its product number. (5 分)

輸出
The product number with highest price: 247

(三) Store the information of the products back to the file when ending the program. (The users can specify the filename of the output file. In addition, the users can specify the file name as the input file when re-running the program to construct the same binary search tree.) (10 分)

※ 介面格式最重要的仍是介面是否能與使用者良好溝通，亦即該介面所透露之操作訊息，能否讓使用者知道目前程式的使用狀況。

※ 上述測資皆為參考，實際測資可能不會按照此範例，但測試的資料、訊息表達之方式大同小異，資料筆數最多 100 筆。

※ 若有問題歡迎來信與助教討論：

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