

Documentation for Milestone 2

1. Components of the program

The program of Milestone 2 is a program for users to keep track and manage their IT goods inventory that contains several data fields. The whole program consists of types of file which is *Inventory.cpp* , *StoreItem.h* , *StoreItem.cpp* and *inventory.txt*.

2. The design of the program

The figure below indicates the user interface as the user starts to run the compiled *Inventory.cpp* , *StoreItem.h* and *StoreItem.cpp*.

```

Inventory
*****
WELCOME TO YOUR IT INVENTORY MANAGEMENT PROGRAM
*****
<1> Insert New Record
<2> Update a Record's Data Field
<3> Delete a Record
<4> Display the Inventory
<5> Search Item in Inventory
<6> Exit Program
*****

Please select the function that you wish to use by entering the NUMBER indicating the function:

```

Figure 1. Main page of program

The program shows as it consists of 6 different functions which are:

- Insert a new Record for the inventory
- Update an existing Record's data field
- Delete a record in the inventory
- Display an inventory record and its particular data field
- Search an Item in the Inventory
- Exit the program

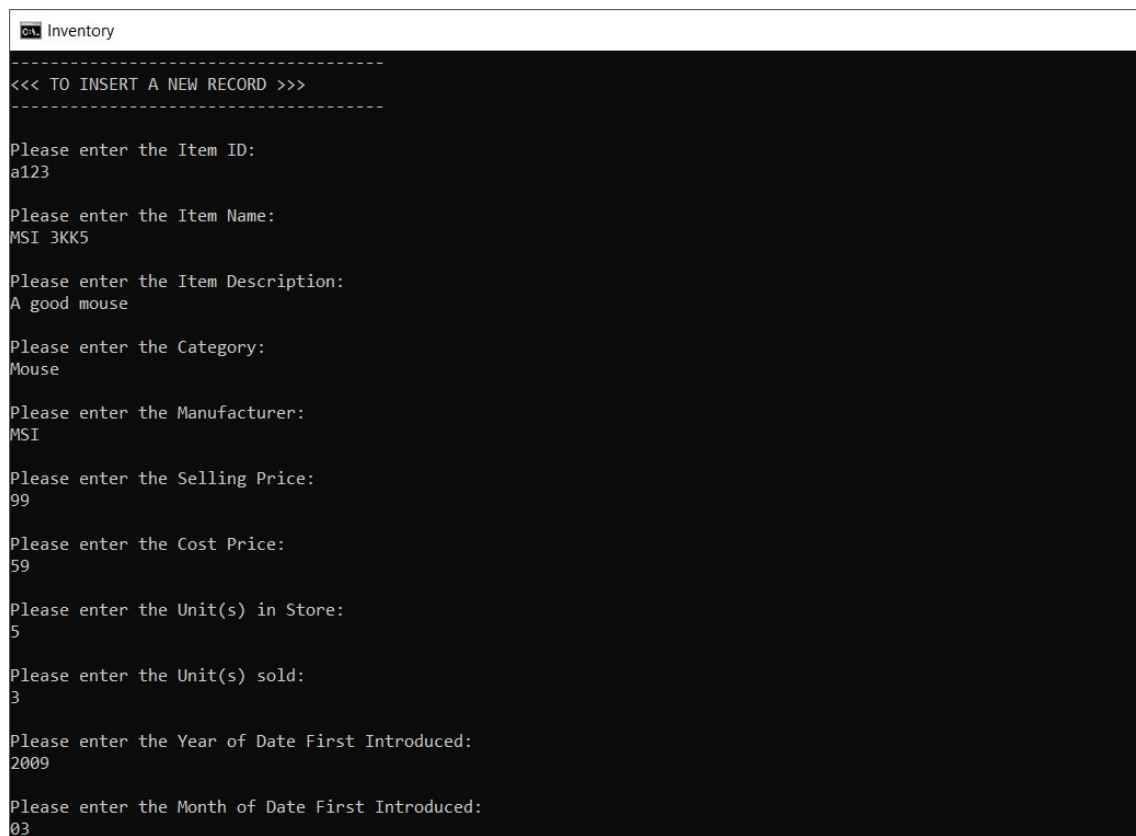
User will be prompt to insert a number to start a function. If user entered an invalid choice, an error will be shown and the user will be prompted to insert a number again as figure shown below.

[illegible]

Figure 2. Error of invalid input on Main Page

2.1. Inserting a new Record

If (1) is entered, <1> will be selected and hence the user will proceed to the Insert New Record function. User will be prompted to enter several data fields of a new record to be able to save it in the inventory records. As all the data field have already been filled up with the correct format and input, then a save success message will be shown such as the figure shown below.



```
Inventory
-----
<<< TO INSERT A NEW RECORD >>>
-----

Please enter the Item ID:
a123

Please enter the Item Name:
MSI 3KK5

Please enter the Item Description:
A good mouse

Please enter the Category:
Mouse

Please enter the Manufacturer:
MSI

Please enter the Selling Price:
99

Please enter the Cost Price:
59

Please enter the Unit(s) in Store:
5

Please enter the Unit(s) sold:
3

Please enter the Year of Date First Introduced:
2009

Please enter the Month of Date First Introduced:
03
```

Figure 3. Insert Item successful

After inserting the item's data field, user will be prompt to choose either to return to the main page or to quit the program. The item is then saved in *inventory.txt*.

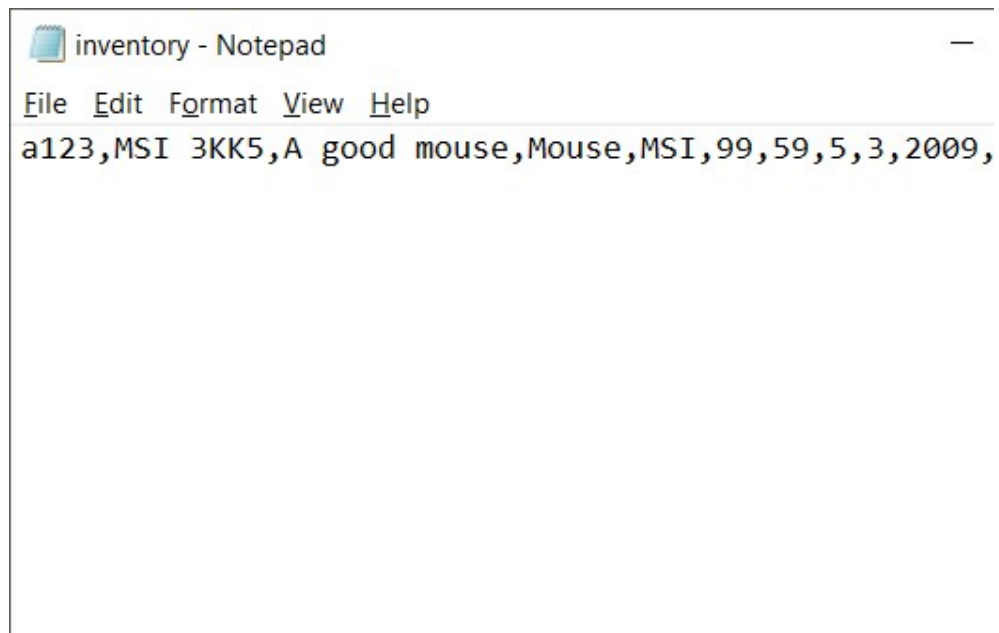


Figure 4. Item Saved in Inventory

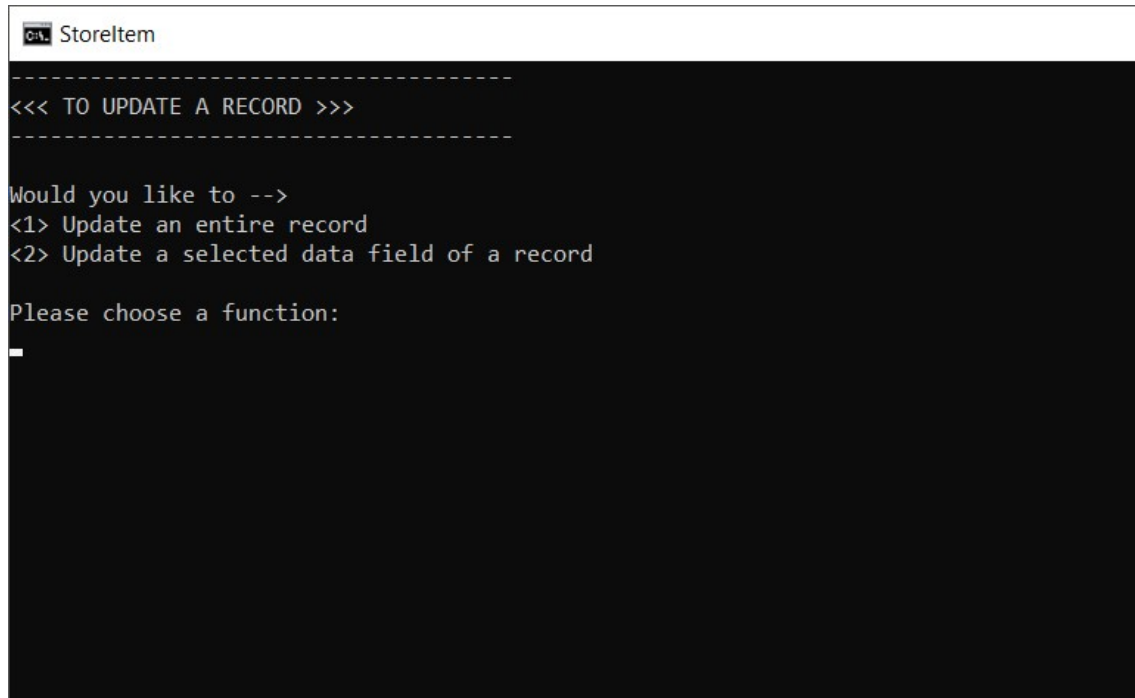
If the item ID has already been used, the program will show a message that the Item ID has been used and will prompt user to re-enter a whole new record all over again.



Figure 5.Item ID already used

2.2. Update a Record's Data Field

If (2) is entered, <2> will be selected and user will be prompted to update a Record's Data Field. User can then choose to update either an entire record or update only a selected data field of a record.



```
StoreItem
-----
<<< TO UPDATE A RECORD >>>
-----

Would you like to -->
<1> Update an entire record
<2> Update a selected data field of a record

Please choose a function:
_
```

Figure 6. Update Item Function

When <1> which is an option for user to update an entire record is chosen, the user will be prompted to enter the Item ID and then re-entering every data field. When it is successful, item will be updated in *inventory.txt*. User will then be prompted whether to exit to the main page or to exit the program.

```
Inventory
-----
<<< TO UPDATE A RECORD >>>
-----
Would you like to -->
<1> Update an entire record
<2> Update a selected data field of a record

Please choose a function:
1
Please enter the Item ID:
a123

Please enter the Item Name:
Dell-123

Please enter the Item Description:
A 4k Monitor

Please enter the Category:
Monitor

Please enter the Manufacturer:
Dell

Please enter the Selling Price:
3999

Please enter the Cost Price:
2599

Please enter the Unit(s) in Store:
5

Please enter the Unit(s) sold:
2

Please enter the Year of Date First Introduced:
2018
```

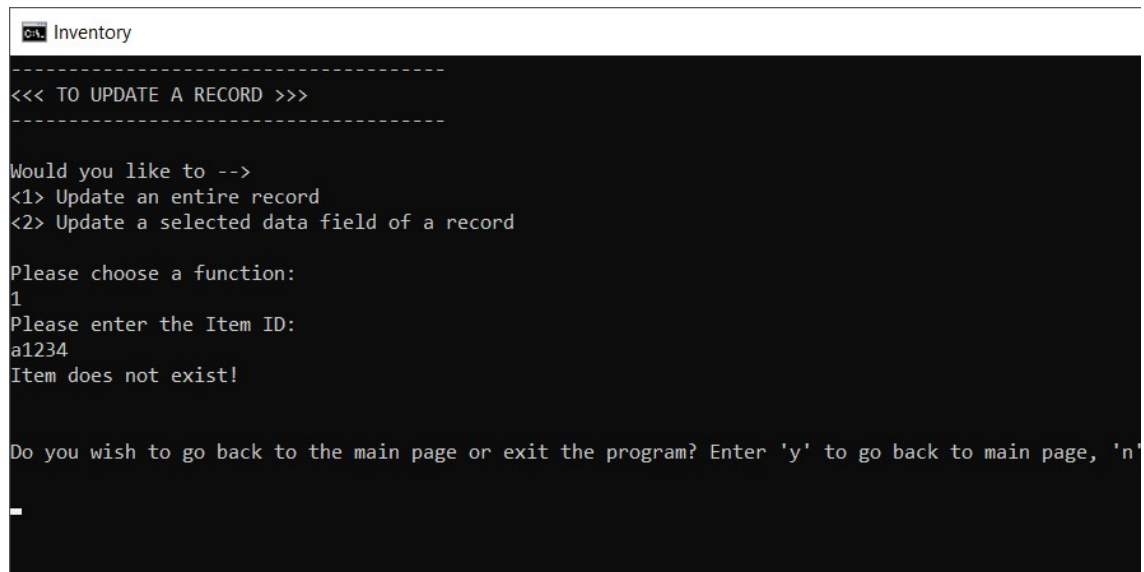
Figure 7. Update item successfully

Item is successfully updated as shown in *inventory.txt*.

```
inventory - Notepad
File Edit Format View Help
a123,Dell-123,A 4k Monitor,Monitor,Dell,3999,2599,5,2,2018,9,8
```

Figure 8. Item Successfully Updated

If the item ID enter does not exist, then an error message will be shown and user will be asked to either restart the function or proceed to “ proceed to main page or exit program” function. If user selected to restart function, user will be prompted to enter an Item ID.



```
Inventory
-----
<<< TO UPDATE A RECORD >>>
-----

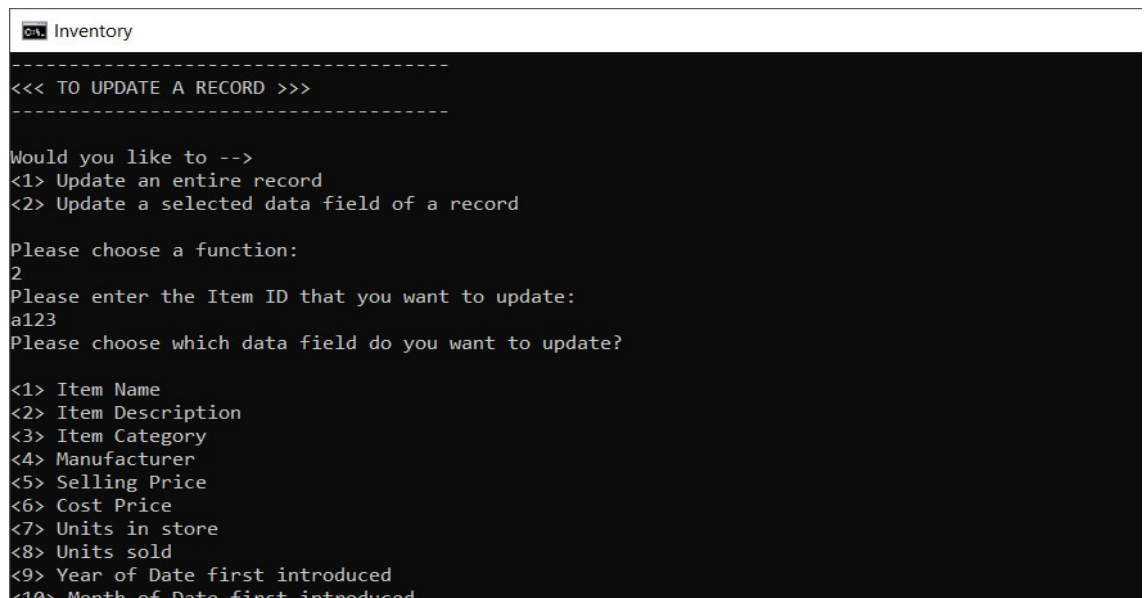
Would you like to -->
<1> Update an entire record
<2> Update a selected data field of a record

Please choose a function:
1
Please enter the Item ID:
a1234
Item does not exist!

Do you wish to go back to the main page or exit the program? Enter 'y' to go back to main page, 'n'
-
```

Figure 9. Item ID not found

When <2> which is an option for user to update a specific data fields of a record as shown in Figure 6 is chosen, the user will be prompted to select which Item to proceed by asking for Item ID from the user first. Then, the user can choose which data field would the user want to update.



```
Inventory
-----
<<< TO UPDATE A RECORD >>>
-----

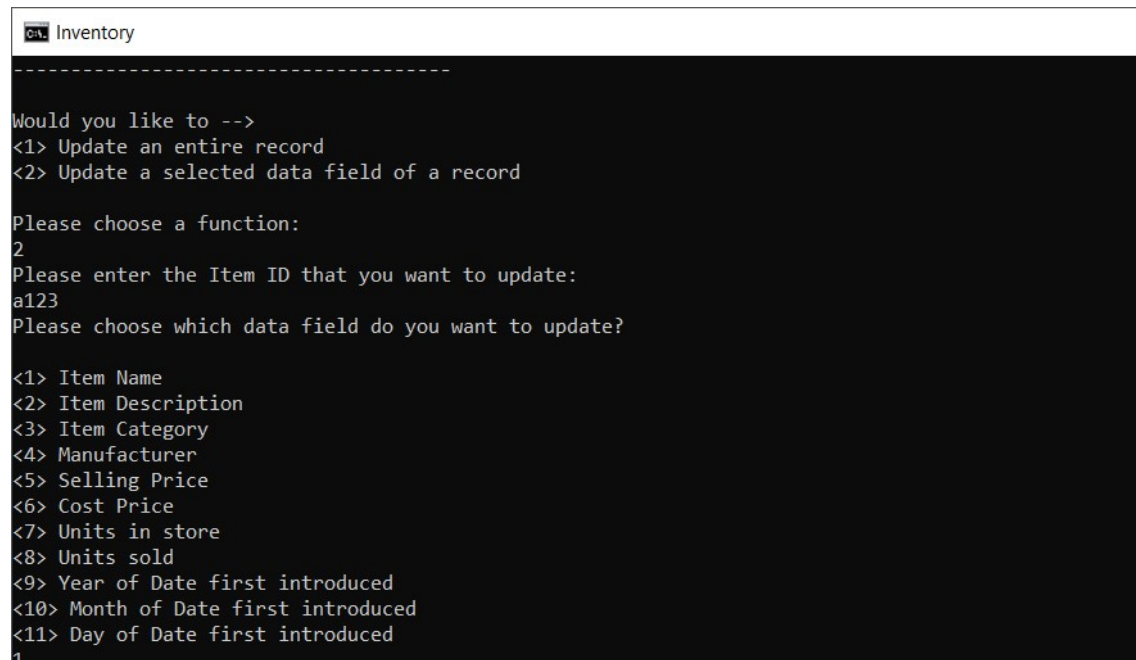
Would you like to -->
<1> Update an entire record
<2> Update a selected data field of a record

Please choose a function:
2
Please enter the Item ID that you want to update:
a123
Please choose which data field do you want to update?

<1> Item Name
<2> Item Description
<3> Item Category
<4> Manufacturer
<5> Selling Price
<6> Cost Price
<7> Units in store
<8> Units sold
<9> Year of Date first introduced
<10> Month of Date first introduced
```

Figure10 Update specific data field

For example, if <1> is chosen which is Item Name, user will be prompted to input a new value for Item Name.




```
Inventory
-----
Would you like to -->
<1> Update an entire record
<2> Update a selected data field of a record

Please choose a function:
2
Please enter the Item ID that you want to update:
a123
Please choose which data field do you want to update?

<1> Item Name
<2> Item Description
<3> Item Category
<4> Manufacturer
<5> Selling Price
<6> Cost Price
<7> Units in store
<8> Units sold
<9> Year of Date first introduced
<10> Month of Date first introduced
<11> Day of Date first introduced
1
```

Figure 11 Update Successful



```
inventory - Notepad
File Edit Format View Help
a123,Dell-123,A 4k Monitor,Monitor,Dell,3999,2599,5,2,2018,9,8
```

Figure 12 Save file changed

2.3. Delete a record in the inventory

When 3 is entered, <3> will be selected and user can delete an entire item record or selected data field just by entering the item's ID.

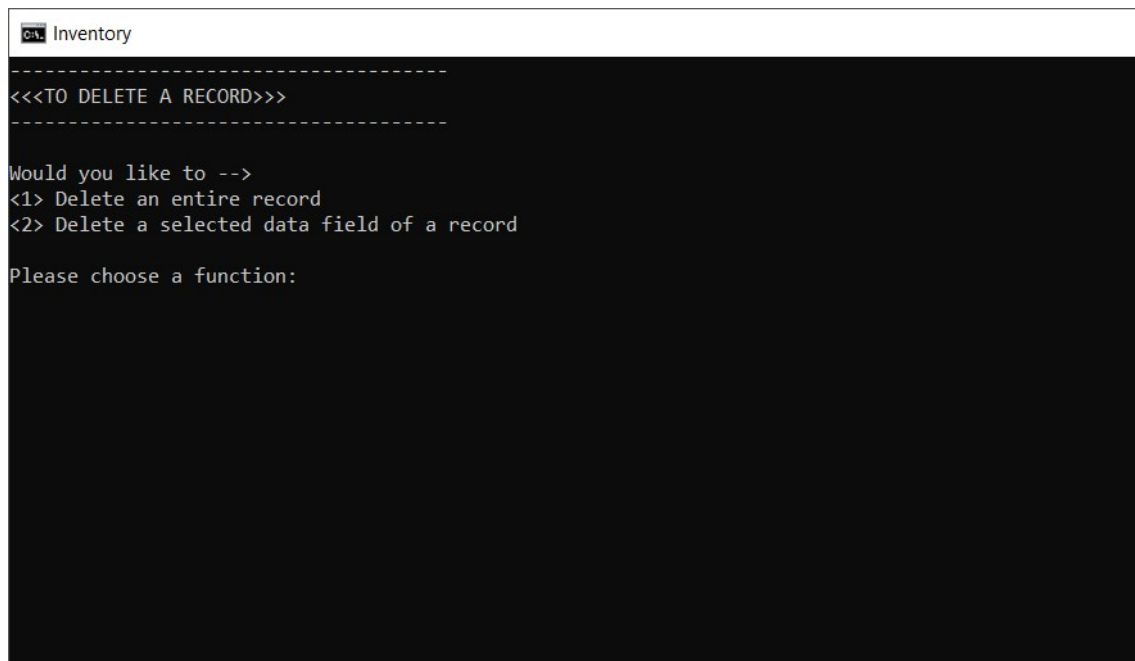


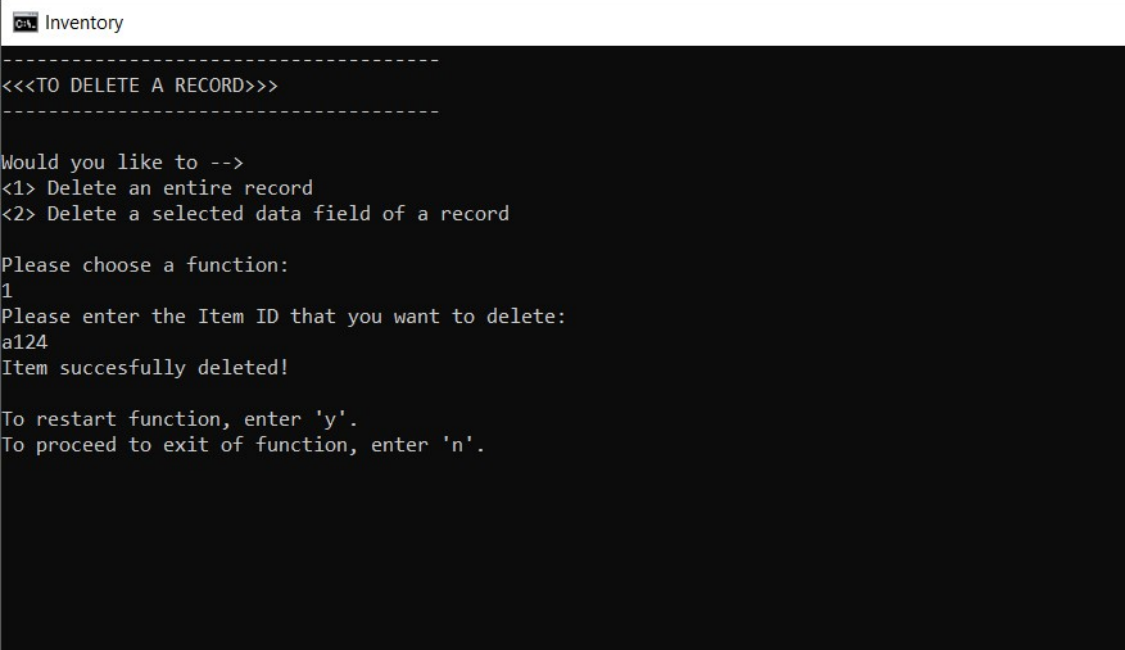
Figure 13. Item Deletion function..

Items before deleting are shown as figure below.



Figure 14. Item before deleting shown in *inventory.txt*

If user selected <1> based on figure 13, user will be prompted to enter the Item's ID that the user wants to delete entirely. If item ID is found and deleted, it will show that it has deleted successfully.



```
Inventory
-----
<<<TO DELETE A RECORD>>>
-----

Would you like to -->
<1> Delete an entire record
<2> Delete a selected data field of a record

Please choose a function:
1
Please enter the Item ID that you want to delete:
a124
Item succesfully deleted!

To restart function, enter 'y'.
To proceed to exit of function, enter 'n'.
```

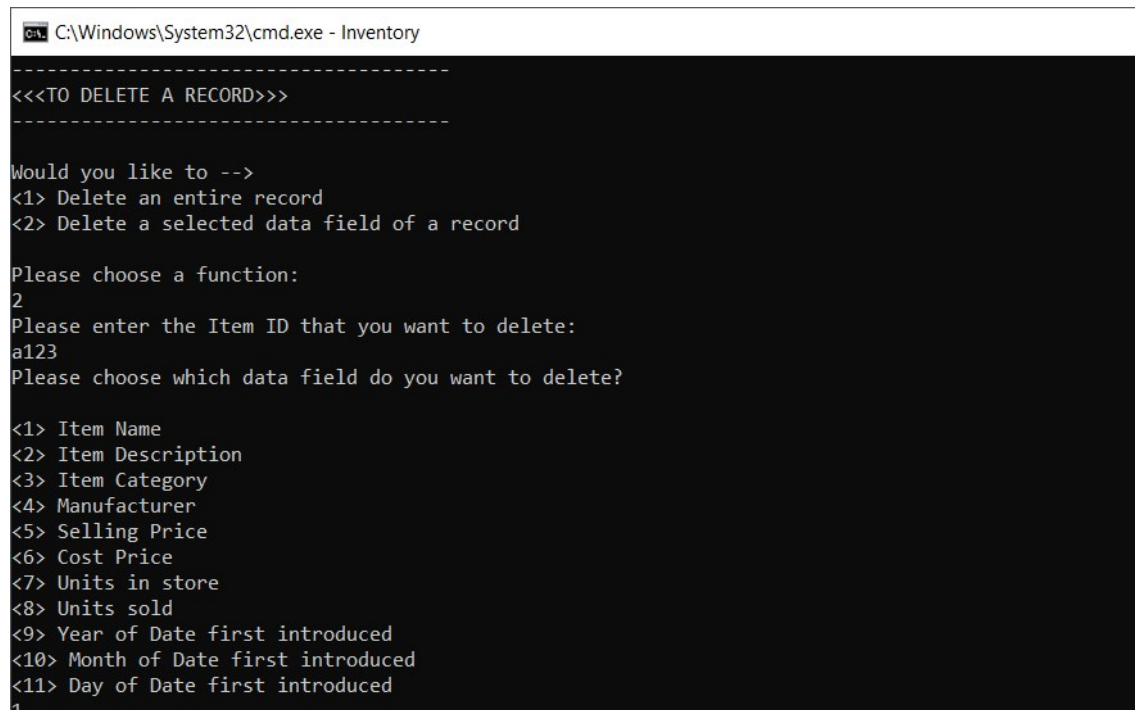
Figure 15 Item deleted in deletion function.



```
inventory - Notepad
File Edit Format View Help
a123,Dell-123,A 4k Monitor,Monitor,Dell,3999,2599,5,2,2018,9,8
```

Figure 16 Item has been deleted from the save file.

If user selected <2>, user will be prompted to choose a specific data field to delete. For example, if <1> which is the record's Item Name, the Item Name will be changed to "-1" indicating that it has been deleted.



```
C:\Windows\System32\cmd.exe - Inventory

-----
<<<TO DELETE A RECORD>>>
-----


Would you like to -->
<1> Delete an entire record
<2> Delete a selected data field of a record

Please choose a function:
2
Please enter the Item ID that you want to delete:
a123
Please choose which data field do you want to delete?

<1> Item Name
<2> Item Description
<3> Item Category
<4> Manufacturer
<5> Selling Price
<6> Cost Price
<7> Units in store
<8> Units sold
<9> Year of Date first introduced
<10> Month of Date first introduced
<11> Day of Date first introduced
1
```

Figure 17 Item Name has been deleted.

The save file will then change into the save file below:

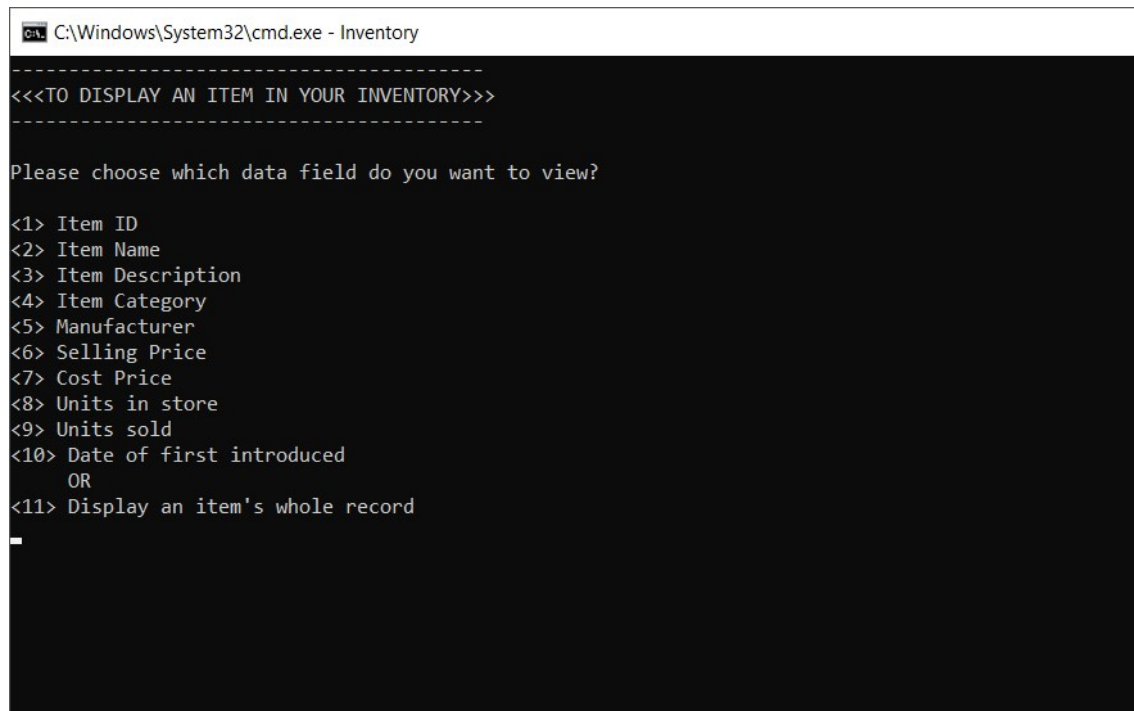


```
inventory - Notepad
File Edit Format View Help
a123,-1,A 4k Monitor,Monitor,Dell,3999,2599,5,2,2018,9,8,
```

Figure 18 Item Name has been changed to "-1"

2.4. Display an inventory record and its particular data field

If (4) is entered, <4> will be selected and user will be prompted to select an option to display.



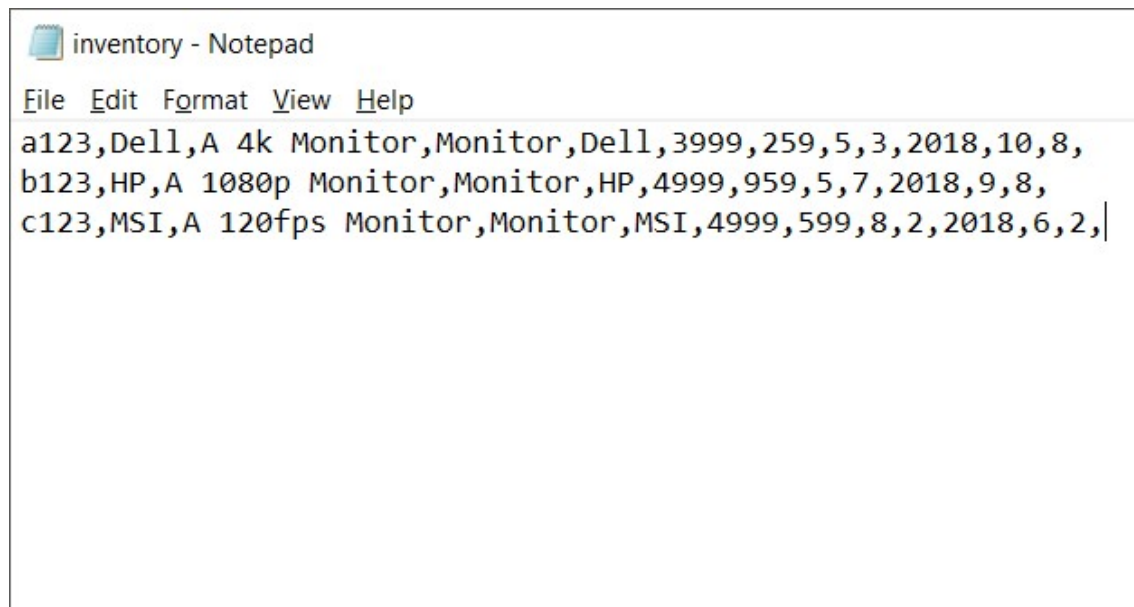
```
C:\Windows\System32\cmd.exe - Inventory
-----
<<<TO DISPLAY AN ITEM IN YOUR INVENTORY>>>
-----

Please choose which data field do you want to view?

<1> Item ID
<2> Item Name
<3> Item Description
<4> Item Category
<5> Manufacturer
<6> Selling Price
<7> Cost Price
<8> Units in store
<9> Units sold
<10> Date of first introduced
    OR
<11> Display an item's whole record
_
```

Figure 19. Options of display function


To show the usability of function <4>, a set of saved data will be firstly saved into *inventory.txt* for demonstration.



```
inventory - Notepad
File Edit Format View Help
a123,Dell,A 4k Monitor,Monitor,Dell,3999,259,5,3,2018,10,8,
b123,HP,A 1080p Monitor,Monitor,HP,4999,959,5,7,2018,9,8,
c123,MSI,A 120fps Monitor,Monitor,MSI,4999,599,8,2,2018,6,2,|
```

Figure 20. Inventory for demonstration

For example, if the user selected the option of <1> which is Item ID, ItemID of all the item will be displayed.



```
C:\Windows\System32\cmd.exe - Inventory

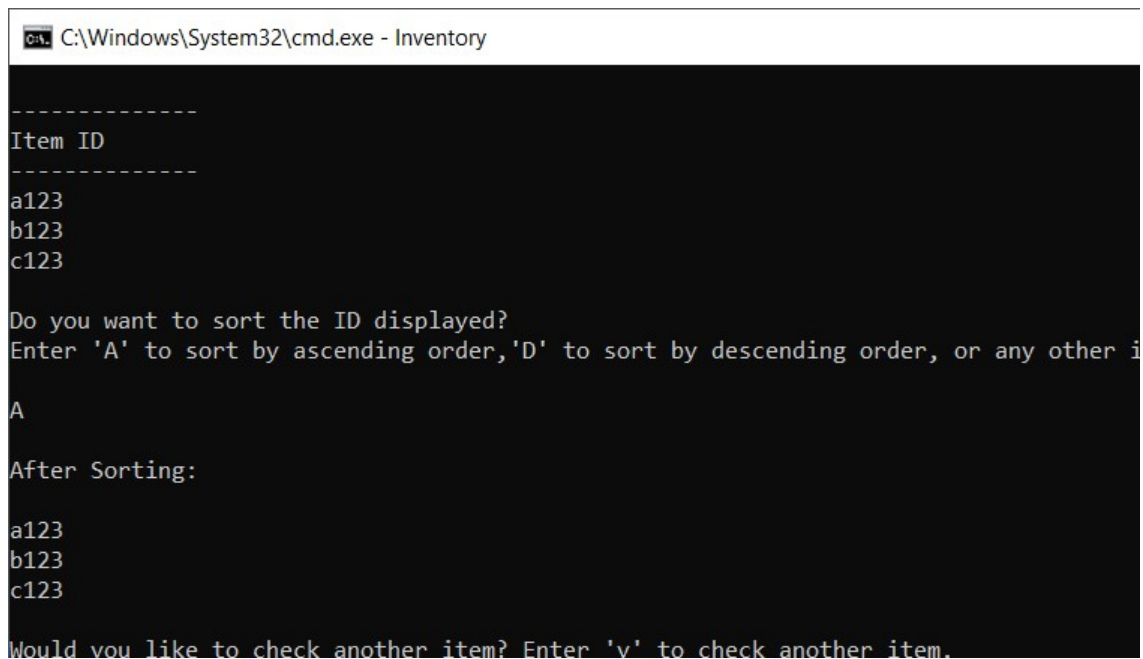
-----
Item ID
-----
a123
b123
c123

Do you want to sort the ID displayed?
Enter 'A' to sort by ascending order, 'D' to sort by descending order, or any other i
```

Figure 21.Option 1

User will be prompted to select whether sort the display in ascending order or descending order, or other inputs to exit.

If 'A' is the input, then:



```
C:\Windows\System32\cmd.exe - Inventory

-----
Item ID
-----
a123
b123
c123

Do you want to sort the ID displayed?
Enter 'A' to sort by ascending order, 'D' to sort by descending order, or any other i

A

After Sorting:

a123
b123
c123

Would you like to check another item? Enter 'y' to check another item.
```

Figure 22. Sort with ascending order.

If 'D' is the input, then:

```
C:\Windows\System32\cmd.exe - Inventory

-----
Item ID
-----
a123
b123
c123

Do you want to sort the ID displayed?
Enter 'A' to sort by ascending order, 'D' to sort by descending order, or any other i
D

After Sorting:

c123
b123
a123

Would you like to check another item? Enter 'y' to check another item.
```

Figure 23 Sort with descending order.

For Option 11, user is required to enter an item's ID in order to display the whole record of an item. If an item ID is invalid, user will be prompted to input the choice of return to the option or to exit the program.

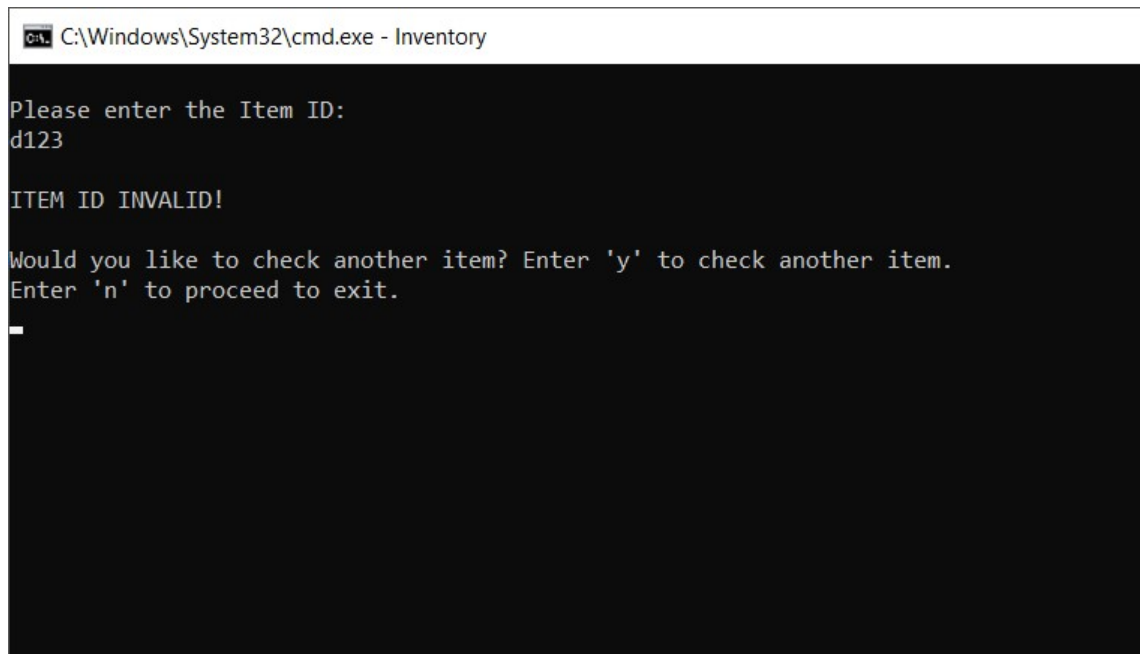
```
C:\Windows\System32\cmd.exe - Inventory

Please enter the Item ID:
a123

Item ID: a123
Item Name: Dell
Item Description: A 4k Monitor
Item Category: Monitor
Item Manufacturer: Dell
Selling Price: RM3999
Cost Price: RM259
Units in Store: 5
Units Sold: 3
Date of Introduction: 2018-10-8

Would you like to check another item? Enter 'y' to check another item.
Enter 'n' to proceed to exit.
```

Figure 24 Option 11



```
C:\Windows\System32\cmd.exe - Inventory

Please enter the Item ID:
d123

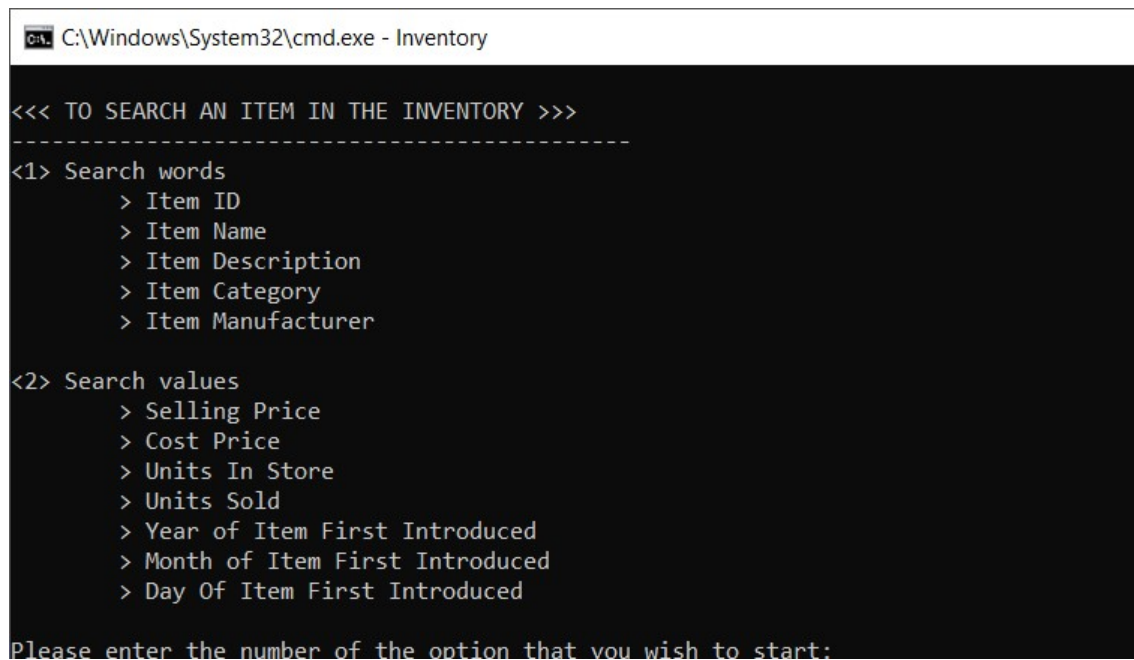
ITEM ID INVALID!

Would you like to check another item? Enter 'y' to check another item.
Enter 'n' to proceed to exit.
_
```

Figure 25. Option 11 when Item ID is invalid

2.5. Search for Item in the Inventory

When (5) is entered, <5> will be selected and the program will proceed to the search item function.



```
C:\Windows\System32\cmd.exe - Inventory

<<< TO SEARCH AN ITEM IN THE INVENTORY >>>
-----
<1> Search words
    > Item ID
    > Item Name
    > Item Description
    > Item Category
    > Item Manufacturer

<2> Search values
    > Selling Price
    > Cost Price
    > Units In Store
    > Units Sold
    > Year of Item First Introduced
    > Month of Item First Introduced
    > Day Of Item First Introduced

Please enter the number of the option that you wish to start:
```

Figure 26. Search item function.

User will be prompted to enter the options that they wished to proceed which is <1> search by words or <2> search by number. The data fields that can be found through search by words are:

- Item ID
- Item Name
- Item Description
- Item Category
- Item Manufacturer

The data fields that can be found through search by numbers are:

- Selling Price
- Cost Price
- Units in Store
- Units Sold
- Year of Item First Introduced
- Month of Item First Introduced

- Day of Item First Introduced

For example, by using <1> search words, users will be prompted to select an option to search.

```
C:\Windows\System32\cmd.exe - Inventory

<<< TO SEARCH AN ITEM IN THE INVENTORY >>>
-----
<1> Search words
    > Item ID
    > Item Name
    > Item Description
    > Item Category
    > Item Manufacturer

<2> Search values
    > Selling Price
    > Cost Price
    > Units In Store
    > Units Sold
    > Year of Item First Introduced
    > Month of Item First Introduced
    > Day Of Item First Introduced

Please enter the number of the option that you wish to start: 1

-----
OPTIONS AVAILABLE:
```

Then, user will be prompted to choose an option to search. For example: If the input is <1>Item ID is selected then user will need to input a value that the users want to find.

```
C:\Windows\System32\cmd.exe - Inventory

-----
<1> Item ID
<2> Item Name
<3> Item Description
<4> Item Category
<5> Item Manufacturer
1
Enter the ID that you wish to find:
123

Results:

[Item ID]: a123
Item Name: Dell
Item Description: A 4k Monitor
Item Category: Monitor
Item Manufacturer: Dell
Selling Price: RM3999
Cost Price: RM259
Units in Store: 5
Units Sold: 3
Date of Introduction: 2018-10-8

[Item ID]: b123
Item Name: HP
Item Description: A 1080p Monitor
Item Category: Monitor
Item Manufacturer: HP
Selling Price: RM4999
Cost Price: RM959
Units in Store: 5
Units Sold: 7
Date of Introduction: 2018-9-8

[Item ID]: c123
Item Name: MSI
Item Description: A 120fps Monitor
Item Category: Monitor
Item Manufacturer: MSI
```

When search with input “123”, all Item ID with the 123 included in the ID will be found and printed on the display.

For example, by using <2> search numbers, users will be prompted to select an option to search.

```
C:\Windows\System32\cmd.exe - Inventory

<<< TO SEARCH AN ITEM IN THE INVENTORY >>>
-----
<1> Search words
    > Item ID
    > Item Name
    > Item Description
    > Item Category
    > Item Manufacturer

<2> Search values
    > Selling Price
    > Cost Price
    > Units In Store
    > Units Sold
    > Year of Item First Introduced
    > Month of Item First Introduced
    > Day Of Item First Introduced

Please enter the number of the option that you wish to start: 2

-----
OPTIONS AVAILABLE:
-----
<a> Selling Price
<b> Cost Price
<c> Units In Store
<d> Units Sold
<e> Year of Item First Introduced
<f> Month of Item First Introduced
<g> Day Of Item First Introduced

Operators available: > (more than), < (less than), = (equals to)

Please enter the an option: _
```

Then, user will be prompted to choose an option to search. For example: If the input is <a>Selling Price is selected then user will need to input an operator which is ">","<" or "=" then entering another value. In this case, "a", ">", and "1000" will be the input. The display will show all items that have the selling price that is more than 1000.

```
C:\Windows\System32\cmd.exe - Inventory
<f> Month of Item First Introduced
<g> Day Of Item First Introduced

Operators available: > (more than), < (less than), = (equals to)

Please enter the an option:a
Please enter an operator: >
Please enter a value: 1000
-----
Results:
-----

Item ID: a123
Item Name: Dell
Item Description: A 4k Monitor
Item Category: Monitor
Item Manufacturer]: Dell
[Selling Price]: RM3999
Cost Price: RM259
Units in Store: 5
Units Sold: 3
Date of Introduction: 2018-10-8

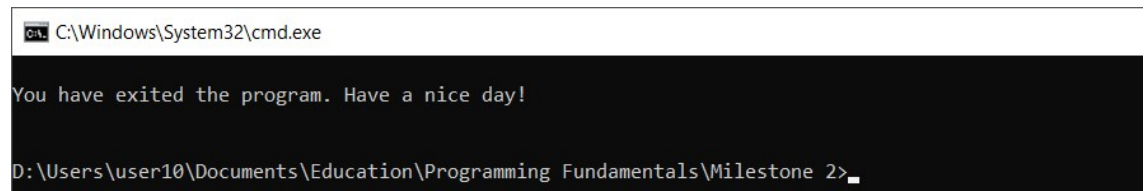
Item ID: b123
Item Name: HP
Item Description: A 1080p Monitor
Item Category: Monitor
Item Manufacturer]: HP
[Selling Price]: RM4999
Cost Price: RM959
Units in Store: 5
Units Sold: 7
Date of Introduction: 2018-9-8

Item ID: c123
Item Name: MSI
Item Description: A 120fps Monitor
Item Category: Monitor
Item Manufacturer]: MSI
```

As the same with both search words and search number options, the program will ask the user if they want to search another item or to exit the program.

2.6. Exit Program

When 6 is entered, <6> will be selected and user will exit the program.



```
C:\Windows\System32\cmd.exe

You have exited the program. Have a nice day!

D:\Users\user10\Documents\Education\Programming Fundamentals\Milestone 2>_
```

The image shows a screenshot of a Windows command prompt window. The title bar at the top reads "C:\Windows\System32\cmd.exe". The main area of the window is black with white text. It displays the message "You have exited the program. Have a nice day!" followed by a blank line. The prompt "D:\Users\user10\Documents\Education\Programming Fundamentals\Milestone 2>" is visible at the bottom, with a white cursor character (an underscore) following the prompt.