C Programming – Assignment 1

In this assignment, you are asked to implement and test a range of functions to demonstrate your knowledge of C programming principles. The concepts covered include:

- Data type and basic operators.
- Branching and looping programming constructs.
- Basic input and output functions
- Functions
- Files

Your program must be able to compile and execute cleanly on your proxmoxvm02 account (Unix platform). There will be half of the total marks deducted if your program failed to run on Unix platform.

The total mark is 100 marks and it contributes to 15% of the overall assessment of the module.

Starting 1st April 2015, Malaysia government has imposed 6% of Goods and Services Tax (GST) to certain products and services provided by merchants. You are supposed to develop a simple system that helps a grocery retail to issue receipts for customers. The system should allow user to add items purchased by customers, add items to either GST/ Non-GST list, edit items, delete items, and generate daily report. The detail function will be explained as following requirement:

Requirement 1: Menu [15 marks]
Your program must display an interactive menu containing seven (7) options. Example of the menu would look like figure below. Your program must allow user to select any of these options by typing the corresponding number followed by <ENTER> key.

```
------------------------------------
Grocery Retail
------------------------------------
   1. Purchase items
   2. Edit items
   3. Update items
   4. Delete items
   5. Show inventory
   6. Show daily transaction
   7. Exit
```

Input range should be fixed from 1-7 only. **Any invalid option should be notified the user and allow the user to re-enter the option again.**
Requirement 2: Purchase items [35 marks]
Suppose the system uses a barcode reader to read the items purchased. However, the demo system that will be implemented in this assignment will need the user to enter the item codes for customer's purchase. There are two (2) text files attached with this assignment (gst.txt and ngst.txt). The gst.txt includes taxable items and ngst.txt includes non-taxable items that are available in the grocery details. **Do not alter the text files.**

The format of the text file is:

```
<item code>;<item name>;<item price>;<quantity of item in inventory>
```

The system allows the user to enter the item codes and quantity per item and then show the item's price and the subtotal on the screen. Prompt an error message "Invalid item." if the item code cannot be found in both text files. User will enter a sentinel value "**-1**" to indicate there is no item to be purchased. Lastly, prompt the receipt for customer on the screen. The receipt should correctly mention the total amount of taxable & non-taxable item.
Refer appendix for the example of receipt.

Requirement 3: Edit items [5 marks]

Print message "This option allows user to edit items".
This option will be implemented in assignment 2.

Requirement 4: Update items [5 marks]

Print message "This option allows user to update items".
This option will be implemented in assignment 2.

Requirement 5: Delete items [5 marks]

Print message "This option allows user to delete items".
This option will be implemented in assignment 2.

Requirement 6: Show inventory [10 marks]

This option will show all the items available at the inventory. Separate the taxable and non-taxable items.

Requirement 7: Show daily transactions [15 marks]

This option will show the number transactions occurred on the particular day. Eg, 10 items purchased denoted 10 transactions.

Then, calculate and show the total sales of the day. List the taxable sales & non-taxable sales separately. Lastly, calculate and show the total GST collected for the day. Example:

```
Total transaction      : 134
Sales with GST         : RM 34108.97
Sales without GST      : RM 1220.99
GST collected          : RM 432.08
```

Requirement 8: Exit [5 marks]
This function allows user to exit the program.

Other Requirements: (10 marks)
- Proper comments
- Code indentations
- Appropriate identifier names.
- Proper display/ output

Submission Information

Due date: 5th June 2015 (Friday)
Submission Method:
Submit your **source code on TiMES**. Kindly **fill up and print the assessment form**. Submit the assessment form during the **tutorial session** on **4th /8th June**.
DO NOT submit your assignment via email.
Submission content:
All your files should start with:

```
/*-------------------------------------------------------------
*/
/* ITS60304- Assignment #1 */
/* C Programming */
/* Student Name: <your name 1> <your name 2> */
/* Student ID: <your ID1> <your ID2> */
/*-------------------------------------------------------------
*/
```

Kindly zip your files if you have more than one file to submit, and name it as `<yourname>.h`.

Appendix:

Receipt 1:

```
  1x 000001333345      2.10     2.10SR
     TRADITIONAL TO
  1x 000001215026      1.55     1.55SR
     NUTRIGEN LITEY
     MM DISC.P000596933000
  1x 000001215026      1.55     1.55SR
     NUTRIGEN LITEY
     MM DISC.P000596933000
  1x 000001215025      1.55     1.55SR
     NUTRIGEN LITEY
     MM DISC.P000596933000
  1x 000001215025      1.55     1.55SR
     NUTRIGEN LITEY
     MM DISC.P000596933000    -0.91
TOTAL SALES INCL GST            15.37
ROUNDING ADJ                    -0.02
TOTAL AFTER ADJ INCL GST        15.35
203374798502 AEON GIFT VCH       5.00
VISA            004583          10.35
ACC NO : ....0824
EXP. DATE : ****
              CHANGE            0.00
TOTAL NUMBER OF ITEM SOLD 10
    INVOICE NO: 2015041710080120093
GST SUMMARY         AMOUNT        TAX
SR 06%                9.92       0.59
ZR 00%                4.86       0.00
TOTAL                14.78       0.59
```

Assessment Form

Name: 1)   ID:

        2)   ID:

Task	Maximum marks	Awarded marks
Requirement 1: Menu The menu works properly. The menu calls appropriate function when it is selected. Code is free from errors. Proper iteration.	15	
Requirement 2: Purchase item Able to identify taxable/ non-taxable items. Able to calculate and print the receipt correctly.	35	
Requirement 3: Edit item Print the message correctly. The function will be implemented in Assignment 2.	5	
Requirement 4: Update item Print the message correctly. The function will be implemented in Assignment 2.	5	
Requirement 5: Delete item Print the message correctly. The function will be implemented in Assignment 2.	5	
Requirement 6: Show inventory Able to retrieve the data from text file and perform the correct operation.	10	
Requirement 7: Show daily transaction Prompt the daily transactions and amount correctly.	15	
Requirement 8: Exit The program is able to exit without error.	5	
Other requirements As described at the requirements	5	
Program not be able to compile or execute on UNIX platform -50 marks		
Total	**100**	