Appendix A
Case Study: ABC Store

Matriculation Number:

(fill in your matriculation number here)

ABC Store is a popular shop that sells a range of items like groceries, fresh food, stationery and other household items. Like most shops of this type they have a personal computer at the sales counter which the salesperson uses for the purpose of preparing invoices. When a customer approaches for payment, the salesperson refers to the label in the items that the shopper brings and enters the item code, price and quantity for each item. Once the data entry is complete computer program prints the invoice as shown in the input/output format (ref fig A.1, fig A.2, fig A.3 & fig A.4).

Discounts & Computation specifications:

ABC Store offers two types of discount. First type of discount is the membership discount. Shoppers who have signed up as a "member" receive a discount of 10% on the gross total. The second type of discount is given to all shoppers *(whether they are member or not)*. This is called mid-week discount and is applicable for all food items purchased on Wednesdays. All food items are sold at a discount of 20%. As per the codification system all food items have item codes starting with the letter "F". The customer also pays a GST @ 7% on the net amount (i.e., Gross Total – Discounts).

Refer to Input / Output format for the various situations provided in Fig A.1, A.2, A.3 & A.4 for sample computations and invoice formats overleaf.

Fig A.1: Sample Input and Invoice (output) format.
Case 1: Non-Member shopping on Thursday (no mid-week or member discount)

```
Input:
Enter Item Code: A123
Enter Qty: 1
Enter Unit Price: 5.35
To enter more items press Y; to end press N:    Y

Enter Item Code: F432
Enter Qty: 3
Enter Unit Price: 2.30
To enter more items press Y; to end press N:    Y

Enter Item Code: C234
Enter Qty: 2
Enter Unit Price: 7.30
To enter more items press Y; to end press N:    N

The shopper a loyalty member?    N
```

```
Output:
                         ABC STORE
                         SINGAPORE

                          INVOICE

  Date of Purchase: 5-Mar-2009  Thursday


  --------------------------------------------------------
  SNo    Item Code   Qty   U/Price   Cost  Discount    Net
  --------------------------------------------------------
  0       A123        1     5.35     5.35   0.00       5.35
  1       F432        3     2.30     6.90   0.00       6.90
  2       C234        2     7.30    14.60   0.00      14.60
  --------------------------------------------------------
  Gross Total                                      $26.85
  Member Discount                                 - $0.00
  GST @ 7%                                         + $1.87

  Please Pay:                                      $28.72
```

Note:

- In the above Invoice slip, the information in *italics* varies based on the item data entered from the console.

- *Italics font* in the above figure is used only for the purpose of clarity of explanation here – the actual printout shall have all information in normal font.

- The invoice slip is printed on plain paper; hence all the information shown in figure above (i.e. including titles) are printed out by a computer program. (For your computer program you may print the output on Screen).

Fig A.2: Sample Input and Invoice (output) format.

         Case 2: Member shopping on Thursday

                (no mid-week discount but eligible for member discount)

<u>**Input:**</u>
```
Enter Item Code: A123
Enter Qty: 1
Enter Unit Price: 5.35
To enter more items press Y; to end press N:    Y

Enter Item Code: F432
Enter Qty: 3
Enter Unit Price: 2.30
To enter more items press Y; to end press N:    Y

Enter Item Code: C234
Enter Qty: 2
Enter Unit Price: 7.30
To enter more items press Y; to end press N:    N
```
The shopper a loyalty member?   **Y**
```
Member No:  KJ3525
```

<u>**Output:**</u>
```
                    ABC STORE
                    SINGAPORE

                     INVOICE

 Date of Purchase: 5-Mar-2009  Thursday


 -------------------------------------------------------------
 SNo    Item Code   Qty   U/Price   Cost  Discount    Net
 -------------------------------------------------------------
 0       A123        1     5.35      5.35   0.00        5.35
 1       F432        3     2.30      6.90   0.00        6.90
 2       C234        2     7.30     14.60   0.00       14.60
 -------------------------------------------------------------
Gross Total                                         $26.85
Member Discount (Member No KJ3525)                - $2.68
GST @ 7%                                           + $1.69

Please Pay:                                         $25.86
```

Note:

- Member Number and Member discount is provided after the Gross Total.

Fig A.3: Sample Input and Invoice (output) format.
Case 3: Non-Member shopping on Wednesday
(Mid-week food item discount provided; but no member discount)

<u>Input:</u>

```
Enter Item Code: A123
Enter Qty: 1
Enter Unit Price: 5.35
To enter more items press Y; to end press N:    Y

Enter Item Code: F432
Enter Qty: 3
Enter Unit Price: 2.30
To enter more items press Y; to end press N:    Y

Enter Item Code: C234
Enter Qty: 2
Enter Unit Price: 7.30
To enter more items press Y; to end press N:    N


The shopper a loyalty member?    N
```

<u>Output:</u>

```
                        ABC STORE
                        SINGAPORE

                         INVOICE

 Date of Purchase: 4-Mar-2009  Wednesday


 -------------------------------------------------------------
 SNo    Item Code   Qty   U/Price   Cost  Discount    Net
 -------------------------------------------------------------
 0        A123       1     5.35      5.35   0.00       4.82
 1        F432       3     2.30      6.90   1.38       5.52
 2        C234       2     7.30     14.60   0.00      14.60
 -------------------------------------------------------------
 Gross Total                                        $24.34
 Member Discount                                  - $0.00
 GST @ 7%                                         + $1.70

 Please Pay:                                        $26.04
```

Note:

- Food item F432 has a 20% discount.

- No membership member number or membership discount.

Fig A.4: Sample Input and Invoice (output) format.
Case 4: Member shopping on Wednesday
(Both Member discount and mid-week food item discount provided)

```
Input:
Enter Item Code: A123
Enter Qty: 1
Enter Unit Price: 5.35
To enter more items press Y; to end press N:    Y

Enter Item Code: F432
Enter Qty: 3
Enter Unit Price: 2.30
To enter more items press Y; to end press N:    Y

Enter Item Code: C234
Enter Qty: 2
Enter Unit Price: 7.30
To enter more items press Y; to end press N:    N

The shopper a loyalty member?    Y

Member No:  KJ3525
```

```
Output:
                      ABC STORE
                      SINGAPORE

                       INVOICE

 Date of Purchase: 4-Mar-2009  Wednesday

 ------------------------------------------------------------
 SNo   Item Code   Qty   U/Price   Cost   Discount    Net
 ------------------------------------------------------------
 0       A123       1     5.35     5.35    0.00       4.82
 1       F432       3     2.30     6.90    1.38       5.52
 2       C234       2     7.30    14.60    0.00      14.60
 ------------------------------------------------------------
Gross Total                                       $24.34
Member Discount (Member No KJ3525)                - $2.43
GST @ 7%                                           + $1.75

Please Pay:                                        $23.66
```

Note:

- Mid-week discount provided for item F432.

- Member Number and 10% Member discount provided below the Gross Total line.