Go Basics Assignment

All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of the author.

Trademarked names may appear in this document. Rather than use a trademark symbol with every occurrence of a trademarked name, the names are used only in an editorial fashion and to the benefit of the trademark owner, with no intention of infringement of the trademark.

The information in this document is distributed on an "as is" basis, without warranty. Although every precaution has been taken in the preparation of this document, the author shall not have any liability to any person or entity with respect to any loss or damage caused or alleged to be caused directly or indirectly by the information contained in this document.

Assignment

Background

It is desired to develop a console application that would serve as a simple shopping list application to store the shopping list of the day.

Application Feature

The shopping list application shall contain the following features.

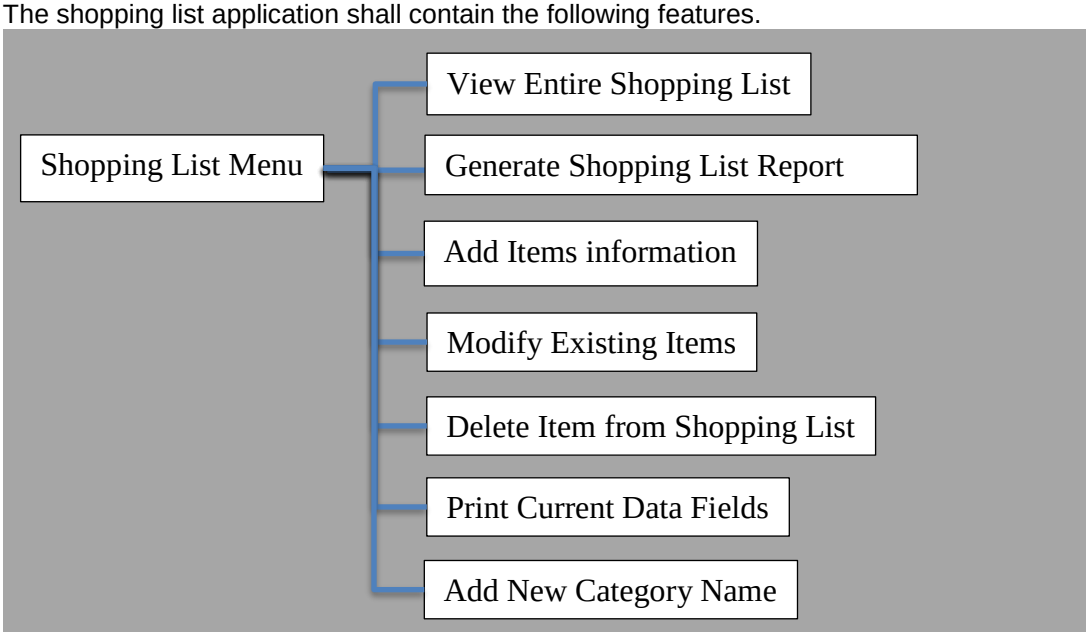


Figure 1: Feature Chart of Shopping List Application

Main Menu

1. **Shopping List Menu**
    a. The shopping list menu shall on runtime prompt and allow the user to make a selection.
    b. Upon selection made, the respective features detailed in “Features” shall be executed.

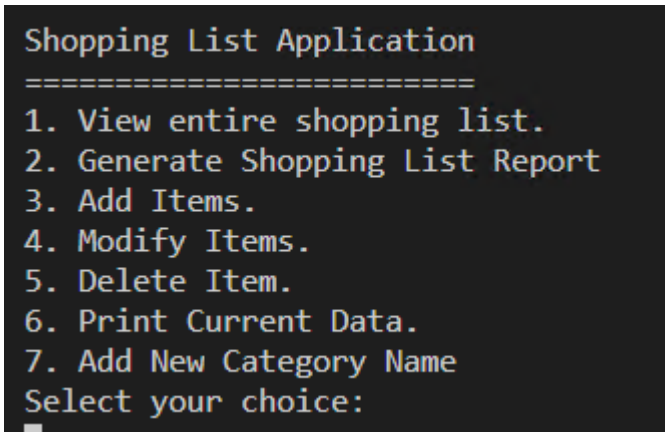


Figure 2: Main Menu

NGEE ANN POLYTECHNIC

Features

1. **Selection "1" - View Entire Shopping List**
    a. This feature shall display all available items in the shopping list.

```
Shopping List Contents:
Category: Household - Item: Cups Quantity: 5 Unit Cost: 3
Category: Food - Item: Cake Quantity: 3 Unit Cost: 1
Category: Drinks - Item: Sprite Quantity: 5 Unit Cost: 2
Category: Household - Item: Fork Quantity: 4 Unit Cost: 3
Category: Food - Item: Bread Quantity: 2 Unit Cost: 2
Category: Household - Item: Plates Quantity: 4 Unit Cost: 3
Category: Drinks - Item: Coke Quantity: 5 Unit Cost: 2
```

Figure 3: Shopping List

2. **Selection "2" - Generate Shopping List Report**
   This feature shall generate the reports based on the available items stored at runtime.
    a. The following types of reports would be generated
        i. Total cost of item by category
            1. Calculate by the summation of all items of the same category
            2. Each item total cost is calculated by Item * Unit Cost
        ii. List of items by category
            1. Each item available will be "grouped" into the relevant category as shown in Figure 6.
    b. Selecting "3. Main Menu" will return the user to the main menu.

```
Generate Report
1. Total Cost of each category.
2. List of item by category.
3. Main Menu.

Choose your report:
```

Figure 4: Menu to choose Report type

```
Total cost by Category.
Household cost :  39
Food cost :  7
Drinks cost :  20
```

Figure 5: Report by Category Total Cost

```
List by Category.
Category: Household - Item: Cups Quantity: 5 Unit Cost: 3
Category: Household - Item: Fork Quantity: 4 Unit Cost: 3
Category: Household - Item: Plates Quantity: 4 Unit Cost: 3
Category: Food - Item: Cake Quantity: 3 Unit Cost: 1
Category: Food - Item: Bread Quantity: 2 Unit Cost: 2
Category: Drinks - Item: Coke Quantity: 5 Unit Cost: 2
Category: Drinks - Item: Sprite Quantity: 5 Unit Cost: 2
```

Figure 6: Report by Category List

3. **Selection "3" - Add Items information**
    a. This feature adds information for the item of interest.
        i. Name of the item
        ii. Category of the item
        iii. Unit Cost of the item
        iv. Quantity of the item

```
What is the name of your item?
Bread
What category does it belong to?
Food
How many units are there?
2
How much does it cost per unit?
2
```

Figure 7: Addition of items information

4. **Selection "4" - Modify Existing Items**
    a. This feature allows for the user to change the quantity of the item, regardless of the category.

```
Modify Items.
Which item would you wish to modify?
Bread
Current item name is Bread - Category is Food - Quantity is 2 - Unit Cost 2
Enter new name. Enter for no change.

Enter new Category. Enter for no change.

Enter new Quantity. Enter for no change.

Enter new Unit cost. Enter for no change.

No changes to category made.
No changes to quantity made.
No changes to unit cost made.
No changes to item name made.
```

Figure 8: Modification with no changes done.

```
Modify Items.
Which item would you wish to modify?
Bread
Current item name is Bread - Category is Food - Quantity is 2 - Unit Cost 2
Enter new name. Enter for no change.
Shortcake
Enter new Category. Enter for no change.

Enter new Quantity. Enter for no change.
10
Enter new Unit cost. Enter for no change.
2
No changes to category made.
```

Figure 9: Modification with some changes as an example.

5. **Selection "5" - Delete Item from shopping list**
    a. This feature deletes the item that is specified by the user.
    b. If the item does not exist, the user is notified.

```
Delete Item.
Enter item name to delete:
Cake
Deleted Cake
```

Figure 10: Deletion of Shopping List Item

```
Delete Item.
Enter item name to delete:
Fanta
Item not found. Nothing to delete!
```

Figure 11: Delete Item not found

6. **Selection "6" - Print current data fields**
    a. This feature allows the display how the data is stored in the application.
    b. If there is not data available, the user is notified.

```
Print Current Data.
Bread - {1 1 2}
Chips - {3 11 14}
```

Figure 12: Print Current Data Fields

```
Print Current Data.
No data found!
```

Figure 13: Current Data Fields Not Found.

NGEE ANN POLYTECHNIC

7. Selection " 7" - Add New Category Name

a. This feature allows the user to add new categories to the existing categories.
b. If the category exists, the user is notified
c. If there is no input from the user, a "no input" is shown and the main menu is shown.

```
Add New Category Name
What is the New Category Name to add?
Snacks
New category: Snacks added at index 3
```

Figure 14: Add New Category Name

```
Add New Category Name
What is the New Category Name to add?

No Input Found!
```

Figure 15: Add New Category Name

```
Add New Category Name
What is the New Category Name to add?
Food
Category: Food already exist at index 1 !
```

Figure 16: Add New Category Name

NGEE ANN POLYTECHNIC

Advanced Requirements (Optional)

1. **Other features – Modify and delete category**
    a. Modify category allows the user to modify the category of interest.
    b. Delete category allows the user delete the category of interest.
    c. This section is optional and open for each participant to design their own.
    d. The design of the features should be logical. E.g. deletion of category would delete all stored category as well since it is no longer available.
    e. Relevant warning should be given to the user as notifications. E.g. warning for nothing to modify or nothing to delete.
    f. Deletion of category would reshuffle existing indexes of categories that are still available. E.g. deletion of Food at index 1 would make Drinks be reallocated as index 1.

2. **Other features – Storing of shopping lists and retrieving of lists**
    a. Multiple shopping lists can be stored in a slice with allocated indexes using a “save shopping list” option.
    b. User would be able to retrieve previous shopping indexes using a “retrieve previous shopping list” option and providing an index of interest.
    c. The existing features should be able to access the retrieved shopping list.

NGEE ANN POLYTECHNIC

Development Considerations

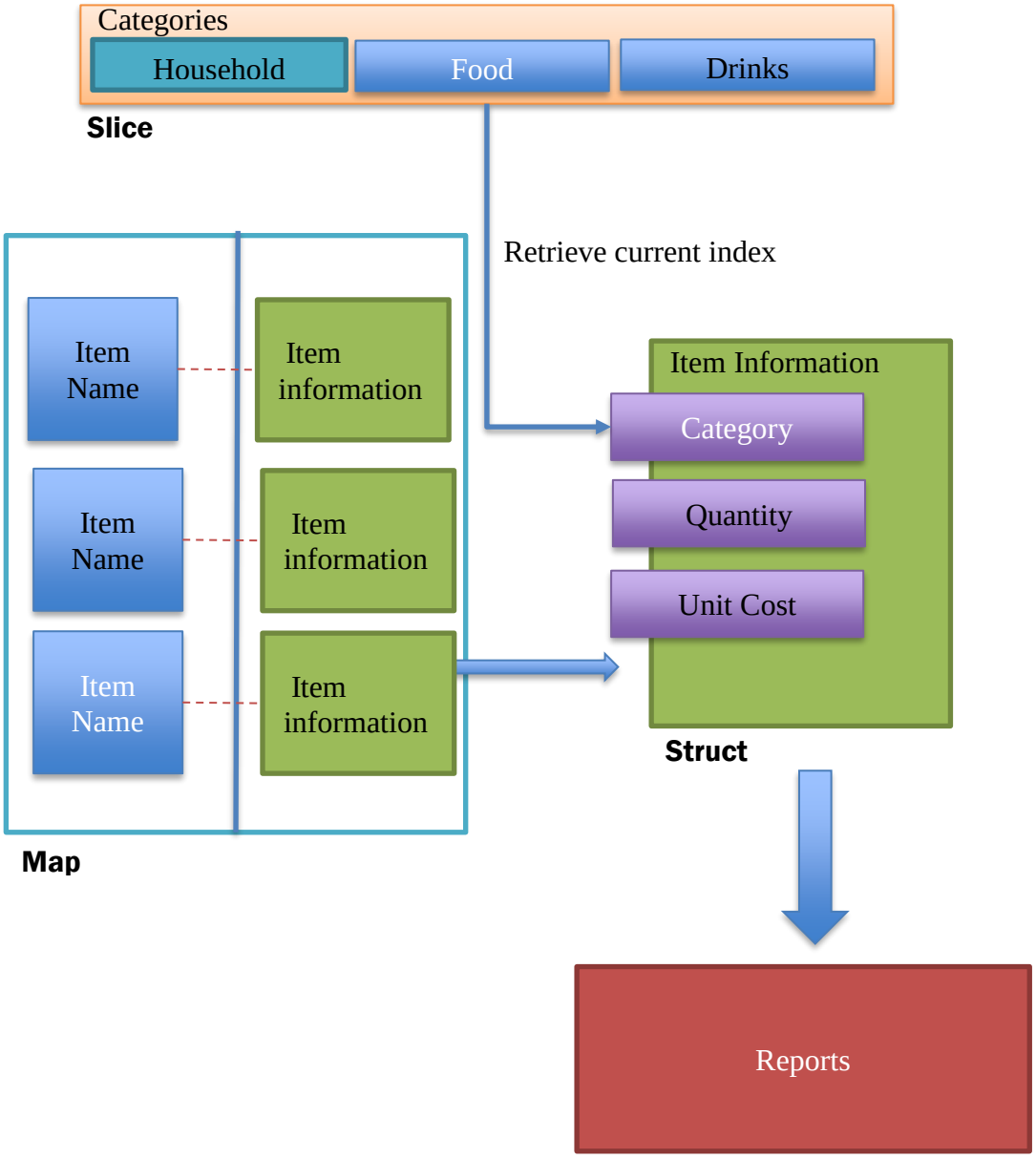
The following are development considerations.

1. **Category**
    a. The categories shall consist of the following stored in a slice:
        i. Household
        ii. Food
        iii. Drinks
    b. The categories can be entered by the user in plain text.
    c. The category selected by the user is stored in the application in index form. i.e. Household as 0, Food as 1 and Drinks as 2.

2. **Item information**
    a. The following information of the item shall be stored in a struct
        i. Category of item - “int”
        ii. Quantity of item - “int”
        iii. Unit Cost of item - “float64”

3. **Item Mapping to Category**
    a. The following information of the item shall be stored in a map
        i. Key : Item Name, Value: Item information

4. **Shopping List Menu**
    a. The list menu shall be an infinite loop, each loop requesting for an input from the user unless it is in a feature of choice.


Categories
Household
Food
Drinks
Slice
Retrieve current index
Item Name
Item information
Item Name
Item information
Item Name
Item information
Map
Item Information
Category
Quantity
Unit Cost
Struct
Reports

Test Data

The following test data shall be preloaded during runtime

Category	Item	Quantity	Unit Cost
Household	Fork	4	3
Household	Plates	4	3
Household	Cups	5	3
Food	Bread	2	2
Food	Cake	3	1
Drinks	Coke	5	2
Drinks	Sprite	5	2

For advanced options.

Category	Item	Quantity	Unit Cost
Snacks	Chips	10	3
Stationary	Pencil	5	1

Assignment Comments

The comments for the assignment will be based on the following:

1. Completeness and robustness.
2. Development design compliance.

Assignment Details

The assignment is due on 4rd April 2022 at 1200 hrs.