

Object-Oriented Programming Lab#6, Fall 2023

Today's Topics

- Class/Object, Constructor,
- package
- Array (Reference Type)
- ArrayList

ArrayList:

Action	Code
Creating an ArrayList	<code>ArrayList<T> list = new ArrayList<T>();</code>
Adding element to arraylist	<code>list.add(T);</code>
Accessing an element	<code>T t = List.get(int index)</code>
Size of arraylist	<code>int len = list.size();</code>

Online Store- Problem Description

Develop an application for an online store which will help a **store owner** to keep the record of its items/items and run the business. The store contains different types of items e.g., **Food items, clothing, electronics** and many more. For simplicity, you can work with just 3 types of items as mentioned in previous line. Each **item** has some common characteristics e.g., ***name, id, category, price*** and ***quantity***. Like all other online stores, you need to implement the following functionalities in your application.

1. User can browse through the items – View all items.
2. User can view the list of items of specific category e.g., all food items, all clothing etc.
3. User can view the details of a specific item.
4. Add item to store
5. Sell an item

Implementation

Note: The following design is just one possible option. You can modify it according to your need. You are free to add additional attributes, methods.

Possible classes:

1. Item (under store package)

- Private Attributes: **name, id, category, price, quantity**
- Constructor
- Method:
 - Getter/~~setter~~ method for all attributes
 - public double getSalePrice(double **saleAmount**)
 - The parameter "**saleAmount**" is in percentage. From the method return the discounted price after sale. For example, if the **price** of an item is 100 and **saleAmount** is 20 (in percent) then this method will return 80. **Note: This method will not change the price attribute.**
 - Implement the toString() method and return

2. Shop (under store package)

- Attributes: name, ArrayList<Item> **items** or Item array
- Constructor
- Method:
 - private Item/int findItem(String id)
 - Search for the item in the **items** array using the **id**. If the item is found, return the item. Return null if the item is not found.
 - public void addItem(String **name**, String **id**, String **category**, double **price**, int **count**)
 - Call findItem using the id. If the item is found increase the **quantity** attribute of the product by the **count** amount. If the item is not available in the list, create an **Item**

object using the parameters and add the object to the array/arraylist **items**.

- public void viewItem(String id)
 - Search for the item using **findItem** method. If the item is found, print the item.
- public void viewItems()
 - Access each of the item in items arraylist and print those items.
- public void sellAnItem(String id, int quantity)
 - Call findItem method. If the item is found in the list, decrease the **quantity**. If the item is not found, a message should display
- public double getSalePriceOfAnItem(String id, double saleAmount)
 - Call findItem. If the item is found in the list, call **getSalePrice(..)** using the item. If the item is not found, a message should display

3. ShopApp (under store.app package)

- Add Main method. Inside the main, create an object of **Shop** class and then provide the following **menu** and call appropriate method using the **Shop** object. Take input from users as needed.
 - (a) 1 to view all
 - (b) 2 to view a specific item
 - (c) 3 to add item
 - (d) 4 to sell item
 - (e) 5 to see sale price of an item
 - (f) 0 to exit