Department of Software Engineering
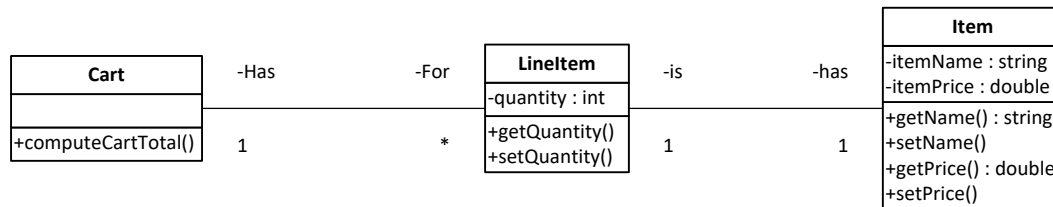
SE 430 (Software Testing)

Second 2021 / 2022

Homework 2: Black box testing with JUnit

Consider a simple online shopping application that consists of the following classes:

Cart			LineItem			Item
	-Has	-For	**LineItem**	-is	-has	-itemName : string
Cart			-quantity : int			-itemPrice : double
+computeCartTotal()	1	*	+getQuantity() +setQuantity()	1	1	+getName() : string +setName() +getPrice() : double +setPrice()

1) Cart: this class represents a shopping cart.
   a. It has the following methods:
      i. computeCartTotal: computes the total price of all items added to the cart as follows: $(totalPrice) = \sum_{lineItem=0}^{n}(itemPrice * quantity)$

2) LineItem: this class represents the item's added to the shopping cart.
   a. It has the following attributes:
      i. quantity: The quantity of items added to the cart. The minimum quantity is one and the maximum is ten.
   b. The LineItem class has the following methods:
      i. getQuantity: Returns the quantity.
      ii. setQuantity: sets the quantity

3) Item: This class represents item description.
   a. It has the following attribute:
      i. itemName: The name of the item. Item name is a minimum of three characters and a maximum of 32. It should contain only alphabetic characters (no space and no special symbols).
      ii. itemPrice: The price of the item. It should be a minimum of zero (free items) and a maximum of 1000.
   b. It has the following methods:
      i. getName: returns the item's name
      ii. setName: sets the item's name
      iii. getPrice: returns the item's price
      iv. setPrice: sets the item's price

You are required to do the following:

For each implemented class, design test cases using equivalence partitioning / boundary value analysis (2-value approach). The test cases should be written in JUNIT and as follows:

a. For each class, write a test class named as class name + "Test" that tests all methods in the given class. You should have three test classes (CartTest, ItemTest, LineItemTest).

b. Implement a test suite class named "OnlineShoppingTestSuite" that includes all the designed test cases.

c. Implement a class "TestDriver" that executes "OnlineShoppingTestSuite".

d. **Write a report that contains the results of executing the test cases (Input, expected output, actual output, pass/fail) + total line and decsion coverage achieved.**

Note: The source code is uploaded for you. You do not have to implement it yourself.

Submission Deadline:

24/4/2022 06:00 AM

No submission will be accepted after 24/4/2022 06:00 AM. No excuse will be given under any circumstances.

Important note: Corrupted files will get a zero grade. It is your own responsibility to check that the uploaded file is readable.