



CSC322 Programming Languages – Assignment 4
Due Date: Monday April 7

Introduction

Oracle City is an island resort that is implementing an automated system to track receipts and taxes due for three types of businesses: restaurants, hotels, and convenience stores. You are to write a set of Java classes that tracks the receipts and taxes and a main test program that exercises the classes based on the specifications below. This is a group assignment and you need to form a team of two (2) students to do this assignment together.

Details

Structure for the Java classes:

- A parent class of businesses
 - This is an abstract class, so this class will have no concrete objects.
 - There will be instance variables, including business account number (integer), total receipts (double), and taxes due (double).
 - This class must have a minimum of 2 constructors, one that requires only a business account number and the other that requires a business account number and a total receipts value
 - One or more, or perhaps all, of its methods will be abstract (this class must have at least one method).
 - Instance variables should be protected.
- Three subclasses, one each for restaurants, hotels, and convenience stores.
- The restaurant class has the following characteristics:
 - No tax on food receipts.
 - 8% tax on alcoholic drink receipts.
 - A 3% 'bar' tax on total receipts if drink receipts exceed food receipts for the week (this tax must be calculated before the 8% tax is added to the alcoholic drink receipts).
- The hotel class has the following characteristics:
 - 6% tax on total receipts.
 - 2% 'high-occupancy' tax any week when occupancy rates exceed 90% (calculated before the 6% tax is added).
- The convenience class has the following characteristics:
 - No tax on newspaper receipts.
 - 7% tax on all other receipts.
- Each subclass may have its own constructor.
- The parent class should have a print method; subclasses may override the print method and any other parent class methods.
- Each subclass may require instance variables beyond those of the parent class.

The program that exercises the classes should track the total receipts and total taxes during the first 2 weeks of the tourist season by tracking the following transactions:

- There are two restaurants, Moe's and Joe's:

- Moe's should be opened with the business account number 1 and Joe's opened with the business account number 2.
- During week 1, Joe's has food receipts of \$4,000 and alcoholic drink receipts of \$3,500.
- During week 2, Joe's has food receipts of \$2,500 and alcoholic drink receipts of \$3,500.
- During week 1, Moe's has food receipts of \$14,000 and alcoholic drink receipts of \$9,000.
- During week 2, Moe's has food receipts of \$12,500 and alcoholic drink receipts of \$12,500.
- There are two hotels in Oracle City, the Ritz and the Notel Motel:
 - The Ritz should be opened with an account number of 3 and total receipts of \$25,000 for week 1.
 - The taxes due for week 1 should be calculated; week 1 had a 98% occupancy rate.
 - For week 2, the Ritz had total receipts of \$21,500 and an occupancy rate of 88%.
 - The Notel Motel should be opened with an account number of 4.
 - For week 1, the Notel Motel had total receipts of \$5,500 and an occupancy rate of 93%.
 - For week 2, the Notel Motel had total receipts of \$6,575 and an occupancy rate of 98%.
- There is 1 convenience store, the six12:
 - The six12 should be opened with the account number 612.
 - During week 1, the six12 sells \$2,400 in newspapers and \$6,000 in other items.
 - During week 2, the six12 sells \$1,700 in newspapers and \$5,927 in other items.

After these transactions are completed, the total receipts and total taxes for each of these businesses should be printed out. The print method should be in the parent class or a subclass, not in the program that exercises the classes. For restaurants and convenience stores, the receipts should be broken into subcategories.

Submission Requirements

You need to submit the following:

- A design document – contains information about each class, constructor, instant variable and method – in complete English sentences.
- Two Java program files – one for the Business class and the three subclasses. The other for the testing class.
- Output of the program – based on the data given.
- Evidence of communication between team members – this can be (scanned) discussion notes, emails etc.

Grading Criteria

- Design document – 30% (based on feasibility and presentation)
- Code – 50% (based on the programming rubric)
- Communication evidence – 20% (based on how good the evidence shows communication and collaboration between team members)