

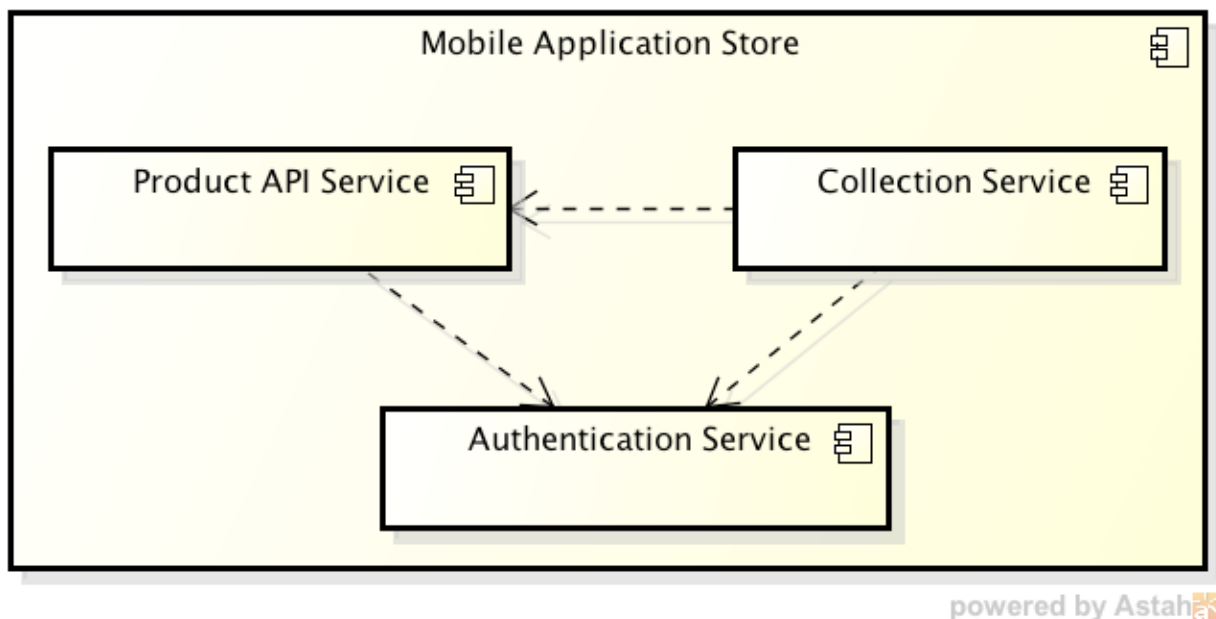
CSCI E-97**Assignment 4****Due: Wednesday, 11/20/2013**

Introduction

In this assignment you will continue the development of the Mobile Application Store. You will design and implement an Authentication Service.

Overview

The following diagram from the Mobile Application Store System Architecture document shows how the Authentication Service fits into the overall structure.



The Authentication Service supports controlling access to the Mobile Application Store, specifically the restricted interfaces exposed by the Product API, Collection Services and the Authentication Service itself.

Please refer to the Authentication Service Requirements document for more details.

As part of your solution, you should apply the Visitor pattern to support traversing the objects of the Authentication Service with the following goals:

Provide an inventory of all Users, Groups, Services, Methods, Roles, and Permissions.

Apply the Factory Method pattern to create all instances of the various classes where appropriate.

Use the Singleton pattern to return a pointer to an implementation of the Authentication Service.

In the design portion of the assignment, you will create a software design document that satisfies the Authentication Service requirements and also adheres to the System Architecture guidelines.

In the implementation portion of the assignment, implement your design and test your solution.

You will have 3 documents as input to your design:

- Authentication Service Requirements Document describing the functional requirements.
- System Architecture document (from assignment 2) that provides a high level description of how the Product Catalog component will fit in the overall eCommerce system.
- Software design template (from assignment 2) as a base for your design.

Development Process

This will be the 3rd of 3 sprints to implement the Mobile Application Store. We will continue to follow the development process outlined in assignment 2.

For this assignment, the peer design review is required. You can continue to work together with your partner from assignment 3. If you have any questions regarding the peer design reviews, please contact the TAs at ta.cscie97@gmail.com. Please work with your partner to complete the design reviews by Monday, November 11th. This should provide enough time to incorporate the comments from the design review and complete the implementation before the due date, Wednesday, November 20th.

Design reviews can be conducted via:

- email
- screen sharing
- in person
- google docs
- other

Assignment Notes:

The goal of this assignment is to design and implement within the context of a collaborative agile

development environment.

Reuse the design template from assignment 2. Your design document should include the following:

- UML Use Case Diagram (with descriptions for each use case)
- UML Class Diagram
- Class Dictionary
- UML Sequence Diagram(s) (showing the flow of events for checking Access)
- Activity Diagram documenting how the permissions, roles, and users are created.

You should implement the Authentication Service classes as defined by the class diagram and class dictionary specified in your design document. All authentication classes should be defined within the package `"cscie97.asn4.ecommerce.authentication"`.

Reuse your Product API and Collection Services from assignment 3. Move the Product API classes to the package: `"cscie97.asn4.ecommerce.product"`. Move the Collection service classes to `"cscie97.asn4.ecommerce.collection"`.

Update the implementations of Product API and Collection Service restricted methods to delegate to the Authentication Service `checkAccess` method. Update to handle a possible `AccessDeniedException`.

Reuse your `TestDriver` class from assignment 3 to load in the sample Country, Device, Product information and Collection information. Modify the `TestDriver` to import the Authentication Service information.

In the Test Driver, create the Authentication Service Services, Permissions, Roles, and Users first. Then login to create an `accessToken`, and use this `accessToken` to pass to the restricted access the methods.

The new `TestDriver` should be placed in the package: `"cscie97.asn4.test"`.

When implementing your design, please document any variances from the design, provide justification for your changes and describe how your changes continue to support the requirements.

Remember to use Java doc to document all classes and methods. Add java comments inline where appropriate to explain code logic.

Sample Data

The following input files will provide data and queries for your `TestDriver` class to load and run.

countries.csv	country data
devices.csv	device data
products.csv	product data
queries.csv	query data
collections.csv	collection data
authentication.csv	authentication data

What To Turn In

You'll turn in a zip file containing

- Your source code (no .class files)
- Your data files
- Sample output
- Your design document (in pdf format)
- Include a document (in pdf format) describing your results:
 - Comments from peer design review and optionally the functional review
 - Any changes that you made to your design and how they continue to support the requirements
 - Did the design document make the implementation easier?
 - How could the design have been better, clearer, or made the implementation easier?
 - Did the design review help improve your design?

We should be able to unzip your file into a directory, then cd into that directory and compile your program with the command.

- `javac cscie97/asn4/ecommerce/product/*.java
cscie97/asn4/ecommerce/collection/*.java
cscie97/asn4/ecommerce/authentication/*.java cscie97/asn4/test/*.java`

We should be able to run your program with the command

- `java -cp . cscie97.asn4.test.TestDriver authentication.csv countries.csv devices.csv
products.csv collections.csv`

where countries.csv contains the country info, devices.csv contains the device info, products.csv is a file containing a list of products, collections.csv is a list of collection definitions and authentication.csv contains a set of commands to configure the Authentication Service.

Caution: When you believe you're done, try zipping your files, then unzipping them into a totally different directory and following the steps above. In other words, test your packaging before you submit your assignment.

Directions for submitting your solution and a grading sheet specifying the criteria for grading this assignment will be posted on the course website.