CSE 5324

Software Engineering: Analysis, Design, and Testing

Inception of
Smart Checkout Android Application

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SMART CHECKOUT ANDROID APPLICATION

GOAL:

Our goal is to expedite the checkout procedure across the campus libraries and market places. This is intended to be done by making use of camera enabled android compatible phone.

CONSTRAINT:

1. Users (UTA maverick) should have a valid net id and password.
2. Device should be camera enabled and compatible to run android application.
3. Device should have access to wireless internet.

EXECUTIVE SUMMARY:

Vision is to help users (UTA-Mavericks) experience quick and easy way to check out items from library and market. This can be accomplished by scanning the barcode from their phone and validating themselves to check out books/products. There exists APIs’ which scan a barcode from mobile’s camera and display its metadata from internet (Amazon or Google). Smart Checkout Android Application will be built upon them. Instead of displaying the Meta data from internet, application will fetch data from local database. User’s net id and password are validated to check out a book from library or any item from Mavs Market. When user scans a book, he is given options to reserve the book, checkout the book or continue scanning. While user is in Mavs Market, he can scan the label and get information about the product and also know how many more such products are available in different quantity and brand. When user is ready to purchase the item, money will be debited from his Mav card. This way, user will not have to wait for a long time in queue to check out the items.

REQUIREMENTS:

1. User authentication.
2. Scan option which will invoke the camera.
   2.1 Capture barcode.
   2.2 Display item detail.
3. A database which contains item barcodes and maverick details.
4. A check out option for library and Mav market.
5. A reserve option to reserve a book in library.
6. Add to cart option, for multiple books/items.
7. Once the item is checked out;
7.1 Updating tracking system.

7.2 To debit the amount from Mav Card in case of check out in Mav market.

**USE CASE MODEL:**

Login: Login refers to connecting to internet and validation of user’s net id and password. This log in will connect to suitable database (Library or MavMarket).

Scan: Scan houses of capturing the bar code information from the item and retrieving data from the database. Scan is the primary step for browsing items.

Check out: Checkout will update the database and unlock the files if necessary. It will update the tracking system. This requires file locking mechanism to avoid conflict between multiple users.

Exit: In this module the user will have to log out of the application. Upon logout session information is flushed out.
SUPPLEMENTARY SPECIFICATION:
There are few non-functional requirements.

1. User account should be active (i.e. Valid net id and password).
2. User cannot keep an item for long duration in his cart.
3. Items in the cart will be tagged to the current user.

GLOSSARY:
List of Keywords used throughout the project.

1. Scan: Scan is an action that will start the camera and wait for user to point on barcode. Furthermore, it will retrieve useful information from database.
2. Reserve: This will update the database and makes the book reservation for a particular user.
3. Add to cart: This will temporarily reserve the items in user’s account.

RISK LIST:
1. It might fail to support concurrent transactions. However, this can be resolved in future.

ITERATION:
The project is divided into 3 iterations using Iterative Model. Below is the list of modules to be built in each iterative cycle.

Iteration_1: Scanning barcode of an item, database connectivity and displaying item’s information from the local database.

Iteration_2: Authenticating users, reserve books, add to cart and checkout operations on items.

Iteration_3: Integration testing, J unit test cases, validation and null checks.