CS-360 Mobile Architecture & Programming – 23EW2

Project One

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**Goals**

The application I have chosen to work on is the inventory app. The overarching purpose of the app is to enable users to manage a record of inventory in a warehouse. The app will require a home screen where users will login to their account or create an account if they have none. The app will also require a screen to display all inventory items, and methods of managing inventory to include adding and removing items, changing inventory quantities, and alerting the user when inventory is below a threshold – or at zero.

**Users and Assumptions**

Potential users of this application include virtually any business owner and employees thereof. Small or large retail businesses will be able to use this app to monitor and track their inventory. Similarly, inventory managers will be able to use the app to know when a certain product requires re-ordering. Even small Etsy shop type retailers will find this app useful for tracking and controlling their inventory.

This app will also be useful for tradesmen such as plumbers, electricians, and so on. Whether the tradesman is independent, or a part of a larger company, the app could be used to track supplies and materials on hand and know when they must buy more. The app could also be beneficial for analyzing inventory and material use. Perhaps a person has been keeping a large amount of an item on hand – but finds they are not using it frequently. Analytics could be applied to show a particular product’s rate of expenditure over time in order to help the business purchase inventory items more efficiently based on the frequency of use.

**Screens and Features**

In order to provide users with an intuitive and appealing interface, the design of this app will follow the Android Design and Quality Guidelines. To enhance accessibility, the coding of the app will use scalable pixels(sp) when tenable – which will allow users to adjust the font size to their particular preference. The body size used in the app will be 12sp or larger, and the coloration applied will ensure proper contrast for easy viewing.

In designing this app, I envision a user opening the app to the login screen, then, once logged in, being taken directly to a display of all inventory items in a list. This page should have an <EditText> search bar to allow users to find a particular inventory item. Each item in the list should contain a “Qty:” to the right of the item name/identifier. Users should have the option to press an up or down arrow to increase or decrease the quantity from the list page. To the right of the “Qty” text should be a selectable trashcan icon to give the option to delete an item – this should require a confirmation button press before executing. A Floating Action Button should be included on the list page which, when pressed, will take users to a page to create a new inventory item. The items displayed within this list should be selectable, allowing users to view that particular item in full detail on a separate page where they can also modify the details of the item or delete an item.

Once the user has selected a particular inventory item by tapping it in the list, they will be taken to an item details page which will display the item name boldly at the top. Below it will be an item number and/or SKU as applicable, a description of the item, the quantity on hand, and a minimum quantity - all of which will be editable by the user. The user can enter a minimum quantity to any amount the wish, and once the quantity on hand is reduced to that amount, the user will be notified that the product is running low. At the bottom of the page the user will have button options to go back – which will send them back to the list page, and “DELETE”. If the user chooses to delete an item, a confirmation window will prompt the user to confirm the decision before deleting the item.

Users will also be able to add a new item by pressing a floating action button featuring a standard “+” icon that will be present on each page. Once pressed, the app will take the user to a page where they will be prompted to enter all relevant information about the new product. A product name and quantity will be required fields. Once the information is entered and the user will have three option buttons: “Cancel” – which will return the user to the previous screen, “Add Item” – which will add the item to their inventory and return to the previous screen, and “Add Another Item” – which will add the item and reload a new add item page.

**Functional App Requirements**

The first requirement right up front is the need for a login screen. The UI will include input ( <EditText> ) fields for the user to enter a business ID, username, and password. Authentication should find a matching username within that business ID database, then verify the password matches for that user ID. The login screen UI will need to include an option to Sign up as a new business. This option will allow new business owners or account administrators to register their business; subscription payment can be added to this sign up if needed. During this sign-up process the new user will create their username and password and will be an administrator for their business account, employees with access to this business will have their login credentials created by this user. A business ID will also be assigned during this process. The new business will be assigned cloud storage space that will hold their business’ inventory data.

The user dashboard contains a list of inventory items – the number of items displayed at a time will be determined by the time efficiency of populating the list information. That information will be pulled from a database for the specific business. From this list screen, users will see a trash can icon to the far right of each item, giving the option to delete the item. Users will also be able to adjust inventory quantity from this screen, but only incrementally using an up or down arrow. The quantity of an item will be available to edit by open text within the item details screen, accessed by selecting the item. This EditText box will only accept integer input. Also, within the item details screen will be a description of the item, and an item Id or SKU number that will be editable by the user. Each will accept input as a string.

Data calls will need to be made at several points in this process from accessing user information for access control and authentication, to displaying information about the inventory to users. A method for storing the data will need to accommodate a specified amount of storage for each business and be able to efficiently handle CRUD operations on the stored data.