Project Goals:

The application I have chosen to work on is the inventory app. The main purpose of the app is to streamline the inventory management of items held in a warehouse. It will be used by various employees to enhance their professional operations and increase production efficiency.

The first major component of the app users will experience is the login screen, which will outline the base security measures of the app. The users will be able to input their login and password information to be verified against information held in the database. If the user's information is valid, they will be granted access to the app, if not, an error will be presented, and the login screen will persist. Furthermore, users will be able to navigate to the account creation screen through the login screen to save their data to the database for future authentication.

The second major component of the app is the database, which is comprised of data in two tables. The first table will hold user login information, with usernames stored in the first column and passwords stored in the second. The second table will act as a repository for the warehouse and include details on the names and quantities of the inventory items. This table could be designed with three columns: the first for a picture of the item, the second for the name of the item, and the third for the currently held quantity of the item.

The third major component is a screen that will display all inventory items held in the database in a grid format. This table will match the grid for the items held in the database. Three major mechanisms will be present that will enhance user interaction with the app and the database. First, users must be able to add or remove items from the inventory and the database, which will either append new data entries or remove data table entries from the database

inventory table. Second, users must be able to increase or decrease the quantity of specific items in the inventory. This function will allow users to search for a specific item and manipulate the quantities as necessary. Finally, notifications must be implemented to show users when the quantity of an inventory item has been reduced to zero.

Application Users:

This app is currently planned to enhance intercompany operations rather than act as a point of sale for customers. Therefore, there are three main users of this mobile inventory application: warehouse managers, sales representatives, and business executives. Each of these users will utilize the app to achieve separate goals, each requiring a different level of engagement.

The warehouse managers will use the information in the application to determine what goods need to be restocked and process deliveries and shipments. This app will significantly enhance their professional operations, as it will streamline the process of identifying the quantity of an item on hand and when new shipments must be delivered. To do so, the warehouse managers will utilize the notification system to identify items that are out of stock and require new stock shipments. When new shipments of goods arrive, they can manipulate the quantities of items to reflect the counts in the warehouse. As all information held within the app is pertinent to warehouse managers, they will actively utilize the inventory app frequently, for extended periods, to monitor quantities of warehouse items.

Sales representatives will use the information to better enhance their interactions with customers. This app will let them quickly reference the quantity of goods available in the

warehouse that can be purchased, which results in a faster product time-to-sell. To do so, the sales representatives will utilize the inventory grid screen to reference available quantities of items. After each sale, they will be able to manipulate the counts of items sold to reflect the new available quantities. Alternatively, they could use the inventory grid screen to identify and recommend similar items to customers if the original item is out of stock. Much of the information held within the app is pertinent to enhancing customer interaction and sales efficiency for sales representatives; they will actively utilize the inventory app very frequently, but only for more rapid verifications and interactions.

Finally, the business executives will use the information in the application to determine future business plans and how to approach new policy decisions. The app would show relevant information that could be relayed into metrics on sales for specific items. This can inform the business executives of which items are selling quickly, thus requiring more stock in the warehouse, and which items are not performing as well, requiring less warehouse stock. The business executives could control limits on inventory, restocking schedules, and which items to add or remove entirely from the database. The inventory app would likely fit into the personal and professional lives of the business executives, as decisions may have to be made outside of business hours. As the information can be reached at any time through the inventory app, it can inform these decisions appropriately. From this, business executives would likely use the app iteratively, but for extended periods of time, as supplemental information for policy and company decisions.

UI and Code Design:

The inventory app will consist of four main screens: login, creating an account, inventory overview, and manipulating inventory items and quantities. The login screen will either allow or deny access to the inventory app after referencing the database to authenticate the user. The account creation screen will allow users to input usernames and passwords to be stored in the database for later authentication. The inventory overview screen will simply display the data grid with item information held in the database. Finally, the manipulating inventory items screen will allow users to add or remove items from the database or manipulate the quantities of items currently held in the warehouse. Each of these screens will display targeted information and will be comprised of specialized widgets. Furthermore, users will be able to navigate between the screens through widget activity intents and the back button on the phone. All touch targets will utilize a size 50dp or higher, and all text will utilize specialized colors to stand out from their respective backgrounds. This process will ensure the app provides a good user experience and enhances user accessibility.

The login screen will be comprised of a handful of widgets and buttons that support navigation and data retrieval. Input fields will be placed next to text views that inform the user to input their username and password. A button stating to login will be placed underneath these text fields, which, once clicked, will verify the username and password data by searching the database user information grid. If verified, they will be brought directly to the inventory overview screen with the intent to start the inventory overview activity. If not, a toast message will display at the bottom of the screen indicating their credentials were invalid, and the login

screen will persist. A create user account button will be placed below the login button, which will create an intent to start the account creation screen.

The account creation screen will be comprised of similar widgets as the login screen. Users will be automatically navigated to this screen after clicking the create account button on the login page. Users can input their user account information into input fields placed next to text boxes declaring the specified information. Below will be a button to submit this information, which, when clicked, will append their login credentials to the database login information grid. Afterward, a toast message will be displayed at the bottom of the screen, indicating their account was created successfully. To return to the login screen, users can utilize the back button on their phone to end the account creation activity.

Once the user has logged in and been authenticated, they will be brought to the inventory overview screen automatically through an activity start intent. This screen will display a grid that matches the data grid for items in the database. As more data entries are added to the screen, the scene should support scrolling to view the obscured data entries. The inventory overview screen will primarily serve to inform and allow users to identify the quantities of stock held in the warehouse. At the bottom of the screen will be a menu bar that contains a button to manipulate inventory items. Once clicked, an intent will be passed to start the manipulate inventory items activity and bring users directly to the manipulate inventory screen.

The inventory manipulation screen will be broken down into two halves horizontally. The top section will allow users to add or remove items from the database entirely. An input field will be present next to a text field, informing users to input a specific item name to be added or removed. Below these fields will be two buttons placed side-by-side with the text "add item" or

"delete item." When the add item button is clicked, it will first search through the database to identify if the item already exists. If the item does exist, a new item will not be added, and a toast message will display stating the item already exists. If the item doesn't exist, the information input will be appended to a new grid entry in the database. The bottom section will allow users to manipulate the quantities of inventory items and will be similar in appearance to the top section. Two input fields will be placed next to text fields, indicating users should input the name of a specific item to manipulate and the change to quantity. A button will be placed below these fields with the text "change quantity," which will search the database inventory grid and modify the quantity of said item. If the item does not exist, a toast message will display this information to the user. Finally, users can navigate back to the inventory overview screen by clicking the back button on the phone, which will end the manipulation of inventory activity.