

C868 – Software Capstone Project Summary

Task 2 – Section C



Capstone Proposal Project Name: CT Republic – Mobile Application

Student Name: Christopher Shelley

Table of Contents

Contents

<i>Table of Contents.....</i>	<i>2</i>
<i>Task 2 Part C – C868 Software Development Capstone.....</i>	<i>4</i>
<i>Application Design and Testing.....</i>	<i>4</i>
<i>Design Document.....</i>	<i>4</i>
Class Design	4
UI Design	7
Search View.....	9
Item Details	10
Reports.....	11
<i>Unit Test Plan.....</i>	<i>12</i>
Introduction	12
Purpose	12
Overview	12
Test Plan	13
Items	13
Features.....	13
Deliverables	14
Tasks.....	14
Needs	14
Pass/Fail Criteria.....	14

Test Matrix.....	15
<i>C4. Source Code.....</i>	<i>18</i>
<i>C5. Link to Live Version</i>	<i>19</i>
<i>User Guide.....</i>	<i>19</i>
Introduction	19
Installation and Using the Application	19
Home Screen	20
View Collection	21
Search View.....	21
View Item Details.....	22
New Item.....	23
Reports.....	24

Application Design and Testing

Design Document

Class Design

Figure 1 shows a class diagram of the models. The classes Accessory, Woodcover, and PutterCover all extend the base class CollectionItem. The class CTRepublic is a utility class to utilize common functionality.

Figure 2 shows a class diagram of the activities. This is a complex diagram and may not be as useful as the model diagram but it does show the implementation from UML level.

Figure 3 shows the database schema of the application. The database is a sqlite database running on the Android device. In this phase of the application, one table is all that is required to efficiently store the user data.

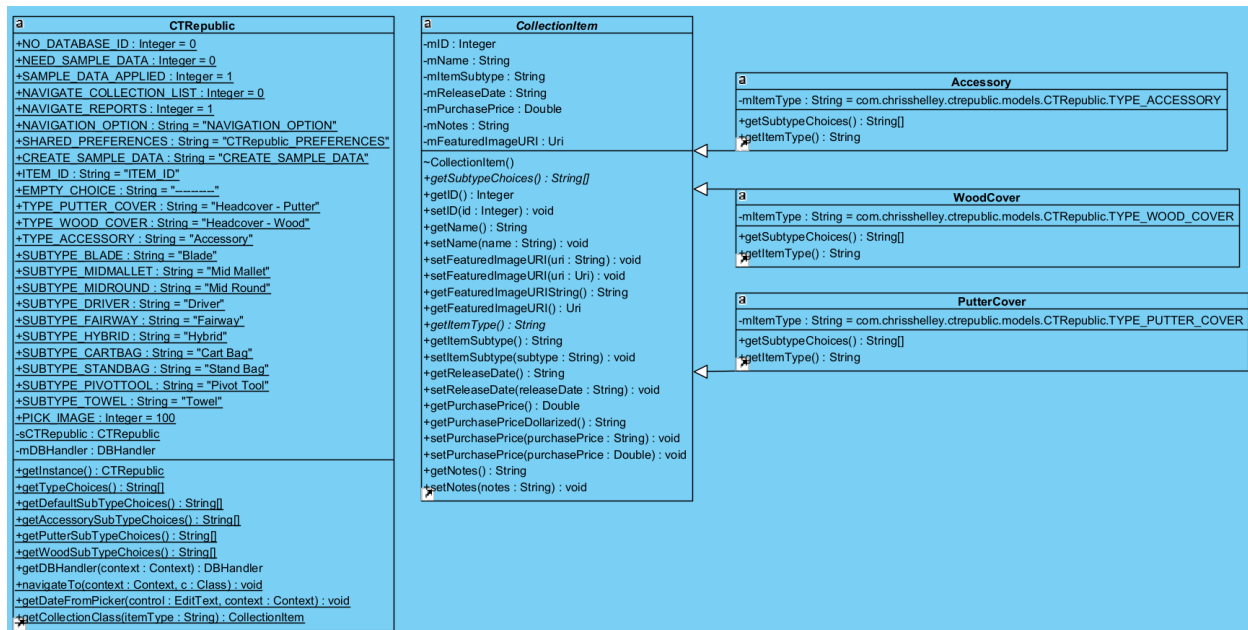


Figure 1 – Class Diagram

CT Republic – Mobile Application

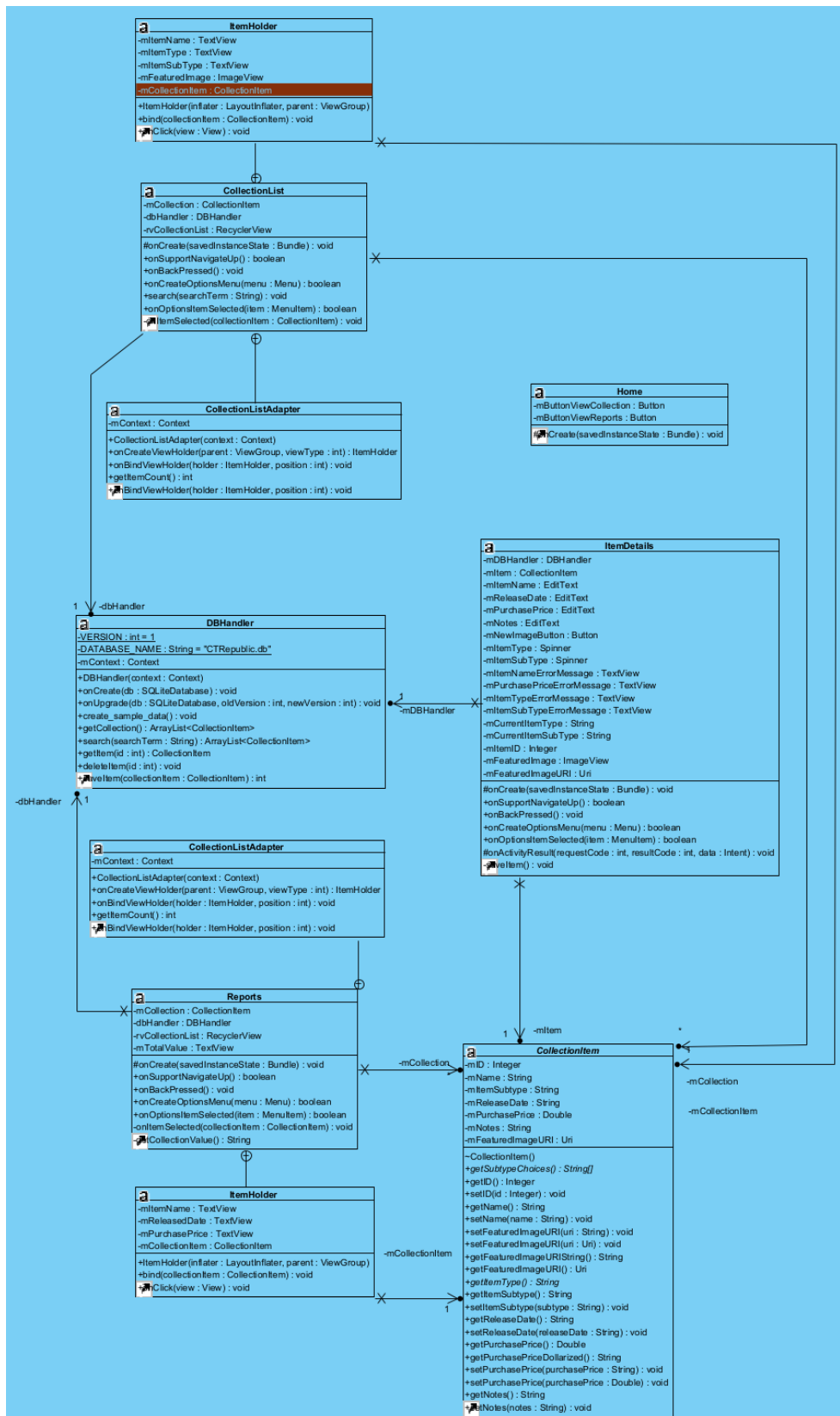


Figure 2 – Activity Diagram

CT Republic – Mobile Application

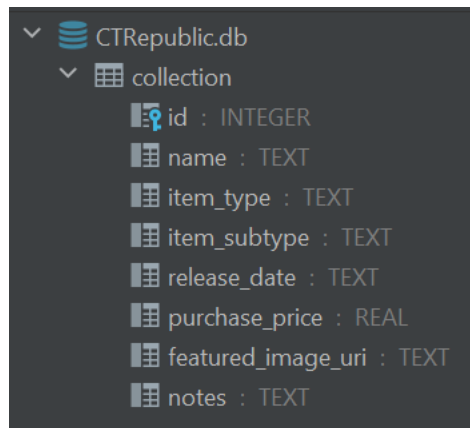


Figure 3 – Database Schema

UI Design

Home Screen

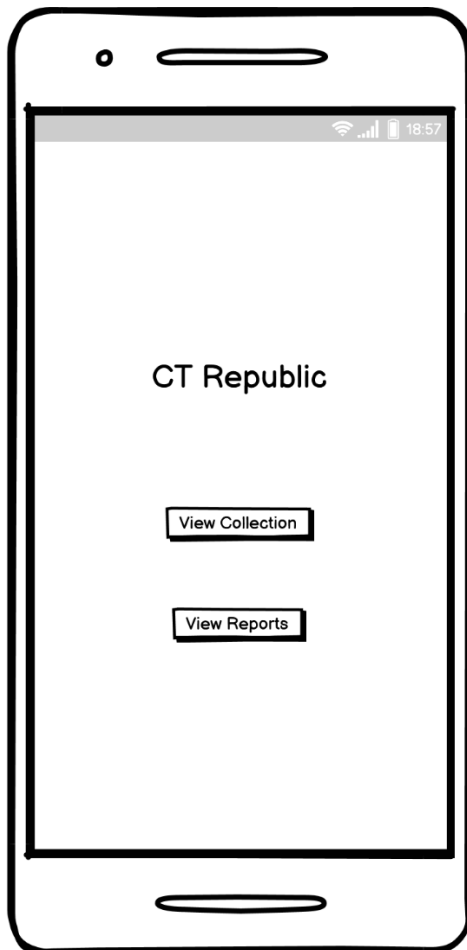


Figure 4: Home Screen Wireframe

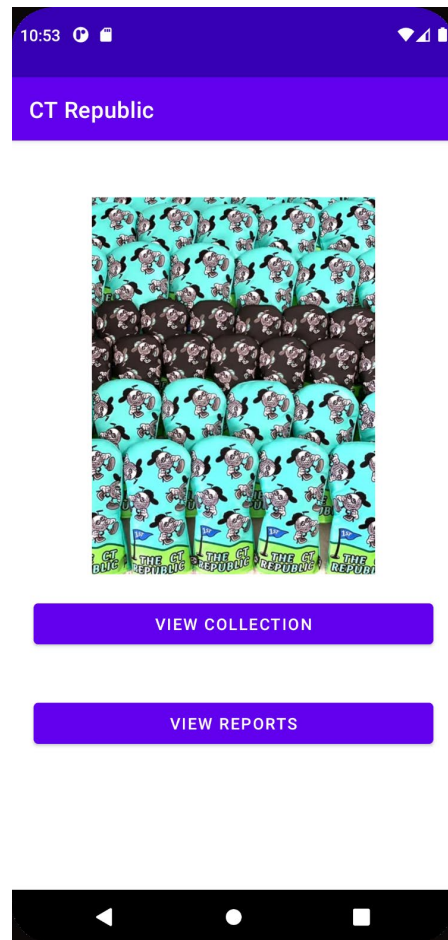


Figure 5: Home Screen Prototype

When a user launches the application, they will be greeted with a home screen in which they can choose to view their collection or view a report on their collection.

Collection List

CT Republic – Mobile Application

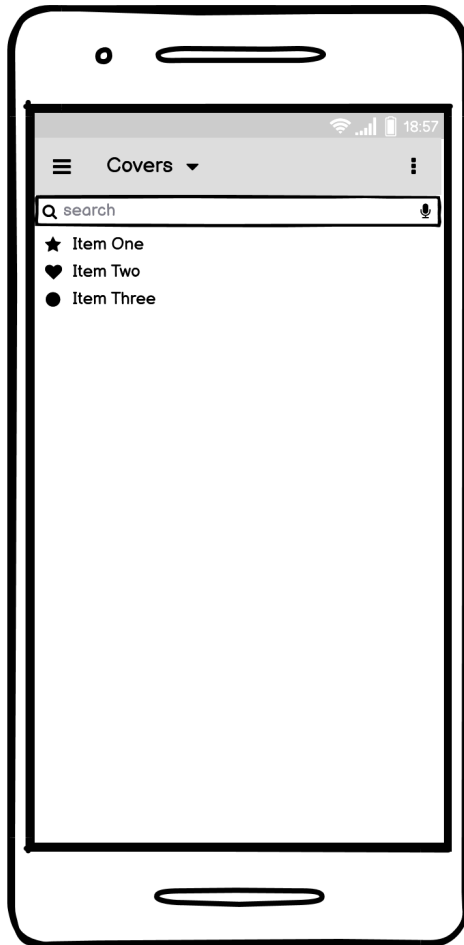


Figure 6: Collection List Wireframe

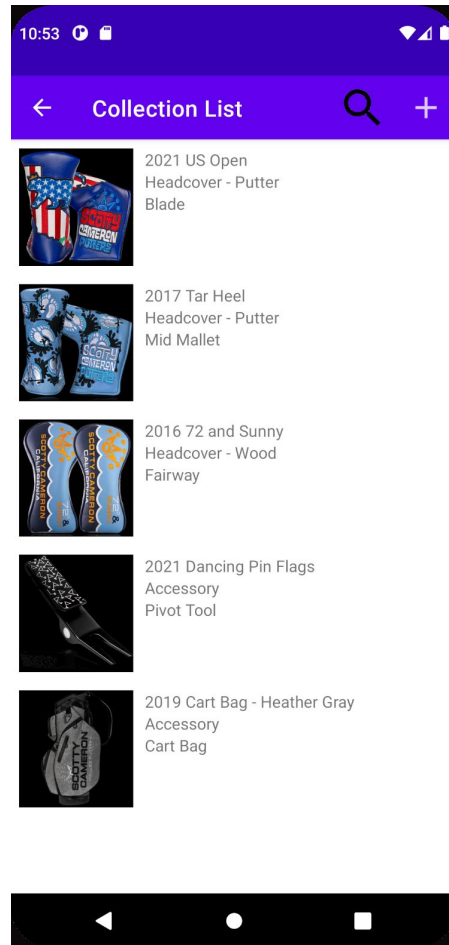


Figure 7: Collection List Prototype

When the user chooses to view their collection, they will be presented with a scrolling list of items in their collection along with an image of the item.

Search View

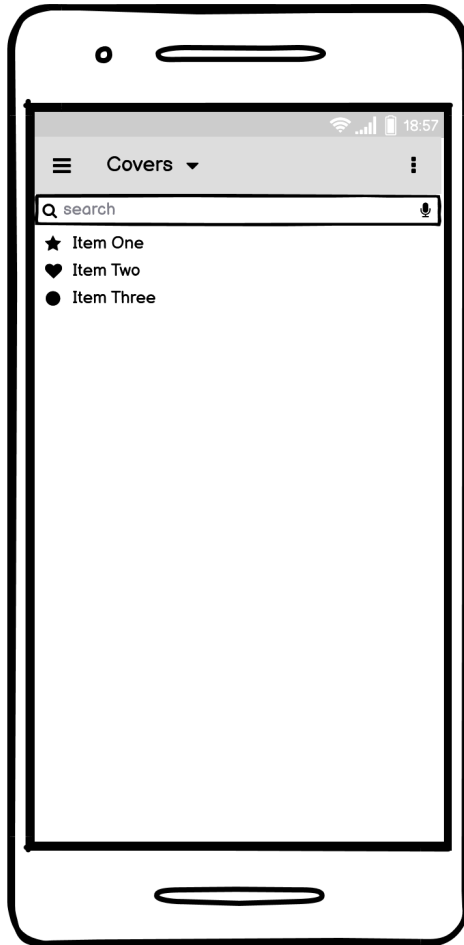


Figure 8: Search View Wireframe

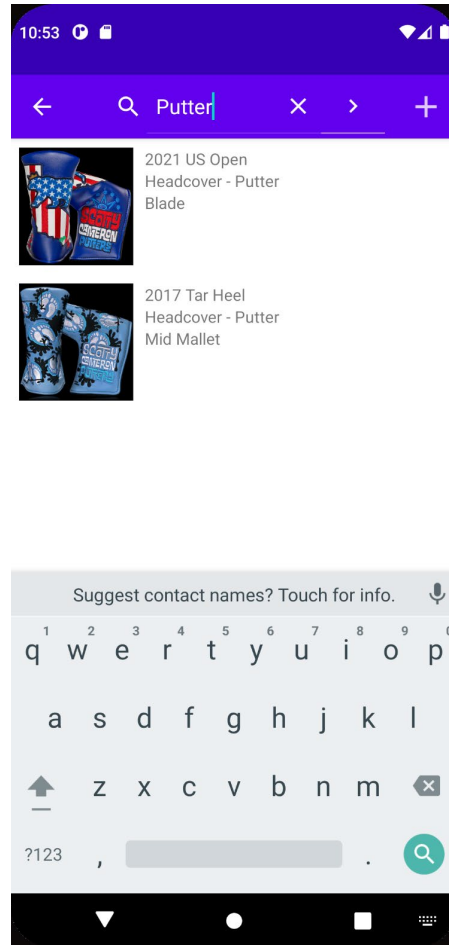


Figure 9: Search View Prototype

When a user needs to search for an item in the collection the user will be able to click on the search icon and they are shown a search text box in which they can search for specific items.

Item Details

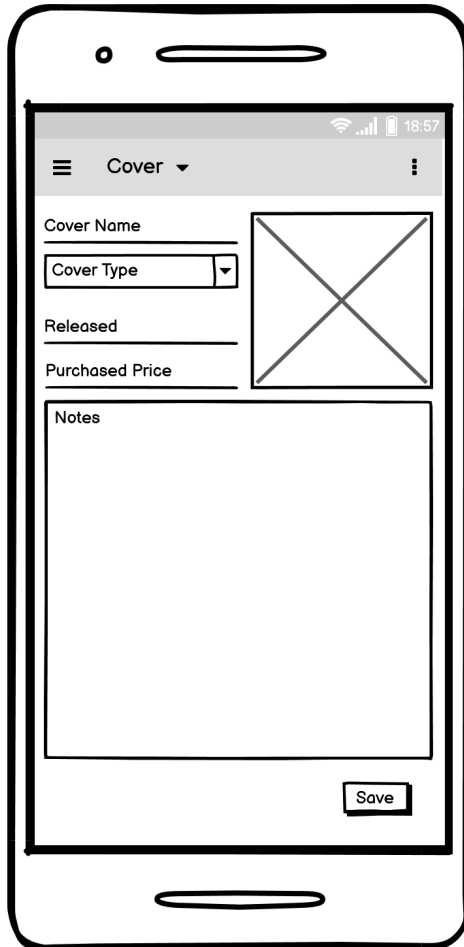


Figure 10: Collection Item Details Wireframe

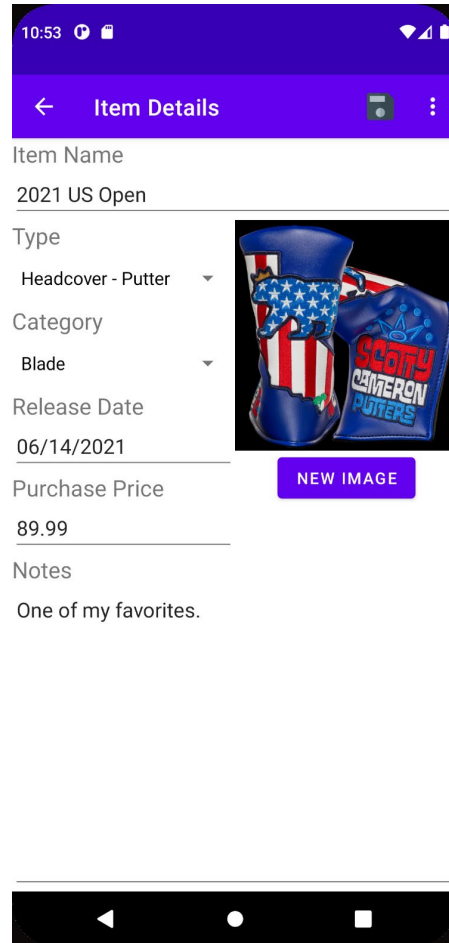


Figure 11: Collection List Prototype

To create or update details of an item in the collection a user will be presented with a items details screen in which they can create or update information about the collection item.

Reports

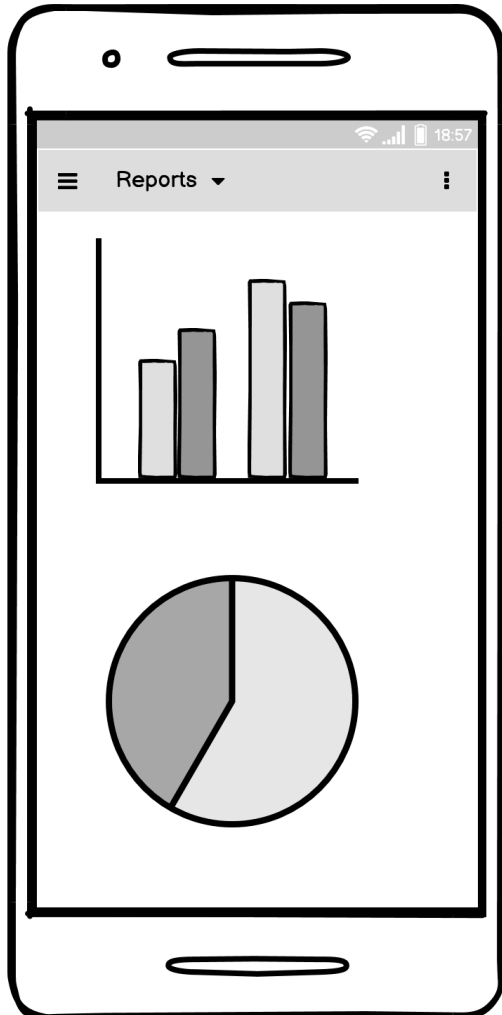


Figure 12: Reports Screen Wireframe

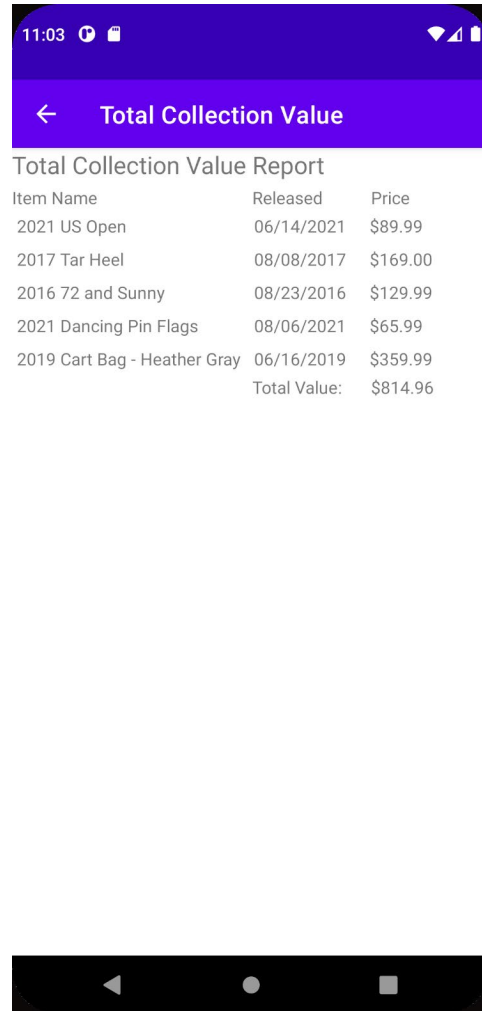


Figure 13: Reports Screen Prototype

A user can get a report of the value of their collection by pressing Reports button on the home screen. On this screen you can see the total value of the collection as well as have the ability to drill down into an item by tapping the desired collection item row.

Unit Test Plan

Introduction

Purpose

The goal of a test plan is to ensure that as many issues are found and fixed during the development cycle of an application. The later in the development cycle that issues are found the more expensive they are to fix. The goal of this test plan is to ensure adequate testing of the CT Republic Mobile application.

Overview

Here you go into more detail about the test(s) and how it related to the overall project. You should include if a similar method was used in other parts of the application or why this was unique for a certain aspect of the code. Then, go into detail about what functions were tested, how the tests were conducted, and how errors were dealt with.

The entire test plan was executed using manual testing. Each section of the application where the user could create, update, and/or delete data was tested with using a variety of test methods. Sql injection testing was also performed in all areas where a customer would have data saved to the database to ensure proper data security.

CT Republic – Mobile Application

Since this is a mobile application and all data is contained within the Android Application Sandbox, the scope of security testing was limited to sql injection and most security attack vectors were ignored.

Test Plan

Items

The application must be installed on an Android device or in a Android virtual device using Android Studio.

Features

The following UI elements were tested:

Textboxes

- Each text box was tested for positive, negative, and null values. Each datatype that was expected was tested with data of a different type. (example: entering abcd when the application expects only numeric digits).
- Each text box was tested for length of values. Three different types of string lengths were used. 0 string length, 5-10 character strings. 500 character strings.
- Each textbox was tested to verify that Unicode values such as emojis and non-ascii character sets would not cause a problem with the saving and retrieval of data.

Image Views

- Each of the Image Views were tested to ensure that very large and very small images would not cause a problem with the saving and retrieval of data.
- Ensured that the deletion of an image from the phone gallery would not cause a problem with the saving and retrieval of data.

Recycle View

CT Republic – Mobile Application

- Verified that the Recycle View can handle a large amount of items and that scrolling was not affected by large data sets.
- Verified that deletion of collection items would not cause a problem with the scrolling and scalability.

Deliverables

Each test would be updated in the test data spreadsheet. A pass/fail for each test will be recorded and all failures will be fix and verified before a test matrix pass result was added to the spreadsheet.

Tasks

1. Execute each task on the test matrix spreadsheet.
2. Update the task with a pass/fail in the result column.
3. If the task failed, create an issue ticket and have the developer fix the issue.
4. Repeat matrix until no testing tasks are in a failed status.

Needs

- The tester must have access to an Android mobile device with the ability to install application updates.
- The tester must also have access to the shared Excel spreadsheet, located in OneDrive and can be accessed via their Office365 subscription.
- The tester must have access to the Jira ticketing system where all bugs and issues will be logged and addressed.

Pass/Fail Criteria

A Pass / Fail will be determined based on the action of the test case. The test case will have an expected result and if the actual result differs from the expected result then the test case will be

marked as failed. Once an issue is addressed and verified in a future build of the application, the test status can be updated from fail to pass.

Test Matrix

Below is a copy of the test matrix spreadsheet with results logged.

Test ID	Component	Test	Expected Result	Pass/Fail
1	Home	Press the View Collection Button	You should be taken to the Collection List screen	Pass
2	Home	Press the View Reports Button	You should be taken to the Reports screen	Pass
3	Home	Visual Presentation	The home screen image should be viewable, crisp and not distorted	Pass
4	Home	Visual Presentation	The button text and the App Bar text should be free of spelling and grammar mistakes	Pass
5	Collection List	Visual Presentation	All items added to the collection should be displayed as in row	Pass
6	Collection List	Visual Presentation	All collection items should have an image displayed in their row	Pass
7	Collection List	Visual Presentation	All collection items should have the item Name displayed on the top	Pass
8	Collection List	Visual Presentation	All collection items should have the item Type displayed below the name	Pass
9	Collection List	Visual Presentation	All collection items should have the item SubType displayed below the item type	Pass
10	Collection List	Navigation	Tapping the back button takes the user back to the home screen	Pass
11	Collection List	Action Bar	Tapping the magnifying glass takes opens the search text box	Pass
12	Collection List	Action Bar	Tapping the + icon takes the user to the next item screen	Pass
13	Collection List	Search	Entering a search term Putter shows multiple items	Pass

CT Republic – Mobile Application

14	Collection List	Search	Entering the search term Foo does not result in any results	Pass
15	Collection List	Search	Entering an emoji does not result in any results	Pass
16	Collection List	Search	Entering the term Gray results in one item returned	Pass
17	Collection List	Search	Entering the term Tar Heel results in one item returned	Pass
18	Collection List	Search	Entering the term Tar Gray results in 0 items returned.	Pass
19	New Item	Press it save icon with no data entered	You should get multiple required messages	Pass
20	New Item	Enter data in the Item name then save	The required message next to Item Name should be removed	Pass
21	New Item	Select a Type and press save	The required message next to Type should be removed	Pass
22	New Item	Select a Category and press save	The required message next to Category should be removed	Pass
23	New Item	Enter a purchase price and press save	The required message next to the purchase price should be removed	Pass
24	New Item	Press the Save button with all required fields taken care of	You should get a saved message and you can verify that the item is displayed in the Collection List with the default logo	Pass
25	New Item	Visual Presentation	The button text and the AppBar text should be free of spelling and grammar mistakes	Pass
26	New Item	Visual Presentation	A new item should have the default crown logo as its starting logo	Pass
27	New Item	Press the New Image button	You should be able to select a new image from the gallery which will replace the crown logo	Pass
28	New Item	Press the New Image button then cancel	The image should not be changed or removed	Pass
29	New Item	Enter text in a note and press save	The note information should be retained when navigating back to the item	Pass

CT Republic – Mobile Application

30	New Item	Enter a release date	A date picker should be displayed each time you click in the text box where you can select or modify any date	Pass
31	New Item	Press Save	All data should be preserved once you view another item then come back to view this one	Pass
32	New Item	Menu : Delete Item	The item should be deleted, and you should be taken back to the Collection List screen where the item should not be displayed.	Pass
33	Item Details	Press it save icon with no data entered	You should get multiple required messages	Pass
34	Item Details	Enter data in the Item namd then save	The required message next to Item Name should be removed	Pass
35	Item Details	Select a Type and press save	The required message next to Type should be removed	Pass
36	Item Details	Select a Category and press save	The required message next to Category should be removed	Pass
37	Item Details	Enter a purchase price and press save	The required message next to the purchase price should be removed	Pass
38	Item Details	Press the Save button with all required fields taken care of	You should get a saved message and you can verify that the item is displayed in the Collection List with the default logo	Pass
39	Item Details	Visual Presentation	The button text and the App Bar text should be free of spelling and grammar mistakes	Pass
40	Item Details	Visual Presentation	A new item should have the default crown logo as its starting logo	Pass
41	Item Details	Press the New Image button	You should be able to select a new image from the gallary which will replace the crown logo	Pass
42	Item Details	Press the New Image button then cancel	The image should not be changed or removed	Pass

CT Republic – Mobile Application

43	Item Details	Enter text in a note and press save	The note information should be retained when navigating back to the item	Pass
44	Item Details	Enter a release date	A date picker should be displayed each time you click in the text box where you can select or modify any date	Pass
45	Item Details	Press Save	All data should be preserved once you view another item then come back to view this one	Pass
46	Item Details	Menu : Delete Item	The item should be deleted, and you should be taken back to the Collection List screen where the item should not be displayed.	Pass
47	Item Details	Data consistency	All data updated and saved should be displayed on the subsequent view of the item	Pass
48	Report	Visual Presentation	The text and the App Bar text should be free of spelling and grammar mistakes	Pass
49	Report	Data consistency	All items in the collection should be displayed and are consistent with their item details	Pass
50	Report	Total	The total should match the sum of all items in the collection	Pass
51	Report	Item view	Clicking on a row in the report should take you to that item's details	Pass
52	Report	Quick Return	When viewing an item details from the report, the back button should take you back to the report	Pass

C4. Source Code

All source code is attached along with this documentation in a separate file.

CT Republic – Mobile Application

The name of the Android Studio project is CTRepublic and a signed .apk file can be found in the app/build/release directory

C5. Link to Live Version

The only version of the application is intended to be installed on an Android device using the .apk that can be found in the attached source code in the app/build/release directory.

User Guide

Introduction

Below is a simple guide to using each of the screens in the application. There is an image of the screen and a list of instructions to the right of the image. There is no right way to go through the application and the screens should be very simple and intuitive.

The Application is an Android application and will only work on a device running the Android operating system.

Installation and Using the Application

There are two ways to use the application.

1. Using the Android Studio Emulator
 - a. Using Android Studio, open the contents of the attached .zip file which will contain a Android Studio project.
 - b. Compile the project and Press the “Play” button to launch the application in a device emulator.
2. Using an Android device

CT Republic – Mobile Application

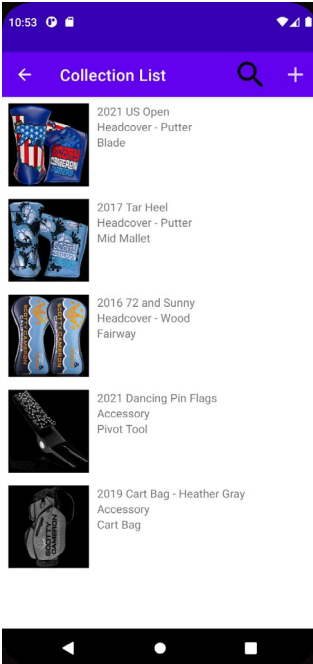
- a. Copy the .apk file, located in the attached .zip file located in the directory C868-Capstone/app/release, to a file system that can be accessed on your Android device such as Google Drive.
- b. View the .apk file on your device and tap it. You will be given the choice of what to do, choose to install the application.
- c. From your Android device, locate the application icon or do a Search for the Application, named CT Republic, and open the application.
- d. You may be asked if you trust the application. Choose Yes if prompted or the application will not be able to launch.

Home Screen



Once the application is launched, you will land on the home screen. From here you will have two options. You can view the collection by pressing the View Collection button or you can view a report by pressing the View Collection button.

View Collection



The collection list will present a scrollable list of what items you have in your collection. As you can see here with the sample data installed, you can view a item's image and short description of the item along with the category.

To view an item:

Click on the row of the item you wish to view.

To go back to the Home Screen:

Click on the back arrow in the Action Bar

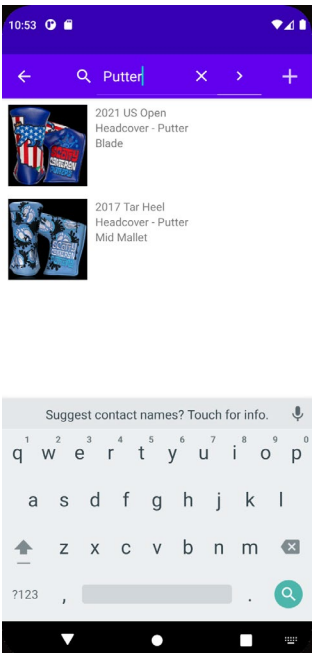
To Search for item(s):

Press the magnifying glass icon and you will be presented a search box in which you can enter a search term to find an item.

To Add a new item to the collection:

Press the + icon to continue to the add new item screen

Search View



The Search View will enable you to search for a particular item or group of items, depending on the search term provided. Search will match your search term to the Name, Notes, Item Type, and Item Sub Type fields.

To search for an item

Enter a search term in the Action Bar Search text field.

To go back to the Collection List:

Click on the back arrow in the Action Bar.

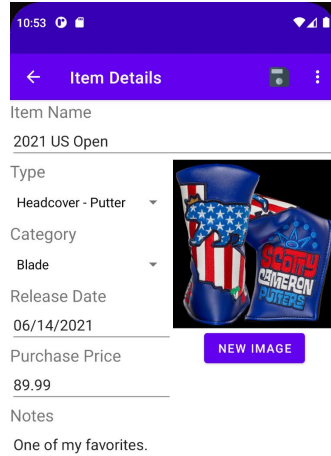
To clear your search term:

Press the x in the Search text field to clear the search term.

To Add a new item to the collection:

Press the + icon to continue to the add new item screen.

View Item Details



The Item Details screen will allow you to create or update information about the collection item. You will be able to save information such as Name, Type, Category, Release Date, Purchase Price, Save a Note, and Add an image of the item.

To add information to the item:

Enter information in the field that you wish to update

To update the item image:

Press the New Image button and you will be taken to your device's photo gallery where you can choose an image to replace the current image. (By default there is a generic image placeholder so there will always be an image on an item)

To go back to the Collection List:

Click on the back arrow in the Action Bar.



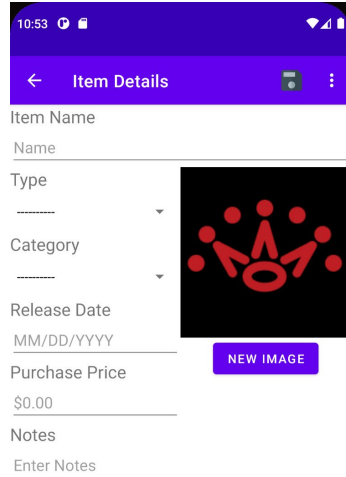
To Save your changes:

Press the Save icon on the Action Bar. If successfully saved, you will get a message at the bottom of the screen. If you need to enter required information, you will see a *Required label added to a field along with a message that your updates are not saved and you need to address the problem.

To Delete the item:

Press the : icon on the Action Bar and select Delete Item from the menu.

New Item



The New Item screen will allow you to create information about the collection item. You will be able to save information such as Name, Type, Category, Release Date, Purchase Price, Save a Note, and Add an image of the item.

To add information to the item:
Enter information in the field that you wish to update

To update the item image:
Press the New Image button and you will be taken to your device's photo gallery where you can choose an image to replace the current image. (By default there is a generic image placeholder so there will always be an image on an item)

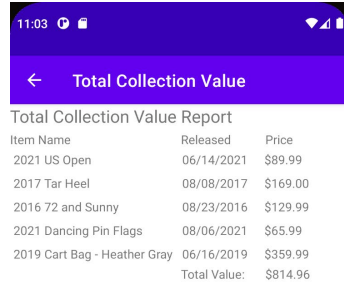
To go back to the Collection List:
Click on the back arrow in the Action Bar.



To Save your changes:
Press the Save icon on the Action Bar. If successfully saved, you will get a message at the bottom of the screen. If you need to enter required information, you will see a *Required label added to a field along with a message that your updates are not saved and you need to address the problem.

To Delete the item:
Press the : icon on the Action Bar and select Delete Item from the menu.

Reports



Total Collection Value Report		
Item Name	Released	Price
2021 US Open	06/14/2021	\$89.99
2017 Tar Heel	08/08/2017	\$169.00
2016 72 and Sunny	08/23/2016	\$129.99
2021 Dancing Pin Flags	08/06/2021	\$65.99
2019 Cart Bag - Heather Gray	06/16/2019	\$359.99
Total Value:		\$814.96

The Reports screen will display a report with details on the value of your collection. You will see a list of all the items in your collection with the purchase price and release date. You will see a total of all items in the collection at the bottom of the report.

To quickly view information of the item:

Clicking on a row in the report will take you to the item details of that item. When you are done viewing the details of the item, pressing the back arrow in the Action Bar will bring you back to this report in this situation.

