**Product Evaluation**

**Users can register, providing their address (only addresses in U’s village accepted), name, and password which gets stored on Firebase Authentication:** Achieved

“The register system functions as intended” but U wishes that the program detected the location that the user is in while registering, rather than having the user input their PIN[[1]](#footnote-0). I disagree with this suggestion because a user who lives at U’s desired location isn’t necessarily always there when registering.

**Users can login by providing their username and password which they specified when signing up:** Achieved

“It functions as intended” according to U[[2]](#footnote-1). U suggests adding a “forgot password” feature². I disagree with the necessity of this as a new account can be created instead which would only have the minor consequence of the recommendation algorithm not knowing the users preferences.

**Special accounts with a prescribed username and password created by me will be made which allows U and others he trusts to create purchasable products with a title, picture, description, price, and buy button; the products will be stored in Firebase Realtime Database and Firebase Storage:** Achieved

“I like it”[[3]](#footnote-2). U however wishes “to be able to delete products” in the application without requiring manual deletion in FRD and FS[[4]](#footnote-3). I agree that manual deletion is inconvenient and can cause bugs if deleted incorrectly. Hence, deleting products in the application should be implemented. This was not implemented beforehand due to U not having requested it then.

**Items can be scrolled through and purchased:** Achieved

“Scrolling and purchasing functions exactly as expected”[[5]](#footnote-4). However, “long text on a product is sometimes not visible”[[6]](#footnote-5). I agree that this is a significant issue that must be fixed, otherwise vital information may not be visible. This issue was not fixed beforehand, because I was unaware of “Wrap\_Content” which is designed to solve such issues[[7]](#footnote-6).

**When an item is purchased, U is emailed with the product name, product price, customer name, and time of purchase:** Achieved

“Purchasing products works exactly as asked. I have no improvements or suggestions related to this.”[[8]](#footnote-7)

**A recommendation page is provided which uses collaborative filtering to curate the items that the user views on the page:** Achieved

The algorithm is “excellent”[[9]](#footnote-8). U however expresses concern for its inefficiency which I agree with and was also mentioned in “Crit\_C\_Development” but did not implement due to being unaware if the inefficiency would be noticeable or a significant issue which I have now realized that it is[[10]](#footnote-9).

**A search bar is provided, displaying all products whose characters in the title, description, or price match the inputted text:** Achieved

The search bar “works well”[[11]](#footnote-10). U suggests categorizing products “by price, and type of product” when searching[[12]](#footnote-11). I believe this is unnecessary as U currently has at most 50 products which can already be quickly found with the search bar’s current functionality.

**Recommendations for further improvements**

A significant issue noted by U is my recommendation algorithm’s inefficiency which is largely due to a quadruple For loop which linearly places all ratings in a 2D array. FRD stores products alphabetically by default[[13]](#footnote-12). Hence, every next product that is searched for cannot have a lower row value than the current product. Therefore, storing the row value to start the For loop at, and resetting to 0 for every new user increases the algorithm's efficiency. Additionally, Selection Sort was used to sort all products’ ratings. However, Quicksort is the fastest sorting algorithm and would minorly increase the algorithm's efficiency[[14]](#footnote-13).

U notes that not all text on a product is always visible. Android Studio has made a special layout called “Wrap\_Content” for text, which is designed to ensure all text is visible on a user’s screen[[15]](#footnote-14). The scale type “fitCenter” can be used to resize a products image to fit all of the text on an image’s side[[16]](#footnote-15). This would change the image size of each product[[17]](#footnote-16). This however isn’t necessarily undesired.

U requested to be able to delete products. This can be achieved by first displaying each product using a RecyclerView; similar to how all products are displayed in the Shop. Each product is provided with a button to delete the corresponding product. When pressed, the **.remove()** and **delete()** methods can be used, which are provided by Firebase to remove a node in FRD and delete a file in FS[[18]](#footnote-17) [[19]](#footnote-18).

1. see Appendix, Interview 2 (Line 14) [↑](#footnote-ref-0)
2. see Appendix, Interview 2 (Line 19) [↑](#footnote-ref-1)
3. see Appendix, Interview 2 (Line 29) [↑](#footnote-ref-2)
4. see Appendix, Interview 2 (Line 31) [↑](#footnote-ref-3)
5. see Appendix, Interview 2 (Line 54) [↑](#footnote-ref-4)
6. see Appendix, Interview 2 (Line 54) [↑](#footnote-ref-5)
7. <https://stackoverflow.com/questions/70009694/how-to-prevent-text-from-exiting-the-screen> [↑](#footnote-ref-6)
8. see Appendix, Interview 2 (Line 70) [↑](#footnote-ref-7)
9. see Appendix, Interview 2 (Line 76) [↑](#footnote-ref-8)
10. see Appendix, Interview 2 (Line 79) [↑](#footnote-ref-9)
11. see Appendix, Interview 2 (Line 56) [↑](#footnote-ref-10)
12. see Appendix, Interview 2 (Line 55) [↑](#footnote-ref-11)
13. <https://stackoverflow.com/questions/51698021/firebase-prevent-alphabetically-ordering> [↑](#footnote-ref-12)
14. <https://www.crio.do/blog/top-10-sorting-algorithms/> [↑](#footnote-ref-13)
15. <https://stackoverflow.com/questions/70009694/how-to-prevent-text-from-exiting-the-screen> [↑](#footnote-ref-14)
16. <https://stackoverflow.com/questions/18077325/scale-image-to-fill-imageview-width-and-keep-aspect-ratio> [↑](#footnote-ref-15)
17. <https://stackoverflow.com/questions/18077325/scale-image-to-fill-imageview-width-and-keep-aspect-ratio> [↑](#footnote-ref-16)
18. <https://stackoverflow.com/questions/26537720/how-to-delete-remove-nodes-on-firebase> [↑](#footnote-ref-17)
19. <https://firebase.google.com/docs/storage/web/delete-files> [↑](#footnote-ref-18)