

5-2 Milestone Four Enhancement Three Databases

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CS 499: Computer Science Capstone

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Database enhancements for Pet Shelter project are straight forwards in terms of replacement. I created a new MySQL database, imported the CSV file after updated the first column with `_id` to avoid unnamed columns in the table structure. I added all needed steps to run the project in README.md file as a reference. I modified different parts in the UI component to make It more presentable.

Database enhancements for the mobile app was quite challenging. I will break it down in few steps as I need to move the application MySQL Database o Firebase and change the current Authentication with firebase Auth.

1. Google Console

The first step to support firebae storage, auth we need to use Google Console in order to link the application with Google Services and activate the authentication method.

Downloads google-services.json file and include in the project files.

2. Dependencies

We need to update the gradle file (Build System for Android) to support Firebase auth, storage.

3. Code Changes

I started developing a helper class following singleton pattern to reference Firebase services. Starting with LoginActivity removing InventoryDatabase dependency and refactor onCreate and utilize the new Login method using Firebase Auth. After successfully, I was able to finalize this part. I moved to RegisterActivity and start refactor

the existing implementation with Firebase Auth. Taking into consideration the error messages from Google service. I refactored many parts in AddItemActivity to accommodate Firebase, the first issue is I cannot store the product image in bytes, so I must convert to base64 and vice versa while viewing it. After I confirm items saved correctly to Firebase and viewing Item works correctly as well. I moved to InventoryActivity and refactored all functionalities.

4. Testing

I faced some challenges testing the app on a physical device due to API versions. I set up multiple virtual devices to test and observe Live updates results.

| Checkpoint | Software Design and Engineering | Algorithms and Data Structures | Databases |
|--------------------------------------|---|---|---|
| Name of Artifact Used | Artifact name: Company Data Dashboard Origin: CS 340 Client-Server Side Application Artifact name: Inventory Management Android Mobile App Origin: CS 360 Mobile Architect and Programming | Artifact name: Company Data Dashboard Origin: CS 340 Client-Server Side Application Artifact name: Inventory Management Android Mobile App Origin: CS 360 Mobile Architect and Programming | Artifact name: Company Data Dashboard Origin: CS 340 Client-Server Side Application Artifact name: Inventory Management Android Mobile App Origin: CS 360 Mobile Architect and Programming |
| Status of Initial Enhancement | Enhancements completed | Enhancements completed | Enhancements completed |

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|---------------------------------------|---|---|---|
| Submission Status | Submitted waiting on feedback from the instructor | Submitted waiting on feedback from the instructor | Submitted waiting on feedback from the instructor |
| Status of Final Enhancement | Finished and waiting for feedback from the instructor | Finished and waiting for feedback from the instructor | Finished and waiting for feedback from the instructor |
| Uploaded to ePortfolio | Uploaded to Github without narrative of Git Pages | Uploaded to Github without narrative of Git Pages | Uploaded to Github without narrative of Git Pages |
| Status of Finalized ePortfolio | Planned but not yet completed | Planned but not yet completed | Planned but not yet completed |