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[CS-499-T5648 Computer Science Capstone 22EW5](https://learn.snhu.edu/d2l/home/1071635)

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Artifact Narrative

**Briefly describe the artifact. What is it? When was it created?**

The artifact I chose to focus to demonstrate software, database, and structural enhancements is the android app I created for my applications course. The original version of this code was created towards the end of my degree path. Although it was updated for this course capstone. The original purpose of the app was to display events and allow the user to add or remove the event from their favorites.

**Why did you select this item? What specific components of the artifact showcases your skills and abilities in software development?**

In the early stages of this app. The user was able to log in, but it did not include a database all elements were hardcoded. No information was included on the homepage for the events or the profile page. The original version of the app was mainly for display and had minimal complexity in terms of operation. While revisiting this app, it was clear that a more complex login system could be implemented in order to enhance security and a more interactive menu could be added to the homepage so that the user could add and remove information from their favorite. Along with looking at profile page information from within their settings. Overall, this specific artifact will touch on all components software engineering, databases, and algorithms and structures.

**Reflect on the process of enhancing and/or modifying the artifact**.

**Software Engineering**

This component is mainly seen as the project expanded in terms of complexity. Originally the project was fairly simplistic and did not include login features with a database nor did the pages flow together. Although, we will talk more about the page flow in algorithms and structures. The app display on the homepage originally was just a generally layout in which the user could not interact with. Nor did any of the picture’s display or have information. Now, the user can scroll through the events listed in the home page. They are also able to click the favorites button in order to move these events into the favorites fragment. Originally, the dashboard was identical to the home page so these pages have gathered some complexity in terms of interaction with the user and the overall code.

**Databases**

The original version of the app did not include a database while enhancing this artifact I chose to implement one. Both in terms of the login features and how the event information was stored within the app. The login features store user credentials so that the user can always come back and log in with their information at any time. The user is capable of logging out of the application, registering, and changing their password. In order to achieve this, I implemented firebase into the application. Firebase stores the user’s credentials so that they may complete these activities. So once the user goes to the register page and enters their credentials then the app will log them in. From here they can utilize any of the features and if they choose to log out then the app will take them back to the log in page.

As for event information, this was more complex. This may not be working properly due to the login feature although I am not entirely sure. I had made a mock up version of the code to test it, but it has some confliction with the inflater. This code right now is unreachable purely because it will crash the application if the page attempts to connect to it. So, for now, it remains unattached. Although, this information is stored within SQLite. Originally, I had it stored with Firebase, but due to obstacles I switched which type of storage I was utilizing for the project.

**Algorithms and Structures**

The main enhancements here involve the page flow. The artifact originally did include app flow although it would crash periodically causing it to not flow properly. The login, register, and forgot password page all flow with each other. As well as the when the user logs in the login feature will now take them to the home page of the app in which they can now navigate through all pages listed on the bottom navigation bar. The only page that does not include clickable items is the settings page, this is possible it just required more time to research in order to implement the features. Another feature that helps to increase the structure of the app is the ability to add and remove events from the favorites page by interacting them on the home page.

**Obstacles And Feedback**

The app has definitely improved going from mainly a display to an interactive software. Although there are still ways to improve this app in the future. In terms of feedback, I was told to include more comments for the pages in the case other programmers were looking at the code. I agree this is needed and the project likely still needs more implementations of this especially as I add in more features. As for obstacles, android studio is still a learning experience for myself so various obstacles came up. Mainly in the form of which databases to utilize (firebase or SQLite) or inflater issues within the code itself.

**Growth in Computer Science**

Ultimately this course, I have practiced secure coding, focused on variable naming conventions, reusability and writing as few lines as possible. I was able to achieve this by implementing these practices throughout the android app. Removing unnecessary files and code by making classes such as the login.class handle more function. While other classes such as the bot\_nav.class were broken into several fragments in order to assist in scaling the project. Security features were implemented through the login.class in which credentials are maintained and tracked through firebase. Although I did not work with a team on this project, I did take in feedback from my instructor to implement more comments throughout the project so that in the future other programmers could look at the code and navigate it more easily. I took what I learned from my internship, this course, and past courses to improve my coding practices and create an app that can login, logout, and allow users to interact within its UI.