Digital Systems and Service Development

Software Development Skills: Mobile 2024-25

Learning Diary

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Since I was a junior developer and had some familiarity with Android Studio and Git I started the project by configuring the environment. A few libraries were then incorporated such as Chip Navigation Bar for bottom navigation ViewPage for swipeable views and Glide for image loading. Because it was easy to manage I used Firebase for the Realtime Database and Cloudinary as a cloud to store the photos. The setup was a little challenging though because this was my first time using Firebase. However I discovered the process was straightforward and easy after reading through the Firebase website and some of the Ravecode Androids YouTube tutorial. This Phase taught me the importance of dependency management basic of cloud-base image handing and backend firebase.

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Using custom gradients and drawable resources I created an IntroActivity with navigation buttons (Login and Enter Here) and an eye-catching background to start my UI development process. The email and password fields in the login activity featured input validation whitespace removal and error-detection Toast messages. After a successful validation users were taken to the MainActivity where I used GridLayoutManager and LinearLayoutManager to implement RecyclerView and display data that was retrieved from Firebase. In order to show loading states I also included a progress bar. I created a horizontal RecyclerView to display item galleries for the DetailsActivity and loaded images using Glide. Real-time updates were guaranteed by Firebases ValueEventListener and view binding made user interface interactions simpler. I fixed alignment problems found during testing by modifying the ConstraintLayout parameters.

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I developed model classes like CategoryModel and ItemModel that mapped to Firebases real-time database in order to organize the apps data. I created three unique adapters CategoryAdapter PopularAdapter and PicListAdapter to effectively bind data to RecyclerViews. Careful management of asynchronous data loading was necessary for Firebase integration at first I had trouble with synchronization delays but I was able to resolve this by making sure the onDataChange logic was correct.

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Today I learned about logcat because before deployment I faced several issues in Android Manifest provoke the app to crash logcat assisted in diagnosing runtime errors and it made much supportive to tackle the issue. Moreover, in order to verify responsiveness in actual environment, I used virtual device for testing but it took more time to response and build, therefore I switched to physical device and after that I recognized some misalignment issues. Accordingly, I was able to deploy the application successfully. I figured that by prioritizing complete assessments following each large update saves functionality breaks through iterative testing.

Key Learnings and Conclusion

This project served as a thorough educational experience. With custom adapters I enhanced my RecyclerView skills refined my debugging methods with Logcat and perfected Firebase integration for real-time data management. The significance of responsive layouts and prototyping (I used Figma for early designs) was highlighted by the UI/UX challenges. My problem-solving skills were improved by overcoming challenges like Firebase synchronization and manifest errors. I want to continue honing my Android development skills by investigating increasingly intricate features like user authentication and payment gateways.