Learning reflection
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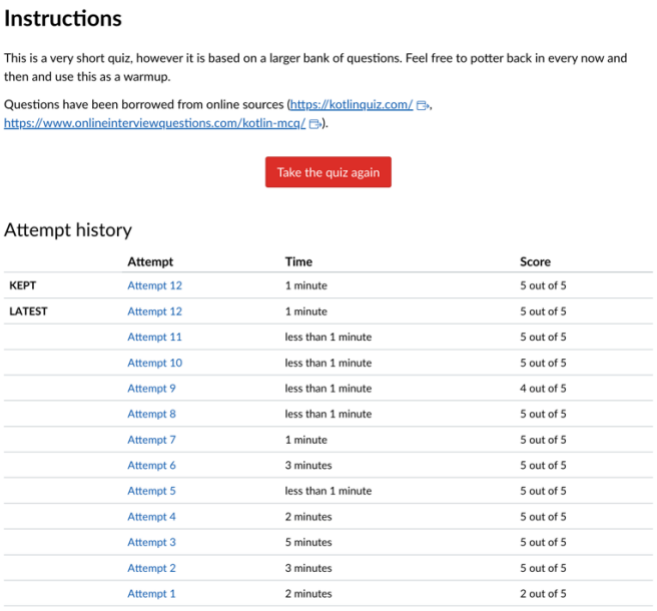
Introduction
Through this unit, I have gained very valuable insights into the challenges and strategies crucial for effective mobile app development. This reflection will outline my progress in achieving the Unit Learning Outcomes (ULOs), the essential skills I have learnt, and the thing I want to explore further. By sharing my experiences and key takeaways, I aim to demonstrate how this unit has developed my understanding of mobile app design and optimization.

Approach
I attend class mostly every week and actively contribute to the weekly content. I reinforce my knowledge with quizzes throughout the week and experiment with modifying applications in Github classroom.



Instructions

This is a very short quiz, however it is based on a larger bank of questions. Feel free to potter back in every now and then and use this as a warmup.

Questions have been borrowed from online sources (https://kotlinquiz.com/, https://www.onlineinterviewquestions.com/kotlin-mcq/).

Take the quiz again

Attempt history

	Attempt	Time	Score
KEPT	Attempt 12	1 minute	5 out of 5
LATEST	Attempt 12	1 minute	5 out of 5
	Attempt 11	less than 1 minute	5 out of 5
	Attempt 10	less than 1 minute	5 out of 5
	Attempt 9	less than 1 minute	4 out of 5
	Attempt 8	less than 1 minute	5 out of 5
	Attempt 7	1 minute	5 out of 5
	Attempt 6	3 minutes	5 out of 5
	Attempt 5	less than 1 minute	5 out of 5
	Attempt 4	2 minutes	5 out of 5
	Attempt 3	5 minutes	5 out of 5
	Attempt 2	3 minutes	5 out of 5
	Attempt 1	2 minutes	2 out of 5

Figure 1. Weekly Quiz

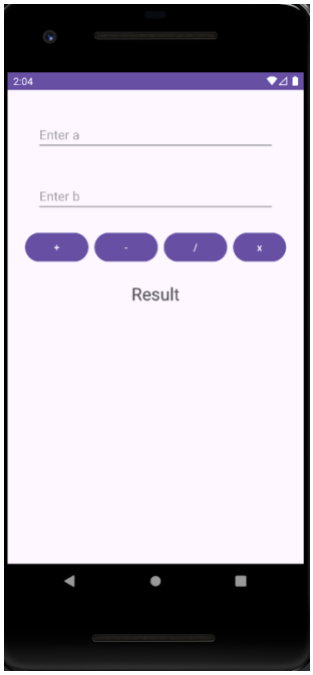


Figure 2. Calculation Application

For each assignment, I was tend to plan before implementing the application, usually I started 3-4 weeks before the deadline. This allows me to demonstrate my work to my tutor early and receive feedback to improve my application. I'm also open to discussing my peers' experiences, as it often helps me learn new things, like Android Studio widgets and other techniques.

ULOs

ULO1: I've demonstrated my understanding of the differences between mobile and typical computing environments by considering factors like battery constraints, connectivity issues, and touch-based interfaces in mobile application design. Additionally, I focused on a responsive, touch-friendly interface rather than a mouse-and-keyboard approach, which is more common in desktop development.

ULO2: In designing mobile applications, I optimized them for smaller screens and limited processing power. For example, in a music app I developed, I used Parcelable to handle data efficiently, reducing memory usage. I also streamlined the user interface to prevent clutter on small screens.

ULO3: I built, tested, and debugged mobile applications using Android Studio's standard libraries, such as RecyclerView. For example, in my last assignment (MoneyShare application) I developed, I used Firebase to handle real-time data updates efficiently and RecyclerView to present lists of event information smoothly. I also employed Android's Logcat tool extensively for debugging, which helped me identify and resolve bugs quickly. Additionally, I used Android Emulator to test different screen sizes and performance on varying hardware specs, ensuring compatibility and usability across a range of devices.

Challenges

I found mobile development to be more challenging than expected, particularly in terms of managing limited resources and adapting to varied screen sizes and device capabilities. Unlike desktop or web development, mobile applications require careful consideration of memory, processing power, and battery consumption. For instance, in a music app project, I had to use "Parcelable" for efficient data transfer between activities instead of standard serialization, which would have consumed more memory and impacted performance on lower-end devices.

An unexpected challenge was creating a consistent user experience across devices with different screen sizes and resolutions. When I developed a music renting app in this unit, the layout looked great on my own device, but on smaller screens, it needed many adjustments. I had to apply responsive design principles with ConstraintLayout and after test on multiple emulators and actual devices to make sure it worked well everywhere. This experience really showed me how important it is to optimize both code and layout in mobile development—something I did not have to care as much in other units such as Advanced Web Development (where I can easily implement responsive features).

Exploration and takeaway

Beyond this unit, I've explored optimizing app performance further, especially using efficient data handling methods like "Firebase" for real-time databases. I also want to dive deeper into

advanced UI frameworks and testing practices to improve responsiveness and user experience, aligning with the unit's learning outcomes.

My key takeaway is that mobile development requires a unique approach to design and performance. From adapting to device limitations to creating responsive layouts, I've learned the importance of optimizing every aspect of an app to develop the smoothest experience across different devices.

Conclusion

This unit has provided me with a foundation in mobile development, equipping me with essential skills to tackle mobile-development-related problems. Looking ahead, I am motivated to build upon these skills, enhancing my app development capabilities.