Lab Exercise: Exploring Android Virtual and Physical Devices

Title:

Simulating and Comparing Android Virtual Devices (AVD) and Physical Devices

Post-Lab Activity:

Answer the following questions in your lab report:

1. What differences did you observe between the AVD and physical device performance?

   Based on the difference in speed in their build configurations, the performance in terms of responsiveness of the application was much faster on the physical device rather than the performance test completed on the AVD.

2. Which platform was easier to configure and use for testing?

   While doing the laboratory activities, I noticed that the AVD was easier to set up and use for testing compared to the physical device. Testing the application on a physical device requires more steps, while performing it on an AVD is easier as it is already integrated into the Android Studio app.

3. What are the advantages and limitations of AVDs?

   An advantage of using an AVD instead of physical devices could be that you could easily pick any type of devices you want to work with without having to actually have the physical model. It is also easily accessible within the Android Studio app, reducing the need for multiple setup steps. On the other hand, a possible disadvantage could be that installing different AVDs might take up space in your storage and may run slower depending on system resources.

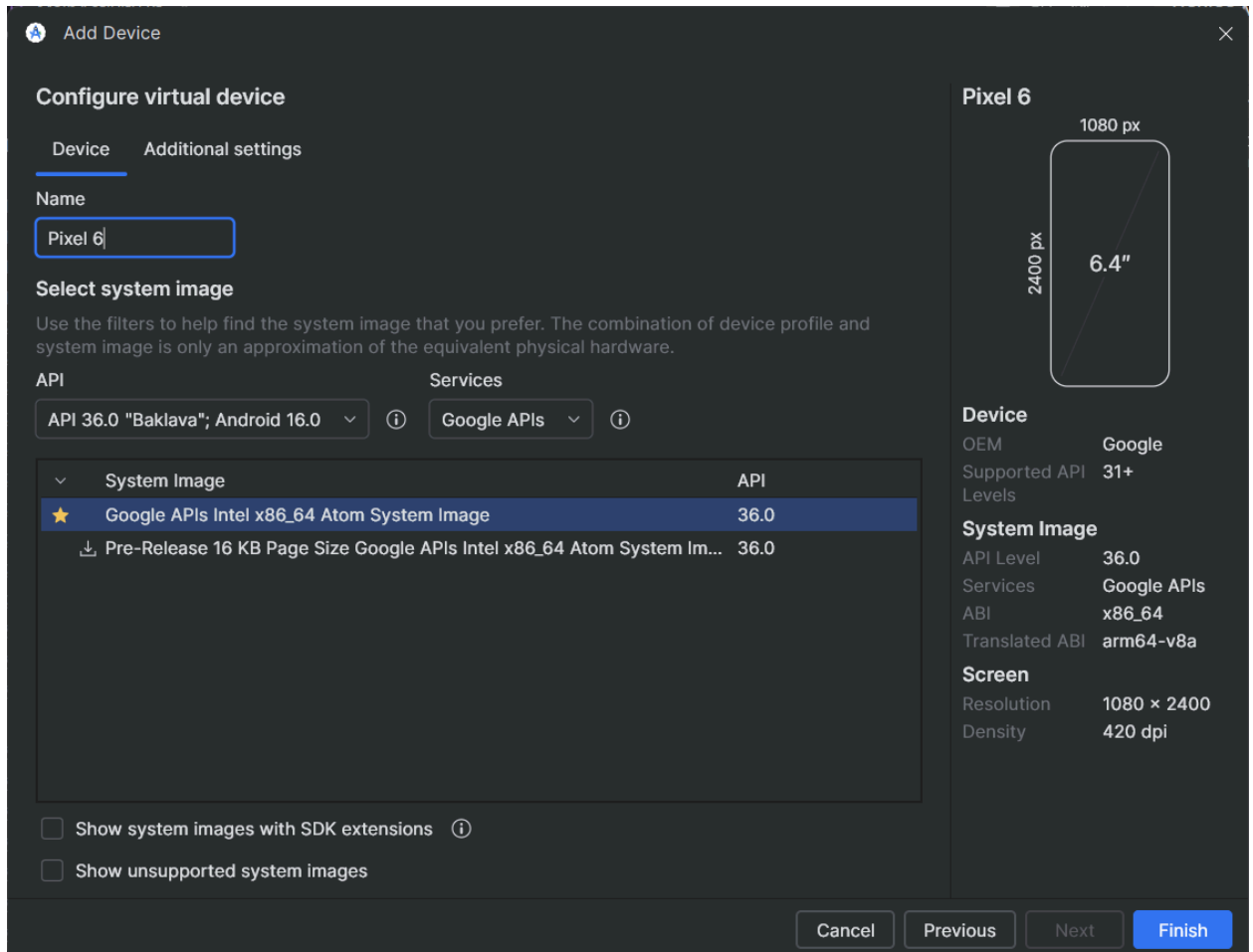4. When would you prefer to use a physical device instead of an AVD?

   I would most likely prefer using a physical device when the application is already complete and only requires final testing to evaluate its real-world performance. I would also choose a physical device when I need to assess how quickly and smoothly the application runs compared to the AVD.
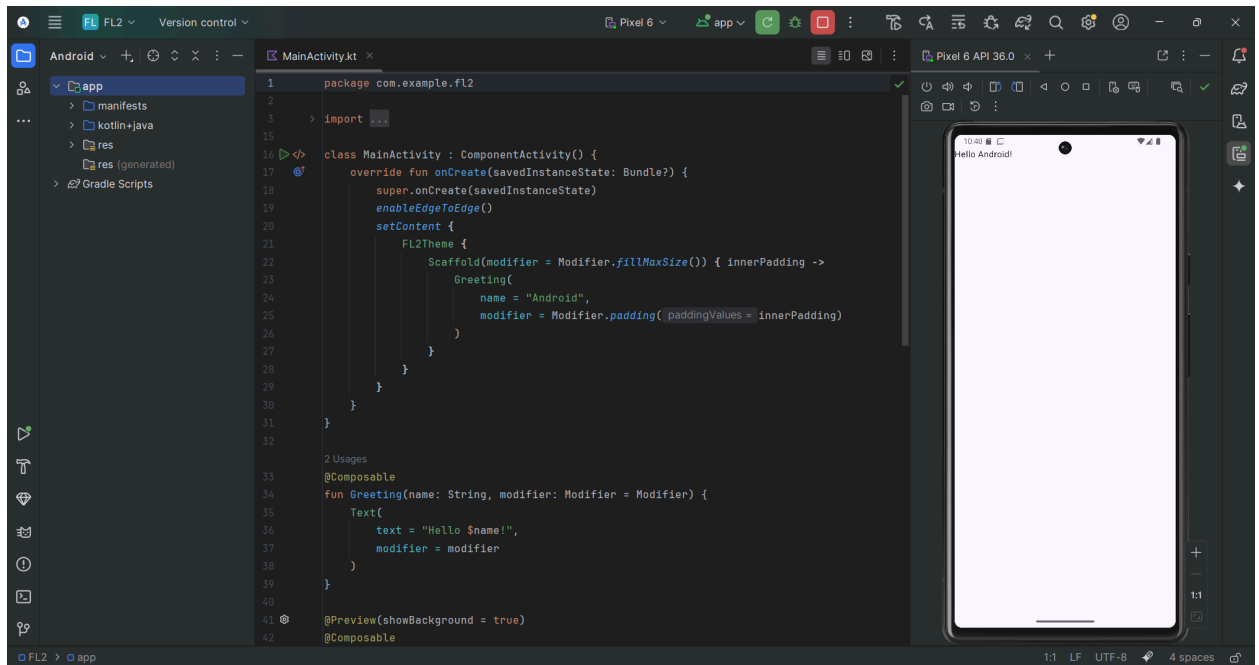
Deliverables:

Submit a lab report including:

- Screenshots of AVD setup and app testing.

- Comparison table between AVD and physical device performance.

	AVD	**Physical Device**
Performance	Runs slow but tolerable	Smooth
Build Configuration	1.3s	0.7s
Responsiveness	All buttons working	All buttons working
Orientation	Runs slow when rotated	Rotates quickly
Permission	None	Constant permission prompts during setup

- Summary of learnings and recommendations for developers.

Depending on the differences in performance between the AVD and the physical device, I recommend using both when testing the application. Checking how the app performs in real time across different devices helps track which part still needs improvement. Since each testing method has its own strengths, developers should use both to fully assess the application and work toward achieving better overall performance.