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## HW 2 – Basic Storage

Since the MeetMe for my project is going to on android and written in Kotlin, I decided to look up and see what types of storage capabilities there were between the OS and the programming language.

# SD Card Storage/Eternal Storage

* I looked into SD card storage because it was evident that yu would be able to run apps on them, but I wasn’t sure how well it would work. I decided to put it together with external storage since it’s considered an external storage. Because the MeetMe app will have user profiles and a potential backup mechanism that will save the image, looking into the external storage seemed like a good place to look first. This will give me access to all of the media files of the user, particularly the images section and the camera settings for the profile picture.
* Pros
  + Larger memory capacity
    - Depending on the phone, you could switch out the SD card for another one
  + Good for storing media items if your app has saves them
* Cons
  + It’s possible to run an app on an SD card but typically it is slower than running it on an internal storage
  + Having apps on the SD card may cause it to eventually stop working if it’s not an SD card with good enough specs

# ANDROID ROOM

* A database that is designed as a layer to SQLite
* Pros
  + Good documentation which compared to a lot of Kotlin documentation and tutorials, the ones for rooms seem up to date and easier to understand. Youtube tutorials are also available.
  + Good for large datasets and for sending larger amounts data to the server.
  + If you know SQL, ROOM will be easy to use for the most part in terms of adding and removing items.
* Cons
  + Honestly there wasn’t anything online about any cons for using ROOM, but I’m pretty sure there must be some. I personally found the set of the database to be harder cause it’s not like how SQL is designed,

# SharedPreferences

* One of Android’s ways of storing data information on phones. I looked into it because it had first popped up while I was trying to find ideas on how to store all the changes of my app for the homework two. Uses key words and stores values onto them, saving all of the data away in a file.
* Pros
  + Simple and easy to use once set up
  + Good for changing and Storing text-based variables like numbers and strings
* Cons
  + Deprecated and replaced by DataStore
    - Conflicting tutorials online on how to set it up
  + Limited in terms of appearance changes when it comes to to GUI items and widgets
  + Not suited for storing images, you need to use a bitmap for those and save it to an external storage.
  + Redundant in terms of changing values because the keywords didn’t connect to the widgets, so you had to manually save them.
  + Documentation is very confusing and not up to date. An example being the apply and commit methods. The documentation tells you to use apply but my code only worked with commit.

# DataStore

* This is the replacement for sharedpreferences. I figured it would be good to check out and see if there were any advantages to using this and if it was an improvement to the sharedpreferences.
* Pros
  + Good handle on data corruption and data migration from its predecessor
  + Good for simple datasets with some complexity
* Cons
  + Not for large datasets
  + Changing values for any items that can be changed need to be updated the same way sharedpreferences does it.
  + Not really for used for a dataset, it’s more like a dictionary

# Cloud Storage

* I just investigated this merely out of curiosity to see if it’s applications would have any use to the app. I think it would be a good idea to save user data on the Cloud but I’m a little iffy given the security risks. It would also be a good idea to save user preferences there as well if the user ever deleted the app and redownloads it again.
* Pros
  + Good security typically from the bigger named companies.
  + All the data is backed up and saved, so data loss is not an issue.
  + Scalable
  + Data Encryption
* Cons
  + It’s hard to switch to another cloud storage if you have already made one. You’re basically stuck using that same storage unless you want to manually move all of the data.
  + Security risks are still an issue. The security of cloud storage is a bit finicky and potentially would put all the user data we have at risk. So, any private information is at risk of being leaked or hacked
  + Relies on the internet, this would be very bad with the app but I’m not sure if the scenario would be around the user having trouble accessing their accounts or if it would be causing other issues like loading user preferences.