CSCB07 - Software Design

Android – Storing Data

Summer 2022

Data storage options

- File system
- Shared preferences
- Databases
  - E.g. SQLite, Firebase Realtime Database

File System

- Android's file system consists of six main partitions
  - /boot
  - /system
  - /recovery
  - /data
  - /cache
  - /misc
- Reading/writing data to a file on internal storage can be done using
  - **`openFileInput()`**
  - **`openFileOutput()`**

Shared preferences

- Suitable for simple data that could be stored as key/value pairs
- A **SharedPreferences** object refers to a file containing key/value pairs and provides methods to read and write them
- Creating/accessing shared preference files can be done using:
  - **`getPreferences()`**
  - **`getSharedPreferences()`**

SQLite

- Relational database
- Serverless
- Zero-configuration
- File-based
- Widely used

Firebase Realtime Database

- Cloud-hosted
- Employs data synchronization
  - ➢ Every time data changes, all connected clients automatically receive updates
- NoSQL
  - ➢ Data is stored as JSON
- The Firebase SDK provides many classes and methods to store and sync data. E.g.
  - **`DatabaseReference`**
  - **`DataSnapshot`**
  - **`ValueEventListener`**

JSON

- **J**ava**S**cript **O**bject **N**otation
- Language-independent
- Supported by many programming languages
- Uses readable text to represent data in the form of key/value pairs
- Example

```
{
        “name”: “Alex”,
        “age”: 25,
        “address”: {
                “country”: “Canada”,
                “city”: “Toronto”
        }
}
```