Yen-Ju Tseng

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Skills

- Kotlin | Java | C++ | C | Go | JavaScript | HTML | CSS | Python
- Android Studio | Git | GitHub | Zookeeper | Kafka | MongoDB(NoSQL) | SQLite(SQL) | Visual Studio | VSCode | IntelliJ IDEA
- Android Development | Computer Networking | Distributed Systems | Frontend | Backend | OOP

Projects

Unsplash Image Android App (Kotlin, Clean Architecture, Room, Paging 3, Hilt, Retrofit) 08/2023 - 09/2023

- Reduced code maintenance efforts due to **MVVM** with **Clean Architecture**, resulting in a highly modular and scalable codebase.
- Crafted UI with **Jetpack Compose**, using **LazyColumn** for efficient image browsing and **Compose Navigation** for a clear flow.
- Integrated **ViewModel** with **Flow**, ensuring real-time updates to the UI and enhancing user engagement.
- Reduced network usage by 30% and improved data loading for 1000+ entries from both network sources and a local **Room Database** by 35% through implementing **pagination** with **Paging 3**, improving the app performance and responsiveness.
- Implemented a **Remote Mediator** to cache network data in the local **Room database**, ensuring offline access to cached data.
- Reduced latency in asynchronous operations by utilizing **Coroutines**, enhancing user experience responsiveness.
- Utilized **Retrofit** with **Moshi** to seamlessly interact with the Unsplash **RESTful API**, ensuring fast and reliable data retrieval.
- Reduced code complexity by 30% via efficient **dependency injection** with **Hilt**, enhancing code maintainability and scalability.

Chat Android App (Client/Server) (Kotlin, Clean Architecture, Koin, Ktor, Hilt, MongoDB) 06/2023 - 07/2023

- Engineered a robust, scalable chat server with **Ktor**, **Koin**, and **MongoDB**, harnessing the power of the **KMongo** toolkit.
- Managed 10+ concurrent connections through the implementation of a robust **WebSocket-based** communication system.
- Reduced code complexity by 30% via dependency injection with **Koin** and **Hilt**, enhancing code maintainability and scalability.
- Employs a customizable routing mechanism for precise request handling.
- Developed a robust **Android** chat app with **MVVM** and **Clean Architecture**, boasting a declarative UI with **Jetpack Compose**.
- Integrated **ViewModel** with **Flow**, ensuring real-time updates to the UI and enhancing user engagement.
- Ensured a secure and efficient connection between Android chat client and server using **HttpClient** and **WebSocketSession**.
- Achieved server-client interoperability, optimizing data exchange efficiency through serialization techniques with **Ktor**.

Weather Forecast Android App (Kotlin, Clean Architecture, Hilt, Retrofit, Coroutine) 05/2023 – 06/2023

- Reduced code maintenance efforts due to **MVVM** with **Clean Architecture**, resulting in a highly modular and scalable codebase.
- Crafted UI with **Jetpack Compose**, employing **LazyRow** for efficient weather forecast browsing.
- Integrated **ViewModel** with **Flow**, ensuring real-time updates to the UI and enhancing user engagement.
- Leveraged FusedLocationProviderClient within Coroutine(suspendCancellableCoroutine) to obtain precise location data.
- Utilized **Retrofit** with **Moshi** to seamlessly interact with the Open Meteo **RESTful API** for real-time weather data.
- Reduced code complexity by 30% via efficient **dependency injection** with **Hilt**, enhancing code maintainability and scalability.

Fault-tolerance Scalable Cloud-Based File Storage service (Go, SQLite, API, Backend, gRPC) 02/2023 - 04/2023

- Engineered a robust, Dropbox-inspired, fault-tolerant cloud-based file storage solution with both client and server components.
- Supported simultaneous access for 10+ users, effectively managing 100+ files.
- Achieved a reduction in data retrieval time by implementing file segmentation and **SHA-256 hashing** for faster access for users.
- Reduced update conflicts by 99% by implementing efficient **versioning** and hash list strategies, ensuring smoother synchronization.
- Enabled seamless data exchange, improved interoperability, and enhanced scalability by leveraging **protocol buffers** for **gRPC**.
- Optimized user experience by streamlining synchronization with an index.db file in the client's base directory.
- Achieved efficient block storage and server scalability by implementing a mapping approach based on **consistent hashing**.
- Ensured server reliability with **fault tolerance** mechanisms based on the **RAFT distributed consensus protocol**.

MySQL-like Relational Database System in C++17 04/2022 - 06/2022

- Developed a MySQL-like relational database in **C++17**, proficient in interpreting, manipulating, querying, and presenting table data, delivering flawless performance while seamlessly managing 15,000+ data entries.
- Achieved a reduction in code maintenance efforts due to the **MVC** architectural pattern, leading to increased development efficiency.
- Reduced parsing errors through proficient scanning, tokenizing, and parsing techniques, ensuring more accurate query processing.
- Implemented the **chain-of-responsibility** design pattern to efficiently process user-provided commands.
- Employed the **factory** design pattern to seamlessly handle statements.
- Implemented data **encoding** to files and **decoding** from files to enable **persistent storage** and efficient data management.
- Reduced average query execution time by 20% through the implementation of **indexes** and **LRU Cache**, resulting in faster data retrieval.

Education

Master of Science **University of California San Diego** *San Diego, CA, USA* **09/2021 - 06/2023**

- Major in Electrical and Computer Engineering (GPA: 3.5/4.0)
- Coursework: Software Foundations, Operating Systems, Computer Networks, Graduate Networked System, Advanced Data Structure

Bachelor of Science **National Taipei University** *Taipei, Taiwan* **09/2015 - 06/2019**

- Major in Communication Engineering (GPA: 3.46/4.0)
- Coursework: Data Structure, Advanced Computer Programming, Database System