

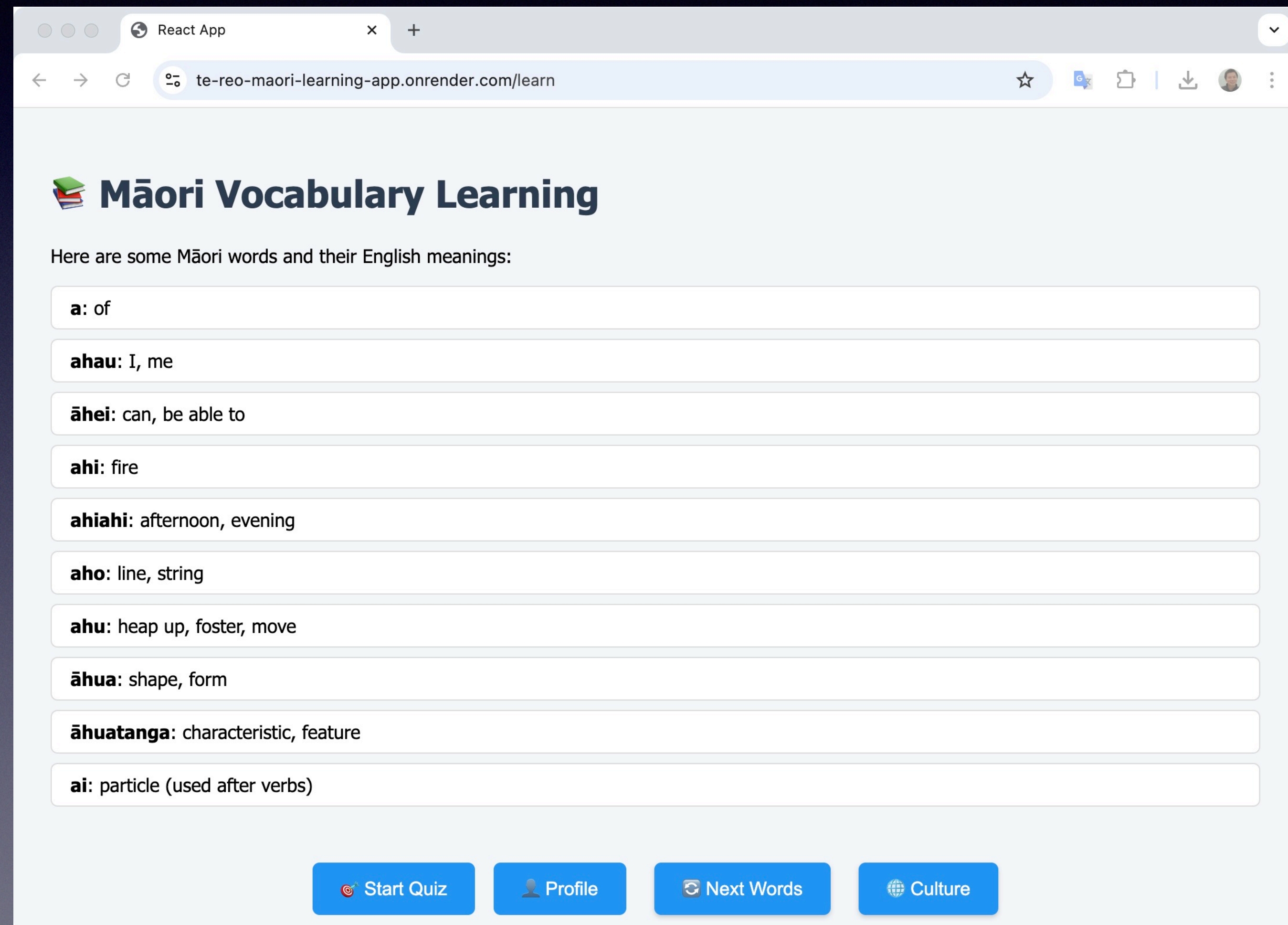
Te Reo Māori Learning App

Backend Design

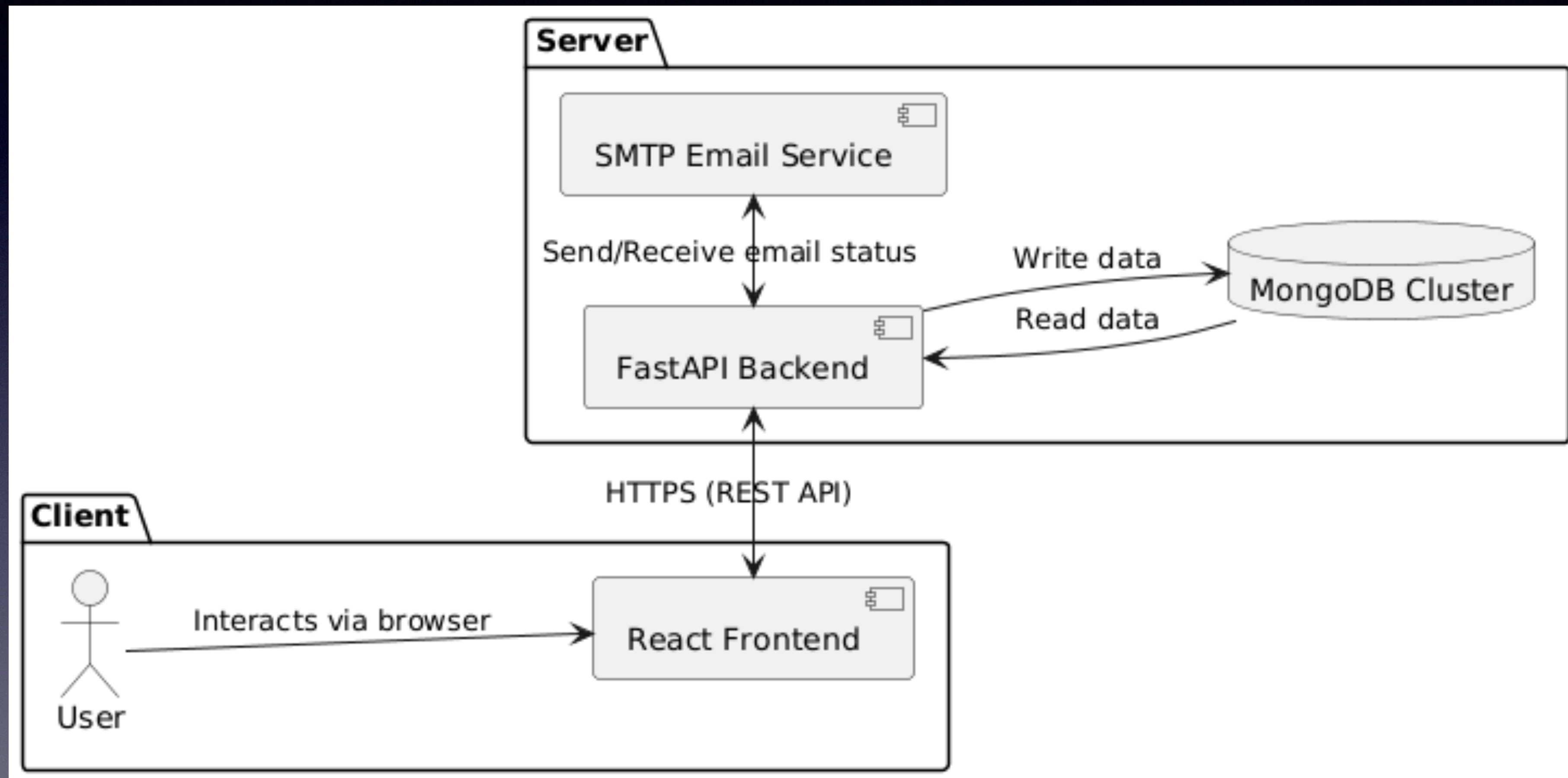
Xiaoming Zhang
July 9, 2025

Overview Of The Final Product

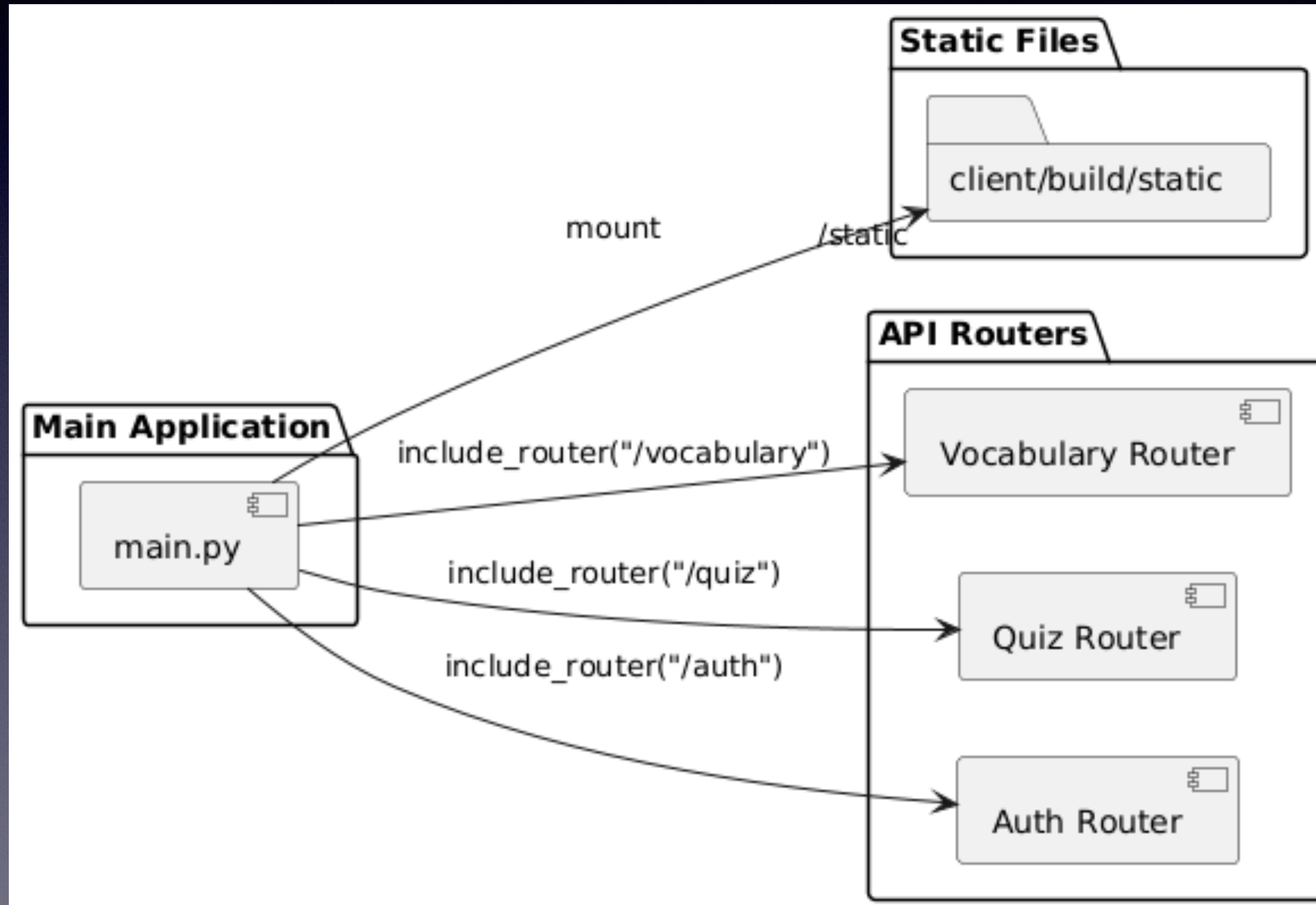
Application link



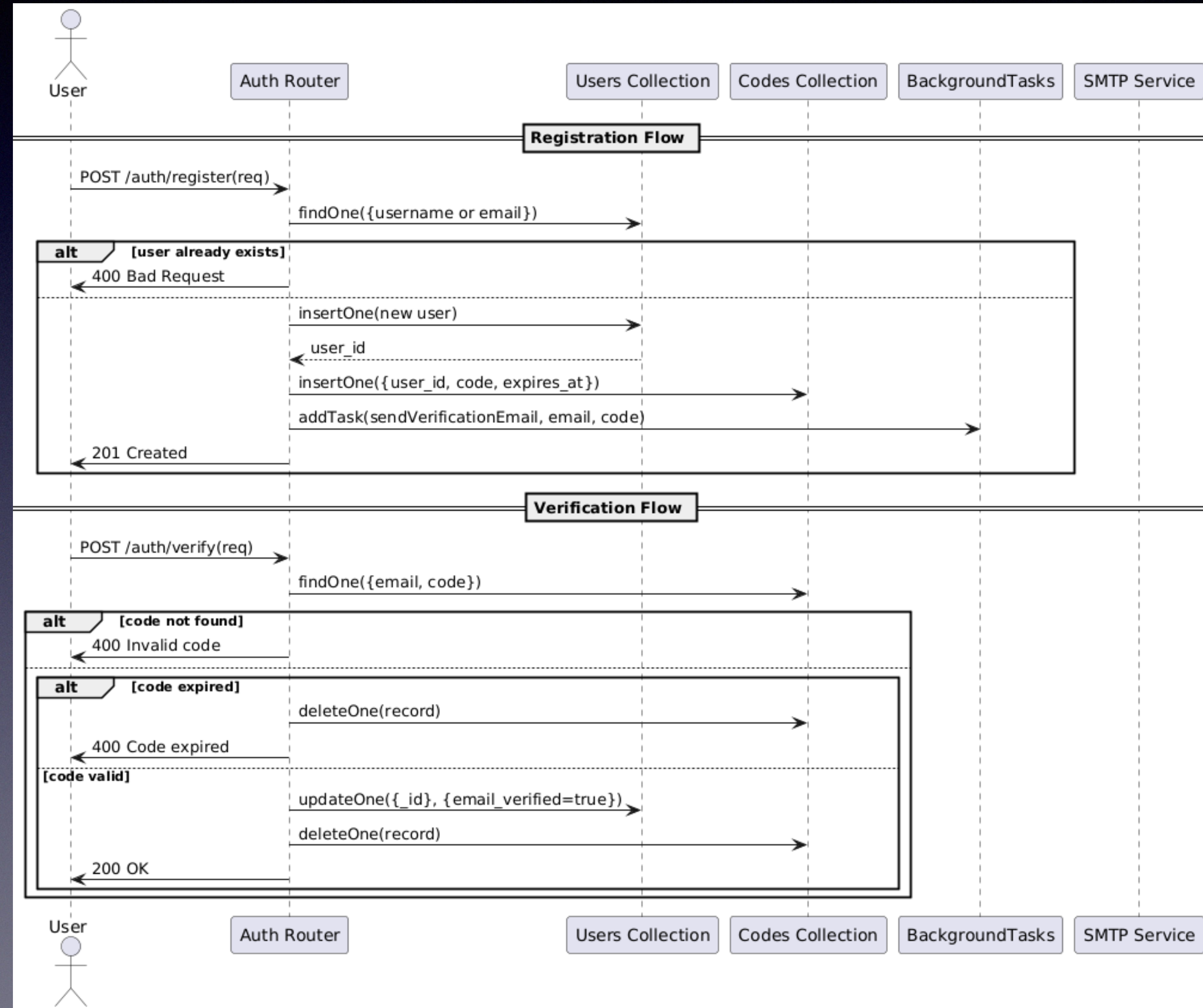
System Architecture



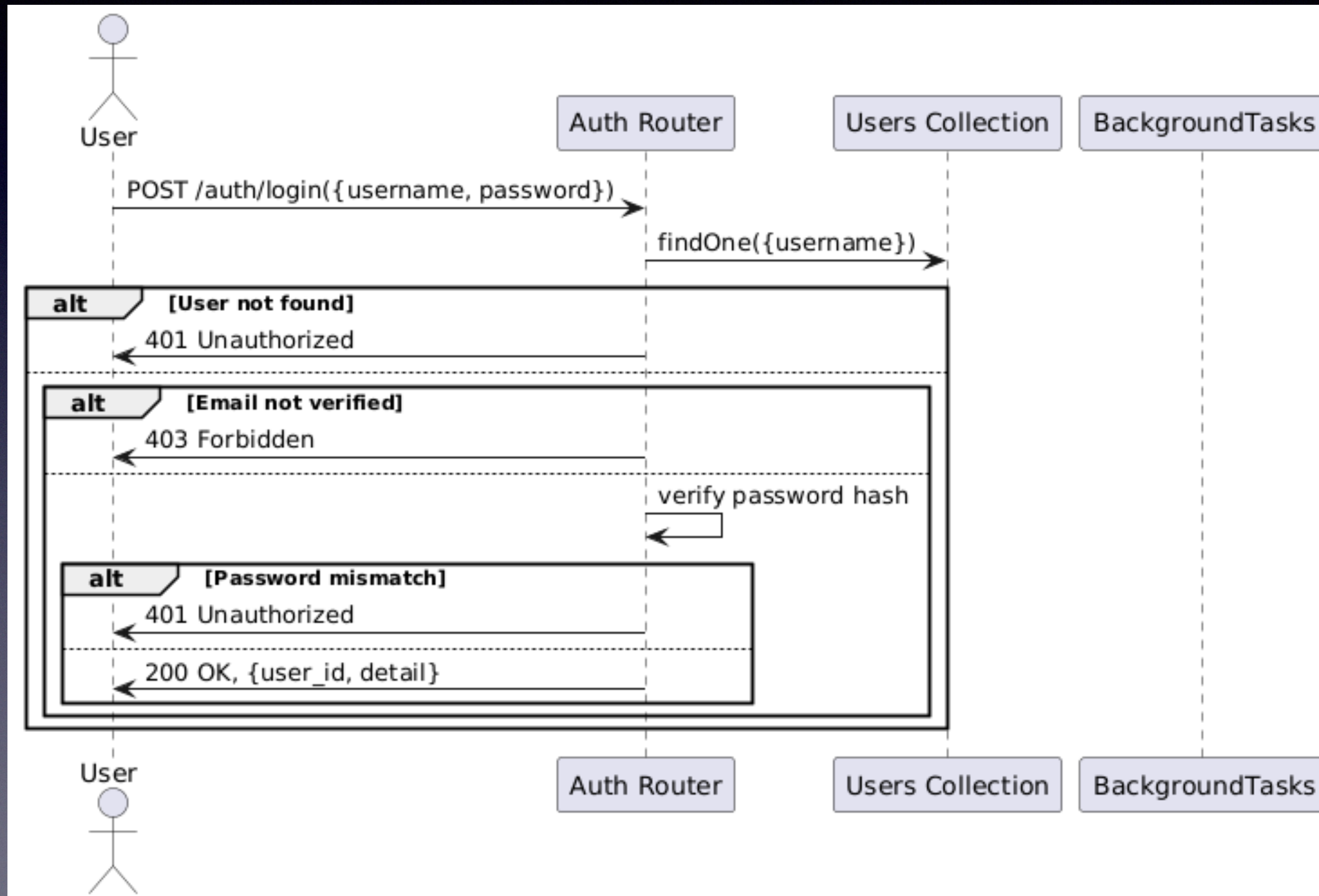
API Routing Architecture



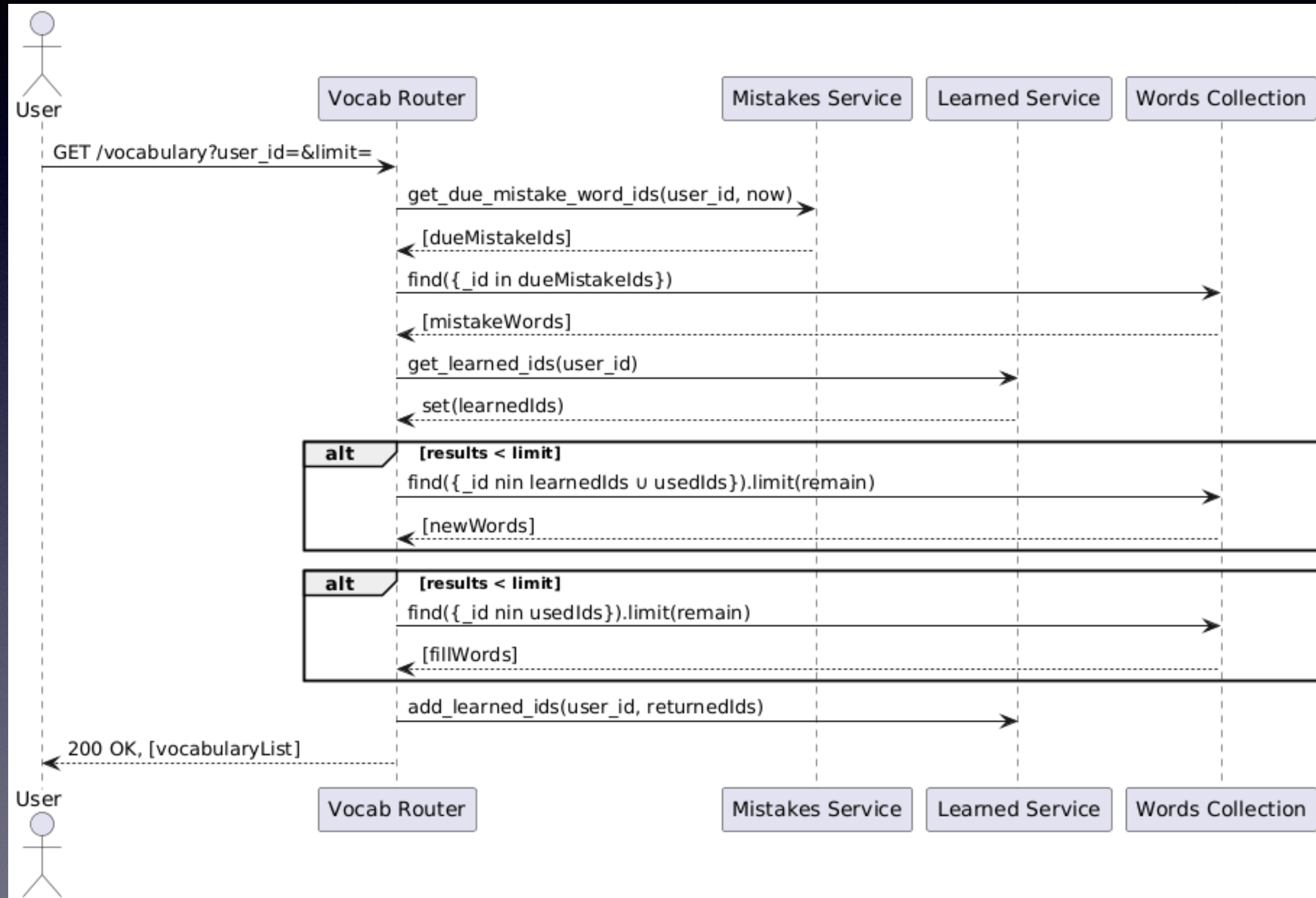
Register & Verify



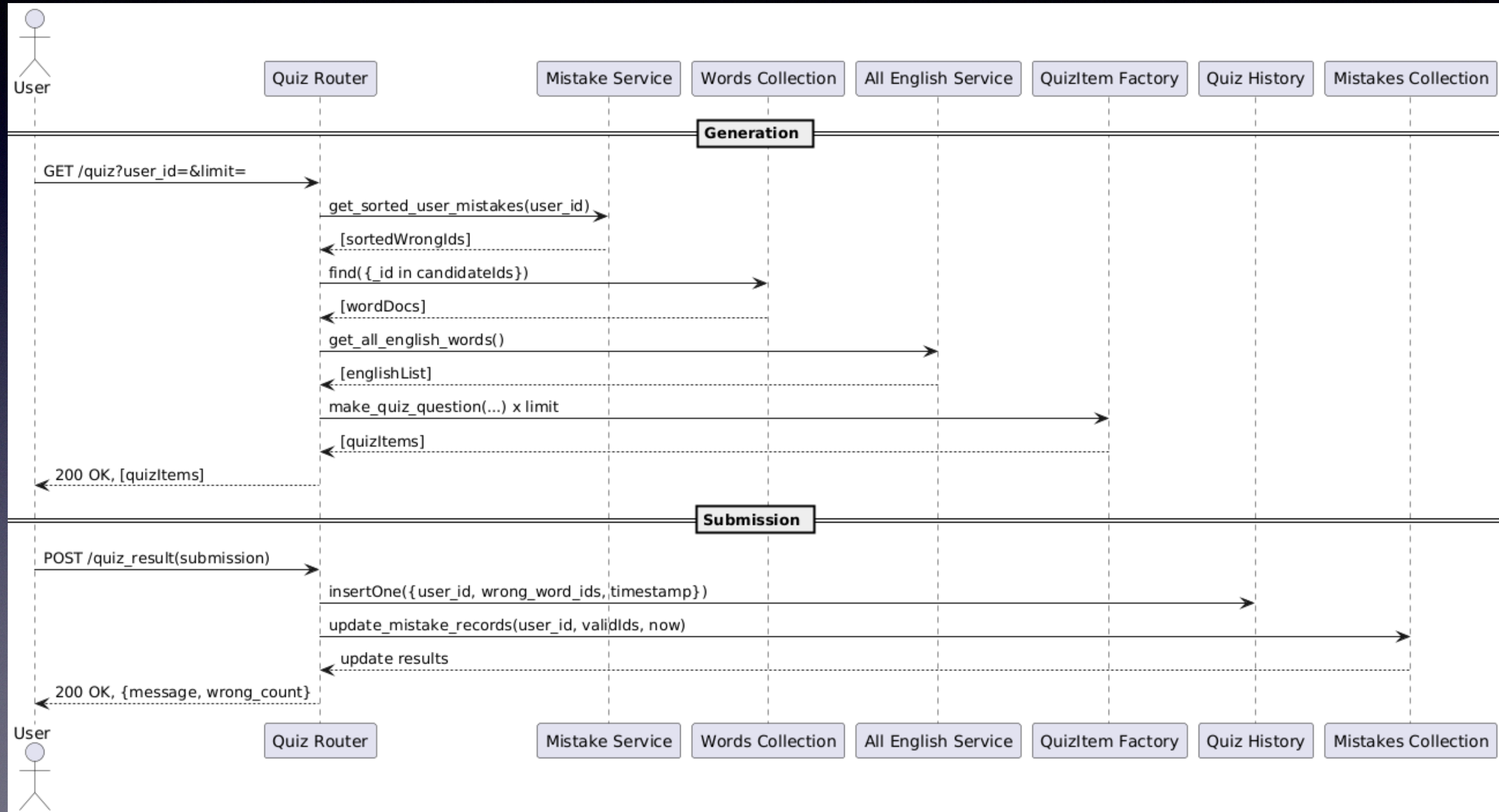
Login



Fetch Vocabulary



Quiz Module



Agile Development Practice

- In-Class Progress Syncs
- Ad-hoc IM Communication
- Early API Contract & Deployment
 - FastAPI's autogenerated Swagger docs ensured specs were clear
 - Backend pushed to a public dev early
 - Frontend and backend effectively decoupled

Challenges & Solutions

- Ensure code quality & functional correctness
 - Integrate soucery to review PR
 - Use GitHub actions to run tests before merging PR
- SMTP Testing in CI
 - Use mokeypatch to replace real SMTP with Dummy STMP

Lessons Learned

- Write test case when adding a feature
- Deploy online as early as possible

Thank you!