

Virtual Roll Call Briefing v6.0

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Problem

Twice a day, shift supervisors must have a session with their officers, informally called "Roll Call", in which they go over critical information for the day and assign various tasks to each officer.

These in-person roll-calls cause various problems:

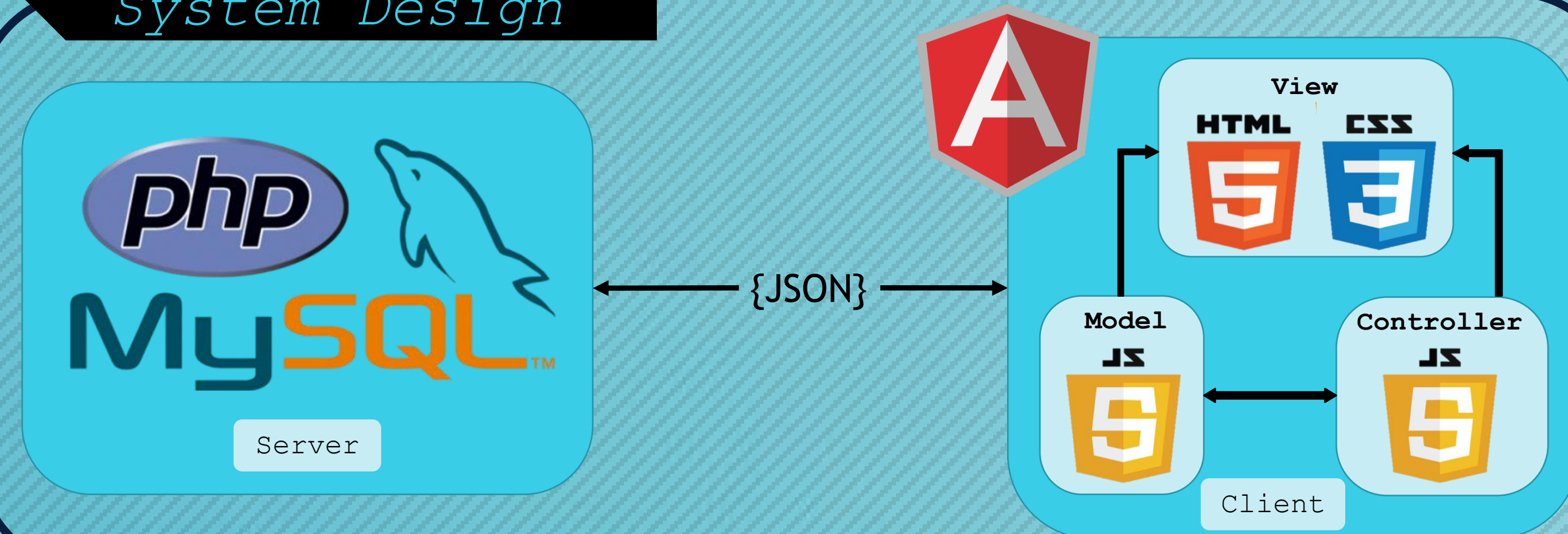
- > **Schedule conflicts arise as officers may still be on their shift during the standard roll-call time**
- > **No standardized way of holding officers accountable when documents are not reviewed**
- > **Paperwork is easy to lose track of and can cause a lot of clutter**

Solution

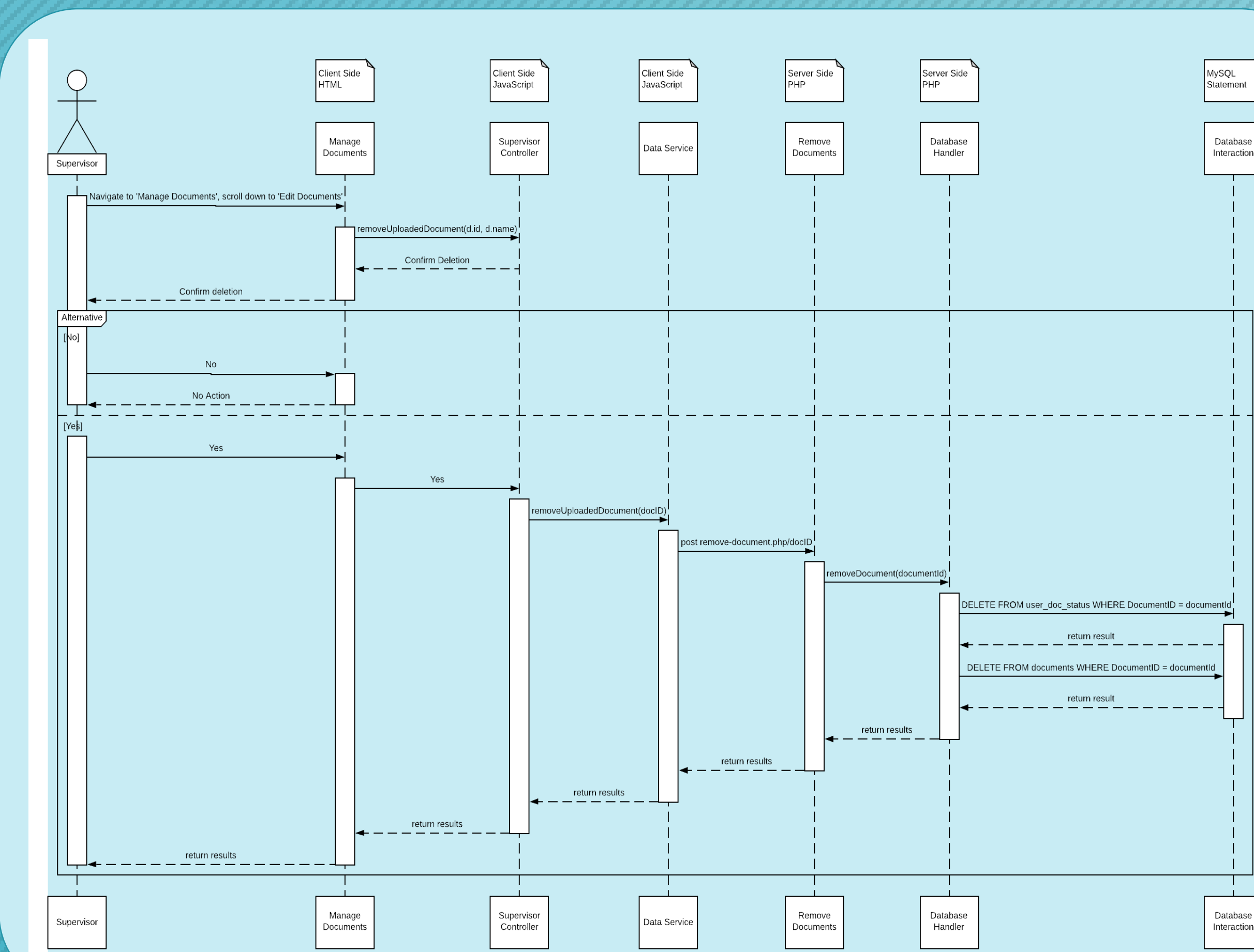
Virtualization!

- > Virtual Roll Call gives officers 24 hour access to the latest documents
- > Officers can review documents from their own squad car if they are currently on shift
- > System tracks when officers have reviewed their files for accountability

System Design



VRC-56 Document Removal



Version 6.0

Database Optimization

- > Logging is a large part of this application, which has resulted in log tables growing very large very fast
- > Fetching from these tables has slowed the application down over time
- > Tables were not standardized, nor did they have indexing or relationships

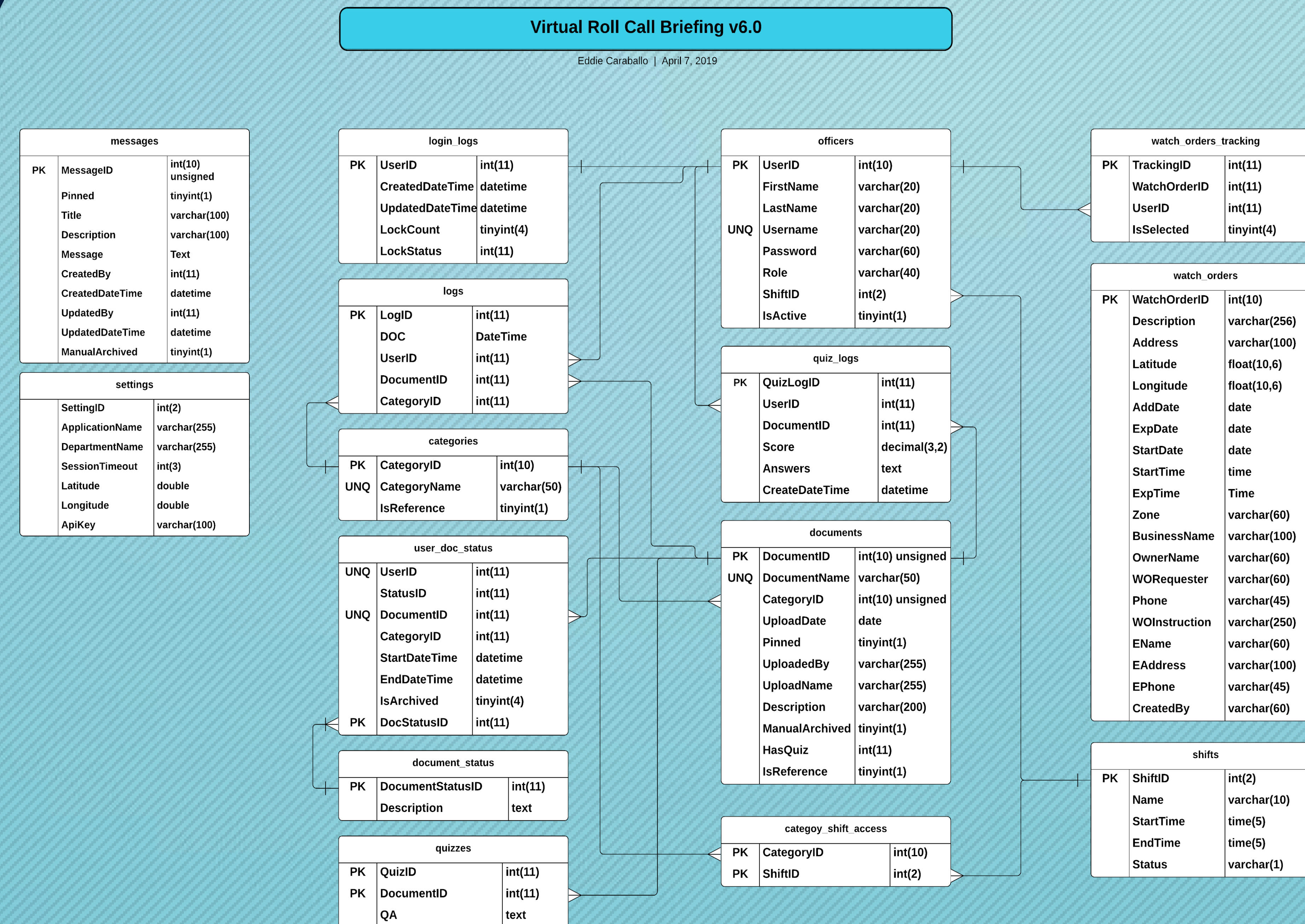
New design consists of a normalized database with optimal indexing and foreign key relationships

QoL & Bug Fixes

- > No code is perfect, and this is no exception
- > Day to day usage in the real world revealed many bugs that were overlooked in previous versions
- > Many QoL elements were ignored in previous versions that did not make the application robust

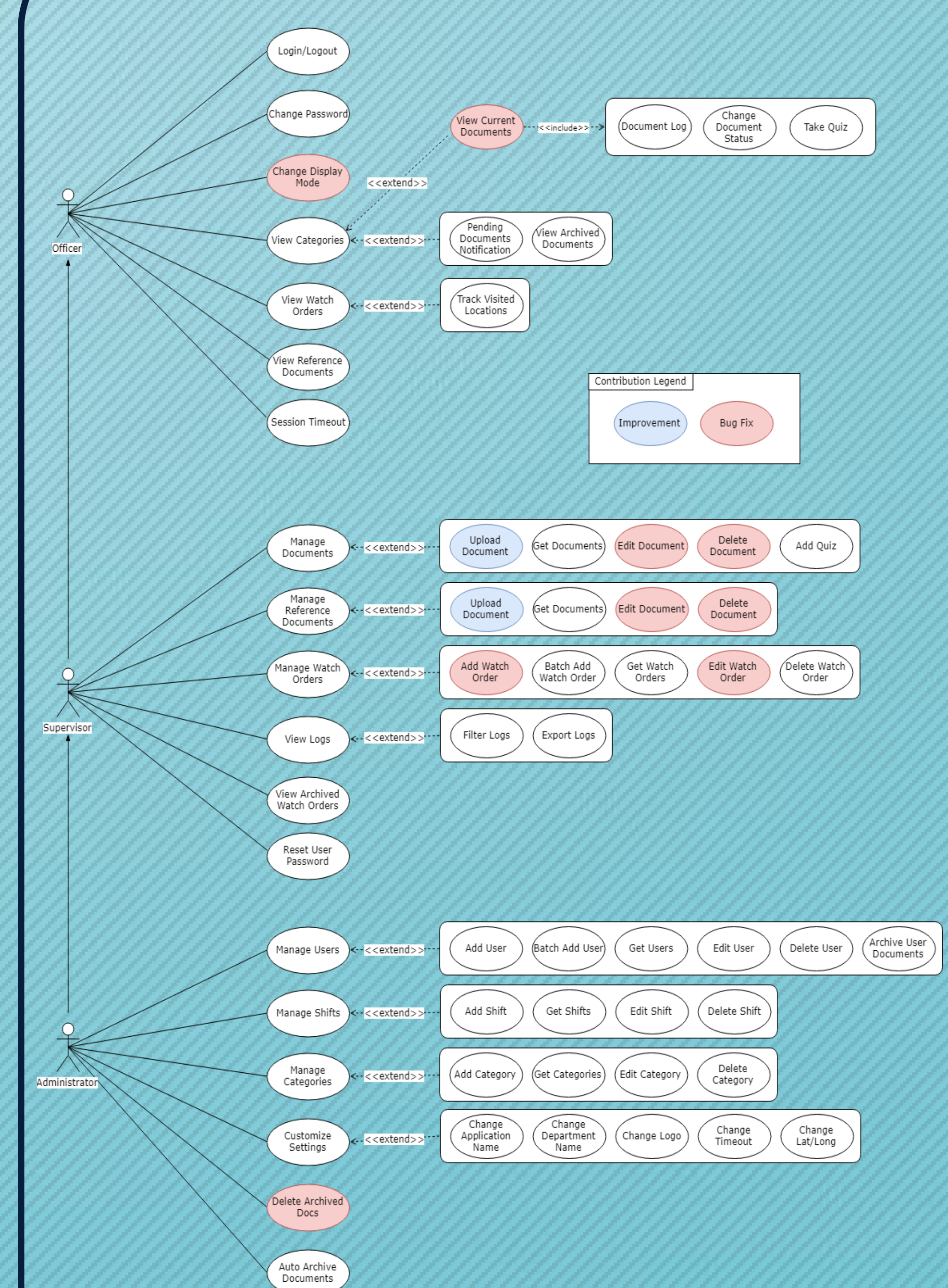
All previously discovered and many newly discovered bugs have been taken care of, and QoL changes have made the website friendlier

My Contributions



Database changes include revamped and normalized schema with actual foreign key relations and optimized indexing

Use Case Changes



Use Case Diagram of My Contributions

Summary

After a very busy semester, I am proud to have worked on the following items:

- > Normalization of database
- > Optimization of query design
- > Bug fixes including, but not limited to:
 - > Functional deletion of uploaded documents
 - > Limitation of entry fields to not cause database overflow
 - > Issues with officers accessing parts of the application they should not be
- > Normalization of website elements between all pages

Future Plans

HTTPS

- > Virtual Roll Call is currently HTTP, making it much less secure in comparison to the norm

New Features

- > Although our focus was on optimization and bug fixing, there is no lack of new ideas for the tool

Acknowledgement

The material presented in this poster is based upon the work supported by Jason Cohen and Frank Alvarado from the Pinecrest Police Department. I thank Pablo Velazquez for assistance, and Dr. Masoud Sadjadi for the mentorship that I received throughout this process

