Capital One Cassandra
Front End UI

Abstract
The Capital One Cassandra Analytics team developed a front end UI for non-technical users to be able to quickly access home loan data. The current system used by the company is expensive, not efficient, and doesn’t fully utilize the systems that are currently in place. The UI we developed will help cut costs by directly connecting to the Cassandra database and retrieving the information requested by the user, effectively cutting out the middleman. To maximize the system that is currently in place, the team developed code that utilizes AngularJS and works seamlessly with preexisting code/software. The success of this project is important to Capital One as it provides a system that is easier to use and is much more cost efficient in the long term.

Results

Impact
Capital One currently utilizes a cost inefficient product in order to query their database. Currently, Capital One employees select building blocks for queries and send it to a third party to query the database. With our application, the company can effectively cut out the middleman and do all query creation in house. The application is designed in such a way that anyone with AngularJS experience can easily add new query building blocks when necessary, allowing for low maintenance and costs.

Metric
We used a user experience survey to assess the quality of our UI. We asked 6 Capital One employees to rate 6 UI items (such as appearance and ease of use) from 1 to 5. Overall, we gained 33 evaluations that averaged to approximately 4.2. Thus, on a 100% scale, the measured quality of our UI comes to 80%. We consider this acceptable.

Summary
Capital One had a large number of Cassandra tables containing home loan data. They could run ad-hoc queries on these tables using Spark SQL, but the schemas are complex. To simplify this, they developed a DSL allowing them to define reusable building blocks for queries. They wanted us to build a user interface to assist the composition of these building blocks into queries.

Through the extensive use of online team tools such as Slack and Trello, as well as in-person meetings twice a week, we worked diligently to meet the goals set forth each week.

In the end, we delivered a user interface that Capital One was pleased with. However, it is not in its final form. Likely, there will be further modifications to fit our product with an in-house design scheme as well as necessary improvements to the backend.