**Project Proposal**

Keyword-Driven Exploration of Relational Data using Firebase

**Group Formation**

The members in this group are: Youhyon (Lena) Kim and Phuong Ngo. We plan to do most of the work as a team, but Lena will focus more on the user interface (HTML, CSS, JavaScript), while Phuong will focus on working with databases using MySQL and putting together all the deliverables. Both team members will work together on developing “import.py”.

**Milestones**

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**Databases**

For this project, we obtained two databases from Kaggle: Formula 1 Races, and History of Baseball. The former has a total of 13 tables, and the latter has 25. For the sake of simplicity and time management, we decided to start working with a subset of four tables from each database. We will incorporate more tables to our project in the future.

Figure History of Baseball Schema

Figure Formula1 Schema

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Figure 1 is the schema of tables in the Formula database; we included four tables: “drivers”, “result”, “lapTimes”, and “races”. Figure 2 shows the schema of tables in the History of Baseball database, which includes “appearances”, “teams”, “players”, and “team\_franchise”.

**User Interface**

The original design is as below. Figure 3 shows the default state of the webpage. We will use a dropdown for users to select the database and a text field for them to enter the keyword. When the user hits the “search button”, results will display as in Figure 4. On the top, it will show the database, keyword, number of results, and the search time. The results will be displayed per table, in the order of most matches. Each table will display rows with the most matches. We will only display 5-6 rows per table, and if the results exceed that amount, users will be able to look at the whole table by clicking on the “see all” link. The matching results will be highlighted. Users can also look at results that contain a particular “key:value” pair by clicking on the result. Further changes can be made to the functions and the design of the webpage.

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Figure 3 First Page Figure 4 Search Result