Restaurant Comparison Tool

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Problem Statement: How can one easily compare restaurants on a smartphone? Trying to do this with an app like yelp involves either looking at their star scores, which only gives very general information, or going through reviews one at a time to look for differences, which is slow and almost impossible to do on a phone. I plan to use revminer’s extractions to find important similarities and differences between the restaurants and concisely display them. This app would be useful for people who are trying to decide where to eat at out of a small number of places.

Artifacts:
- The android phone app package and its source code.
- A backend web service for serving data and its source code.
- The data itself - the comparisons will be generated online, but data that will become useful in generating the comparisons (the relative frequency of attributes among restaurants for example) will be precomputed and loaded.
- Scripts for generating the data from revminer’s extractions.
- End-user documentation.

Methods: I plan on making the app itself in the same way revminer mobile is currently done: using HTML5 and JavaScript with the SenchaTouch framework and converting it to an app via Phonegap. I will use node.js and mongoDB for the server, most likely by extending the existing server code of revminer so my project can become a feature for the site. The data itself will be stored as JSON objects. Offline data processing will be done with python scripts. I plan to use git for version control. Choosing which attributes and values to display is related to the search and information retrieval problems we have been discussing in class. In order to decide what extractions are relevant to display, my app will look at features such as how often each attribute-value pair occurs in both restaurants, the difference in the distributions of attributes and values between the restaurants (using a metric like KL divergence), and the difference in the polarities of the values between restaurants. The UI will consist of two columns, one for each restaurant being compared. Each column will contain "highlights" - key extractions for the restaurant, similarities and differences between the restaurants - extractions they share or don’t share, and some direct comparisons - for example, Restaurant 1 has faster service.
Milestones:

- **Milestone 1 (Jan 26):** HTML 5 implementation. Users should be able to type in two restaurant names in the search bar and get a comparison between them. The results of the comparison will be based on differences in metadata, extractions, and polarity of the values between them.

- **Milestone 2 (Feb 16):** Android Implementation of the app. Add "Similar" page to the mobile version of the site and make it possible to reach the comparisons from there (next to the names of similar restaurants there could be a "compare" button).

- **Milestone 3 (Mar 6):** Final implementation. Polish the UI and add some of the features of the app to other parts of the site. For example, highlights of the restaurants could be displayed with search results and a very brief summary of the comparisons could be displayed next to restaurant names on the "Similar" page.

**Evaluation:** Unfortunately it will be difficult to get quantitative measures of success for this app since deciding what differences between restaurants are relevant is pretty subjective. I could possibly compare how the app ranks restaurants as better or worse than each other with Yelp’s star scores. I also plan to get some of my friends to try out the app and use it myself to get qualitative feedback and an idea of how useful it is.