Problem And Solution

Deciding what to order at a restaurant or what to make yourself can be difficult. People can more easily make this decision by leveraging the experience of their friends and fellow human beings. Our application will provide a platform that helps people decide what to order at a restaurant or cook at home and then painlessly share their experience and newly acquired knowledge:

First, finding a good meal at a restaurant or a good recipe to make at home will be easy. You will be able to use our service to find nearby restaurants and then see other people’s reviews of specific meals. You’ll be able to see if any of your friends have eaten there, and if so, what dish(es) they would recommend.

Second, a user of our application will be able to quickly leave meal recommendations, both for restaurants and home-cooked meals. They will be able to quickly take a picture of their food using our mobile app and give a review of the meal. Users can optionally share their experience with their friends on Facebook.

Implementation

The resulting work will take the form of an Android phone app (.apk file), all project source-code (publicly available on GitHub), quick user-guide on both the HTML5 and Android app, a web-service that provides specific user reviews for given restaurants and home-cooked meal reviews in different categories (breakfast, lunch, dinner), and an HTML5 web-app front-end.

Search Control Flow

1. User of either the HTML5 or Android app logs in with the Facebook account and performs a search.
2. Make a socket.io request on the existing RevMiner service.
3. Parse the returned JSON to get a list of all the restaurants that meet the given criteria.
4. For each of the restaurants in the result, make a HTTP request on our own “meal” web-service to get the location of images and user reviews of meals.
5. Parse the returned JSON and integrate the meal information with the returned search results.
6. Show the information to the user of the app (they see a list of restaurants with easy access to meal recommendations at those restaurants, if any exist.)
7. Optionally filter the search results to just see friend’s reviews (AJAX request against the Facebook API to get list of friends.)

The backend service will be written in PHP and serve up JSON. Login and optional sharing will be done through Facebook using the Facebook Graph API. Since the backend is interfaced with through standard HTTP requests, the same backend will service both the Android and HTML5 app.

The Android app will be written as a native Android app in Java. The HTML5 app will be written in Javascript with the help of jQuery and the LESS CSS framework for layout. Our webservice as well as the HTML5 application will be hosted on a free Amazon EC2 instance. The sourcecode will be open-sourced on GitHub.

Our current plan is to make requests of the RevMiner service without hosting our own instance. We will also gather new data (meal reviews and photos) from our users and upload that to the server. We will get a list of a user’s friends (along with their Facebook profile pictures) using the Facebook API.

For the final “extension” of the project, we hope to utilize machine learning in order to predict what restaurants/meals users would enjoy based on their past preferences and the preferences of their friends.

**Planned but Not Necessary Features:**
1. Show the results on a Google Map with markers for each of the results.
2. Share/Search home-cooked meals/recipes in addition to meals at restaurants.
3. Use location services on Android to find restaurants nearby.

**Division of Labor**
- Setup EC2 instance with the web-service and get it linked to www.dawgnostic.com: Greg
- Write the backend service: plan API together and then divide up the different components of the API once we know what they are.
- Write the front-end code to display search results: Franklin
- Set it up both HTML5 and Android apps as Facebook Apps: Greg
- Write the front-end code to login and leave meal reviews: Greg
- Write the Android app: division of labor here once have specific design.
- Write the front-end for the Android app: Franklin
- Give food recommendations using machine learning: Divide up when we get to this stage.

**Timeline**
*Jan 26: Minimum:* HTML5 App where you can login via Facebook, issue a search, see results, and leave a quick review. **Desired:** Display results on a map. Review and share home-cooked meals as well as restaurants. Share on Facebook. Have 3 users.
*Feb 16: Minimum:* Same functionality as above. **Desired:** Automatically upload photos that you can take within the app. Map with location services. Have 10 users.
*Mar 6: Minimum:* Same as above plus intelligent meal recommendations. **Desired:** Same desired as above. Now would be a good chance to finish up any of these not yet implemented. Have 20 users.

**Measuring Victory**
1. Given someone who uses our app at least one time, how many meals do they then go on to rate and share?
2. Do users prefer a page of results with or without the added information regarding specific meals?
3. Do users who take a recommendation based on their friends information on average find the meal more enjoyable than if they don’t take a friend’s recommendation?