Core Feature 1: A Combination Search Engine using Google, Yahoo and Bing.

To implement the combination search engine I used three API’s provided by Google, Bing and Yahoo, namely, the Google Custom Search API, Yahoo BOSS Java API and Bing Search API.

To get started with the Google Custom Search API, I created a project called ‘Jellibeans’ in the Google Developers Console, and an OAuth 2.0 Client ID. Following that I also registered my JavaScript origins within the console to access the Google+ API, and redirected URIs so that once users sign in using their Google+ login credentials they will be redirected to Jellibeans (or http://esha.mseth.co). This was done because I wanted users to be able to sign in and access their google profile from Jellibeans.

//show pic of google consumer key and secret.

Following a similar protocol for Yahoo and Bing Search API’s, I created projects in the Yahoo Developers Network, and Microsoft Azure Marketplace, and purchased an API Consumer keys and Secrets (needed to use the APIs).

Web Scraping

Web scraping was also an option, it quickly became a preferred because of integration of the three API’s and the flexibility/manipulation of the resilts if they were returned using the same method. However was against terms of service set out by Google.

//see figure

So, instead, I used the Jsoup API (<http://jsoup.org/>), which is a java –written API for HTML. The library provides methods to conveniently extract data using DOM (Data Object Model) and CSS (Cascading Style Sheet) methods. The Jsoup HTML parser was used to scrape results only from Yahoo and Bing, and integrated these into a Java Applet that runs in Eclipse Luna IDE //see X. The top 10 links, from each search engine were presented to users and ranked such that result 1 from Google was followed by result 1 from Yahoo, and that was followed by result 1 from Bing. Then results 2 from Google, Yahoo and Bing were presented and so on, until the 30 links were produced, in ranked order from the three search engines.

User Research and Testing of Core Feature 1

To test the integrated combined search engine, the returned documents from 10 pre-determined search queries were presented to 10 participants who were identified as high AQ scorers. Participants were asked to comment on the search results that had been returned, and to choose three out of the links returned to follow up with, and to observe if anything was odd about the results returned. The responses from the 10 users were analysed to test core feature 1 and whether a combination search would be a good option for Jellibean Search, or whether it would introduce redundancy in the search results.

Somewhat non-surprisingly (given the statistics of preferred search engines) the results revealed Bing Search was favoured the least, and Google results the most, with Yahoo falling somewhere in between. Out of the 30 responses participants indicated to follow up with, 21 were Google results, 3 were Yahoo, and 1 was Bing and 5 results overlapped between Google and Yahoo.

4 participants commented that the Bing results were distracting rather than helpful.

Given these findings from the user group, it was decided to continue using the Google results, but to drop the results from Yahoo and Bing, in line with the aim of the project as a whole – to improve returned search results for users with Autism.