

Keggers Business Development

Phase 2

KEGGERS



Keggers

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1. Project Specification

Keggers strives to enable an efficient and reliable service between consumers and local liquor storeowners. Through our online web application, consumers are able to find kegs through liquor stores relative to their position. The Keggers project will be an iterative project. Our customers segments will play an interactive role in the development of the concept. Keggers will follow a lean startup methodology. The lean startup, like lean manufacturing, emphasizes key concepts such as eliminating waste and Genchi Genbutsu. Eliminating waste is always a challenge, but by starting with a minimum viable product Keggers will reduce wasted resources. A minimum viable product is a test to see if our assumptions are correct. Also, by not including some features, we may learn that they were not needed, which saves time. Genchi Genbutsu means “go and see” and it is a core principle at Toyota. This principle will influence Keggers’ decisions about development by ensuring that we obtain first hand knowledge about our customers. These measures, along with others, will keep this project efficient and adaptable.

To achieve efficiency, the Keggers Dev team will have to follow a strict guideline. The objective that must be achieved is confirming our assumptions with customers. We must learn the true needs of our customers prior to moving on to other tasks. This assumption testing phase

will define the final product. The MVP that will be discussed is what our customers will test. As we receive user feedback, we will enter a new phase. This phase will require an iterative programming methodology. Tasks in this phase include validated learning, collecting non-vanity metrics, and experimenting. Validated learning uses non-vanity metrics. This means that instead of using traditional means of forecasting metrics like usage, Keggers will only make decisions based on actual meaningful data. For example, meaningful metrics include retention rates, which are more meaningful than number of visitors. With this evidence, Keggers will be able to set up experiments. These experiments will test features on the application and continue the feedback loop of validated learning. Only when an experiment shows positive metrics will the changes apply globally. To model Sam Walton, Keggers will emphasize frugality with its resources. Keggers will have a budget to cover the Google App engine costs (\$3000-\$6000/yr) and cash from the founding members. The initial customer development should not take longer than 3 months. The actual development and iterative testing should also last no more than a year.

The initial product will have basic functionalities. The home page will consist of a form with the following fields: location, size, vendor, brew, and search buttons. At the initial page load the form will only consist of the following fields: location, size dropdown, vendor dropdown and a get brew button. When the user inputs the fields and clicks get brew, the form will append a submit button and a new dropdown consisting of the vendor's brews. The user will then select a brew and submit the form. The page will then show a list of the available kegs, based on the criteria. Each list item will have a location, price, and reserve button. When clicked, the reserve button will redirect users to a new page, the reservation page. The reserve page will

consist of another form. This form will take personally identifiable information and submit to the Keggers system. The PID information is used when the user goes to retrieve the keg at the store.

The backend will incorporate many systems. When the user queries for a vendor, the system will return the brews for that vendor. Then with all the search criteria filled, the user will submit the final query, which asks to return the stores within a location that contain the specified keg. When the user submits a reservation form, the system will do several tasks. First, the keg in question will be removed from the available kegs list. Second, the system will read the liquor stores ID and forward a message to the store indicating that a keg is reserved. Third, when a keg is reported to be available again by the store's inventory system, Keggers will make the keg visible once again. Our assumption is that we will attain access to liquors' POS systems in order to maintain an up to date database. Several POS companies offer API's, which is an opportunity Keggers will research. The Keggers model requires no user login. The only way to access the data is to access the Keggers servers. The web application will be supported by all modern browsers. IE has always been an issue in web development, however, Microsoft is letting IE disappear. Keggers will be able to implement the application with modern technologies. The user interface will be built on top of the Bootstrap framework. This framework will save time and money. JQuery/Javascript will be used to validate input fields. PHP will handle the backend services. MySQL will be used to store the liquor, keg, and customer information.

The structure of the database will reflect the entities Keggers interacts with. The tables are: customers, stores, kegs, store_keg, and reservations. The customers table will contain an id, first name, last name, telephone number, and email. The stores table will contain an id, name, telephone, zip code, and address. The kegs table will contain an id, vendor, brew, and size. The

store_keg table will act as a lookup table and will contain an id, a foreign key to store id, a foreign key to kegs id, and a boolean bit for availability. The reservation table will contain an id, a foreign key to customers id, and a foreign key to store_keg id.

To further reduce costs, the code and databases will be hosted on Google's App Engine. Google's service offers support for PHP, database hosting, and security. Google App Engine is also a pay for what you use service. This means that if Keggers is experiencing low requests, then Google will reduce the resources it allocates to our web application. Keggers will pay about \$400.56 a month for Google App Engine. This number is based on several calculations. Using Oracle's Capacity Planning guide, Keggers will require about 195 instances per hour during worst case scenarios. Instances refers to the number of virtual machines Google will maintain for Keggers. Each virtual machine will handle requests from users. The following formula was used to attain the number of instances per hour:

$$\text{Number of Boxes} = \frac{\text{Required TPS}}{\left(\frac{\text{Reference TPS}}{\text{Complexity Factor}} \right)}$$

The required transactions per second is estimated at 40,000 to reflect the Rutgers student population. This number is also a worst case scenario number. Using Oracle's baseline application, Keggers' reference TPS is 205 and the complexity factor is 1. The reference TPS is based on an application that is of similar complexity to Keggers. A complexity factor of 1 indicates that Keggers is as complex as the medical database application Oracle described. Keggers' database is also estimated to be 4 terabytes or 100 megabytes per Rutgers student. The size of the database is more than sufficient since mostly text data will be stored.

2. Release Timeline

As stated earlier, Keggers will be an iterative project, and its future, development, and successes will depend heavily on the customers. Keggers will revolve around key concepts such as Genchi Genbutsu which is more of a framework and mindset rather than a strict timeline or plan of action. The concept of Genchi Genbutsu revolves around examining and assessing the site of the problem to truly understand and devise possible solutions. As students of Rutgers University nearing the end of our college careers, the founders of Keggers have gained valuable experience in acquiring kegs and have learned first-hand the process of acquiring and obtaining kegs. Having the founders of Keggers experience, identify, and assess the problem first hand provides the project with efficient data to implement and devise solutions. Technically, for the Keggers project, the founders have been gathering valuable field data in passing for the past three to four years, but have concentrated on realistic and possible solutions one year to six months before an actual product and service release.

Keggers will follow a guideline which involves heavily on customer feedback and data. The first stage that Keggers executed is the build-measure-learn loop, which involves assessing the problem and developing an MVP (minimum viable product) that will in turn result in valuable and actionable metrics that will direct Keggers towards a correct business model. As stated earlier, this action is executed about one year prior to actually releasing a product or service. Having this action executed one year prior to releasing the final finished product allows Keggers time to implement changes and adjustments in relation to data received from the MVP.

Through the number of iterations in this time period of a year, Keggers believes that customer development should take no longer than three to six months. Technically, Keggers is entering a niche market in terms of an alcohol referral website and application. When creating a new type of market, although there is lack of competition, establishing relationships with customers can

take upwards of up to two years. Because the founding members of Keggers are part of the college demographic and are familiar with and have direct relationships with initial target customers and locations, the customer development time period has been reduced significantly.

The initial product and prototype will be described in depth later in this report. Though, the initial product, or the MVP, was built specifically to have the core features of the Keggers product and service. It only contains elements that allow the customers to efficiently and effectively complete the purpose of the Keggers service without any unnecessary features. This allows for the customer to provide unbiased and constructive feedback. This was specifically designed to have just the “bare bones” of the product to allow Keggers to build upon the customer data and feedback as opposed to adjusting already established features. Releasing specified, high-fidelity prototypes to potential customers can only discourage the customer from suggesting any major changes to the given prototype which in turn provides Keggers with insufficient and inaccurate development data. This development stage was given a year as it allows for multiple iterations, which are not deemed as effective if not examined over a long

period of time. Allowing such an extended time frame provides Keggers for pattern recognition in terms of customer feedback and changes in market and customers. Because Keggers is initially focused on the college demographic and “college town” area, changes in both the liquor stores and the extended market, which are college students, should be accounted for. For example, if the development stage was shorter, liquor stores might not be able to provide Keggers with feedback on the increase in keg orders for certain months of the school year, who could have then adjusted its features and interface on its website and application for liquor stores to accommodate large orders simply and efficiently. Keggers believes that a year minimum serves as the proper amount of time to provide the most efficient data for its service.

3. Testing Plan

Like any quality e-commerce website, Keggers will engage in regular maintenance and testing as an ongoing practice. The Keggers prelaunch Testing plan and the greater Keggers business plan by extension, has the good fortune, not to concern Point of Sale systems or transaction based automatic inventory adjustments as a major functions. Keg sales and inventory adjustments are managed, for the most part by the partner liquor stores that will make up the service. The following is an account on the various plans and procedures that Keggers intends to employ for testing and quality assurance. After the website’s launch, Keggers will enter into an iterative testing phase during which, user feedback and traffic and loading times will be targets for testing and improvement. Before this launch can take place though, the company must first employ the following test phases and measures.

1. Functionality Test

Keggers will undergo a basic functionality test, reviewing the major pages of the site to ensure that no links are broken and that data like images and text contained in the database are properly presented. Main pages for this functionality test include the Home page, Information pages like the About page, Terms page for Keggers partners and the privacy policy if implemented.

Success Criteria

The main pages of the Keggers website have very basic success requirements. In addition to ensuring that the sleek interface and appearance of the site holds up (which will be tested cross-platform in later stages) the individual links and buttons must all functional and have the proper displays and destinations. Error handling will also be a factor in determining the quality of the site functionality. Error pages on the Store Owner registration page must be properly displayed and users must not be able to advance to later stages in the the registration or keg reservation pages without entering the proper prerequisite information.

Test Cases

The Landing Page and About page will be tested to ensure that they lead to the proper page and that all images from the database are accurately presented.

Following this basic test, will be one concerning the reservations pages. The testing method for this will involve an advanced Google search for liquor stores based on the New

Brunswick Zip Code, 08901. There will also be a test performed on foot, checking three different liquor stores for their prices on 3 major beers. The website test will then be conducted, during which the same New Brunswick Zip code will be used. Three separate reservation searches will need to take place since the website asks the user to specify only one beer type for their Keg. the data provided on the Keggers site will be cross-referenced with the Google results to ensure the accuracy of the application.

The store owners account page will be tested using a sample created account. Sample data for that store owner's storefront, inventory etc will be entered during registration and the URLs associated with store owners' account information will all be tested one at a time to ensure that text and images are presented properly.

Finally the Store Owner Registration page will be tested using invalid information and valid information of all types to ensure that the proper error messages are displayed when appropriate and that error handling is sufficient. This will also be where the page's buttons and ability to save information will be tested.

2. Browser Compatibility Testing

Browser compatibility testing will be employed using a combination of individual case testing and a host of online resources capable of testing multiple browsers and versions simultaneously. This will ensure that all recent versions of every major browser will be capable of running the pages of the Keggers site and that they will be able to display information properly.

Success Criteria

For Keggers browser compatibility to be considered sufficient, the site will need to run successfully on Internet Explorer 7, 8 and 9 as well Microsoft Edge to accommodate clients that use the most basic internet services. The site will also need to run on the Opera Internet Browser that is popular on Video game systems like the Playstation 3 the the Nintendo Wii. This is to accommodate video game players that seek to reserve Kegs from their console browsers. Finally, the common browsers, Google Chrome, Firefox and Safari must be supported.

Test Cases

All pages on the website will need to be tested with each browser on a physical personal device. This initial test will be performed on a device owned or used by a staff member, allowing this test to serve as a control for the more automated tests. During the development of the Keggers Mockup, the development team was able to archive a list of all webpages on the site and a png image of their expected appearances. This list of Urls will be input one at a time for each browser. Following this preliminary test will be a more detailed test performed on two separate, peer reviewed browser testing applications. CrossBrosverTesting.com will be used for an initial test because data associated with this application is displayed in a manner that optimizes interbrosver comparisons. Multi-BrowserViewer.com will also be used. This application offers similar features and will serve as a control for the results collected from the first site. The applications mentioned above are all highly professional and well reviewed by scholars within the ecommerce field.

3. Mobile Device Compatibility Testing

In today's day and age, mobile device support for websites is at the very least, of equal importance to desktop browser support. The quality of mobile support often leads to the much needed initial purchase that creates the customer relationship and history has taught many internet viewers to judge the quality and professionalism of a website based on the mobile version which shows them just how thorough the developers are. Building lasting relationships and becoming the go-to communicator between customers and clients is at the core of the Keggers business model. For this reason, mobile device compatibility is crucial.

Success Criteria

There is a myriad of available mobile device providers out there. It would be impractical to test each phone and tablet in existence but the Keggers Testing team has an understanding that when it comes to mobile device support, operating systems form umbrellas under which most devices fit. Keggers hopes to be capable of supporting the most common operating systems including IOS for Apple products, Android operating systems and Windows phone operating systems. The Apple Iphone, Apple IPad, Apple IPad mini, Android smartphones, Android tablets, and the Windows phones must all be able to support the Keggers website.

Test Cases

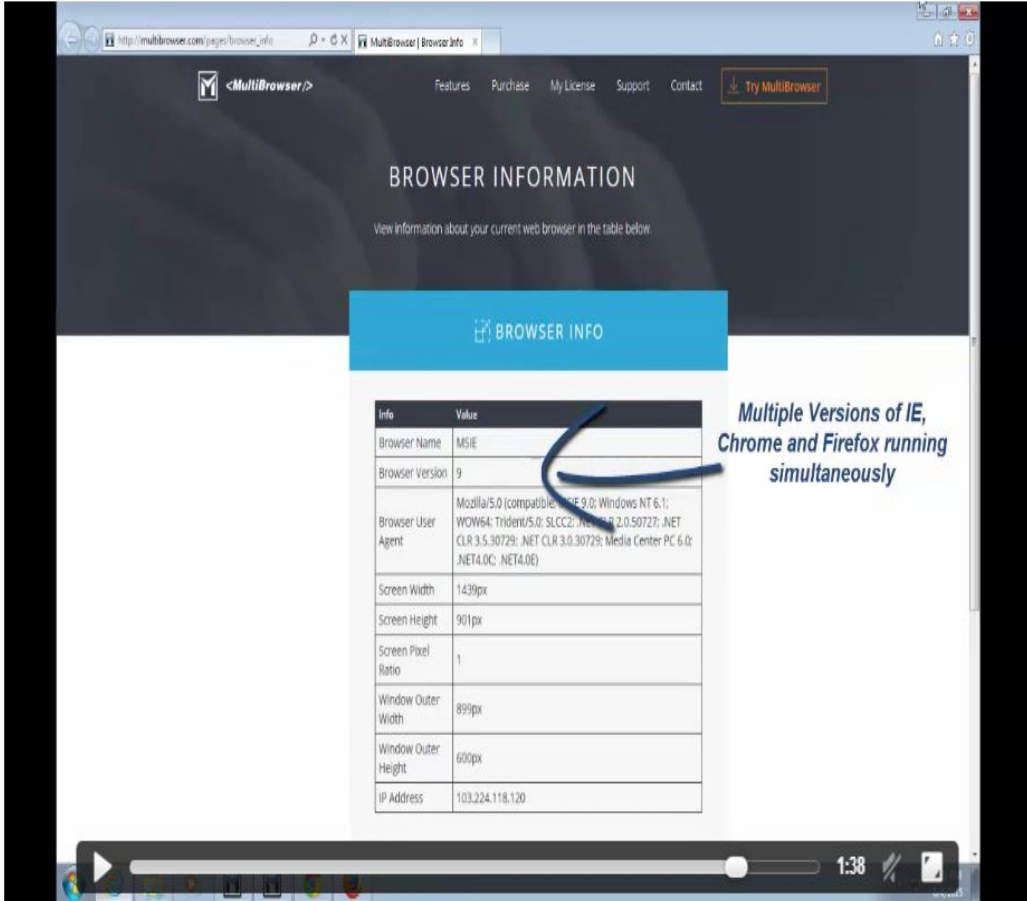
All pages on the website will need to be tested on one physical personal device belonging to each operating system listed above. This initial test will be performed on a device owned or used by a staff member. Following an analysis of the most popular devices belonging to each operating system, the Keggers team has decided that a physical test on the following devices will be performed prior to any specialized application use.

- Apple iPhone – 5S, 6 and 6 Plus
- Apple iPad – iPad 2, 3, 4, iPad Air and iPad Air 2
- Apple iPad Mini – 1, 2 and 3
- Android Smartphone – Samsung Galaxy S5
- Android Tablet – Google Nexus 7
- Windows Phone – Nokia Lumia 635

Following this preliminary test will be a more detailed test performed on three separate mobile device testing applications. The advantage of variety in testing applications is two-fold. This will allow Keggers more opportunities to test the same web pages, and it will protect the Keggers team from drawing conclusions based on possibly incorrect information from the testing applications. The applications that Keggers will base its mobile testing on are Keynote Mobile Testing, Perfecto Mobile, and Testdroid. Keynote Mobile Testing has an incredibly simple interface and provides a good general analysis. Perfecto Mobile provides details that could be used later in the life of the mobile site. Finally, Testdroid although capable of testing other operating systems, is considered one of the best sites for testing android devices. Android devices vary the most in terms of age, quality and general use, making it crucial that Keggers pays special attention to such devices during test phases. The applications mentioned above are all highly professional and well reviewed by scholars within the ecommerce field.

4. Sample Test Data

STANDALONE WEB BROWSERS



BROWSER INFORMATION

View information about your current web browser in the table below

BROWSER INFO

Info	Value
Browser Name	MSIE
Browser version	9
Browser User Agent	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; SLCC2; .NET CLR 2.0.50727; .NET CLR 3.5.30729; .NET CLR 3.0.30729; Media Center PC 6.0; .NET4.0C; .NET4.0E)
Screen Width	1439px
Screen Height	901px
Screen Pixel Ratio	1
Window Outer Width	899px
Window Outer Height	600px
IP Address	103.224.118.120

Multiple Versions of IE, Chrome and Firefox running simultaneously

Figure 1 - Multi-Browser Viewer Sample Data

The data above provides varying screen dimensions based on the browser being used to view a webpage. There are multiple browser being tested simultaneously.

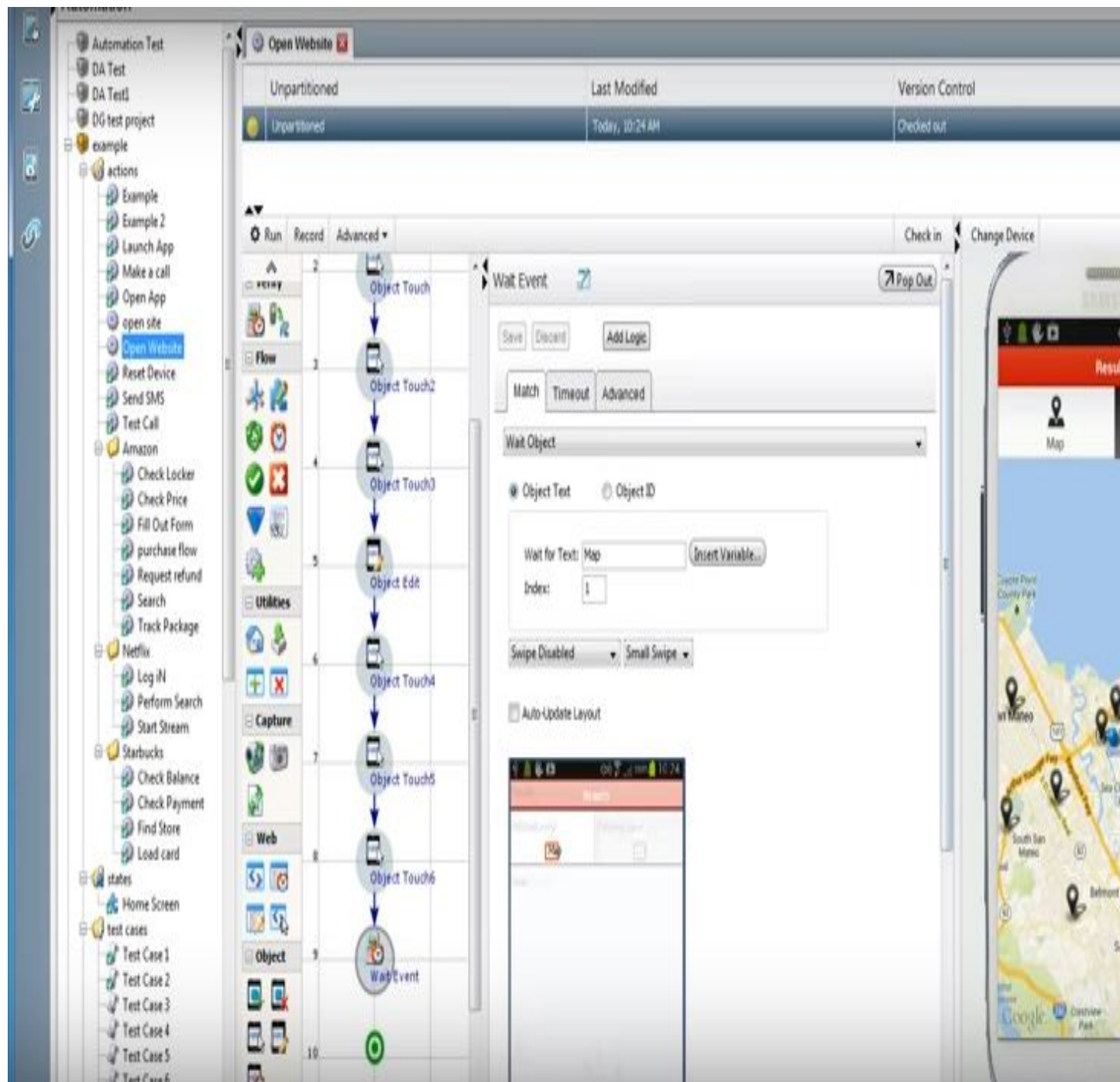


Figure 2 - Keynote Mobile Testing Sample Data

The data above provides analysis, feedback, speeds, and browser link maps for a webpage displayed on a mobile browser for the iPhone. The feedback includes information associated with clicking buttons and such. Keggers will be able to freely change the test device, input urls to test and pull up data on performance and functionality cross-platform.

4. Appendix

→Interactive Keggers Mockup

- ◆ [googledrive.com/host/0B-CNTkqYFAwMTXhSOWZEUHU2WDQ/index.html](https://drive.google.com/host/0B-CNTkqYFAwMTXhSOWZEUHU2WDQ/index.html)

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