

# Proposal

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## Basic Info.

The project title	<b>U Hungry</b>	
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UIDs	u1014204	u1373630
Repository link	<a href="#">U Hungry</a>	

**Background and Motivation.** Discuss your motivations and reasons for choosing this project, especially any background or research interests that may have influenced your decision.

Cooking has always been one of the many challenges that students face. Being a student is a full-time job, especially during exams you have little time to cook. The goal of U Hungry, a website for finding on-campus restaurants, is to help students at the University of Utah find the best place on campus for their meals. There are different applications to locate some restaurants across the campus or close to the campus. Still, none of them can give you a solid recommendation based on factors such as distance from your department, price, quality, etc. Also, there is not enough information about some of the available restaurants on campus, some of which are very good options. U Hungry will help students find what places to eat on campus are best for them based on what their priorities are. Using U Hungry can provide students with the opportunity to make the full use of available resources on campus and better manage their time and budget while eating good quality food.

**Project Objectives.** Provide the primary questions you are trying to answer with your visualization. What would you like to learn and accomplish? List the benefits.

1. Commuting on campus takes time, so which restaurant is closest to my location?
2. As a student, saving money is essential; which restaurant has the lowest price and better fits my budget?
3. Sometimes, our eating hours might not coincide with the university restaurant hours. Some are just open during standard eating time, so it's important to recommend a place based on their working hours.

4. It is essential to provide students with enough information to decide where they want to eat. Comparing on-campus and off-campus restaurants, fewer people from the city come to these restaurants. For this reason, fewer reviews mean less information, such as photos of the place and foods, menu, prices, etc., that can be found on available online applications. The goal of U Hungry is to collect all the data in one place to help students make a decision efficiently.

**Data.** From where and how are you collecting your data? If appropriate, provide a link to your data sources.

1. First, we need to work with the online University of Utah map to be able to define all the departments and the boundaries of the campus. ([Campus map](#))
2. Google maps would be another reference to collect online data for the restaurants on campus. ([University of Utah restaurants](#))
3. Boost, a campus food ordering app that few students use, does not seem popular on campus. ([Boost](#))
4. Other applications can be used to collect data of campus restaurants and restaurants close to campus, such as [Tripadvisor](#).
5. The weakness of most of these applications is that they don't have enough information about a series of university restaurants that are perfect places to eat. On the other hand, a series of restaurants have more reviews because they are located in a good university area, which makes the students pay more for their meals. However, they can go to other restaurants and eat more affordable food. Therefore, we need to check the restaurants in person to complete the data set and help the students to decide based on stronger data.

**Data Processing.** Do you expect to do substantial data cleanup? What quantities do you plan to derive from your data? How will data processing be implemented?

We are working with different references, so we need to sort all the data. A series of data may be the same between these references and repeated several times, or it is possible that a series of restaurants' information is incomplete or does not exist. So for processing the data, we need to do a major cleanup to achieve a complete data set.

At this point, the following options have the potential to be considered as the quantities we plan to derive from the data:

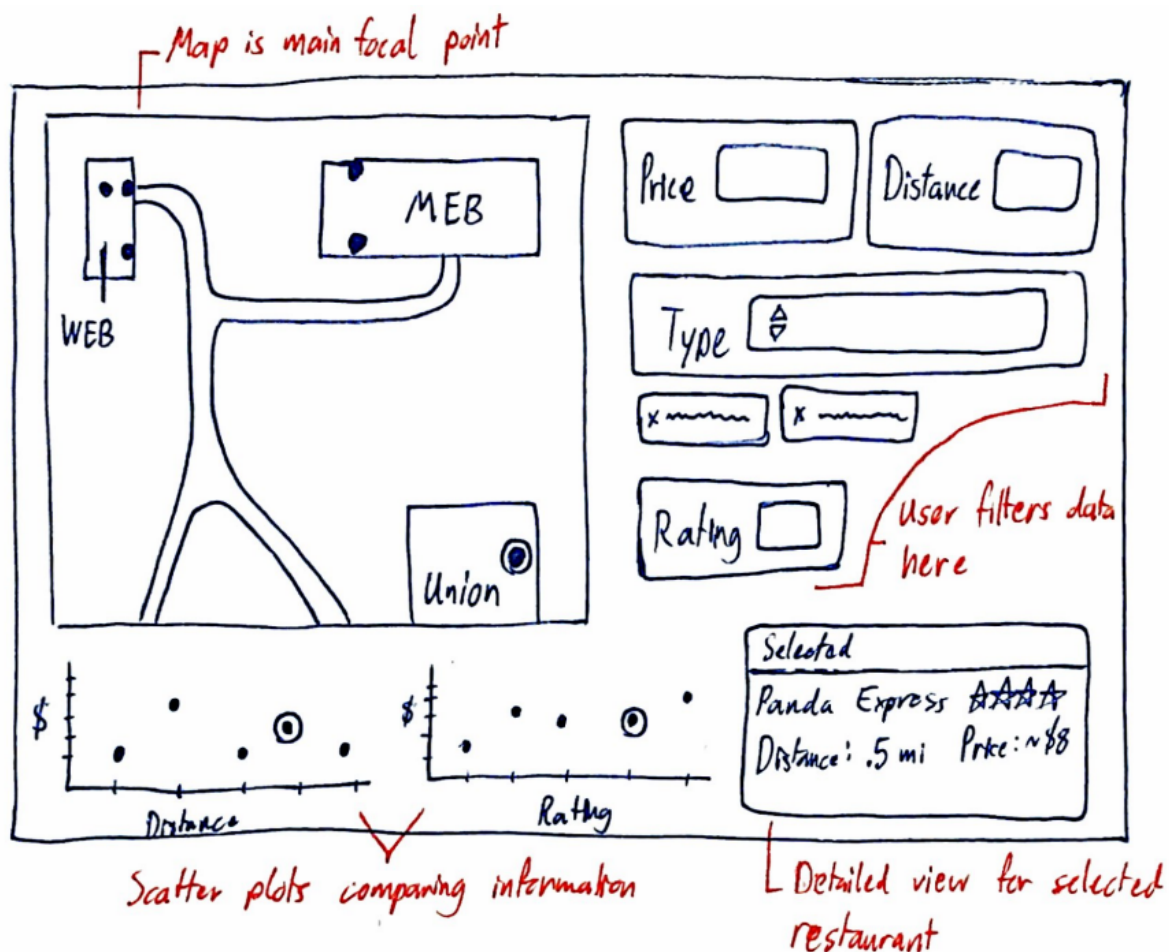
- Available restaurants on the University of Utah campus
- Showing restaurants on the campus map
- Restaurants' general information: contact number, address, etc.
- The distance between restaurants and students' current location
- Type of restaurant
- The food they serve
- Price of the foods
- Working hours
- Their reviews on available online media (number of reviews with the star format)
- Reviews (Text format)
- Pictures from the restaurant decor, menu, and foods
- Sit down restaurant or take out

We'll be able to implement data regarding the various restaurants on campus using several available open-source APIs that target restaurant information. Campus map and location information will be gathered using the resources available to U of U students.

**Visualization Design.** How will you display your data? Provide some general ideas that you have for the visualization design. Develop **three alternative prototype designs for your visualization**. Create **one final design that incorporates the best of your three designs**. Describe your designs and justify your choices of visual encodings. We recommend you use the [Five Design Sheet Methodology](#).

Visualization design has been developed as it's steps are shown below.

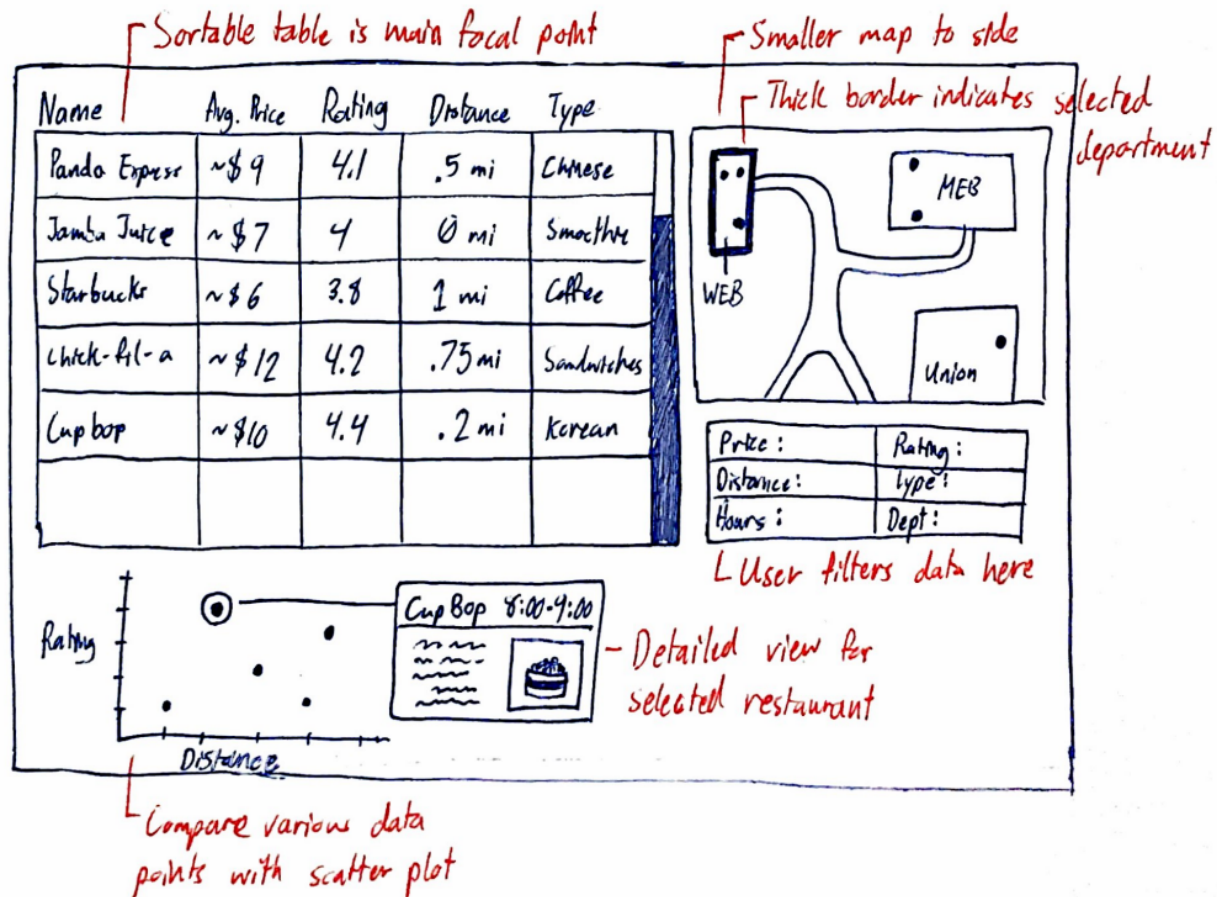
**Sketch 1:**



This first has the map as the main focal point and takes up most of the space. The optional filters the user can define are located boldly on the right of the map. These features are most prominent. The goal is to have locations be the most visual aspect of the site. Beneath the map is space for scatter plots or other kinds of charts that will compare different data points related to the filtered restaurants. Finally, at the bottom right is a space for displaying more detailed information about a specific restaurant. This can be chosen by selecting a datapoint on the map or from one of the charts. This layout lacks an easy way for

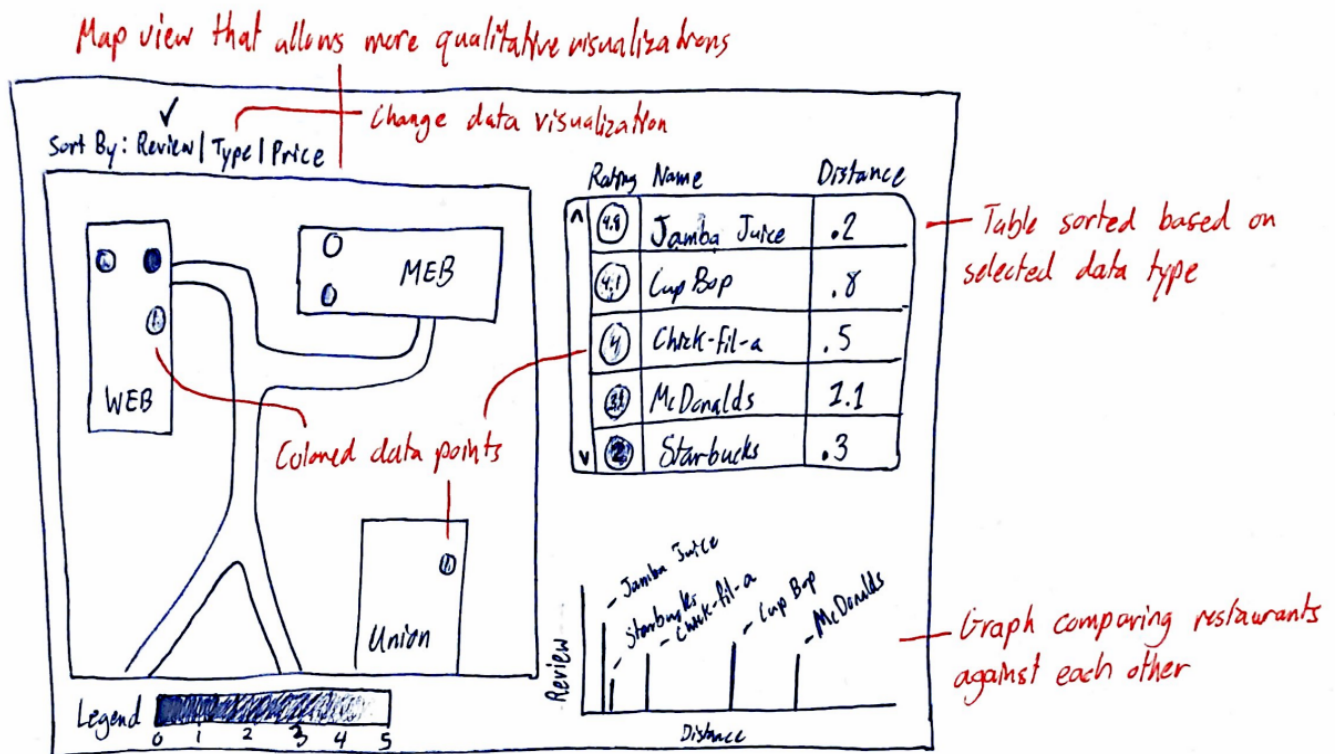
the user to see all of the available filtered restaurants. With this layout, this can only be accomplished by expanding the map far enough out to display all the data points which may hinder readability.

### Sketch 2:



This second sketch has a data table as the main focal point. This can display all (if not most) of the critical data points associated with each restaurant. The map has been shrunk and moved to the right of the table. Users will be able to filter the data displayed on the table and on the map using the section below the map. Charts comparing individual data types are displayed in the lower portion of the site. A details section highlighting extra information about a single restaurant is located to the right of the chart section. This restaurant, similar to the first sketch, can be selected by clicking a point on the chart, map or data table. This site allows for more quantitative data to be displayed.

### Sketch 3:

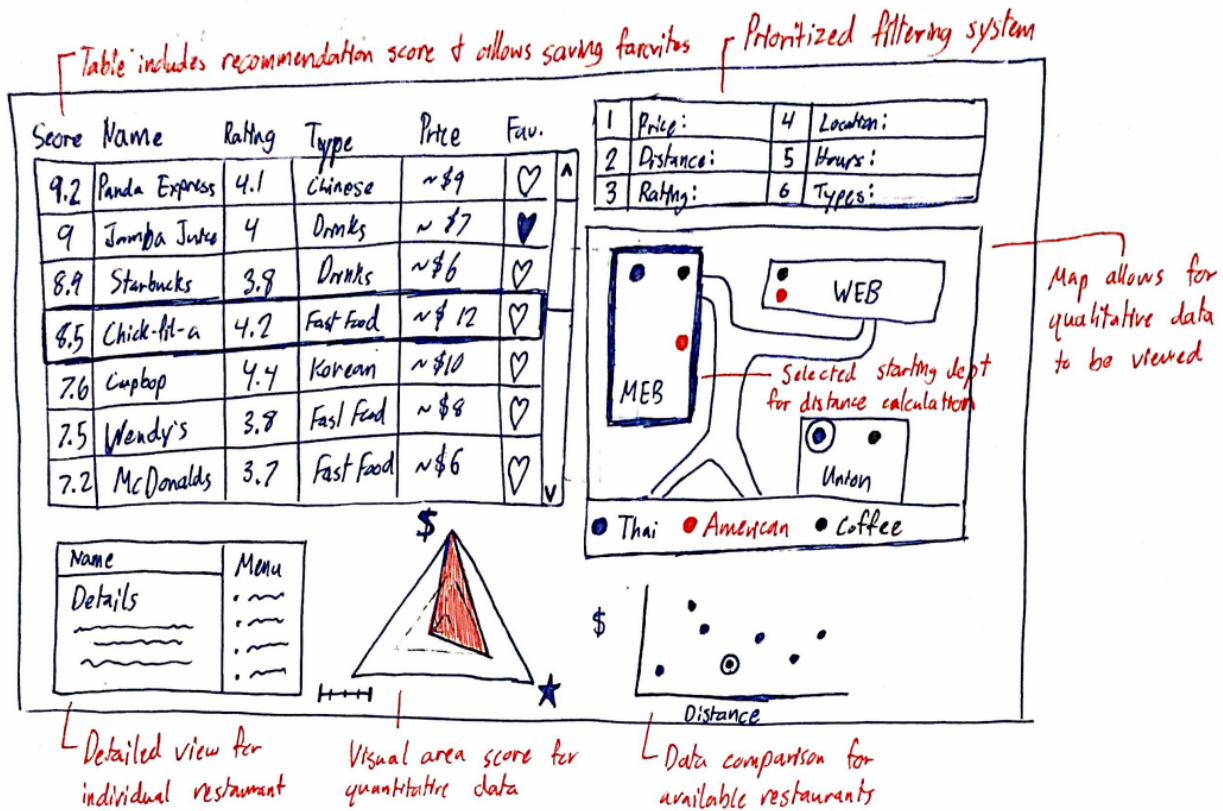


This third sketch has a map once again as the largest aspect of the site. This time, more qualitative data about each point on the map can be displayed with each dot being a different color based on the data type chosen by the user. A map legend is placed beneath the map to help better define what these colors mean. This selection is made above the map. To the right of the map is a smaller data table that sorts itself based on the chosen data type from the user. Certain visual aspects from the map can be displayed here as well. In the lower right portion of the site is an area for a chart to be displayed. This can feature more quantitative data to be compared. This layout doesn't have much space for detailed information for specific restaurants, but this could be added in a lower section accessible by scrolling down.

### Final Sketch:

This final sketch (shown below) maintains most design aspects from sketch #2. The table and map stay in the same relative place. The table now includes a score that will be calculated by a simple algorithm based on what the user will like the most as defined by their filters. Additionally, the filters now have a priority system that will factor into this calculated score. The map, similar to figure #3, will also be able to display qualitative data defined by the user. The detailed view will remain in the same location and will also display menu options if we have time and resources to implement this feature. To the right of this is an area chart that will show how well the selected restaurant (chosen from either the table, map or scatter plot) fulfills the requirements based on their preferences. At the far lower right is the scatter plot where the user can define what data points will be compared to one another based on remaining filtered restaurants. This layout will prioritize the table as the most important visual with other charts and graphs functioning as supplementary information.





**Must-Have Features.** List the features without which you would consider your project to be a failure.

1. One of the most important features U Hungry will have is a map of the University of Utah campus. This map will indicate locations of different restaurants or other places where students can find food.
2. These restaurants will be displayed in different ways based on the defined priorities of the user either on the map or different tables and plots to better help the students to decide based on their priorities. These priorities can be related to the price, other user reviews, the type of food available, etc.
3. The user will be able to find the most complete information about the restaurants by gathering all the information that is available online in U Hungry. For example, People often use reviews to determine which restaurants have the best quality food. This information will be displayed next to its associated restaurant whether it be on the map, table, or other defined locations.
4. We will also need a table displaying all restaurants that are available according to the filters defined by the user. The table contents will update in real-time based on new values defined by the user. The table will include all relevant data associated with each restaurant. Naturally, the user will be able to sort this table based on the data headers at the top of the table or other visualization options.
5. The U Hungry site will also have plots and charts comparing different quantifiable values between restaurants. The user will be able to define which of these values are compared. The user will also be able to click/hover over these data points to get more detailed information on a specific restaurant.

**Optional Features.** List the features which you consider to be nice to have, but not critical.

1. Having a menu associated with each restaurant/franchise would be nice, but since this data is incredibly specific to each restaurant, it would be difficult to use this as a comparison to other places. This would mostly just be a quality-of-life feature for the user.
2. Being able to display the quickest way to the user's desired location, along with the estimated time to arrive, would also be a welcome feature. However, seeing as we may not be able to have access to a user's location (other than the department they define as their starting location), we won't be able to provide real-time updates to this path.
3. The user may also want to pick and save specific restaurants to compare on an individual basis. Having a favorites group will allow the user to quickly isolate restaurants they're interested in. This group can then have its data displayed for the user isolated from all other locations. This is ultimately more of a quality-of-life feature than an essential characteristic of the site.
4. Students would like to spend time together during their eating time. Being able to share information available on the U Hungry website with other users would be a desired feature.

**Project Schedule.** Make sure that you plan your work so that you can avoid a big rush right before the final project deadline, and delegate different modules and responsibilities among your team members. Write this in terms of weekly deadlines.

Goal	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15
	Oct 24 - 30	Oct 31 - Nov 6	Nov 7 - 13	Nov 14 - 20	Nov 21 - 27	Nov 28 - Dec 2
Collecting Data						
Organizing data format						
Working on the website						
Interactive options and final steps						