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## **Project Proposal - *Grub!***

### **Abstract**

Ever have ingredients/leftovers lying around the house and not sure what to do with them? Well *Grub!* is now the place to explore all the amazing meals that can be made from those ingredients. Unlike other recipe websites, *Grub!* allows users to search for recipes based on the ingredients and quantities they have at home. *Grub!* also allows users to personalize and maintain their own cookbooks with their favorite recipes. Finally, users have the freedom to upload their own recipes as well as comment on and review other recipes.

### **Need for Product**

*Grub!* has a few features that haven't been seen in other competitors that will have a great impact on the cooking community.

#### Online Personal Cookbook

*Grub!* allows people to manage their own cookbook, a personal organizer for their favorite recipes. This is helpful for people who don't like to have cookbooks and papers scattered around the house in a disorganized manner. Online personal cookbooks make it easier to share and distribute recipes to friends, rather than making photocopies of each recipe. Now everything can be done online! People can keep track of their favorite recipes and also bookmark recipes they might want to try in the future.

#### Leftover Ingredients

It is common to have leftover ingredients after cooking meals for the family, a big social event, or even just yourself. Oftentimes we let leftover scraps pile up in our fridge, and we aren't quite sure what to do with them. The majority of the time it ends up going to waste and being thrown away, but now people can go to the website *Grub!* This website allows users to enter ingredient quantities they have to find awesome recipes that can be made from these ingredients. *Grub!* encourages people to stay in to cook their meals rather than eating out, and also helps people make delicious meals from leftover ingredients.

### **Description of Project**

*Grub!* is a multi-faceted website designed to improve the experience of sharing and finding recipes. There are four main ways users can interact with *Grub!*

- First, users can **upload recipes** for others to find, along with helpful information.
- Second, users can **search for recipes based on ingredients** they have in their own kitchens. As described above, this allows users to take advantage of ingredients they already have to create wonderful meals.
- Third, users can **discuss and rate recipes**, allowing users to interact with one another, improve recipes, and find high-quality recipes.

- Finally, users can **save recipes using specialized cookbooks**, allowing them to be found at a later date. This feature can also facilitate culinary planning for future events.

### Uploading Recipes

All of the recipes available on *Grub!* will be provided by users. Each user has the freedom to upload as many recipes as he or she wants by simply providing the following information that is common to every *Grub!* recipe:

- Name of the recipe
- A short description
- Ingredients and quantities
- Instructions to complete the recipe
- Time needed to complete the recipe
- Number of servings the recipe makes
- Spicy (yes or no)
- Difficulty of the recipe
- Photos of the completed recipe
- Tags or groups describing the recipe

### Searching for Recipes

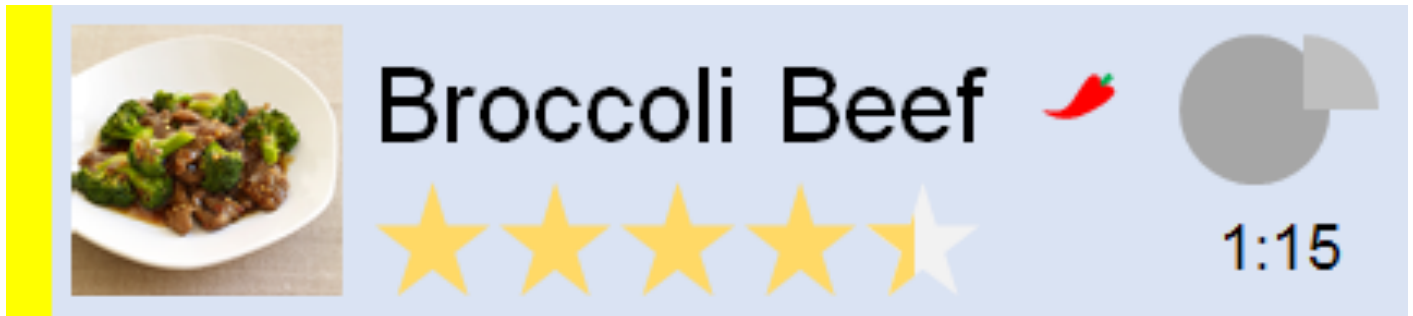
Providing ways to search for recipes based on a user's available ingredients is truly one of the core aspects of *Grub!* There are a number of different reasons a user may search for a recipe and *Grub!* caters to several of them.

Here is an example of a user doing simple search. Billy knows he wants to make soup, but isn't sure what to do beyond that, so he searches for soups. He's confident in his cooking abilities and doesn't want anything too simple, so he eliminates novice recipes. Since he wants a spicy soup, he filters out non-spicy recipes. Many of the remaining soups take hours to complete and Billy is impatient, so he narrows the search to soups that can be prepared in half an hour or less. Billy quickly inspects the few remaining recipes before choosing a highly rated hot and sour soup.

The most powerful aspect of finding recipes is the ability to include ingredients as a part of the search. Separate from the standard search bar is a field where users can enter ingredients to help filter their searches.

- Users can search for recipes that must use **some of the specified ingredients**, or specifically **all of the specified ingredients**. If a user has ingredients that are about to expire, if their local supermarket is having a sale on a handful of items, or if they're simply looking for a food item with a particular ingredient, one of these two options would prove quite useful.
- The third option is to search for recipes that include **only ingredients explicitly listed**, and gives the user the ability to enter limits on ingredients as well. This mode could prove useful in a situation where the user only has a small number of ingredients at home and wants to make something without buying anything else. This ability to search for ingredients opens *Grub!* to a new level of usefulness.

When a search is entered, the results will be displayed in a list, with each recipe displayed as a tile like this:



The objective of the tile is to deliver pertinent recipe information clearly and, where possible, graphically. Clearly shown are the name of the recipe, its rating, its photo, and a pepper image for spicy recipes. The colored stripe on the far left indicates the difficulty of the recipe, this one being yellow for intermediate. The right side of the tile displays the time the recipe takes to complete, and above it a graphical representation of that amount (a full circle for an hour, and a quarter circle for 15 minutes). This gives a quick overview of all of the most vital information needed to choose a recipe. From here, a user can click on a tile to display more information, such as a short description and its tags. The user can also navigate to a dedicated page for this recipe, which includes cooking instructions and other information.

#### Discuss and Rate Recipes

One item displayed exclusively on the dedicated page for a recipe is the comments section. Users may rate other recipes and add their thoughts. If users have suggestions to tweak a recipe, wish to share stories of their experience making it, or have any other words they wish to express, the comments section is the place to do it. Another social aspect of the site is that users can follow one another. This allows users to receive notifications when their favorite chefs add new recipes.

#### Specialized Cookbooks

Finally, users can build cookbooks from recipes they add or find. Cookbooks are a way for users to store favorite recipes for later use. Users may use multiple cookbooks or sections within cookbooks to further organize their recipes. A cookbook can also be made for a specific event such as a wedding or a banquet. Another useful feature is that a shopping list can be generated from a cookbook. If a user creates a cookbook with all the recipes they want to make and the quantities of those recipes, a list of all ingredients can be generated automatically.

### **Other Benefits of *Grub!***

#### Cheaper and Healthier

Studies have shown that eating out is costly and unhealthy compared to eating at home. According to the *European Journal of Clinical Nutrition*, “you end up taking in an average of 200 more calories [eating out] than if you eat at home.” *Grub!* gets people

excited about finding new recipes and dishes to cook with ingredients of their choice, encouraging people to stay in and cook more. As a result, *Grub!* leads to healthier choices, more affordable meals, and ways to explore a diverse array of new meals.

### Community for Cookers

*Grub!* isn't just a place for people to search for recipes: it's a site that fosters a community of people who enjoy cooking. This ranges from complete newcomers to those who consider themselves "Master Chefs." *Grub!* also allows excited home-cookers to upload recipes for the community to try out. Users can then provide helpful feedback and make suggestions to improve a dish. Users can also reach out to the recipe owner to ask specific questions – whether it is asking to trade recipes, or if they happen to know a recipe that can be made using certain types of ingredients. Novices can also take the opportunity to reach out to more experienced cooks to ask for any tips or suggestions on cooking certain meals or dishes. *Grub!* provides a great community centered on making delicious and tasty meals.

*Grub!* is meant to get people excited about cooking food at home, and introduce people to different types of foods that could possibly be made from ingredients they already have. On top of that, *Grub!* builds a community centered on providing feedback on dishes, sharing recipes, giving tips and advice, and making cooking at home joyous. It can also be used as a neat and helpful way to keep recipes categorized in a tidy fashion, rather than having cookbooks lying around the house. *Grub!* provides tidy, affordable, and fun ways to cook and eat often at home, rather than going out to expensive restaurants.

### **Potential Audience**

Users of *Grub!* are those interested in cooking and making their own meals. They can range from those who are just getting started and are eager to make their first dish, to those who are looking to see how many different dishes they can cook using broccoli. *Grub!* encourages homemade cooking and help people discover enjoyable meals that can be made using ingredients lying around the house. The site can be helpful to anyone who enjoys cooking as a hobby, and can help a user keep track of and organize any recipes that he or she has accumulated over the years. Anyone who has a couple of ingredients, a pan, and a willingness to cook can *Grub!* user.

*Grub!* also offers vegan, vegetarian, and gluten-free recipes. Its audience is rather large because many people enjoy cooking or want to start to learn to cook, and it has a vast number of recipes that will surely cover anyone's tastes. Everyone needs to eat, a lot of people need to cook, and *Grub!* can help all of them.

### **Competitors**

#### Television Shows

There are plenty of cooking shows and websites that offer cooking recipes. Shows such as *Barefoot Contessa* and *Ten Dollar Dinners* give step-by-step instructions to make many types of meals. However, *Grub!* offers a community where users can ask for tips and advice directly from their peers. Users can also find multiple recipes tailored to their tastes, not just a single suggestion given on a certain episode of a show.

## Recipe Websites

Recipe websites such as thecookingmom.com and allrecipes.com provide a wide range of recipes users can search. *Grub!* differentiates itself by providing a personalized cookbook organizer as a way to organize one's favorite recipes. If the user wishes to cook all the dishes in a cookbook group, she can simply ask for a list of all the ingredients she will need from multiple dishes, and a list will be automatically displayed. *Grub!* also allows users to search for recipes by ingredient and quantity amount. This helps them cook meals with ingredients they already have, saving a trip to the grocery store.

## **Major Technologies Used**

*Grub!* will be built using the web.py framework. We decided to focus on web because all three of our group members have experience with web technologies and would like to further improve these skills. We've chosen the web.py framework because two of our members used it for a project in CS 145 and found it simple, intuitive, and effective. Our third member has experience in Python, so we should all be able to ramp up pretty quickly. For the front end, we will use HTML, CSS, and JavaScript, which are widely used in industry.

For our database, we will use SQL, which all of our group members have experience in from CS 145 and CS 108. Through the web.py framework, we'll access our database using SQLITE3.

For version control, we'll be using GitHub. Although not all of us have extensive GitHub experience, we figure it will be worthwhile to master since it is widely used in industry. Finally, we will use Amazon Web Services (AWS) to host our website using the free tier.

## **Resource Requirements**

We'll need some initial recipes to upload to our database so that our first users can find recipes. We will find these recipes from online cookbooks and friends.

## **Potential Approaches**

One alternative way to address the problem of leftover food ingredients is to create a website that encourages composting. Home chefs could receive coupons for new cooking ingredients if they compost more. Although this approach would be environmentally friendly, home chefs would probably rather use these ingredients rather than get rid of them.

A potential way to address the problem of healthy eating is a mobile app that allows people to track their nutritional intake throughout the day. For example, a customer could search for the dish they ordered at a given restaurant and add it to their daily nutritional tracker. By keeping track of this information, customers would be more mindful of their nutritional choices. Although this approach would help customers make better choices while eating out, it wouldn't do a very good job helping customers keep track of their nutrition when they eat at home.

The problem of a lack of a cooking community could be addressed with a social networking website that connects nearby home chefs for cooking party nights. While this

approach could help people form lasting friendships with their neighbors, it would fail to connect people with diverse cuisines from around the world.

*Grub!* addresses all three of our problems above with a single website. We help people use their leftover cooking ingredients by finding them potential recipes. We help people eat healthy by promoting home cooking over eating out. We foster a cooking community by allowing users to share their favorite recipes and connect with each other.

### **Assessment of Risks**

One potential risk for *Grub!* is a lack of users. If we do not reach a critical mass of users, our website will suffer from a dearth of recipes and a complete lack of community. To address this risk, we will gather different starter recipes to upload into our database so our first users can immediately find new meals. Additionally, we will use network effects to rapidly grow our user base. Similar to apps like Uber and Lyft, we can partner with local stores to give initial users \$20 gift cards (that can be spent on ingredients) for each friend they invite to *Grub!* that creates an account.

Another risk is that our users may not give honest and well-thought-out reviews, cooking tips, and recipe specifications. We can address this risk by developing a ratings system similar to Quora. Users can upvote various reviews, recipes, and cooking tips, allowing all *Grub!* users to identify legitimate cooking information.

A final risk is that we may be too ambitious and will have too many features to implement. We will address this risk by developing a comprehensive development plan listing core features, target features, and stretch features. This way, we can focus on aspects of the website that are absolutely critical before addressing stretch goals.

### **Next Steps**

Our next step is to create a comprehensive feature plan with core features, target features, and stretch features. This will allow us to create the core functionality of our site, addressing our primary user needs before venturing to address stretch goals.

Next, we will ramp up on learning about the web.py framework. We can learn about it through various online tutorials and examples. We will also review our CS 145 database projects to refresh ourselves about the web.py framework.

Finally, we will finalize our development plan, including how often we will meet and what we will do at each meeting. This will allow us to set up a routine that encourages accountability and results moving forward.

We look forward to building out the *Grub!* interface and sharing it with culinary enthusiasts around the world!