

DGMD E-598 Digital Media Design Capstone Tutorial Final Proposal - Fall 2019

1. Project Scope

1.1 Project Title

- WholeGrainGuide.com: An Interactive Guide to Home Milling and Baking with Whole Grains

1.2 Capstone Category and Related courses

Category of the capstone:

- Web development

Related courses:

- CSCI E-12: Website Development
- CSCI S-3: Web Programming/JavaScript
- DGMD E-23: Planning Websites and Applications
- DGMD E-30 Video Field Production
- DGMD E-50: Visual Communication Design
- DGMD E-53 Designing Stories for the Web
- EDUC E-103 Introduction to Instructional Design
- DGMD E-28 Single Page Applications and Interfaces with Vue.js

1.3. Project Goal

The goal of this capstone project is to create a source of information for people looking to begin home-milling whole grains. There is a lack of information on how to use different grains in everyday recipe and many bakers that mill grains must reconfigure and design their own recipes, as there are no robust online resources on this topic. This project aims to create an interactive website that:

- 1) provides information on whole grains, including spelt, kamut, and oat groats
- 2) discusses how to mill grains at home and why home-milling is beneficial
- 3) provides recipes that are specifically formulated for home-milled whole grain flours

Ultimately, this project aims to create a trusted and comprehensive source of information for anyone seeking to incorporate whole grains in their cooking.

1.4. Learning Goals

- Learn how to build a website using a Django framework
 - Gain knowledge of Python
 - Understand how to establish and configure a Sqlite database
- Further my skills in HTML, CSS, and JavaScript

- Grow my knowledge of Vue.js and its applications
- Improve my skills in Adobe Creative Cloud applications
- Understand how to create a successful educational website, from beginning to end

1.5. Elevator Pitch

The health benefits of whole grains are well documented, but finding information on how to bake with fresh-milled grains is challenging. WholeGrainGuide.com is a trusted and comprehensive source of information about milling and cooking with whole grains. This website presents difficult-to-find information on whole grains and uses interactive elements to engage users on their benefits and uses.

1.6. Target Audience

Target Audience

WholeGrainGuide.com is designed both for people who already cook with whole grains and for those who are interested in learning how. According to a [U.S. survey](#) conducted on behalf of Peapod by ORG International, 73% of adults currently make dinner at home at least four nights a week. Driving this trend to cook at home are the desire to save money and eat healthier. Additionally, according to the [Whole Grains Council](#), 64% of consumers say they are making at least half their grains whole and 96% of consumers said their whole grain consumption has either increased or is holding steady compared with five years ago. Research by [Pew Research](#) also shows a high percentage of Americans who say they bought locally grown fruits and vegetables in the past month (73%). Additionally, a similar share (71%) made purchasing decisions based on nutrition and ingredients labels. Lastly, some 68% of Americans bought organic foods of some kind, whether produce, meat, fish, grains or packaged foods. The target audience for WholeGrainGuide.com are U.S. adults who are regularly cooking (73%) and interested in buying organic foods (68%) and eating healthier, or purchasing whole grains (64%).

Category	# People	Source Description
Total U.S. Population	330,000,000	US Census Bureau Total US Population - 2018 Estimate (Rounded)
Above 18 years old	260,000,000	US Census Bureau 78% Total US Population Above 18 - 2018 Estimate (Rounded)
People who cook four nights a week	190,000,000	Peapod Org 73% Adults Cook - 2017 Survey (Rounded)
People who buy organic foods	130,000,000	Pew Research 68% Bought Organic Foods - 2016 Study (Rounded)

Personas

Persona #1: Avid baker - Sarah Wright



"Baking 101" by "Sherene" Licensed under a Creative Commons Attribution 2.0 Generic Attribution Non-Commercial No Derivs (CC BY-NC-ND 2.0). Accessed 28 September 2019. <https://www.flickr.com/photos/sherene/2603569533/>

Narrative: Sarah has always loved baking. She often bakes for others and is known for bringing her baked goods to the office for her coworkers to enjoy. Sarah experiments and tries new recipes often.

Goals: To bake for fun and for stress relief. To make herself and others happy by sharing the baked goods.

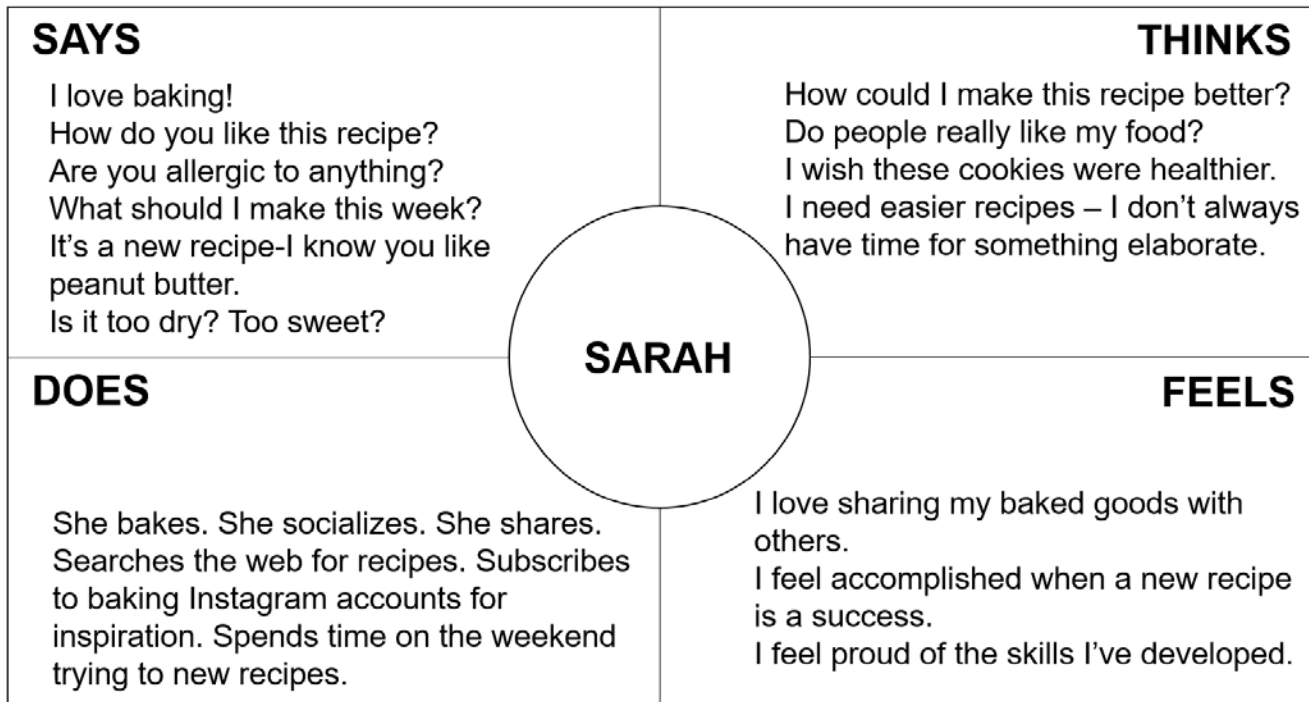
Frustrations: It's hard to find the time to bake. My kitchen is small, which makes it challenging to bake. My friends and family forget to give me my Tupperware back. New recipes don't always work.

Tasks:

- Cooks baked goods.
- Finds new recipes to try.
- Looks for places she can buy ingredients.
- Purchases required ingredients and equipment.
- Shares final product with family and friends.
- Asks for and leverages feedback on baked goods.

Quote: "Baking is my favorite hobby. I love seeing how people react to my new baking inventions. It's fun to create new things with your hands."

Empathy Map:



Persona #2: Health food seeker - Kim Trantham



"Motociclista en Khao San Road" by "Martin Garrido" Licensed under a Creative Commons Attribution 2.0 Generic (CC BY 2.0). Accessed 28 September 2019. <https://www.flickr.com/photos/martingarri/6080118129/>

Narrative: Kim was recently diagnosed with type 2 diabetes. She met with a nutritionist, who advised her to look for ways to incorporate more whole grains in her diet. She does not have experience cooking with whole grains and is looking to learn more.

Goals: To get healthy and improve her diet to manage her diabetes. To learn easy ways to use whole grains in her cooking. To feel more in control of her health.

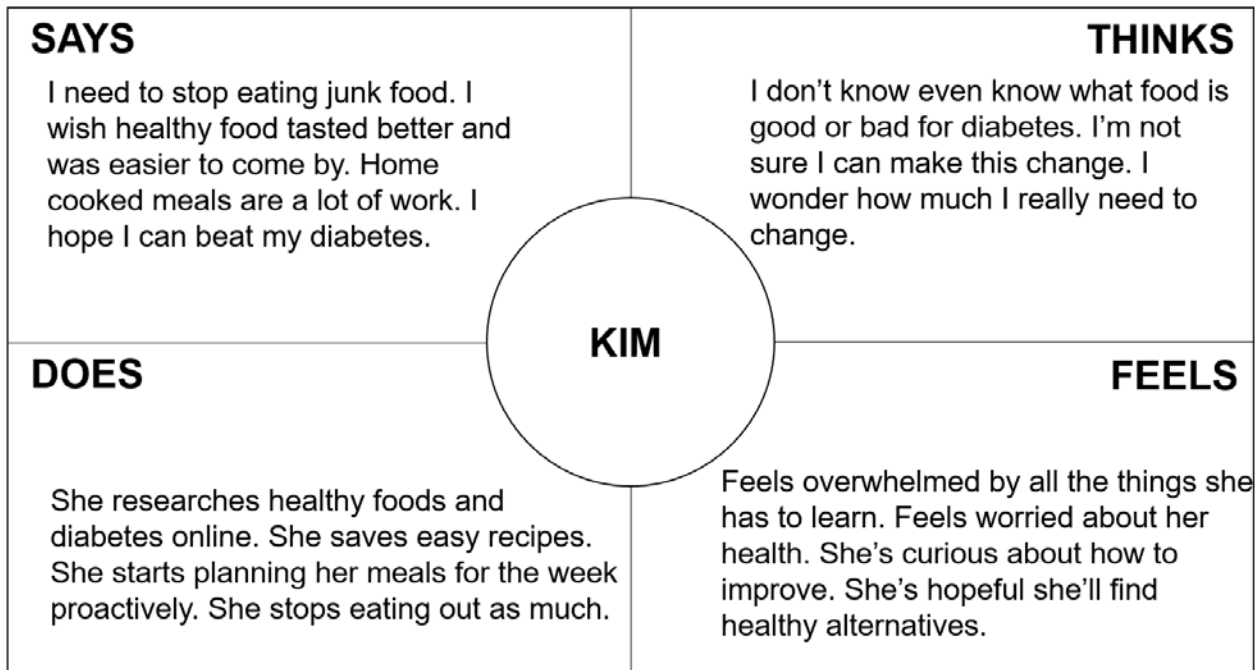
Frustrations: It's hard to find recipes and whole grain ingredients. Learning something new is a challenge. Cooking takes time and Kim is busy.

Tasks:

- Finds new recipes to try.
- Searches for grocery stores and shop for ingredients.
- Researches the nutritional content of different foods, so she can learn what is healthy and what is not.
- Identifies the easiest healthy options to incorporate in her diet.
- Cooks for her herself and her family.

Quote: “My new diagnoses scares me. I’m overwhelmed with all the things I need to learn.”

Empathy Map:



Persona #3: Natural lifestyle champion - Matt Kelly



“Dr. Hippie” by “Leigh Ann McConnaughey” Licensed under a Creative Commons Attribution 2.0 Generic Share Alike (CC BY-SA 2.0). Accessed 28 September 2019. <https://www.flickr.com/photos/leighannemcc/446418921/>

Narrative: Matt is a proponent of living a natural and healthy life. His friends call him a “hippy” because he is always teaching them ways they can be healthier or how they can reduce their impact on the environment. He began baking sourdough bread a few years ago, when he learned about the health benefits of fermented foods. He also makes kombucha. He’s continued to bake sourdough and is looking for ways to make his bread even more nutritious.

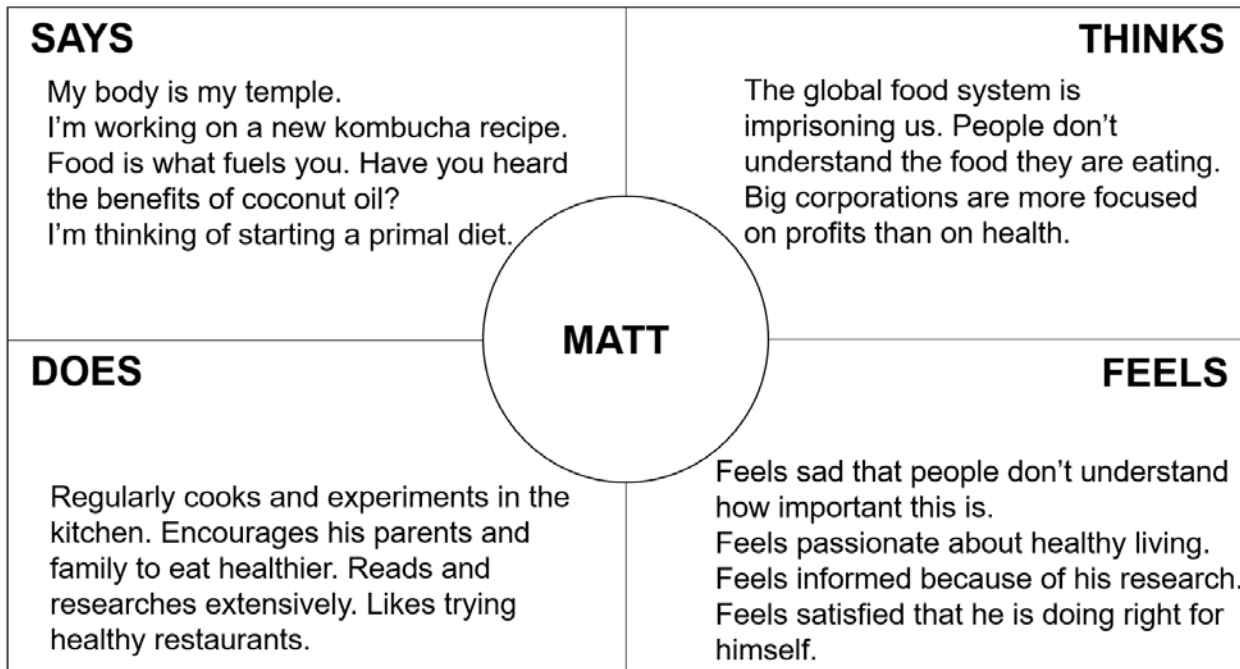
Goals: To live naturally and healthily. To eat food that tastes good and is good for him. To share his knowledge about healthy living with others. To learn more about how food affects his body.

Frustrations: It’s hard to live healthy – it takes a lot of time to be informed. It’s difficult to find accurate information. Wishes this lifestyle were more mainstream. Frustrated that some of the healthy foods are more expensive.

Tasks:

- Bakes sourdough bread.
- Researches new approaches to healthy living
- Gains knowledge about nutrition and diet.
- Experiments with new cooking styles and ingredients.
- Teaches his friends what he learns.

Quote: “You have to try these organic vegetables from the local farmers market – they are so much better than what you can get in the store!”



1.7. Metrics, Rubric Table & User Survey

Project Metrics and Rubric

	Minimum Viable Product	Matches the State of the Art	Exceeds the State of the Art
Target & Purpose	Target audience is identified, and some choices are appropriate for this audience	Major elements of the site are appropriate for the target audience	All elements of the site are engaging and appropriate for the target audience
Design & Layout	Web pages are too busy; the graphic elements are distracting	Web pages are generally well organized; some graphic elements are distracting	Web pages are simple and direct—appealing graphic elements are included appropriately
Design Consistency	Background, text, and color are chosen with only a few consistent elements throughout	Background, text, and color are somewhat consistent with a few	Background, text, and color are carefully chosen to produce a consistent experience for users

		inconsistent elements throughout	
Content	Content is confusing and difficult to understand	Content is generally clear, with some sections that are difficult to understand	Content is presented in a clear manner that is easy to understand and is engaging for users
Navigation	Site is difficult to navigate	Site navigation seems intuitive, but some topics are difficult to find	Readers can get around the website with ease
Interactivity	Inappropriate uses of interactivity; annoying for the user	Appropriate uses of interactivity for the purpose of the site	Creative uses of interactivity enhance the purpose of the site
Professionalism	The website appears sloppy and amateurish	The website appears satisfactory with some professional elements	The website appears polished and professional

User Survey

1. Is there anything missing on the Home page?
2. What other products or features should the website offer?
3. What do you like most about the website?
4. How likely are you to recommend the website to a friend?
5. How did your experience compare to your expectations?
6. How easy was it to use the website? Did you have any issues?
7. What comes to mind when you think about whole grains?
8. What is the most important feature to add to the website?
9. How visually appealing is the website? Does it seem professional?
10. Did you find the interactive elements on the website useful or confusing?
11. What are your favorite websites with information on cooking or baking? What do you like about them?

1.8. Life of the project beyond capstone

This capstone project is the starting point for me to launch a business. After the capstone course, I plan to continue to add content and functionality to the website, build my base of users, and increase the site's search visibility.

The project will be a comprehensive website with a breadth of information. In the future, I plan to offer paid digital resources (e.g. recipe e-books), embed affiliate links to products, and consider sourcing grains to sell on the website. I would like to build my reputation and connections in the industry, so that I can partner with different vendors to promote products on the site.

I will create a posting and maintenance schedule so I can realistically keep up with the required maintenance and ensure I am adding new content. I understand the time commitment required to continue growing this project and because of my personal interest in the topic, I am willing to dedicate the time to continue advancing the website.

2. Competitor review

Competitor Descriptions

1. **Bread Hydration and Conversion Calculator**, <https://breadcalc.com/>

Description: This calculator can determine the final hydration of a dough, scale a formula or recipe by a percentage, and convert a recipe between different units, such as grams, ounces, and cups. The calculator uses Javascript to make continuous updates to the page, without requesting the server to pull new HTML.

Pros: It is a reliable calculator for understanding baker's percentage (or hydration) of a recipe or scaling a recipe. It is a beneficial tool for bakers who already understand what they are trying to bake and what the recipe should entail.

Cons: The calculator does not provide any guidance on what an appropriate hydration level is, either by the type of recipe used or the type of grain used. The calculator has a few links to outside recipes, but the calculator does not incorporate any recipes that are native to the website.

2. **Interactive Tool for Small Grain Variety Selection**, <http://smallgrainselection.plantsciences.ucdavis.edu/>

Description: This tool, provided by the University of California, helps users pinpoint grain varieties that performed well in different regions of California. The tool leverages a GoogleMaps API and uses data from multi-year, multi-location field trials. It is most helpful in assisting farmers in crop selection or for other agricultural applications. A similar application using GoogleMaps and Javascript could be used on my website to show locations of origin for the numerous whole grains based on characteristics that a user selects.

Pros: All results and data from the tool can be viewed and downloaded as static tables or figures, and downloads include additional information about site characteristics and crop management.

Cons: It is useful for a limited audience, namely people interested in agricultural data around wheat, triticale, and barley in California.

3. **Ancient Grains Website, <http://www.ancientgrains.com>**

Description: This website contains information on eight ancient grains along with an e-commerce feature for buying the grains.

Pros: The design of the website is appealing and by adding some additional content, this website could be a resource for users looking to learn about and purchase grains.

Cons: The information it provides on each grain is limited; the website focuses on enticing users to buy products. There is a lack of information on the nutritional content of the various grains. The blog page contains some posts about the history and origin of the grains on the website, but the information is narrow and difficult to find. There is also a page for recipes, but there are only three recipes listed, so the site is not a significant resource for cooking with whole grains.

	BreadCalc.com	UC Davis Grain Selection	Ancient Grains.com	WholeGrain Guide.com
Audience	Amateur bakers	Grain farmers	Whole grain enthusiasts	Bakers and whole grain enthusiasts
E-Commerce	N/A	N/A	Yes, there is the option to buy eight different grains	Possibly in the future
Interactive Elements	Yes, the calculator is inherently interactive	Yes, the tool is completely interactive, allowing users to see data around grains they select	N/A	Yes, the site will feature an interactive single page application
Recipes	There are some links to external recipes	N/A	Yes, there are three recipes on the site	Yes, there will be several whole grain recipes on the site
Videos	N/A	Yes, one video about how to use the tool	N/A	Yes, there will be at least one video on the homepage

				introducing users to the site
Photographs	N/A	N/A	Yes, there are photos of grains and of completed recipes. The photos are semi-professional.	Yes, there will be photos of the site, which could include grains or other milling equipment
Blog	N/A	N/A	Yes, there is a blog on the site that has posts on the nutrition, history, and uses of different grains	The website will have blog-like sections, but there will not be a dedicated "blog" on the site.
Maps	N/A	Yes, there is a map with the regions of California.	N/A	Yes, I may include maps of either where grains originated from or where users can buy grains
Narrative Style	Straight forward, direct	Academic, scholarly	Hyperbolic, exaggerated	Friendly, educational
Look and Feel	Very clunky, the look is outdated	Professional, academic	Semi-professional, could be sleeker	Professional, polished

3. Technology Requirements / Resources / Material

Technology #1: SiteGround

- Description:
 - Web hosting services/provider
- Related courses or professional experience:
 - DGMD E-23: Planning Website and Applications
 - I used SiteGround to host my WordPress site for DGMD E-23.
 - I have also hosted some personal websites using SiteGound.
- Alternative technologies:
 - DreamHost, BlueHost, HostGator
- Reason for selecting this technology:
 - I currently use web hosting services provided by SiteGround, and would prefer to continue using them.
- How it will be used in your project:
 - I will be hosting my website with SiteGround.

Technology #2: Bootstrap

- Description:
 - Bootstrap is a CSS framework that provides components and grid system. It is designed for responsive, mobile-first front-end web development.
- Related courses or professional experience:
 - CSCI E-12: Website Development
 - DGMD E-28 Single Page Applications and Interfaces with Vue.js
- Alternative technologies:
 - Foundation, Zimit
- Reason for selecting this technology:
 - I have used Bootstrap before, and have found it to be easy to work with, so I would like to further my knowledge of how to use it.
- How it will be used in your project:
 - I will use Bootstrap to customize the design of my website and easily integrate my CSS specifications.

Technology #3: Vue.js

- Description:
 - Vue.js is a versatile Javascript framework for building user interfaces and single-page applications
- Related courses or professional experience:
 - DGMD E-28 Single Page Applications and Interfaces with Vue.js
- Alternative technologies, technologies used by competitors:
 - Angular
 - React
- Reason for selecting this technology vs. its alternatives:
 - I selected Vue.js because I am currently taking a course on the framework, and it is more approachable than Angular or React (which I do not have experience with).
- How it will be used in your project:
 - I will use Vue.js to create interactive elements within the project.

Technology #4: Python/Django

- Description:
 - High-level Python Web framework
- Related courses or professional experience:
 - I do not have experience using Django or Python
- Alternative technologies, technologies used by competitors:
 - Laravel
 - Flask
- Reason for selecting this technology vs. its alternatives:
 - I would like to use Django because it is well maintained and widely used across the industry.

- How it will be used in your project:
 - I will use Django as the framework for creating my website. Django allows me to implement Bootstrap and Vuejs. Django will also facilitate my SQLite database.

Technology #5: Adobe Creative Cloud

- Description:
 - A set of applications for graphic design, video/photo editing, and web development.
- Related courses or professional experience:
 - DGMD E-30 Video Field Production
 - DGMD E-50: Visual Communication Design
- Alternative technologies, technologies used by competitors:
 - Pixlr
 - Inkscape
 - DaVinci Resolve
- Reason for selecting this technology vs. its alternatives:
 - I have used Adobe Illustrator, PremierePro, and Photoshop in previous coursework and for some projects in my job.
- How it will be used in your project:
 - I will be using Adobe Creative Cloud for a number of items in my project. To create and edit video and audio for my site, I will use Premier Pro and Audition. To create illustrations, I will use Adobe Illustrator. Lastly, I will use Photoshop and Lightroom to edit photos.

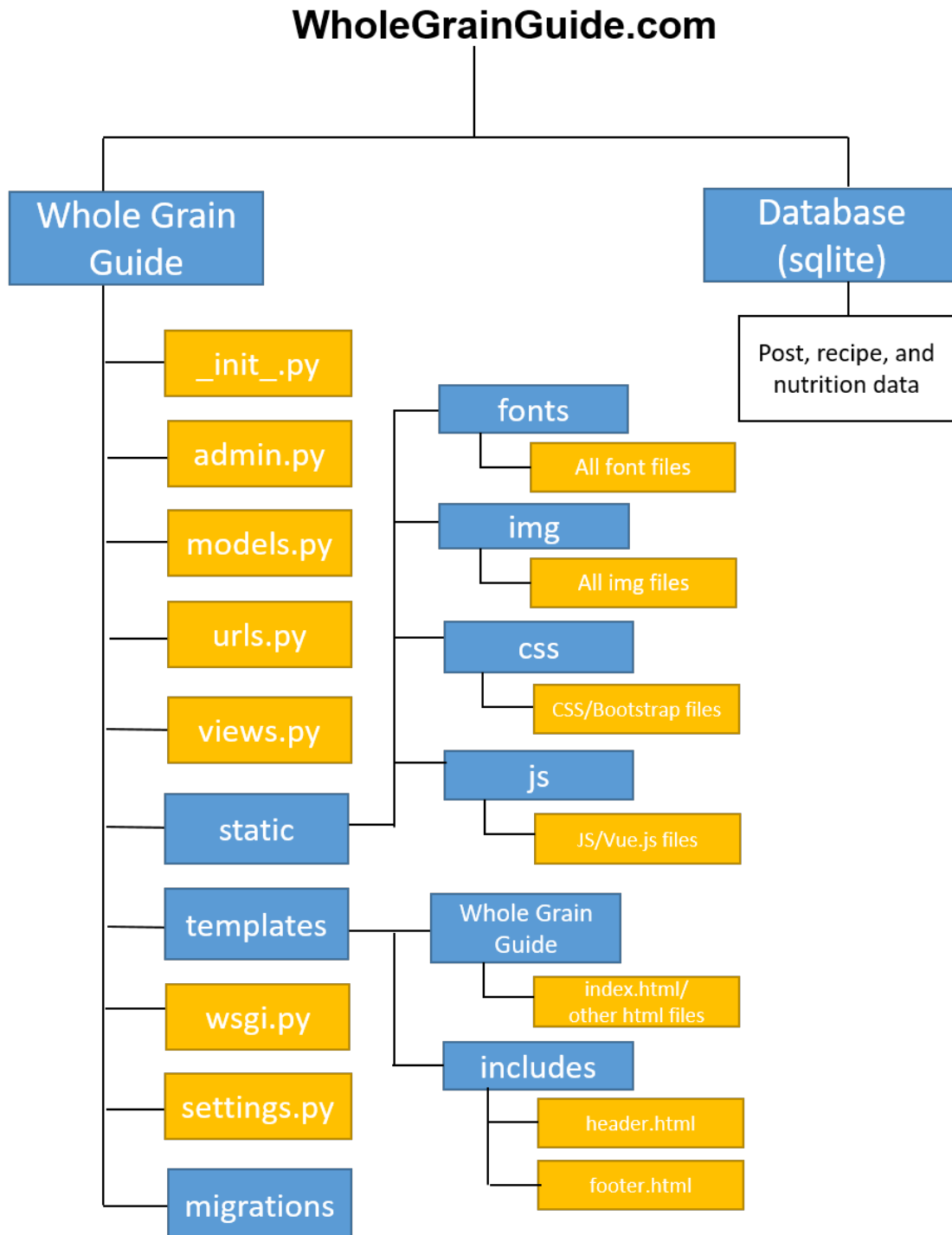
Technology #6: SQLite Database

- Description:
 - SQLite is a relational database management system contained in a C library.
- Related courses or professional experience:
 - I do not have experience using SQLite
- Alternative technologies, technologies used by competitors:
 - PostgreSQL
 - MySQL
- Reason for selecting this technology vs. its alternatives:
 - By default, Django uses SQLite. SQLite is included in Python, so I won't need to install anything else to support my database.
- How it will be used in your project:
 - I will use SQLite to store data for my posts, recipes, and nutrition information.

4. Developer Manual / Product Design / Methods

Project / Directory Architecture

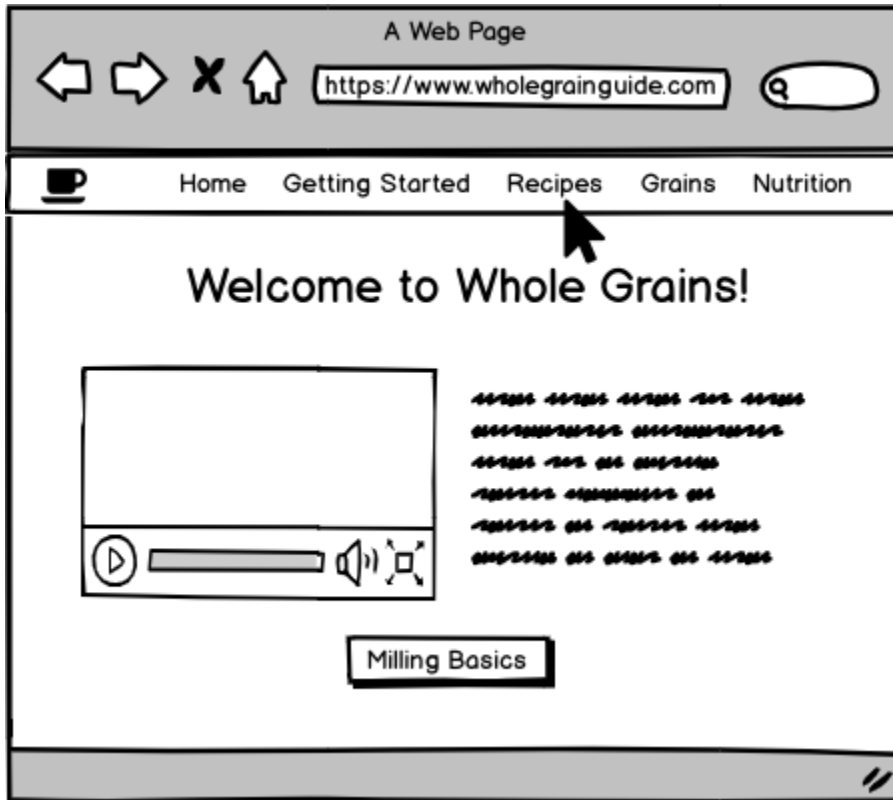
Key: folder file



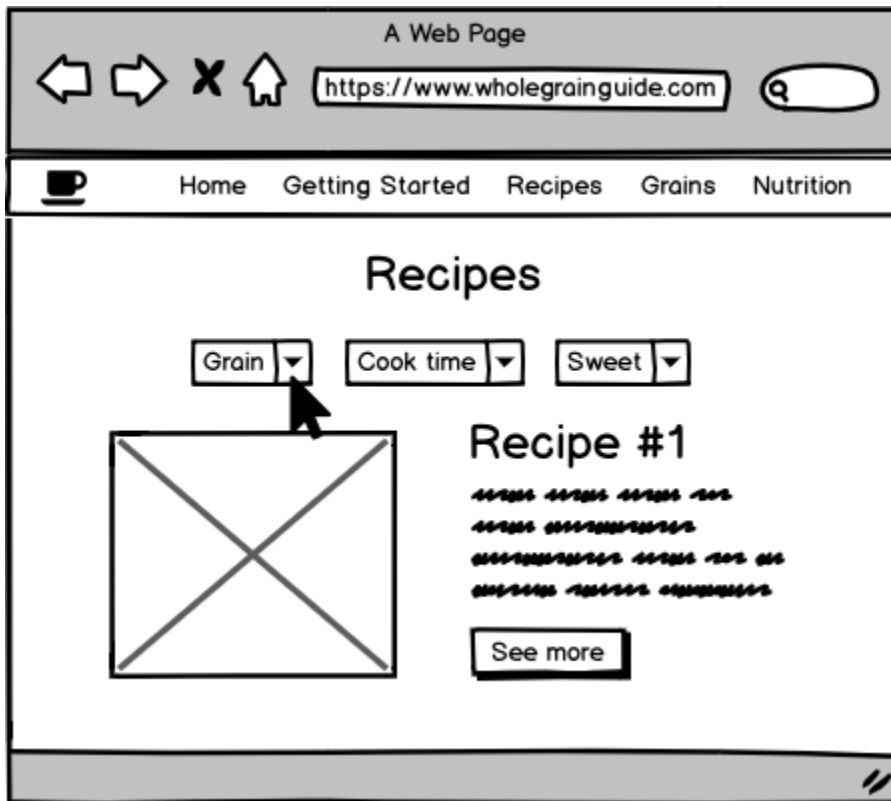
5. User Manual / User Journey

User Journey

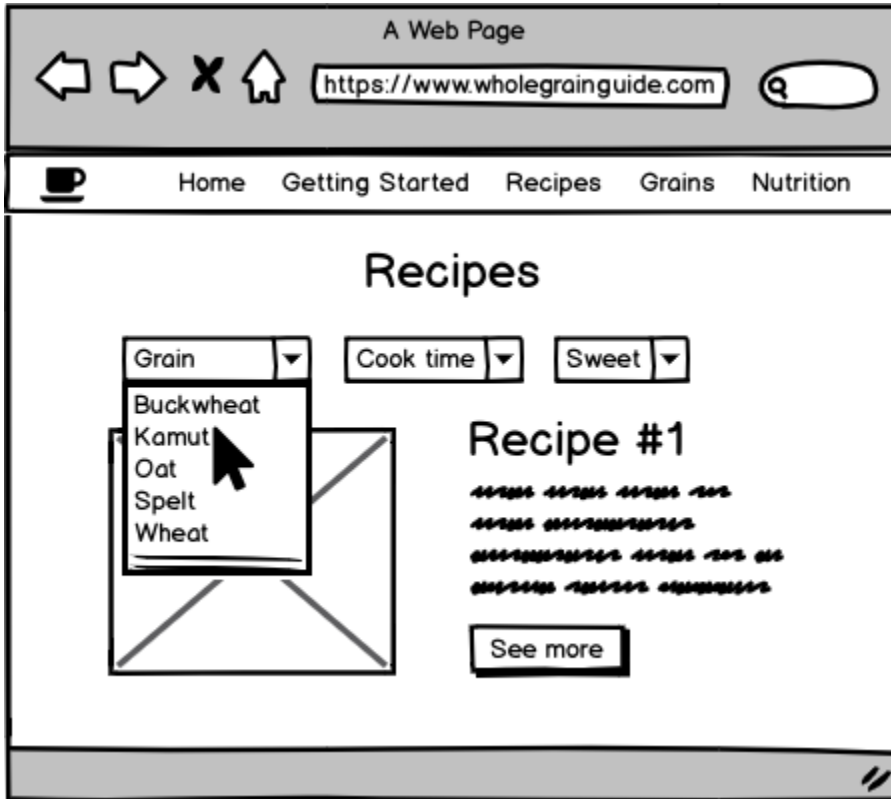
Task: Visit wholegrainguide.com and find a recipe using kamut flour.



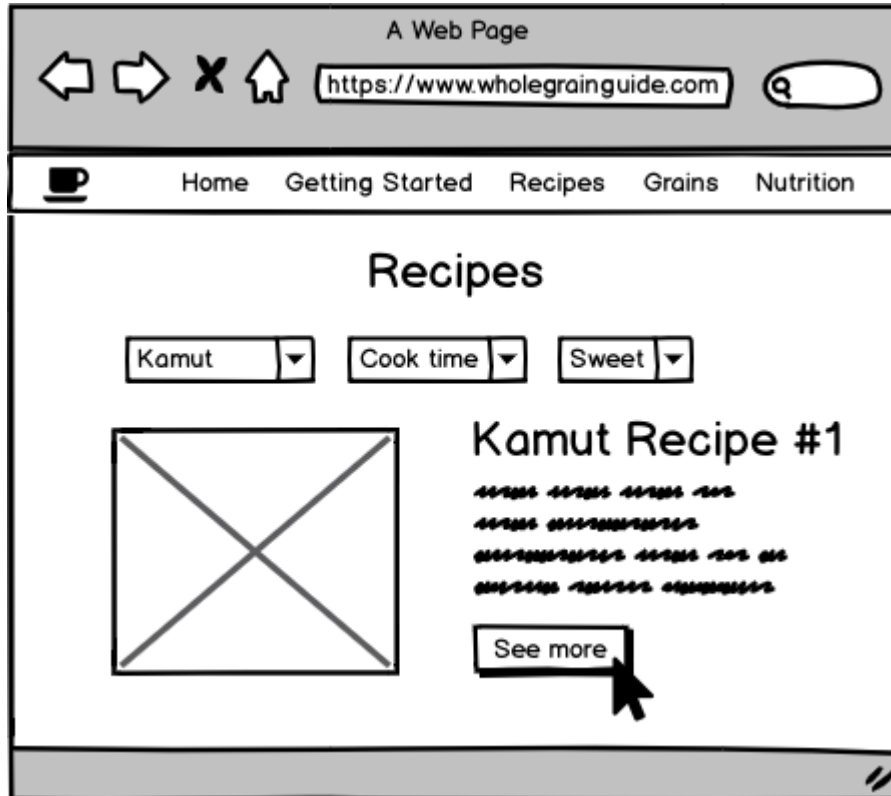
Step 1: First, the user arrives at the 'Home' page, where they see a short video introducing the website. The user notices the top navigation, which features a number of titles that link to different pages. The user selects the 'Recipes' page.



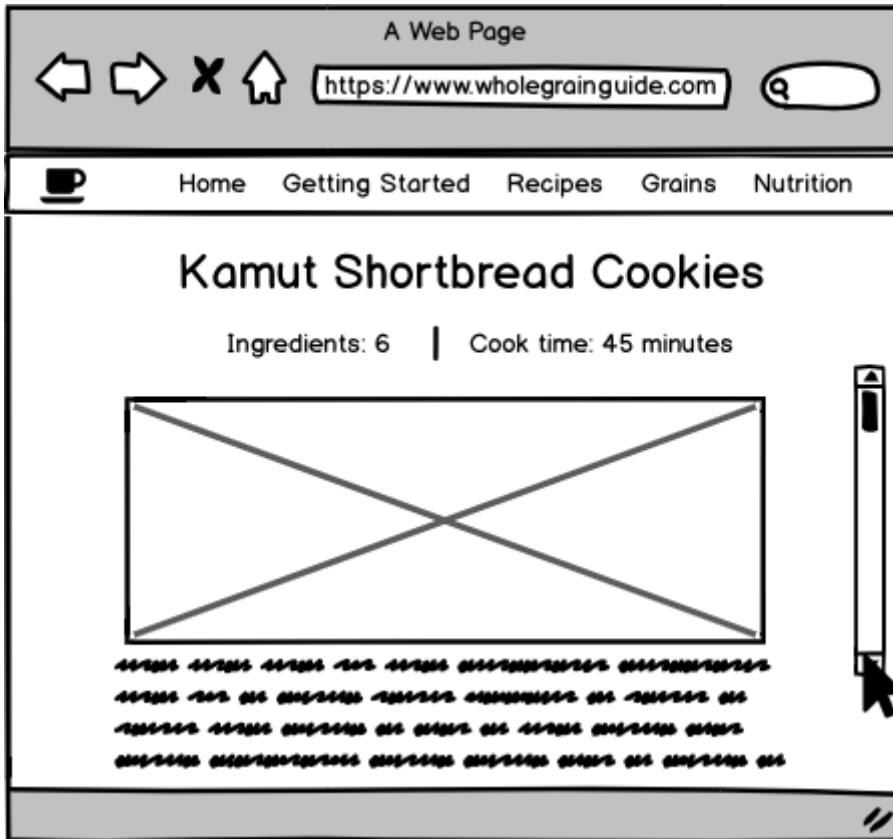
Step 2: On the 'Recipes' page, the user sees a list of vertically stacked recipes. On the left side are photos of the completed recipes, and on the right side there are titles of the recipes, description text, and a button to read more. The user also notices that a number of filters can be applied to the list. The user clicks on the dropdown button to select a grain.



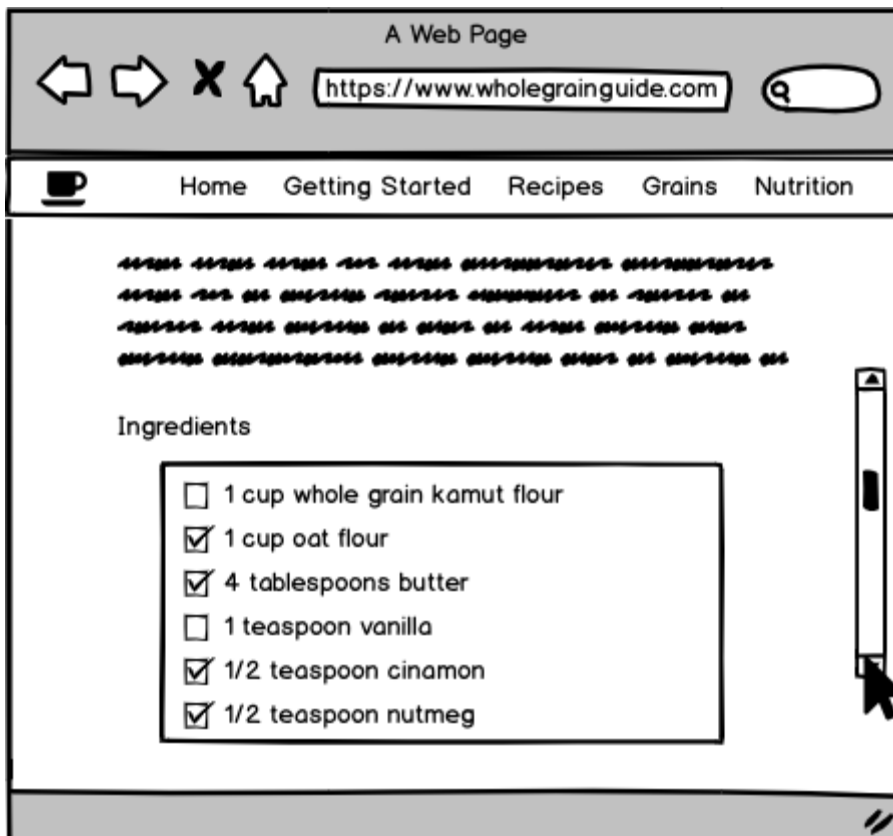
Step 3: The user sees the dropdown menu that results from clicking the grain filter. From the dropdown options, the user selects 'Kamut'.



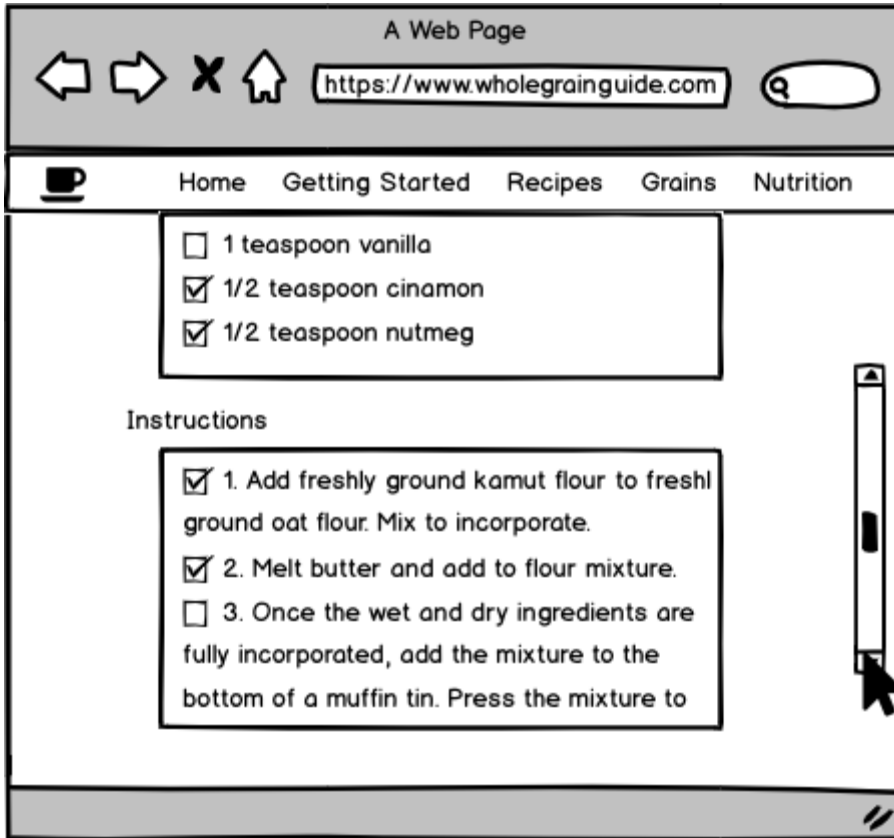
Step 4: After clicking 'Kamut' from the dropdown menu, the list of recipes re-renders to show recipes that include kamut. The user sees the first recipe listed, and clicks the button to read more.



Step 5: Once arriving on the page for the specific recipe, the user sees the title of the recipe, the number of ingredients, cook time, photos and description text. The user begins to scroll down the page to see more about the recipe.

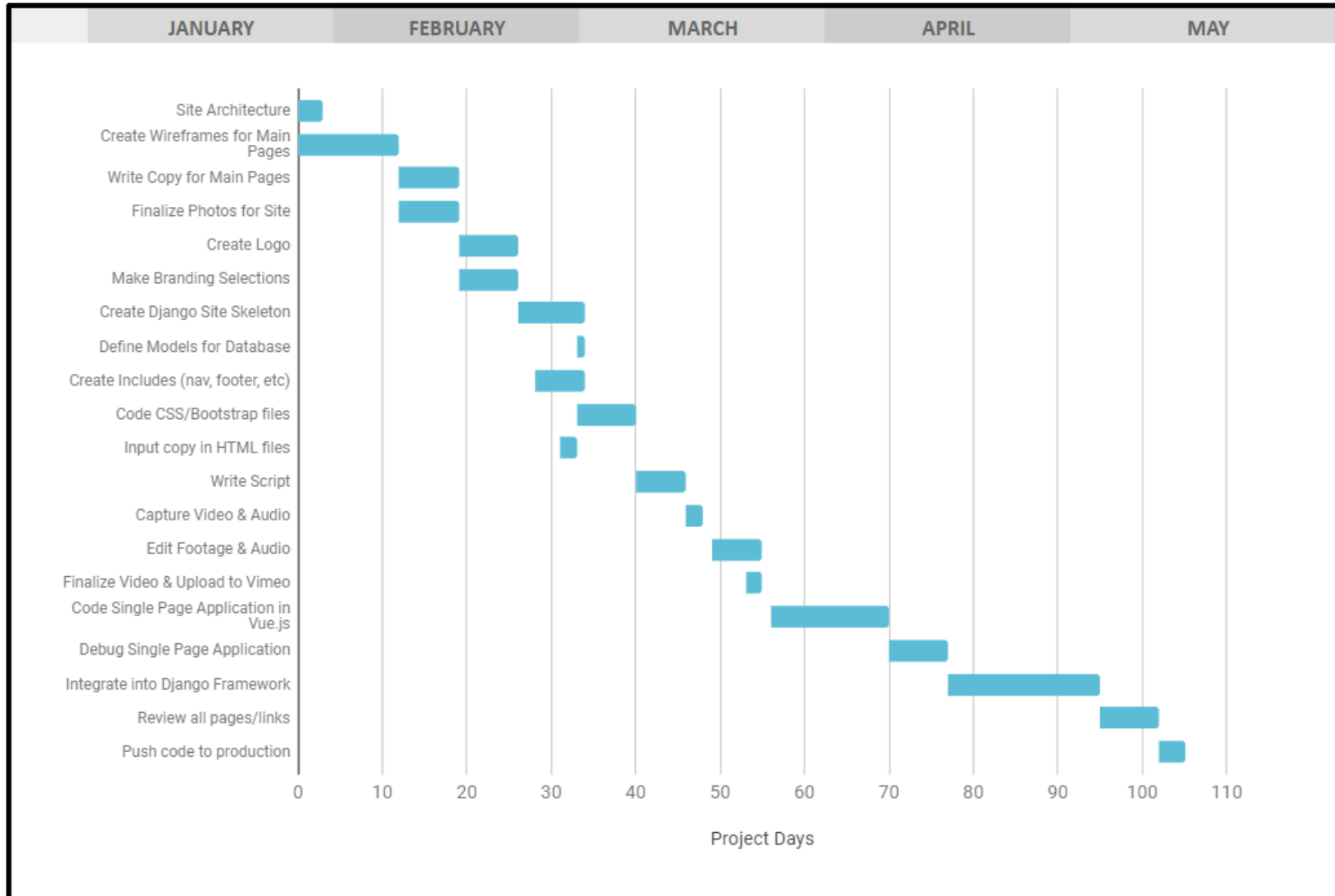


Step 6: As the user scrolls down the page, they see a list of ingredients, which has clickable checkboxes. The user clicks the checkboxes for the ingredients they have, and scrolls further down the page.



Step 7: Lastly, the user sees the instructions for the recipe listed with the same checkbox feature. During the baking process, they select the checkbox to indicate they completed the step.

6. Work Plan and Milestones



TASK NAME	START DATE	PROJECT DAYS	DAY OF MONTH*	END DATE	DURATION* (WORK DAYS)
Pre-Build Planning					
Site Architecture	1/27	0	27	1/30	3
Create Wireframes for Main Pages	1/27	0	27	2/8	12
Write Copy for Main Pages	2/8	12	8	2/15	7
Finalize Photos for Site	2/8	12	8	2/15	7
Create Logo	2/15	19	15	2/22	7
Make Branding Selections	2/15	19	15	2/22	7
Build Website Framework					
Create Django Site Skeleton	2/22	26	22	3/1	8
Define Models for Database	2/29	33	29	3/1	1
Create Includes (nav, footer, etc)	2/24	28	24	3/1	6
Code CSS/Bootstrap files	2/29	33	29	3/7	7
Input copy in HTML files	2/27	31	27	2/29	2
Home Page Video					
Write Script	3/7	40	7	3/13	6
Capture Video & Audio	3/13	46	13	3/15	2
Edit Footage & Audio	3/16	49	16	3/22	6
Finalize Video & Upload to Vimeo	3/20	53	20	3/22	2
Single Page Application					
Code Single Page Application in Vue.js	3/23	56	23	4/6	14
Debug Single Page Application	4/6	70	6	4/13	7
Integrate into Django Framework	4/13	77	13	5/1	18
Debug & Finalize Website					
Review all pages/links	5/1	95	1	5/8	7
Push code to production	5/8	102	8	5/11	3

Milestone	Completion Date	Description of Deliverable
Site Architecture	1/30/2020	<ul style="list-style-type: none"> • Draft a site architecture plan, outlining the top navigation and pages
Wireframes	2/8/2020	<ul style="list-style-type: none"> • Using Balsamiq.com, create wireframes for main pages
Write Copy for Main Pages	2/15/2020	<ul style="list-style-type: none"> • Draft text content for webpages • Edit and review content for grammatical errors • Finalize copy
Take Photos for Site	2/15/2020	<ul style="list-style-type: none"> • Write shot list • Set up shooting location • Take variety of photos • Select best shots and edit with Photoshop
Create Logo	2/22/2020	<ul style="list-style-type: none"> • Using Adobe Illustrator, draft several logo options • Select the best option, and finalize the file at different sizes/resolutions, and in both color and black and white
Make Branding Selections	2/22/2020	<ul style="list-style-type: none"> • Select font • Select primary and secondary colors
Create Django Site Skeleton	3/1/2020	<ul style="list-style-type: none"> • Create the project on virtual environment • Create the application • Register the application • Specify the database • Hook up url mapping • Test framework • Create admin site and superuser
Define Models	3/1/2020	<ul style="list-style-type: none"> • Map the different data models • Define the data models in Django
Create Includes	3/1/2020	<ul style="list-style-type: none"> • Code navigation elements • Code footer elements • Integrate into Django templating system
Bootstrap Styling	3/7/2020	<ul style="list-style-type: none"> • Write Bootstrap styling • Integrate CSS files/styling into main files
Input Copy Into HTML Files	2/29/2020	<ul style="list-style-type: none"> • Input finalized copy into Django framework • Review files for errors and debug
Write Script & Shot List	3/13/2020	<ul style="list-style-type: none"> • Draft outline of required footage • Create script of spoken word/audio content
Capture Video & Audio	3/15/2020	<ul style="list-style-type: none"> • Using Sony A6300 & Tascam audio recorder, capture required video and audio
Edit Footage & Audio	3/22/2020	<ul style="list-style-type: none"> • Using Adobe Audition, edit audio clips

		<ul style="list-style-type: none"> Using Adobe PremierePro, edit video and audio files to create draft of film
Finalize Video & Upload to Vimeo	3/22/2020	<ul style="list-style-type: none"> Once editing is completed, save the video file at the necessary file sizes Upload the video to Vimeo.
Code Single Page Application (SPA) in Vue.js	4/6/2020	<ul style="list-style-type: none"> Using Vue.js, create a beta version of the SPA
Debug Single Page Application	4/13/2020	<ul style="list-style-type: none"> Add any missing functionality to SPA Review code and test application for errors Correct errors and finalize SPA
Integrate Single Page into Django framework	5/1/2020	<ul style="list-style-type: none"> Add the Vue.js library Add the HTML element which Vue will modify Configure Vue
Review all links/pages	5/8/2020	<ul style="list-style-type: none"> Check each page to ensure content looks correct and there are no broken links
Push to Production	5/11/2020	<ul style="list-style-type: none"> Using GitHub, push final code to production at www.wholegrainguide.com

7. References

“Baking 101” by “Sherene” Licensed under a Creative Commons Attribution 2.0 Generic Attribution Non-Commercial No Derivs (CC BY-NC-ND 2.0). Accessed 28 September 2019. <https://www.flickr.com/photos/sherene/2603569533/>

“Dr. Hippie” by “Leigh Ann McConnaughey” Licensed under a Creative Commons Attribution 2.0 Generic Share Alike (CC BY-SA 2.0). Accessed 28 September 2019. <https://www.flickr.com/photos/leighannemcc/446418921/>

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Pew Research Center: Science and Society. *The New Food Fights: U.S. Public Divides Over Food Science*. December 2016. Accessed 28 September 2019. <https://www.pewresearch.org/science/2016/12/01/americans-views-about-and-consumption-of-organic-foods/>

U.S. Census Bureau. *Quick Facts: United States*. Accessed 28 September 2019. <https://www.census.gov/quickfacts/fact/table/US/PST045218>