



Angel Santaloci, Lahari Pullakhandam,
Mistyre Bonds, Tommy Boggis, Austin Robichaud

December 14th, 2018

Table of Contents

1. General Overview

- 1.1 The Meantime Coffee Co.
- 1.2 Schedule, Team Responsibilities, and Motivations

2. Defining the Problem

- 2.1 Problem Statement
- 2.2 Considerations
- 2.3 Hypothesis/Objectives

3. Methodology and Gathering Information

- 3.1 Observations
- 3.2 Barista/Administration Interviews
 - 3.2.1 Shawen Conway
 - 3.2.2 Paty Matos
- 3.3 Customer Survey

4. Analyzing Information

- 4.1 Project Requirements
- 4.2 Application Research
- 4.3 Proposed Solution for New System
 - 4.3.1 Cost, Feasibility, and Risk

5. Designing Models

- 5.1 Current/App Swim Lane Diagram
- 5.2 App Use Case Diagram
- 5.3 App Domain Class Diagram
- 5.4 High Fidelity Wireframes

6. Appendix

- 6.1 Work Breakdown Structure
- 6.2 Gantt Chart
- 6.3 Observation Notes/Sketches
- 6.4 Interview Questions

6.5 Customer Survey Questions

6.6 Final Reflections

1. General Overview

1.1 The Meantime Coffee Co.

The Meantime Coffee Co. is a student-run coffee shop on UNC's campus, housed in the Campus Y building. The Meantime is open 7:30am-4/6pm M-F, depending on the day. The shop serves a variety of coffee drinks, kombucha, and pastries from student ventures. Customers include UNC students, teachers, staff, and campus visitors of all kinds. The organization numbers around 30 employees in a variety of roles, experience levels, and ages. Administrative teams are divided into operations, marketing, finance, human resources. The Meantime is overseen by a Board of Directors and Campus Y leadership.

The café is staffed by two baristas during the most popular hours, and a single barista after peak traffic hours. Typically, one barista will manage the register and the other will focus on making drinks. Their responsibilities include handling customer interactions, processing orders and payment, managing the documentation and creation of drink orders, and keeping the cafe stocked and clean. The other barista is focused on making espresso drinks, a very time-intensive activity, and getting drinks to customers. It's worth noting that this relationship differs between working pairs of baristas. Often, a newer barista is lacks experiences making espresso drinks or the pair will alternate responsibilities more fluidly. The pair also must also control trash disposal, café cleanliness, restocking of supplies, and maintain supply of self-serve hot coffee Airpots.

The Meantime sees over 400 unique customers per day and operates in a very small space. It takes an enormous team effort to meet this demand, which peaks depending on class schedules, campus tours, and other factors.

1.2 Schedule, Team Responsibilities & Motivations

| TASK | Est. DATE of completion | Est. HOURS | RESPONSIBLE persons |
|---|-------------------------|-------------------------|--|
| Interviewing Baristas | Wednesday 10/24 | 1 | Tommy Boggis, Mistyre Bonds |
| Interviewing Customers | Wednesday 10/24 | 0.25 | Angel Santaloci, Lahari Pullakhandam |
| Interviewing Meantime Admin | Wednesday 10/24 | 0.50 | Mistyre Bonds |
| Observation of Rush Times: - Record data about Environment (available space, pace of work, general behavior) - Note Potential/Waiting Customers - Record average Customer Wait | Monday 10/29 | 1.5 (3, 30 min periods) | Angel Santaloci Lahari Pullakhandam Tommy Boggis |

| | | | |
|--|------------------|-------------------------|-----------------------------------|
| times | | | |
| Observation of Order Processing: - Note Average Time for Order - Note steps taken to complete Order | Monday 10/29 | 1.5 (3, 30 min periods) | Mistyre Bonds Austin Robichaud |
| Secondary Research: Research successful web-apps of other similar businesses | Wednesday, 10/17 | 1.5-2 | Lahari Pullakhandam |
| Collect Artifacts on: - Self-Service vs. Barista made - Commonly ordered Products - Other logistical data on trends | Monday 10/22 | 0.5 | Austin Robichaud |
| Organize and interpret collected data | Wednesday, 10/31 | ~5 | ALL Team members |

Project Team Lead, Artifact Management: Austin Robichaud

Motivations: As a 3-year member of the Meantime, I hoped to improve an excellent student-led, non-profit organization that provides a great value for the Carolina community. I sought to use my experience as a product manager and technologist to create a viable solution to genuine problem I saw at the Meantime. Lastly, I aimed to practice the process of creating lasting, valuable products.

Team Communication: Tommy Boggis

Research Lead: Lahari Pullakhandam

Information Organization: Mistyre Bonds

Motivations: As a former board member of the Campus Y, I was a part of the negotiations between the larger institution and the Company when they sought permanent station in the Y. Throughout my relationship with the Y, I've been able to watch the start-up grow, and have witnessed their contributions to student wellness. In designing this system, I was excited to help our team discover how to enable the Meantime Coffee Co. to serve more customers, and therefore students

Data Collection and Analysis: ALL

App Interface Design: Angel Santaloci

2. Defining the Problem

2.1 Problem Statement

The Meantime is unable to meet the spikes in demand that occur at regular intervals throughout the workday. The cafe is not currently capable of supplying surges of customers that occur in short periods of time. The limited productivity of workers, size of the café, limited space for a queue of customers all contribute to this issue. Another major factor is the lack of knowledge of customers' demands prior to their individual orders at the register. Meantime employees are unable to prepare orders in advance of traffic surges and the potential optimization of their workflow is constrained by the just-in-time nature of the ordering process. As the line reaches out the Campus Y door during a class change, potential customers are less inclined to make a purchase.

2.2 Considerations

The following is our team's considerations and thought process of what information needed to be gathered and why it was important. In order to effectively create a system to confront the needs of the Meantime Coffee Company during rush hour we took note of:

- Rush Periods
 - When are the rush times/days and how many people constitute a "rush"?
- Potential Customers vs Waiting Customers:
 - Is this a real problem? In order to convince the managers of the Meantime and their Board of the Directors of the need for the system, we will need to observe the number of customers who are and aren't turned away during the company's rush hours.
- Commonly requested orders:
 - Knowledge of commonly requested orders will allow the barista's to better prepare for rush periods. It will also inform us of the common drinks that may be requested by the system.
- Barista Orders vs Self-served orders:
 - This is yet another audit of the current state of the Meantime Coffee Co. Our team wants to explore whether all the individuals present during rush hour need the service of the barista, or whether they could easily serve themselves. Self-serve orders might include muffins, pastries, and drip coffee.
- How long it takes to process one order:

- This will allow the team to collect data and calculate how much time might be saved by the proposed system. Later, this information might be used to inform the Meantime on how much time they may need to set aside to prepare for rush, and inform the customer of how long their order may take.
- **Payment Process:**
 - By assessing the cafe's current capacity to receive payments, we can better mold our future system to fit those needs. For example, will the system need to accept payments? Should the system inform a third barista of what a customer owes?
- **Environment:**
 - By understanding the current environment through which the company receives payments, we will be understand the cafe's capability to employ the system. Upon initial observation, the Company receives payments via an iPad. We want to know whether that iPad is only reserved for payments, or whether it might be used to access our proposed system. Furthermore, we want to understand if the company would be comfortable allowing their employees to use our system via app while they work their shift. Such knowledge will affect what medium we propose the system be deployed through.
- **Constraints:**
 - Through team discussion, we realized that similar apps deployed by Starbucks and Dunkin Doughnuts offer an incentive to customers for ordering early. If The Meantime's current environment requires that the customer pay on site after they've pre-ordered, we feel that an incentive may be necessary in order to ensure payment and pick-up for each item.
- **Customer Motivations:**
 - Why do customers buy from the Meantime? In addition to the business of supplying coffee, the cafe also donates a portion of each transaction to student scholarships. We infer that customer motivation might affect their willingness to wait in line. For example, if a student only has the desire to buy coffee, they may search for other options when there is a long line at the Meantime, whereas if they buy coffee in order to contribute to their peers, the wait-time may not affect their purchasing decision. This information will also be useful in establishing worthy incentives for the Meantime customer base.

2.3 Hypothesis/Objectives

By creating a method to source drink orders before a customer gets to the register, The Meantime can prepare for rushes and meet demand with good planning, providing a better customer experience, sourcing more customers, and increasing organizational efficiency. Using a web-app, customers could place their order in advance and pick-up their orders at the shop, reducing lines, barista stress, and spikes in traffic. Some of our objectives included creating a

system that was simple to use and accessible, would not place additional responsibilities on the baristas, and maintain the culture and community of The Meantime.

3. Methodology and Gathering Information

3.1 Observations

Our team conducted on-site observations to:

- Finalize specific prime rush times per day
 - Determined to be during class changes typically in the early afternoon.
- Observe how baristas handle the rush
 - Observed relation of two baristas and delegated responsibilities. Typically one inexperienced barista (still training) would be paired with a barista who has been with The Meantime longer.
- Oversee the overall ease of ordering
 - Involves an iPad with a ShopKeep Point of Sale application.
 - Simple card swiping payment process, prompt for tips, electronic signature
- Measure average wait times
 - Using stopwatches to time a customer from entry into line until receipt of order which was roughly 3-4 minutes on average
- Document spatial layout of the café
 - Draw rough sketches of café counter space, position of machinery, tables, and relation of café to common space inside the campus YMCA

3.2 Barista/Administration Interviews

To gather the aforementioned information interviews were conducted with current baristas and administration/management of The Meantime. We sourced information on-site, scheduling times to meet with baristas during slow periods and administration after hours.

3.2.1 Interviewing Shawn Conway (Barista)

In order to understand the details of the intricacies of the time it takes to cycle customers through the Meantime, we interviewed a barista, Shawn Conway. Shawn began working for the Meantime a year and a half ago and is one of the most experienced baristas that currently work there. She provided many valuable insights on the specific details on the flow of information and the sequence of processes involved in making drinks during peak hours and normal workflow periods. Her interview revealed the following factors for and obstacles against our system:

Key Insights:

- Order Process:
 - The customers line up facing out the door, as two bartenders man the coffee bar at the entrance of the Meantime. One is handling the payments and giving drip coffee cups while the other barista is strictly for creating espresso drinks. As the customer orders an espresso drink, the barista at the POS system writes a shorthand code for that drink on a whiteboard and the barista looks at it then creates the drink at the espresso machine. If they get a drip coffee, the barista will simply process the payment and give it to the customer to fill up themselves at the station to the right.
- Payment Process:
 - They use a Square point of sale system that only uses debit or credit cards for payment (no cash). It resembles an iPad. The barista puts in the drink order then flips the screen around to the customer who then signs the screen and adds a tip if they want.
- Drink Choices:
 - Drip coffee is much quicker to serve than an espresso drink, as all the barista has to do is process the payment and give the customer a cup. However, espresso drinks take longer as they require a specialized brew at the espresso machine that can only be done by a barista. An espresso order takes about a minute and a half longer to process than a drip coffee order. The percent of drip coffee to espresso drink orders is about 60/40.
- Inventory Issues:
 - The biggest and most common pain point when trying to process customers at rush hour is running out of a piece of inventory and having to go retrieve a new stock from the storage area in the basement of the Campus Y. It is not a close walk, and it could take five minutes to retrieve. There are many different items (lids, cups, etc.) that are needed for operation, and if one runs out the whole process of cycling customers through is stopped. Baristas are supposed to restock at the end of their shift, but this does not always happen.
- Machine Malfunctions:
 - There is only one espresso machine, and sometimes it malfunctions due to a variety of issues. There is no set time on how long the machine could take to be fixed and often time takes outside help. The inability to order espresso drinks and the time consumed troubleshooting can cause long lines and wait times at the Meantime.
- Unprepared Baristas:
 - There is a sharp experience curve for new employees, and new ones are coming on board at all times as the staff is primarily students. New baristas have not

learned the most efficient ways to create espresso drinks and process customer payments, so this marginal extra time spent can add up during rush hour.

3.2.2 Interviewing Patty Matos (Administration)

In order to have a comprehensive view of the Meantime Co., their processes, and how our system would fit into their current business practices, we also interviewed board member, Patty Matos. Matos has been with the company since its inception, and has served as a barista and Marketing Officer during her time with the company. Her interview revealed the following factors for and obstacles that would be posed against our system :

Key Insights:

- **Limited Real Estate:** The Meantime Coffee Co. operates within the lobby of the Campus Y. Their space is just large enough to host their espresso machine, coffee additives, and two baristas behind the bar. For example, during the interview Patty Matos explained, “We don’t write names on the cups, because there’s no room for that. We just call them up.”
- **Inefficient Drink Tracking:** To track their drinks, the baristas use a shorthand that indicates the name, and size of a drink. This process poses a problem when more than one customer orders the same drink.
- **Inexperienced Baristas:** The Meantime Coffee Co. begins their hiring process at the onset of the Fall semester. Because of this, new baristas are often not fully trained or comfortable in the space until late September or early October. To compensate, the company pairs trained and untrained baristas together for a shift, where the less experienced barista works cashier, and the other the espresso machine. This places strain on the more experienced barista, and can cause longer wait times during rush.
- **Predictable Rushes:** The shifts at the Meantime Coffee Co. coincide with class schedules. This means that an employee’s shift may only be 90 minutes long. This allows the Meantime and their employees to be acutely aware of class breaks, and the rushes that occur with them. Patty revealed that of the class breaks, Monday and Wednesday at 10 are the busiest.
- **Company Culture:** Through working with the company’s social media, Patty realized that customers often come to the meantime because of the company’s laid back, friendly, and authentic atmosphere. Baristas are not required to subscribe to a dress code, and can even play music from the Spotify playlists during their shift.
- **The Meantime Mission:** The Meantime donates a portion of their proceeds to student scholarships. This operates as a second incentive to their customers and is reflected in one of their taglines, “Students empowering students.”

3.3 Customer Survey

Stakeholders are all the people who have an interest in the successful implementation of the system. The customer is an important stakeholder in our project because of the significant benefit they will receive upon implementing a system that will mitigate the effects of high demand rush periods. The customer experience is a vital one to the overall success of The Meantime Coffee Co. Participants were posed questions about their motivation to purchase at The Meantime, the length and frequency of their visits, deals on coffee, opinions on online purchasing apps, and other improvements. We placed the survey in UNC student Facebook groups as well as conducted in person interviews to reach customers.

Key Insights:

- 61.9 % of participants visit The Meantime in the afternoon, and of percentage, 48.8 % of participants visit during their class changes.
- Common responses about participant opinions on purchasing apps similar to Starbucks and Dunkin' Donuts were that benefits include a reward points and digital payment system and quicker pick-up avoiding lines.
- 57.1 % of participants were interested in seeing a similar application implemented for The Meantime.

4. Analyzing Information

4.1 Project Requirements

We developed the following requirements for the system based on stakeholder interviews.

Stakeholder requirements:

- -Interfaces with current system: The Meantime does not have enough real estate to employ a second ipad, and they don't have the capital to sponsor an entire app design.
- -Includes tipping options: A year after the Meantime opened, the company shifted to a cashless business products. Though this gave the company a larger sense of security, it negatively impacted baristas, as customers were no longer able to give their spare change to baristas as tips. Interested stakeholders revealed that they did not want a new system to further impact barista tips, an important portion of their income.
- -Imposes Time Limit: Stakeholder interviews revealed that espresso drinks begin to lose their quality after 10 minutes. The company wanted to ensure that remote ordering, and the late pickups that could result from it, would not negatively impact the company's brand and perceived quality.

4.2 Application Research

“Starbucks has one of the most successful mobile apps used widely. The application has many features including tracking rewards for free drinks and even a song tracker that tells the user what song is playing in which location across America. Dunkin’ Donuts’ app explores every angle of the business from nutrition value to navigation that locates the closest franchise. The ‘DD Perks’ system tracks your purchases for rewards, even gives you a free beverage on your birthday.” (<https://www.bostoninteractive.com/blog/dunkin-donuts-vs-starbucks>) Both businesses have a mobile order element that is pivotal aspect of the app. Customers can skip the line and pick up their pre-paid drink and continue with their lives.

Obviously the objective of the new system involves making rush hour times easier to manage for both baristas and customers. However it is very important that the community and culture of The Meantime be maintained, after all The Meantime is not a commercial giant, like Starbucks or Dunkin’ Donuts. The application we design and develop should take into consideration it’s users and their motivations for purchasing at the café. So based on customers surveys and interviews it becomes clear what people want to see in the application. It should also be easily implemented because of the limited resources that The Meantime has as a student run non-profit.

4.3 Proposed Solution for New System

From the gathered information and system requirements, it was becoming clearer that an application to deal with mobile/web ordering will mitigate some of the pressure placed on baristas and customers during rush periods when there is limited space. Orders can be prepared quickly and ahead of time so when customers who use the ordering application arrive at The Meantime they don’t stay long, freeing up space and improving the quality of service.

The Meantime currently uses the website platform Squarespace. This particular platform can be expanded to include e-commerce initiatives that a business desires. Squarespace utilizes a point of sale system where the single-page checkout is mobile-optimized, making it easy for customers to buy on all devices. Customizing is also feasible and simple. The checkout page can be adapted to also gives customers the extra incentive to buy with discounts or rewards.

In terms of ensuring customer information security, Squarespace takes excellent measures to encrypt customer data (Stripe as PCI compliant payment gateway for all commerce transactions).

In addition to all major credit cards, the business can also accept Apple pay or PayPal, flexibly allowing alternative payment methods that make transactions time efficient and less tedious for customers, hopefully resulting in more sales.

Squarespace also has customer relation management tools to gain insights including average order value, order history, and more, making it easy to identify the most loyal and valuable customers.

Finally, for any business commerce analytics are incredibly important to improve. With this new functionality, The Meantime can understand how their business is doing by tracking revenue, orders, units sold, etc. They can also learn which traffic sources and products are generating the most sales.

For these reasons, it was decided to expand the functionality of the existing Meantime website to include mobile/web. We believe that this will improve the overall efficiency and consistency of quality that The Meantime strives for, without sacrificing it's community and social initiatives.

4.3.1 Cost, Feasibility, and Risk

Cost:

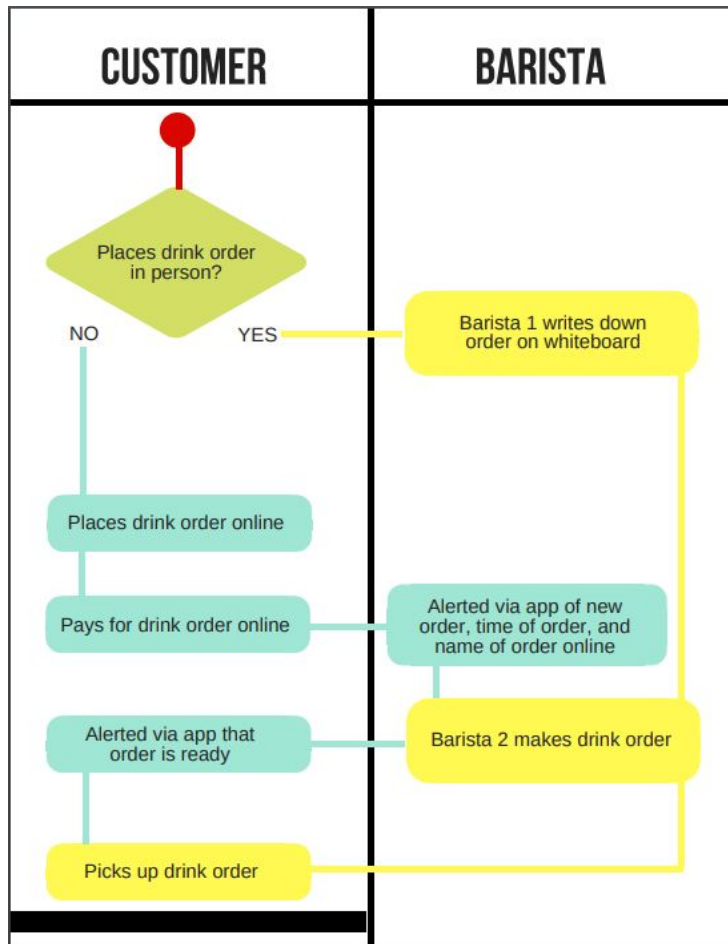
- Squarespace offers two e-commerce plans, Basic Store and Advanced Store. Both are quite affordable at 30 dollars and 46 dollars respectively based on the profit The Meantime makes.
- Feasibility: With it's simple to use design and creative and integrative functionality, making The Meantime business an online business as well is relatively easy provided that employees responsible for management and financial initiatives have minimal training and a clear understanding of the tools. Testing conducted by the researchers at "Website Builder Expert" suggest that their results concluded that the businesses "enjoyed the creative freedom, and 68% would recommend Squarespace for building an online store".

Risk:

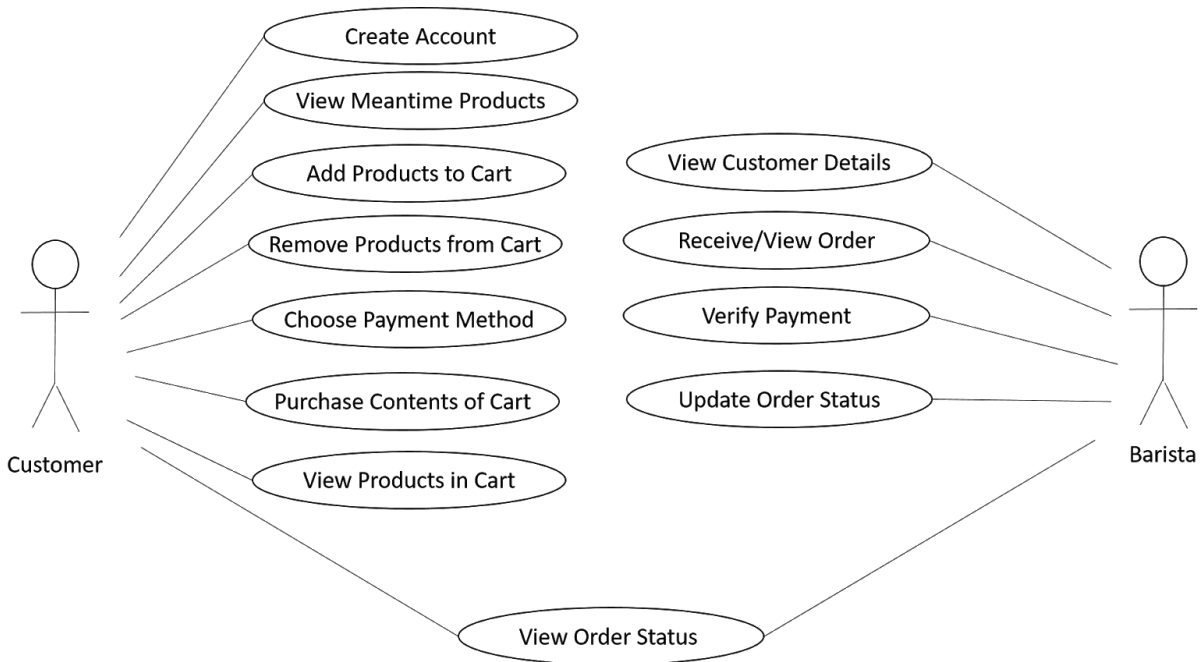
- We infer that the Meantime Coffee Co. will assume little risk through its deployment of our system. The system can be built in the backend of the current Meantime website without the site experiencing any downtime. Once live, it is designed to collect payment from customers before pick up, allowing the company to receive payment regardless of whether or not a customer fulfills their order. The company may be at risk for a decrease in public perception, should the quality of their drinks suffer because of wait time. However, as our system imposes a time limit for espresso drinks, we infer that this risk will be minimal.

5 Designing Models

5.1 Before and After System Swim Lane Diagram

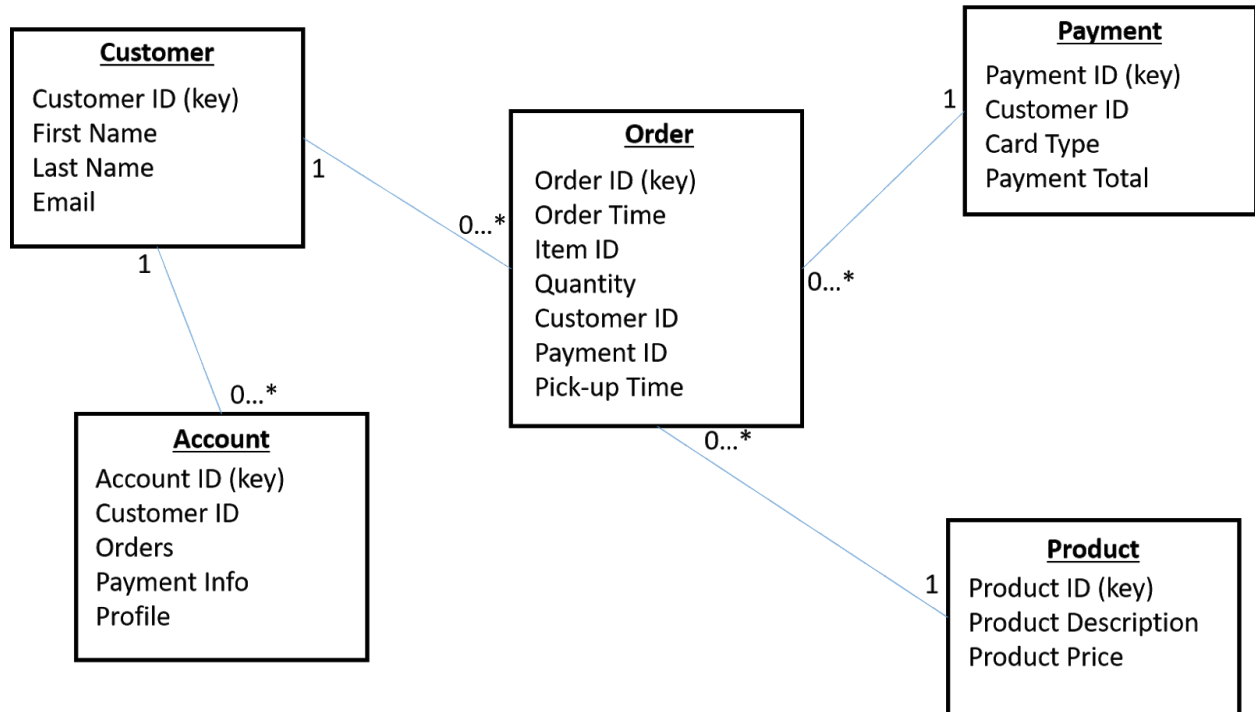


5.2 App Use Case Diagram



We gathered information for this use case diagram by walking through the functionality of a typical online purchasing application. What we learn from creating this diagram is what the uses of the system are and what functionalities are utilized by both baristas and customers.

5.3 App Domain Model Class Diagram



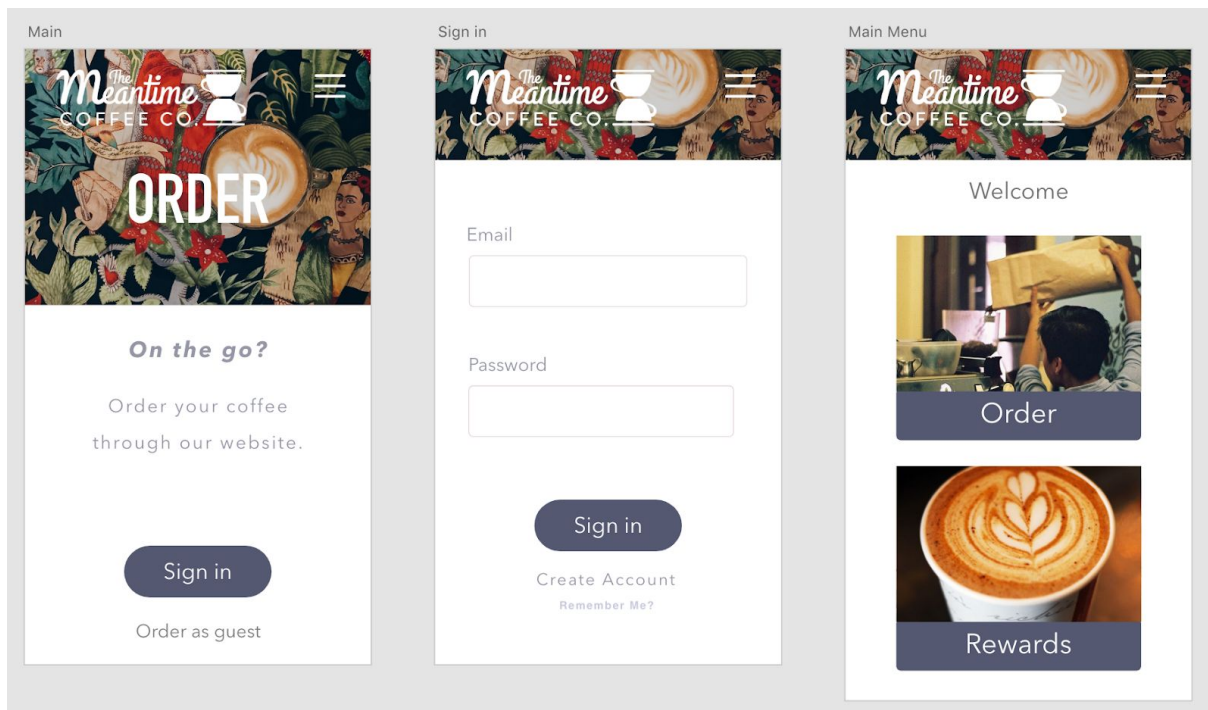
We gathered information for the model by looking at examples of eCommerce Squarespace sites and taking note of classes and the attributes that were necessary to complete online purchases. This domain model class diagram portrays how each entity has their own values and attributes that interact in specific intentional ways. This essentially defines the basic schema of the database in the app's back end that is updated dynamically as the user interacts with the system.

5.4 High Fidelity Wireframes


To develop the high fidelity wireframes, we first took a look at the original website that we would be adding onto. From there, we pulled the color scheme and current layout of the mobile version of the website and created the wireframes based on what we found.

Also using competitor's mobile applications such as Starbucks and Dunkin' Donuts as a guide, we created an interface that would move quickly through an order, and would be easy to navigate due to the way we displayed the information.

Delving into the content of the wireframes, the user is able to select whether or not they want to login as a returning member, or login as a guest. The member main menu allows the user to choose to either purchase or use the incentivizing rewards card built into the system. The ordering process is simple to use, where the user can select what sort of product they would like to purchase, and can proceed to the checkout. Then, the user is prompted to give an estimated time of arrival to help organize the orders received by the baristas. Afterwards, the guest or returning member enter their information to purchase the product, and when they finalize the order, the order is sent to the baristas to make.



Guest Checkout



Finalize your purchases

Checkout

Drip Coffee

\$2.25

1

Add Card

Name*

Card Number

Expiration Date

Month

▼


Year

▼

Remember Me?

Order

Member Checkout



Finalize your purchases

Checkout

Drip Coffee

\$2.25

1

Name Not You?

John Doe


Card

**2078

John Doe

Confirm

Confirmed



Thank you for purchasing from us!

Order Confirmed

Drip Coffee

\$2.25

John Doe

Your order will be ready shortly.

Main Menu

Rewards



Rewards

Purchase 9 beverages from the Meantime through our website and get the 10th one free!



Redeem

Order



Customize your order and proceed to checkout



Checkout

Order Selection

Coffee

Not Coffee

Drip Coffee

\$2.25

add to cart

Iced Coffee

\$3.25

add to cart

Espresso

\$3.00

add to cart

Americano

\$3.00

add to cart

Macchiato

\$3.00

add to cart

Load More

Cart



When will you see us?

Pick up

2:15 PM



*

**pick up time must be within 10 minutes of purchase*

Next

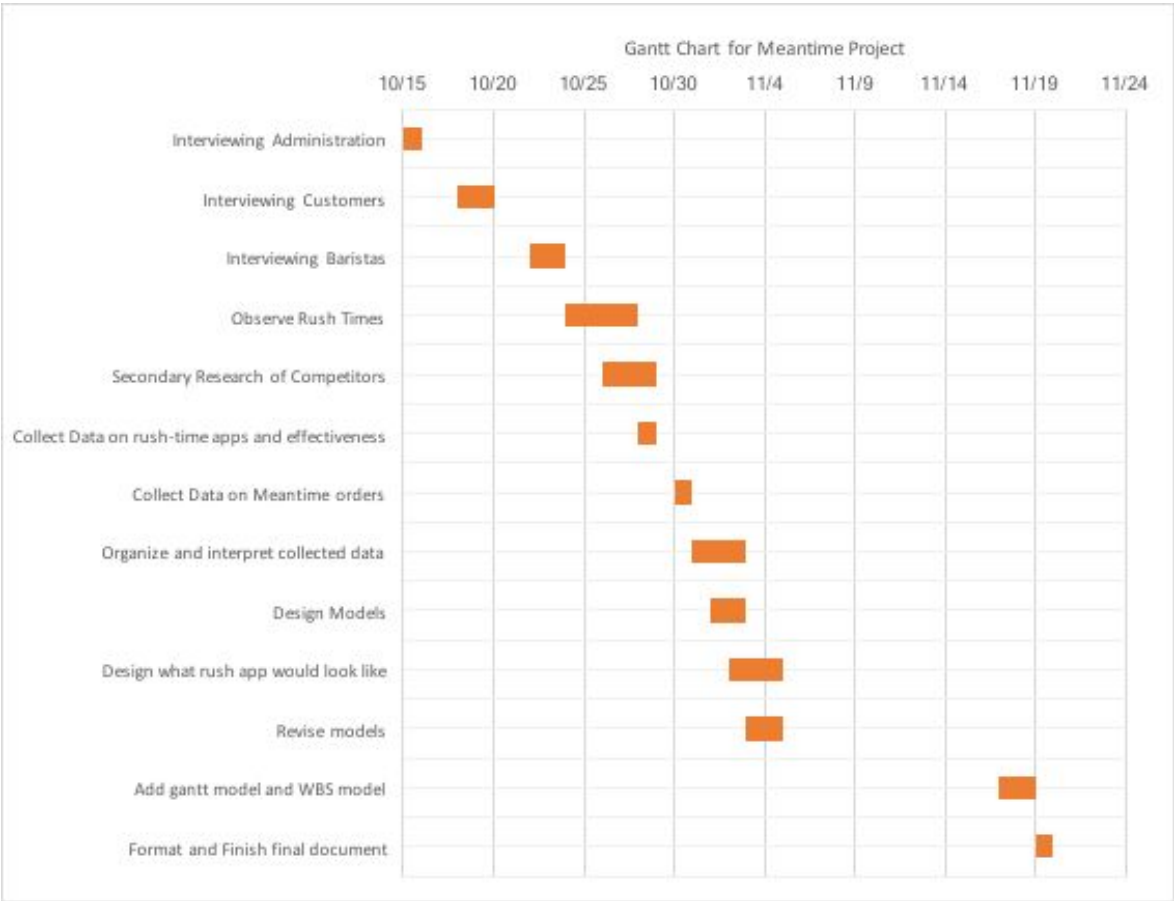
6. Appendix

6.1 Work Breakdown Structure

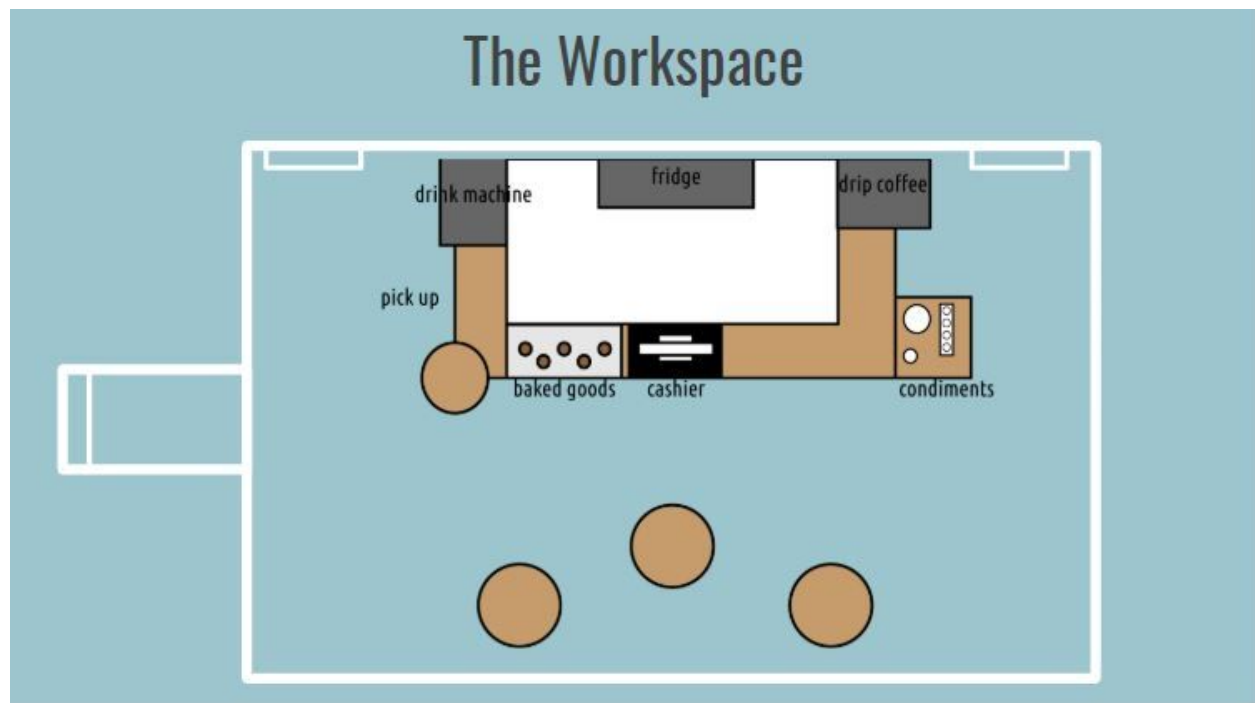
| | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----------|---------|-----------------------------------|----------|---------|------------------------|----------|---------|---------------------------------|----------|---------|------------------------------|----------|---------|--|----------|--------|---------------------------|----------|---------|-------------------------|----------|--------|
| 1. Explore and Understand all Aspects of the Problem | <table><tr><td>1. Observation of shop activities</td><td>2 people</td><td>2 hours</td></tr><tr><td>2. Customer interviews</td><td>2 people</td><td>2 hours</td></tr><tr><td>3. Barista interviews</td><td>2 people</td><td>2 hours</td></tr><tr><td>4. Administration Interviews</td><td>1 person</td><td>1 hour</td></tr><tr><td>5. Market research – ordering software</td><td>1 person</td><td>1 hour</td></tr><tr><td>6. Shopkeep data analysis</td><td>1 person</td><td>2 hours</td></tr><tr><td>7. Competitive Research</td><td>1 person</td><td>1 hour</td></tr></table> | | | 1. Observation of shop activities | 2 people | 2 hours | 2. Customer interviews | 2 people | 2 hours | 3. Barista interviews | 2 people | 2 hours | 4. Administration Interviews | 1 person | 1 hour | 5. Market research – ordering software | 1 person | 1 hour | 6. Shopkeep data analysis | 1 person | 2 hours | 7. Competitive Research | 1 person | 1 hour |
| | 1. Observation of shop activities | 2 people | 2 hours | | | | | | | | | | | | | | | | | | | | | |
| | 2. Customer interviews | 2 people | 2 hours | | | | | | | | | | | | | | | | | | | | | |
| | 3. Barista interviews | 2 people | 2 hours | | | | | | | | | | | | | | | | | | | | | |
| | 4. Administration Interviews | 1 person | 1 hour | | | | | | | | | | | | | | | | | | | | | |
| | 5. Market research – ordering software | 1 person | 1 hour | | | | | | | | | | | | | | | | | | | | | |
| | 6. Shopkeep data analysis | 1 person | 2 hours | | | | | | | | | | | | | | | | | | | | | |
| | 7. Competitive Research | 1 person | 1 hour | | | | | | | | | | | | | | | | | | | | | |
| 2. Document System Requirements | <table><tr><td>1. Domain Model Class Diagram</td><td>2 people</td><td>2 hours</td></tr><tr><td>2. Swimlane Diagram</td><td>1 person</td><td>1 hour</td></tr><tr><td>3. Defined System Requirements</td><td>3 people</td><td>2 hours</td></tr><tr><td>4. Work Breakdown Structure</td><td>1 person</td><td>1 hour</td></tr></table> | | | 1. Domain Model Class Diagram | 2 people | 2 hours | 2. Swimlane Diagram | 1 person | 1 hour | 3. Defined System Requirements | 3 people | 2 hours | 4. Work Breakdown Structure | 1 person | 1 hour | | | | | | | | | |
| | 1. Domain Model Class Diagram | 2 people | 2 hours | | | | | | | | | | | | | | | | | | | | | |
| | 2. Swimlane Diagram | 1 person | 1 hour | | | | | | | | | | | | | | | | | | | | | |
| | 3. Defined System Requirements | 3 people | 2 hours | | | | | | | | | | | | | | | | | | | | | |
| 4. Work Breakdown Structure | 1 person | 1 hour | | | | | | | | | | | | | | | | | | | | | | |
| 3. Design System Components | <table><tr><td>1. Initial Use Case flows</td><td>1 person</td><td>1 hour</td></tr><tr><td>2. Initial Wireframes</td><td>2 people</td><td>3 hours</td></tr><tr><td>3. Design Database architecture</td><td>2 people</td><td>2 hours</td></tr><tr><td>4. High fidelity prototypes</td><td>3 people</td><td>5 hours</td></tr></table> | | | 1. Initial Use Case flows | 1 person | 1 hour | 2. Initial Wireframes | 2 people | 3 hours | 3. Design Database architecture | 2 people | 2 hours | 4. High fidelity prototypes | 3 people | 5 hours | | | | | | | | | |
| | 1. Initial Use Case flows | 1 person | 1 hour | | | | | | | | | | | | | | | | | | | | | |
| | 2. Initial Wireframes | 2 people | 3 hours | | | | | | | | | | | | | | | | | | | | | |
| | 3. Design Database architecture | 2 people | 2 hours | | | | | | | | | | | | | | | | | | | | | |
| 4. High fidelity prototypes | 3 people | 5 hours | | | | | | | | | | | | | | | | | | | | | | |

| | | | |
|--|---------------------|----------|---------|
| | 5. Usability review | 3 people | 3 hours |
|--|---------------------|----------|---------|

6.2 Gantt Chart



6.3 Observation Notes/Sketches



6.4 Interview Questions

- Why did you choose to work at the Meantime with so many barista options for students on campus?
- How often and what time of day do you work?
- How many people usually work on your shift?
 - Can you elaborate on how different workers specialize during work.
 - How does the team work together during rush hours/do any processes change in the coffee serving process?
- When do you experience influxes in consumer demand a.k.a. Rush hours?
- How long is the line during rush hours?
- Can you walk me through the steps you go through when someone orders an espresso drink?
- And a drip coffee?
- What are the specific steps in the payment process?
- Do your operations/manner of work change when there is a long line for coffee?
- Are there any specific events (such as drip coffee running out, espresso machine malfunctioning) that are common and slow down the coffee delivery process?
 - How often do these events occur?
 - Do they occur more with new employees?

- What is the training process for new baristas?
 - Are you trained in optimization of processes for high-customer-flow periods?
- What is the most ordered drink on the menu?
- Estimating, what percent would you say order an espresso drink vs. a drip coffee?
- Are there any drinks in particular that take an especially long time to make?
- How long does it take for you to process one espresso drink, and how does that compare to process a drip coffee order?
- How intense is the experience curve in your opinion? Do new workers take more time processing orders and making espresso drinks or is it about the same?
- Do you pre-prepare certain drinks when expecting rush hour? (e.g. iced coffee)
- Are there noticeable difference in tips in rush hour when there are lines?

6.5 Customer Survey Questions

https://docs.google.com/forms/d/e/1FAIpQLSek35nBKVdPDWH6BsJy46z8_e1W0vdG_y_4cgjJa4xL-j3Nqw/viewform?usp=sf_link

Customer Survey Questions

- What do you like about the business?
 - What incentivizes you to make purchases at The Meantime
- How long do you usually wait in line at The Meantime?
 - Is it worth the wait?
 - Was there a time where you went to the Meantime but you decided to leave before you ordered?
- When do you usually visit The Meantime?
- Do you have the Starbucks/Dunkin Donuts app for ordering?
 - What do you like about the app?
 - Would you like to see a similar app used for the Meantime
- Would you like to see any special offers/deals from the Meantime?
 - If so, what deals and why?
- What is your opinion on separate lines for ordering drip/pastries and ordering regular drinks?
- What improvements could be made with the Meantime?

6.6 Final Reflections

This project would not have been possible without the support and guidance of the Meantime's marketing team, executive board, and baristas. Their contributions allowed our team to access private finance data to validate our assumptions, understand our problem statement from the perspective of management and baristas, and create detailed analysis of shop processes. We are grateful for their continued support. Additionally, we are indebted to the customers of the Meantime for giving their time and information. It is through their contributions that we were able to confirm our product-market fit, test our hypotheses, and give recommendations for future works. Personally, as the project lead, I am energized by the achievements of this team and its members. In future iterations, I would focus more on creating meaningful deliverables with a focus on developing personal portfolios, resumes, and other indicators of professional performance. Lastly, we are lucky to have had the support of great teaching, strong guest speakers, and an empowering classroom.

We are very excited to see our project receive genuine interest from the Meantime for continued development in the future. Through our efforts, we found a real problem that an on-campus, student-run venture faces and designed a viable solution. We are exceptionally lucky to present an offering that could increase the operational efficiency, serving capacity, and quality of an organization that provides a tremendous value to the University, its students, and the Carolina community as a whole. We put a great deal of time and effort into this project knowing its potential to improve the Meantime's social value proposition. With future iterations, we hope that this solution can increase student scholarships, enable greater learning and compensation for all Meantime employees, create a better platform for Carolina-centric student ventures, and fulfill the great need for excellent, empowering coffee experiences at UNC.