**PROJECT FEASIBILITY**

**Technical Feasibility**: Do we have the technical expertise to accomplish the project

* Preliminary Study
  + Certain technical skills team members possess are outside of the approved tech stack.
  + We were assigned parts of our tech stack and others we got to choose. This will require us to learn new skills and communication strategies under stress.
* Scope
  + The tech stack includes JavaScript, MSSQL, Bootstrap, Git, and basic front-end web design for the web. Tech stack for the app includes flutter and wireframe tools.
* Market Research
  + Polling the team, we have some of the technical expertise necessary to start the project. There is at least one person on the team that has the skills for either NodeJS, Schema Diagram, Git, or basic front-end web design.
* Financial Assessment
  + Time investment will need to be allocated to catch up on technical skills that team members currently lack. This training will be done through various online and in-person sources such as LinkedIn Learning, the professor acting as the Technical Lead, etc.
* Roadblock/alternatives
  + We can gain a higher level of expertise to complete the project utilizing tools such as YouTube videos, Goggle, ChatGPT fairly, asking the professor, and attending workshops to learn additional technical skills.
  + We have access to tools such as Microsoft Windows Presentation, React, WordPress, Joomla, and Drupal for web team and Swift, Kotlin, and Java for the mobile app team.
* Holistic Review
  + Overall, the technical side of things will be the most challenging aspect of this project as it is the part with the most growth opportunity and the place we will fail first. Having good communication with our team members will be key in conveying what we are working on when and if we need help at any point along the way.
* Decision
  + We do not currently possess the technical experience to complete this project in its entirety, but we possess the skills to gain technical knowledge quickly so that we can be productive members of a team.

**Risk**: Risk to undertake the project vs risk of not undertaking

* Preliminary Study
  + This project has an inherently large scope and requires many skills that this team is not as familiar with.
* Scope
  + This class is our senior capstone, and this project is the precursor to our actual capstone project for a real client. If we do not undertake this project, we run the risk of missing lesson learning opportunities and simulated experience working in an Agile team with technologies we are unfamiliar with.
  + Because we are working for a (simulated) client, taking on the project risks the client not liking our work and possibly giving us a poor grade due to our performance.
* Market Research
  + Polling the team-members, most team-members want an A in this course while a few others would be satisfied with a B or a C. If we do not take this project, we run the risk of failing this portion of the course which would likely result in an unfavorable final grade in the course.
* Financial Assessment
  + This project requires significant time investment which could take away from other schoolwork. If we participate in this project, we run the risk of not allocating enough time to other classes, failing them, and having to retake a course we would have otherwise passed.
* Roadblock/alternatives
  + We risk confidence being a blocker. If a teammate believes they are not a valuable part of the team and stops doing work, the team loses someone for the amount of time it takes someone to talk to them and encourage them. In the same vein, stress caused by this class and others can cause blockers when it interferes with our work.
* Holistic Review
  + Limiting the scope allows more confidence within the team that the minimal viable product is achievable. This decreases the risk of the team believing the goals are out of reach and be discouraged.
* Decision
  + We will take on the project as well as the risk of doing so because the risk of not taking the project far outweighs the risk of doing the project.

**SWOT Analysis**

**Strengths**: We have an eleven-person team split into Web and Mobile which is not too many so that we have too many opinions and not so small that there is not enough work for everyone. Also not too few so that we do not have enough bodies for the workload. We have some members on the team with a valuable skill that we already know that we will need for the project. Our team appeals to more customers because of a wide range of diversity like members in their early twenties, a couple who are closer to thirty years old, and a retired military person. We have three women on the team and at least one white, a Hispanic, and an African American. Although this is a college development team we have members on the team who have years of interacting with people in the public and the workplace.

**Weaknesses**: No one on the team has created a Mobile App and used the software Flutter and the Web team never used sessions while developing a Web App. Being on a team with a Scrum Master and having daily scrum is new to the team and may cause communication inefficiencies as we adapt to agile methodology. We have never communicated with a Product Owner about a product that we intend to create. We have never collaborated with one another as a team, so we are learning communication and team time management as we work as a unit. Some of the skills we need to be successful

**Opportunities**: We have a professor that acts as a Mentor to the team. There is an opportunity as we get experienced in developing Mobile Apps that, with the correct idea, we could launch a Mobile App that goes viral and make enormous amounts of money.

**Threats**: We must realize that after this project, we will probably never make a Mobile App like this for the remaining of our Software Development career, because the research shows that the Mobile App downloads stagnated experiencing only a one percent year-over-year increase 2023. There is just not enough interest for a Bakery Mobile App in the market because people use their cell phone for entertainment, texting, and taking a break at the job.

**Operational**: Does it solve a problem, User acceptance

* Preliminary Study
  + The bakery owner is not technically savvy, so if the UI/UX is not immediately acceptable, the applications will not be used.
  + The bakery owner cannot afford to pay for an expensive application.
* Scope
  + The client came to the class needing a website and app to simplify and digitize his current bakery workflow. He needs it to be able to keep track of recipes, inventory, and tasks for his employees. He needs a simple interface that is easy to understand and easy to learn. This product will be used within a small bakery for internal use only. Current employees, managers, and the bakery owner will be using these applications. It is difficult to train new employees on all of the new recipes, so it would solve that problem by giving the employees the recipes in an accessible platform.
* Market Research
  + There are similar applications on the market currently, but many have subscription plans and do not exactly fit what the bakery owner is looking for currently. Bakery apps that are currently on the market include apps such as [Bakesy](https://www.bakesy.app/) which manage customer orders. This is already accomplished by our customer using square. Bakesy requires a $9.99 monthly subscription to use the service. Websites that currently exist include [BakeDiary](https://www.bakediary.com/index.html) which is closer to the customer’s specification. Its functionality includes keeping track of orders and quotas, contacts, tasks, calendar, recipes and ingredients, reports and lists, expenses and mileage, and account. BakeDiary is primarily for cake businesses, but small bakeries are also within their target audience. BakeDiary requires a $7.50 monthly subscription for their website services.
* Financial Assessment
  + Net Present Value: Estimating future cash flows, we project that the project can be marketed at $7 per month for each service individually, so $14 per month for both web and mobile. This is individually lower than the current market as our scope is smaller per application. Current cost of development is roughly 880 hours over the course of this project. Charging $20 per hour, that puts the time cost at $17,600.
  + Total Cost of Ownership: Development costs roughly $17,600 initially with potential of additional maintenance costs occurring in the future if the customer exceeds the expected computing pull on the applications.
  + Payback Period: In order to recoup any profit with one customer paying nothing up-front, it would take a very long time to recoup that investment, so it is financially unprofitable with our current client agreement.
* Roadblock/alternatives
  + In order to make this project financially feasible, we would require pay up front and likely more than one client to be using our subscription-based website and mobile app. Making the application available to more than just the current client as a subscription plan will help us recoup our investment faster.
* Holistic Review
  + A strong focus on UI/UX is essential to this project’s success as that is the main thing that will determine if the client will use the applications. Due to the client’s limited budget, it is more financially feasible to market this project as a broad subscription service rather than a devoted app and website for the client.
* Decision
  + This application at the current scope will solve a few of the client’s problems and will be accepted by the user.

**Time:** Does current scheduling support the project (Scope)

* Preliminary Study
  + The original scope as presented by the product owner (as reflected in our initial user stories) is very large. The website and app have a few conflicting elements from different conversations with the client that the SCRUM masters will need to resolve with the client and poll the team on how much they believe they can accomplish.
* Scope
  + Our final evaluation of scope based on verbal contracts with the customer during various in-class meetings and teams messages is as follows:
  + The preliminary application at the end of the 8 week development period accepts the creation of recipes and holds a library of them; it holds an inventory which, at this time, must be updated manually. It has functionality for user to see and edit their own account and can be used to assign tasks linked to recipes. The next steps would be to implement authorization levels in account giving/withholding certain permissions based on user privileges, allow for creation and tracking of purchase orders, allow for the automatic updates of inventory items based on usage through recipe production and addition through purchase orders, advanced logging of additions and subtractions to the database. Filtering of items through categories and person assigned (for example). These along with any UI/UX changes requested of the customer. The advanced goal would be potential generalization of the application for mass distribution.
  + Other project deliverables: Feasibility Study, Wireframes, User Stories (labeled small, medium, and large, and ERD)
* Market Research
  + Within class discussions, we discovered that we are not skilled at estimating the amount of time and energy various tasks require. Because of this, we know we need to keep our scope small with room for growth to ensure we have a minimum viable product by the end of this exercise.
* Financial Assessment
  + Budgeting the team’s time both in and outside of class leaves 11 team members working approximately 10 hours per week each for 8 weeks. This brings us to at least 880 working hours in development. Because of differences in schedule, some team members can work more or less than that amount of time per week, but it generally averages out to 10 hours per week per person. Team members may require fewer hours per week occasionally to allow for other school work to be completed.
* Roadblock/alternatives
  + Current roadblocks are the large scope which is infeasible in the timeframe allotted. As a team, we have decided to limit the scope of the project and communicate what will actually be included in the minimal viable product for the customer at the end of 8 weeks.
* Holistic Review
  + With 880 hours of work, we will be able to complete a limited scoped project in recognition of limited time, unfamiliar tech stack, new team dynamic, and unfamiliar workflow (Agile).
* Decision
  + Current scheduling does support this project once it has been rescoped to a more achievable size.