Restaurant Ordering System  
  
  
Group 3

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# Individual Contributions Breakdown

## Zachary Bryant

Zachary has experience in leadership and management with a military background and management positions and some full stack development. For this proposal he provided the objectives and wrote up the timelines. Additionally, he has taken the role of team lead and has ensured everyone is on the same page with the project vision while also keeping everyone on task within specified times to hand over deliverables. In this project the only deliverables required were the sections each member volunteered for or was assigned.

## Mustafa Muhammad

Mustafa brings experience with backend development and using React Native. He provided the Abstract and Introduction portions of the document. Another input that Mustafa has provided is consistently asking questions for clarity or providing ideas for the project (such as using React Native and data storage options).

## Nelia Yakimiv

Nelia has experience in both front end and back end development. For this project she assisted Jovan with the Methodology section. She has been valuable by asking questions about the project to ensure she understood the work. Another input she has asked and provided recommendations for is how we wish to accomplish data storage.

## Jovan Djordjevic

Jovan brings his experience working on software applications to the table as well as back end development. He provided input on the Methodology section along with Nelia. Jovan has also expressed input through the data storage options among many other discussion points.

## Brian McNally

Brian has experience utilizing databases of varying sorts with a focus on SQL as well as some back end and front end experience. He contributed the conclusion section of this document by keeping tabs on what everyone else had to input. Brian has also been very proactive with questions and suggestions with the group.

## Sarah Ogorzaly

Sarah is a third year Computer Science student at Cleveland State University. She has previous experience working with React projects by helping create both the look and functionality of an Expense Tracker earlier this year. Personally, she also has an interest in art and design which she hopes she can use to help the team create an aesthetically and easy to use web application. Her specific tasks for this project are implementing a change table and call service system as well as contributing to the overall front end look of the project. For this proposal she contributed to the Ethical Awareness section.

# Abstract

The main purpose of this project is to create an ordering system for a restaurant. Through this application, users will be able to order food at a diner, call service, make configurations to their order during prep time, and other adjustments as necessary. By being a member of the restaurant users will be able to use VIP points provided as a program on a case by case basis depending on each individual program. Additional features include users being able to adjust appointment times, see a menu, and checkout all through the application with a graphical interface. In short, users will have a fully functioning web application at their fingertips which will allow them to order food and perform other needed functionalities at a restaurant.

The project will be divided up into various tasks pertaining to each individual’s skill set and desires suited for them. Tasks will be done in teams of two or more depending on the nature of the subject. All members will be able to view the source code through a Github repository and communicate with each other through email or a Discord server. Weekly or bi-weekly meetings will be conducted to ensure proper accordance with our project timeline and that everyone is on track to meet deadlines in May. Tasks that are needed to be completed for final submission of this project have been broken down into a modular format so that each group member can communicate and see how said tasks shall be distributed amongst one another.

Throughout the process the TA Shenthan or Professor Essa will be contacted if we need to ask questions or request specifications for the project. Using what is taught in the coursework our group will utilize software engineering practices to ensure proper completion of the project at hand. Lastly, a final presentation will be given to show our finished product.

# Introduction

With the world progressing more and more towards a digital future, items in our everyday lives are becoming digitized. This includes career fairs, shopping, and of course going out to eat at a restaurant. Menus have become digital not only on websites, but even in-house. Rather than sipping on a beverage provided by the waiter while deciding what you want to eat from a laminated sheet, people are now simply looking at the menu from the app through their phones. Even more so, people can request table service, order through the app, make changes, and more without the need to find and ask a waiter for what they need. The action of using an application makes the whole restaurant experience more streamlined and efficient. Current implementations of this design includes any restaurants requiring the user to directly order from an application.

Uber Eats, a widely used mobile application actually brings many restaurant portfolios into one app making the process of searching for an individual restaurant and then using their application much easier. Currently, all fast-food chains have mobile and web applications from which you can order food including McDonald’s, Chipotle, Taco Bell, and many more to say the least. Forbes writes in *How Uber Eats is Turning Into a Billion-Dollar Business to Rival Grubhub* that “Uber Eats is on track to deliver some $10 billion worth of food worldwide this year, up from an estimated $6 billion-plus last year”. Alex Samuely writes in *McDonald’s 7M app downloads highlights effectiveness of relevant incentives* that “McDonald’s revealed it has seen more than seven million downloads of its mobile application since the fall 2015 launch”. The widespread use of these applications highlights the need to have experience developing one. In a competitive job market, it is not enough to be aware of the most popular applications. Rather it is highly advantageous to gain first hand experience in creating trending applications as it grants us a well-rounded perspective in the challenges of its development and gives us the knowledge to overcome these issues.

Our team is composed of experienced individuals whose previous work includes developing applications in courses such as CIS 408 (Internet Programming), currently building an application for their senior design project, and just recently building an expense tracker web application with React in CIS 434 (Software Engineering). The significance of taking part in this project is to develop and enhance our understanding of web applications rather than presenting a new state of the art solution ready for the market. By taking what we have already learned from previous coursework and building on top of it with current software engineering practices we aim to learn new skills and at the same time develop a professional level solution. We plan to use React as a base for our frontend development along with Node.js to tackle the backend. To handle our database management system we will use MySQL as it pertains to our group’s experience. All in all, from this project we hope to learn more about software engineering as a whole while individually developing our skills for the industry.

# Objectives

The specifications listed by the customer, in our case the instructor, have been laid out in our project requirements.  These specifications give us key objectives that allow us to lay out milestones, or phases, needed to have a working application.  The milestones are as follows:

* Initial States and Design
* First pass for functionality
* Second pass for functionality
* Final product and report

## Initial States and Design

At this stage we will clarify the specifics of what each portion of the ordering system needs to look like and how they will function.  The specific tasks that need to be understood at this stage are: Orders, Change tables/call service, VIP Cards/Points, Appointments, and Checkout.  This is still leaving out some specifics with abnormal processing and additional services (such as gifts or promotional items).  On top of this we need to plan on the data storage methods that work best for our project.  From the design perspective we still need to account for those remaining two tasks to ensure a smooth implementation.

## First Pass

For the first pass we will tackle two specific tasks: first levels of functionality of everything listed in the previous objective and prepare the implementation for the abnormal processing/additional services.  This objective is accomplished under the assumption everything listed in the first task is working and communicating between each other.  Another stage that completes this objective is having our design and plan in place for the remaining tasks functionality.  Data storage is not necessary at this time and to account for it we will hard code test values for now.

## Second Pass

On the second pass the app should have all the pieces working together, including data storage, and bugs are still expected.  This task is considered complete when additional services and abnormal processing has been implemented with everything else.  Refactoring and planning for the final presentation is required at this step.  We can consider the project complete at the minimum requirements from this point.

## Final Product / Report

This objective focuses on fixing any bugs, cleaning up the code, and having the project ready for final presentation.  Our report will be finalized in this stage as well.  This objective will be considered complete when the report is submitted.

# Methodology

As previously stated, we will be using React to build a web application for our ordering system. Node.js will be used to handle the backend portion of the web app. To create our initial design, we primarily will be using HTML and CSS. We all have experience using these languages due to our previous project in CIS 434, so there should be minimal issues while working with them. Any additional updates to the interface could also be implemented with JavaScript but likely will not be needed. At the moment, we have created a temporary template that will be referenced once we begin developing the web app.

One of the primary objectives we need to make sure gets implemented properly is the processing order form. A general user interface will present users a straightforward way of navigating through the application. They will be able to choose what menu item they are interested in along with the quantity they would like to purchase. If an order is sold out, they will be unable to order the item. Additionally, the user would be allowed to make special requests for most items, such as how certain foods should be cooked or if there are any vegan replacements. At checkout, users would be able to edit their order or see if there are any promotions and would be allowed to redeem any discounts or VIP points that they have. When the order is finally finished, the user will obtain a receipt containing the time of confirmation, the total price along with tax, and the number of VIP earned.

Once we get the main function of the ordering system to work, the group will begin figuring out a way to store all the data that is needed including discount codes, VIP points, menu items, previous orders and reservations. We have some ideas to store all of the data that will be used in our project, including using some databases such as MySQL, Firebase, or simply implementing the JavaScript LocalStorage function throughout the application. Everyone in the group has at least some experience in one of these techniques so we will be able to find the most effective way to save the data. As we build our application, we will be making sure to call back to the method we use to store our data to be sure that all the data can be saved efficiently.

  HTML and CSS will be used in the front-end portion of the web app. It will focus on the parts of the program that the user interacts with and the visual aspects of the program. The HTML will structure what the user interacts with. The CSS will be used to design the structure the HTML will have for the web app. The frontend portion will make the web app appealing and easy to operate for the user.

# Professional Awareness

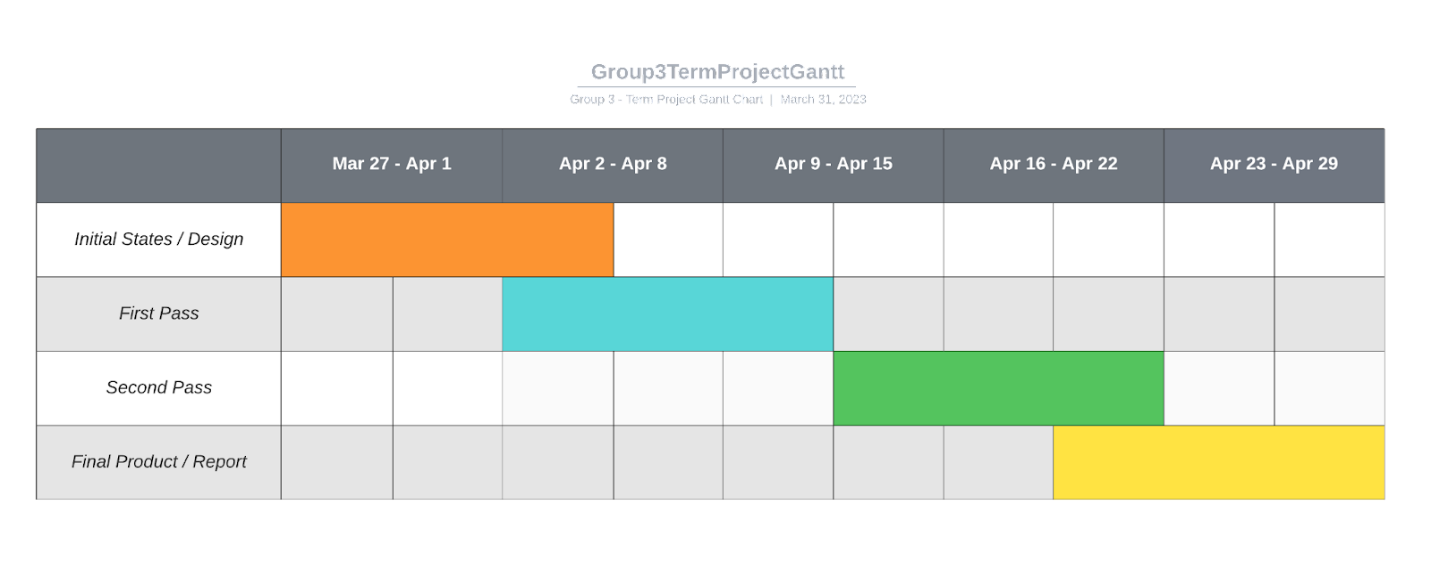
It is important to contextualize the ethical intricacies of developing a new software. Although the software we plan to develop is ambitious in that it challenges us to improve our teamwork skills and broaden our knowledge of web development, our project is not being developed in a corporate environment and it could be argued that we do not need to worry about making sure every aspect of our project is professional as many of us are still learning how to develop quality work in the context of a team. Despite this point, we must always be striving to abide by the responsibilities of a professional as it is a vital skill that will be used throughout our computing professional journeys. We must make sure we understand our role as people with specialized computing knowledge and how we can make sure that we are acting in the best interest of the public and our employers or at the very least we put ourselves at risk for damaging the integrity of the field we work for.

In acting professionally, we note that nothing is produced in complete isolation. Whether a software is shared with a public audience or not, its creation is influenced by a multitude of other works. These influences are an accumulation of others' hard work and breakthroughs and it is essential that credit is given where credit is due. To live by this message, we will take the utmost care in citing the works we use as either inspiration or as guidance in our problem solving. Moreover, we aim to support the progress and contributions of our individual team members and give them credit for their contributions.

The ethics of developing software does not end here, software impacts all levels of people’s lives. Our particular software is a restaurant ordering system. Its intended use is to give customers a streamlined process in ordering their food.  For this process to be worthwhile, we must be conscientious to deliver a working software that meets all of its intended requirements. Failing to do so puts us at risk for not setting out what we intended to do and compromises the integrity of our job as computing professionals. Although this project is being developed in an academic setting, consider the possibility that the ordering system was being developed for a local restaurant. Presenting our completed project with bugs or loose ends would tarnish the trust between us and our commissioner, as the local restaurant chose us to develop a working and convenient system for the customers of their establishment. An unsatisfactory project also has the possibility to cause undue stress for customers and the restaurant staff through frustration or even security issues, which contradicts the code of ethics for computing professionals and could cause legal issues depending on the severity of the harm.

Moving beyond software and how it can impact others, this project like any other is a showcase for the importance of life-long learning. Our hope is that there will be significant technical growth and professional growth in the process of completing the project and that this growth will allow us to reach greater heights in our careers. We hope to live by the message of continuously challenging ourselves for personal growth.

# Project Timeline



# Conclusion

Keeping-up in the fast-paced world of restauranting requires adapting to emerging practices and customer trends. With app-based ordering and websites with menus becoming increasingly commonplace, and almost expected for some customers, there emerges a need for a software solution - providing the infrastructure for an online ordering system. Shifting towards a digital menu as offered by this system would allow for easier maintenance and updating of a restaurant’s menu when compared to physical menus; likewise, an automated ordering system for customers greatly reduces the orders that need to be taken by a server or host, greatly reducing the time needed for one of their many work tasks.

For our preliminary design, we have laid out our proposed path to crafting a quality ordering system. With React powering our frontend, we will offer a HTML and CSS driven UI for viewing the menu, ordering food, and other general user needs. We will use Node.js for our backend, with MySQL to manage our database. The restaurant will be able to store data such as discount codes, VIP points for rewards members, menu items, previous orders for users, and reservations.

We believe our proposal will result in an ordering system that has the flexibility to adapt to the unique needs of individual restaurants and their menus, provide a clear and simple interface for most interactions the user would have with the restaurant, and provide the freedom from relying on a third-party to host the restaurant’s online or app presence. In addition, we look forward to expanding our experiences with software of this scope, working in teams and alongside partners, and managing projects.

# References

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