
COMPANY NAME

Project Name

Project Vision Document

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Revision History

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1 Introduction

We are launching an application that will help users estimate the waiting time before they can be seated at a table and place an order. According to Nathan Yau's research, the average waiting time before customers can be seated is around 18 minutes. This waiting time depends on factors such as the number of available tables, the number of people in the queue, and the average time customers spend on their meals. Waiting for so long can be a frustrating experience for customers who are hungry and eager to eat. Our application not only helps customers save time but also benefits the restaurant by improving customer flow and enhancing the dining experience.

The application provides a user interface for customers to interact with the main layout and view a map of their desired area. It also includes a site for restaurant owners to market their restaurants and enables manager teams to monitor real-time customer demand in the area. To ensure that both customers and restaurant owners receive support from the development team, an admin site will be in place to ensure the smooth running of the entire system

Customer Interface: Allows users to interact with a primary layout and view a map of their desired dining area.

Restaurant Management Portal: Enables restaurant owners to market their establishments and provides real-time demand monitoring tools for management teams.

Admin Site: Facilitates smooth system operations and offers support to both customers and restaurant owners, ensuring seamless service delivery.

1.1 Purpose

The purpose of this document is to demonstrate our "Queue Management" Application in more detail to customers. This document will help a lot to understand what the application is for and how this application is useful for any environment who needs to use waiting list or queue management.

1.2 Scope

<A brief description of scope>

The scope of the "Queue Management" Application is to provide a solution for both customers and restaurant owners to efficiently manage waiting times and enhance the dining experience. The application will target restaurants that face long wait times for seating and ordering, helping to streamline operations and improve customer satisfaction. Moreover, the application will recommend alternative restaurants where they have shorter waiting time

1.2.1 In Scope

- Customer Interaction – Providing users with an easy-to-use interface that displays waiting times, table availability, and real-time restaurant demand in their area.
- Restaurant Management Tools: Offering restaurant owners, a platform to market their establishments, monitor customer flow, and optimize table turnover.
- Admin Support: Creating an administrivia site for the development team to ensure smooth system operations, handle customer and restaurant owner issues, and manage system updates.
- Real-time Updates: keeping both customers and restaurant management informed of current wait times and seating availability.
- Customer Reviews: This application includes features for customers to leave reviews or ratings for restaurants.

1.2.2 Out of Scope

- Payment processing: The application does not handle payments for customer orders or restaurant transactions
- Non-Restaurant Businesses: The application will not cater to businesses outside the dining and restaurant industries; However, the company may be updating the application for picking up option (ex) Apple store, Samsung Store, BestBuy...etc.)

1.3 Definitions, Acronyms, and Abbreviations

<This subsection provides the definitions of all terms, acronyms, and abbreviations required to properly interpret the Project Vision document. This information may be provided by reference to the project's Glossary>

This section explains all of the terms and abbreviations that are being used in this document, for those who are unfamiliar with them. Not everybody who reads this document will understand all of the terms, so this section is helpful.

Term	Explanation
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Queue Management	The process of managing the order and flow of customers waiting for a service, Particularly in the context of seating and ordering in restaurants
Customer interface	The user interface that customers interact with to view waiting times, table availability, and restaurant options.
Restaurant Management portal	A platform for restaurant owners to market their establishments, monitor real-time demand, and optimize operations
Admin site	A site for administrators to manage the overall system, providing support to customers and restaurant owners and ensuring smooth operation
Real-time Updates	Information that is continuously updated to reflect the current status of wait times and table availability
Customer Reviews	Feedback provided by customers, typically in the form of ratings or written reviews, about their experience at a restaurant.
Average waiting Time	The typical amount of time customers can expect to wait before being seated, based on research or historical data
Table turnover	The rate at which tables become available for new customers after the previous occupants have left.

1.4 References

<This subsection provides a complete list of all documents referenced elsewhere in the Project Vision. Identify each document by title, report number if applicable, date, and publishing organization. Specify the sources from which the references can be obtained. This information may be provided by reference to an appendix or to another document>

Reference File Name	Version	Description
Headfirst android development	1.0	The book introduction about Android Development
Spring Boot in Action	1.0	The book to learn Spring Boot as a web server

This section also contains links to all other places that were referred to in this document. These may include:

- *Web sites*
- *URLs or network locations*
- *Research done for similar products*

Name	Link
Waiting for a table	https://flowingdata.com/2018/02/21/waiting/

Beyond Telecom	https://moonchullee2.blogspot.com/2010/05/business-context-diagram.html/
Every developers need a Raspberry pi	https://youtu.be/Vp4gISVPT8o?si=Z4qwVd315dzZs9Uv

2 Positioning

2.1 Business Opportunity

The business opportunity presented by this app is to provide restaurants and consumers with an efficient platform to optimize resources and time management. By offering real-time information on table availability and wait times, the app allows restaurants to maximize the use of their facilities and increase customer satisfaction. In turn, consumers can make better decisions with the information available, improving their experience in the process of deciding to dine at a restaurant. This enables a more fluid environment where every sale and consumption opportunity are effectively driven.

2.2 Problem Statement

< Provide a statement summarizing the problem being solved by this project. The following format may be used>

The Problem of	Long waiting times in restaurants.
affects	Consumers who do not have real-time information about restaurant availability and waiting times.
the impact of which is	Restaurant owners, customers, users, and restaurant staff
a successful solution would be	<p>Dissatisfied customers who may leave without being served lead to poor customer experience, poor staff performance and losses for restaurants.</p> <ul style="list-style-type: none"> • Reduced wait times through real-time tracking and improved table availability. • Improved customer satisfaction and care by providing detailed and accurate information about wait times in advance. • Allows restaurant owners to better manage customer flow more effectively, increasing revenue.

Table 1 Problem Statement

2.3 Product Position Statement

For	Customers who eat out and want to avoid long waits and Restaurant owners who want satisfied customers.
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Who	Need a convenient and reliable way to check wait times for nearby restaurants in real-time to make decisions that benefit them. Need a streamlined way to manage restaurant demand.
The <product name>	Queue Manager
That	Provides real-time updates on restaurant availability, wait times, and reviews from previous customers.
Unlike	Other restaurant reservation systems only provide a basic booking service without live updates on wait times.
Our product	Enables a seamless, enjoyable experience by combining real-time wait time tracking and user feedback, ensuring customers can plan their experience without unnecessary delays.

Table 2 Product Position Statement

2.4 SWOT Analysis

<Reference: <https://www.businessballs.com/strategy-innovation/swot-analysis/>>

Strengths	Weaknesses
Our product interface is a great competitive advantage as it is easy to use and provides real-time information that was previously inaccessible to consumers.	Limited access to resources such as advanced development tools, server infrastructure, or funding for platform maintenance could affect the quality of the final product.
The platform enables potential consumers to make informed decisions, increasing their satisfaction and loyalty. This customer-centric approach can attract more customers and encourage frequent use.	Since the platform relies on third-party restaurants to expand, some establishments may resist changing their traditional operational methods, which could delay the product's dissemination.
The flexibility of the platform allows it to be adapted to the needs of different types of businesses in the food service sector (restaurants, cafeterias, etc.), which gives the possibility of expansion into various market segments.	Require the hardware to put in the restaurant to track the data need many resources and think about supply chain. The team need to handle both hardware and software to maintain the good quality of the product
Opportunities	Threats
The high flow of customers in restaurants, especially during peak hours and weekends, has generated a need for solutions that optimize the management of waiting times, and this positions our product as a tool that not only improves the operational management of the business but also improves the customer experience.	Consumer spending behavior in response to price or income fluctuations during recessions can affect restaurant consumption and therefore our product's use.
The growing need of users to have real-time information and to access services quickly offers our product opportunities to	Fierce competition in the technology sector.

expand its presence in the market.	
The rise of the “food-away-from-home-trend” provides our product with many opportunities to grow.	Data easy to abuse by other services to get the insight data from the restaurant side users

3 Stakeholder and User Descriptions

The stakeholders in this project are restaurant owners, customers, developers, technology providers, and government and regulatory agencies. The need for a solution will depend on the specific challenges each faces. Restaurant owners need tools to manage customer flow and optimize table turnover. Customers need up-to-date information on wait times for nearby restaurants. Regulators enforce privacy and security regulations. While technology providers enable a stable resource to manage user traffic. Therefore, everyone is involved in developing this solution as it brings a benefit to each one.

3.1 Stakeholder Summary

Stakeholder Name	Represents	Role
Restaurant Owners	Restaurant businesses.	Restaurant owners will use the app to improve the management of customer reservations and optimize the management of waiting times. Throughout the project, they will test the features and provide feedback, thus ensuring that the solution fits their operational needs.
Customers (Consumers)	People who eat at restaurants and want to know real-time availability and wait times.	Customers will interact with the app to check wait times, make reservations, and leave feedback. Their role is to provide feedback and ratings on the user experience and influence changes to the app to improve functionality.
Developers	The software developers who will create the application.	Developers team will build the product, develop technical solutions, implement functionalities and perform tests to ensure the quality of the software. Their responsibility is also to ensure that the app complies with security standards throughout its development.
Technology providers	External providers who offer the infrastructure and services that host the platform like Amazon Web Services (AWS), or Microsoft Azure provide cloud hosting services.	Providers will enable the platform to operate optimally and efficiently, even during periods of high traffic.

Stakeholder Name	Represents	Role
Government and Regulatory Agencies	Government agencies such as the Office of the Privacy Commissioner of Canada (OPC), Canadian Radio-television and Telecommunications Commission (CRTC), Provincial Privacy and Data Protection Authorities, and Canadian Centre for Cyber Security.	Ensure compliance with laws, regulations, and legal requirements of the country where the application operates will be necessary to ensure security and generate a positive social impact.

Table 3 Stakeholder Summary

3.2 User Summary

User Name	Description	Responsibilities	Stakeholder
Restaurant Owners	They are key users of the platform who manage customer reservations, monitor demand in real time and adapt their resources based on wait times.	<ul style="list-style-type: none"> - Provide feedback on features and functionalities - Manage Customer Reservations - Participate in discussions to help adapt the application to real-world scenarios. - Train staff in the correct use of the platform 	Restaurant Owners
Customers	They are the ones who use the application to check the availability of restaurants, waiting times and making reservations in real time. We focused the design on them, since without their acceptance and dissemination the platform would not remain on the market.	<ul style="list-style-type: none"> - Provide feedback on overall experience with the app. - Test booking reservations and checking wait times features. - Participate in surveys - Recommend and increase app visibility. 	Customers

User Name	Description	Responsibilities	Stakeholder
Developers	They are responsible for building, testing and maintaining the app with the required security standards.	<ul style="list-style-type: none"> - Design and Implementation - Perform continuous and complete testing - Development in compliance with data security and privacy standards - Working with restaurant owners and customers to gather feedback to improve the app. - Ensure integration with external services. - Provide documentation for platform development and architecture. 	Development Team
Technology Providers	Provide the infrastructure that hosts the platform	<ul style="list-style-type: none"> - Enable and maintain the infrastructure that hosts the app. - Maintain platform stability during periods of high traffic. - Provide technical support - Guarantee availability of services. 	Tech Partners
Government and Regulatory Agencies		<ul style="list-style-type: none"> - Inspect data security and privacy regulations. - Ensure that all Canadian regulations, such as the Personal Data Protection Act, are complied with. - Conduct audits and implement laws on digital platforms. 	Government and Regulatory Agencies

Table 4 User Summary

4 Stakeholder Requirements

< Categorize and list the requirements from the perspective of the business stakeholder and potential system users >

ID	Requirement	Stakeholder
01	To be able to see how long a queue is at a restaurant	Customer
02	To be able to monitor the current situation of a restaurant and add/update the information regarding a restaurant	Restaurant Owner
03	To be able to post reviews	Customer
04	To be able to manage an application smoothly and offer support as needed	Admin

Table 5 Stakeholder Requirements

5 System Features

< List and briefly describe the system features. Features are the high-level capabilities of the system that are necessary to deliver benefits to the users. Avoid design. Keep feature descriptions at a general level. Focus on capabilities needed and why (not how) they should be implemented >

ID	Feature	Stakeholder Requirement ID
Features01	Real-time wait time Display: The system provides real-time information on wait times for customers based on current restaurant conditions, allowing users to plan their visit or explore alternative options	Stakeholder Requirement 01
Features02	Restaurant Management Portal: Allows restaurant managers to monitor customer flow, update table availability, and manage their restaurant's online presence	Stakeholder Requirement 02
Features03	Customer Review and Ratings: Customers can leave feedback about their dining experience, contributing to a community-driven rating system for future customers	Stakeholder Requirement 03

ID	Feature	Stakeholder Requirement ID
Features04	Admin Control Panel: A dedicated interface for administrators to ensure smooth system operation, provide technical support, and manage system updates	Stakeholder Requirement 04

Table 6 System Features

6 Assumptions

One of the most challenging the product have to face is the input data. A lot of restaurants will be concerned about the security of the data, especially with the real data inside their restaurants. In that case, the product needs to improvise and adapt with the other methods to gather the information. One of the good options is the scanning system. The pros are high security, ease to operate, however the cons are waste resources of human to in charge of scanning

The second assumption is the abuse of data inside of the product. The data will be in real time and public to regular users able to access, which means the bad factors like hackers or competitors are easy to take advantage of the data and do things outside of our control. To prepare for it, the product will need to have a KYC system to keep track of who is allowed to use the data.

7 Constraints

<List any process constraints, external constraints or other dependencies >

Internal Constraints

1. The team is full of students who are still in the process of learning, which means the time to develop will take longer than usual projects.
2. The working time will be different due to the part-time jobs of each member will be a barrier to having good communication and working collaboration.
3. The tight schedule of work inside the college and the time to job hunting after graduation will be another constraint about time and commitment of the member

External Constraints

1. The real data from the restaurant is not easy to have unless the team have a good/strong connection of the manager or restaurant owner.

2. Behavior of the real user and the insight of what they need required to gather the insight data and big quantities of user will be another constraint to make the app user friendly