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Main Street Pizza Website Project Proposal

Business Profile

Founded in 1996, Main Street Pizza is a privately-owned local pizzeria, with three locations, [redacted], that specializes in carryout and delivery. The establishment has become a staple in the community, offering a menu featuring pizzas, subs, wings, calzones, and more. With an estimated annual revenue of $230,000, Main Street Pizza has demonstrated financial stability and growth emphasized by the 28 years they have been severing pizzas to the community. The business is supported by a dedicated team of 18 employees committed to providing friendly and efficient service.

SWOT Analysis

Strength:

Prime location situated in the middle of a busy street, ensuring maximum visibility and accessibility for customers.

Competitive pricing that aligns with the high quality of offerings, providing excellent value compared to other businesses in the area.

Well-known for the popular "two slices for one" pizza slice special, offering an extra layer of affordability and enhancing the customer experience.

Weaknesses:

No active social media presence. Facebook page hasn't been posted on in over 2 years and the menu prices on said page are outdated.

No website, official online menu, or online ordering. People don't like ordering or asking about the unclear menu items over the phone.

No loyalty system.

Opportunity:

Google trends shows that Main Street Pizza Marquette is searched often. It is becoming very common for a Pizza Restaurant to have an online presence.

Reward systems for restaurants are becoming increasingly popular in the restaurant industry to establish and reward frequent returning customers.

A lot of people visit Marquette in the summer and pizza is quick, easy, and cheap for visitors.

Threats:

Domino's is becoming increasingly popular in the Marquette area.

Little Caesars is being worked on to reopen this summer.

Possible Project Ideas

1. Develop a website with an online ordering option and loyalty system.
2. Develop an app with mobile ordering and loyalty system.
3. Create new inventory database.

Proposed Project

The Problem

Main Street Pizza, confronts a considerable challenge with a notable absence of any online presence – lacking a website and remaining inactive on social media platforms. In an era where digital connectivity influences consumer interactions, Main Street Pizza finds itself at a distinct disadvantage compared to other pizza businesses in the area. Prospective patrons are missing out on the chance to discover the restaurant's delectable offerings, and the current lack of an online platform hinders customers from exploring the menu or placing orders. Beyond mere inconvenience, this not only denies Main Street Pizza the opportunity to broaden its reach, build a loyal online community, and tap into the flourishing trend of digital interactions within the food industry but also translates into a tangible loss of profit. The restaurant is unable to capture potential online sales, impacting revenue potential and hindering its ability to stay competitive in a culinary landscape that continues to evolve rapidly.

Proposed Solution

To tackle Main Street Pizza's challenge of lacking an online presence, we propose a comprehensive strategy. This includes developing an engaging website for menu browsing, seamless online ordering, and finding out store information. This integrated approach aims to bridge the digital gap, positioning Main Street Pizza as a modern, customer-centric establishment. Additionally, a dynamic loyalty system within the website will not only entice customers digitally but also reward their loyalty through points and exclusive offers, enhancing the restaurant's competitive edge and profitability in the ever-evolving culinary landscape.

In-scope:

1. **Online Menu Creation:** Designing an aesthetically pleasing and comprehensive online menu, showcasing Main Street Pizza's offerings.

2. **Online Ordering Functionality:** Implementing a secure and user-friendly online ordering system on the website, allowing customers to customize their pizza orders, add items to their virtual carts, and complete transactions seamlessly.

3. **Customer Loyalty Program:** Introducing a loyalty program incentivizes customer retention and fosters brand loyalty. By rewarding customers for their patronage, you encourage repeat business and strengthen relationships with customers.

Out of Scope:

1. **POS System Integration:** The integration of the online ordering system with the in-store Point-of-Sale (POS) system is considered out of scope. The project focuses on the customer-facing aspects of online ordering.

2. **Inventory Management Integration:** Integrating the online ordering system with the backend inventory management system is not within the project scope. Inventory tracking and management will remain an independent process.
3. **Third-Party Delivery Service Integration:** Integrating with third-party delivery services is considered out of scope. The project centers on establishing Main Street Pizza's online presence, while external delivery services will be managed separately.

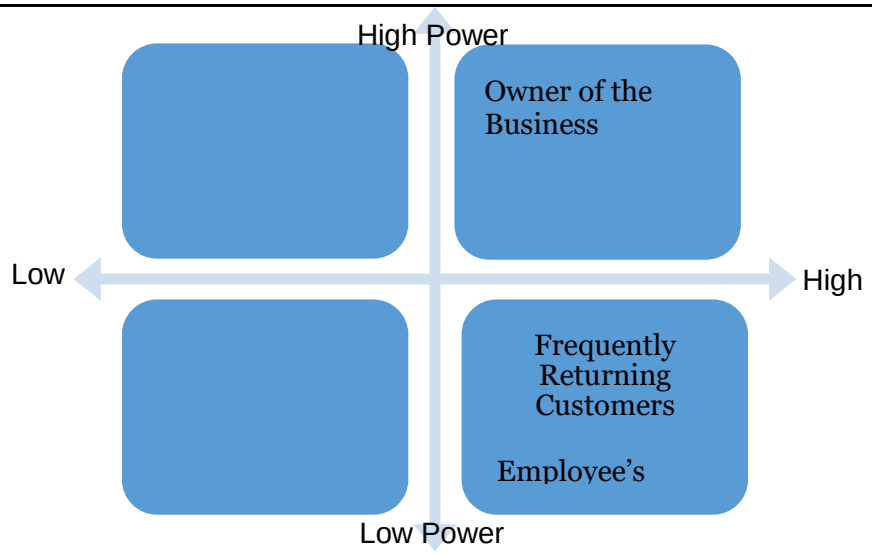
Anticipated Benefits of the Proposed Solution

This project offers many benefits to the Main Street Pizza owner, employees, and customers. Adding a website with online ordering functionality have been shown to increase sales upwards of 20%, due to increase of customer order size and customer loyalty. This benefits employee productivity because they won't have to take as many orders over the phone. The consumers should also be very satisfied with this project as it will make it more convenient and gives them the ability to see the full menu with accurate prices as well as potentially saving them money with the new loyalty reward system.

Economic Analysis

1	Discount Rate	12%					
2							
3			Years				
4		0	1	2	3		
5	Discount Factor	1	0.89	0.80	0.71		
6							
7	**Development Expenses**						
8	Developers	$8,000					
9	Designers	$2,000					
10	Licenses Fees	$500					
11							
12						Total Discounted	
13	**Total Dev. Expenses**	$10,500				$10,500	
14							
15	**Ongoing Expenses**						
16	Servers		$ 1,000.00	$ 1,000.00	$ 1,000.00		
17	Maintenance Contract		$ 3,600.00	$ 3,800.00	$ 4,000.00		
18							
19	**Total Outgoing Expenses**		$ 4,600.00	$ 4,800.00	$ 5,000.00		
20	**Total Discounted Expenses**		$ 4,107.14	$ 3,826.53	$ 3,558.90	$ 11,492.57	
21							
22	**Income**						
23	Increased Sales		$ 10,000.00	$ 12,000.00	$ 15,000.00		
24	Walk-ins		$ 1,000.00	$ 1,000.00	$ 1,000.00		
25							
26	**Total Income**		$ 11,000.00	$ 13,000.00	$ 16,000.00		
27	**Total Discounted Income**		$ 9,821.43	$ 10,363.52	$ 11,388.48	$ 31,573.43	
28							
29	Annual Cash Flow	($10,500)	$ 6,400.00	$ 8,200.00	$ 11,000.00		
30	Cumulative Cash Flow	($10,500)	($4,100)	$4,100	$15,100		
31							
32	Net Present Value	9,581					
33	NPV (formula)	9,581					
34	ROI	54.969%					
35							

Stakeholder Analysis



Owner – Paying for the project. Has control of the budget and will have to sign off on everything.

Employee's- The implementation of a website may reduce the number of employee's needed to be operational. Will also affect the workflow of the kitchen.

Returning Customers – Will make it easier to order and will have loyalty reward system.

Triple Constraint

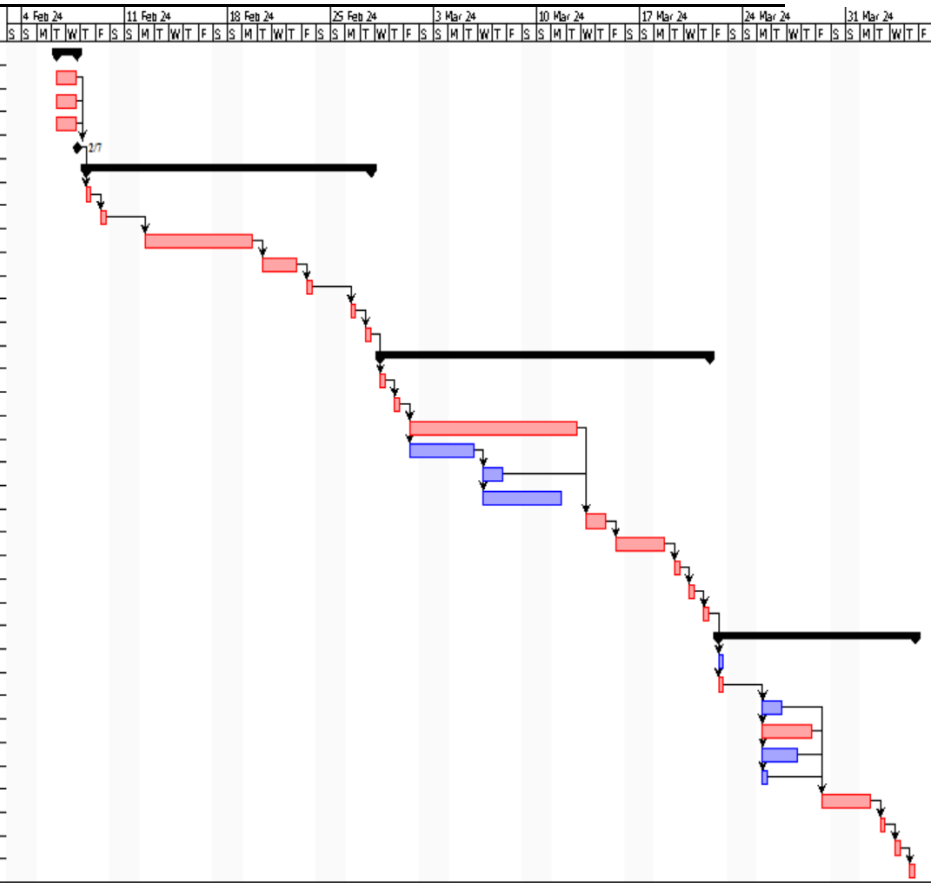
The financial aspect stands as the foremost challenge for Main Street Pizza, where cost serves as the pivotal constraint. Should our expenditures surpass the anticipated budget, it may necessitate the removal of certain features from the website. Furthermore, such a scenario could potentially lead to project delays, especially if we opt for lengthier but more cost-effective alternatives. Hence, a careful and judicious financial management approach is imperative to ensure the successful and timely execution of the project.

Development Methodology

For this project an agile method will be used. It's important to get establish an online presence as soon as possible. We need website up and running fast that includes basic information like a menu, phone number and address of each store. The online ordering and loyalty system will take a lot longer to develop and can be added to the website at a later time. It also gives us time to monitor website traffic and listen to feed back to ensure that the lunch of online ordering and loyalty system will be successful.

Work Breakdown Structure

	Name	Duration	Predecessors
1	**Planning**	**2 days**	
2	SWOT Analysis	2 days	
3	Economical Analysis	2 days	
4	Feasablity Analysis	2 days	
5	Owner Signoff	0 days	4;3;2
6	**Sprint 1**	**14 days**	
7	Size the sprint	1 day	5
8	Talk to customers	1 day	7
9	Develop Website with m...	6 days	8
10	Graphically enhance web...	3 days	9
11	test	1 day	10
12	deploy	1 day	11
13	end of sprint review	1 day	12
14	**Sprint 2**	**17 days?**	
15	size the sprint	1 day?	13
16	talk to customers	1 day?	15
17	program online ordering	8 days	16
18	Create account data base	3 days	16
19	add credit card system	2 days	18
20	Code backend program t...	4 days	18
21	Refine graphic design	2 days	19;17
22	run security analysis	2 days	21
23	test	1 day	22
24	deploy	1 day?	23
25	end of sprint review	1 day?	24
26	**sprint 3**	**10 days?**	
27	size the sprint	1 day?	25
28	talk to customers	1 day?	25
29	Add estimated wait time	2 days	28
30	Add Loyalty system	4 days	28
31	Add deals section	3 days	28
32	Add favorite orders	1 day	28
33	run security analysis	2 days	29;30;31;32
34	test	1 day	33
35	deploy	1 day?	34
36	end of sprint review	1 day?	35



Critical Path

To start off in good standing, the SWOT Analysis, Economical analysis, and Feasibility are all part of the critical path as the owner has to sign off and them in order to move forward. All of sprint 1 is on our critical path because we're unable to complete a task without completing the task before. Moving into sprint 2 the main thing that needs to be completed on time is the programing of the online ordering. This is because we need to test the system and everything will be delayed if this is delayed. In sprint 3 the loyalty system is in the critical path, while this is being worked on we have slack time to add small "quality of life" features. All of these features need to be done for testing and deployment.

Fact Finding

Survey:

Owner/managers:

What challenges do you currently face in managing orders and customer interactions?
How do you envision the online menu benefiting your business operationally?
Are there specific features or functionalities you would like to see in the online ordering system?
How do you manage inventory, and how can the system integrate with these processes?

Staff:
How do you currently handle order influx during peak hours?
What difficulties do you encounter in customization or special requests?
How can the online system be designed to improve workflow and order accuracy?
Are there specific menu items that are popular but challenging to prepare?

Customers:
What factors influence your decision to order from Main Street Pizza?
What challenges have you experienced with the current ordering process?
How important is customization and special instructions in your pizza ordering preferences?
What incentives would encourage you to use an online loyalty system

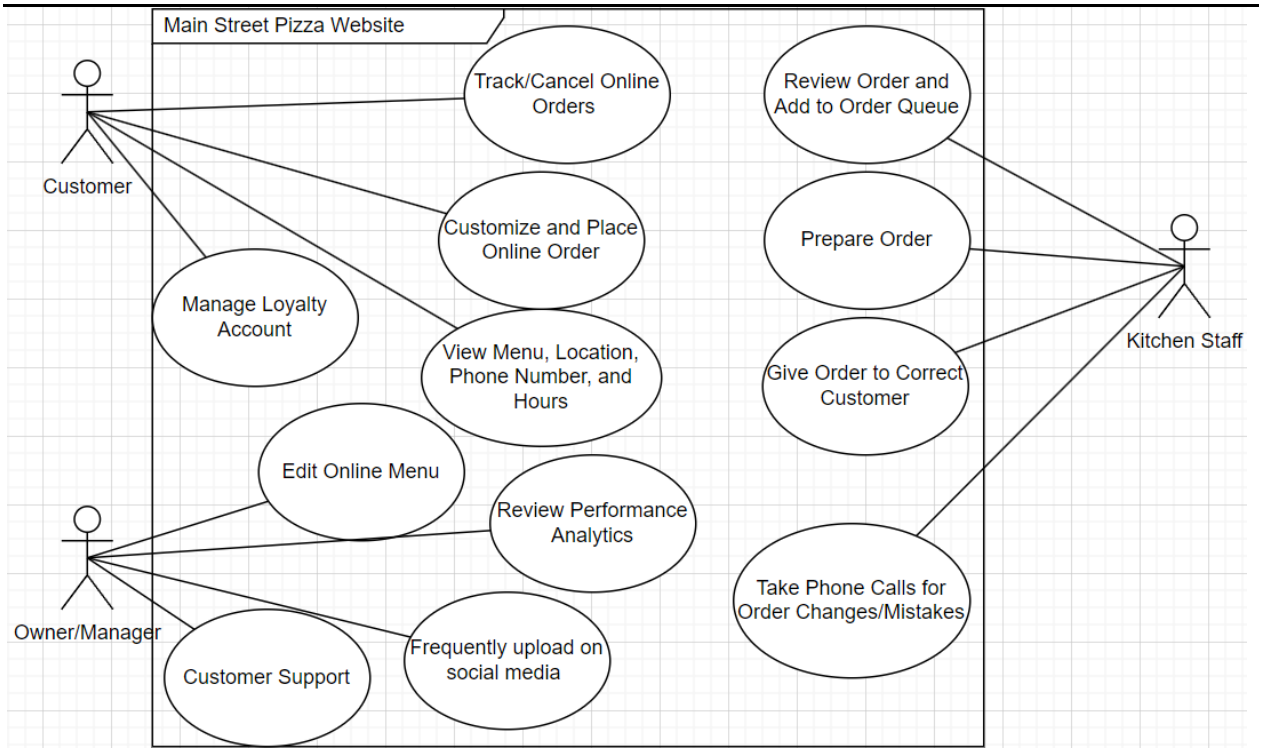
Document Review:
Review of Existing Menu and Order Records:

- Analyze current menu offerings and pricing to determine the scope of items to be included in the online menu.
- Examine past order records to identify common customer preferences, popular menu items, and any recurring issues in the ordering process.

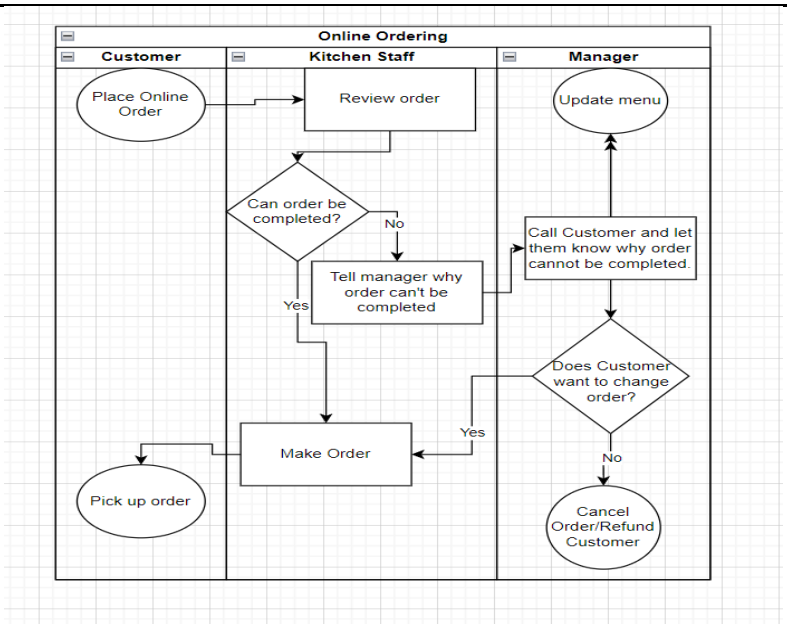
Analysis of Customer Feedback and Complaints:

- Study customer feedback forms, online reviews, and complaint logs to identify recurring issues, customer preferences, and areas for improvement.
- Look for patterns or trends in customer complaints or suggestions related to ordering convenience, menu clarity, or wait times.

Use Case Diagram



Swim Lane Diagram



Alternative Analysis

Option #1: In-house website hosting - Main Street Pizza would embark on creating a custom website hosted within the establishment. An in-house website hosting solution involves the establishment and maintenance of servers on the premises of the establishment itself. Main Street Pizza, by opting for on-premises hosting, embraces a model that grants them absolute control over the server environment, a unique advantage that extends to meticulous data management. The process begins with the careful setup of dedicated servers on-site, allowing the restaurant to tailor the server configurations to align precisely with their specific operational needs. This level of control not only fosters a heightened sense of autonomy but also positions Main Street Pizza at the helm of their digital infrastructure.

Option #2: Mobile App: Investing in the development of a dedicated mobile app for online ordering represents a strategy focused on catering to the increasing use of mobile devices in the food industry. By investing in a custom app, Main Street Pizza aims to craft an immersive and seamless online ordering experience, specifically designed for the convenience of smartphone users. The envisioned app transcends traditional ordering methods, embracing a personalized interface that intuitively guides users through the menu, customization options, and seamless checkout processes.

Option #3: Third-party online ordering system: Main Street Pizza might consider integrating with established third-party online ordering systems such as Square, Toast, or Zomato. This involves linking the restaurant's menu and ordering process to a pre-existing online platform with a wide user base. Leveraging an existing platform provides immediate access to a broad audience already accustomed to using the third-party service the collaboration not only facilitates swift implementation but also positions the restaurant in the heart of a dynamic digital marketplace.

Option #4: Developing Cloud hosted website: The development of a custom website hosted on cloud infrastructure involves harnessing the power of leading cloud platforms like Amazon Web Services (AWS), Microsoft Azure, or Google Cloud to construct and host an entirely tailored online presence. By opting for a cloud-based website, Main Street Pizza embarks on a is able to have the beauty of customization while also having the efficiency of the cloud. This endeavor signifies not just a digital presence but a fully customized, scalable, and dynamic platform designed to elevate Main Street Pizza's brand in the online realm.

Option	Pros	Cons
In house website hosting	**Complete Control:** Grants absolute control over the server environment, allowing for tailored configurations. **Reduced Dependency:** Hosting locally minimizes reliance on external service providers, offering autonomy in data management.	**High up-front cost:** In-house servers require a substantial upfront cost, including server hardware, networking infrastructure, and security measures. **Limited Scalability:** Scaling the infrastructure may be challenging, potentially requiring additional investments.
Mobile App	**Mobile-Focused Experience:** Provides a streamlined and user-friendly ordering experience. **Brand Presence on Devices:** An app can enhance Main Street Pizza's brand visibility by residing on users' devices.	**Development Costs:** Creating and maintaining incurs additional development costs, potentially impacting the budget. **User Resistance to App Downloads:** Customers may be hesitant to download and install a dedicated app.
Third Party Online Ordering System	**Quick Implementation:** Integration with established third-party systems allows Main Street Pizza to swiftly enter the realm of online ordering. **Access to Established User Base:** Leveraging partnerships with platforms like Square, Toast, or Zomato grants immediate access to a vast and diverse user base already acclimated to the service.	**Commission** Fees: The potential of commission fees per transaction, impacting the overall profitability of Main Street Pizza. **Limited Customization:** Potentially restricting Main Street Pizza's ability to tailor the online ordering experience to their unique brand identity and operational requirements.

Developing Cloud Hosted Website	**Scalability and Flexibility:** The cloud-based approach allows Main Street Pizza to scale resources dynamically, ensuring the website can handle varying levels of online traffic efficiently. **Cost Efficiency:** Operating on a pay-as-you-go model, cloud hosting minimizes upfront costs and allows Main Street Pizza to pay only for the computing resources they consume.	**Learning Curve:** Transitioning to cloud-based hosting may necessitate a learning curve for Main Street Pizza's team, particularly if they are new to cloud infrastructure. **Potential Ongoing Costs:** While cost-efficient, ongoing cloud usage can accrue expenses, and Main Street Pizza needs to manage and monitor their usage for optimal cost-effectiveness.

Option #4: Developing Cloud hosted website due to its unparalleled blend of customization and operational efficiency. The decision to harness cloud-based development allows the restaurant to exercise absolute control over every facet of the website, ensuring it becomes a bespoke representation of Main Street Pizza's brand identity. Simultaneously, the inherent scalability of cloud hosting provides flexibility to seamlessly adapt to fluctuating online traffic, aligning with the restaurant's growth trajectory. The pay-as-you-go model ensures cost efficiency, allowing Main Street Pizza to optimize resource utilization and allocate financial resources judiciously. In essence, Option #4 strikes an exquisite balance between customization and efficiency, propelling Main Street Pizza into the forefront of digital innovation within the modern food industry.

Vulnerability and Threat Assessment

Threat	Likelihood of Harm	Severity of Harm	Controls
Hackers exploit a bug in the website to steal customer data	Low	High	1) Hire penetration testers quarterly to review the site 2) Periodically audit code
Customer exploit a bug in the website to get free food	Moderate	Moderate	1)Perform proper bug testing.
Employee's exploit "pay at store" feature to get friends free food.	Low	Low	1)Have strict rules for employees to follow.
Hackers exploit server and delete data.	Moderate	High	1) Implement automatic backups.
Hackers exploit input validation failure and use SQL injection.	Moderate	Low	1) Implement comprehensive input validation techniques.

Hacker exploits weak security measures and inject malicious code.	Moderate	High	1)Robust Encryption Protocols 2)Regular security audits.

Development Risks

Environments:

Development Environment: Developers should work in controlled development environments where they have limited access to sensitive data and resources.

Testing Environment: A separate testing environment should mirror the production environment as closely as possible.

Production Environment: The production environment should be isolated and hardened to prevent unauthorized access.

Client-Server Code Separation:

Client-Side Code: Only necessary code and resources required for the client-side operation should be served to the client browser. This includes HTML, CSS, and JavaScript for rendering the user interface and handling client-side interactions.

Server-Side Code: Critical operations, including data processing, authentication, and authorization, should be performed on the server-side. Server-side code should be thoroughly validated, sanitized, and protected against common vulnerabilities such as injection attacks.

Preventing Data Exposure:

Encryption: All sensitive data should be encrypted both in transit and at rest.

Access Controls: Implement strict access controls to restrict user access to sensitive data using role-based access control.

Data Masking: Mask or anonymize sensitive data whenever possible, especially in non-production environments or during testing.

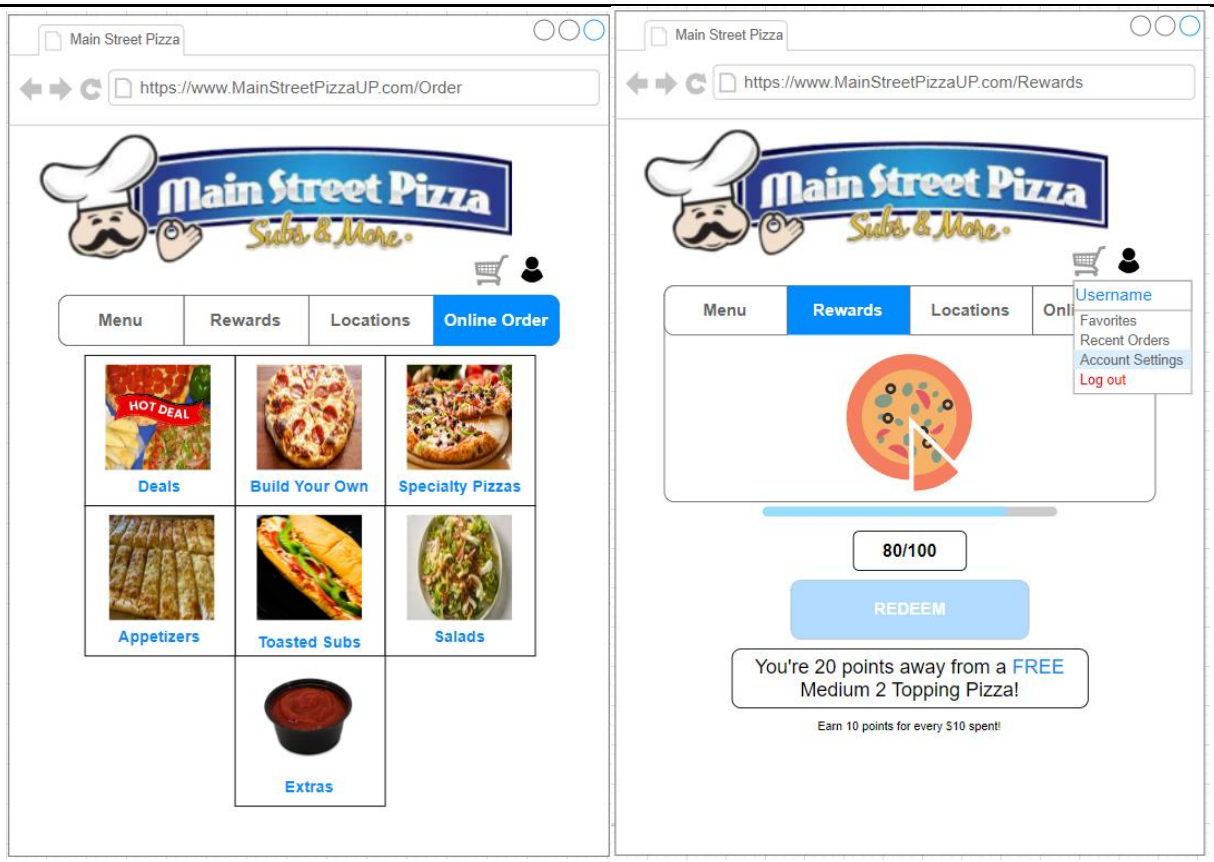
Data Validation Techniques:

Input Validation: Validate all user input on both client and server sides to prevent injection attacks.

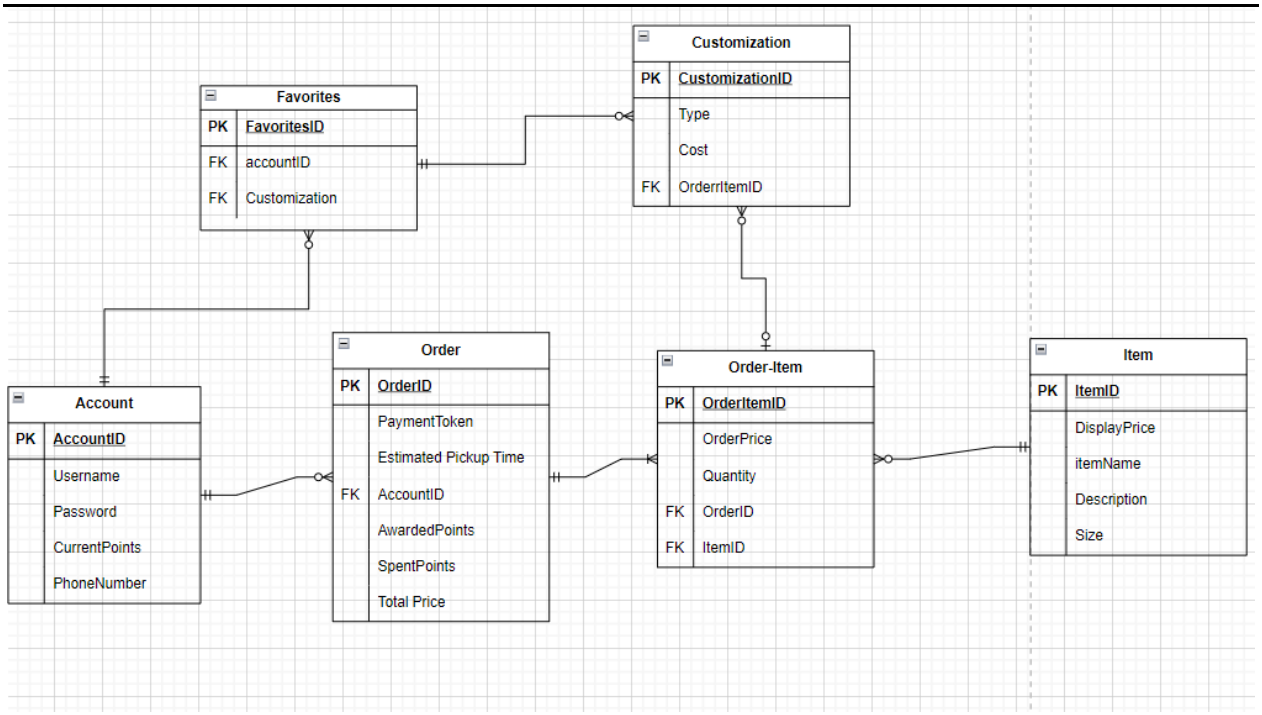
Parameterized Queries: Utilize parameterized queries or prepared statements to interact with databases, preventing SQL injection attacks

Whitelisting: Implement whitelisting approaches to specify allowed input patterns or values, rejecting any input that does not conform to predefined criteria.

User Interface Design



Entity Relationship Diagram



Supply Chain

1) Should the company outsource the development of the system? Why?
Yes, Mainstreet Pizza should outsource the development of its website as it does not have the in-house resources or expertise.

2) Should the company offshore development of the new system? Why?

No, the website should be developed by a team that we can closely work with to insure its quality and integrity.

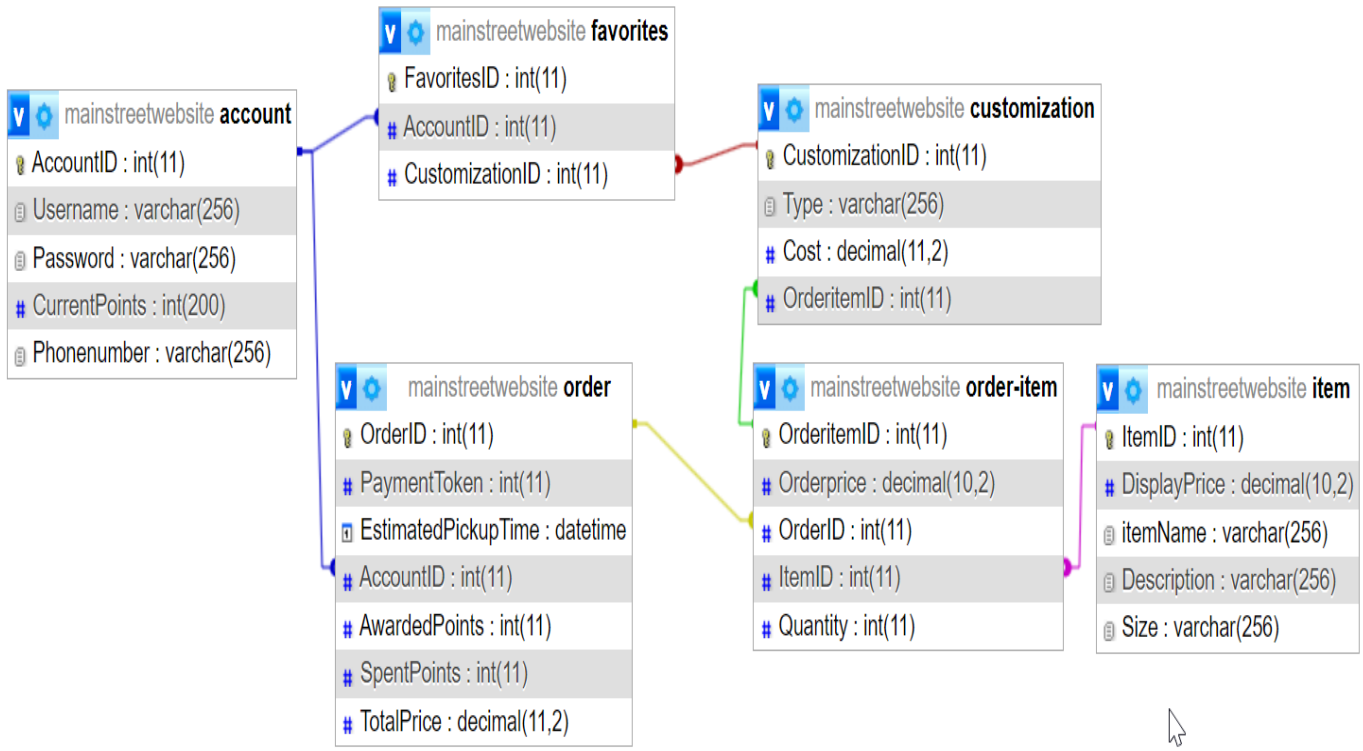
3) Should the company reuse publicly available code for the new system? For example, the company might want to use an open-source calendar widget found on the internet. What would be the risks of incorporating third-party code into the application?

No, to insure the security of our database no publicly available code should be used for the system. Third-party code puts our system at risk as it could possibly contain malicious code.

4) Are there any material concerns about the hardware supply chain?

Since we will be using cloud based hosting and outsourcing development, there are not any concerns about the hardware supply chain for this project.

Database Tables



Database Data

	AccountID	Username	Password	CurrentPoints	Phonenumber
Edit Copy Delete	0	Jsmith	?□N??□j□`□□??□j*	50	906-135-1929
Edit Copy Delete	1	MarkyMark	?4Qi&????Q□??□	30	713-458-2203
Edit Copy Delete	2	EligantJoy	T?□?□?;??\?u?□<;	20	906-472-6982

	CustomizationID	Type	Cost	OrderitemID
Edit Copy Delete	1	No Mushrooms	0.00	1
Edit Copy Delete	2	Add Bacon	1.50	3
Edit Copy Delete	3	Add Onion	0.00	2

	OrderID	PaymentToken	EstimatedPickupTime	AccountID	AwardedPoints	SpentPoints	TotalPrice
Edit Copy Delete	1	798472981	2024-04-09 22:04:15	0	0	0	7.00
Edit Copy Delete	2	927304523	2024-04-09 22:06:37	1	30	0	34.98
Edit Copy Delete	3	407879809	2024-04-09 22:08:08	2	20	0	22.94

	ItemID	DisplayPrice	itemName	Description	Size
Edit Copy Delete	1	16.99	Street Special Pizza	Pepperoni, Ham, Mushrooms, Onions, Green Peppers, ...	14"
Edit Copy Delete	2	5.95	Street Stix	Eight Delicious Garlic Buttered Bread Stix	N/A
Edit Copy Delete	3	7.00	Chef Salad	Fresh Lettuce, Topped with Cheese, Tomato, Cucumbe...	N/A

	OrderitemID	Orderprice	OrderID	ItemID	Quantity
Edit Copy Delete	1	34.98	2	1	2
Edit Copy Delete	2	7.00	1	3	1
Edit Copy Delete	3	16.99	3	1	1
Edit Copy Delete	4	5.95	3	2	1

	FavoritesID	AccountID	CustomizationID
Edit Copy Delete	1	1	1
Edit Copy Delete	2	0	2
Edit Copy Delete	3	2	3

Change Management

Technical strategy

We will adopt a modular approach to the development, breaking down the project into smaller, manageable modules or features. Each module will be developed and tested independently before integration into the main website. Modular development allows for flexibility, scalability, and easier management of changes or updates. It also facilitates parallel development by multiple teams or developers, accelerating the overall progress of the project.

Testing

Pre-implementation Testing:

- Unit Testing: Each module or component of the website will undergo unit testing to verify its functionality in isolation.
- Integration Testing: Once individual modules are tested, integration testing will be conducted to ensure seamless interaction between different components.
- User Acceptance Testing (UAT): End-users, including Main Street Pizza staff, will participate in UAT to validate that the website meets their requirements and expectations.

Post-implementation Testing:

- Regression Testing: After deployment, regression testing will be performed to ensure that the new system does not adversely affect existing functionalities.
- Performance Testing: Load and stress testing will be conducted to assess the website's performance under various traffic conditions.

People

Changes and updates regarding the website development will be communicated through multiple channels, including email updates, staff meetings, and internal newsletters. Training sessions will be provided to Main Street Pizza staff to familiarize them with the new website's features and functionalities. Training materials, such as user guides and video tutorials, will also be made available.

Back out

In the event of unforeseen issues or failures during implementation, a backout plan will be in place to restore the previous functionality and minimize disruption to business operations.

Backout Plan:

- Backup: Regular backups of the existing system will be maintained to facilitate quick restoration in case of emergencies.
- Rollback Procedure: Automated rollback scripts will be prepared to revert any changes made during implementation to the previous working state.

Support Plan

Support Tiers

Tier	Responsible	Tasks
Tier 0	Frequently Asked Questions Page	comprehensive list of answers to the most common user questions to provide self-service support.
Tier 1	Main Street Pizza Kitchen Staff	Answering customer questions related to menu items, ingredients, and preparation methods.
Tier 2	Main Street Pizza Manager	Aiding with more complex customer inquiries, managing refunds, and facilitating order changes or corrections.
Tier 3	Main Street Pizza Owner	Resolving high-level customer complaints or issues that cannot be resolved by lower tiers and making executive decisions as necessary.
Tier 4	Website Developer	Troubleshooting and fixing any website-related issues, implementing new features or functionality, and ensuring the smooth operation of the online platform.

Maintenance

Type	Planned Tasks
Adaptive	Adapting to Regulatory Changes: If there are any changes in regulations related to food safety or online payment processing, the website and online ordering system will need to be adapted accordingly to ensure compliance.
Perfective	Based on user feedback and analytics data, continuous improvements will be made to the website's user interface, navigation flow, and checkout process to enhance user satisfaction and streamline the ordering experience.
Corrective	If errors are found in the menu configuration, such as incorrect item descriptions or missing menu items, the database will be updated promptly to ensure accuracy.
Preventative	Regular security audits and vulnerability assessments will be conducted to proactively identify and address potential security threats or vulnerabilities in the website and online ordering system.

Executive Summary

The Problem

Main Street Pizza is experiencing a decline in customer satisfaction and retention due to the absence of an online ordering system and loyalty system. A significant portion of potential customers prefer the convenience of online ordering, leading to lost sales opportunities and reduced competitiveness in the market.

The Solution

A website, MainstreetpizzaUP.com, will be constructed to provide both upper peninsula residents and tourist visiting the area, a platform to view the menu, location details, place an online order and manage loyalty account.

The Benefits

- Projected to increase sales by 20% from increased order size and customer loyalty.
- Increases the productivity of the kitchen by decreasing the amount of over the phone orders.
- Increases customer satisfaction by adding the convince of online ordering.