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| A magnifying glass over a box  Description automatically generated  Inventory Control System Business Case  Rabia, Kegan, Luis | Abstract  WalmKrogCost needs a new scalable inventory control system for their growing chain of grocery stores.  Cortes  CIST 2931: Advanced Systems Project |

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DATE: August 31, 2023

PROJECT NAME: WalmKrogCost Inventory Control System

SUBMITTED BY: Rabia, Cortes, Kegan

PROJECT APPROVED BY:

DATE APPROVED:

# Executive Summary:

WalmKrogCost are now looking to expand their operations into a second store in the state. They have contracted us to create a new backend system built using Java that will have the functionality to create, read, update, and remove inventory items for their retail store. The old system could only track products SKU, name, and quantity. The new system created from the ground up plans to have more trackable features and logic features to make day to day functions easier.

# Problem:

The current inventory management system is extremely basic and is more suited to smaller local storefronts. The current system lacks many item details that are needed for analytics such as margin, and employee daily notification systems. The following are the identified problems with the current inventory system:

## Problem 1: Inadequate Inventory Management

**Goal/mission relevance**: The grocery store's mission is to provide customers with a wide selection of products while maximizing profitability and operational efficiency.

The current inventory management system is too basic and lacks essential item details such as margin percentages. The new system with CRUD capabilities and sorting criteria (name, category, price, margin) will enhance inventory control, streamline operations, and ensure optimal product availability. This directly aligns with the mission of maximizing profitability and operational efficiency while offering a diverse range of products to customers.

## Problem 2: Limited Item Details for Analytics

**Goal/mission relevance**: To achieve its mission, the grocery store needs to make data-driven decisions, optimize pricing, and maximize margins.

The new inventory control system will capture crucial item details such as margin percentages, enabling the store to conduct more comprehensive analytics. This data can be used to make informed decisions about pricing strategies, product assortment, and stocking levels, aligning with the mission's objective of data-driven decision-making for profitability.

## Problem 3: Inefficient Employee Workflow

**Goal/mission relevance**: Enhancing employee efficiency is crucial for providing a better customer experience and optimizing store operations.

The logic system integrated into the new inventory control system will inform employees of daily changes, improving their workflow. Employees can efficiently push items from the back and promote high-gross items to seasonal sections. This directly contributes to better store operations, customer satisfaction, and achieving the organization's mission.

## Problem 4: Customer Satisfaction

**Goal/mission relevance**: A key goal for the grocery store is to provide customers with a positive shopping experience and meet their needs effectively.

By ensuring accurate inventory data, efficient item management, and informed employee actions, the new system enhances customer satisfaction. Customers can find the products they want, leading to a more positive shopping experience and loyalty. This aligns with the organization's mission of meeting customer needs and ensuring their satisfaction.

In summary, the project to overhaul the inventory control system directly addresses various operational challenges that impact the grocery store's ability to achieve its goals and mission. It improves inventory management, analytics capabilities, employee workflow, and customer satisfaction, all of which are essential elements in fulfilling the organization's mission of providing a wide range of products, maximizing profitability, and offering an excellent shopping experience to customers.

# Analysis:

Inventory management systems are critical infrastructure for retail stores and are make or break for organizations. Many smaller stores will lease out the software they use on an annual basis, which can be more cost effective then investing in custom software. Many businesses instead choose to create their own software, to ease costs in the future by eating a large one upfront. A large disadvantage to leased software besides cost, are that the corporation does not own them, therefore cannot make changes to the software to meet business needs. The larger WalmKrogCost gets, the more unique their software will have to be, and the software we will create will be easily upgradeable and changeable to meet business needs.

Luis Cortes will be the lead software developer. Rabia will be lead project developer. Kegan will be super software tester.

# Finances:

Based upon median wages for java software developers being sixty-thousand dollars and the estimated time to finish the software around six months, the estimated project cost will be one-hundred and fifty thousand dollars. With a small team and a small development window, this figure is reasonable, with the cost of a project manager and three java developers. After development is concluded, the developers can be kept on to maintain and push updates to the application. As retail and business is ever evolving, maintaining a development team is critical to keep up with the industry.

# Possible Options:

Based on the information provided and considering the specific challenges faced by the grocery store, I recommend custom software development as the best option for overhauling their inventory control system. Here's why custom software development is the preferred choice and how to address associated risks:

Advantages of Custom Software Development:

Tailored to Specific Needs: Custom software can be designed and developed to precisely match the grocery store's unique requirements. This ensures that all features, including CRUD functionality, sorting criteria, and the logic system for daily changes, are designed with the store's specific workflows and goals in mind.

Scalability: Custom software allows for scalability as the store grows. It can be adapted and expanded to accommodate future needs and changes in the business environment.

Integration: Custom software can be seamlessly integrated with existing systems such as point-of-sale (POS) and accounting software, enabling a more cohesive and efficient overall operation.

Data Security: With custom software, the store has greater control over data security and can implement robust security measures to protect sensitive information, such as sales data and pricing details.

Long-Term Cost Efficiency: While custom development may have an initial investment, it often proves cost-effective in the long run. It eliminates the need for ongoing licensing fees associated with off-the-shelf or cloud-based solutions.

Addressing Risks:

Budget and Timeline: Custom development projects can sometimes exceed initial budgets and timelines. To mitigate this risk, it's crucial to have a well-defined project scope and conduct thorough requirements analysis. Regular communication with the development team and project management can help monitor progress and control costs.

Technical Expertise: The store may lack in-house technical expertise for software development. To address this, they can hire an experienced software development team or partner with a reputable software development company with a track record in similar projects.

Testing and Quality Assurance: Ensuring that the custom software is thoroughly tested and free of bugs is essential. The project should include a comprehensive quality assurance and testing phase to identify and resolve any issues before deployment.

User Training: Employees will need training to use the new system effectively. A well-structured training program should be implemented to ensure a smooth transition.

Data Migration: If the store is transitioning from an existing system, data migration can be complex. A robust data migration plan should be developed to minimize data loss or discrepancies during the transition.

Backup and Disaster Recovery: Implement a robust backup and disaster recovery plan to safeguard critical data and ensure business continuity in case of unexpected events.

In conclusion, custom software development offers the most tailored and flexible solution to overhaul the grocery store's inventory control system, aligning with the specific needs and mission of the organization. By addressing potential risks through careful planning, project management, and collaboration with experienced development professionals, the store can successfully implement a custom solution that optimizes inventory management and supports its long-term goals.

# Recommendation:

Advantages of Custom Software Development: Tailored to Unique Needs: Custom software can be designed specifically to meet the unique requirements and workflows of the grocery store. This ensures that all features, including CRUD functionality, sorting criteria, and the logic system for daily changes, are aligned with the store's goals and mission. Scalability: Custom software allows for scalability as the store grows. It can be adapted and expanded to accommodate future needs and changes in the business environment, ensuring a long-term solution. Integration: Custom software can seamlessly integrate with existing systems such as point-of-sale (POS), accounting software, and other relevant tools. This integration streamlines operations and enhances efficiency. Data Security: With custom software, the store has greater control over data security. Robust security measures can be implemented to protect sensitive information, such as sales data and pricing details, reducing the risk of data breaches. Flexibility and Customization: The store can make adjustments and customizations as needed, ensuring that the software remains aligned with evolving business requirements and market trends. Addressing Risks: Budget and Timeline Management: Custom software development projects can sometimes exceed initial budgets and timelines. To mitigate this risk, the store should conduct thorough requirements analysis, define a clear project scope, and implement effective project management practices to monitor progress and control costs. Regular communication with the development team is essential. Technical Expertise: The store may lack in-house technical expertise for software development. To address this risk, they should consider hiring an experienced software development team or partnering with a reputable software development company with a proven track record in similar projects. This ensures that the project is handled by experts who can deliver a high-quality solution. Testing and Quality Assurance: Rigorous testing and quality assurance procedures should be implemented to identify and resolve any bugs or issues in the software. A comprehensive testing phase should be included in the project plan to ensure a stable and reliable system. User Training: Employees will require training to effectively use the new system. The store should develop a well-structured training program to ensure a smooth transition and provide ongoing support for users. Data Migration: If transitioning from an existing system, data migration can be complex and risky. A detailed data migration plan should be developed to minimize data loss or discrepancies during the transition. Regular data validation checks can help ensure data integrity. Backup and Disaster Recovery: Implementing a robust backup and disaster recovery plan is critical to safeguard critical data and ensure business continuity in the event of unexpected events or data loss. In conclusion, custom software development is the best option for overhauling the grocery store's inventory control system due to its tailored nature, scalability, and ability to meet the specific needs of the organization. By addressing potential risks through careful planning, expert assistance, and thorough testing and training, the store can successfully implement a custom solution that optimizes inventory management and aligns with its mission and goals.

# PROPOSED EXECUTION TIMELINE:

· Business case approved: September 3, 2023

· Software vendor (Client) signed: September 4, 2023

· Project work start date: September 15, 2023

· First demo: January 1, 2024 - Tentative

· Second demo: TBD (approximately two weeks after first demo)

· Testing by super users and IT: TBD

· Business signoff: TBD

· Go-live date: February 1, 2024 -Tentative

· Training for end users: TBD

· Project post-mortem: TBD

# PROJECT GOVERNANCE:

· Executive sponsor: Adé R. Thompson, CEO

· Business owner: Jack Nicholson, VP of operations

· Project manager: Rabia, senior project manager

· IT Lead: Luis Cortes, lead software developer

· Super user/tester: Kegan, operations supervisor

· Trainer: Software vendor will hold webinars for our users