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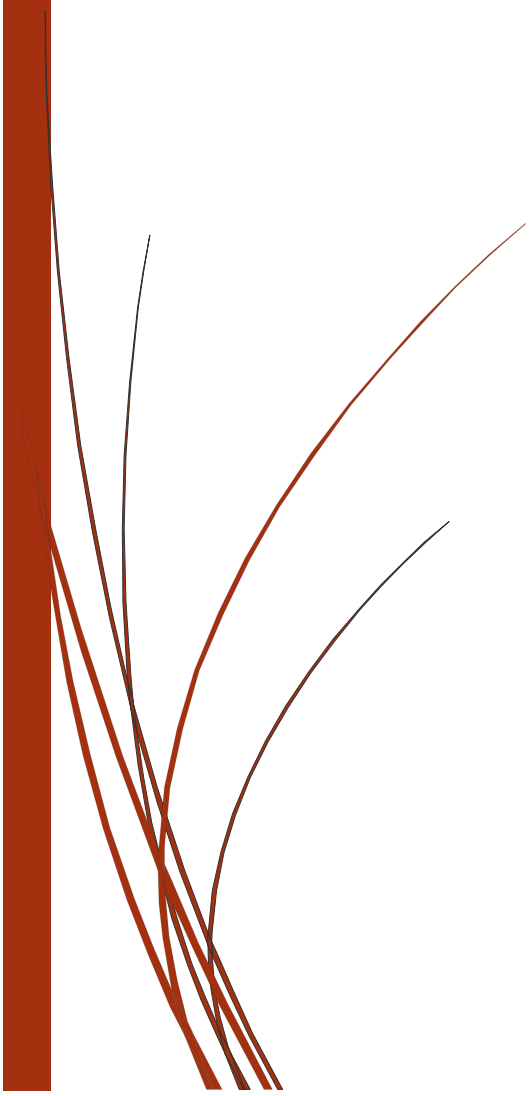
Feasibility Study for a Restaurant Inventory Management System

The Soul Restaurant



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SYSTEM REQUEST

- Project Name: Soul Restaurant Inventory
- Project Sponsor: Jennifer Zakorski
- Business Need: Client currently tracks and monitor inventory levels for orders and restock using a manual and cumbersome process via paper documentation. The client would like a management system to track and monitor order and inventory count.
- Functionality
- Expected Cost / Value
- Constraints, Special Conditions

OVERVIEW OF EXISTING SYSTEM

The current ordering system automatically turns on at 10am and turns off at 1pm

- The owner is currently taking orders from five different delivery apps, including GrubHub, Postmate, UberEat, DoorDash, and Amazon Restaurants and then she goes to her kitchen located in Seattle to check the inventory.
- After taking a stock of the inventory and what she needs, she goes to Kent to shop for the ingredients.
- She comes back to her kitchen in Seattle with the grocery and starts cooking.

DESCRIPTION OF BUSINESS NEED / PROBLEM / REQUIREMENTS

DESCRIPTION OF BUSINESS NEED

The Soul Restaurant is a to go soul food restaurant that takes orders out of a conventional kitchen in Seattle and delivers lunch and dinner orders to residences and businesses. They receive orders in the afternoon through the night for the upcoming days ahead. Currently, the owner receives orders in the morning that she can view on her phone. Then she drives to Seattle from Kent to check the kitchen to inventory what she will need to fulfill orders. She has asked me to create a system that as orders come in, will generate a grocery list of items she needs. This system will track the items she has at the kitchen and allow her to update at the end of the day what she has left in inventory. Therefore, as orders come in the system will detect what item she is low on. This allows her to restock prior to driving to Seattle to cook the orders. It will save her time and track which items on the menu are most popular so she can keep the inventory for those recipes stocked

FUNCTIONALITY / SCOPE OF PROJECT

In Scope

- Fresh products and Meat
- One Location (Seattle)
- One User (Owner/Cook)
- User Training and User Manual

Out-of- Scope

- Ingredients such as flour and seasoning
- Supply materials such as boxes, and utensils
- No plan to expand the system to New Hires
- No plan to expand the system to new locations

TECHNICAL FEASIBILITY

Restaurant Inventory Management System (RIMS) is a cloud-based software application capable of tracking inventory levels against incoming orders, generating reports, and storing recipes. This allows users to accurately project cost and usage of supply, effectively plan and buy inventory, and allocate time used to manual tracking inventory to meeting more customer orders.

Based on the high-level requirements and key features outlined below, this system is feasible to build. RIMS can be consumable by the client in 3-4 months. See high-level project plan for hours and resources need to complete system launch.

HIGH-LEVEL REQUIREMENTS

Functional

- System must be able to generate grocery list of items from existing inventory list
- System must detect when items inventory is low
- User must be able to define what low inventory is on each item
- System must be able to track the following items: produce and meat
- System must be able to communicate with the order applications (i.e. GrubHub, Postmate UberEats, DoorDash, and Amazon Restaurants)
- System must be able to take a list of orders as an input (excel/data feed)
- System must automatically update the inventory count at least once a day

- System must calculate the difference between inventory count (what in inventory) and what inventory was used to fulfill for orders
- System must calculate the difference (what is needed) at least once a day
- System must be able to generate inventory reports
- System must be able to store recipes
- User must be able to input the recipes into the system

Technical

- System must be accessible through a mobile device, and a desktop
- System must be compatible with Android and Apple Operating Systems
- System must be able to switch between the following languages within software: English
- System must be a web-based application
- System must allow at least 10 users to access UI screens simultaneously without hindering performance.
- System must be to set-up add new users

KEY FEATURES

Key Software Features	
1	Food Costing. Plan and budget menu items, ingredients and preparations
2	System Alerts and Reports. Low inventory alert, generate grocery list, generate inventory daily reports
3	Inventory Control and Tracking
4	Technical Support
5	Mobile Device Accessibility
6	Order Application Integration
7	Simple Recipe Setup and Storage

8	User-friendly Order Tracking and Fulfillment

Possible Choices of Third Party Software Companies Client Can Use

1) *Toast*

2) *Breadcrumb POS by Upserve*

3) *MarketMan*

ORGANIZATIONAL FEASIBILITY

STAKEHOLDERS

Jennifer is the only stakeholder in this business as she is the grocery shopper, the cook, and the delivery person in this business. Hiring more personnel to increase the business is one of the desired outcomes of this project but not in the scope of the study.

PROJECT CHAMPION

Jennifer is the project sponsor and champion as this system fulfills her current business needs and gives her an opportunity to grow her business in the future.

ORGANIZATIONAL MANAGEMENT

Jennifer is a one-stop shop but the new system might enable her to add clients to the business and hire more delivery personnel.

SYSTEM USERS

Only one system user as of now. The system will be robust enough to add more users at a later time, but for this project, we are considering Jennifer as an only user.

WILL THIS NEW SYSTEM FIT INTO THE ORGANIZATION?

The new inventory system is the business need and helps the business grow. Jennifer currently uses a tablet and a cell- phone to receive her orders, and as discussed earlier, this will be a cloud-based web application, which will fit into the current business operations seamlessly. Jennifer and future employees will need initial training on using the app but it is similar to her current technology use and will fit her business model well.

ECONOMIC FEASIBILITY

COST-BENEFIT ANALYSIS

	Costs	Benefits
Tangible	• Development Cost - approximately $70,000 • Annual operation costs - approximately $14,000 • Training Cost - $150 • Costs of hiring consultants - $12,000	• A Higher ROI - an increase by 50.5% • Easier business operation • Better accuracy of inventory tracking • Better forecasting of future orders
Intangible	• Customers complaints about the food quality • Some ingredients are seasonal • User's unfamiliarity with the new technology • Integration failure between the new app and the existing delivery apps • The new app does not meet all the requirements of the user	• Time-saving • Ability to fulfill more orders in a day • Higher efficiency

DEVELOPMENT COSTS BREAKDOWN

The complexity of the inventory management app is medium. The app will address certain complexities through certain server side, integrating with third-party API(s), basic user interface, and custom analytics. The estimated development time is 3 months.

Man Power Costs	
Project Manager (x1)	42.5
Developers (x3)	150
QA (x1)	35
Total	27300
Infrastructure Costs	
Domain	27
Hosting App	252.5
Total	279.5
Costs of features	
Custer User Interface	10,000
3rd Party API Integration	12000
Report and Analytics	20000
Total	42000
Total Development Costs	69579.5
Post-release bug-fixing (20% of the app development costs)	13915.9

ANNUAL OPERATIONAL COSTS

Post-release bug-fixing (20% of the app development costs)	14015.9

COSTS OF HIRING CONSULTANTS

A team of four consultants plans to spend 15 hours working on the detailed analysis report, which would cost the business $12,000

COST AND PROFIT BREAKDOWN OF THE BUSINESS

Average price per receipe	17
Average cost per receipe	4.8
Average orders per day	22
Average working days per week	6
Monthly average food cost	2534.4
Monthly average sales	8976
Monthly average revenue	6441.6
Monthly rent	700
Electric, water, sewer, Internet	150
Gas	25
Commission fees from the apps	1700
Profit (or Jennifer's salary)	3866.6

BENEFITS BREAKDOWN

The initial investment was $35,000 in 2017. Without the app, the business owner currently fulfills on average 22 orders per day, at the cost of $4.80 per order. Since Jennifer has to make a trip to the kitchen for inventory check, she is paying $35 for gas every month. Below is the ROI breakdown for her business.

Without the app:

Net Income Method	
Original Investment Value	$35,000
Net Income	$46,399
ROI	132.6%

With the new app:

Net Income Method	
Original Investment Value	$35,000
Net Income	$64,087
ROI	183.1%

With the new app, Jennifer is projected to fulfill more orders per day, 27 - 30 per day. She will also be able to cut down her food cost to $3/recipe, and her transportation cost to $15/month. The new app will help to increase her ROI by 50.5%.

PROJECT PLAN

DETAILED PLAN FOR ANALYSIS PHASE, AN ESTIMATE FOR THE COMPLETE PROJECT

High Level Project Plan

Task	Resources	Hours	
		100%	50%
Analysis/Requirements Gathering			
Gathering Functional/Non-Functional Requirements	**1 BA/PM**	2 week -40 hours	4 weeks - 40 hours
Draft BRD	**1 BA/PM**	1 week - 20 hours	2 week - 20 hours
Finalize/Sign-off BRD	**1 BA/PM**	1 week - 20 hours	2 week - 20 hours
Design/Development			
Technical Design			
Draft Technical Document	**1 SDE**	2 week -40 hours	4 weeks - 40 hours
Review Technical Document	**1 SDE**	1 week - 10 hours	2 week - 10 hours
Finalize Tech Design	**1 SDE**	1 week - 10 hours	2 week - 10 hours
System Development			
Build System	**1 SDE**	3 weeks - 80 hours	6 weeks - 80 hours
Conduct Unit Testing	**1 SDE**	1 week- 20 hours	2 weeks - 20 hours
Backfill Data	**1 SDE**	2 weeks - 60 hours	4 weeks - 60 hours
Conduct System Testing	**1 SDE**	2 weeks - 40 hours	4 weeks - 40 hours
Testing			
Requirement Testing	**1 QA, .5 BA/PM**	1 week - 20 hours	2 weeks - 20 hours
End-to-End Testing	**1 QA**	1 week - 20 hours	2 weeks - 20 hours
UAT	**1 QA, .5 BA/PM**	1 week - 10 hours	2 weeks - 10 hours
Go-To-Market Communication			
Newsletter Communication	**1 BA/PM**	1 week - 4 hours	1 week - 4 hours
Training	**1 BA/PM**	1 week - 8 hours	1 week - 8 hours
User Manual/FAQ Document	**1 BA/PM**	1 week - 20 hours	2 week - 20 hours
Total Hours		**472 hours**	**472 hours**

COST FOR THE ANALYSIS PHASE

The total cost for the analysis phase would be 4 consultants * 15 hours *$200/hr = $12000

RECOMMENDATION

We as a team are recommending that Jennifer should let us build the application instead of using a third-party vendor. After studying her business requirements in detail, we recommend that a custom application including all the features will most fulfill the purpose of her current and future business needs.

CONTRACT FOR ANALYSIS PHASE

We would like to present a separate contract to our client Jennifer of Soul Food Service as part of this feasibility study. Our contract will have details about:

- Developer's duties
- Delivery schedule
- Compensation

- Intellectual Property Rights
- Change in specifications
- Confidentiality
- Warranties
- Indemnification and the
- Applicable state and federal law

COMPANY / TEAM DESCRIPTION

Our company is a team of consultants and analysts, including Antoinette, Britta, Huong, and Suruchi. We will together plan the project, gather requirements, analyze and prioritize the requirements, design and implement the solution. We as a company are fully committed to Jennifer's business needs and are working together as a team to address her requirements to help her make her business operations easier and successful.