**System Design Document**

**Inventory Management Solution**

**For Chi-Town Gourmet**

**Inventory Management Solution**

**Attn: Doc Holliday**

**123 O.K. Street**

**Tombstone, AZ 22222**

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TABLE OF CONTENTS

1. INTRODUCTION......................................................................................................................3

2. PURPOSE……………. .............................................................................................................3

3. SYSTEM OVERVIEW …..........................................................................................................3

4. DESIGN CONSTRAINTS..........................................................................................................4

5. ROLES AND RESPONSIBILITIES...........................................................................................4

6. PROJECT REFERENCES..........................................................................................................5

7. SYSTEM ARCHITECTURE…………………………………………………………………..5

8. DATABASE DESIGN………………………………………………………………………….6

9. SYSTEM SECURITY AND INTEGRITY CONTROLS……………………………………...6

**INTRODUCTION**

This System Design Document has been created to outline the proposed system design for the new Chicago Gourmet Inventory Management Solution. The IMS is intended as a new installation of software to provide Chicago Gourmet with an inventory management tool. This solution is intended to provide inventory auditing through reporting, notification of inventory levels, and inventory audits.

**PURPOSE**

The purpose of this System Design Document is to provide a description for how the new IMS will be constructed. The System Design Document was created to ensure that the IMS design meets the requirements specified in the IMS project requirements documentation as well as the Chicago Gourmet’s policies and procedures for inventory management. The System Design Document provides a description of the system architecture, software, database design, and security.

**SYSTEM OVERVIEW**

Chicago Gourmet restaurant confronts many challenges and shortcoming in managing their inventory, tracking their deliveries and reporting. The proposed IMS tool will utilize existing Chicago Gourmet’s infrastructure and hardware to provide an enterprise tool which will standardized and improve the efficiency of Chicago Gourmet’s Inventory management capabilities.

The IMS is designed as an enterprise software which is compatible with and leverages existing Chicago Gourmet’s hardware and infrastructure. Additionally, IMS is compliant with all internal network security protocol and policies.

The IMS to is also compatible with existing Chicago Gourmet software suits to include MS Office applications and SharePoint. The IMS tool will provide various user interfaces which will allow data entry, updates, tracking and report generation. It will also allow users to export data to various existing software tools like Ms Excel and SharePoint for various users.

One of the primary benefits to IMS tool over the any other inventory tool is its ability to consolidate all data and generate real-time reports and analysis of status, problem areas and various other metrics. Chicago Gourmet has relied upon older inventory software with various reporting and data constraints and limited user interface interfaces which has resulted in poor reporting, tracking and reporting of inventory as well as general lack of continuity among the users.

The new IMS tool will provide the following capabilities:

* Pre-designed automated reporting at various time intervals as well as manually generated reports
* Integration of all maintenance data which will allow allows for real-time report generation and simplifies management of all maintenance activities
* Enhanced and additional user interfaces which provide users with much simpler data entry update queries and other capabilities
* Data export capabilities which allow users to export data to various software tools for simplified reporting and presentation capabilities

**DESIGN CONSTRAINTS**

The IMS Project Team has identified several constraints that will impact and limit the design of the inventory management system. These constraints are beyond the scope of the IMS Project but must be carefully factored into the system design. To date, the following constraints have been identified:

IMS must be comply with Chicago Gourmet and industry regulatory policies and guidelines. These policies will impact the user interfaces, security, and management of the tool.

**ROLES AND RESPONSIBILITIES**

The following table defines IMS system design rules and responsibilities. This Matrix also serves at the list of points of contact for issues and concerns relating to IMS system design .

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Role** | **Phone** | **Email** |
| Tri Nguyen | Project Manager | 650-450-0404 | modmy250@gmail.com |
| Rishika Swarnkar | Lead Designer-  User Interface | 573-200-2495 | rishikaswarnkar@gmail.com |
| Keith Birch | Lead Designer-  Database | 314-814-4638 | keith111373@gmail.com |

**PROJECT REFERENCES**

The IMs tool is designed in accordance with several organizational guidelines and standards analysis and findings. These references serve as the basis for the requirement of new Inventory Management System. The following is a list of references. It should be noted that some of these documents are periodically updated and if more detailed information is needed they should first be referred to individually.

· Chicago Gourmet IT Security Policies and Guidelines, Feb 20, 2018

· Chicago Gourmet Program Management Office Policies and Guidelines Mar 8,2018

· Chicago Gourmet Inventory Services White Paper Jan 20, 2018

· Chicago Gourmet 2018 Strategic Goals and Objectives Dec 20, 2017

· Chicago Gourmet 2018 Network Architecture Guidelines Jan 17, 2018

· Chicago Gourmet 2018 Network Architecture Design Document Feb 20, 2018

**SYSTEM ARCHITECTURE**

The IMS will be based upon Amazon AWS hosting services. The database will be hosted using a micro instance with 1 virtual CPU and 1GB of memory. It will be using SQL Server Express Edition 13.00.4451.0.v1 for the database engine. The front end and scripting will be served by ipage.com

The software or front end web design is based on the individual design of various components in which users will enter and query data. The software architecture is designed to incorporate all data entries and modifications into an integrated database. The components which comprise the software architecture include:

* Registration Module: This module will allow management to create new user accounts
* Login Module: This module will determine access level of the IMS
* User Data Entry Module: This component will consist of two sub-components:
  + New system data
  + Existing system data updates
* Manual Reporting Module: This module will allow users to print out inventory counts for auditing
* Automated Alerts Module: This module will alert specific users when the minimum threshold has been reached for low inventory. The alert will be by email.

**DATABASE DESIGN**

The new inventory management system will will provide a state of the art database with extreme capabilities such as searchable and sortable fields and reporting functions.

Structured data in the database will be searchable and sortable to meet the demands of all automated and manual reporting and well as from on site or remote tracking.

Additional technical specifications of the database design can be found in the DBMS data dictionary found on pages 14-17.

**SYSTEM SECURITY AND INTEGRITY CONTROLS**

The IMS tool design incorporates several security and integrity controls to ensure that the system and its data are continually protected. This is done through a multi-tiered approach to ensuring data Integrity is achieved through only authorized user functions and assignments.

The first design consideration is user authorization or permissions. All IMS users will be assigned an authorization level and permissions within which they will operate. These users will be unable to perform any IMS transactions outside of their assigned areas. Managers will be provided authorizations levels and operating boundaries for each of their assigned users.

The next design concentration is to establish control points. As the IMs is network tool, firewalls will be placed to partition the functions each group within Chicago Gourmet is able to perform within the IMS. The purpose of this is to reinforce assigned work areas, permissions, and access with physical barriers to prevent any duplication, unintentional changes or malicious changes of maintaining data.

The IMS design also incorporates an audit trail capability not available in the previous Inventory Management System. This capability would also allow Chicago Gourmet personnel to track the history of all IMS users in order to provide history, error identification and accountability for system users.

The next design consideration is data backup. The IMS database will be backed up in accordance with Chicago Gourmet Corp.’ s IT Security Policies and Guidelines dated February 10, 2018. This will provide a fail-over capability to revert to in the event of database corruption or system failure. The IMS was also designed to perform in the degraded modes of operation should maintenance need to be performed on a particular module. IMS Corp.’s IT group will also have the capability, in the event of catastrophic is system failure, to revert to older Inventory Management System until such time that IMS can be restored.

SPONSOR ACCEPTANCE

Approved by the Project Sponsor:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

<Project Sponsor>

<Project Sponsor Title>

**DURATION ESTIMATE**

**GANTT CHART**

**Inventory Management Solution**

**Attn: Doc Holliday**

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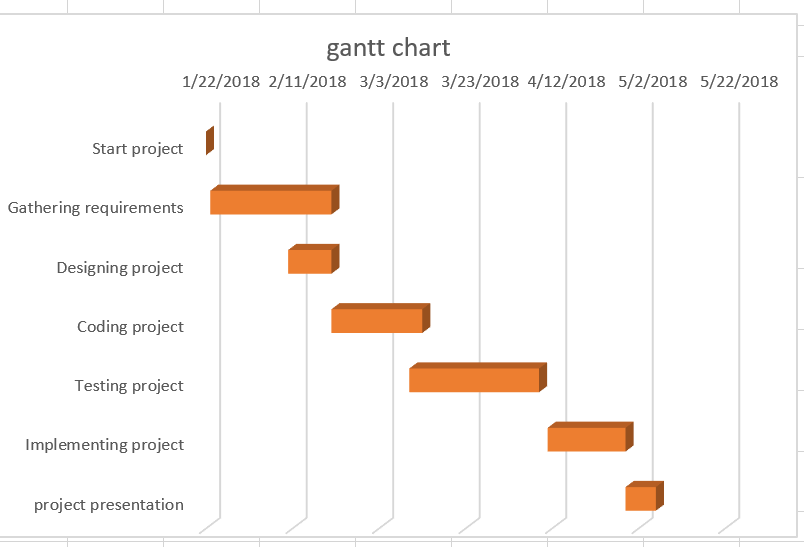
2/19/2018

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Durations Estimate** | | | | | | | |
| **Project: Inventory Management Project** | | | | | **Date: 02/18/2018** | | |
| **Activity** | **Resource(s)** | **Optimistic** | **Most Likely** | **Pessimistic** | **Estimated Activity Duration** | **Reserve** | |
| **1** | **Team Member 1** | **15hrs** | **20hrs** | **25hrs.** | **25hrs.** | | **+/- 5hrs.** |
| **2** | **Team member 1/2** | **15hrs** | **20hrs** | **25hrs.** | **25hrs.** | | **+/- 5hrs.** |
| **3** | **Team member 3** | **15hrs** | **20hrs** | **25hrs.** | **25hrs.** | | **+/- 5hrs.** |
| **4** | **Team member 2/3** | **15hrs** | **20hrs** | **25hrs.** | **25hrs.** | | **+/- 5hrs.** |
| **5** | **Team member1/2/3** | **15hrs** | **20hrs** | **25hrs.** | **25hrs.** | | **+/- 5hrs.** |
| **6** | **Team member**  **1/2/3** | **15hrs** | **20hrs** | **25hrs.** | **25hrs.** | | **+/- 5hrs.** |
| **7** | **Team member**  **1/2/3** | **15hrs** | **20hrs** | **25hrs.** | **25hrs.** | | **+/- 5hrs.** |
|  |  |  |  |  |  |  |  |

**Tasks for gantt chart**

|  |  |  |  |
| --- | --- | --- | --- |
| **Task Name** | **start** | **end** | **duration/days** |
| **Start project** | **1/22/2018** | **1/22/2018** | **0** |
| **Gathering requirements** | **1/23/2018** | **2/20/2018** | **28** |
| **Designing project** | **2/10/2018** | **2/20/2018** | **10** |
| **Coding project** | **2/20/2018** | **3/10/2018** | **21** |
| **Testing project** | **3/10/2018** | **4/10/2018** | **30** |
| **Implementing project** | **4/11/2018** | **4/29/2018** | **18** |
| **Project Presentation** | **4/29/2018** | **5/06/2018** | **7** |

**Gantt Chart**



Milestone List

**Inventory Management Solution**

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**123 O.K. Street**

**Tombstone, AZ 22222**

2/19/2018

|  |
| --- |
| **Milestone List** |

|  |  |
| --- | --- |
| **Project: Inventory Management System** | **Date: 2/19/2018** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Milestone number** | **milestone** | **Completion date** | **Verification** |
| **1** | **Start project** | **1/22/2018** | **K.B.** |
| **2** | **Complete gathering requirements** | **2/20/2018** |  |
| **3** | **Complete design** | **2/25/2018** |  |
| **4** | **Complete coding** | **3/10/2018** |  |
| **5** | **Complete testing** | **4/10/2018** |  |
| **6** | **Complete implementation** | **4/29/2018** |  |
| **7** | **Project end** | **5/6/2018** |  |

Data Dictionary Tables

Supplier

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| P/F | Field name | Data type | Field size | description | IsNull |
| p | supplierId | autonumber |  | Supplier I.D. | No |
| FK | ContactID | int |  | Contact I.d | N o |
|  | Name | varchar | 50 | Supplier name | No |
|  | Email | varchar | 50 | email | no |
|  | phone | varchar | 15 | Phone number | no |
|  | mailingAddress1 | varchar | 30 | Mailing address | no |
|  | phyicalAddress1 | varchar | 30 | Physical address | Yes |
|  | city | varchar | 20 | city | no |
|  | state | char | 2 | state | no |
|  | zip | char | 5 | Zip code | no |

Contact

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| P/F | Field name | Data type | Field size | description | IsNull |
| p | contactId | autoNumber |  | Contact id | No |
| f | supplierId | int | 10 | Supplier i.d. | no |
|  | fName | varchar | 15 | First name | yes |
|  | lName | varchar | 15 | Last name | yes |
|  | Email | varchar | 50 | email | yes |
|  | phone | varchar | 15 | Phone number | no |

Items

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| P/F | Field name | Data type | Field size | description | IsNull |
| p | itemId | autonumber |  | Item i.d. | no |
| f | supplierId | int | 10 | Supplier i.d. | no |
|  | itemName | varchar | 50 | Item name | no |
|  | fItemDate | date |  | Date of first item | no |
|  | lItemDate | date |  | Date of last item | no |
|  | price | double | 20 | Price of item | no |
|  | discountPrice | double | 20 | Tier discount | yes |
|  | minimumOrder | int | 20 | Set min. Order for tier discounts | yes |
|  | itemDetails | varchar | 50 | Misc details | yes |

Reorder

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| P/F | Field name | Data type | Field size | description | IsNull |
| p | itemId | autonumber |  | Item I.d. | no |
|  | categoryCode | int | 10 | Category Level | no |
|  | reorderLevel | double | 20 | To alert when to re order | yes |
|  | reorderQuanity | int | 20 | Can possibly set automatic reorders. | yes |

Inventory

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| p/f | Field name | Data type | Field size | description | IsNull |
| p | stockNum | autonumber |  | Stock number | no |
| f | itemId | int | 20 | Item I.d. | no |
| f | authId | int | 20 | Authorisation I.d. | no |
|  | stockTakingDate | date |  | Date when inventory was taken | no |
|  | stock | double | 20 | Quantity in stock | no |
|  | qtyCounted | double | 20 | Inventory counted | yes |

Authentication

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| p/f | Field name | Data type | Field size | description | IsNull |
| p | authId | Auto number | 10 | Authorization I.D. | no |
|  | userName | varchar | 15 | User name | no |
|  | password | varchar | 15 | password | no |
|  | Fname | varchar | 15 | First name | yes |
|  | Lname | varchar | 15 | Last name | yes |
|  | Email | varchar | 15 | email | no |
|  | authLevel | nchar | 1 | Level for security | no |
|  | phone | varchar | 15 | Phone number | no |