**TITLE OF THE SYNOPSIS OF THE PROJECT/DISSERTATION**



# A Synopsis Report Submitted to

# **AXIS Institute of Technology and Management** towards Partial fulfillment for the award of **B.Tech**

# degree with specialization in **Information Technology Engineering**

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**GENERAL INSTRUCTION**

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## Title

The project aims at providing an efficient interface to the restaurants for managing their grocery inventory

based on each item sold. The basic idea involved here is that each item is linked to its atomic ingredients

which are stored in a database. At the end of each day, the system analyzes the total sale of menu items

and proportionately deducts appropriate amount from the resource database. Then it compares the

current available resources with the threshold level of each ingredient. If it finds that certain ingredients

are below the threshold, it will generate a purchase order for those item(s) and send it to the manager

(admin) for approval.

We also propose to include a special feature “Prediction”. This feature keeps track of any upcoming

occasions, climatic changes and special events that may influence inventory needs for the upcoming week.

The system will then predict the required resources for these events based on previously accumulated

information/knowledge. It will now generate an updated purchase order in accordance with the

predictions.

The product also aims to keep track of the shelf life of resources. If any resource nears the end of its shelf

life, it would intimate to the manager (admin) the details of the quantity that is near its expiration date.

The restaurant must function efficiently, the groceries must be tracked correctly, timely orders must be

sent out to the vendors, and the inventory must be maintained and updated at all times.

## Abstract

This proposed project aims at inventory control in the restaurant and catering Industry. Such a large

domain would result in an equally as large scope of development. As a result we narrow our software

down to our case study of an outlet of Guckenheimer concentrating only on the basic resources utilized

in inventory control of the outlet. Although the software will be developed keeping in mind the needs of

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Guckenheimer and available data at first, then applying it to the larger domain of the entire restaurant

industry can be achieved with ease.

Our target domain is full of software to track sales of food items, but lacks in this area of inventory

management. Our software can be scaled from large corporate dining all the way to small privately-owned

restaurants. It is also fairly domain specific: the database runs off recipes which generate the necessary

ingredients. It also updates the inventory based off of the sale of those recipes. This requirement focuses

our product to our domain and makes it more appealing to those looking for a solution to this specific

problem

## Introduction

At the end of their day, chefs and managers in the restaurant industry spend a couple of hours

counting inventory and placing orders for the following week. The Restaurant Inventory Control

System is designed to not only assist in this problem, but also automate many of the tedious tasks

associated with it. The system keeps track of current inventory levels for recipes at the ingredient

level, predicts how much inventory is needed for the upcoming week, and generates order forms

to that can be automatically sent to vendors.

After meeting with a chef for Guckenheimer, an on-site corporate restaurant management

company, we were very easily able to pinpoint issues in the maintenance of resource requirement

lists. To keep track of their inventory levels, staff had to calculate a list of groceries utilized during

a course of time, calculate and analyze the requirements for the future, and place their next order

to multiple vendors if needed. This process takes up a lot of time and human effort, and is also

prone to human error. The same chef used to be the head chef at Vintage 338, a privately owned

Chicago wine bar, where they had the same issues.

It became our goal to develop a program that can be used by both large corporations as well as

small businesses. This meant the system had to provide an efficient and simple user interface that

at the same time is capable of more precise changes and inputs. The system had to also be

accurate and reliable in terms of the database design. Since all of the data and data objects are

stored in a database, it was imperative that these requirements were met.

The basic functionality underlying the system is as follows: chefs can add recipes to the database,

which are then broken down to their ingredient level. These ingredients are then tracked by the

system and updated with each sale of certain items. Should they reach a predetermined threshold

level, the manager is notified and given the option to place an order with the respective vendor.

Through the use of a prediction algorithm, the system uses data such as previous sales, future

dining events, and special requests to determine order quantities. The manager has control over

all factors associated with the system, should they require a change.

Certain functional requirements that were brought up during our case study by the chefs included

allowing the user to be able to create, delete, and update recipes, ingredients, and vendors as

these changed frequently. They also stated that the system must include mechanisms for the

manager to approve any outgoing orders in case manual changes needed to be made, as well as

allow changes to be made to inventory levels in case of an error

## Problem analysis

The project “Inventory Control System for Calculation and Ordering of Available and Processed Resources”

mainly as the name suggests deals with the calculation of the available and processed resources for an

accurate inventory control and process management for a domain specific client who are related to the

subject of food chains/outlets. This enables the inventory to be applied at every level in the hierarchy of

the products and its complex combinations of recipes.

A system that accurately calculates the atomic ingredients used for making a recipe then automatically

performs the back end operation pertaining to a database of many relational tables onto which the

changes are being made with each and every operation performed on the front end and which also shows

up if at the time of retrieval. The most important part of Inventory controlling is its ability to check for

threshold levels and alert the manager to replenish the stock before it reaches a danger zone. So as when

an ingredient level goes below the threshold level then it routes an alert to the manager. Then if needed

accordingly an automated order form is produced so as to each specific vendor along with the quantities

needed for replenishment.

As a part of the standard maintaining a drill of risk management is done in order to sustain during the days

of special occasion or holidays when the demand reaches to rather more different scale as compared to

other days. These occasions call on for special inclusions into the menu which reflects on the recipes and

in turn reflects the ingredients being used up eventually. Thus was provided the liberty of adding special

recipe to the menu for some special occasion and is regarded as a key feature.

To be able to simplify the user friendliness even more the concept of ‘prediction’ is added which enables

the manager to see the past years prediction of the ingredients usage and then based on the informational

analysis done on the data a prediction is then generated which would suit the requirements of the current

year and then accordingly an appropriate order form is generated and then passed on to the vendor as

the requirements for replenishing the stock

## Hypotheses

The general software development process could have been more streamlined when it comes to the

sharing of documents and code. Due to individual preferences, documents were shared through multiple

interfaces including email, Google Drive, Microsoft SkyDrive, and USB sticks. Choosing a specific platform

dedicated to the project would have been more ideal. There also exist online drives specific to

programmers and code, such as Git-Hub and Google Code that we would utilize in future projects.

We also made the change from developing in Visual Basic to Java in a matter that worked for the group

but would most likely be a rather large change in a larger group of developers. Such a change would have

to be documented heavily as it influences all of the documents that had been generated to that point.

The process of generating the proposal, requirements, design, and testing documents feels like a very

intuitive and streamlined process. What might have helped is programming the project prior to any

documentation. This would then give us an idea of what we needed to achieve and what was necessary.

A program that handles large amounts of data and requires the level of user interaction with a database

was generally a new idea to us. A small test program would have helped put an idea of what we were

trying to achieve at the very beginning of the process

## Limitations

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## Methodology

A research project follows an overall methodology to make conclusions in relation to the overall objective. Some types are experiments, surveys, models and case studies. Within a given research methodology several data collection methods can be relevant, and both quantitative and qualitative methods may be used in the same study. You should specify what research methodology is chosen to fulfill the research objectives. A description of the methodology used does not mean a reproduction of standard textbook definitions; instead, references should be used. For example, it is not necessary to explain that a case study approach ‘will allow in-depth analysis of a particular problem and that the limitation is that the results cannot be statistically generalized, but that they could be theoretically generalized for places with similar characteristics’. A reference will be sufficient for commonly used methods, whereas it is relevant to describe the specific data to be collected.

**Limitation**

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**Software Requirement**

There is a scope of lot of improvement given that the application of this project which is now limited to

only food chains / outlets can be applied to other branches also given that it is subjected to appropriate

changes. The prediction algorithm needs to be still more enhanced, but that is possible with years of data

analysis and would then might also be changed to an artificially intelligent system. Also considering the

large technological movement, access to the program through a web application would be ideal for

remote access to the program and database. This would require a dedicated server to host the database

and therefore has been considered as an optional enhancement.

To list, the future development may include the following

 Improvised Prediction.

 Use of AI to learn user behavior and responses.

 Expansion of software domain.

 Expansion to web domain.

 Allowing remote access.

 Allowing orders to be sent electronicall

## Expected Outcomes

TESTING MATERIALS (HARDWARE/SOFTWARE REQUIREMENTS)

5.5.1 Software requirements

The coding for the system is being done on Netbeans IDE for Java and the database management utility

that is being used is MySQL. As the system uses no network connectivity, the system does not require any

other specialized software for network connectivity. Any operating system that supports these two

modules is a perfectly suitable OS for the testing purposes.

 Netbeans IDE for Java

 MySQL

 Windows XP, 7.

Also one driver is required for facilitating the connectivity between Netbeans and MySQL and that is

MySQL Connector/J 5.1.6. This driver must be explicitly imported in the project directory of Netbeans.

## Discussion

Reliability

i. The System must give accurate inventory status to the user continuously. Any

inaccuracies are taken care by the regular confirming of the actual levels with the levels

displayed in the system.

ii. The System must successfully add any recipe, ingredients, vendors or special

occasions given by the user and provide estimations and inventory status in

relevance with the newly updated entities.

iii. The system must provide a password enabled login to the user to avoid any foreign

entity changing the data in the system.

iv. The system should provide the user updates on completion of requested processes and if

the requested processes fail, it should provide the user the reason for the failure.

v. The system should not update the data in any database for any failed processes.

## Conclusion

## The system must be able to run on the Windows operating systems beginning with

## Windows XP, and must be able to run on future releases such as the upcoming

## Windows 8

## ii. The software must incorporate a license key authentication process.

## iii. The packaging must come with a manual that details the use of the system, and also the

## instructions on how to use the program. This manual may be included either in a booklet

## that comes with the software, or on the disc that the software itself is on.

## 

## References

The purpose of a reference list is that the reader should be able to find the references used. Therefore, be sure to write the full reference in the reference list, including author, publication year, title, title of journal/series, volume of journal/series contribution, publisher (omitted for journal), location (omitted for journal), page numbers. For chapters in books and contributions to conference proceedings the editors and title of the book/proceedings must be added. You can choose a standard from, e.g., a scientific journal and follow it **consistently**. All references in the text must be in the list of references and vice versa.