**Inventory Management System**

**Conor McGrath**

**Aaron Healy**

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Advised By: Daniel Cregg

Department of Computer Science and Applied Physics

Galway-Mayo Institute of Technology (GMIT)



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**About this project**

**Abstract** This paper aims to provide a technical understanding about computerized inventory management systems; the various implementations of, and the technologies used within these systems. Modern businesses can utilize the latest technologies for their warehouses to help:

* analyze trends or patterns through inventory flow
* reduce instances where stock is too low or high, and reduce instances where there is no stock
* increase in accuracy and fulfillment of orders with relation to picking, packing, and shipping a customer’s order
* provide a deeper understanding of customer demand for your products

The significance of this study will redound to the benefit of consumers that utilize such systems, especially since businesses are faced with the problem of getting products and services to their costumers quickly and responsively. The demand for better customer experiences, justifies the purpose to evaluate the current technologies already available. Thus, businesses that integrate these technologies and solutions can create stronger customer experiences, through the tight integration of their web platforms and enterprise resource planning systems. For the researcher(s), this study will help advance our knowledge and evaluate the approach with which to take when determining which technologies are best integrated with one another when developing inventory management systems. Thus, a new implementation or integration for these systems may be established.

**Authors**

Conor McGrath - B.Sc.(Hons) Computing in Software Development

Aaron Healy - B.Sc.(Hons) Computing in Software Development

**Chapter 1**

# Introduction

This chapter will outline the objectives of the project along with the scope which we plan to complete those objectives in. An analysis of each of the chapters found in this dissertation along with a summary Github repository containing the project can be found below. This application will aim to satisfy the standards for a Software Development Level 8 project by surpassing the expectation of Inventory Management Systems currently offered online. Inventory Management Systems are a key part to any business. They allow the business to manage and control their customers, wholesalers, orders and stock. They are essential in giving up-to-date data on movement of stock throughout the company.

The members of this group have taken it upon themselves to research and analyze existing Inventory Management Systems available, and with the knowledge gained create an application that will allow users to manage all their customers, wholesalers, orders and stock in an easy and conventional way. The frontend of the application be presented using Angular 6 which will be running off a Java Spring Boot backend. Proper authentication and login will be applied to the app to allowing users to easily assess their current stock, current and past orders, wholesalers and their current customer base. All the data will be stored in a MySql database hosted by Amazon Web Service.

**Chapter 2**

# Context

The general context of this project is an easy to use system that provides users, in particular, online sales businesses a platform to manage their inventory. It will help them keep track of all stock and alert them when they are running low on certain products. The users will be able to track their customers and view who purchases what number of products and how regularly. This will allow a business to see what sort of customer their main target for future sales is. The products section of the application will allow users to view and manage the current stock they have. This will show them what products are selling good and the profit they are making from each product. This sort of information is vital for a business to know so that they can see the good and bad sellers and order more inventory accordingly. In terms of the order side of the application, the user will be able to input orders so that they can be tracked. When these orders are completed the products and customer information will all be updated accordingly. Each user will have their own home page which will contain a variety of tables and graphs that represent their current monthly information such as “Total Sales”, “Top Selling Products” and “Top Spending Customers”.

## 2.1 Objectives

The main objective of our application is to help businesses to manage their inventory easier. We also wanted to make it easier for businesses to be able to view all the statistics for their sales information easier in one place. The following is a list of the main pages in our application along with the objectives for each page.

1. **Login/Register:** The first page the user will see is a login and/or register page. If the user is new, they will be able to create an account using the register function. If the user has already created an account, they will be able to login using their credentials. Once logged in, the user has access to all the features of the application. All users of the application have to be registered so that they can have their inventory data linked to them and only viewable by them.

2. **Home:** The objective of the homepage is that it is a base of navigation for the application while also providing the user with quick available statistics about their inventory. The homepage will display a variety of graphs and tables that will show information regarding the current month of sales information. The homepage will also provide links for the user to follow to the other pages of the application.

3. **Customers:** The customers page will provide a base for the user to view all information about their current customers. This will include information such as the products they have purchased and in what amount. Users will also be able to create, edit and delete customers on this page.

4. **Orders:** The orders page will be the location where the user will be able to manage their current orders, create new orders and look back on previously completed orders. The user will also be able to view orders from specific customers which will allow them to see what each customer is ordering and in what amount.

5. **Products:** The products page will provide a base for the user to view all information about the current products they have to offer. This will include information about the products such as cost price, sale price and the quantity in stock. This is vital information as it will allow the user to see what sort of margin they are making on products and when a re-order of a certain product is needed.

*CHAPTER 2. CONTEXT* 6

**Chapter 3**

# Methodology

About one to two pages. Describe the way you went about your project:

* Agile / incremental and iterative approach to development. Planning, meetings.
* What about validation and testing? Junit or some other framework.
* If team based, did you use GitHub during the development process.
* Selection criteria for algorithms, languages, platforms and technologies.

Check out the nice graphs in Figure 3.2, and the nice diagram in Figure **??**.

a

b

c

d

a

b

c

d

*G*1 *G*2

Figure 3.1: Nice pictures

*CHAPTER 3. METHODOLOGY* 9

A Big

Blue

Block

And His

Oval

Friend

Figure 3.2: Nice pictures

**Chapter 4**

# Technology Review

About seven to ten pages.

* Describe each of the technologies you used at a conceptual level. Standards, Database Model (e.g. MongoDB, CouchDB), XMl, WSDL, JSON, JAXP.
* Use references (IEEE format, e.g. [1]), Books, Papers, URLs (timestamp) – sources should be authoritative.

## 4.1 XML

Here’s some nicely formatted XML:

#### <this>

**<looks** lookswhat="good"**>**

Good

**</looks> </this>**

**Chapter 5**

# System Design

As many pages as needed.

• Architecture, UML etc. An overview of the different components of the system. Diagrams etc... Screen shots etc.

|  |  |
| --- | --- |
| Column 1 | Column 2 |
| Rows 2.1 | Row 2.2 |

Table 5.1: A table.

**Chapter 6**

# System Evaluation

As many pages as needed.

* Prove that your software is robust. How? Testing etc.
* Use performance benchmarks (space and time) if algorithmic.
* Measure the outcomes / outputs of your system / software against the objectives from the Introduction.
* Highlight any limitations or opportuni-ties in your approach or technologies used.

**Chapter 7**

# Conclusion

About three pages.

* Briefly summarise your context and ob-jectives (a few lines).
* Highlight your findings from the evalua-tion section / chapter and any opportuni-ties identified.

**Bibliography**

[1] A. Einstein, “Zur Elektrodynamik bewegter Ko¨rper. (German) [On the electrodynamics of moving bodies],” *Annalen der Physik*, vol. 322, no. 10, pp. 891–921, 1905.