ADDIS ABABA UNIVERISITY

ADDIS ABABA INSTITUTE OF TECHNOLOGY

CENTER OF INFORMATION TECHNOLOGY AND SCIENTIFIC COMPUTING

DEPARTMENT OF SOFTWARE ENGINERRING

Management System for Gead General Trading PLC

Software Requirement Specification

PREPARED BY: -

1. Adiam Geberselassie
2. Afrah Awol
3. Biruk Wondirad
4. Eyuel Berga
5. Jemila Ibrahim
6. Yanet Endale

ADVISOR: Mr. Fistum Alemu

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Revision History

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April 4, 2018	Version 1.0	Group nine	Initial Draft
April 9, 2018	Version 2.0	Group nine	More information were added
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May 3, 2018	Version 5.0	Group nine	Final corrections and adjustment

Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

Signature	Printed Name	Title	Date
	Fistum Alemu	Advisor	

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Definitions, Acronyms, and Abbreviations

Table 1 - Definitions

Term	Definition
Client	Refers to Gead Trading
Gead Trading	A privately owned business which distributes different types of electronics devices and it is also the client for which the system is being produced.
MSGT	Management System for Gead Trading; the software product that is to be produced
Manager	A user of MSGT who performs the duties of a manager
SRS	Software Requirement Specification, a documentation holding descriptions on the system to be developed
Salesperson	One of the users of MSGT who performs the duties of a salesperson
Stock-manager	A user of MSGT who performs the duties of a stock-manager
Transaction	An instance of a purchase made at Gead Trading.
W3C	World wide web consortium is the main international standards organization for the world wide web

DECLARATION

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included. We have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Group Nine May 2018

1. Introduction

1.1 Purpose

The purpose of this document is to describe in detail, all needed requirements for the development of the Management system for Gead Trading (MSGT). It also describes the interface for the system. This document is expected to be beneficial for both the client and developers. It is intended to reduce the communication gap between the parties involved in the project.

1.2 Scope

MSGT is a store management system that facilitates the automation of certain operations at Gead Trading. The product aims to minimize workload of the staff and to also save time.

The goal of the product is to create a system that will enable certain staff members at Gead Trading to perform their assigned tasks in a computerized way, allowing optimum organization of data and information in the business. Hence, creating a better management system for the client.

The salesperson will use the product to create new transactions and the stock-manager will use it to add new items to stock. This information will then be used by the manager to generate sales reports and monitor activities of the other users. Furthermore, the manager will use the product to manage staff information.

1.3 Overview

The rest of the document has three main sections. Each sections also has many subsections. Readers can refer to the table of contents, found at the beginning of the document, to view the structure of the document and also find their desired section through its page number.

The first section gives information on the general description of the project. As the name implies, this section describes the project without adding too much technical information. The second section is Specific Requirements. In this section external interface requirements, functional requirements, use case, non-functional requirements and additional subsections are included. The Third section is Change Management Process. This portion outlines the procedure that will be taken to change information described in this document.

2. General Description

2.1 Product Perspective

There are many software applications made for business owners, since trade a wide area and needs a better management. Some of them are:-

Smartwerks is a cloud-based point of sales, inventory and accounting solution that works on almost any device. It was founded on 2010 in the U.S.A which sells product faster, optimize your inventory, reward customer and manage item repair and encourage customer to spread the word about the business. The company has different platform for different companies the best example is jewelry store management features which supports commission management, repair tracking and also supplier management which makes it preferable by huge companies across the globe.

Peachtree is one of the famous application for small and medium sized business made by sage software which enables comptrollers to automate and manage numerous accounting tasks like creating financial statements, tracking bank transfers and payroll, importing and manipulating spreadsheets and more.

Deskera is a cloud-based enterprise business management suite that automates sales, billing, fulfillment, distribution, sales, commission calculations, purchasing payment, payment processing, product receipts, inventory warehouse management, asset management, core accounting, bank reconciliation, financial reporting, sales tax compliance and multi-currency support including capability to print checks from the system.

Multiview offers a suite of financial solutions that include financial reporting and analytics, general ledger with budgeting, allow end users to monitor and control processes within the company. In addition companies also gain reports and visibility over corporate data.

Even though there are many applications which provide accounting and store management solutions for business owners, MSGT is made only for Gead trading by considering only the requirements of the business. The product has similar features with the other products we have listed. MSGT creates a new system specially tailored to Gead Trading.

2.2 Product Functions

The final MSGT product is expected to store, organize and retrieve information concerning staff, transactions and stock. Users will have access to the system only through their unique username and password

combinations. Different users will have different user type, which will determine how much access they have in the system.

All system information is maintained in a database. Users with the appropriate access can add new information to the database. For instance, the salesperson user can add new transactions and the stock-manager user can add new stock information.

2.3 User Characteristics

There are three types of users that interact with the system: salesperson, stock-manager and manager. Each of these three types of users has different level of access to the system.

The salesperson can use the system to add transactions. This user can also get information concerning past transactions, but will not be able to change or alter them. To take the position of this user, a basic understanding of web navigation is required.

The stock-manager will add, delete or modify items in stock. This user will only have access to information concerning stocks. A basic web navigation knowledge is also required from this user.

The manager will use the system to generate reports, modify staff information and monitor the activities of the other users. This user will not be able to add transactions or stock information, but the user has the privilege to view those information. A basic web navigation knowledge is also required from this user.

2.4 General Constraints

One constraint for the system is although the staff members are fluent speakers of Amharic, they need to understand the English word used in the product.

The other constraint for the system is the speed of the internet connection. For efficient performance, the product requires a broadband internet connection. If the minimal sufficient internet speed is not met, it might cause lag which affects the system performance.

2.5 Assumptions and Dependencies

One assumption about the product is that it will be connected to the internet. Since the product fetches data form the database via the internet. If connection to the internet cannot be made, the system will not be able to function.

Another assumption is that the product will always be used on computers that have the hardware resources, capable of running the system. This includes having sufficient storage space and memory capacity to accommodate the product. If the computers used lack the performance capacity needed to support the product, there might be cases when the system will not function as desired or will not function at all.

3. Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

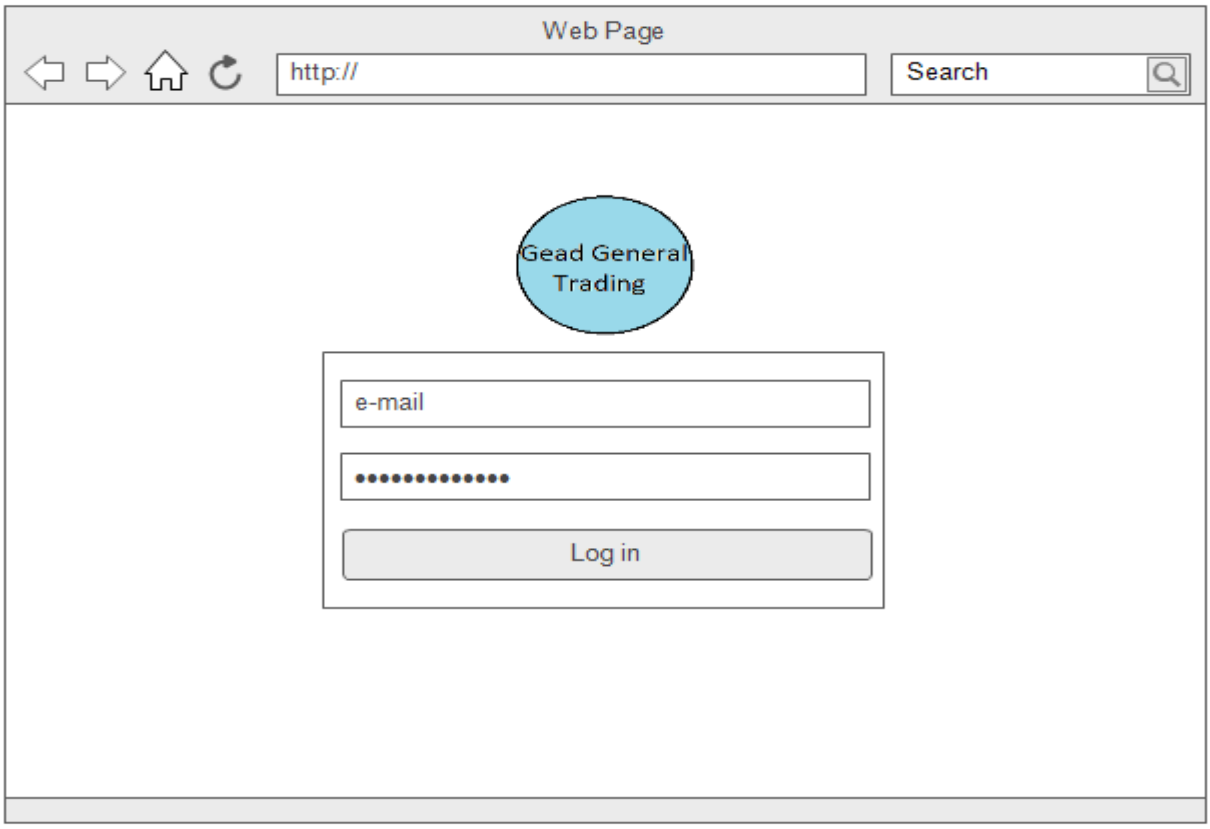

Figure 1- MSGT Login Page

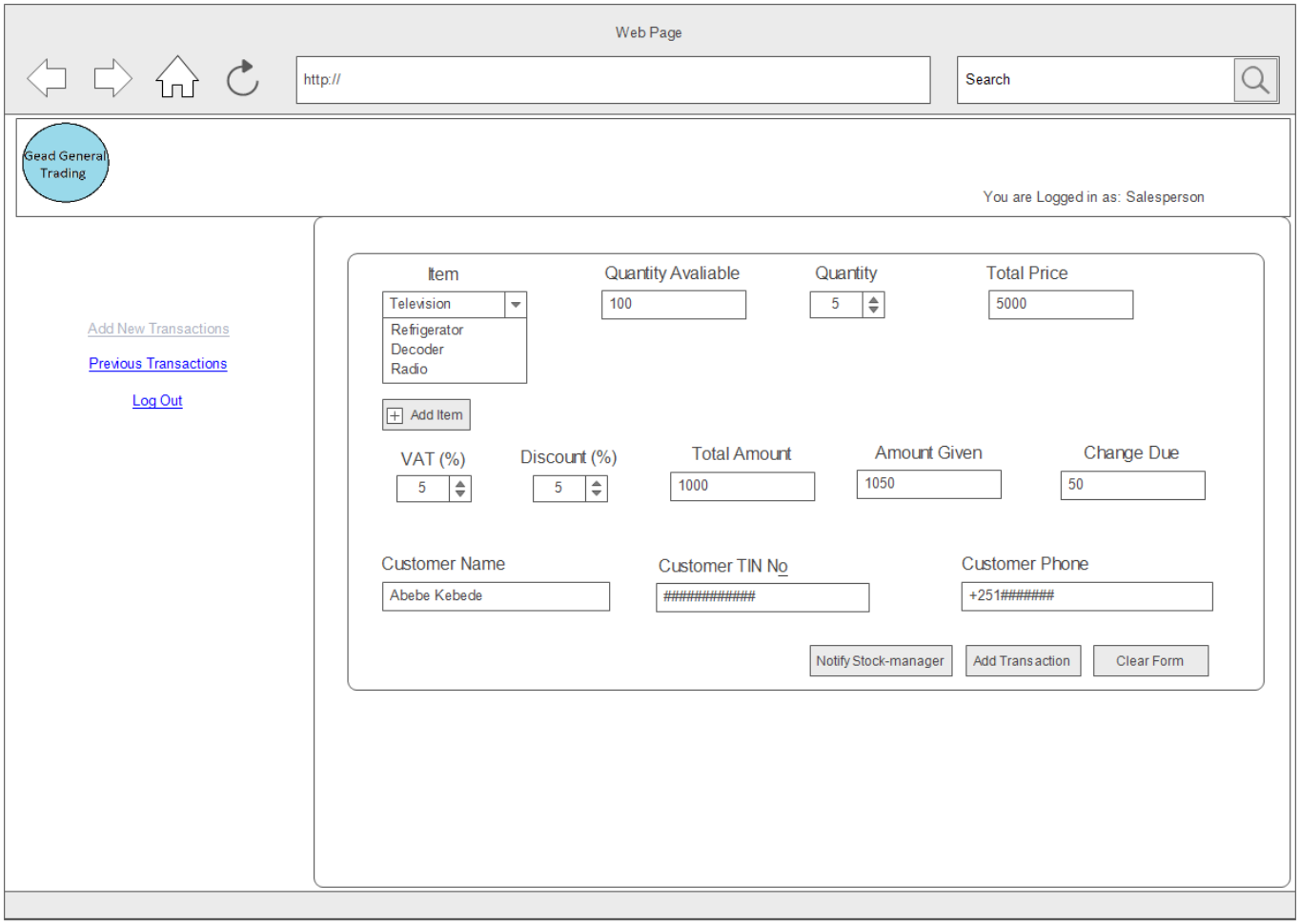

Figure 2 - Add new transaction Page

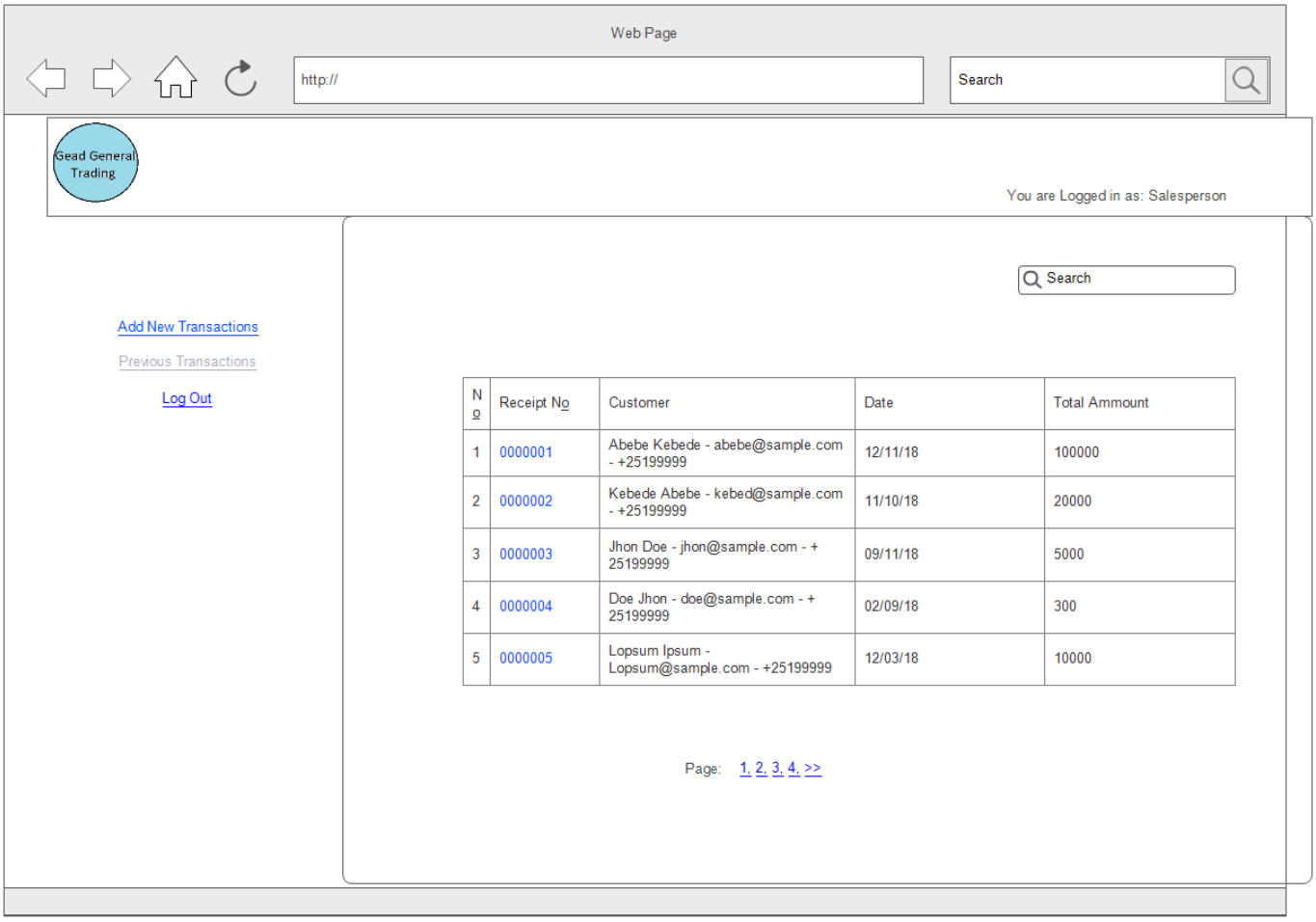

Figure 3 - Previous transactions Page

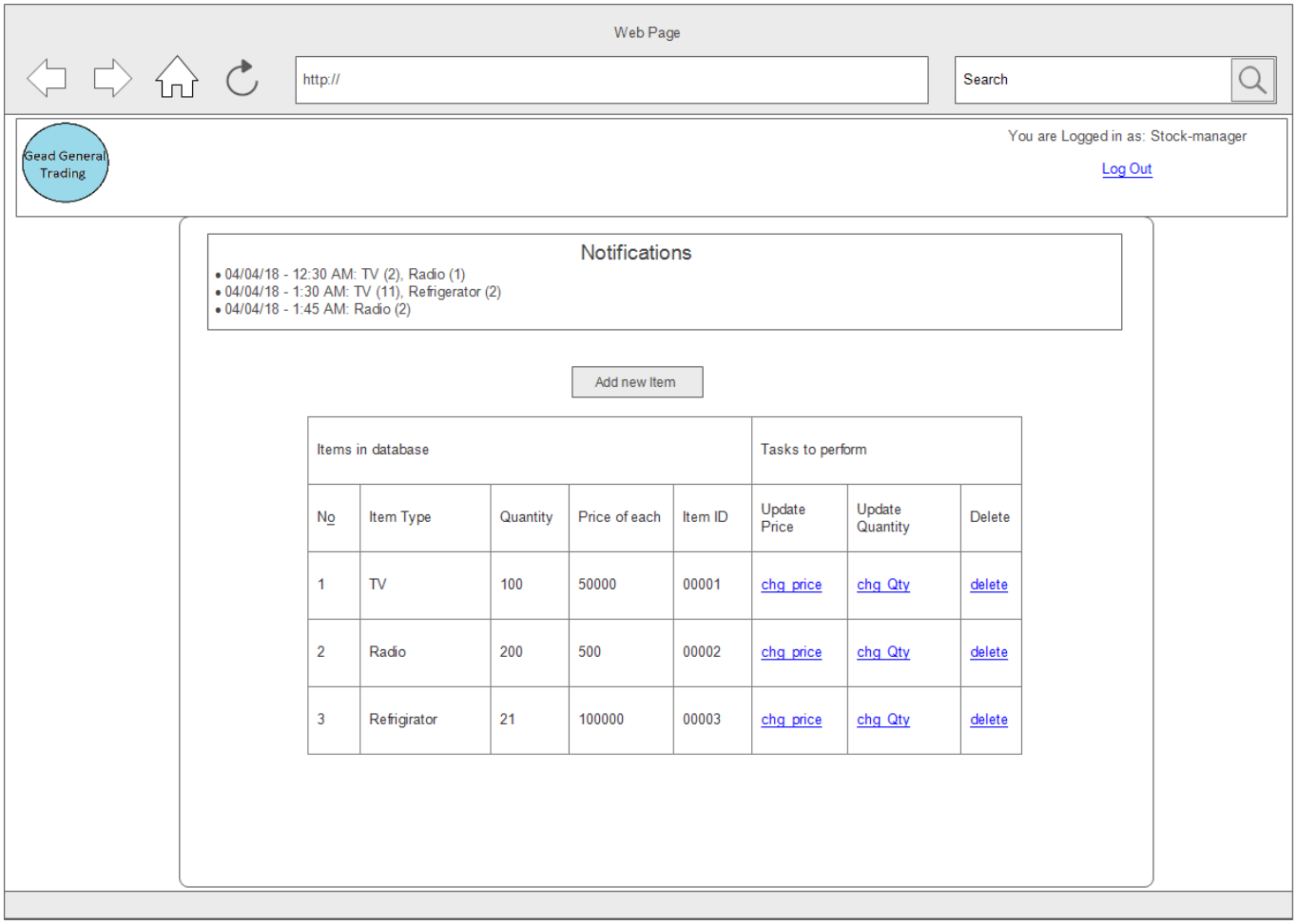

Figure 4 - Stock-manager Page

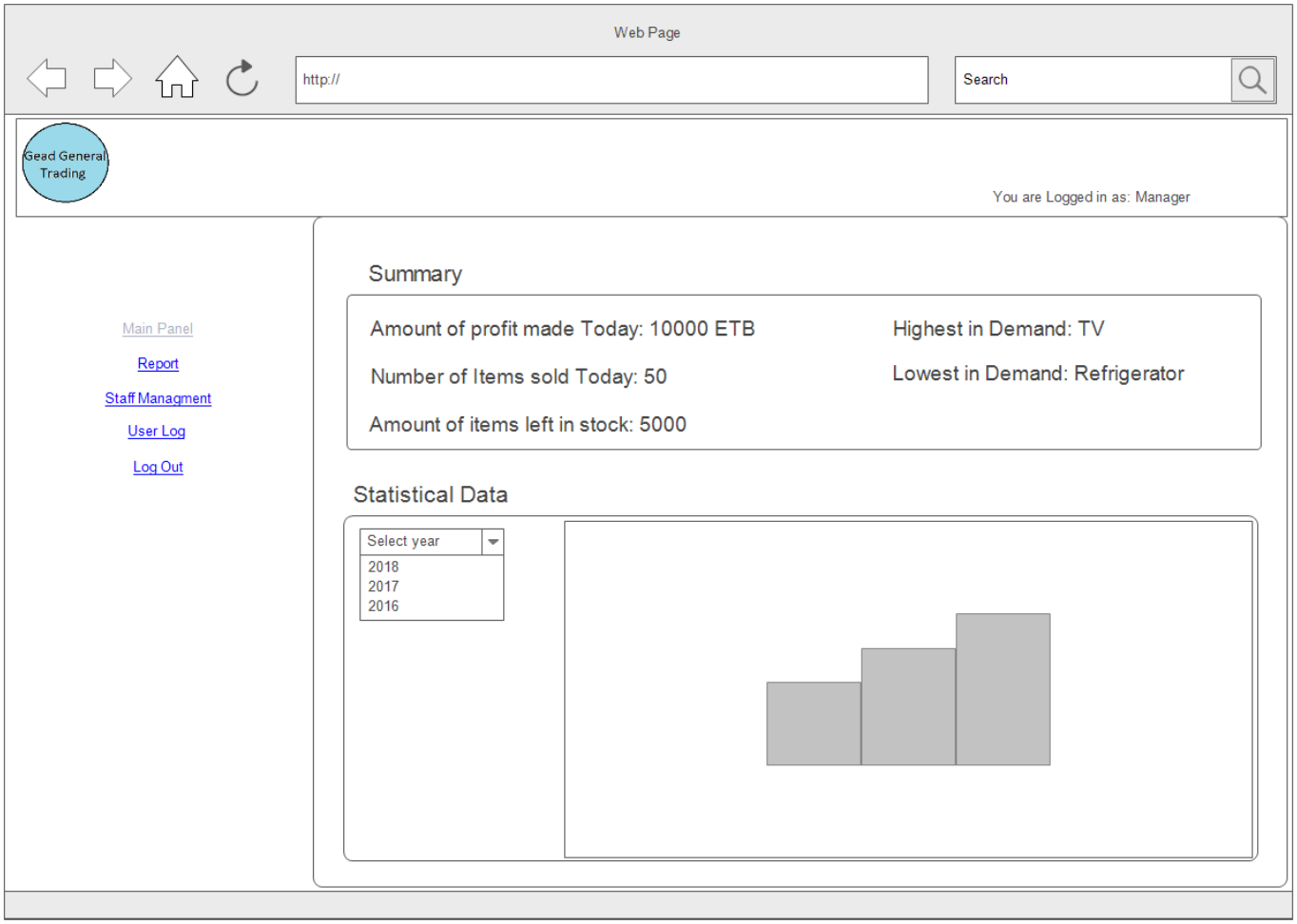

Figure 5 - Manager main panel Page

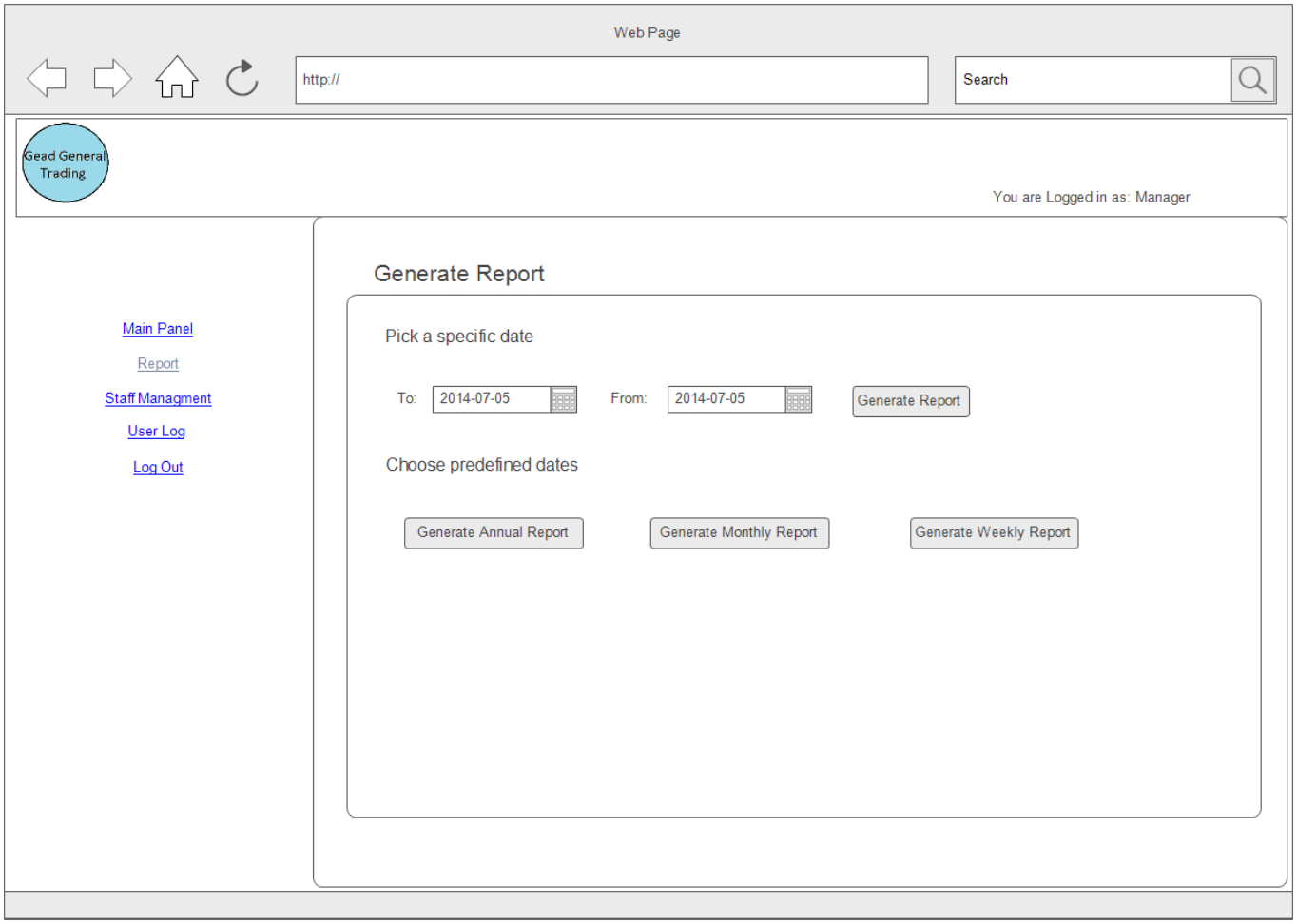

Figure 6 - Manager generate report Page

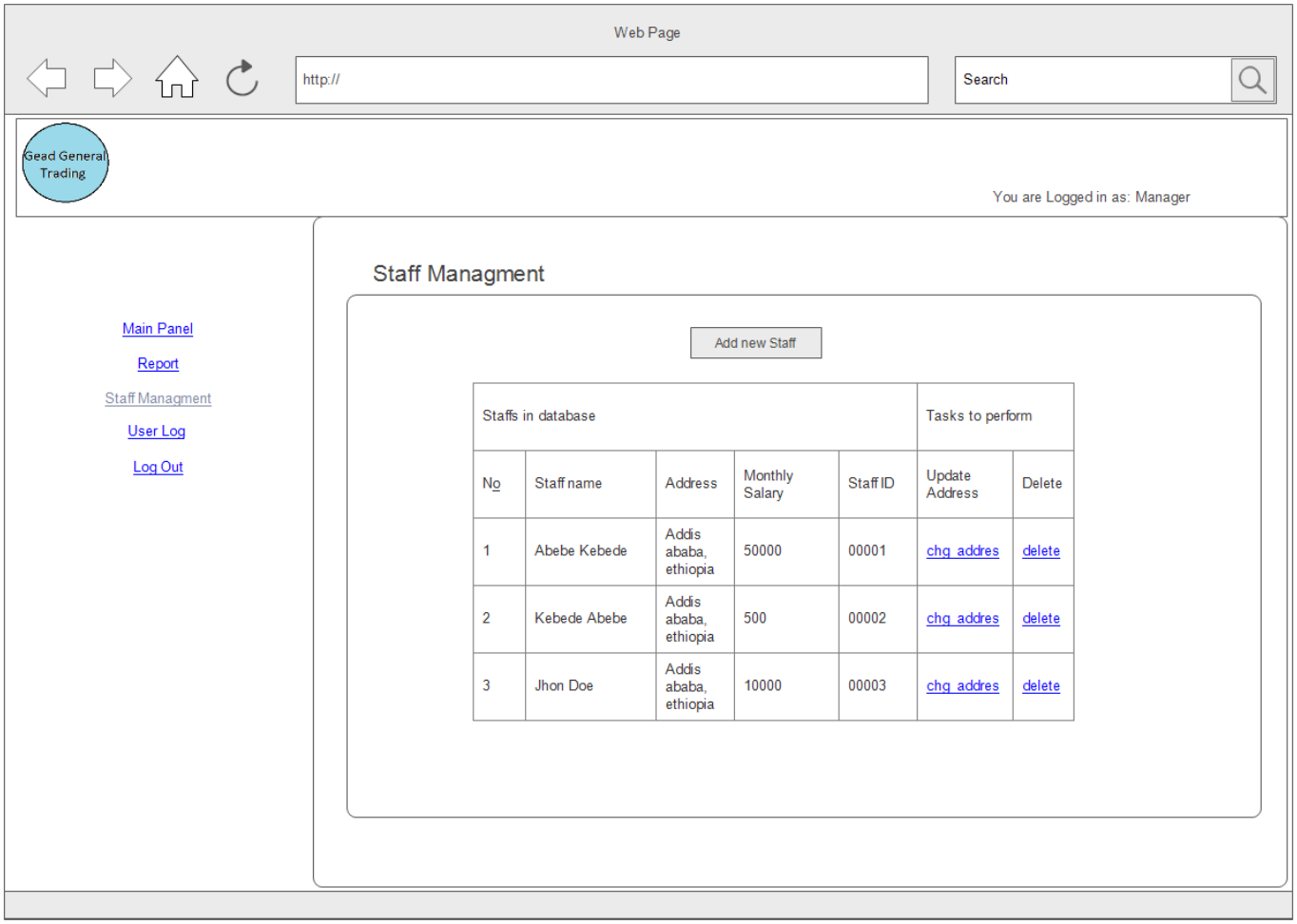

Figure 7 - Staff management Page

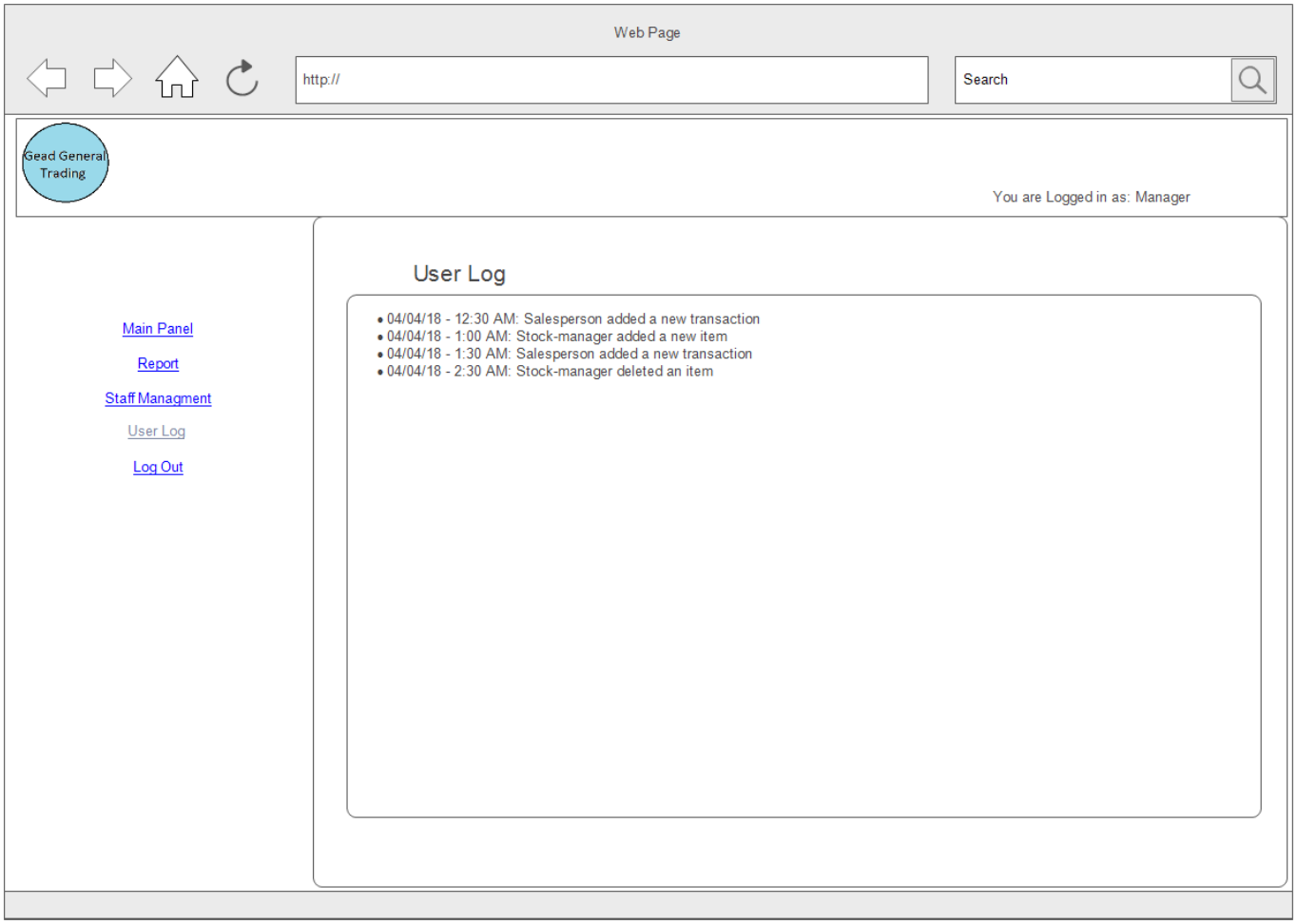

Figure 8 - Manager User log Page

3.1.2 Hardware Interfaces

The system has no hardware interface requirements.

3.1.3 Software Interfaces

The product is a web application, therefore requires a web browser to run. The web browser should be able to support java-script, HTML 5 and CSS3. All features will be tested on Mozilla Firefox Quantum version 59.0 for complete compatibility.

3.1.4 Communications Interfaces

Communication is important for the system. In order for the system to function it requires a communication between its different parts. It will use HTTP protocol for communicating via Internet.

3.2 Functional Requirements

3.2.1 All Users

3.2.2.1 Functional Requirement 0.1

Table 2 - Functional Requirement 0.1

ID	FR:0_01
Function	User Log-in
Description	The system shall allow the user to log-in given that, {the user enters a registered username} AND {the user enters the exact password associated with the selected username}
Rationale	In order use the system
Dependencies	None
References	UC-13

3.2.2.1 Functional Requirement 0.2

Table 3 - Functional Requirement 0.2

ID	FR:0_02
Function	User Log-out
Description	The system shall allow the user to log-out
Rationale	In order to end a session
Dependencies	FR:0_01
References	UC-14

3.2.2 User Class 1 – Salesperson

3.2.2.1 Functional Requirement 1.1

Table 4 - Functional Requirement 1.1

ID	FR:1_01
Function	Add new transaction

Description	The system shall allow the salesperson to add transactions, given that the salesperson provides the appropriate values for: Item type, Item quantity, VAT, Discount, Amount Given, Customer name, Customer TIN number, Customer Phone.
Rationale	In order to record transactions and track sales
Dependencies	FR:0_01
References	UC-01

3.2.2.2 Functional Requirement 1.2

Table 5 - Functional Requirement 1.2

ID	FR:1_02
Function	Notify order
Description	The system shall allow the salesperson to notify the stock-manager about the items added to a new transaction
Rationale	In order for the stock-manager to take the requested items out of storage and deliver them to the customer
Dependencies	FR:0_01
References	UC-03

3.2.2.3 Functional Requirement 1.3

Table 6 - Functional Requirement 1.3

ID	FR:1_03
Function	Print Receipt
Description	The system shall allow the salesperson to print a receipt containing the transaction
Rationale	In order to give the customer evidence of a successful transaction
Dependencies	FR:1_01

References	UC-04

3.2.2.4 Functional Requirement 1.4

Table 7 - Functional Requirement 1.4

ID	FR:1_04
Function	Search Previous Transactions
Description	The salesperson shall conduct a search on previously recorded transactions by providing a receipt number
Rationale	In order for the salesperson to find previous transactions
Dependencies	FR:0_01
References	UC-02

3.2.3 User Class 2 - Stock-manager

3.2.3.1 Functional Requirement 2.1

Table 8 - Functional Requirement 2.1

ID	FR:2_01
Function	Add item
Description	The system shall allow the stock-manager to add an item, given that the stock-manager provides the appropriate values for: Item Name, Item ID, Quantity and Price
Rationale	In order for the stock-manager to add items to stock
Dependencies	FR:0_01
References	UC-05

3.2.3.2 Functional Requirement 2.2

Table 9 - Functional Requirement 2.2

ID	FR:2_02
Function	Remove item
Description	The system shall allow the stock-manager to remove an item, given that the item exists in the database.
Rationale	In order for the stock-manager to delete items form stock
Dependencies	FR:2_01
References	UC-06

3.2.3.3 Functional Requirement 2.3

Table 10 - Functional Requirement 2.3

ID	FR:2_03
Function	Update the price of an item
Description	The system shall allow the stock-manager to change the price of an item, given that the item exists in the database.
Rationale	In order for the stock-manager to change the price of previously added items
Dependencies	FR:2_01
References	UC-07

3.2.4 User Class 3 – Manager

3.2.4.1 Functional Requirement 3.1

Table 11 - Functional Requirement 3.1

ID	FR:3_01
Function	View User Log
Description	The system shall allow the manager to view an activity log of the users

Rationale	In order for the manager to monitor the other users activities
Dependencies	FR:0_01
References	UC-13

3.2.4.2 Functional Requirement 3.2

Table 12 - Functional Requirement 3.2

ID	FR:3_02
Function	Add staff member
Description	The system shall allow the manager to add staff member, given that the manager provides the appropriate values for: staff member name, staff member ID, Monthly salary and Address
Rationale	In order for the manager to include new staff members
Dependencies	FR:0_01
References	UC-9

3.2.4.3 Functional Requirement 3.3

Table 13 - Functional Requirement 3.3

ID	FR:3_03
Function	Delete staff member
Description	The system shall allow the manager to delete staff member, given that the staff member exists in the database
Rationale	In order for the manager to remove staff members
Dependencies	FR:3_02
References	UC-10

3.2.4.4 Functional Requirement 3.4

Table 14 - Functional Requirement 3.4

ID	FR:3_04
Function	Generate sales report
Description	The system shall generate sales report showing the amount of money collected during the span of time the manager has specified.
Rationale	In order for the manager to generate report on sales
Dependencies	FR:0_01
References	UC-08

3.2.4.5 Functional Requirement 3.5

Table 15 - Functional Requirement 3.5

ID	FR:3_05
Function	View real-time sales activity
Description	The system shall allow the manager to view the amount of profit made from the beginning of the working hour till the instant of view.
Rationale	In order for the manager to view sales activity in real-time
Dependencies	FR:0_01
References	UC-14

3.3 Use Cases

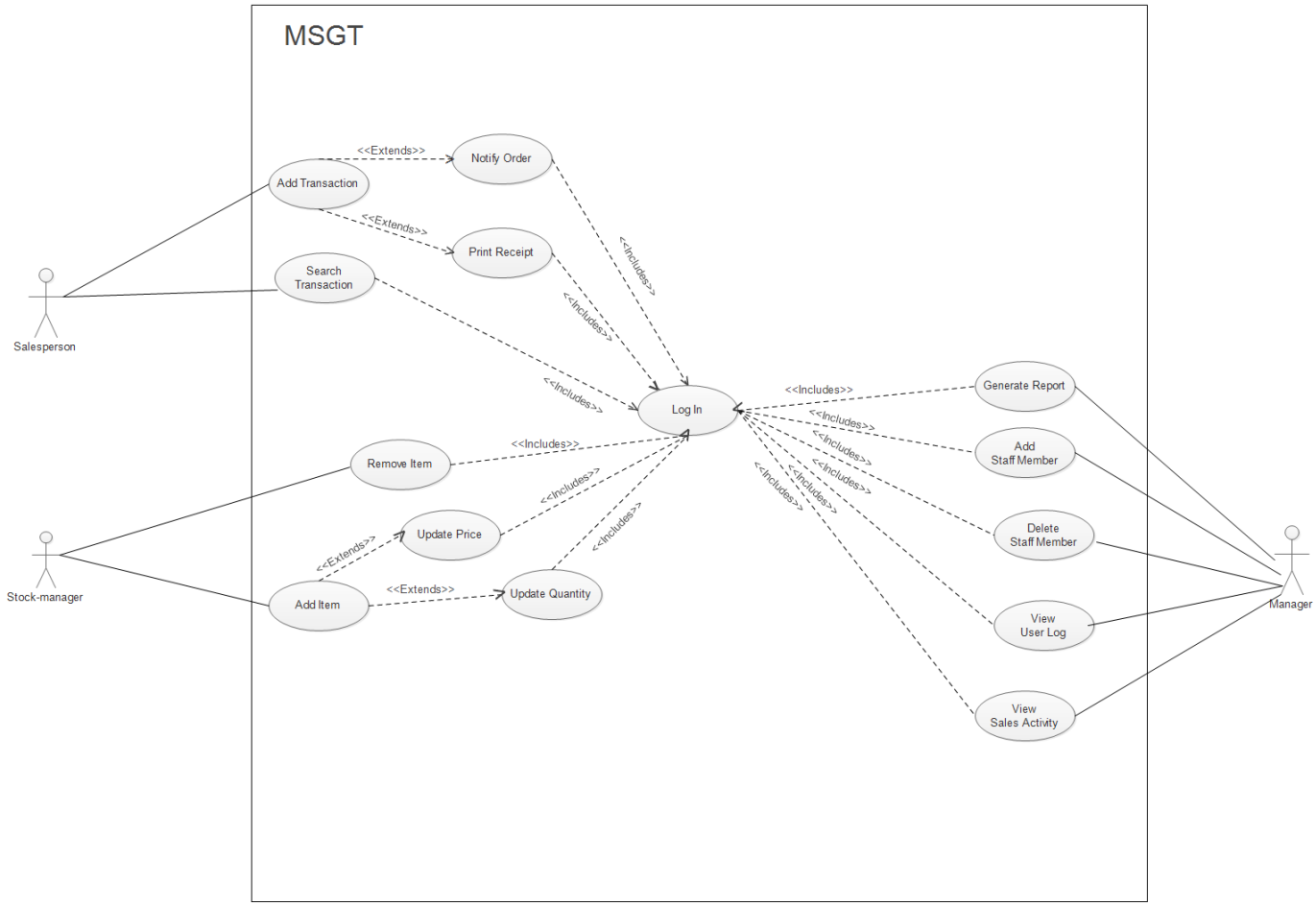

Figure 9 - Use Case Diagram

3.3.1 UC-01: Add Transaction

Use case Id: UC-01

Goal: The Salesperson wishes to add a new transaction

Primary Actor: Salesperson

Scope: MSGT

Level: User

Pre-condition: Salesperson is logged in

Success end condition: Transaction is added

Failure end condition: Transaction is not added

Trigger: Salesperson chooses add transaction option

Main success scenario:

1. Salesperson choses the add new transaction option
2. System displays the transaction form
3. Salesperson enters the required information into the form
4. Salesperson submits form
5. System adds the transaction

Extensions:

3a. Amount given is less than the total amount

3a.1 System displays error message in familiar terms

3a.2 Salesperson enters another value

3a.3 System resumes @ 4

3b. Customer name contains numbers or symbols

3b.1 System displays error message in familiar terms

3b.2 Salesperson enters another value

3b.3 System resumes @ 4

3c. Customer phone contains letters

3c.1 System displays error message in familiar terms

3c. 2 Salesperson enters another value

3c.3 System resumes @ 4

3.3.2 UC-02: Search Transactions

Use case Id: UC-02

Goal: The Salesperson wishes to search previous transactions

Primary Actor: Salesperson

Scope: MSGT

Level: User

Pre-condition: Salesperson is logged in

Success end condition: Searched transaction result has appeared

Failure end condition: Searched transaction result has not appeared

Trigger: Salesperson wants to search a transaction

Main success scenario:

1. Salesperson chooses the search option
2. System displays the search interface
3. Salesperson enters the search query
4. Salesperson submits query
5. System displays the searched transaction

Extension:

5a. System shows the searched transaction does not exist

5a.1 System displays message explaining that a match was not found

3.3.3 UC-03: Notify order

Use case Id: UC-03

Goal: The Salesperson wishes to notify the stock-manager about items added to a transaction

Primary Actor: Salesperson

Scope: MSGT

Level: User

Pre-condition: Salesperson has filled in the transaction form

Success end condition: System notifies stock-manager

Failure end condition: System does not notify stock-manager

Trigger: Salesperson chooses notify option

Main success scenario:

1. Salesperson chooses notify option
2. System displays a message asking if salesperson wishes to confirm notification
3. Salesperson confirms notification
4. System sends notification

Variation:

3. Salesperson chooses the cancel option

3.3.4 UC-04: Print Receipt

Use case Id: UC-04

Goal: Salesperson wishes to print a receipt

Primary Actor: Salesperson

Scope: MSGT

Level: User

Pre-condition: UC-01

Success end condition: Receipt is printed

Failure end condition: Receipt is not printed

Trigger: Salesperson submits transaction form

Main success scenario:

1. Salesperson submits transaction form
2. System displays a new window displaying the generated receipt
3. Salesperson chooses the print receipt option
4. System prints receipt

Variation:

3. Salesperson chooses the cancel option

3.3.5 UC-05: Add Item

Use case Id: UC-05

Goal: Stock-manager wishes to add an item

Primary Actor: Stock-manager

Scope: MSGT

Level: User

Pre-condition: Stock-manager is already logged in

Success end condition: Item is added

Failure end condition: Item is not added

Trigger: Stock-manager choses add item option

Main success scenario:

1. Stock-manager chooses the add item option
2. System displays add item form
3. Stock-manager enters the required information into the form
4. Stock-manager submits form
5. System adds item

Extension:

3a. Item ID contains letters

3a.1 System displays error message

3a.2 Stock-manager enters a different value

3a.3 System resumes @ 4

3b. Some or all fields are left empty

3b.1 System displays error message

3b.2 Stock-manager returns to step 3

3.3.6 UC-06: Remove Item

Use case Id: UC-06

Goal: Stock-manager wishes to remove an item

Primary Actor: Stock-manager

Scope: MSGT

Level: User

Pre-condition: Stock-manager is already logged in

Success end condition: Item is removed

Failure end condition: Item is not removed

Trigger: Stock-manager chooses to remove an item

Main success scenario:

1. Stock-manager finds and chooses the remove option for the item
2. System displays a message to confirm if stock-manger wishes to continue
3. Stock-manager choses the proceed option
4. System removes the item

Variation:

3. Stock-manager chooses the cancel option

3.3.7 UC-07: Update Price

Use case Id: UC-07

Goal: Stock-manager wishes to update price of an item

Primary Actor: Stock-manager

Scope: MSGT

Level: User

Pre-condition: Stock-manager is already logged in

Success end condition: Item price is updated

Failure end condition: Item price is not updated

Trigger: Stock-manager chooses to update the price of an item

Main success scenario:

1. Stock-manager finds and chooses the update price option for the item
2. System displays update price form
3. Stock-manager enters the new price
4. Stock-manager submits form
5. System updates the price

Extension:

3a. New price is the same as the old price

3a.1 System displays an error message

3a.2 Stock-manager enters a different

3a.3 System resumes @ 4

3.3.8 UC-08: Generate Report

Use case Id: UC-08

Goal: Manager wishes to generate a report

Primary Actor: Manager

Scope: MSGT

Level: User

Pre-condition: Manager is already logged in

Success end condition: Report is generated

Failure end condition: Report is not generated

Trigger: Manager chooses generate report option

Main success scenario:

1. Manager choses the generate report option

2. System displays the report generate form
3. Manager enters “from date” and “to date”
4. Manager submits form
5. System generates report

Variation:

3a. Manager chooses generate annual report option

3a.1 System displays a window with a from

3a.2 Manager enters a year

3a.3 System resumes @ 4

3b. Manager chooses generate monthly report option

3b.1 System displays a window with a from

3b.2 Manager enters year and month

3b.3 System resumes @ 4

3c. Manager chooses generate weekly report option

3c.1 System displays a window with a from

3c.2 Manager enters year, month and week

3c.3 System resumes @ 4

3.3.9 UC-9: Add Staff-member

Use case Id: UC-9

Goal: Manager wishes to add a staff member

Primary Actor: Manager

Scope: MSGT

Level: User

Pre-condition: Manager is already logged in

Success end condition: Staff member is added

Failure end condition: Staff member is not added

Trigger: Manager chooses add staff member option

Main success scenario:

1. Manager chooses the add staff member option
2. System displays add staff member form
3. Manager enters the required information into the form
4. Manager submits form
5. System adds staff member

Extension:

3a. Staff member ID contains letters

3a.1 System displays error message

3a.2 Manager enters a different value

3a.3 System resumes @ 4

3.3.10 UC-10: Delete Staff-member

Use case Id: UC-10

Goal: Manager wishes to delete a staff member

Primary Actor: Manager

Scope: MSGT

Level: User

Pre-condition: Manager is already logged in

Success end condition: Staff member is deleted

Failure end condition: Staff member is not deleted

Trigger: Manager chooses to delete a staff member

Main success scenario:

1. Manager finds and chooses the delete option for the staff member

2. System displays a message to confirm if manger wishes to continue
3. Manager choses the proceed option
4. System removes the staff member

Variation:

3. Manager chooses the cancel option

3.3.11 UC-11: Login

Use case Id: UC-11

Goal: User wishes to login to the system

Primary Actors: Manager, Stock-manager, Salesperson

Scope: MSGT

Level: User

Pre-condition: User is at the login page

Success end condition: User is logged in

Failure end condition: User is not logged in

Trigger: User chooses to login to the system

Main success scenario:

1. User enters login credentials
2. User submits request
3. System verifies User
4. System logs User in

Extension:

1a. Password is incorrect

1a.1 System displays an error message

1a.2 User enters a different value

1a.3 System resumes @ 2

1b. Username is incorrect

1b.1 System displays an error message

1b.2 User enters a different value

1b.3 System resumes @ 2

3.3.12 UC-12: Log-out

Use case Id: UC-12

Goal: User wishes to log out of the system

Primary Actors: Manager, Stock-manager, Salesperson

Scope: MSGT

Level: User

Pre-condition: UC-11

Success end condition: User is logged out

Failure end condition: User is not logged out

Trigger: User chooses to log out of the system

Main success scenario:

1. User chooses the log-out option
2. System displays a message to confirm if user wants to logout
3. User chooses the log-out option
4. System logs user out

Variation:

5. User chooses the cancel option

3.3.13 UC-13: View User Log

Use case Id: UC-13

Goal: Manager wishes to view user event log

Primary Actor: Manager

Scope: MSGT

Level: User

Pre-condition: Manager is already logged in

Success end condition: User event log is displayed

Failure end condition: User event log is not displayed

Trigger: Manager chooses view user event log

Main success scenario:

1. Manager chooses the user log option
2. System displays user log

Extension:

2. System displays that there is no log recorded

3.3.14 UC-14: View real-time sales activity

Use case Id: UC-14

Goal: Manager wishes to view real-time sales activity

Primary Actor: Manager

Scope: MSGT

Level: User

Pre-condition: Manager is already logged in

Success end condition: Manager View real time sales activity

Failure end condition: Manager fails to view real time sales activity

Trigger: Manager chooses to view real time sales activity

Main success scenario:

1. Manager chooses option to see the report
2. System displays real time sales activity

Extension:

2. System doesn't display there is no sales activity

3.4 Non-Functional Requirements

3.4.1 Performance

- All webpages generated by the system shall be fully visible on the screen in no more than 5 seconds
- Response to queries shall take no longer than 5 seconds to load on to the screen ,after the user has successfully submitted a query

3.4.2 Reliability

- The system shall be able to update the database information at the same instant as a change has occurred
- If internet connection is lost during an operation, the system shall inform the user 100% of the time

3.4.3 Security

- Users shall be required to login into the system for all operations
- The system shall permit users to only access their account from one computer at one instant

3.4.4 Maintainability

- The implementation of the system shall allow the addition of new functionalities

3.4.5 Portability

- The system shall be portable with browsers that are compliant with the web standards of the W3C (world wide web consortium)

3.5 Inverse Requirements

MSGT shall not provide the option for a new user to register. All users will be added to the database beforehand and will be assigned default login credentials. As the client only needs a specified number of users, adding a user registration feature would be useless and possibly present security risks.

3.6 Design Constraints

One constraint in the user interface of the product is that every page must include the Gead trading logo in a visible and appealing way. Every user interface must also include the year in which the product has last been updated and the copyright owner of the product.

As a policy, Gead Trading only accepts the local currency for all transactions. Therefore the product is constrained to calculating all sales using only Ethiopian birr.

3.7 Logical Database Requirements

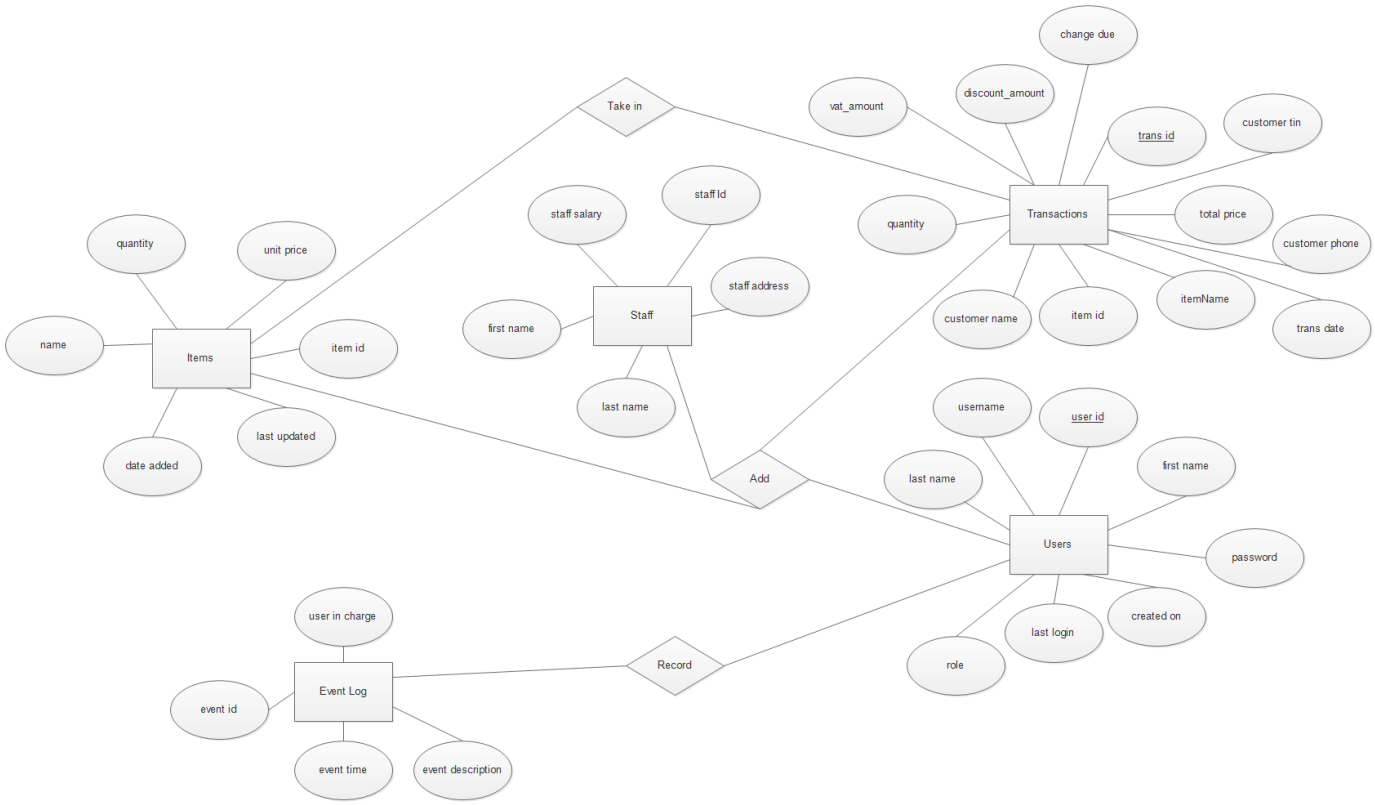

Figure 10 - Database ER Diagram

3.8 Other Requirements

3.8.1 Training-related Requirements

To begin using the system the users require different levels of training. Salesperson and stock-manager are required to take a practical 10 minute training session on how to operate the system. The manager is also required to take a 30 minute practical training session.

The training sessions will familiarize the user to the different features of the product. It will help the user to know the exact steps to take in order to perform a task. The training will also prepare the users on how they can handle some errors they might encounter. By the end of the training session, the user shall be able to use the product to its full capabilities.

The session will be administered by selected members from the product development team. The time and place of the session is be determined by the client and team members.

3.8.2 Packaging Requirements

The product shall be packaged and delivered to the client through a structured folder.

3.8.3 Legal Requirements

The product shall comply with all rules and regulations concerning valid transaction processing and re-stocking standards. All data stored must fulfill the regulations of Gead General Trading.

4. Change Management Process

The process for change management will be done in three phases. As a general rule, we will try to avoid making changes as we are using a sequential software development model. Making changes would be very costly, in terms of resources and time. Any changes will have to pass through the three phases before they are made permanent.

In the first phase, possible requirement flaws will be analyzed by the team. If the client has issues with a requirement it will be presented to the tem and the team will propose a new requirement specifications.

In the second phase, the proposed requirement will be assessed further to determine the estimated cost of change. The decision to proceed to the next phase will be determined by the client and the team members.

If the requirement passes the second phase it will then be included in the SRS documentation. The system design and implementations will also be changed to reflect the inclusion of the requirement.

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