Project Report

Smarter Space Management System

May-June, 2010

Developed by:
Nibir Nayan Bora

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1. Introduction

Smarter Space Management System(SSMS) is an computer aided automation system for a Carrying and Forwarding agent.

1.1 Purpose

Maintaining manual records at a warehouse can be a tedious job, leading to discrepancy in client work rules. Moreover, the customers have no method to manage/access their booked space, or view their transaction. A computer aided system can make managing a warehouse an easy task. Transaction records can easily be maintained and reports generated.

1.2 Features

- Web-based application - allows distributed access.
- Company can register and book space for storage.
- Online entry of store transactions (both dispatch coming in and dispatch going out).
- Automatic notification (via email) about dispatch going out and available space for company users.
- Maintains store transactions in a centralised database.
- Statistics and report generation for company users.
- Statistics and report generation for managers.
- Administrative user with special privileges.

1.3 Definitions, Acronyms and Abbreviations

- **SSMS** – Smarter Space Management System, is a computer aided system for managing godown space.
- **System** – The Smarter Space Management System.
- **Client** – One who provides godown space.
- **Warehouse** – Godown.
- **Admin** – Administrator user, who controls the creation and updation of various employee users.
- **Store keeper** – Employee at the warehouse, who updated the dispatch transactions (coming in or going out).

- **Manager** – A high authorised person of the client who can have transparent view of the warehouse transactions.
- **Company user** – One who books space with the client. Receives notification from the client.

1.4 Technologies used

- **Java** – Application Architecture
- **JSP** – Java Server Pages (server-side scripting)
- **HTML** – Hypertext Markup Language (static web-page design language)
- **CSS** – Cascading Style Sheets (web page styling)
- **WAS** – IBM WebSphere Application Server (deployment server)
- **DB2** – RDBMS package from IBM

1.5 Tools used

- **AST** – Application Server Toolkit (project development)
- **StarUML** – UML Design
- **DIA** – ER Modelling
- **Geany** – Text Editor

1.6 Assumptions and Dependencies

- Hardware deployment should have significant uptime.
- Application server and RDBMS package.
- Client browser (Mozilla Firefox, etc.).
- Storekeeper should be well acquainted with computers and its use.
- The company should provide correct email for notifications to be sent.

2. System Description

2.1 Component diagram

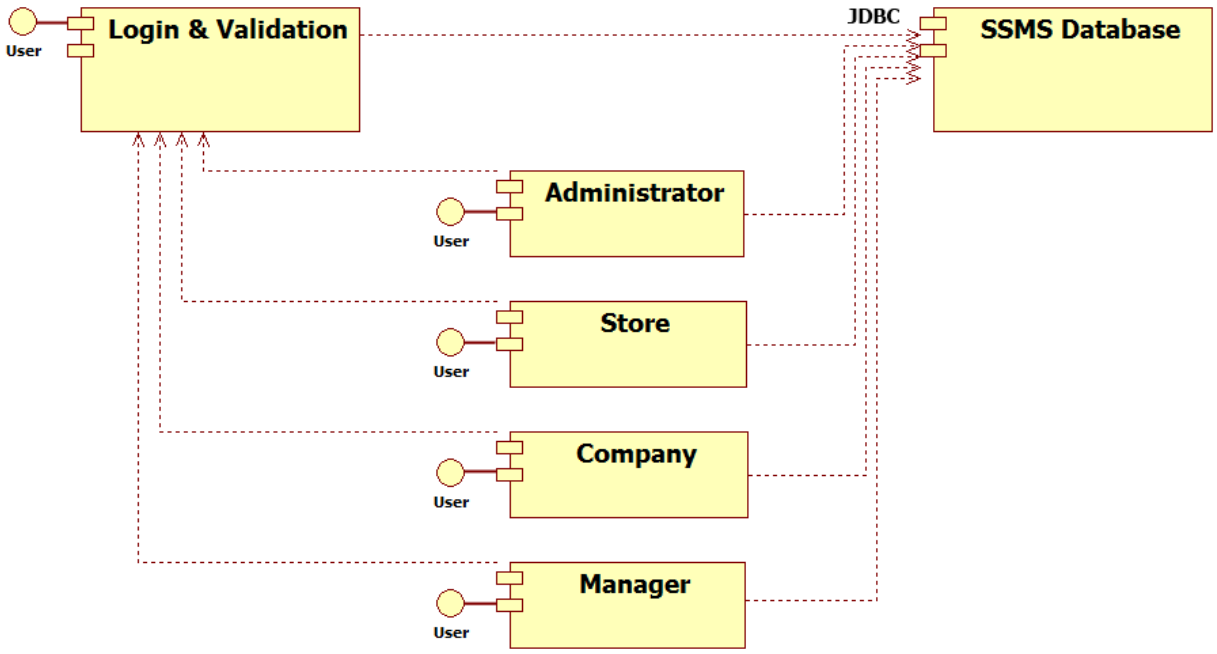

Fig 2.1: Component diagram for SSMS.

2.2 Use Case Model

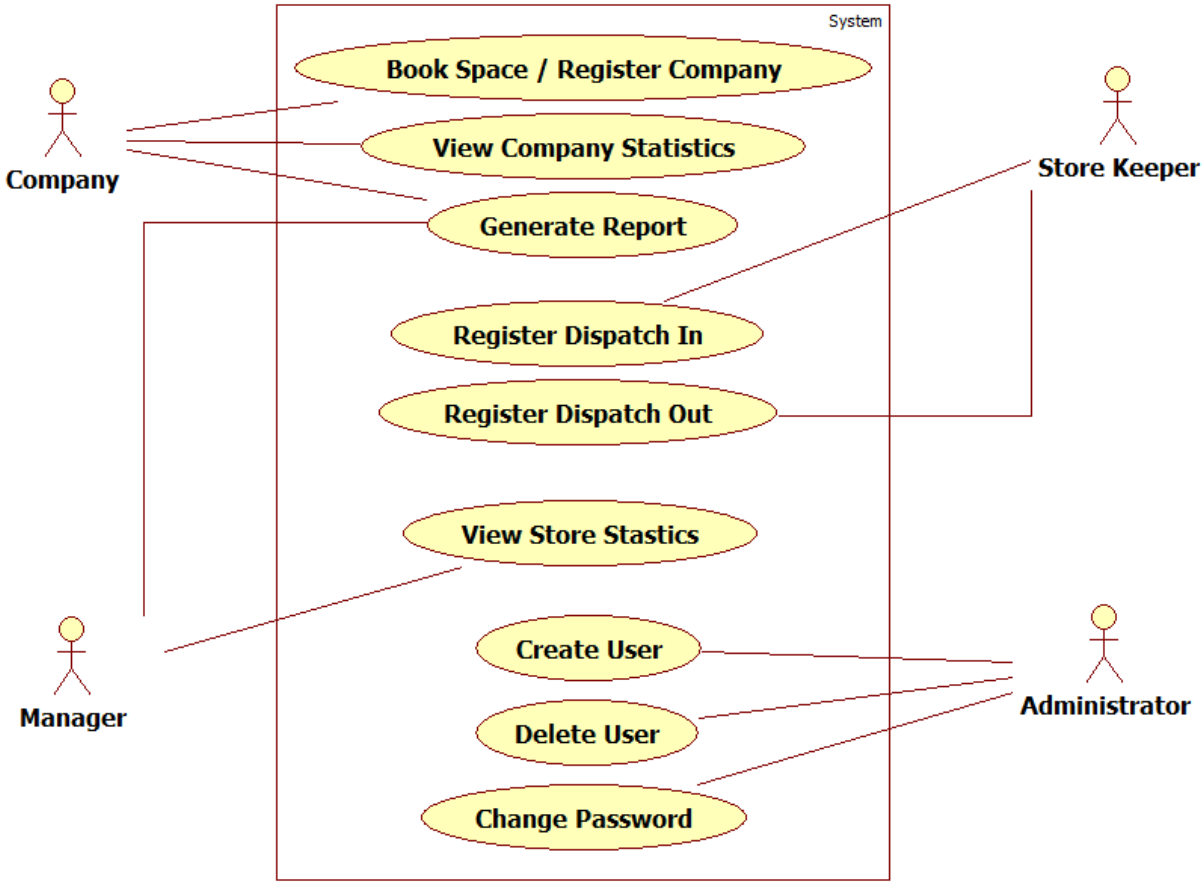

Fig 2.2: Use case model.

User type legend

1 - Administrator

2 - Manager

3 – Store Keeper

4 - Company

2.3 Sequence diagram

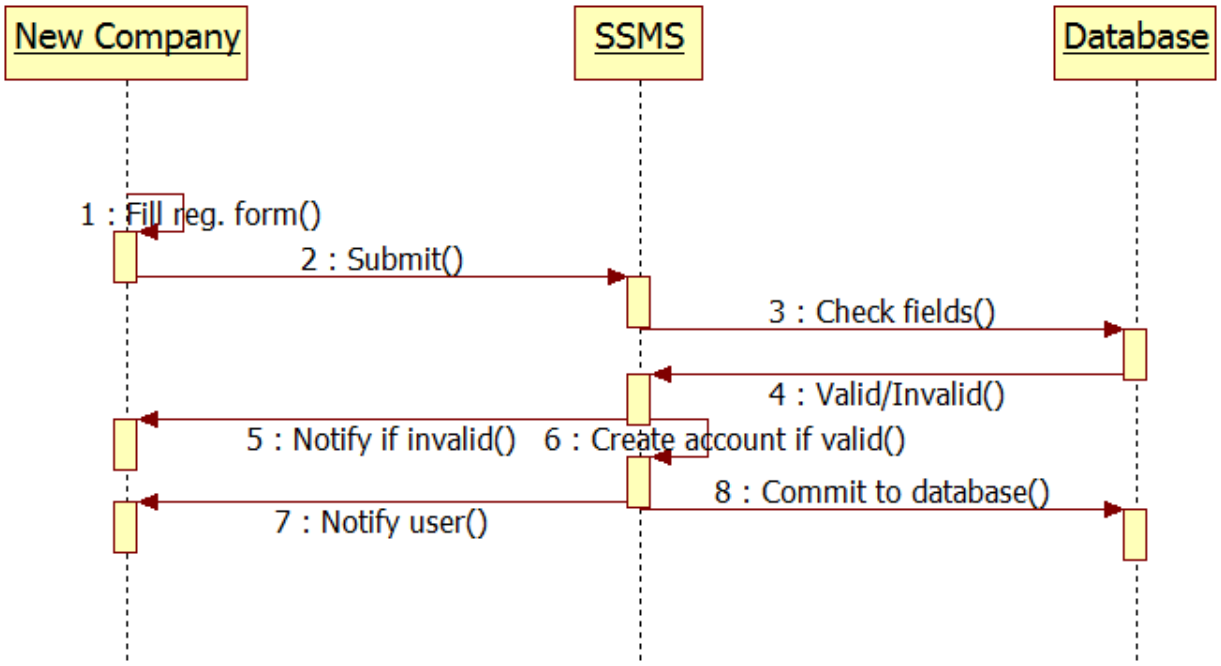

Fig 2.3.a: Sequence diagram for Company Registration

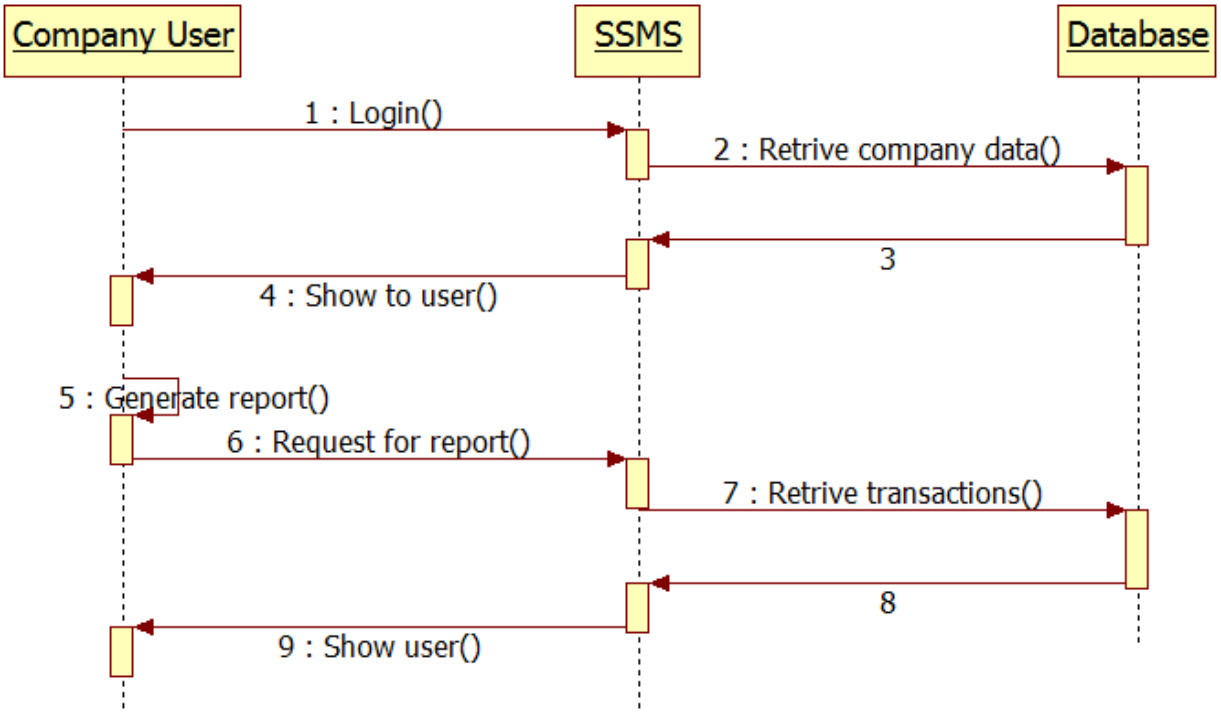

Fig 2.3.b: Sequence diagram for Company

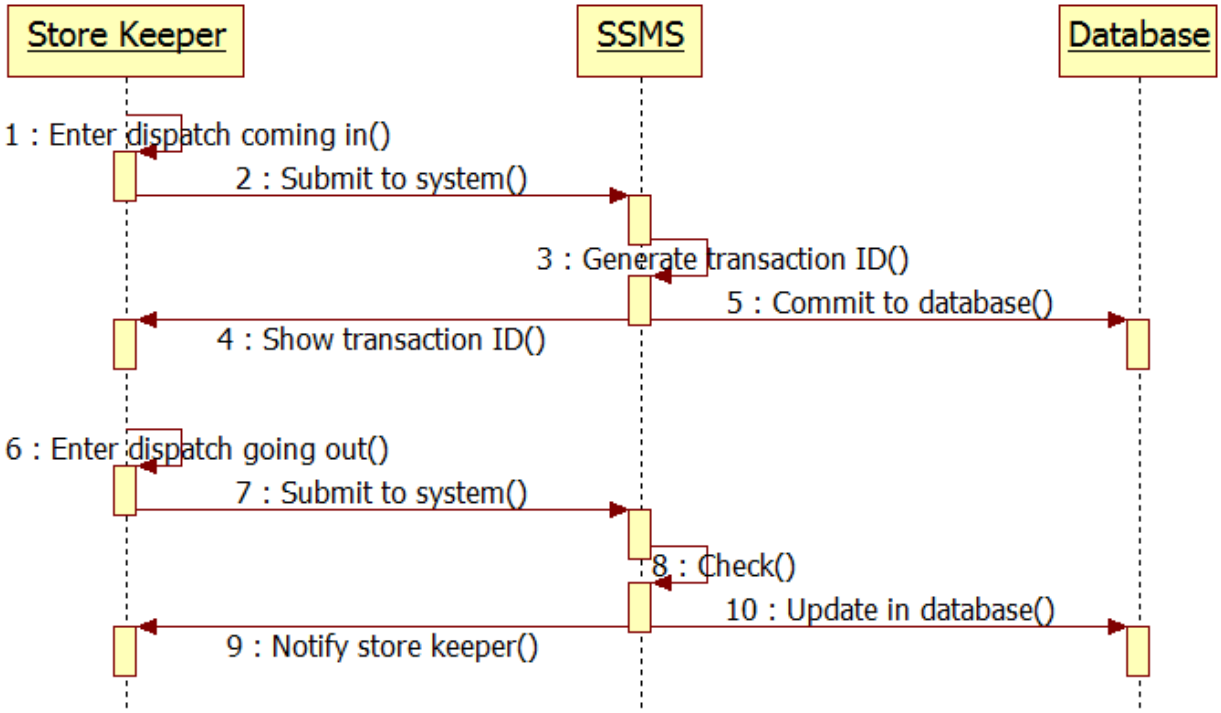

Fig 2.3.c: Sequence diagram for Store Keeper

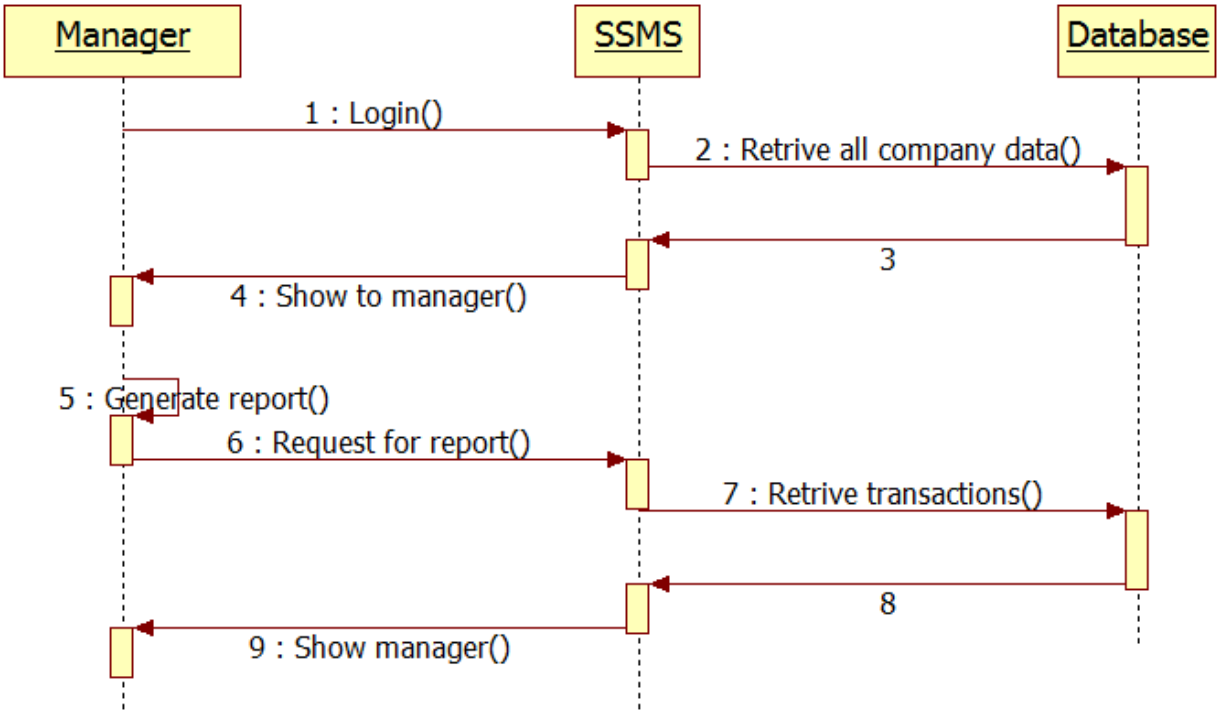

Fig 2.3.d: Sequence diagram for Managers

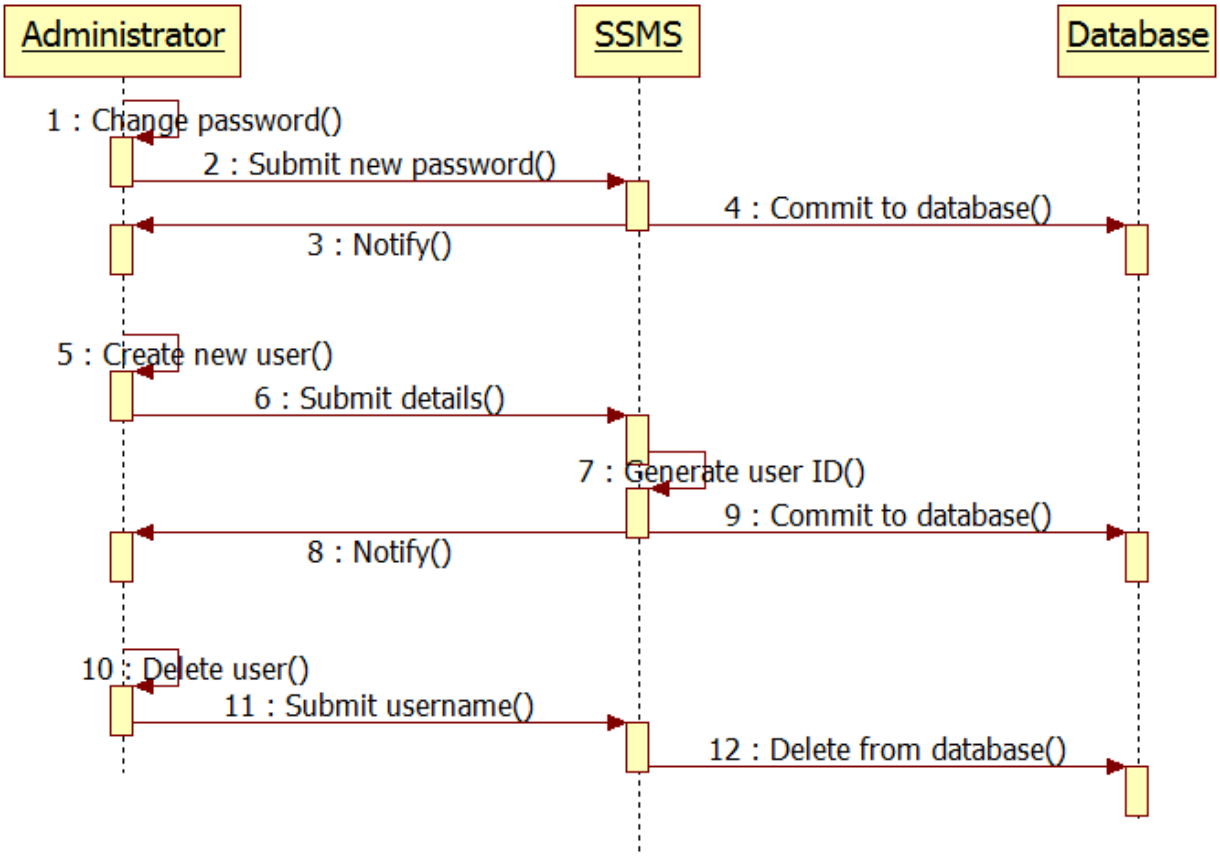

Fig 2.3.e: Sequence diagram for Administrators

2.4 Class diagram

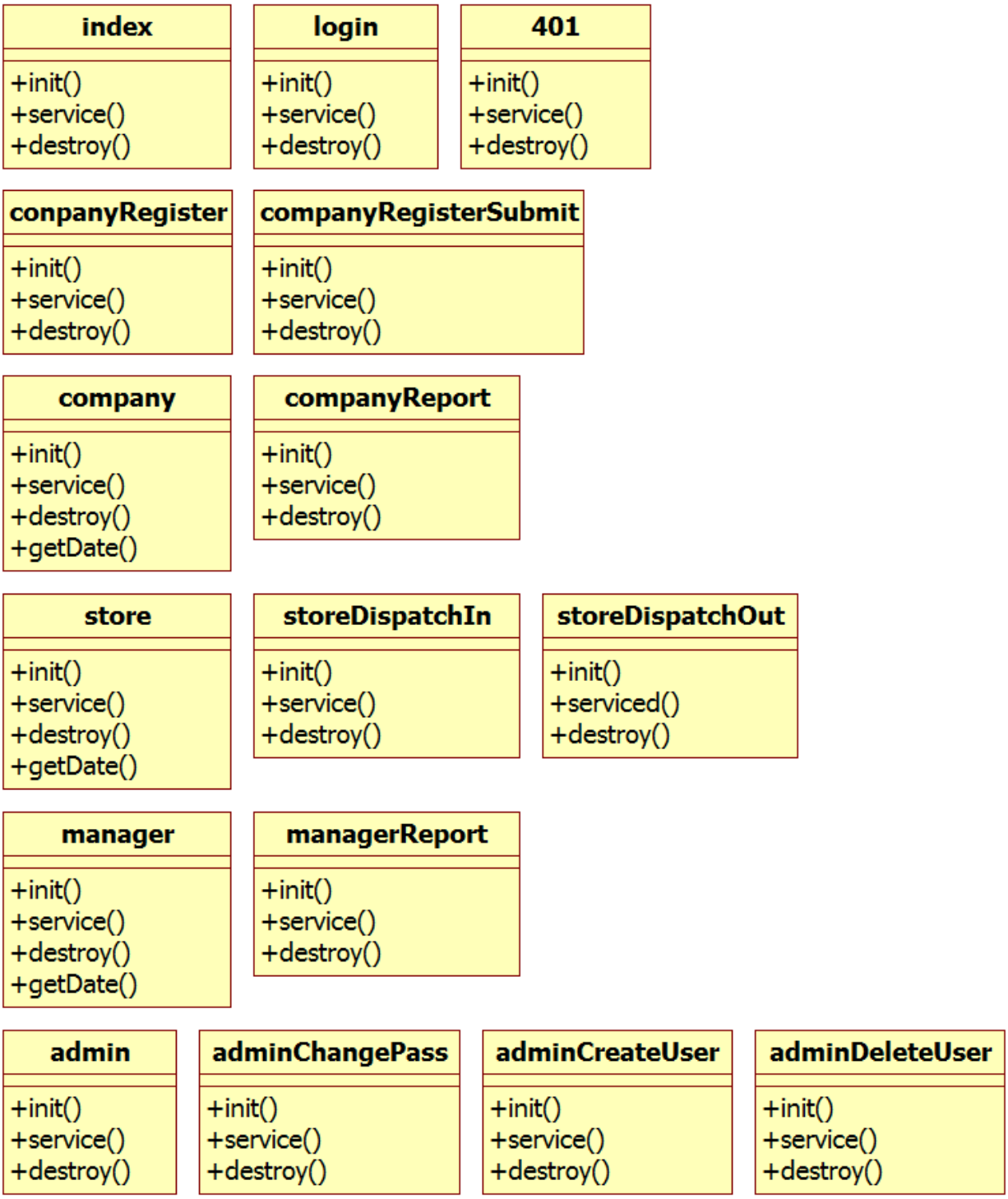

Fig 2.4: Class diagram for SSMS.

2.5 ER Diagram

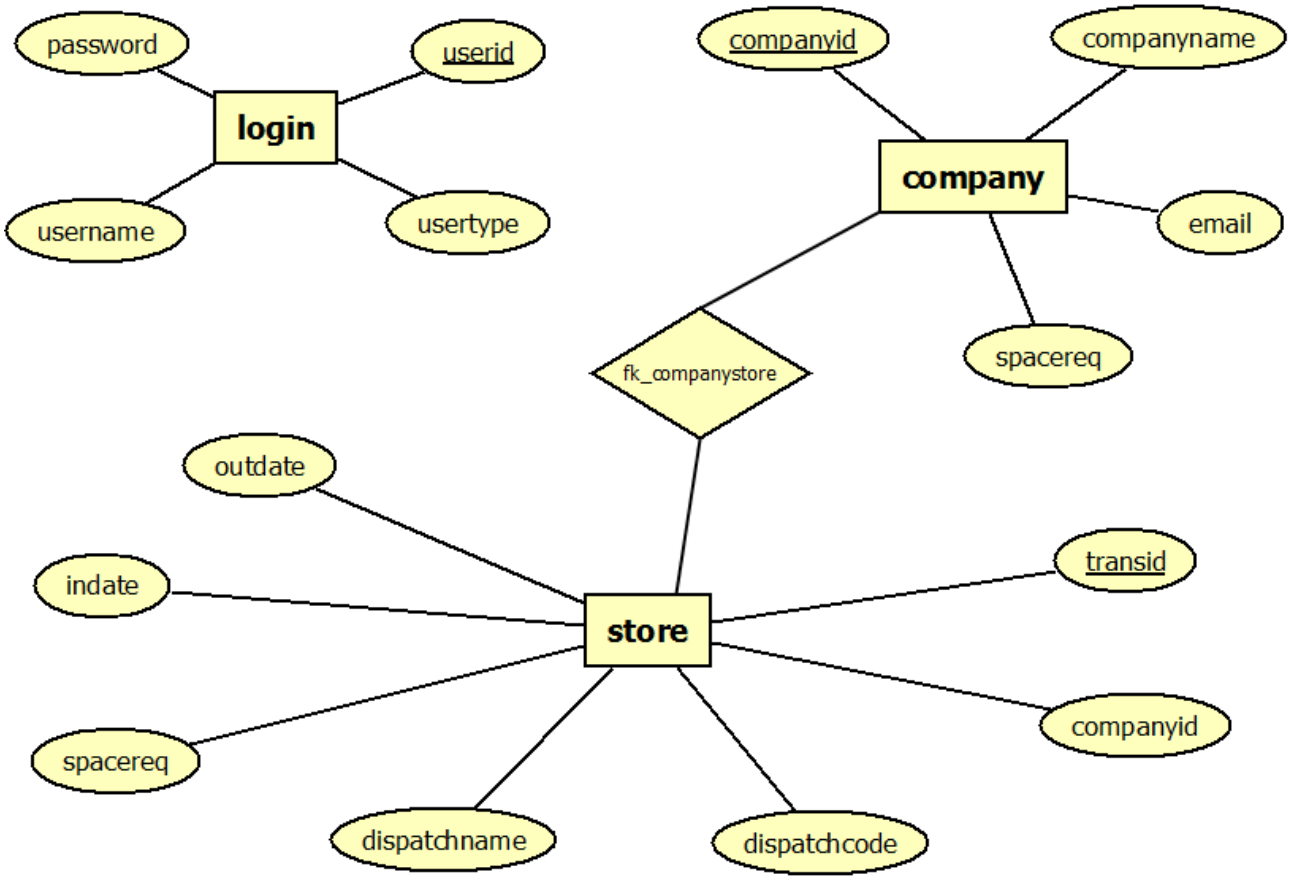

Fig 2.5: ER Diagram for SSMS Database

3. Test Case and user reference

3.1 Index page

The index page (or home page) provides an interface for all users to login (on the right). This interface is user-type independent. The user has to enter his/her username and password and then click on submit.

Fig 3.1.a: Index page.

In case of invalid login details, an error message is shown.

Fig 3.1.b: Index page with error message.

A new company, interested to books space with the client can click on the 'register' hyperlink. This will take the user to the Company Registration page.

3.2 Company registration

The new company has to enter all its details, choose an username and password, enter required space and click on submit. The required space should be less than the total available space, shown on the left panel.

Fig 3.2.a: Company registration page.

On an ambiguous situation (fields left blank, invalid space required, or username already used) the user is returned to the same page with an error.

On success, the user is returned to the home page with a success page.

Fig 3.2.b: Company registration success.

3.3 Store page

The store page has two panels. One for registering incoming dispatch, and the other for registering outgoing dispatch.

Fig 3.3.a: The store page.

Here the Dispatch Code and Dispatch Name are supplied by the company. The dispatch name may be left blank. The system automatically puts the system date in the date field, however, it can be changed.

To register incoming dispatch, the store keeper enters the dispatch details and clicks on submit.

If any required field is left empty, the user will be returned to the same page with an error page.

Fig 3.3.b: Store – registering dispatch in.

On success, the user is returned to the store page, and the Transaction ID is showed. The transaction ID acts as an unique identification for the dispatch.

Fig 3.3.c: Store – Dispatch in registered, Transaction ID.

For registering dispatch going out, the store keeper has to select the company name, enter the transaction ID and out-date, then click on submit.

Fig 3.3.d: Store – registering dispatch out.

On successful registration of a dispatch going out, the user is notified.

Fig 3.3.e: Store – register dispatch out success.

Whenever a dispatch goes out, an email is sent to the respective company, notifying about the dispatch going out and the total available space.

Fig 3.3.f: Email notification sent on dispatch out.

3.4 Company page

The company user can login with his/her login details. The company page shows various statistics (booked space, used space, available space, number of dispatched in store) about the company.

Fig 3.4.a: Company page.

The user can generate a report about the company transactions between some date. He/she has to enter the date range, and click on submit.

The generated report shows all the dispatches that are still in store, and those which have gone out, separately.

Fig 3.4.b: A company report.

3.5 Manager page

A manager can log in to view details about the store. The manager page shows various statistics (total store space, space booked, space available, space used, number of companies registered) about the store.

Fig 3.5.a: Manager page.

The manager can generate a report about a company's transactions between some date. He/she has to select the company, enter the date range, and click on submit.

The generated report shows all the dispatches, for that company, that are still in store, and those which have gone out, separately.

Fig 3.5.b: A manager's report.

3.6 Administrator page

The administrator page allows some privileged operations - changing a password, creating/deleting an user.

Fig 3.6.a: Administrator page.

To change the password for any user, the administrator has to select the username from the list, enter the new password and click on submit.

Fig 3.6.b: Administrator – change password.

A success message is shown on successfully changing the password.

Fig 3.6.c: Administrator – change password success.

To create a new user, the administrator has to select the user-type from the list, enters an username and password and click on submit. The administrator can create administrator, manager or store keeper users.

Fig 3.6.d: Administrator – create user.

If any field is left blank, an error message is shown.

Fig 3.6.e: Administrator – field empty error.

A success message is shown on successfully creating an user.

Fig 3.6.f: Administrator – create user success.

To delete an user, the administrator has to select the username from the list and click on submit.

Fig 3.6.g: Administrator – delete user.

A success message is shown on successfully deleting an user.

Fig 3.6.h: Administrator – delete user success.

3.7 Error page

Id an unexpected situation arises during processing, the user will be redirected to the error page.

Fig 3.7: Error page.

The 'home' button on the error page takes the user to the home page.

4. References

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