SOFTWARE REQUIREMENT SPECIFICATION

TRANSPORTATION MANAGEMENT OPTIMIZATION

Course	BLG-411E Software Engineering	
CRN	13330	
Year/Semester	2017-2018 Fall	
Project Name	Transportation Management Optimization	
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Epic Number	Epics
1	Project Plan
1.1	Introduction, Project Plan, Estimates, Resources, Schedule, Risks
2	Test interface for cases, Optimized Shortest Path Finder, Desktop App
2.1	A Test interface for Finding a shortest path for case1
2.2	A Test interface for Finding a shortest path for case2
2.3	A Test interface for Finding a shortest path for case3
2.4	A Test interface for Finding a shortest path for case4
2.5	A Test interface for Finding a shortest path for case5
2.6	A Test interface for Finding a shortest path for case6
3	Desktop App
3.1	Desktop Login Page
3.2	Manage Orders
3.3	Displaying Ordering History
3.4	Running Optimization Algorithm and Displaying its Output
3.5	Manage Users
4	Web Application
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4.2	Ordering (Select product,select amount)
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6	User Manual
6.1	User Manual for Fabricate
6.2	User Manual for Pool Points
7	Source Code

Deliverable Number	Deliverable
1	Project Plan
2	Optimized Shortest Path Finder, Desktop App
2.1	
2.1	(Case 1) The case of all pool points give an order, And 1 truck is enough to deliver to these orders. Finding and showing shortest path for this case.
2.2	(Case 2) The case of some of pool points give an order, some not. And 1 truck is enough to deliver these orders. Finding and showing shortest path for this case.
2.3	(Case 3) The case of all pool points give an order, And 1 truck is not enough to deliver these orders. More than one transportation is needed to deliver to these orders. Finding and showing shortest path for this case.

2.4	(Case 4) The case of some of pool points give an order, some not. More than one transportation is needed to deliver to these orders. Finding and showing shortest path for this case.
2.5	(Case 5) The case of if it shortens path, Adding a functionality that leaving extra product at some pool point to all cases. Finding and showing shortest path for this case.
2.6	(Case 6) For all possible cases, Finding optimized shortest path and showing
3.	Desktop Application
4	Web Application
5	Data Base
6	User Manual
7	Source Code

1. INTRODUCTION

Report of Software Requirements Specification is an extensive description of the purpose and environments for software project. This report creates the agreement bridge between customers and company. With careful attention to the requirements, disagreements and inconsistencies can be revealed before they occur. Thanks to this report, the software team can efficiently use the time and reduce the development cost at a minimum. A software requirements specification report has to be correct, unambiguous, complete, consistent, verifiable, modifiable and traceable.

1.1 Purpose

The purpose of this document is to provide a detailed and complete description of the requirements for the Transportation of Ali Baba's Farm. This document will include usage scenario, early system models and user stories for this situation. In the usage scenario part, the user types and their accessibilities and functionalities about the operations are introduced. In the early system models, conceptual model is given and every use case diagram from the second part is expressed. In the user stories part, every user story from the previous report is matched with gherkin format scenario. And every operation is explained in details.

1.2 Scope

In our globalized world, small businesses that do not develop themselves cannot keep up with the current age for too long. Along with the developing technology, now the produced materials reach more people and the product market expands. Competition is growing with the expandation of market, and small businesses that cannot compete are either bankrupt or bought by big companies. For this reason, companies need to be in constant development and change in order to survive.

Ali Baba's Farm company that works with this vision and produces milk, cheese, yogurt and buttermilk is trying to stand up in the market where competition is abundant is demanding web and desktop application together with an algorithm design from us in order to follow its own transportation management system and reduce transportation costs found. The desktop application can provide creation of pool points for company and help company to manage the orders. And the web application can provide ordering service to customers. They can give orders and manage them with order history page. When customers' information is changed, they can update on this web application.

1.3 Overview

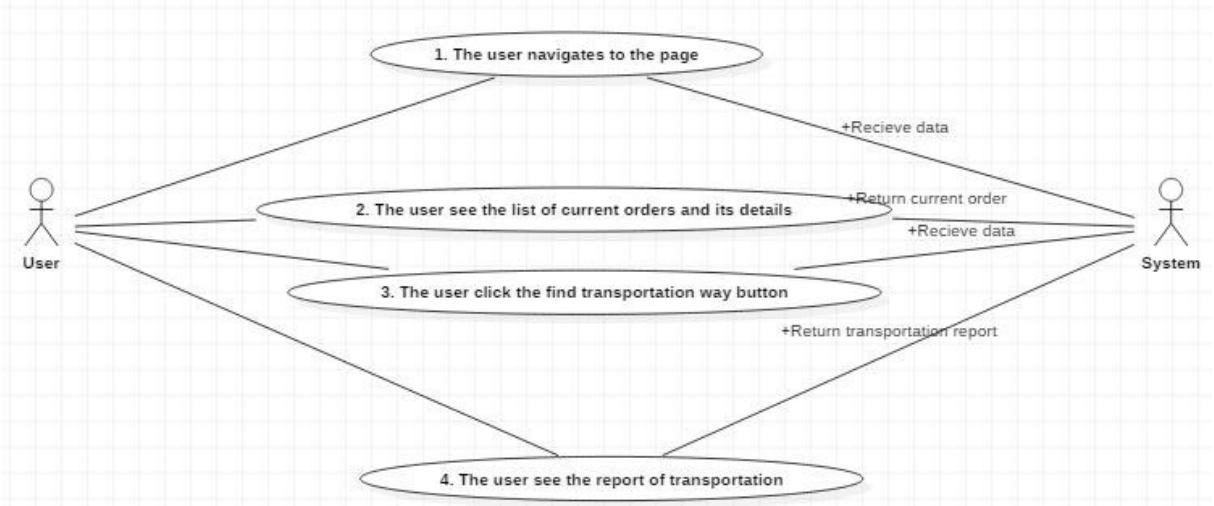
The remainder of this document includes three chapters as usage scenario, early system models and user stories. Usage scenario provides user types, use case diagrams and use cases while early system models provides conceptual model and flow diagrams. Moreover, user stories give short information about the components in the project plan.

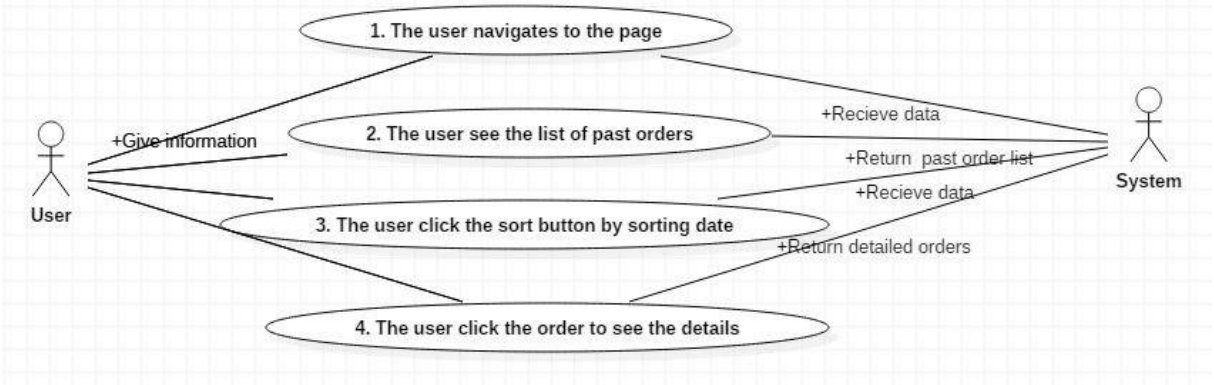
2. USAGE SCENARIO

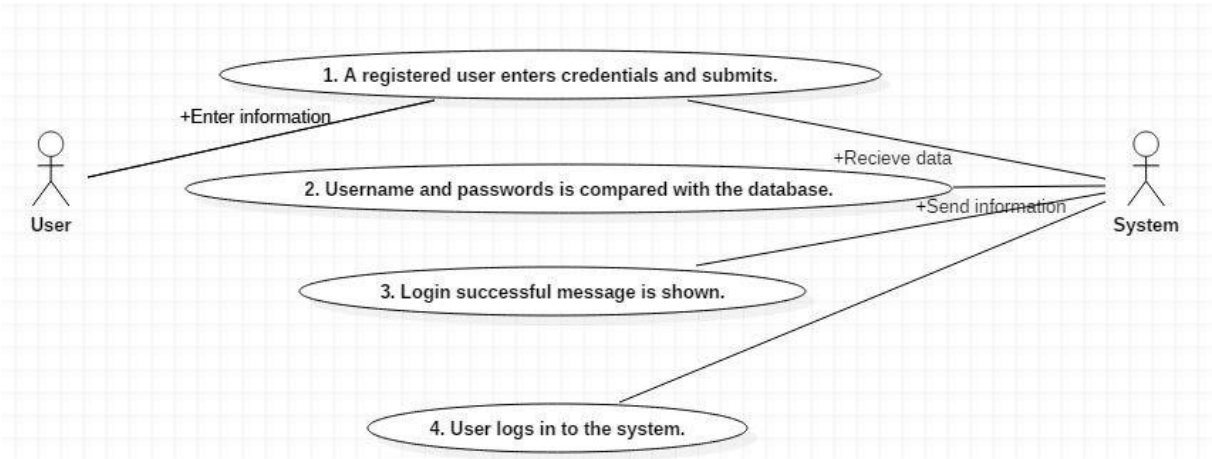
2.1. User Types

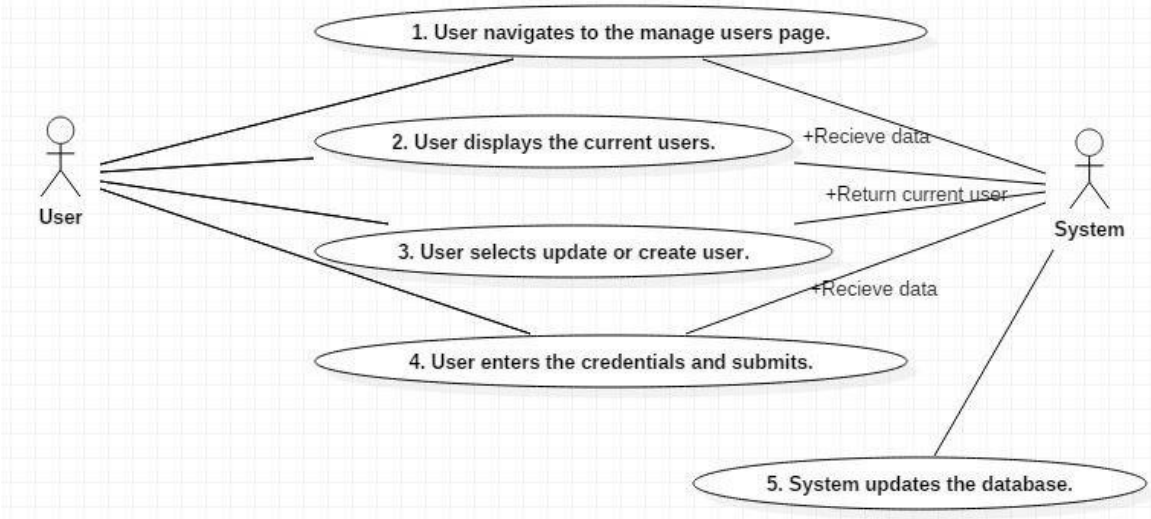
Admin	Company owner
Company Official	Authorized personnel working for the company
Distributor	Staff working for pool points

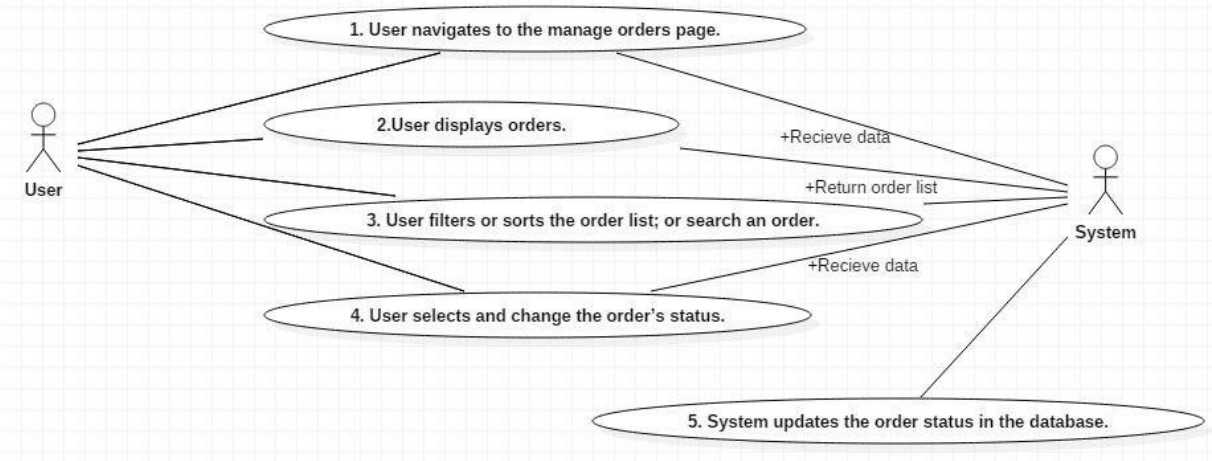
2.2. Use Case Diagram

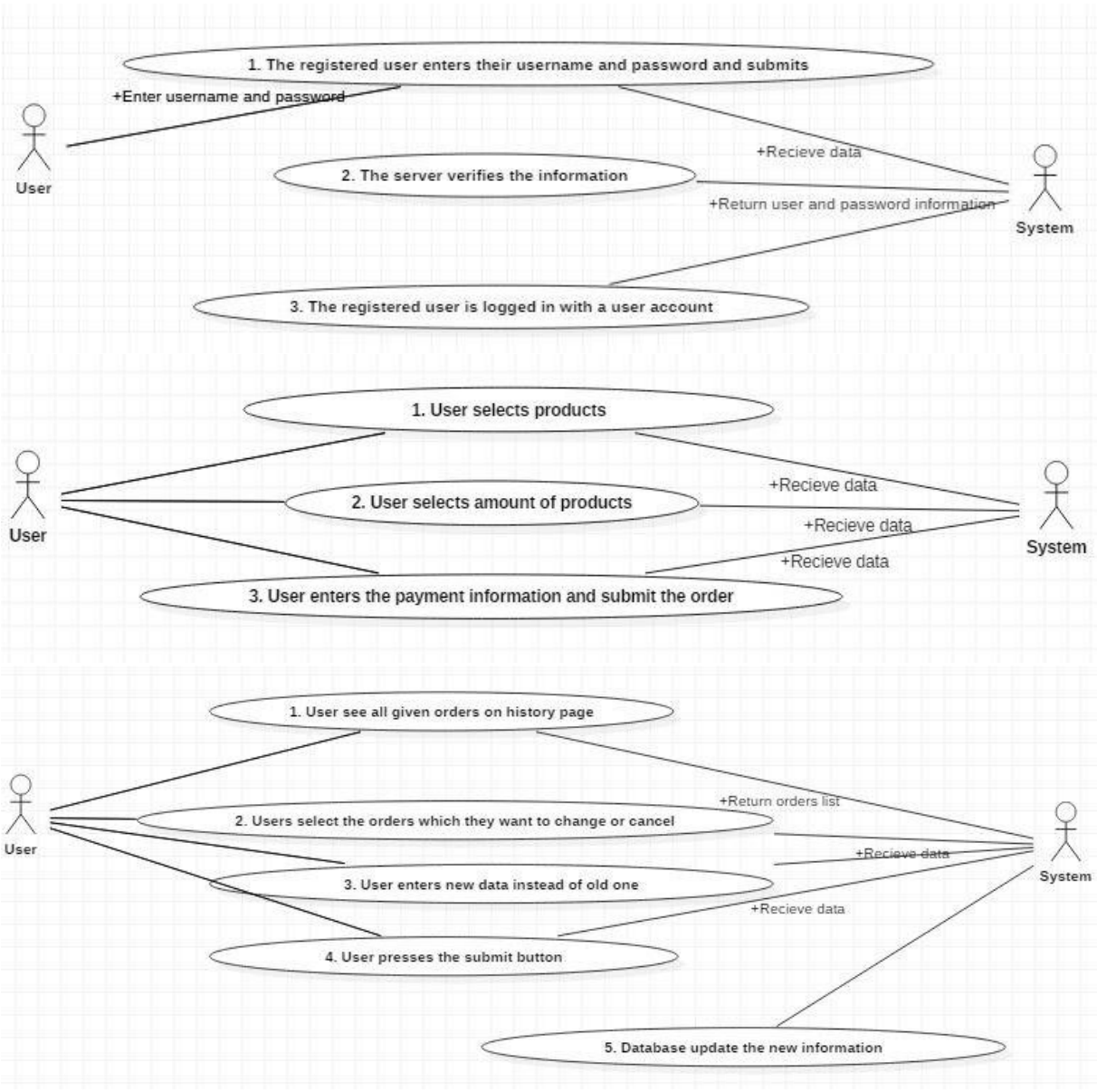

1. The user navigates to the page
+Recieve data
User
2. The user see the list of current orders and its details
+Return current order
+Recieve data
System
3. The user click the find transportation way button
+Return transportation report
4. The user see the report of transportation

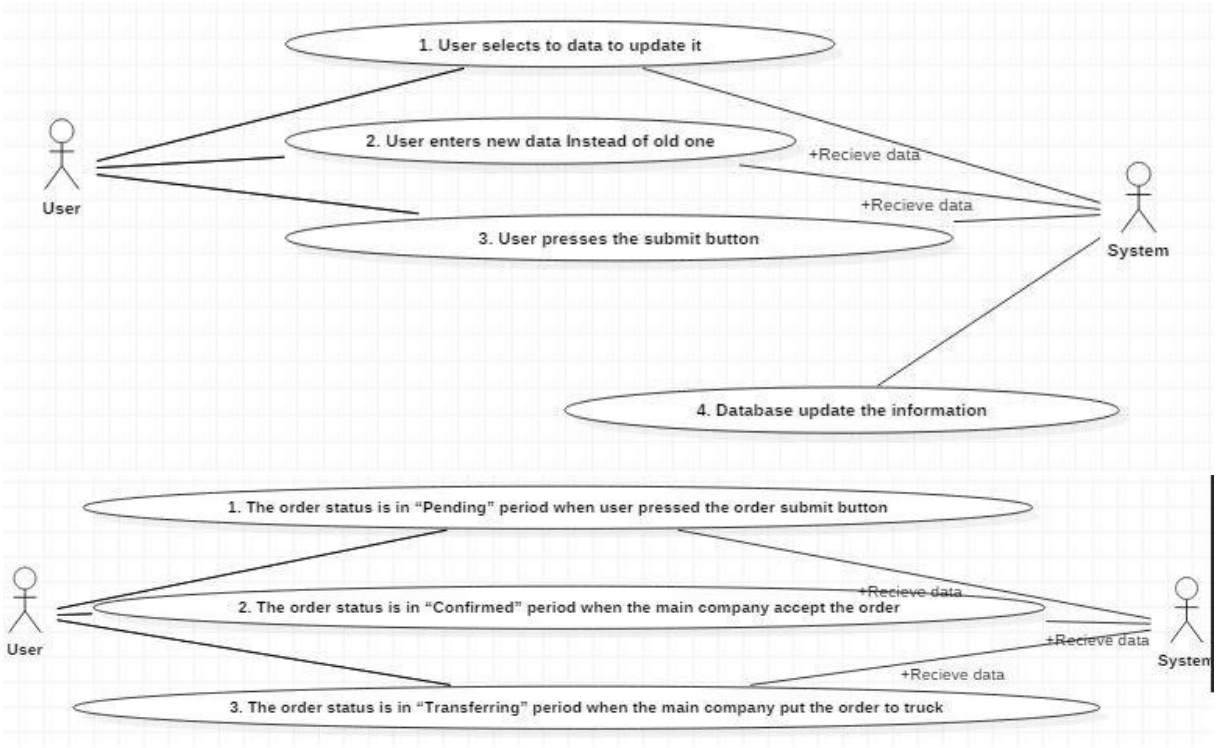

1. The user navigates to the page
+Recieve data
+Give information
2. The user see the list of past orders
System
+Return past order list
User
+Recieve data
3. The user click the sort button by sorting date
+Return detailed orders
4. The user click the order to see the details


1. A registered user enters credentials and submits.
+Enter information
User
+Recieve data
2. Username and passwords is compared with the database.
+Send information
System
3. Login successful message is shown.
4. User logs in to the system.


1. User navigates to the manage users page.
User
2. User displays the current users.
+Recieve data
+Return current user
System
3. User selects update or create user.
+Recieve data
4. User enters the credentials and submits.
5. System updates the database.


1. User navigates to the manage orders page.
User
2.User displays orders.
+Recieve data
+Return order list
System
3. User filters or sorts the order list; or search an order.
+Recieve data
4. User selects and change the order's status.
5. System updates the order status in the database.


1. The registered user enters their username and password and submits
+Enter username and password
User
2. The server verifies the information
+Recieve data
+Return user and password information
System
3. The registered user is logged in with a user account
1. User selects products
User
2. User selects amount of products
+Recieve data
+Recieve data
+Recieve data
System
3. User enters the payment information and submit the order
1. User see all given orders on history page
User
+Return orders list
2. Users select the orders which they want to change or cancel
+Recieve data
3. User enters new data instead of old one
+Recieve data
System
4. User presses the submit button
5. Database update the new information



2.3. Use Cases

Desktop

Title:	3.1 Desktop Application Login
Primary Actor:	Admin or Company Official
Goal in Context:	Gain access to company official privileges.
Preconditions:	Having registered username and password.
Trigger:	An admin or company official wants to access the application.
Scenario:	1. A registered user enters his/her credentials and submits. 2. Username and passwords is compared with the database. 3. Login successful message is shown. 4. User logs in to the system.
Exceptions:	✓ User enters incorrect credentials.

Title:	3.2 Desktop Application Manage Orders
Primary Actor:	Admin or Company Official
Goal in Context:	Managing orders and change their status.
Preconditions:	User must have admin or company official privileges.
Trigger:	User wants to display and change order status.
Scenario:	1. User navigates to the manage orders page. 2. User displays orders. 3. User filters or sorts the order list; or search an order. 4. User selects and change the order's status. 5. System updates the order status in the database.
Exceptions:	✓

Title:	3.3 Displaying Ordering History

Primary Actor:	Admin, Company Official
Goal in Context:	Displaying orders which was past
Preconditions:	
Trigger:	User wants to see old past activities
Scenario:	1. The user navigates to the page 2. The user see the list of past orders 3. The user click the sort button by sorting date (descending or ascending) 4. The user click the order to see the details
Exceptions:	

Title:	3.4 Running Optimization Algorithm and Displaying its Output
Primary Actor:	Admin, Company Official
Goal in Context:	Finding a shortest optimized way for transportation
Preconditions:	The orders which is wanted to add to current week transportation should be added to confirmed list.
Trigger:	User wants to find the way for transportation
Scenario:	1. The user navigates to the page 2. The user see the list of current orders and its details 3. The user click the find transportation way button 4. The user see the report of transportation
Exceptions:	

Title:	3.5 Desktop Application Manage Users
Primary Actor:	Admin
Goal in Context:	Creating or updating a user profile.
Preconditions:	User must have admin privileges.
Trigger:	Admin user wants to add a new account to the application or update existing one.
Scenario:	1. User navigates to the manage users page. 2. User displays the current users. 3. User selects update or create user. 4. User enters the credentials and submits. 5. System updates the database.
Exceptions:	✓

Web

Title:	4.1 Web/Login
Primary Actor:	Registered User
Goal in Context:	Gain access to user account privileges
Preconditions:	Must have valid user name and password
Trigger:	A user wants to log in
Scenario:	1. The registered user enters their user name and password and submits 2. The server verifies the information 3. The registered user is logged in with a user account
Exceptions:	✓ Invalid user name and/or password

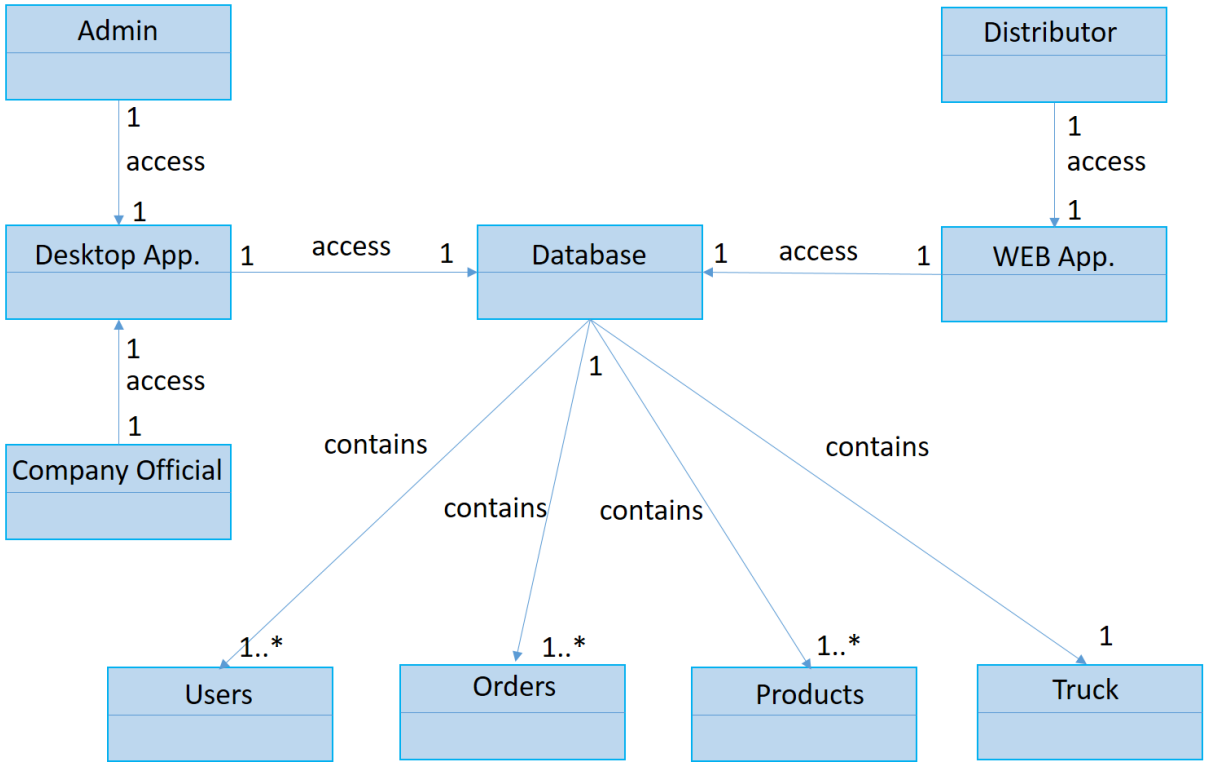
Title:	4.2 Web/Ordering
Primary Actor:	Registered User
Goal in Context:	Customers determine their ordering
Preconditions:	Must have to be log in
Trigger:	A user wants to order
Scenario:	1. User selects products 2. User selects amount of products 3. User enters the payment information and submit the order
Exceptions:	✓ If the customers want to change or cancel the order, they can update the order list from ordering history page

Title:	4.2.1 Web/Displaying Ordering History
Primary Actor:	Registered User
Goal in Context:	Allows customers to see their order history
Preconditions:	Must have to be log in
Trigger:	A user wants to see the order history
Scenario:	1. User see all given orders on history page 2. Users select the orders which they want to change/cancel 3. User enters new data instead of old one 4. User presses the submit button 5. Database update the new information
Exceptions:	✓ Invalid type of data ✓ If the orders are in “Transferring” period, customers can not change/cancel orders

Title:	4.3 Web/Update Profile
Primary Actor:	Registered User
Goal in Context:	Allows customers to update their profile information
Preconditions:	Must have to be log in
Trigger:	A user wants to update information
Scenario:	6. User selects to data to update it 7. User enters new data Instead of old one 8. User presses the submit button 9. Database update the information
Exceptions:	✓ Invalid type of data

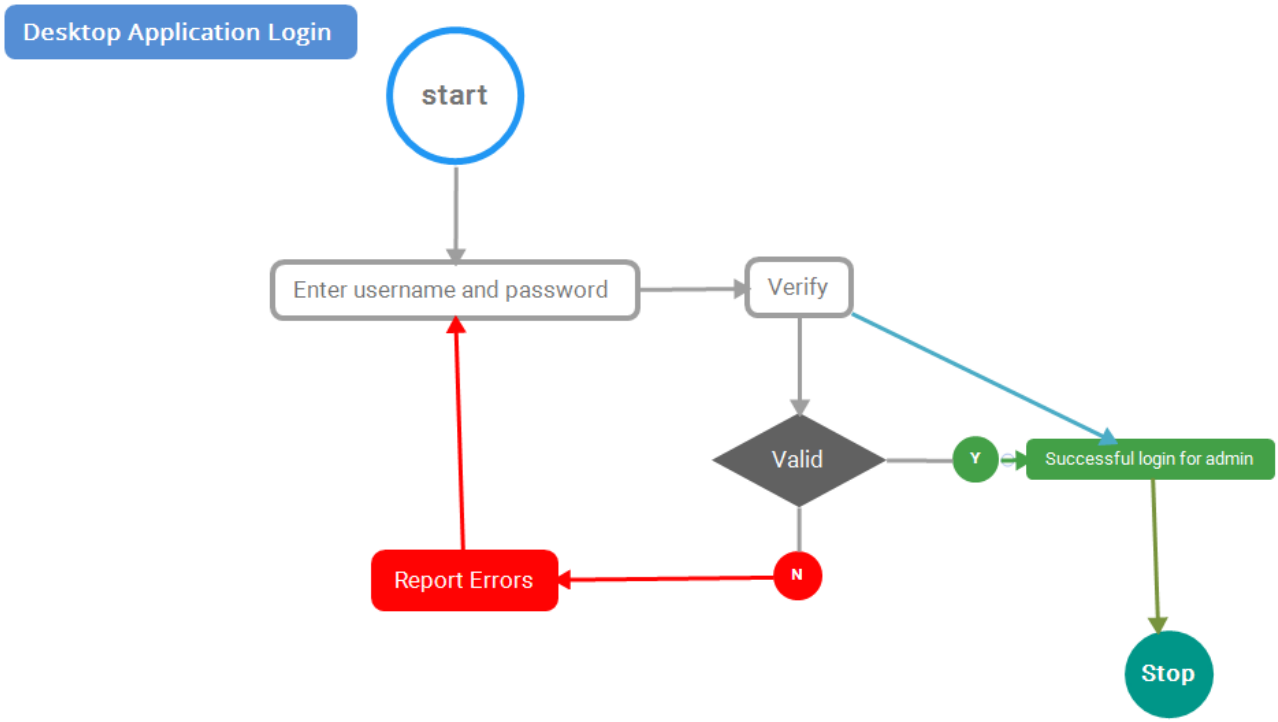
3. EARLY SYSTEM MODELS

3.1. Conceptual model

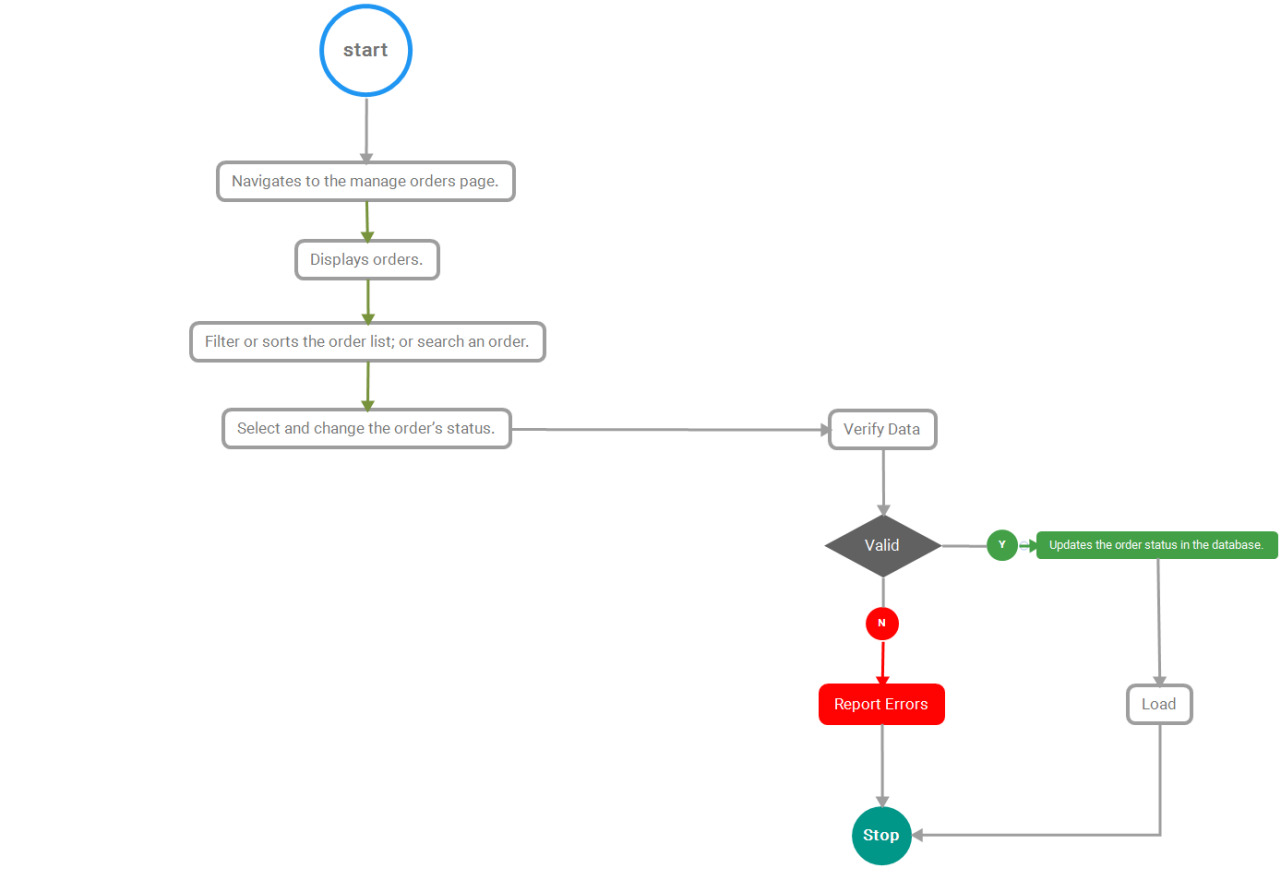


3.2. Flow diagrams

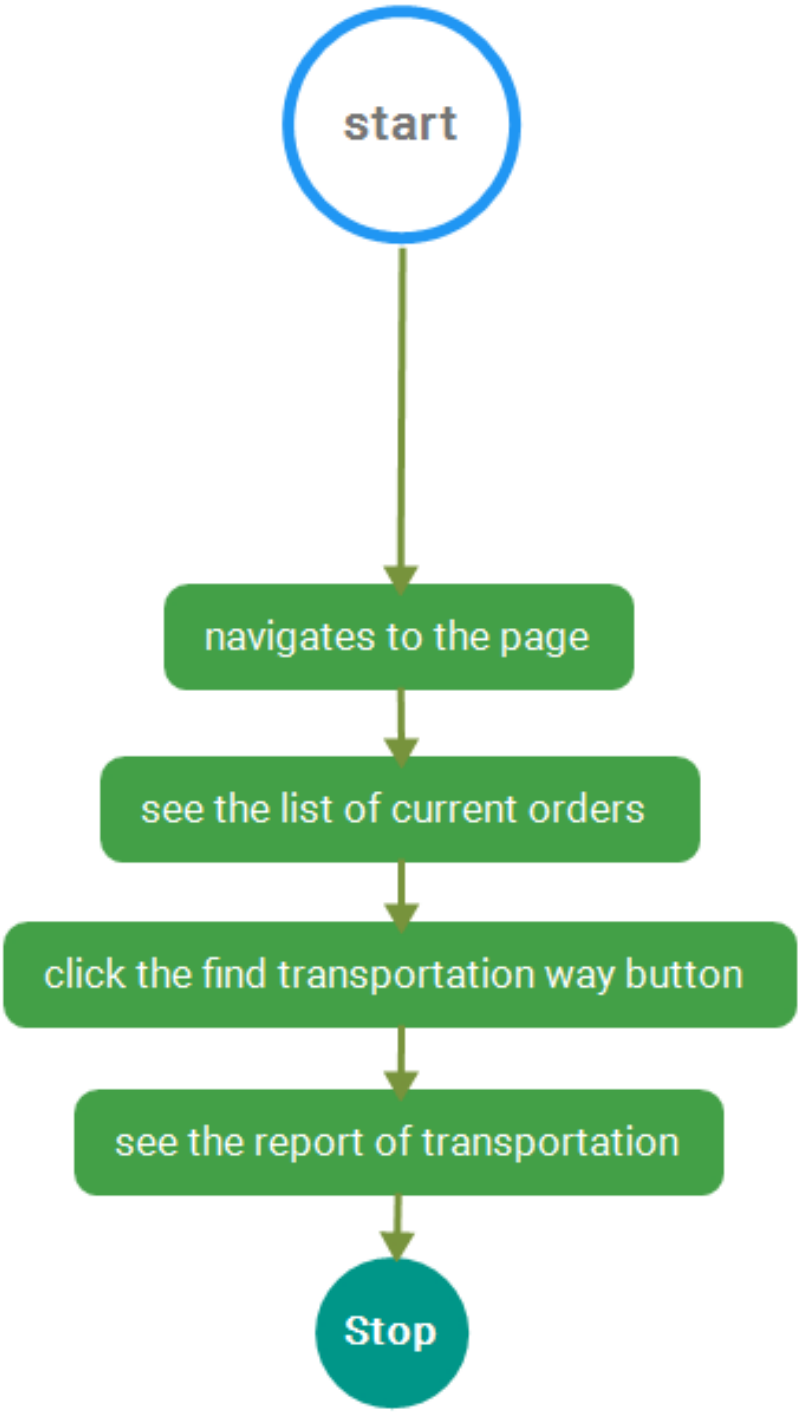
Desktop Application Login

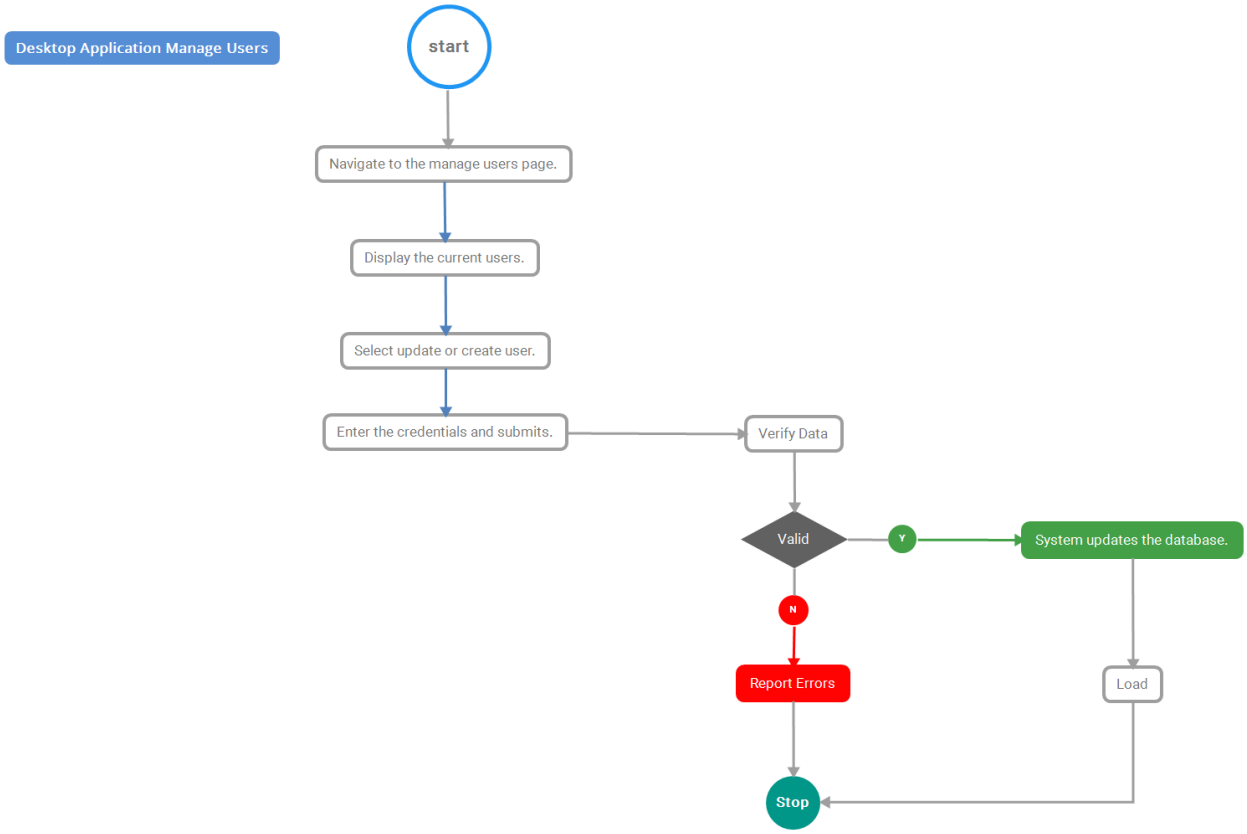


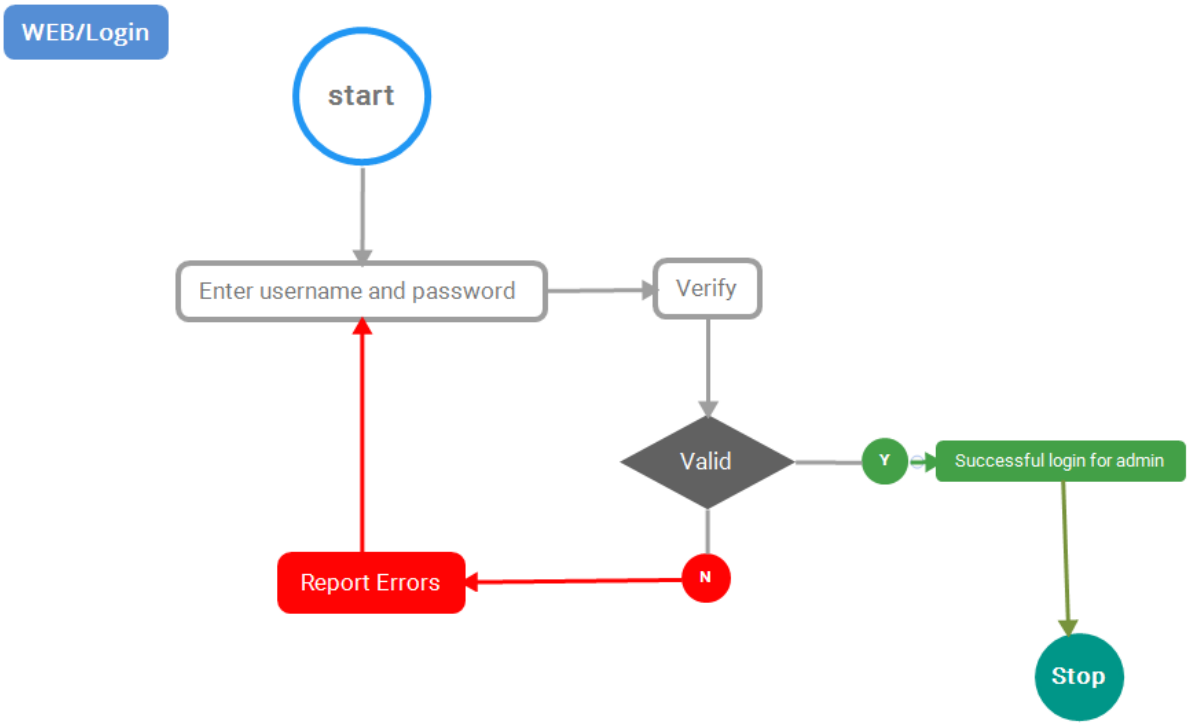
Desktop Application Manage Orders



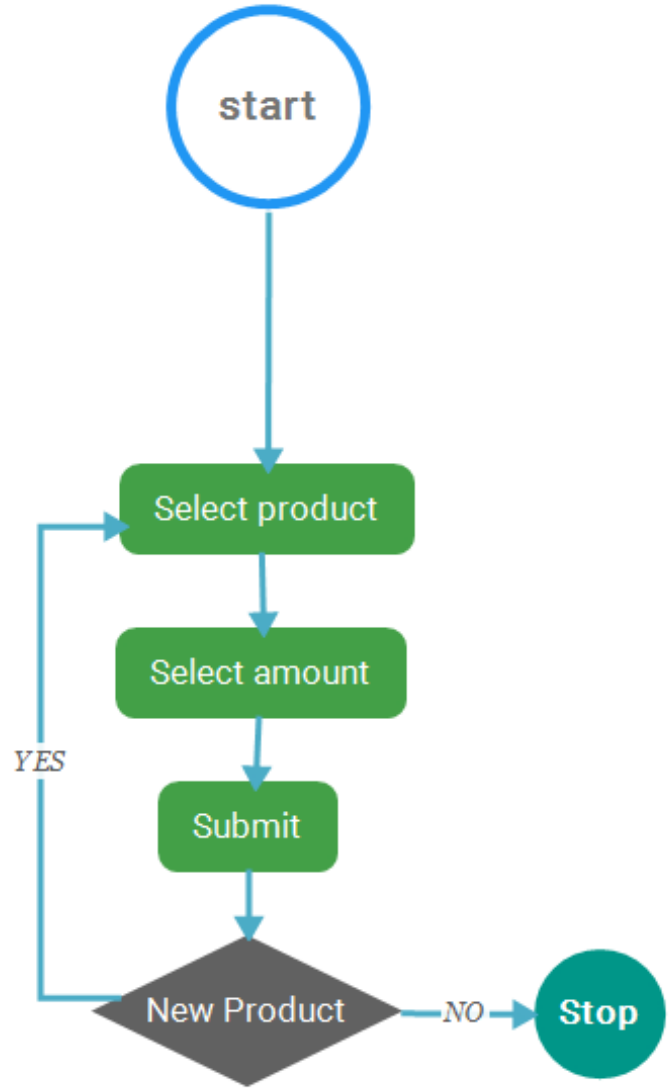
Running Optimization Algorithm



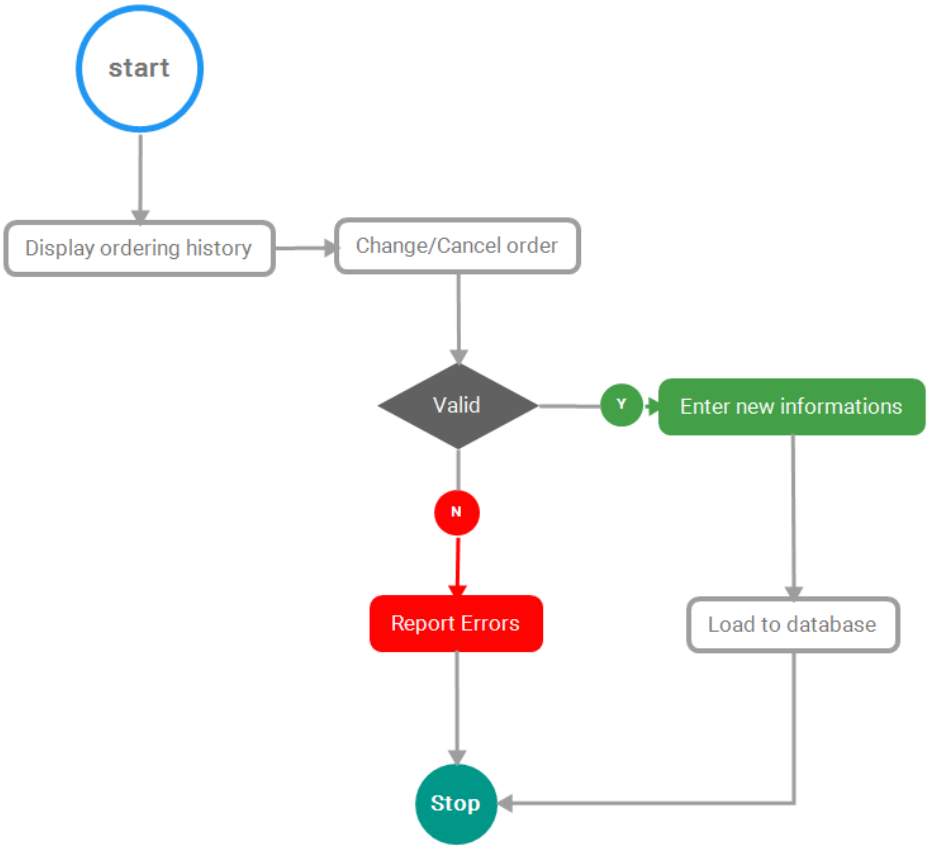

Desktop Application Manage Users
start
Navigate to the manage users page.
Display the current users.
Select update or create user.
Enter the credentials and submits.
Verify Data
Valid
Y
System updates the database.
N
Report Errors
Load
Stop


WEB/Login
start
Enter username and password
Verify
Valid
Y
Successful login for admin
N
Report Errors
Stop

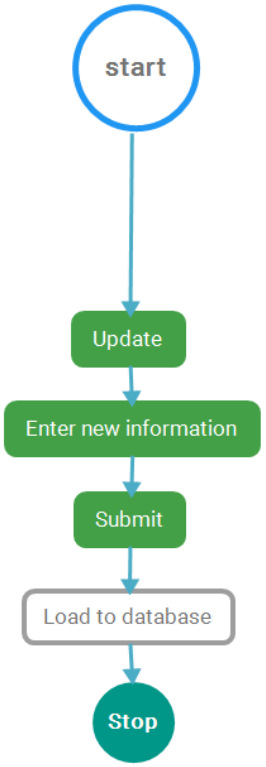
Web/Ordering



Web/Displaying Ordering History



Web/Update Profile



4. USER STORIES

User Stories

- ✓ When application starts login page is displayed.
- ✓ User logs in to the system with username and password.
- ✓ Login successful message is shown.
- ✓ After successful login user menu is displayed.
- ✓ Admin user can navigate to the manage users page.
- ✓ Admin user can see the list of users.
- ✓ Admin user can add a new user.
- ✓ Admin user can update an existing user.
- ✓ User can navigate to the manage orders page.
- ✓ User can see the list of orders.
- ✓ User can sort the orders.
- ✓ User can filter the orders.
- ✓ User can search a specific order.
- ✓ User can change the status of selected orders.
- ✓ User can run finding shortest path algorithm
- ✓ User can display order history
- ✓ User can sort display Ascending or Descending
- ✓ User can see details of order
- ✓ When entered to the web page login page is displayed.
- ✓ User logs in to the system with username and password.

Feature: Login page is displayed to the user.

Scenario: Login page
Given user runs the application
When user runs the application
Then login page should displayed to the user

Scenario: User login
Given user displays the login page
When user enters his/her username and password
Then user should logs into the system

Scenario: Login Successful
Given user logs in to the system
When user logs in to the system successfully
Then "Login Successful" dialog should shown to the user

Feature: Related user menu page shown to the related user

Background:
Given user successfully enters to the system

Scenario: Related menu page shown to the user
When user wants to see the menu
Then user should see the related menu according to his/her role

Feature: Manage Users

Background:

Given user is an admin user and navigate to the manage users page

Scenario: Navigate to the manage users page

When user navigate to the manage users page

Then user should see the manage users page

Scenario: List users

When user navigate to the manage users page

Then user should see the list of users registered to the system

Feature: Add new user

Background:

Given user navigate to the manage users page

Scenario: Add user page

When user click to the add new user button

Then user should see the add user page

Scenario: Enter user information

When user enters to the add user page

Then user should enter the information and submits

Feature: Update an existing user

Background:

Given user navigate to the manage users page

Scenario: Update user page

When user click to the update user button

Then user should see the update user page

Scenario: Update user information

When user enters to the update user page

Then user should update the information and submits

Feature: Navigating manage orders page

Background:

Given user is in the menu page

Scenario: Navigate to the manage orders page

When user navigate to the manage orders page

Then user should see the manage orders page

Feature: List Orders

Background:

Given user is in the manage orders page

Scenario: List Orders

When user navigate to the manage orders page

Then user should see the list of orders delivered to the system

Scenario: Sort Orders

When user click to column info

Then user should see the list of orders sorted by the column in ascending or descending order

Scenario: Filter Orders

When user selects the filtering and click the filter button

Then user should see the list of orders filtered by selected values

Scenario: Search Orders

When user enters the search text and clicks to search button

Then user should find the searched order

Scenario: Change Order Status

When user selects and clicks the confirmed button

Then orders' status should change as confirmed

Feature: Navigating finding shortest path page

Background:

Given user is in the menu page

Scenario: Navigate to the find shortest path page

When user navigate to the find shortest path page

Then user should see find shortest path page

Feature: Finding shortest path

Background:

Given that in the interface of finding path there are orders which have confirmed status and

Scenario: Find transportation way

When user clicked the find transportation way button

Then The transportation way report with all details is showed to the user and user click ok button

Feature: Navigating display order history page

Background:

Given user is in the menu page

Scenario: Navigate to the display order history page

When user navigate to the display order history page

Then user should see the display order history page

Feature: Display order history

Background:

Given that the interface of order history, there are last 20 orders which belong to previous weeks, and page links shown to user to access other 20 orders.

Scenario: Display order history

When the user click to page change button

Then the relevant orders are shown to user.

Scenario: Sort display Ascending or Descending

Given that interface of order history there is list that shows past orders. Default the list is shown ascending order and user can change the sorting type ascending or descending order

When the user change order type

Then the list is sorted by selected order type and the list show the first 20 orders.

Scenario: See details

Given that interface of order history there is list that shows past orders. Default the list is shown ascending order, the order number can be clickable and user are free to choose any of them

When user choose any of the order

Then detail of the relevant order is shown to user

Feature: Login page is displayed to the user.

Scenario: Login page

Given user enters to the web page

When user enters to the web page

Then login page should displayed to the user

Scenario: User login

Given user displays the login page

When user enters his/her username and password

Then user should logs into the system

Scenario: Login Successful

Given user logs in to the system

When user logs in to the system successfully

Then “Login Successful” message should shown to the user