

ĐẠI HỌC QUỐC GIA THÀNH PHỐ HỒ CHÍ MINH
TRƯỜNG ĐẠI HỌC BÁCH KHOA
KHOA KHOA HỌC - KỸ THUẬT MÁY TÍNH



CÔNG NGHỆ PHẦN MỀM

Đề tài

SFCS - Smart Food Court System

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Mục lục

1	Member List	2
2	Project Introduction	2
3	Use case of the project	3
4	Project Features in General	4
5	Non-functional Requirement	5
6	Manager System	6
6.1	Usecase for manager system	6
6.2	Non-functional Manager System	6
6.3	Usecase scenario for View Report	7
6.4	Sequence Diagram for View Report	8
6.5	Activity Diagram for View Report	9
6.6	State-chart Diagram for View Report	10
6.7	Development view for View Report	11
6.8	Development view for the system	12

1 Member List

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2 Project Introduction

Along with the development of technology, increasingly modernization. Order food also becomes more necessary, along with modern equipments like touch screens, pagers or mobile applications. It help customer to save more time to order foods at the food courts or before coming to that places.

There will be some machine with touch screen around the food court for ordering food. When the payment is made, the order is confirm and will be put in the order list at the food stall kitchen. An order slip will be printed by the machine. The customer can grab a near-by pager that has the number matched with the order number and wait for its notification then goes get the food. He/she can also simply wait at the food stall and then shows the order slip to take the food.

Of course, the software system has to have the managing features. For the cooks, they can see the orders, inform the ready of the food, or inform the system that some food is out-of-order, etc. For the managers of the food courts, they can see the report of the whole food court, see all orders of the day, see revenue, etc. For the vendor owners, they can see the report about their stalls, and some action like the manager. For the IT staffs, they can put the system in the maintenance mode, that shutdowns all online services.

And this project will meet those conditions.

3 Use case of the project

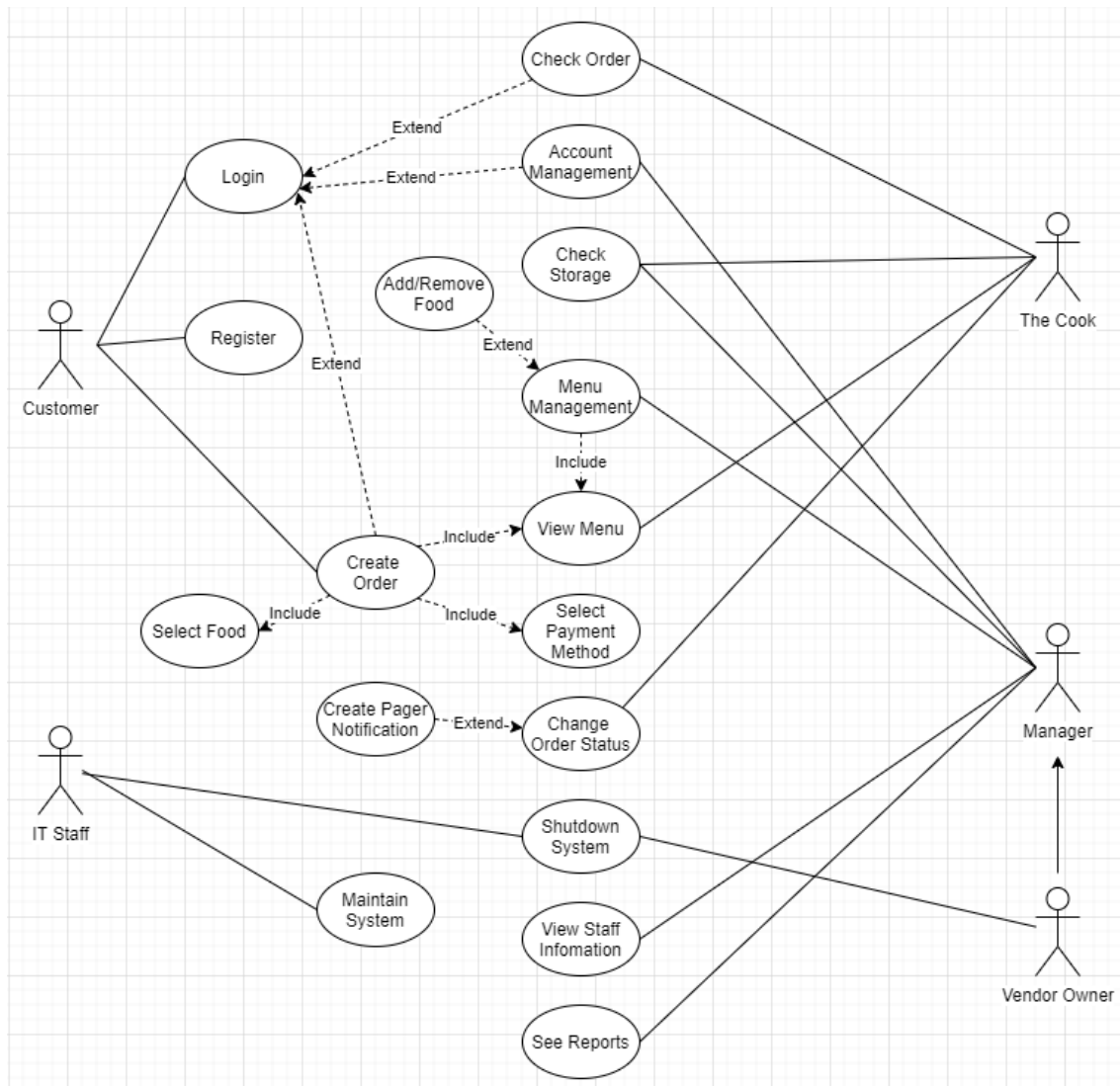


Figure 3.1: This is use case of the project.

4 Project Features in General

Feature 1: Making SFCS for user

User login to their account. There are four options for user to choose: search, confirm order, update information, exit app...

Feature 2: food selection using in-app search

Users enter the feed name or look through the list of available menus. Touch the feed name to display the order, where the user performs the select and cancel operations.

Feature 3: Complete your order using order confirmation

The user will choose the payment method by online payment service such as Momo wallet, Samsung Pay, Apple Pay, etc .. The system sends the user an order number and sends a message confirming the successful order.

Feature 4: Change order information using the update information feature

Users want to change order information or cancel orders within a certain time limit. The system will send a message to the user.

Feature 5: Save system history

After confirming the order, the system will record the user's order data to survey favorite food or evaluate service quality. The cook can use it to confirm the order.

Feature 6: See report

Manager and Vendor Owner can view daily sales summary report. From there they can come up with appropriate plans.

Feature 7: Maintain system

The IT staff can shutdown system to repair or upgrade the system when needed.

Feature 8: View staff information

Managers can manage employees who work online and see customer feedback on the quality of their staff.

5 Non-functional Requirement

Feature : System can operate at least 3 (up to 5) touch screen concurrently.

Constrain 2: System maintenance is required every 30-day.

Constrain 3: Menu list can have up to 100 items.

Constrain 4: Menu list is refresh daily. Menu changes will apply the following day.

Constrain 5: Touch screen response time is less than 1 second.

Constrain 6: Mobile App is available for both Android and iOS.

Constrain 7: Mobile App can handle up to 2,000 users concurrently.

Constrain 8: System allows to register up to 100,000 accounts.

Constrain 9: Number of Order Record is up to 10,000,000 orders.

Constrain 10: Payment methods are associated with e-bank services from banks.

Constrain 11: Don't require more information than name, student ID and phone number verification are required information when registering.

6 Manager System

6.1 Usecase for manager system

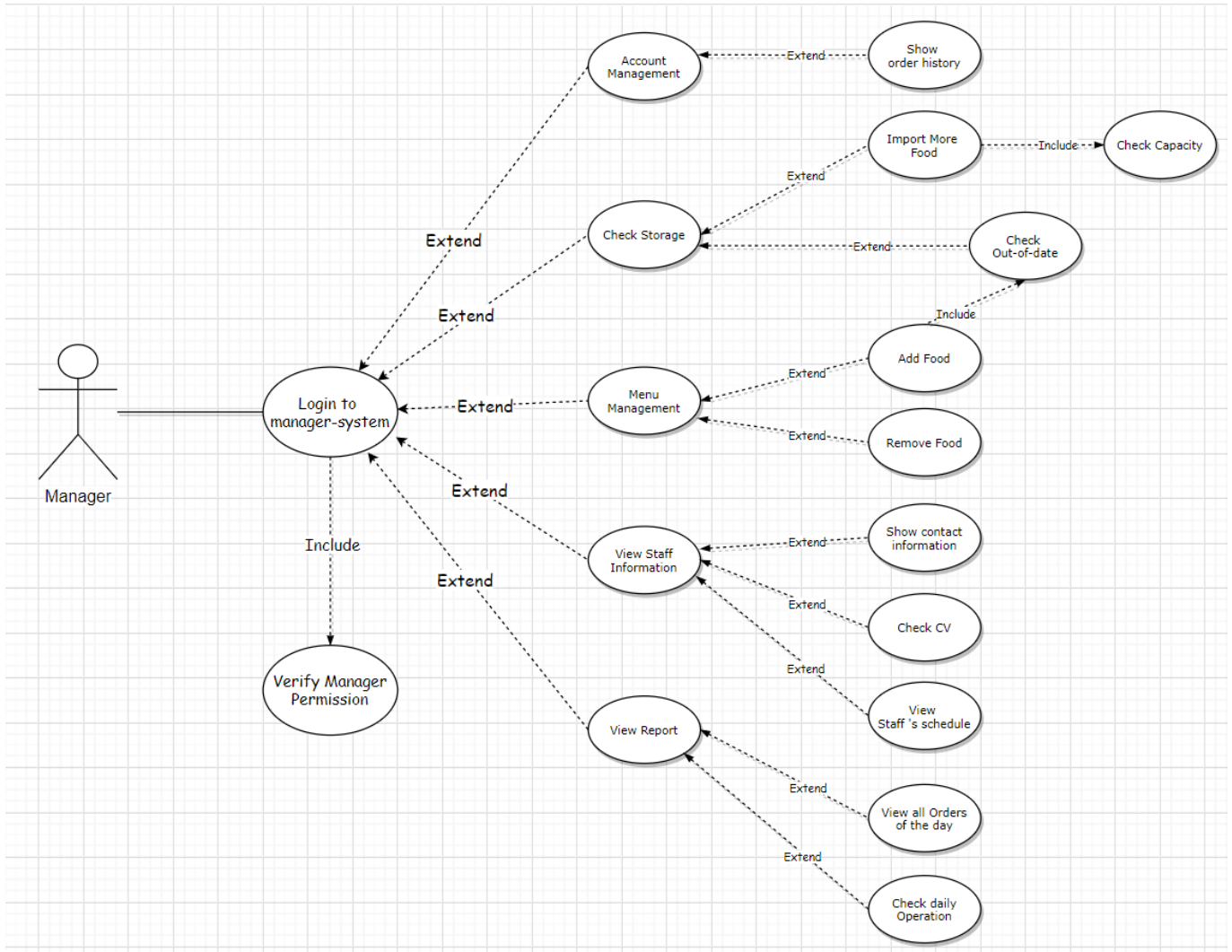


Figure 6.1: Usecase for manager system

6.2 Non-functional Manager System

- Account Management can manage at least 500 users latest transaction.
- Always show the capacity of the storage in Check Storage feature.
- Notify when there are bad feedback.
- Remove food and add food can be done immediately.
- Avoid intentionally logging into the system by 5 failed login.

6.3 Usecase scenario for View Report

Use-case name	View Online Report
Actor	Manager
Description	The manager can manage all orders or print out invoices.
Preconditions	The manager must logged into the system
Normal flow	<ol style="list-style-type: none"> 1. Display the system login screen. 2. Manager selects access privileges: <ol style="list-style-type: none"> A. View daily report B. View monthly report C. Print out invoices Case A: <ol style="list-style-type: none"> 3. Display all the report of the day 4. Update the report when has new order Case B: <ol style="list-style-type: none"> 3. Display all the report of the month 4. Update the report when move on to the new day. Case C: <ol style="list-style-type: none"> 3. The manager choose the orders will be printed. 4. Print invoices 5. Notice of print finish
Alternatives	<p>Alternative 1: at case A, step 3:</p> <p>A.3.a - the report can be sorted by date or by price</p> <p>Alternative 1: at case A, step 4:</p> <p>A.4.a - the new order will be displayed at the top of the report</p> <p>Alternative 2: at case B, step 3:</p> <p>B.3.a - the report can be sorted by date or by revenue</p> <p>Alternative 3: at case C, step 3:</p> <p>C.3.a - the manager can select one or more orders</p> <p>Alternative 3: at case C, step 5:</p> <p>C.5.a - Notice of printing success. Or failed if the printer or paper is not found.</p>
Exception	None

6.4 Sequence Diagram for View Report

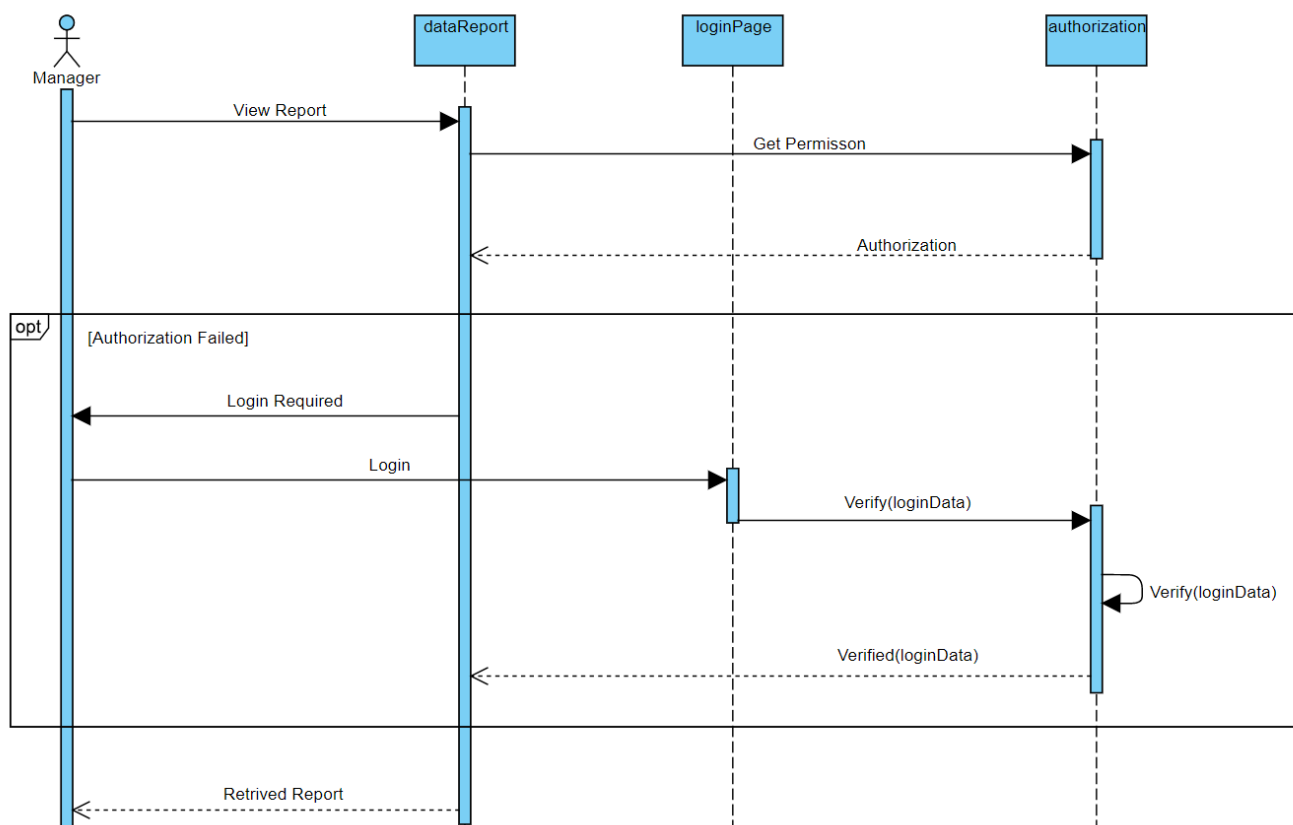


Figure 6.1: Sequence Diagram for view report

6.5 Activity Diagram for View Report

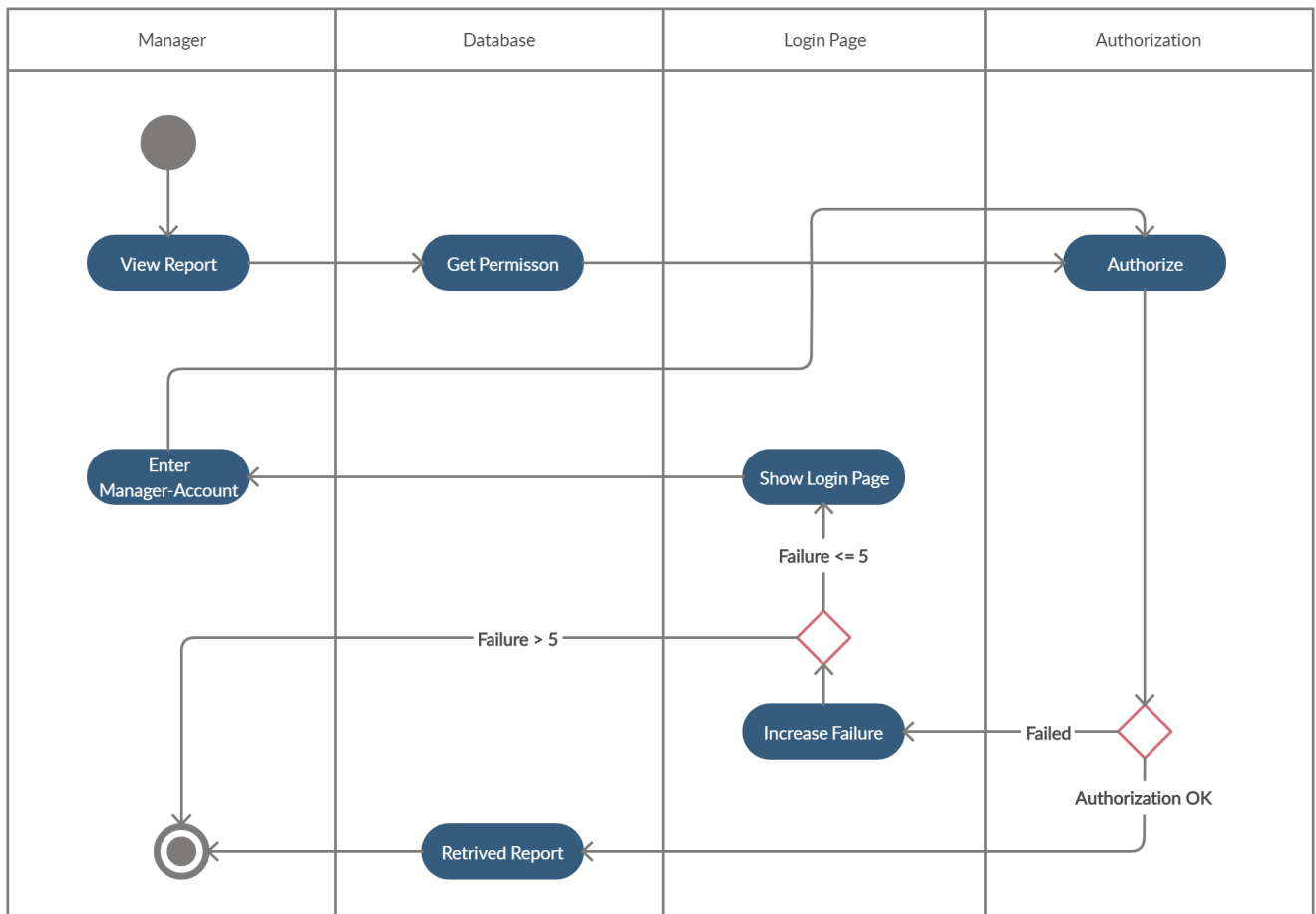


Figure 6.4: Activity Diagram for view report

6.6 State-chart Diagram for View Report

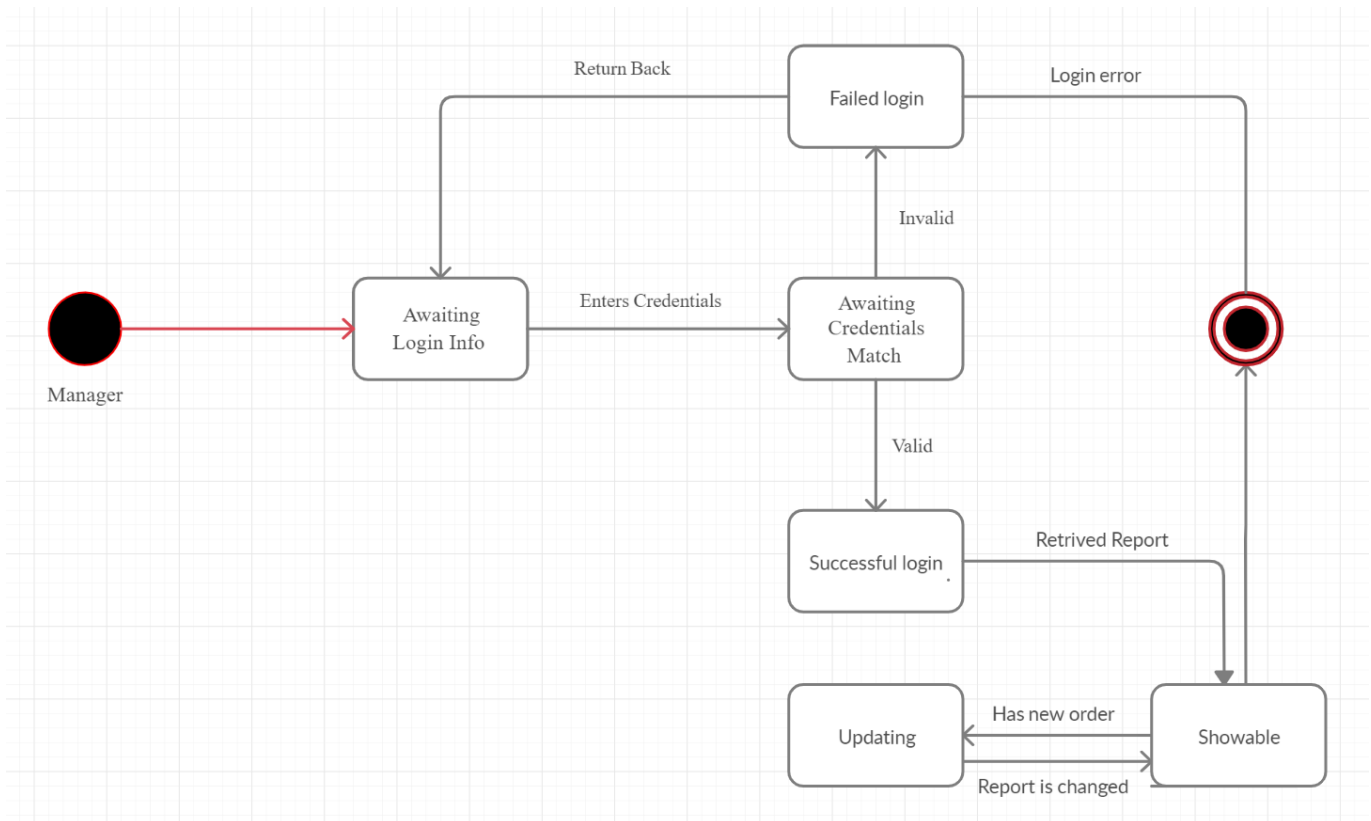


Figure 6.5: State-chart Diagram for view report

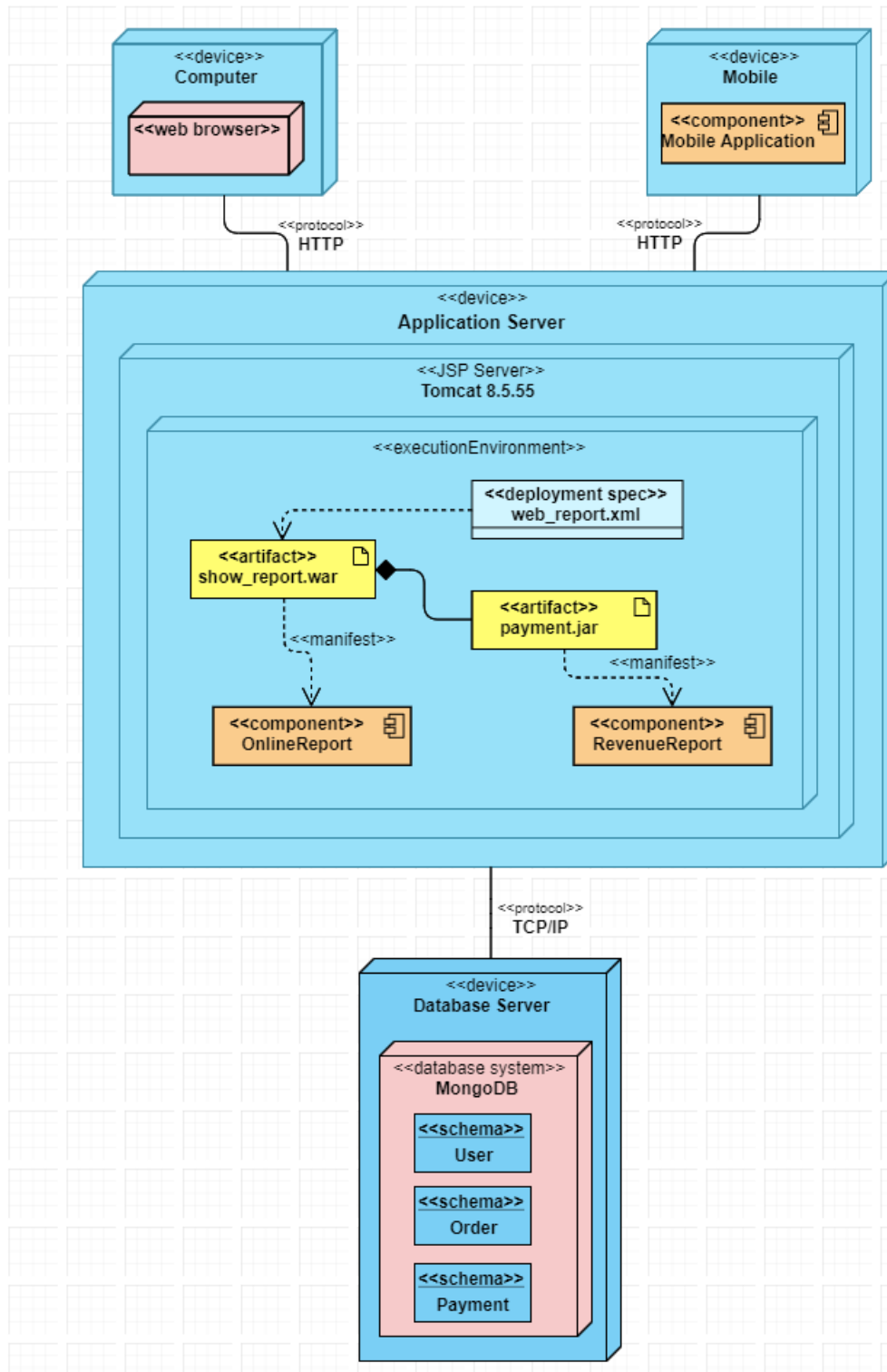
State tabular

State	Description
Updating	Add new order to the report
Showable	Display the report
Successful login	Username and password matched
Awaiting Credentials match	Waiting for response of authentication
Awaiting Login Info	Waiting for username, password of manager
Failed login	Wrong password or username

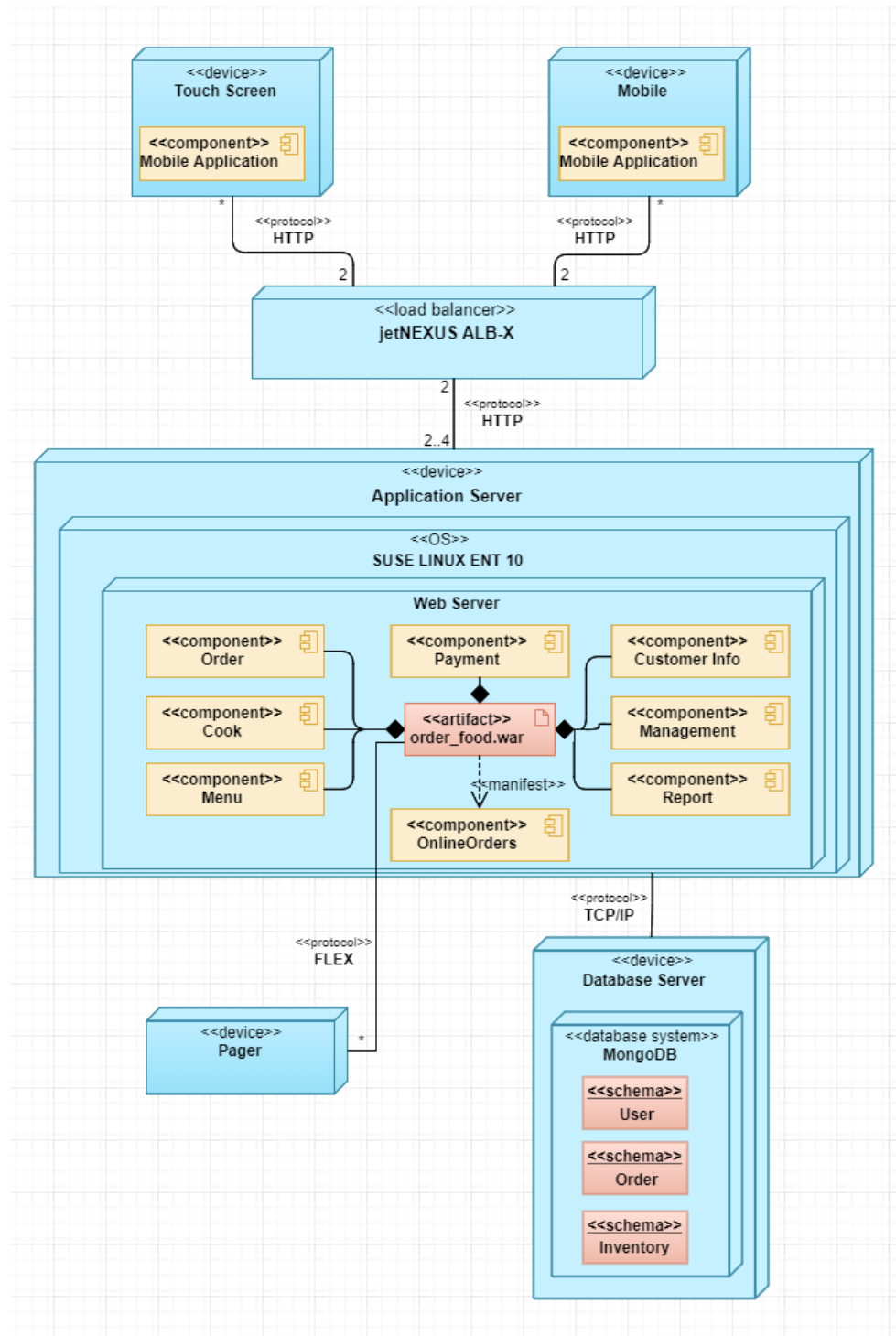
Stimulus tabular

Stimulus	Description
Report is changed	Add new order to the report
Return back	Back to login page
Enters Credentials	Enter username, password
Login error	Login failed more than 5 times
Has new order	New order from last report
Retrived Report	Retrived report from database
Valid	Username and password matches
Invalid	Username and password not matches

6.7 Development view for View Report



6.8 Development view for the system





A *network load balancer* is an appliance device that is used to split network load across multiple servers. An example shows jetNEXUS ALB-X hardware load balancer. It combines the functions of OSI Layer 8 (Application Layer) load balancing, HTTP compression, SSL offload and content caching in one solution.

The Pager will ring when the dish is completed, this is connected by FLEX protocol (one-way from provided to pager).

When database connection is requested by application, servers can save/receive data to/from a single instance MongoDB.

Reference: <https://www.uml-diagrams.org/>