



REPUBLIC OF ALBANIA

EPOKA UNIVERSITY

FACULTY OF ARCHITECTURE AND ENGINEERING

Computer Engineering Department

CEN 302 – Software Engineering

Epoka University

Tiranë

June 2018

Bar Management System



Software documentation done by:

Aleks Tare

Renato Saliu

Romario Balukja

Ogers Ruda

Received by: Msc. Igli Hakrama

Bar Management System

Table of Contents

Table of Contents	3
1. Executive Summary	4
1.1 Project Overview.....	4
1.2 Purpose and Scope of this Specification.....	5
2. Product/Service Description	Error! Bookmark not defined.
2.1 Product Context.....	6
2.2 User Characteristics.....	7
2.3 Assumptions.....	8
2.4 Constraints.....	9
2.5 Dependencies	9
3. Requirements.....	Error! Bookmark not defined.
3.1 Functional Requirements.....	Error! Bookmark not defined.
3.2 Non-Functional Requirements.....	14
3.2.1 Product Requirements	14
3.2.1.1 User Interface Requirements.....	14
3.2.1.2 Usability Learnability.....	14
3.2.1.3 Performance	15
3.2.3.1 Capacity	15
3.2.2 Organizational Requirements	15
3.2.2.1 Availability	15
3.2.2.2 Latency	17
3.2.2.3 Monitoring	17
3.2.2.4 Maintenance	17
3.2.2.5 Operations	17
3.2.3 External Requirements	18
3.2.3.1 Security	18
3.2.3.2 Protection.....	18
3.2.3.3 Authorization & Authentication.....	19
3.2.3.4 Data Management.....	20
3.2.3.5 Standards Compliance	20
3.2.3.6 Portability	20
3.2.3.7 Domain Requirements.....	20
4. Software Design / Diagrams	21
4.1 User Scenarios.....	21
4.2 User Scenarios Extended.....	24
4.3 Use Cases	36
4.4 Use Case Diagrams	66
4.5 Activity Diagrams	68
4.6 State Diagrams	81
4.7 Sequence Diagrams	85
4.8 Class Diagrams	91
4.9 Component Diagrams	92
4.10 Object Diagrams	93
4.11 Data Flow Diagrams.....	94
4.12 Deployment Diagrams	96
4.13 Collaboration Diagrams	97
4.14 ER Diagrams.....	98
5. Implementation Technology	99
6. Project Planning	100
APPENDIX	103

1. Executive Summary

1.1 Project Overview

The Bar Management System Project aims to build up a software to ease the Management of a Bar/Coffee Shop Business Management through efficiently implementing an easy-to-use GUI with the following functionalities: Users/Admin will be able to login and each have their own session. Admin can add new user/new category. Waiter can sell items (decrease stock) and generate bills. Admin will be able to access selling reports and the information of stock. He must also be able to add and remove items from the stock. The admin will be able to filter their sales and customer data to help grow their business. For instance, they want to filter their sales by brand, product type, season, time of the year or other trends. The ability to filter such reporting data is very important so the owner can easily see which product is being sold most and less or where he is doing most of the profit etc. and not all systems have this ability.

The software will also offer all the features listed below:

1. Keeping track of sales
2. Keeping track of purchases
3. Understanding which product sells better
4. Understanding which product is more profitable
5. Ensuring your taxes are computed correctly

1.2 Purpose and Scope of this Specification

The Bar Management System will be designed with the purpose to have the capabilities and features to help operate and manage a specific bar. A management system may be called as the heart of the bar as it includes many features and functions that make running in this case the bar more efficiently and ultimately more profitable.

It will make it easier for the owner of the bar to track all the business data sales down to the last cent. Also, we are going to design a menu which will be easy to configure and setup. Sound like a no brainer but it is an essential consideration because there are so many systems on the market that can make your life very difficult when all you want to do is make a simple menu updates or pricing changes. It will be designed with the purpose to be easy for users and management to use as all the want is to take orders quickly, split checks, change tables and item quantities etc.

2. Product/Service Description

Every Business needs a point of sale system to keep track of everything happens in that Business. It is one of their biggest assets. Our software will help these businesses (Bars) to have control on everything that they need. It will be more like team experts working behind the scenes, making sure everything is going quickly and efficiently.

This software will be very beneficial for such businesses in many directions such as:

- It will save time.

Bar Management System

1. It will speed up the checkout process. Every time a client orders something the receipt will be printed immediately after his completed order, so they do not have to wait for the bartender or waitress to do the calculations.
2. Speed up inventory management. With a built-in inventory the manager will not have to rifle through many options when an order is done. It will be automatically deducted from the current inventory, so they will not have to do it manually.
3. Faster payroll processing. The system will automatically compute payrolls and can even print out a pay slip for your employees.
4. No need to dig your receipts. The manager or the staff can search for any transaction that they want by using the search tool, no matter how old this transaction is.

- You will know everything

1. Sales reports up to the last minute. It will let the manager know how much they are selling and if they are on track or not
2. Real-time inventory tracking. With real time inventory tracking and management, the system will alert the users of this software when they are running low.
3. Employee attendance monitoring- The manager will be notified and see who is coming in earlier and who late.

2.1 Product Context

Our software will be related to a specific bar in this case Romario's Bar. It will be used from the employees of the bar such as waitress, bartender and the manager who will have access on every detail of the software.

2.2 User Characteristics

There will be three types of users who will interact with the system

- Owner of the bar (Manager/Administrator)
- The Waiters/Employees
- Suppliers

a)Owner of the bar

-For our project the owner of the bar is also the manager. The manager maintains the list of the products, controls the inventory and the wages. He also should control the income of the day, month, year as well as the profits. In addition to that, we can set a period of time that keeps the list of all products sold since and then delete them after the period ends. The manager can sort it selects some products as well as some other functions that will allow him to have a better interface of his products.

-We can also leave space to future changes in the system. If the owner decides to leave his job as manager and hire another one. This can require another profile that we will enable if the owner is not the manager.

b)The Waiters

-The waiters will be able to control the whole interface except for the manager's options. At first he will login, then the tables will appear on the screen. He can select the table for further options like making an order, adding another order or closing the table. There will be the options for two printers when making the order, one for the manager and one for the clients. The waiter can see the day's income and the products sold that day. When he closes his turn, he logs off and makes place the other waiter. The other waiter's turn starts with 0 income and he can see his income

Bar Management System

also the first waiter. He cannot change the income of the other waiter. Turns are interchangeable and leave no effect on the system.

c) Supplier

The Supplier is a recent addition to the system which introduces the new feature of automatically dispatching a notice to the supplier when the stocks of a product are running low and also notifies the administrator when a supply order has been dispatched and is pending approval.

2.3 Assumptions

- It is assumed that the business is registered by their representative
- It is assumed that the waiters and manager already work on a system so they know how to use one.
- It is assumed that there are two printers and the computer to install the software
- It is assumed that the system should notify the manager at the end of the day, if the products' count is at some level that triggers this alert.
- It is assumed that the waiters after making the order cannot take it back, if the receipt is printed.
- It is assumed that the manager cannot make any changes in the end of the day after the daily income is closed.
- It is assumed that the waiters do not exchange passwords

Bar Management System

- It is assumed that the users shall have a basic Visual C Distribution installed in their devices.
- It is assumed that every event that occurs in the software system is logged.
- It is assumed that a monthly and yearly inventory is made by an accountant according to the law.
- We may encounter other assumptions as we work on our project

2.4 Constraints

- The project is constrained by an accounting audit. He will examine if the bar's financial statements are accurate.
- It is also constrained by an external government audit.
- Each major operation should be secured by a password that only the user specified for that action can know.
- We may encounter further constraints

2.5 Dependencies

- The system should recognize the drivers of the printers
- We may encounter other dependencies while working on the system

3. Requirements

3.1 Functional Requirements

REQ#	REQUIREMENT	COMMENTS	PRIORITY	DATE RVWD	SME REVIEWED / APPROVED
BR_01	The software should provide different interfaces for users and administrators	<i>The view for waiter and administrator will be different</i>	2	28/03/2018	Aleks Tare/Ogers Ruda
BR_02	The system should check if the user exists in the database	<i>Given that the specified username and password is already registered in the database</i>	1	28/03/2018	Ogers Ruda/Romario Balukja
BR_03	The user accounts should be secured with passwords	<i>The password should fulfill the regular expression rule specified by the team and the password textbox should hide the text.</i>	2	28/03/2018	Renato Saliu/Aleks Tare

Bar Management System

BR_04	Upon login the software should present the user with the products list and a tab for categories to filter these products	<i>The basic interface to be used by the waiter to select a specific product</i>	1	28/03/2018	Renato Saliu/Ogers Ruda
BR_05	The user is able to add products to the currently opened tab and print it	<i>Adding, removing and finalizing a tab for a certain table</i>	1	28/03/2018	Renato Saliu/Romario Balukja
BR_06	The administrator is able to add/remove user accounts	<i>Ability to edit the list of waiters who can access the software</i>	2	28/03/2018	Aleks Tare/Romario Balukja
BR_07	The system should apply the VAT automatically	<i>At the end of each tab (before printing) the VAT (20%) will be calculated and displayed separately in the tab</i>	3	28/03/2018	Romario Balukja/Ogers Ruda
BR_08	The administrator can view all the service records according to the search criteria or by default	<i>When administrator searches for a specific item that exists on the database then it will show all the specific information about that item</i>	1	18/04/2018	Aleks Tare/Romario Balukja

Bar Management System

BR_09	Both the admin and the waiter are able to update their passwords and username, but not their first and last name.	<i>If someone will forget their passwords they can use forget password option or they can change it for nothing if they want</i>	2	18/04/2018	Aleks Tare/Romario Balukja
BR_10	There will be a tab on waiters view where he will have product categories listed	<i>Product categories will be showed on a specific tab which is being managed by the employee when the customer takes the entity</i>	1	18/04/2018	Renato Saliu/Romario Balukja

BR_11	When the order is processed it will be shown to the bartender which after will produce the required product	<i>The bartender will be able to see what orders are being made so he/she can process to prepare them</i>	1	21/04/2018	Aleks Tare/Ogers Ruda
BR_12	The price will be added automatically together with the ordered product and the ordered amount. If there will be any update on the order the price will be updated again	<i>Whether there is an order it will be shown together with the price and it will be updated immediately at the time another product is added or removed</i>	1	21/04/2018	Aleks Tare/Ogers Ruda
BR_13	The payment will be done after the customers finish the product so after the waiter can close the table from the program	<i>The waiter will need to declare the table as open after the customers finish their drinking</i>	1	21/04/2018	Renato Saliu/Romario Balukja

Bar Management System

BR_14	Every ordered product is being printed to a second, which is managed by the administrator	<i>Except in the inventory the manager wants also to keep tracks of the receipts, so he prints them all in a second...</i>	1	21/04/2018	Aleks Tare/Ogers Ruda
BR_15	Also ordered product together with their amount and price will be added on a file and serve as a daily inventory. After there will be weekly and monthly which collects all these.	<i>There will be an inventory which will keep tracks of all the products sold within a day week or month</i>	1	21/04/2018	Renato Saliu/Romario Balukja
BR_16	If there is any product running low, it will give an alert on both waiter and administrator to supply the bar with the required products	<i>We do not want to have missing products on the bar so there will be an alert showing that there are only a few products of a current type left so the manager can order some more from that product.</i>	1	21/04/2018	Renato Saliu/Romario Balukja

3.2 Non-Functional Requirements

3.2.1 Product Requirements

3.2.1.1 User Interface Requirements

The user interface for the software shall be compatible to any Windows OS as long as they support the Windows Application Format.

Initially the employee will see a login screen where he/she can insert their credentials: username and password. If the login is successful, the user is redirected to their appropriate view. Administrators can access the system by creating other user profiles.

In the case of the regular user the next view would be that of the products provided by the Bar and the ability to add them to the currently opened tab list.

3.2.1.2 Usability Learnability

- Administrators will be introduced with a quick guide on how to use their interface
- The regular user interface is aimed to be built with a minimal user-friendly design
- The software is designed to be easy to learn and intuitive

3.2.1.3 Performance

This system is designed to work on a single terminal for each bar. The terminal can be accessed by only one person at a time. Future updates might include the ability to interact simultaneously with multiple user terminals.

The performance shall depend upon hardware components of the client/customer. Retrieval and access of data for each entity shall be processed in a few milliseconds

3.2.1.4 Capacity

The Windows Application will be able to handle calculations of multiple tabs and collect data from each closed tab. It will only be constrained by the size of the database since it does not require much computational speed.

3.2.2 Organizational Requirements

3.2.2.1 Availability

- The system should be available during bar working hours
- It should only be accessible by waiters/bartenders and the managers
- Not limited to one specific operational location
- The system should be reliable and operational at the required time

3.2.2.2 Latency

There are no latency requirements except for the tab(receipt) print request sent to the operating system who connects it with the printer afterwards

3.2.2.3 Monitoring

The system will provide a stock and transaction view which will be accessible only from the administrator view. This particular window will also serve as a logging interface which will store and retrieve data from the previous transactions.

3.2.2.4 Maintenance

MySQL is used for maintaining the database and the Windows Application Form is used to fetch and send data from/to the database. In case of a failure, a re-initialization of the program is recommended. If it is not the case, that means that the server may be down, so the user needs to wait for the system administrator to start the database server.

3.2.2.5 Operations

- login of staff users/admin
- CRUD of staff users
- Adding/Removing items from the currently opened tab
- Finalizing/Printing Tab and adding it to the database
- Review of previously closed tabs (admin eyes only)

3.2.2.5.1 System Interface/Integration

The system is operational as long as it is provided with a suitable and functional database (MySQL) and will be integrated only in the Windows Platform Applications.

3.2.2.5.2 Network and Hardware Interfaces

The system will not be distributed over a network interface however we must specify that it is suited to be accessed with a touch screen over a Point-of-Sale device which operates over the Windows Operating System.

3.2.2.5.3 Systems Interfaces

The system will be able to print out a final tab with all the products' names, quantities and values and the calculated total. Occasionally it will also publish the happy hour discounts.

The tab structure to be sent to the database and printer is as follows: [Bar Name]

[Date and Time]

[Products List][Quantity][Value] [if applicable: Discount text]

[Total]

3.2.3 External Requirements

3.2.3.1 Security

Besides the username and password authentication the system does not require many more security measures, although some basic important rules still apply. The following explains these initial rules.

3.2.3.2 Protection

- The system will not include a register function on the login screen
- Auto-logging of tabs closed by each employee
- If an employee wants to change his username or password, the administrator must be notified
- The password will be encrypted at the time of registration

3.2.3.3 Authorization and Authentication

- Users will be authenticated with a username and password.
- If a user tries to log in to the application with a username which is not defined in the database, then the user should not be logged in. The user shall be notified about login failure.

3.2.3.4 Data Management

Employee Information

- accessed upon login
- has access of user views (unless role=admin)
- uniquely represented by id
- name, surname

Product Information

- accessed through the main products view more frequently
- accessible from each employee
- uniquely represented by id
- product name

Tabs/Receipts

- accessed after closing each tab and saving it
- accessible from each employee
- date and time
- active employee name
- products list
- total

3.2.3.5 Standards Compliance

Even though the VAT Receipt is printed separately, the system will be designed to apply the necessary calculations for VAT and print them within the Receipt. This complies with the The Republic of Albania State Law: “LIGJ 92/14 PER TATIMIN MBI VLEREN E SHTUAR” and will ensure the transparency of the system when compared with the official printed coupon for the application of VAT.

3.2.3.6 Portability

The system is currently being developed in C# which offers many portability opportunities. However the team has decided to develop the system as a Windows Application and the portability and compatibility with other systems will depend on future updates.

3.2.3.7 Domain Requirements

System should operate in a bar/coffee shop and also be able to add and update Employees, process payments, print out receipts and store tabs information in the database

4. Software Design / Diagrams

4.1 User Scenarios

Nr.	User Scenario Name	Description
1.	Employee Login	Using a predefined username and pass combination to access the system.
2.	Register new employee	Adding a new employee that starts working in the bar
3.	Admin Edit Employee	The currently registered employee credentials can be edited and updated
4.	Admin Delete Employee	In case an employee is removed from the job his status can be deleted
5.	Admin Login Function	Using the admin username and password the system administrator can login and access the employees' data
6.	Employee Add Order	The currently logged in employee is able to add an order from the Products list of the currently opened tab
7.	Employee Open Tab	The employee can open a new tab for a specific table to add newly purchased products from the bar.
8.	Employee Prints Tab	The currently opened tab is sent to the computer's printer to be printed.
9.	Employee Delete Order	The currently logged in employee is able to remove an order from the Products list of the currently opened tab
10.	Log out	Provide the user to logout from the system

Bar Management System

11.	Employee Login Fail	If the predefined username and pass combination doesn't match up in the Database, then the user cannot log in.
12.	Print Empty Tab Exception	The system returns an Error pop-up with the exception description that a currently empty tab cannot be printed without any products in it.
13.	Admin Add Product	The currently logged in administrator is able to add a new Product with all the product info specifications and update the database so the new product can be accessed by every employee
14.	Admin Approve Delivery of Supplies	The admin should also be able to confirm a new supplies' delivery when he has successfully received the order from the supplier
15.	Admin Delete Product	The currently logged in administrator is able to delete a current existing Product and the system will update the database.
16.	Admin Edit Product	The currently logged in administrator is able to edit Product info specifications and update the database so that the new product can be accessed by every employee
17.	Supplier Add Delivery	The currently logged in supplier should be able to upload new order credentials and alert an administrator with the status of this order.
18.	Supplier Login	Using the supplier username and password the supplier can login and access the order and low stock data.
19.	Admin Add Category	The currently logged in administrator is able to add a new Category accompanied by a count number and validity cell

Bar Management System

20.	Admin Exchange Rates	The administrator will be able to check the current Exchange Rates, so it can calculate values in foreign monetary currencies
21.	Admin Happy Hours Edit	The administrator must also create/update Happy Hour constraints and its sale values in case they are applicable.
22.	Admin Tables Update	The administrator should be able to add/update/remove Tables from the database, so they can be accessible by the employees. The tables will contain a unique code, a name, and a validity cell.
23.	Employee My Tabs Function	The currently logged in employee should be able to access a section which collects and formats all tabs delivered by this specific employee.
24.	Admin Change Password	The currently logged in administrator should be able to change his password (according to some predefined constraints), and store the new password in the database.
25.	Employee End Work Day	The currently logged in employee should be able to close his working shift and save everything.
26.	Employee Products List	The Employee must be able to access an updated Products list, divided into categories and each with its respective price. All accessible within the Employee main view.
27.	Admin Reports Review	The logged in administrator should be able to review reports on the daily sales. Firstly the reports view should collect and show all the cumulative daily reports and their totals, then there should also be a button to expand a specific report with more

Bar Management System

		details
28.	Admin Quantity Update	The administrator should also have the ability to review and update current stock quantities so that the supplier can be informed on low stock quantities.
29.	Admin Bar Details	The currently logged in admin should be able to add/update Bar Details which can optionally be shown into the printed receipt.
30.	Admin Change Employee Password	The currently logged in administrator should be able to change an Employees' password (according to some predefined constraints), and store the new password in the database.
31.	Employee Transfer Tab	In the case of an incorrect Tab to Table assignment, the employee should be able to transfer this still opened tab to the correct table without losing time/date information and without the need to delete/create a new tab.

4.2 User Scenarios Extended

1. Employee Login: Scenario 1

- a. Employee is asked to choose his name from a drop-down list
- b. Employee is asked to enter password
- c. If his credentials match with those in database, employee is successfully logged in

Bar Management System

- d. His own view is opened

2. Admin Register New Employee: Scenario 2

- a. Given that admin is logged in
- b. Admin accesses the list of all current employees
- c. Admin clicks Register Employee Tab
- d. Registration form appears
- e. Admin fills the form with the employee's attributes
- f. Admin adds a password which is shared with the employee
- g. Confirm the registration of new employee
- h. Admin logs out

3. Admin Edit employee: Scenario 3

- a. Given that admin is logged in
- b. Admin can access the list of all current employees
- c. Admin can access the list of all current employees
- d. Admin clicks the specific Edit button which is available for each employee
- e. Employee Form appears
- f. Admin edits specific points in the Employee Form
- g. Admin saves form
- h. Admin logs out

4. Admin Delete employee: Scenario 4

Bar Management System

- a. Given that admin is logged in
- b. Admin can access the list of all current employees
- c. Admin clicks the specific Delete button which is available for each employee
- d. Delete popup confirmation appears
- e. Admin selects specific action (Yes/No)
- f. Employee credentials are removed from database
- g. Admin logs out

5. Admin Login: Scenario 5

- a. Admin is asked to choose his username from a drop-down list
- b. Admin is asked to enter password
- c. If his credentials match with those in database, the administrator is successfully logged in
- d. Admin's own view is opened

6. Employee Add Order: Scenario 6

- a. Employee logs in.
- b. Employee selects open new tab function
- c. Employee selects items from the products list
- d. He then clicks the Add button to add the currently selected product to the opened tab
- e. Employee prints tab or logs out

Bar Management System

7. Employee Open Tab: Scenario 7

- a. Employee logs in.
- b. Employee selects open new tab function
- c. A new tab is shown in the view and is ready to receive products on prompt
- d. Employee fills tab with products and prints
- e. Employee logs out

8. Employee Prints Tab: Scenario 8

- a. Employee logs in
- b. Employee has multiple opened tabs in his view
- c. He selects one of the opened tabs in the view
- d. Employee clicks the Print Tab button
- e. The specific print view is then called from the Operating System
- f. Employee logs out

9. Employee Delete Order: Scenario 9

- a. Employee logs in
- b. Employee has at least one opened tab
- c. Employee decides to remove one of the products in the currently opened tab
- d. Employee clicks the product in the tab highlighting it
- e. He then clicks the Delete Order button
- f. Employee prints the new tab

Bar Management System

- g. Employee logs out

10. Employee/Admin Logout: Scenario 10

- a. Employee/Admin is logged in.
- b. Employee/Admin has finished accessing the system
- c. Employee/Admin clicks the log out button
- d. Employee/Admin's session is over and the login screen is shown again.

11. Employee Login Fail: Scenario 11

- a. Employee is asked to choose his name from a drop-down list
- b. Employee is asked to write down his password
- c. If the combination doesn't match up in the Database then the system shows a prompt of "Incorrect Password/Employee combination" asking the employee if he wants to continue and try again.
- d. The default login interface is reset and starts again from the beginning

12. Print Empty Tab Exception: Scenario 12

- a. Employee is logged in
- b. Employee clicks the Print Tab button without adding any products to it
- c. The system returns an Error pop-up with the exception description that a currently empty tab cannot be printed without any products in it.

Bar Management System

- d. The pop-up prompt has an Ok button to confirm the exception and return to the previous view
- e. Employee logs out

13. Admin Add Product: Scenario 13

- a. Admin is logged in
- b. Admin clicks Add New Product Button
- c. The Add New Product dialog box is shown
- d. Admin fills product details (name, price, category, unit of measurement, etc)
- e. Admin clicks Save to save new product to the database
- f. Admin logs out

14. Admin Approve Delivery of Supplies: Scenario 14

- a. Admin is logged in
- b. Admin clicks Supplies Button
- c. The Supplies dialog box is shown
- d. Admin selects one of the pending supplies with a checkbox
- e. Admin clicks Approve Supply to confirm the successful delivery of supplies
- f. Admin logs out

15. Admin Delete Product: Scenario 15

- a. Admin is logged in
- b. Admin clicks Products Button

Bar Management System

- c. The List of Products dialog box is shown
- d. Admin selects one of the currently existing products from the list
- e. Admin clicks Delete to erase product information from the database
- f. Admin logs out

16. Admin Edit Product: Scenario 16

- a. Admin is logged in
- b. Admin clicks Products Button
- c. The List of Products dialog box is shown
- d. Admin selects one of the currently existing products from the list
- e. Admin clicks Edit to Update product information and store it in the database
- f. Admin logs out

17. Supplier Add Delivery: Scenario 17

- a. Supplier is logged in
- b. Supplier clicks Deliveries Button
- c. The Deliveries dialog box is shown with all Low Stock Products
- d. Supplier selects Add Delivery button and enters Delivery information
- e. Supplier clicks Confirm to commit to this delivery and inform the administrator
- f. Supplier logs out

Bar Management System

18. Supplier Login: Scenario 18

- a. Supplier is asked to choose his username from a drop-down list
- b. Supplier is asked to enter a password
- c. If his credentials match with those in database, the supplier is successfully logged in
- d. Supplier's view is displayed

19. Admin Add Category: Scenario 19

- a. Admin is logged in
- b. Admin clicks Category Button
- c. The Category dialog box is shown
- d. Admin fills category details (code, name, counter, validity)
- e. Admin clicks Save to save new category to the database
- f. Admin logs out

20. Admin Exchange Rates: Scenario 20

- a. Admin is logged in
- b. Admin clicks Exchange Rates Button
- c. The Exchange Rates dialog box is shown
- d. Admin can update the current Exchange Rates to EUR/USD values
- e. Admin clicks Save to save new exchange rates to the database
- f. Admin logs out

Bar Management System

21. Admin Happy Hours Edit: Scenario 21

- a. Admin is logged in
- b. Admin clicks Happy Hours Button
- c. The Happy Hours dialog box is shown
- d. Admin can update the current Happy Hour time constraints and sale percentages
- e. Admin clicks Save to save new Happy Hour to the database
- f. Admin logs out

22. Admin Tables Update: Scenario 22

- a. Admin is logged in
- b. Admin clicks Tables Button
- c. The Tables dialog box is shown
- d. Admin can add/delete/update Tables information
- e. Admin clicks Save to save Tables list to the database
- f. Admin logs out

23. Employee My Tabs: Scenario 23

- a. Employee logs in.
- b. Employee selects My Tabs Button
- c. Employee is shown all the Tabs printed/closed by him with their respective info
- d. Employee logs out

Bar Management System

24. Admin Change Password: Scenario 24

- a. Given that admin is logged in
- b. Admin clicks the Change Password Button
- c. Admin is asked to confirm his old password
- d. Admin is asked to enter his new password (twice for confirmation)
- e. Admin clicks the Save new Password Button
- f. If the constraints are met, the password is updated in the database
- g. Admin logs out

25. Employee End Work Day: Scenario 25

- a. Employee logs in.
- b. Employee has finished his daily shift
- c. Employee clicks the End Work Day Button, which updates the total tabs from this employee, which are processed on this day
- d. Employee logs out

26. Employee Products List: Scenario 26

- a. Employee logs in.
- b. Employee selects Products List Button
- c. Employee is shown all the Products and Categories with their respective info
- d. Employee logs out

Bar Management System

27. Admin Reports Review: Scenario 27

- a. Admin is logged in
- b. Admin clicks Reports Button
- c. The Reports dialog box is shown with all the reports, their respective total and quantities, tables and dates produced.
- d. Admin can Expand one specific report information
- e. The Product Report view is shown.
- f. Admin logs out

28. Admin Quantity Update: Scenario 28

- a. Admin is logged in
- b. Admin clicks Quantity Button
- c. The Quantity dialog box is shown
- d. Admin can add/delete/update Stock Quantity information
- e. Admin clicks Save to save Quantity Status of each product to the database
- f. Admin logs out

29. Admin Change Employee Pass: Scenario 29

- a. Admin is logged in
- b. Admin clicks Edit Employee Button
- c. The Employees List view is shown
- d. Admin clicks one of the Employees and selects Change Password

Bar Management System

- e. Admin enters new password for this specific Employee
- f. Admin clicks Save new Password to store the update to the database
- g. Admin logs out

30. Admin Bar Details: Scenario 30

- a. Admin is logged in
- b. Admin clicks Bar Details Button
- c. The Bar Details dialog box is shown
- d. Admin fills Bar Details Information (name, address, contact number, email etc.)
- e. Admin clicks Save to save Bar Information to the database
- f. Admin logs out

31. Employee Transfer Tab: Scenario 31

- a. Employee logs in.
- b. Employee opens a new Tab on the wrong Table and proceeds to fill/print it
- c. Employee realizes his mistake and clicks Transfer Tab Button
- d. Employee then selects the Table to which he wants to transfer the currently opened Tab.
- e. Employee clicks Transfer Button/Cancel Button
- f. Employee logs out

4.3 Use Cases

<i>Use Case No.</i>	1
<i>Name</i>	Employee Login
<i>Overview</i>	Employees can access the system and its functionalities
<i>Actors</i>	Employees (User)
<i>Pre-condition</i>	Employee must have an account
<i>Scenario flow</i>	<ul style="list-style-type: none"> I. <i>Employee is asked to choose his name from a drop-down list</i> II. <i>Employee is asked to enter password</i> III. <i>If his credentials match with those in database, employee is successfully logged in</i> IV. <i>His own view is opened</i>

Bar Management System

Use Case No.	2
Name	Admin Register New Employee
Overview	Administrator can register new employee
Actors	Administrator
Pre-condition	<p>Admin must be logged in</p> <p>I. Admin is logged in</p>
	<p>II. Admin accesses the list of all current employees</p>
	<p>III. Admin clicks Register Employee Tab</p>
	<p>IV. Registration form appears</p>
Scenario flow	<p>V. Admin fills the form with the employee's attributes</p>
	<p>VI. Admin adds a password which is shared with the employee</p>
	<p>VII. Confirm the registration of new employee</p>
	<p>VIII. Admin logs out</p>

Bar Management System

Use Case No.	3
<i>Name</i>	Admin Edit Employee
<i>Overview</i>	Administrator can edit a currently registered employee
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Employee must be registered, and admin must be logged in
<i>Scenario flow</i>	<p>I. <i>Given that admin is logged in</i></p> <p>II. <i>Admin can access the list of all current employees</i></p> <p>III. <i>Admin clicks the specific Edit button which is available for each employee</i></p> <p>IV. <i>Employee Form appears</i></p> <p>V. <i>Admin edits specific points in the Employee Form</i></p> <p>VI. <i>Admin saves form</i></p> <p>VII. <i>Admin logs out</i></p>

Bar Management System

<i>Use Case No.</i>	4
<i>Name</i>	Admin Delete Employee
<i>Overview</i>	Administrator can remove employees from the system
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Employee must have an account and admin must be logged in
<i>Scenario flow</i>	<p>I. <i>Admin is logged in</i></p> <p>II. <i>Admin can access the list of all current employees</i></p> <p>III. <i>Admin clicks the specific Delete button which is available for each employee</i></p> <p>IV. <i>Delete popup confirmation appears</i></p> <p>V. <i>Admin selects specific action (Yes/No)</i></p> <p>VI. <i>Employee credentials are removed from database</i></p> <p>VII. <i>Admin logs out</i></p>

Bar Management System

<i>Use Case No.</i>	5
<i>Name</i>	Adm in Logi n
<i>Over view</i>	Administrator can login to his own view in the system
<i>Actors</i>	Adm inistr ator
<i>Pre-condition</i>	Administrator must know his initial account credentials
<i>Scenario flow</i>	<ul style="list-style-type: none"> I. <i>Admin is asked to choose his username from a drop- down list</i> II. <i>Admin is asked to enter password</i> III. <i>If his credentials match with those in database, the administrator is successfully logged in</i> IV. <i>Admin's own view is opened</i>

Bar Management System

Use Case No.	6
<i>Name</i>	Employee Add Order
<i>Overview</i>	Employee can add product to the currently opened tab. It can be hot drink, cold drink , cocktails or what else is being served
<i>Actors</i>	Employee
<i>Pre-condition</i>	Employee must be registered and logged in
<i>Scenario flow</i>	<p>I. Employee logs in.</p> <p>II. Employee selects open new tab function</p> <p>III. Employee selects items from the products list</p> <p>IV. He then clicks the Add button to add the currently selected product to the opened tab</p> <p>V. Employee prints tab or logs out</p>

Bar Management System

Use Case No.	7
<i>Name</i>	Employee Open New Tab
<i>Overview</i>	Employee starts a new receipt to add what the customer asks for
<i>Actors</i>	Employee
<i>Pre-condition</i>	Employee must have an account and must be logged in
<i>Scenario flow</i>	<p>I. <i>Employee logs in.</i></p> <p>II. <i>Employee selects open new tab function</i></p> <p>III. <i>A new tab is shown in the view and is ready to receive products on prompt</i></p> <p>IV. <i>Employee fills tab with products and prints</i></p> <p>V. <i>Employee logs out</i></p>

Bar Management System

<i>Use Case No.</i>	8
<i>Name</i>	Employee Print Tab
<i>Overview</i>	Employee prints currently opened tab with what is being ordered together with its specifications
<i>Actors</i>	Employee
<i>Pre-condition</i>	Employee must have an account, be logged in and the tab must be not empty
<i>Scenario flow</i>	<p>I. <i>Employee logs in</i></p> <p>II. <i>Employee has multiple opened tabs in his view</i></p> <p>III. <i>He selects one of the opened tabs in the view</i></p> <p>IV. <i>Employee clicks the Print Tab button</i></p> <p>V. <i>The specific print view is then called from the Operating System</i></p> <p>VI. <i>Employee logs out</i></p>

Bar Management System

Use Case No.	9
<i>Name</i>	Employee Delete Order
<i>Overview</i>	Employee can delete products from the currently opened tab
<i>Actors</i>	Employee
<i>Pre-condition</i>	Employee must be registered and logged in
<i>Scenario flow</i>	<p>I. <i>Employee logs in</i></p> <p>II. <i>Employee has at least one opened tab</i></p> <p>III. <i>Employee decides to remove one of the products in the currently opened tab</i></p> <p>IV. <i>Employee clicks the product in the tab highlighting it</i></p> <p>V. <i>He then clicks the Delete Order button</i></p> <p>VI. <i>Employee prints the new tab</i></p> <p>VII. <i>Employee logs out</i></p>

Bar Management System

Use Case No.	10
<i>Name</i>	Login Fail
<i>Overview</i>	System refuses invalid login credentials and does not create new sessions
<i>Actors</i>	Employee/Administrator
<i>Pre-condition</i>	Admin/Employee must be logged out
<i>Scenario flow</i>	<p>I. Employee is asked to choose his name from a drop-down list</p> <p>II. Employee is asked to write down his password</p> <p>III. If the combination doesn't match up in the Database, then the system shows a prompt of "Incorrect Password/Employee combination" asking the employee if he wants to continue and try again.</p> <p>IV. The default login interface is reset and starts again from the beginning</p>

Bar Management System

Use Case No.	11
<i>Name</i>	Empty Tab Printing Exception
<i>Overview</i>	System refuses to print a tab which is empty
<i>Actors</i>	Employee
<i>Pre-condition</i>	<p>Employee must be logged in and tab must be empty</p> <p>I. <i>Employee is logged in</i></p> <p>II. <i>Employee clicks the Print Tab button without adding any products to it</i></p>
<i>Scenario flow</i>	<p>III. <i>The system returns an Error pop-up with the exception description that a currently empty tab cannot be printed without any products in it.</i></p> <p>IV. <i>The pop-up prompt has an Ok button to confirm the exception and return to the previous view</i></p> <p>V. <i>Employee logs out</i></p>

Bar Management System

Use Case No.	12
<i>Name</i>	Admin Add Product
<i>Overview</i>	Admin can add product to the products list accessible by employees
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be logged in
<i>Scenario flow</i>	<ol style="list-style-type: none"> I. <i>Admin is logged in</i> II. <i>Admin clicks Add New Product Button</i> III. <i>The Add New Product dialog box is shown</i> IV. <i>Admin fills product details (name, price, category, unit of measurement, etc)</i> V. <i>Admin clicks Save to save new product to the database</i> VI. <i>Admin logs out</i>

Bar Management System

Use Case No.	13
<i>Name</i>	Admin Confirm Received Supplies
<i>Overview</i>	Admin can confirm he has received the supplies ordered to the supplier
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be logged in, Supplies must be dispatched
<i>Scenario flow</i>	<p>I. <i>Admin is logged in</i></p> <p>II. <i>Admin clicks Supplies Button</i></p> <p>III. <i>The Supplies dialog box is shown</i></p> <p>IV. <i>Admin selects one of the pending supplies with a checkbox</i></p> <p>V. <i>Admin clicks Approve Supply to confirm the successful delivery of supplies</i></p> <p>VI. <i>Admin logs out</i></p>

Bar Management System

Use Case No.	14
<i>Name</i>	Admin Delete Product
<i>Overview</i>	Admin can delete a product in the products list accessible by employees
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be logged in, Product must exist
<i>Scenario flow</i>	<p>I. <i>Admin is logged in</i></p> <p>II. <i>Admin clicks Products Button</i></p> <p>III. <i>The List of Products dialog box is shown</i></p> <p>IV. <i>Admin selects one of the currently existing products from the list</i></p> <p>V. <i>Admin clicks Delete to erase product information from the database</i></p> <p>VI. <i>Admin logs out</i></p>

Bar Management System

Use Case No.	15
<i>Name</i>	Admin Edit Product
<i>Overview</i>	Admin can edit info about a product in the products list accessible by employees
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be logged in, Product must exist
<i>Scenario flow</i>	<p>I. <i>Admin is logged in</i></p> <p>II. <i>Admin clicks Products Button</i></p> <p>III. <i>The List of Products dialog box is shown</i></p> <p>IV. <i>Admin selects one of the currently existing products from the list</i></p> <p>V. <i>Admin clicks Edit to Update product information and store it in the database</i></p> <p>VI. <i>Admin logs out</i></p>

Bar Management System

Use Case No.	16
<i>Name</i>	Supplier Add Delivery
<i>Overview</i>	Supplier can add a new delivery when the quantity stocks of a certain product is low
<i>Actors</i>	Supplier
<i>Pre-condition</i>	<p>Supplier must be logged in, Stock must be low</p> <p>I. <i>Supplier is logged in</i></p> <p>II. <i>Supplier clicks Deliveries Button</i></p> <p>III. <i>The Deliveries dialog box is shown with all Low Stock Products</i></p> <p>IV. <i>Supplier selects Add Delivery button and enters Delivery information</i></p> <p>V. <i>Supplier clicks Confirm to commit to this delivery and inform the administrator</i></p> <p>VI. <i>Supplier logs out</i></p>
<i>Scenario flow</i>	

Bar Management System

Use Case No.	17
<i>Name</i>	Supplier Login
<i>Overview</i>	Supplier can access his own view into the system
<i>Actors</i>	Supplier
<i>Pre-condition</i>	Supplier must be registered
<i>Scenario flow</i>	<ul style="list-style-type: none"> I. Supplier is asked to choose his name from a drop-down list II. Supplier is asked to enter password III. If his credentials match with those in database, employee is successfully logged in IV. Supplier's view is opened

Bar Management System

Use Case No.	18
<i>Name</i>	Admin Add Category
<i>Overview</i>	Admin can add category to the categories list accessible by employees
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be logged in
<i>Scenario flow</i>	<p>I. <i>Admin is logged in</i></p> <p>II. <i>Admin clicks Category Button</i></p> <p>III. <i>The Category dialog box is shown</i></p> <p>IV. <i>Admin fills category details (code, name, counter, validity)</i></p> <p>V. <i>Admin clicks Save to save new category to the database</i></p> <p>VI. <i>Admin logs out</i></p>

Bar Management System

Use Case No.	19
<i>Name</i>	Admin Edit Exchange Rates
<i>Overview</i>	Admin can add/edit Exchange Rate Values for different foreign exchange rates
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be logged in
<i>Scenario flow</i>	<p>I. <i>Admin is logged in</i></p> <p>II. <i>Admin clicks Exchange Rates Button</i></p> <p>III. <i>The Exchange Rates dialog box is shown</i></p> <p>IV. <i>Admin can update the current Exchange Rates to EUR/USD values</i></p> <p>V. <i>Admin clicks Save to save new exchange rates to the database</i></p> <p>VI. <i>Admin logs out</i></p>

Bar Management System

Use Case No.	20
<i>Name</i>	Admin Edit Happy Hours
<i>Overview</i>	Admin can add/edit Happy Hours' time limits and sale percentages
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be logged in
<i>Scenario flow</i>	<p>I. <i>Admin is logged in</i></p> <p>II. <i>Admin clicks Happy Hours Button</i></p> <p>III. <i>The Happy Hours dialog box is shown</i></p> <p>IV. <i>Admin can update the current Happy Hour time constraints and sale percentages</i></p> <p>V. <i>Admin clicks Save to save new Happy Hour to the database</i></p> <p>VI. <i>Admin logs out</i></p>

Bar Management System

Use Case No.	21
<i>Name</i>	Admin Edit Tables
<i>Overview</i>	Admin can add/edit Tables accessible by Employees
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be logged in
<i>Scenario flow</i>	<ol style="list-style-type: none">I. Admin is logged inII. Admin clicks Tables ButtonIII. The Tables dialog box is shownIV. Admin can add/delete/update Tables informationV. Admin clicks Save to save Tables list to the databaseVI. Admin logs out

Bar Management System

<i>Use Case No.</i>	22
<i>Name</i>	Employees Personal Tabs Access
<i>Overview</i>	Employees can view their personal tabs stored in the database
<i>Actors</i>	Employees
<i>Pre-condition</i>	Employee must be logged in and must have at least one processed Tab
<i>Scenario flow</i>	<ol style="list-style-type: none"> I. Employee logs in. II. Employee selects My Tabs Button III. Employee is shown all the Tabs printed/closed by him with their respective info IV. Employee logs out

Bar Management System

Use Case No.	23
<i>Name</i>	Employees End Shift
<i>Overview</i>	Employees can end their work day/shift and upload all the daily tab info to the database
<i>Actors</i>	Employees
<i>Pre-condition</i>	Employee must be logged in and must have at least one daily Tab
<i>Scenario flow</i>	<p>I. Employee logs in.</p> <p>II. Employee has finished his daily shift</p> <p>III. Employee clicks the End Work Day Button, which updates the total tabs from this employee, processed on this day</p> <p>IV. Employee logs out</p>

Bar Management System

Use Case No.	24
<i>Name</i>	Admin Change Password
<i>Overview</i>	Admin can change his own password
<i>Actors</i>	Administrator
<i>Pre-condition</i>	<p>Admin must be registered and logged in</p> <ul style="list-style-type: none"> I. <i>Given that admin is logged in</i> II. <i>Admin clicks the Change Password Button</i> III. <i>Admin is asked to confirm his old password</i> IV. <i>Admin is asked to enter his new password (twice for confirmation)</i> V. <i>Admin clicks the Save new Password Button</i> VI. <i>If the constraints are met, the password is updated in the database</i> VII. <i>Admin logs out</i>
<i>Scenario flow</i>	

Bar Management System

Use Case No.	25
<i>Name</i>	Employees Products List Access
<i>Overview</i>	Employees can access the products and categories list
<i>Actors</i>	Employees
<i>Pre-condition</i>	Employee must be logged in
<i>Scenario flow</i>	<ol style="list-style-type: none"> I. Employee logs in. II. Employee selects Products List Button III. Employee is shown all the Products and Categories with their respective info IV. Employee logs out

Bar Management System

Use Case No.	26
<i>Name</i>	Admin Reports Review
<i>Overview</i>	Admin can review the total and specific Reports
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be registered and logged in
<i>Scenario flow</i>	<p>I. <i>Admin is logged in</i></p> <p>II. <i>Admin clicks Reports Button</i></p> <p>III. <i>The Reports dialog box is shown with all the reports, their respective total and quantities, tables and dates produced.</i></p> <p>IV. <i>Admin can Expand one specific report information</i></p> <p>V. <i>The Product Report view is shown.</i></p> <p>VI. <i>Admin logs out</i></p>

Bar Management System

Use Case No.	27
<i>Name</i>	Admin Quantity Update
<i>Overview</i>	Admin can update the stocks quantity for each product
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be registered and logged in
<i>Scenario flow</i>	<p>I. Admin is logged in</p> <p>II. Admin clicks Quantity Button</p> <p>III. The Quantity dialog box is shown</p> <p>IV. Admin can add/delete/update Stock Quantity information</p> <p>V. Admin clicks Save to save Quantity Status of each product to the database</p> <p>VI. Admin logs out</p>

Bar Management System

Use Case No.	28
<i>Name</i>	Admin Change Employee Password
<i>Overview</i>	Admin can update the password for each Employee
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Employee must be registered, and Admin must be logged in
<i>Scenario flow</i>	<p>I. <i>Admin is logged in</i></p> <p>II. <i>Admin clicks Edit Employee Button</i></p> <p>III. <i>The Employees List view is shown</i></p> <p>IV. <i>Admin clicks one of the Employees and selects Change Password</i></p> <p>V. <i>Admin enters new password for this specific Employee</i></p> <p>VI. <i>Admin clicks Save new Password to store the update to the database</i></p> <p>VII. <i>Admin logs out</i></p>

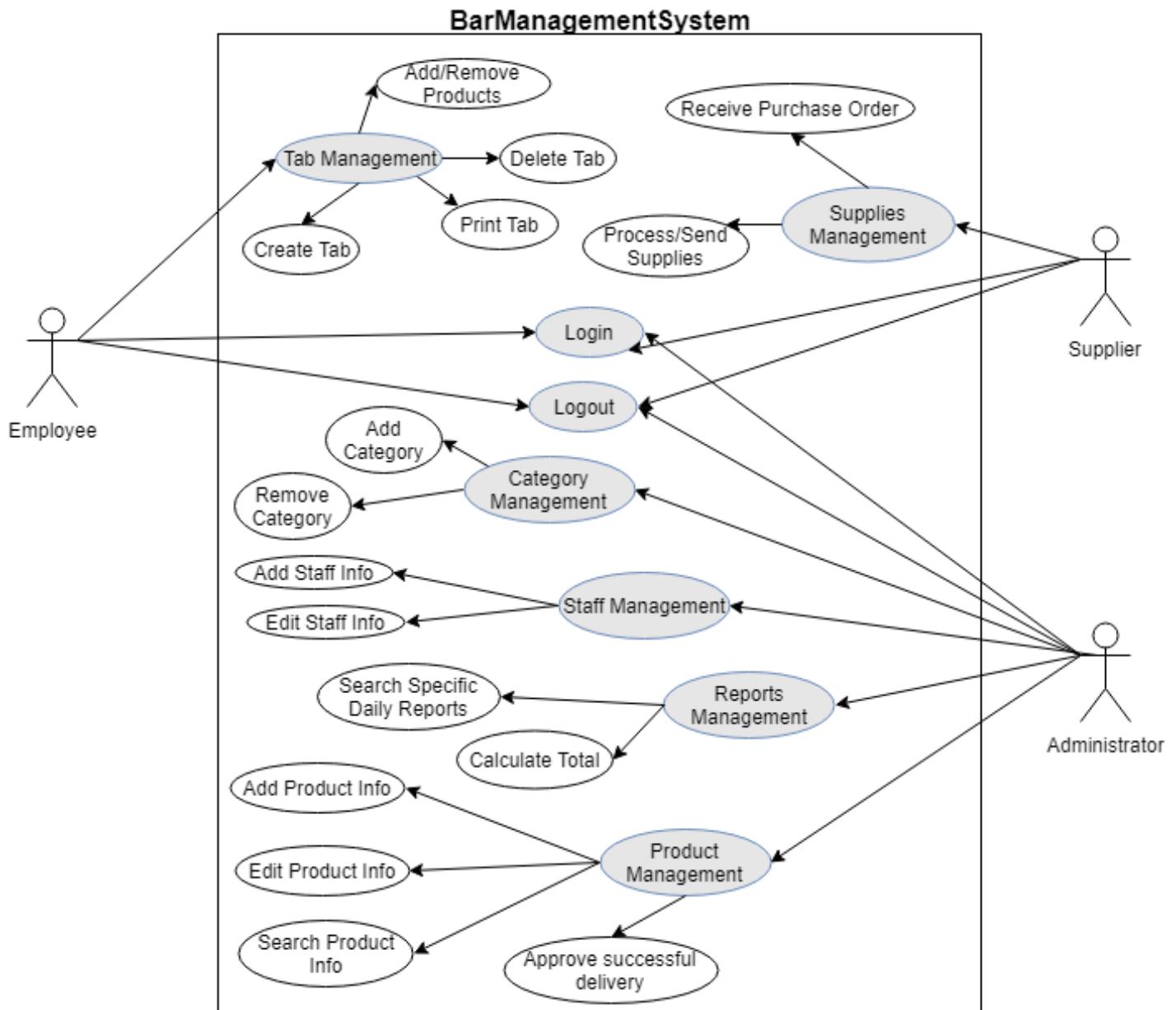
Bar Management System

Use Case No.	29
<i>Name</i>	Admin Change/Add Bar Details
<i>Overview</i>	Admin can update the Details describing the Bar
<i>Actors</i>	Administrator
<i>Pre-condition</i>	Admin must be logged in
<i>Scenario flow</i>	<ol style="list-style-type: none"> I. <i>Admin is logged in</i> II. <i>Admin clicks Bar Details Button</i> III. <i>The Bar Details dialog box is shown</i> IV. <i>Admin fills Bar Details Information (name, address, contact number, email etc.)</i> V. <i>Admin clicks Save to save Bar Information to the database</i> VI. <i>Admin logs out</i>

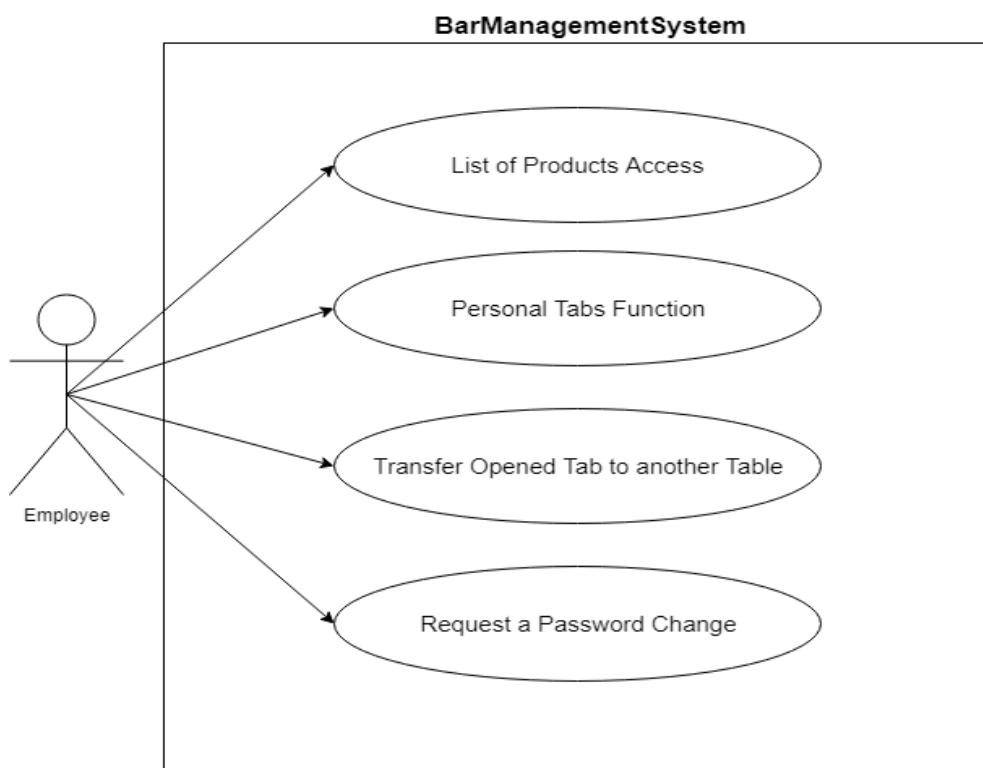
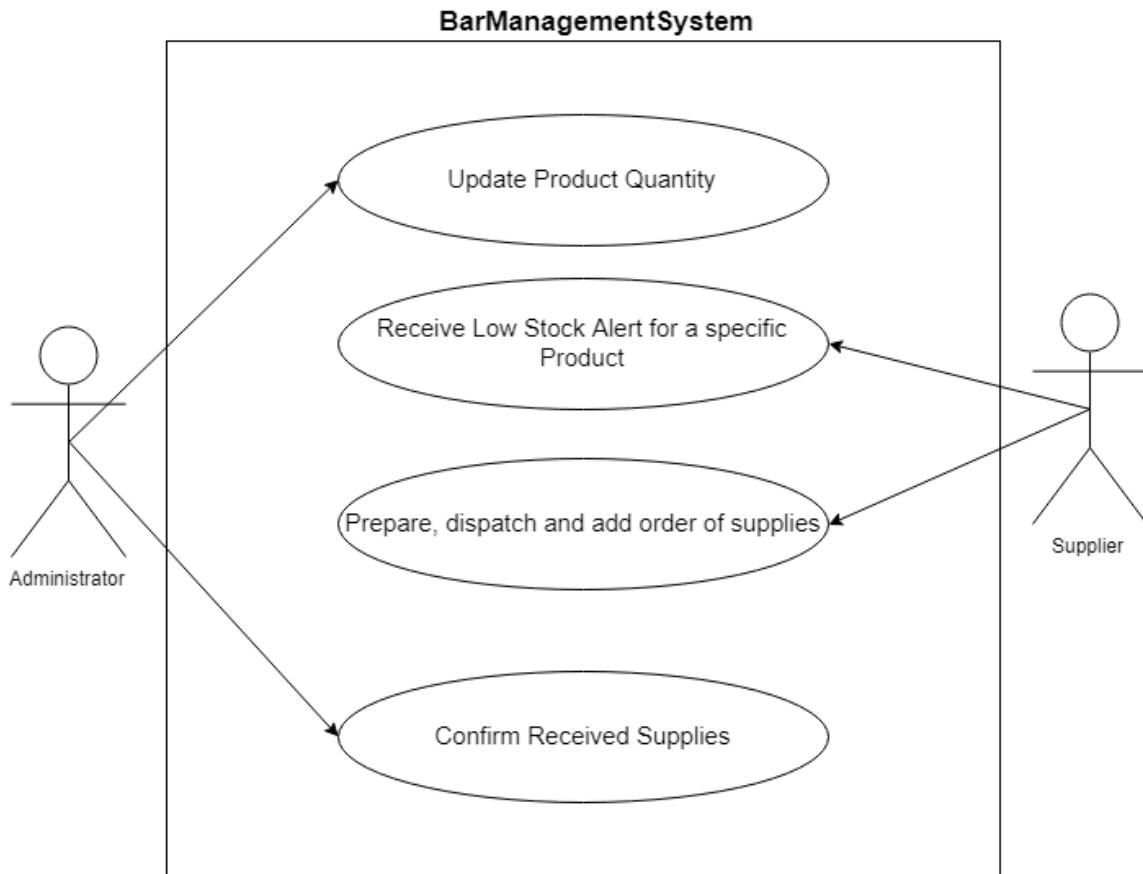
Bar Management System

Use Case No.	30
<i>Name</i>	Employee Transfer Tab
<i>Overview</i>	Employee can transfer a wrongly placed Tab
<i>Actors</i>	Employee
<i>Pre-condition</i>	Employee must be logged in, Tab must be assigned to at least one Table
<i>Scenario flow</i>	<p>I. Employee logs in.</p> <p>II. Employee opens a new Tab on the wrong Table and proceeds to fill/print it</p> <p>III. Employee realizes his mistake and clicks Transfer Tab Button</p> <p>IV. Employee then selects the Table to which he wants to transfer the currently opened Tab</p> <p>V. Employee clicks Transfer Button/Cancel Button</p> <p>VI. Employee logs out</p>

4.4 Use Case Diagrams

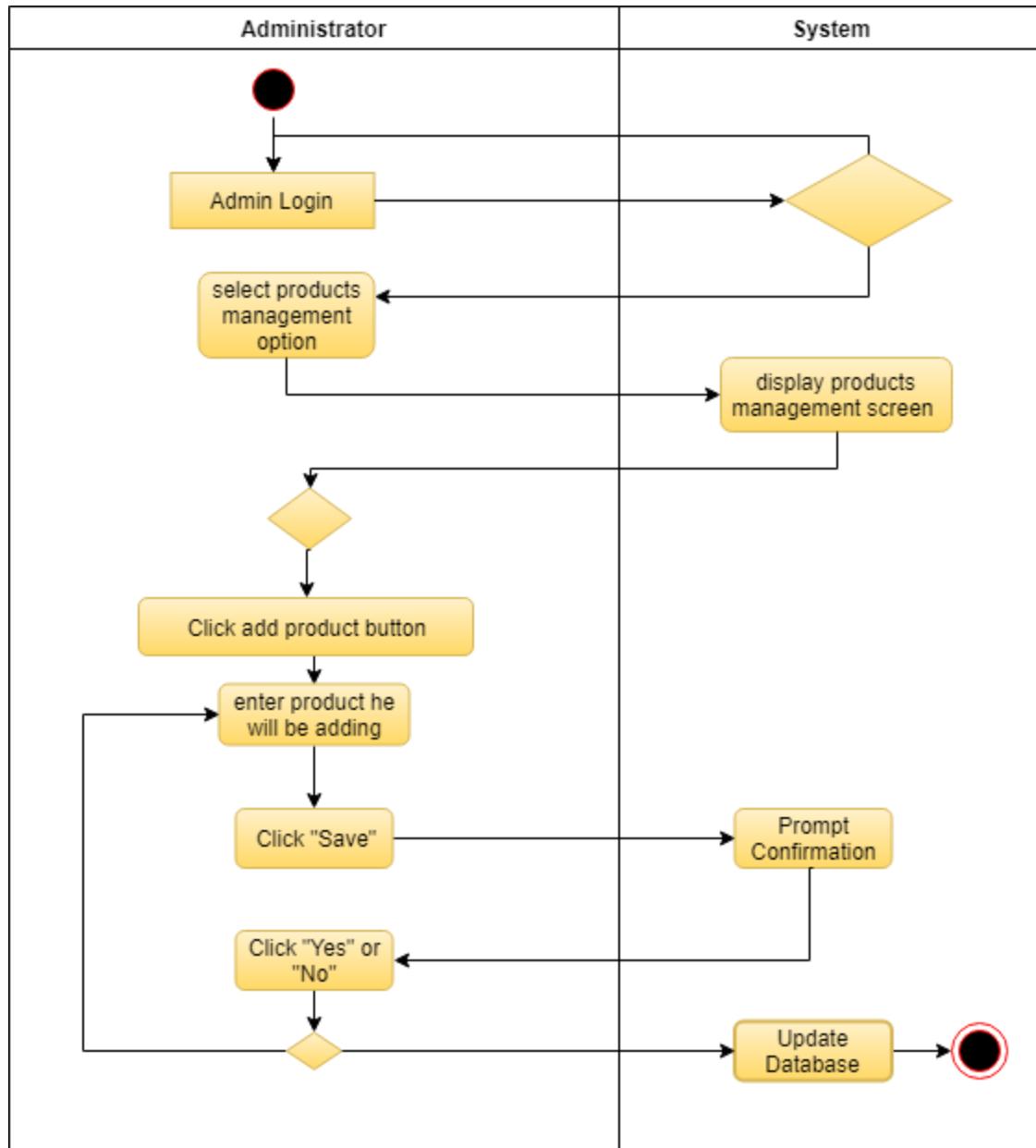


Bar Management System

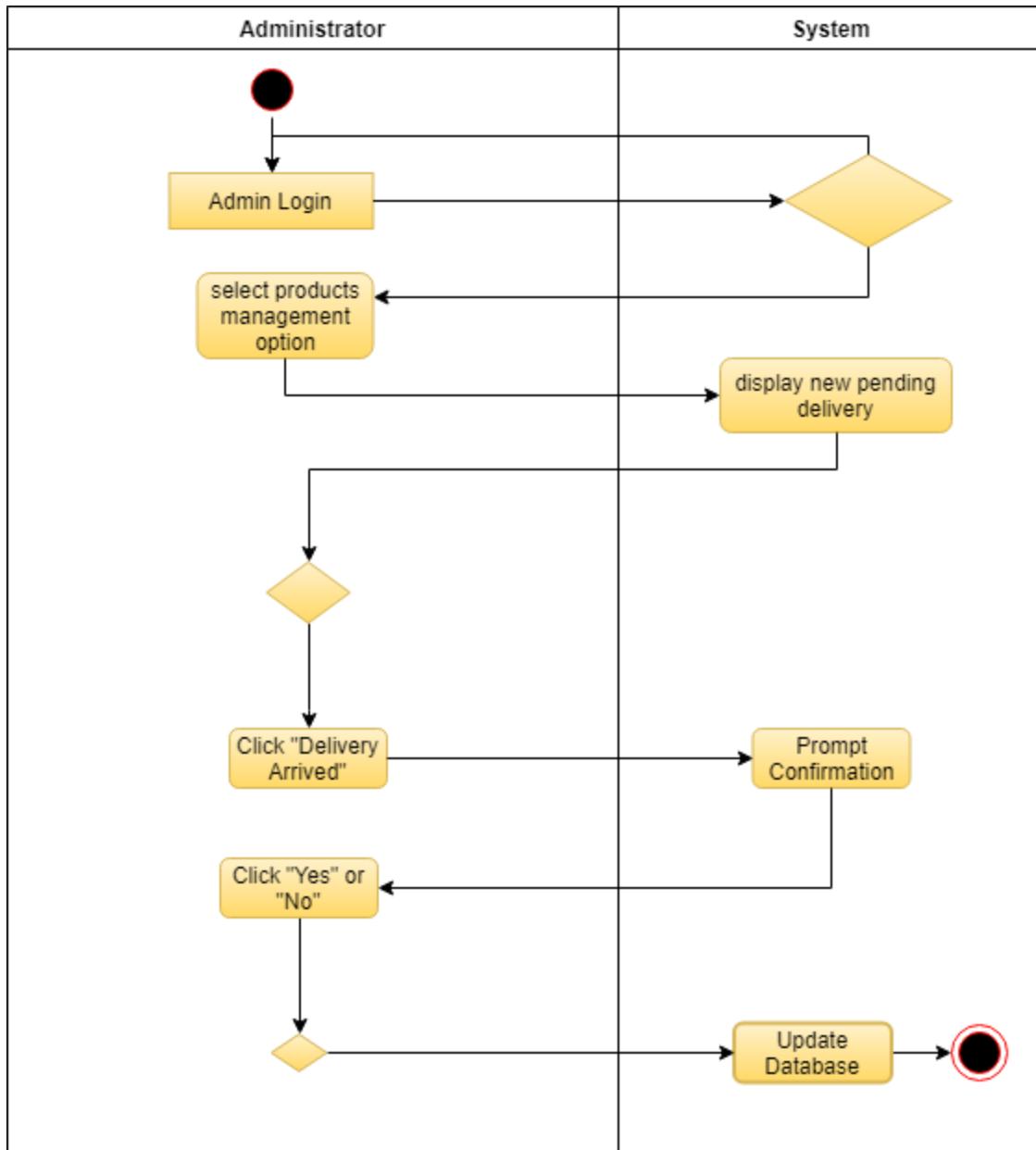


4.5 Activity Diagrams

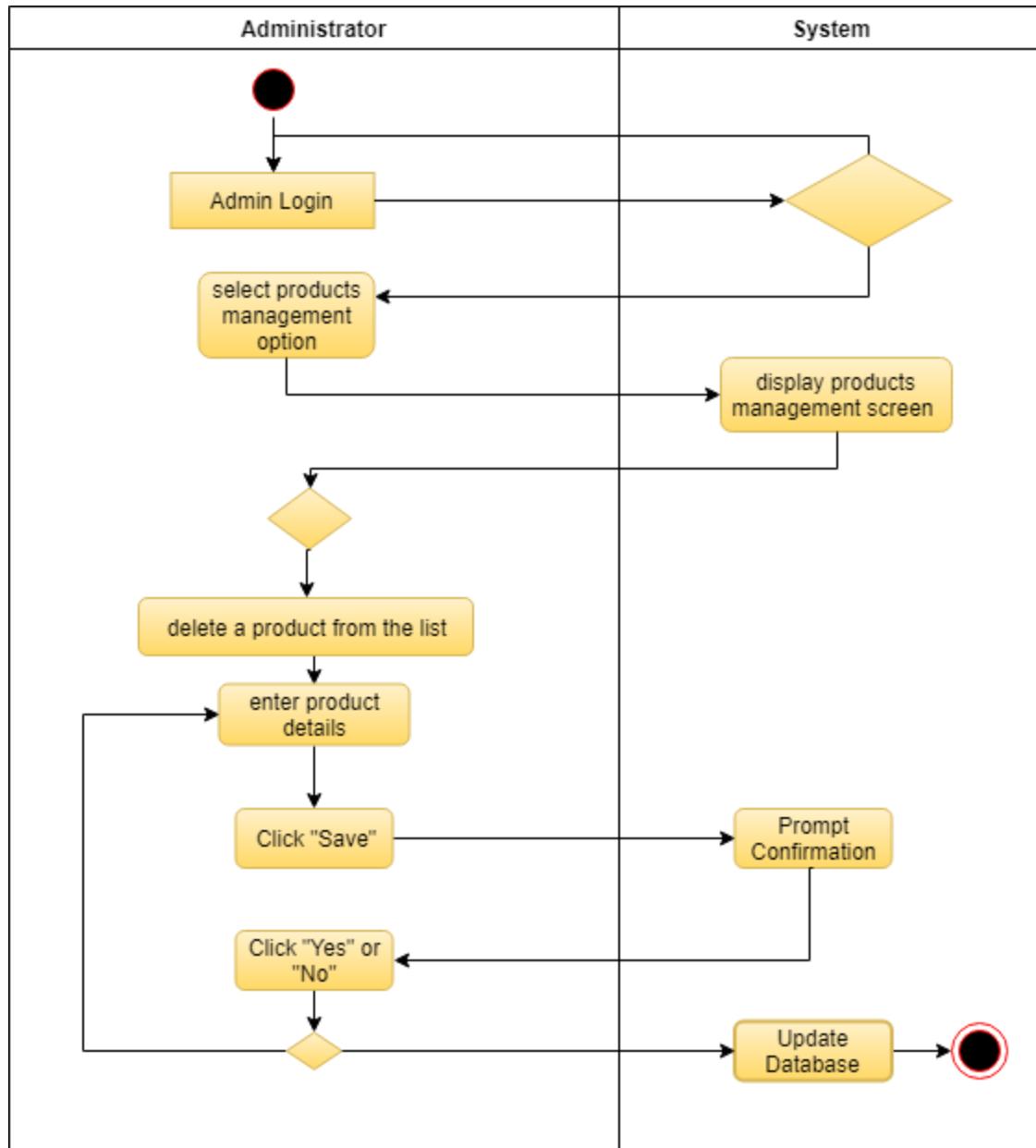
4.5.1 Add Product



4.5.2 Confirm Delivery of Supplies

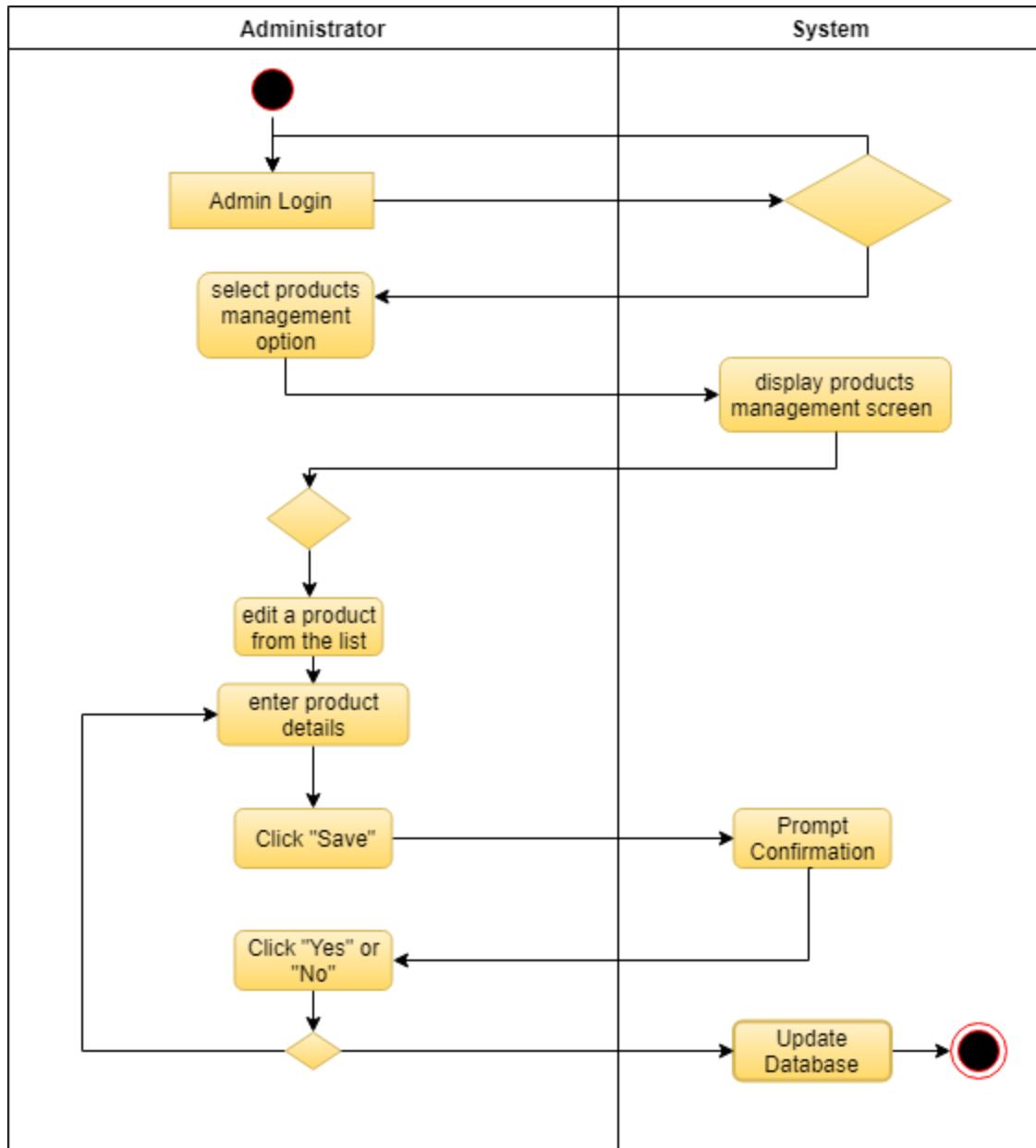


4.5.3 Delete Product



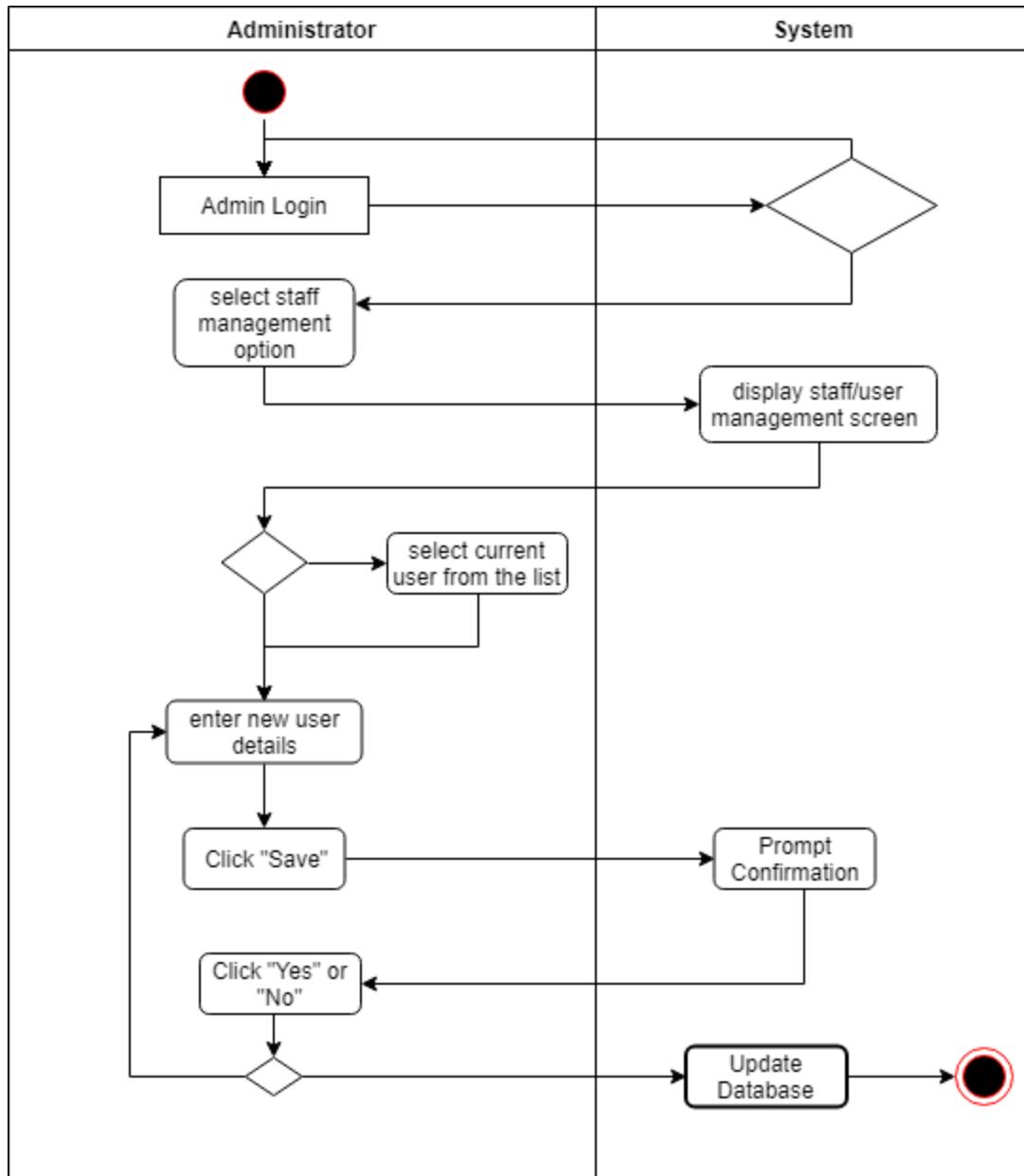
Bar Management System

4.5.4 Edit Product

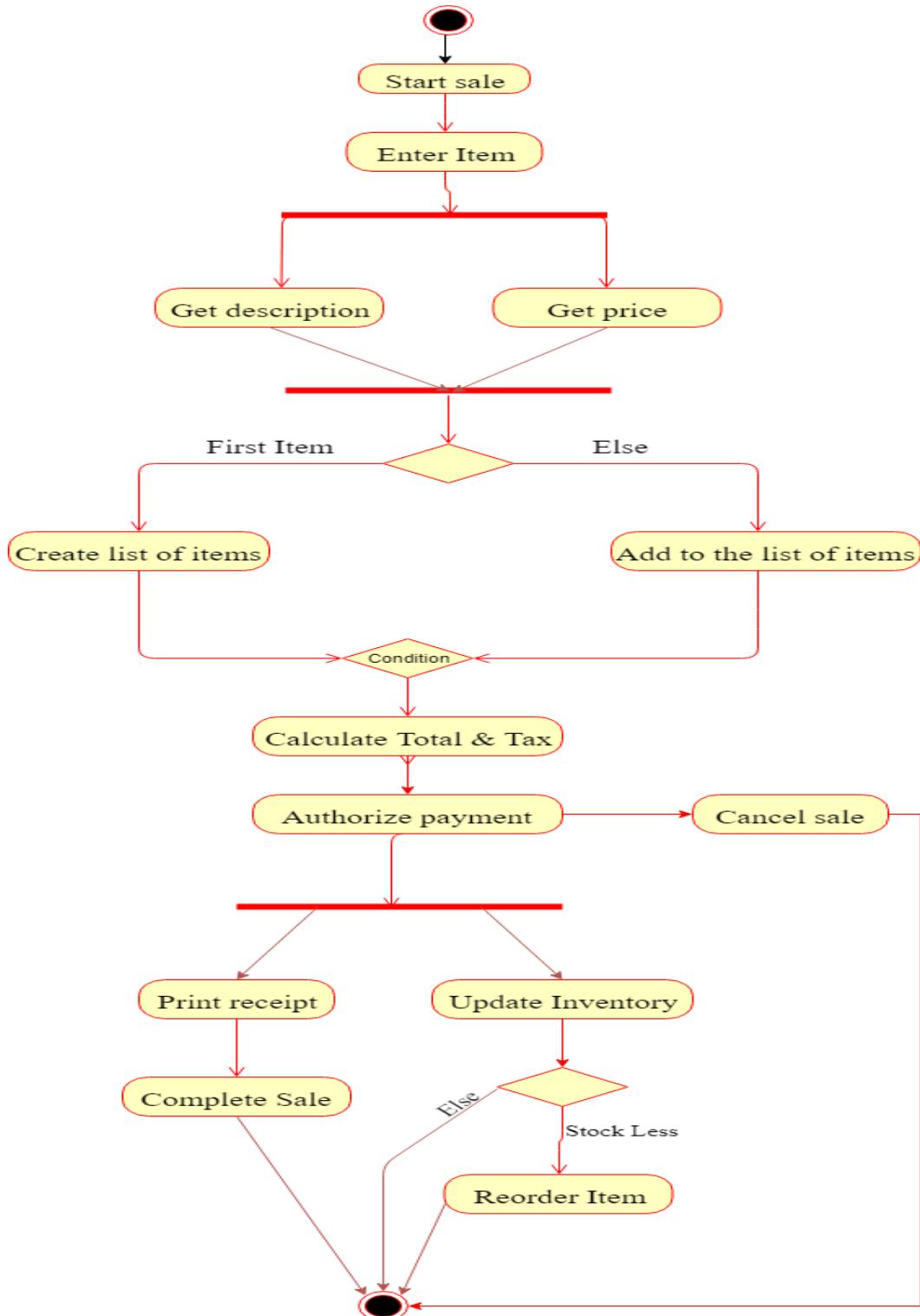


Bar Management System

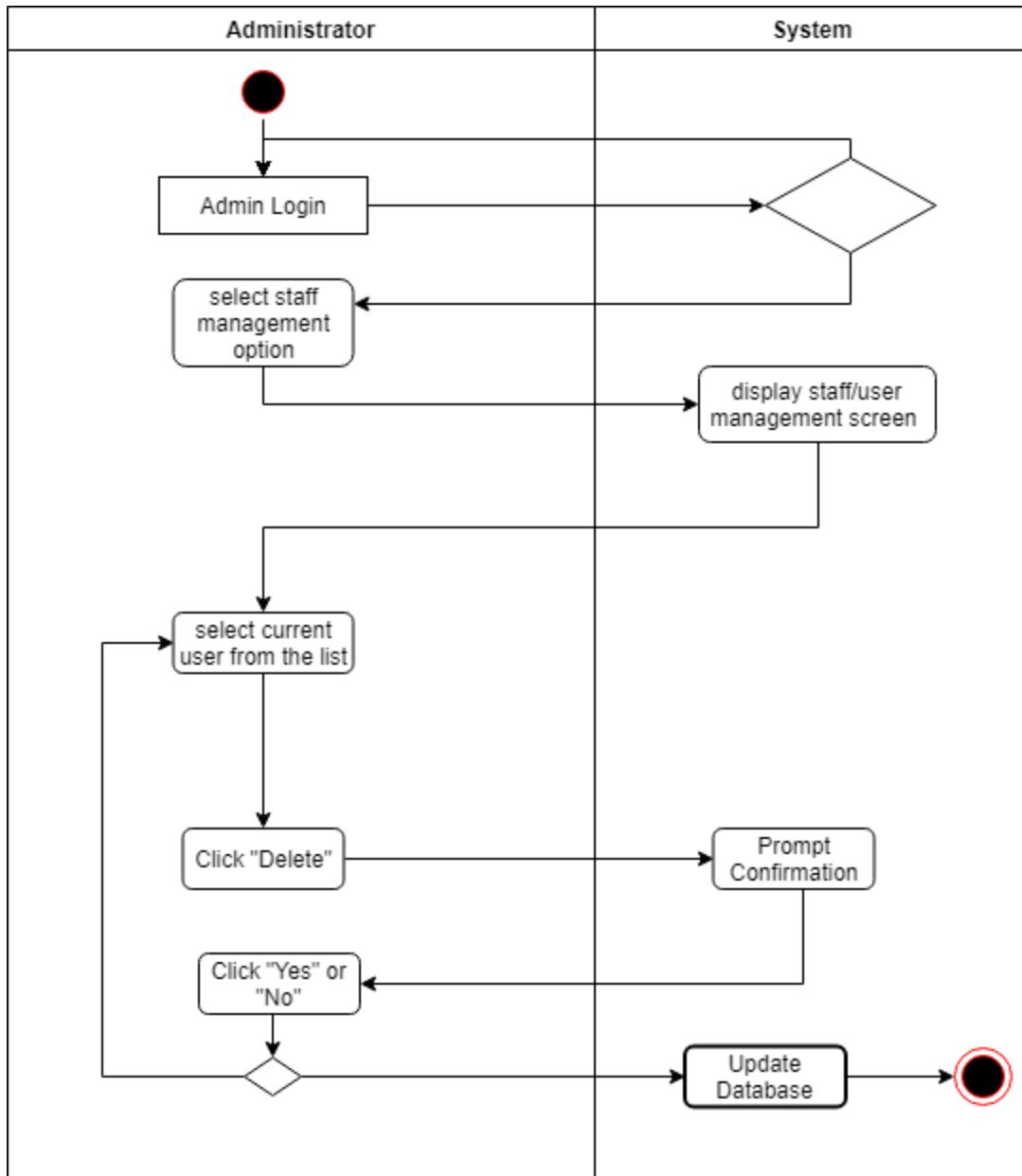
4.5.5 Add New Employee



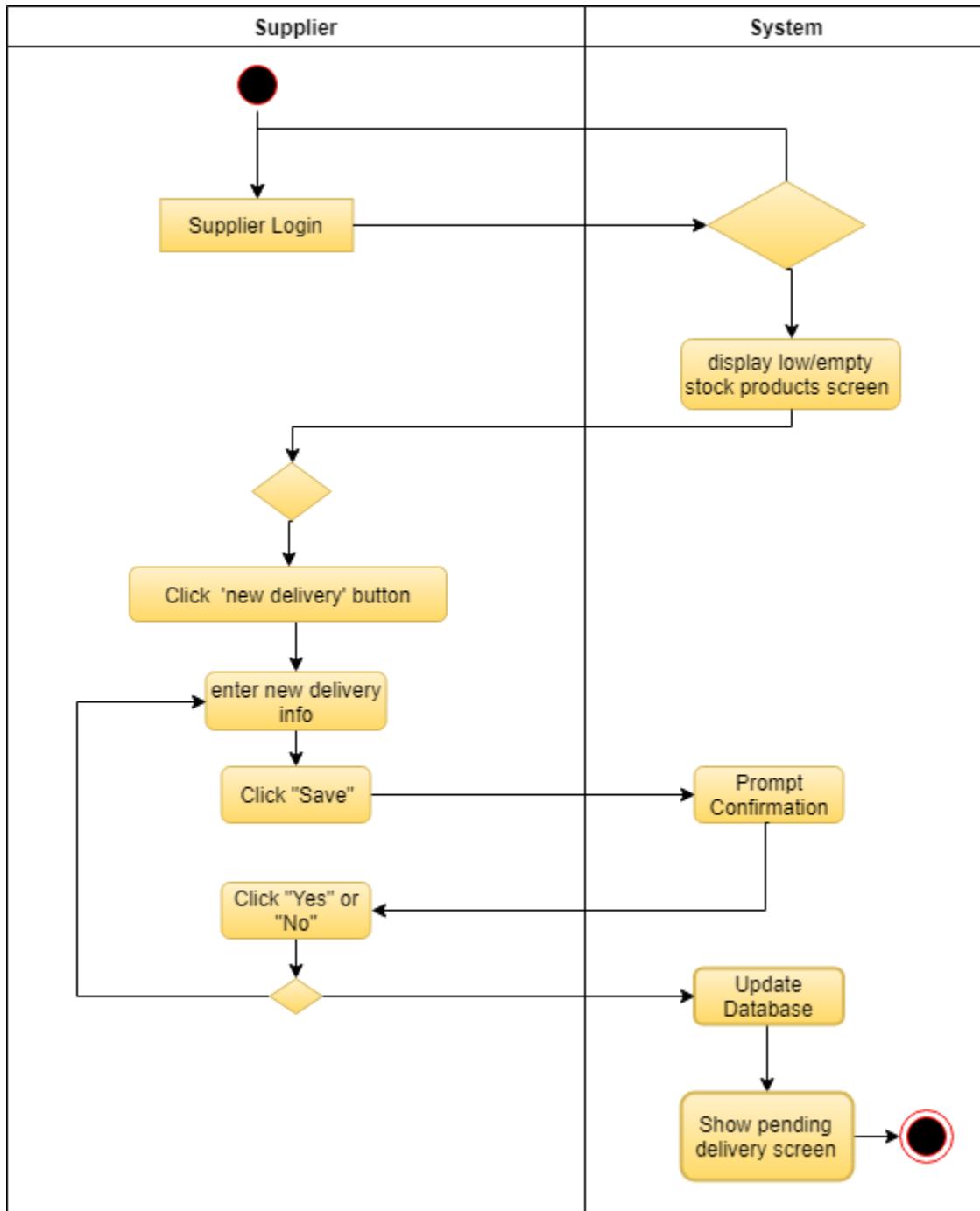
4.5.6 Sale Processing



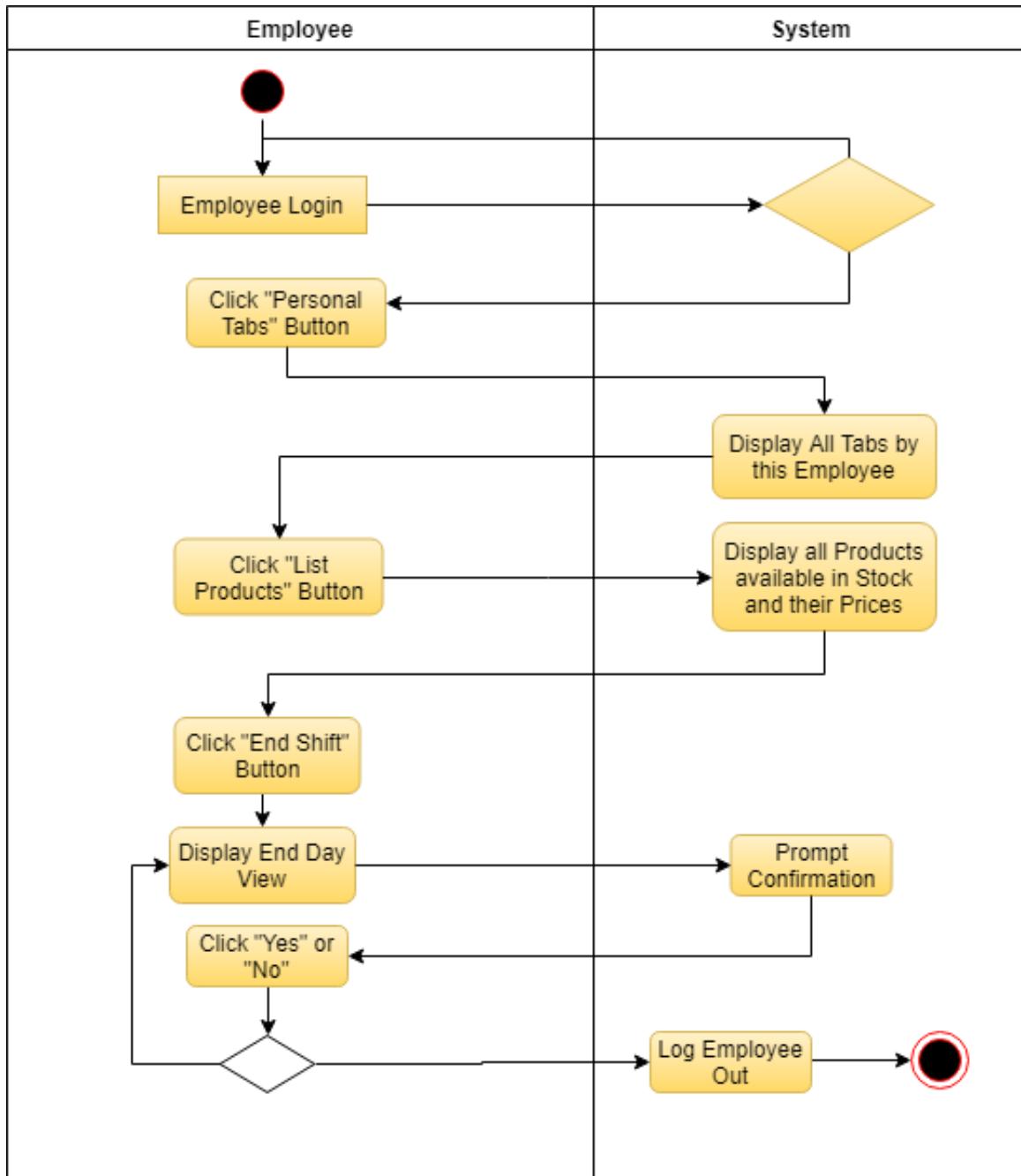
4.5.7 Delete Employee



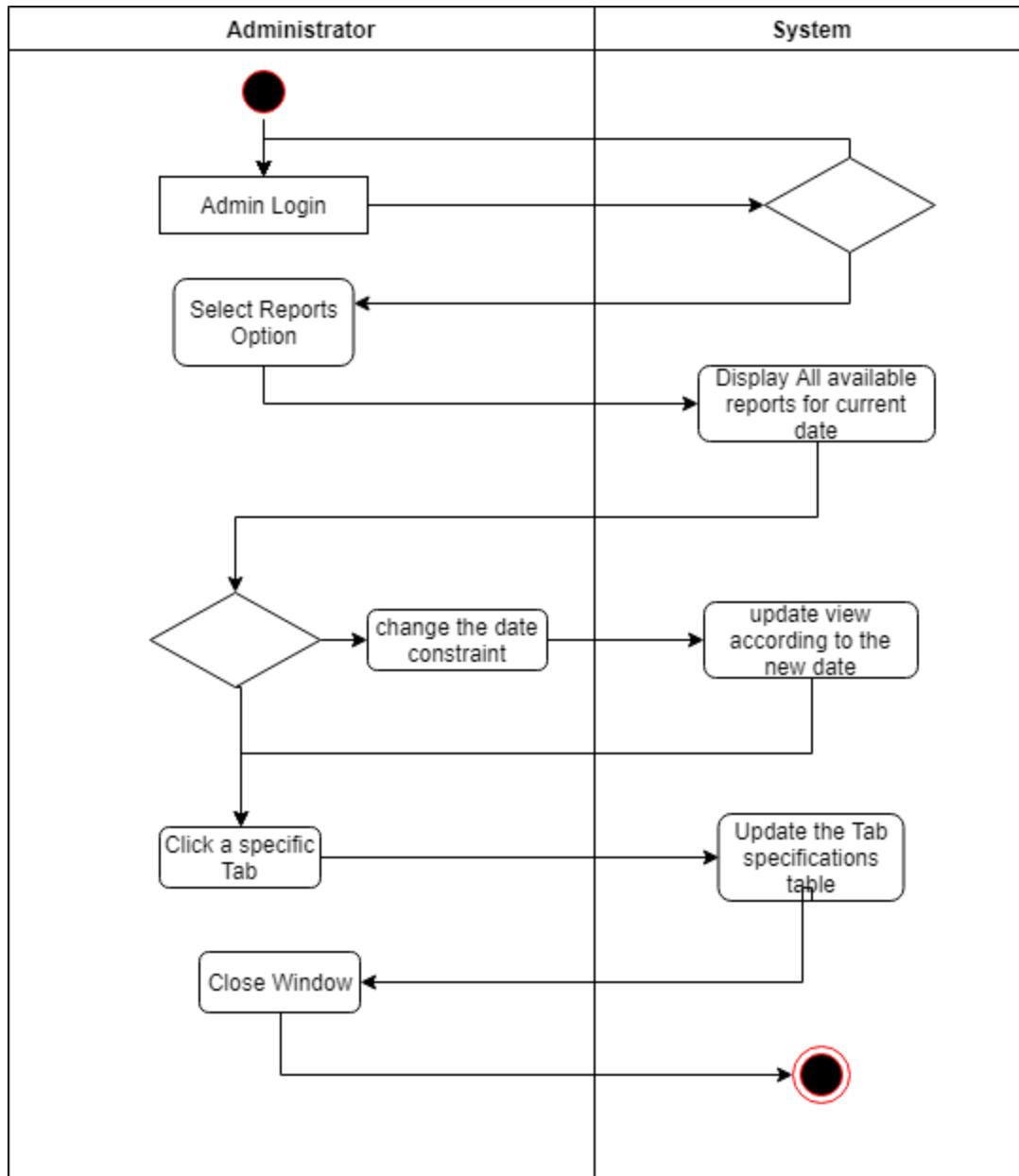
4.5.8 Supplier New Delivery



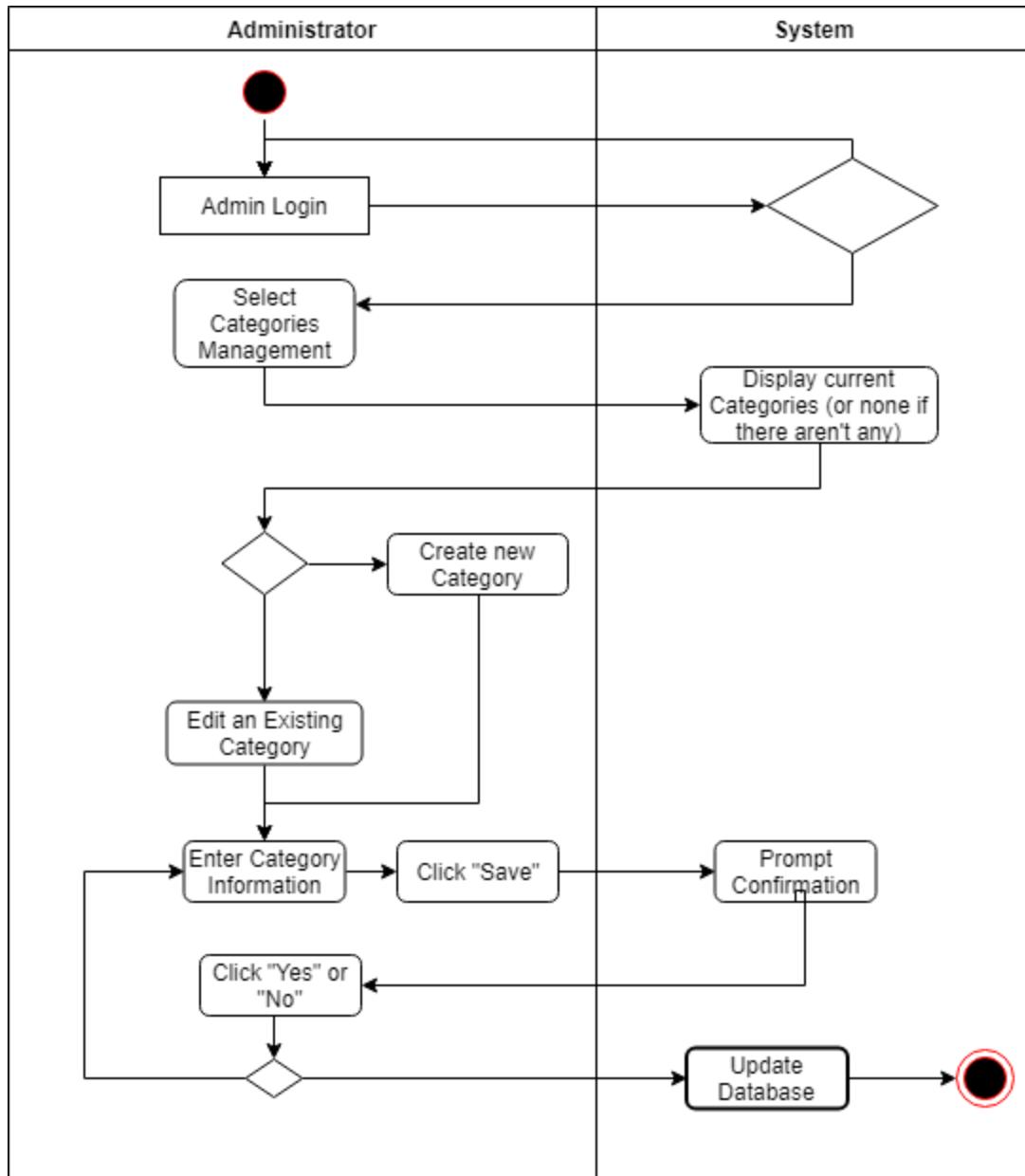
4.5.9 Employee Activities



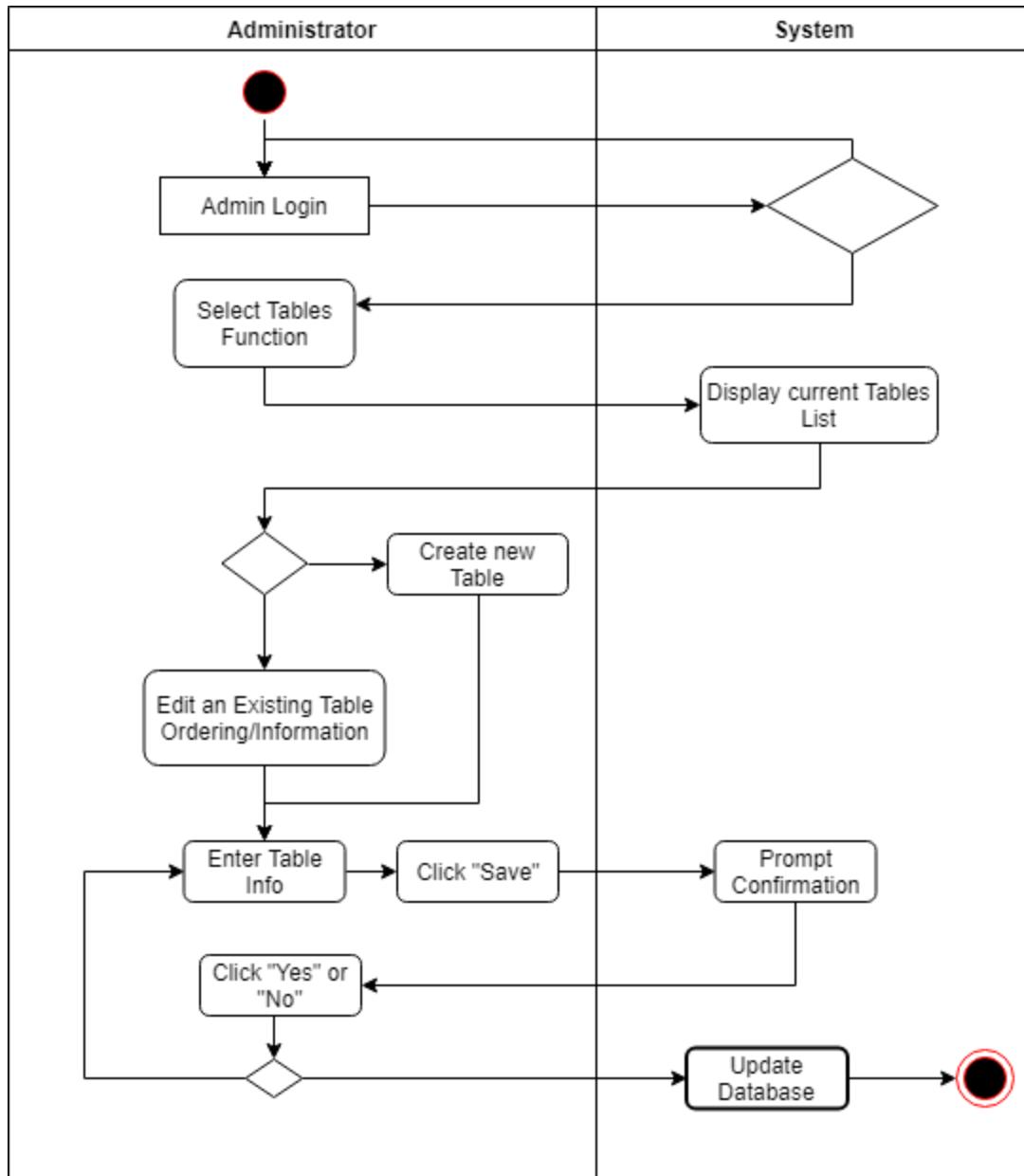
4.5.10 Reports Specifications



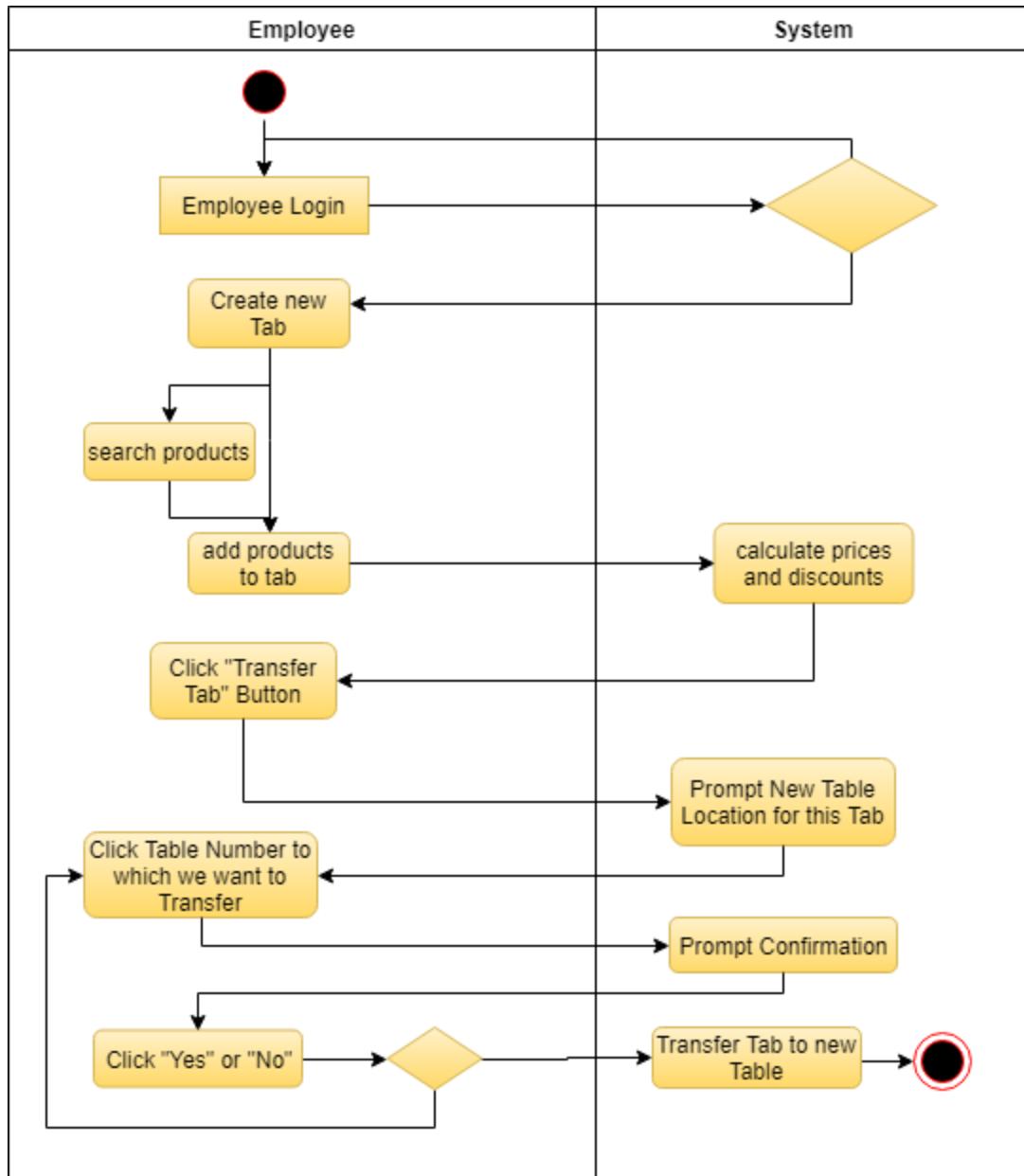
4.5.11 Add/Edit Categories



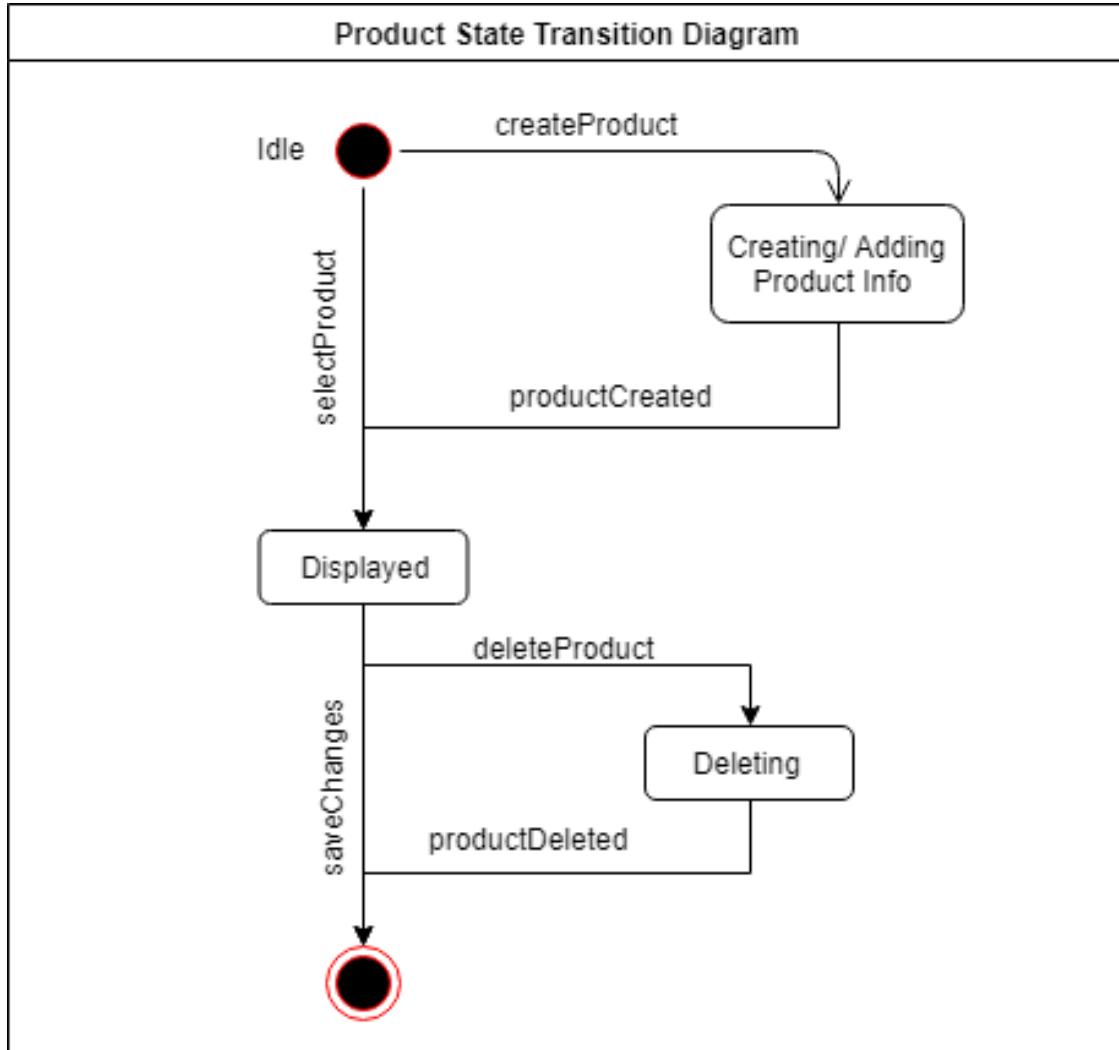
4.5.12 Add/Remove Tables



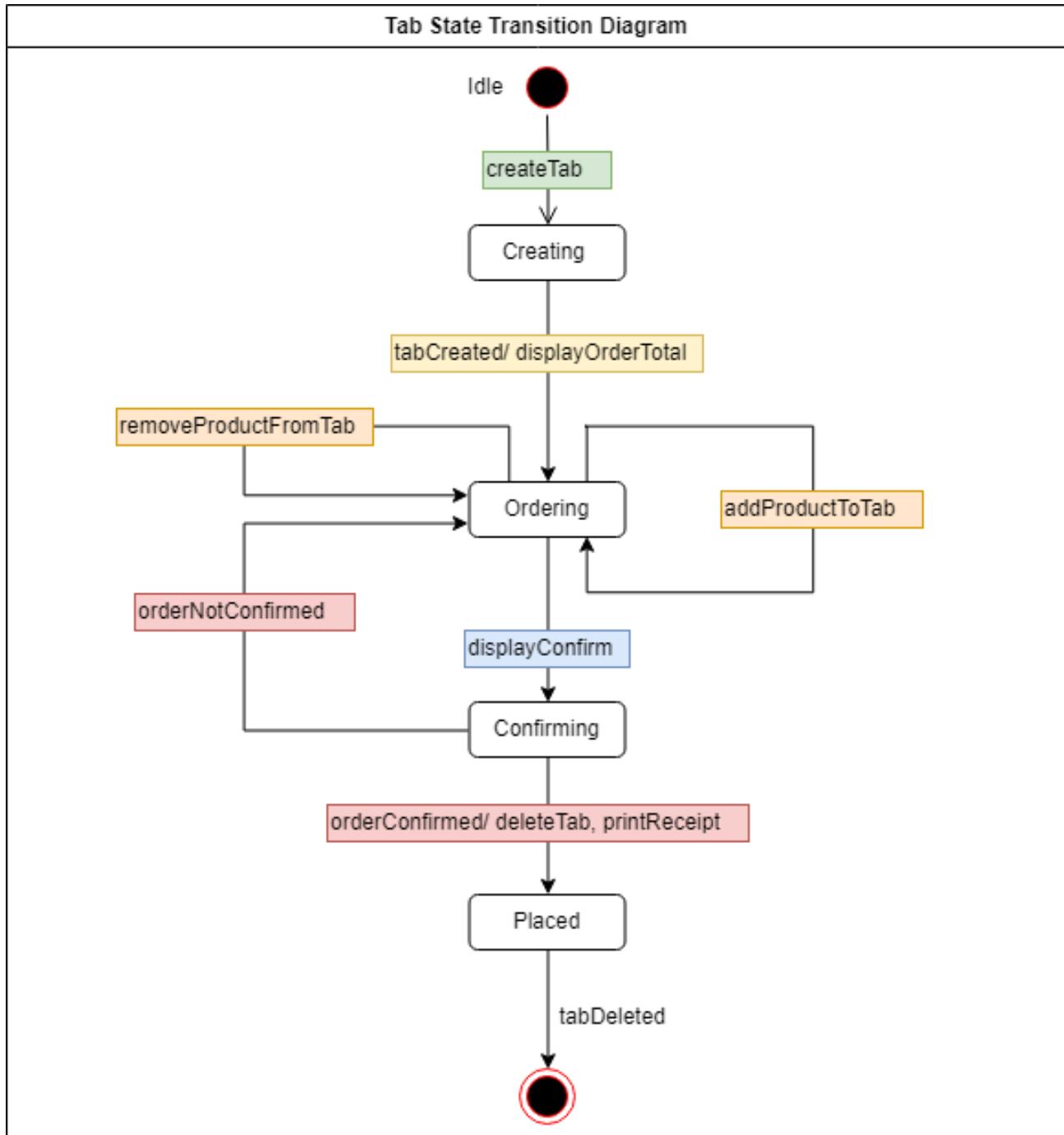
4.5.13 Transfer Tab



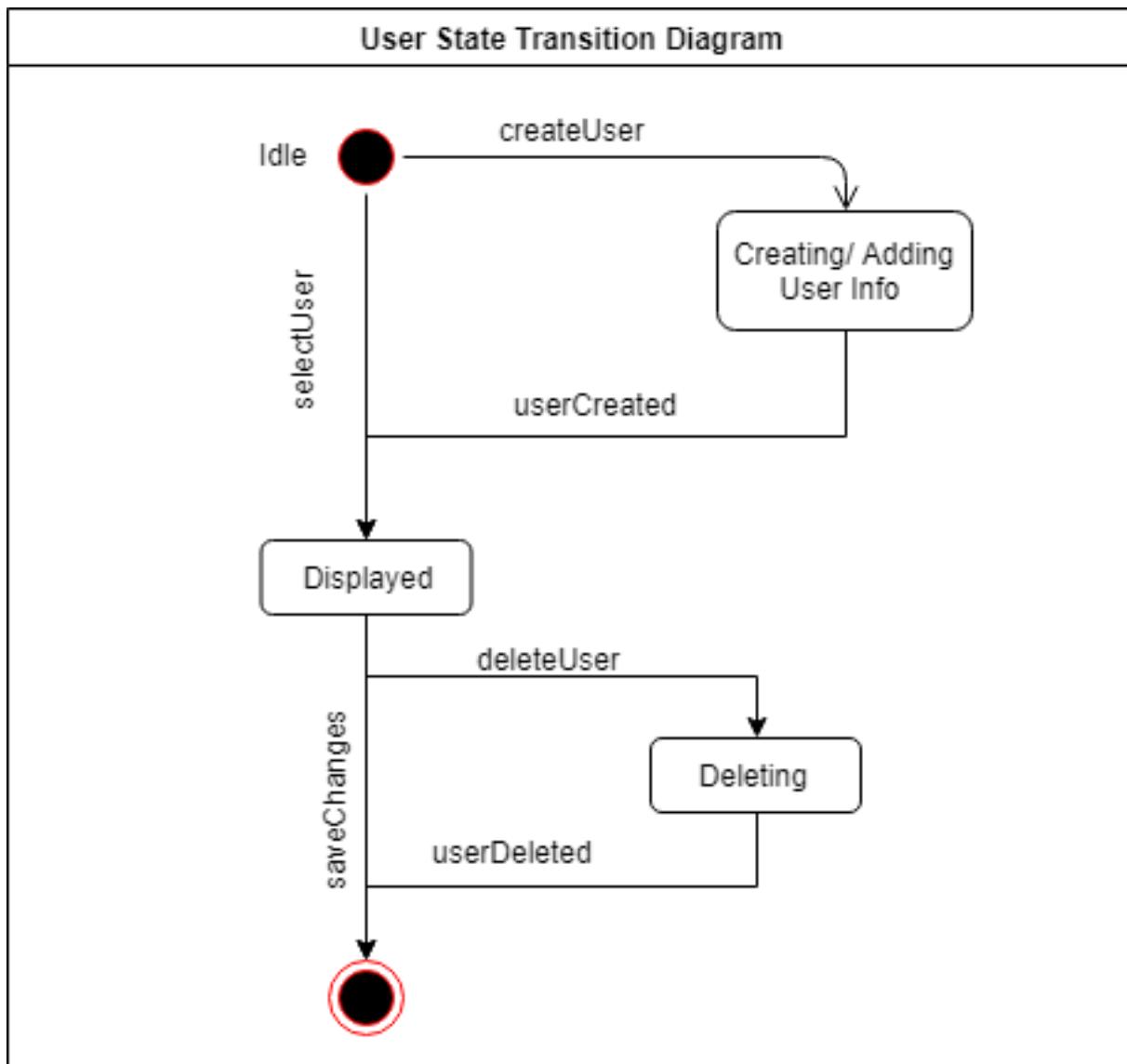
4.6 State Diagrams



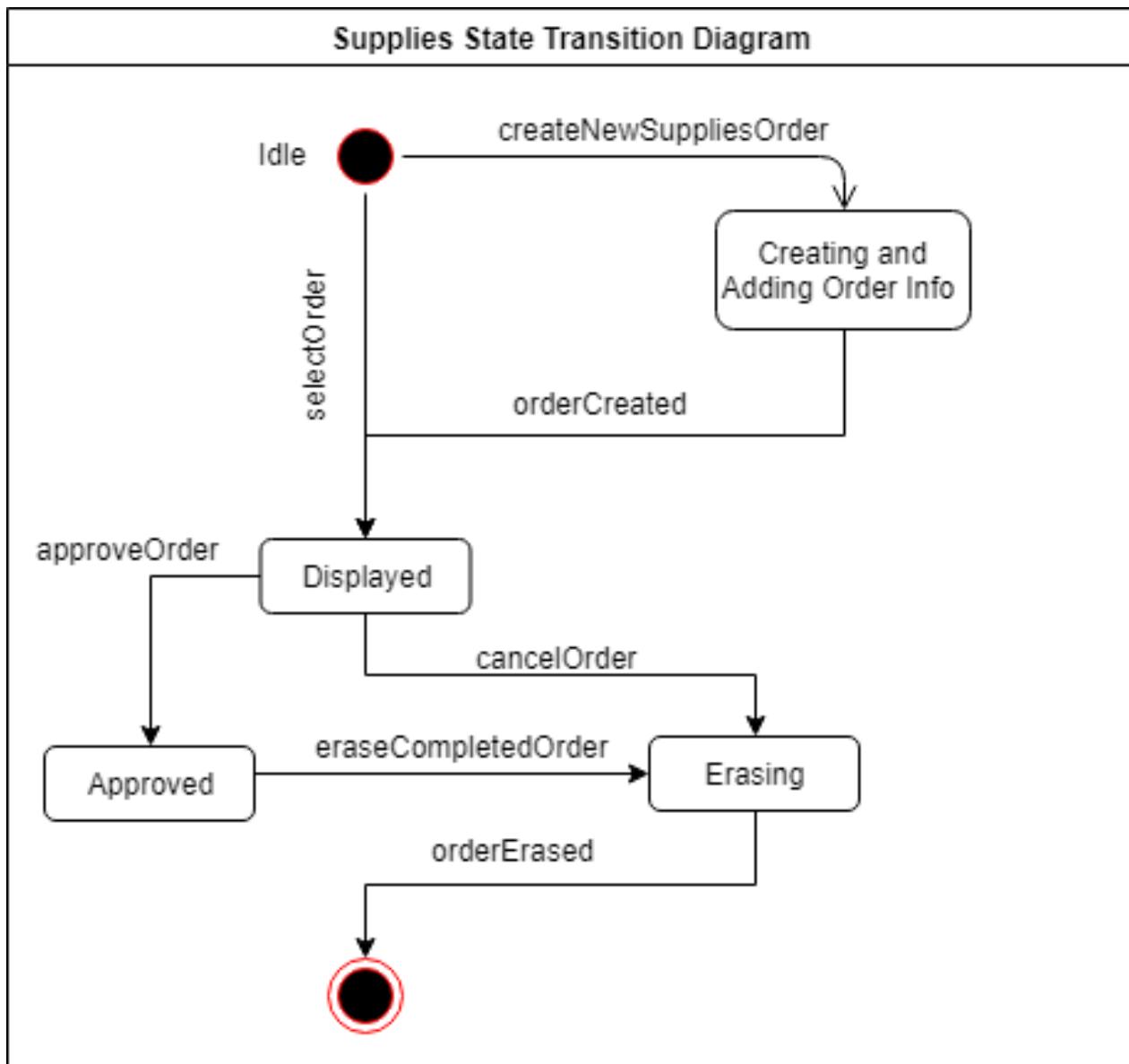
Bar Management System



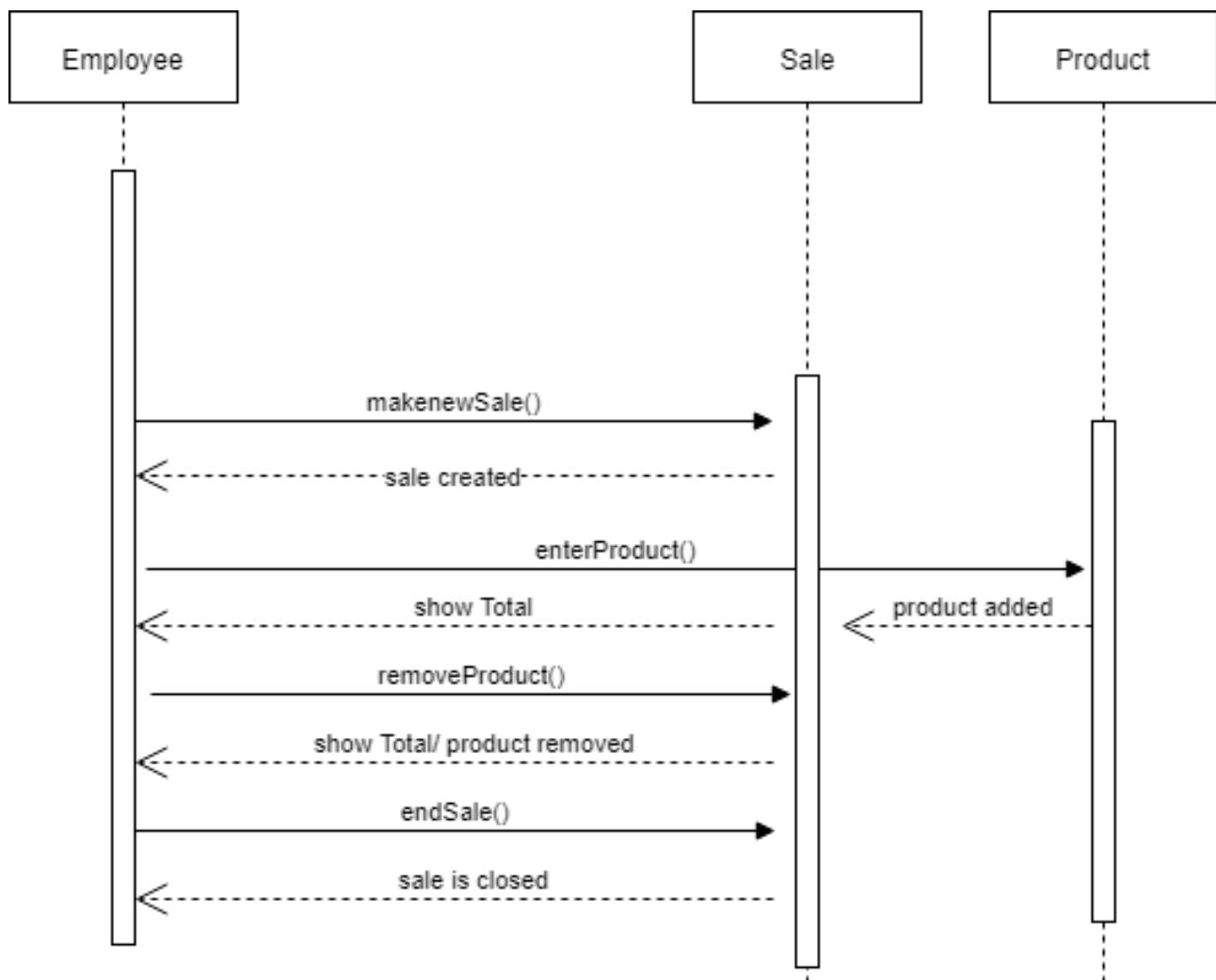
Bar Management System



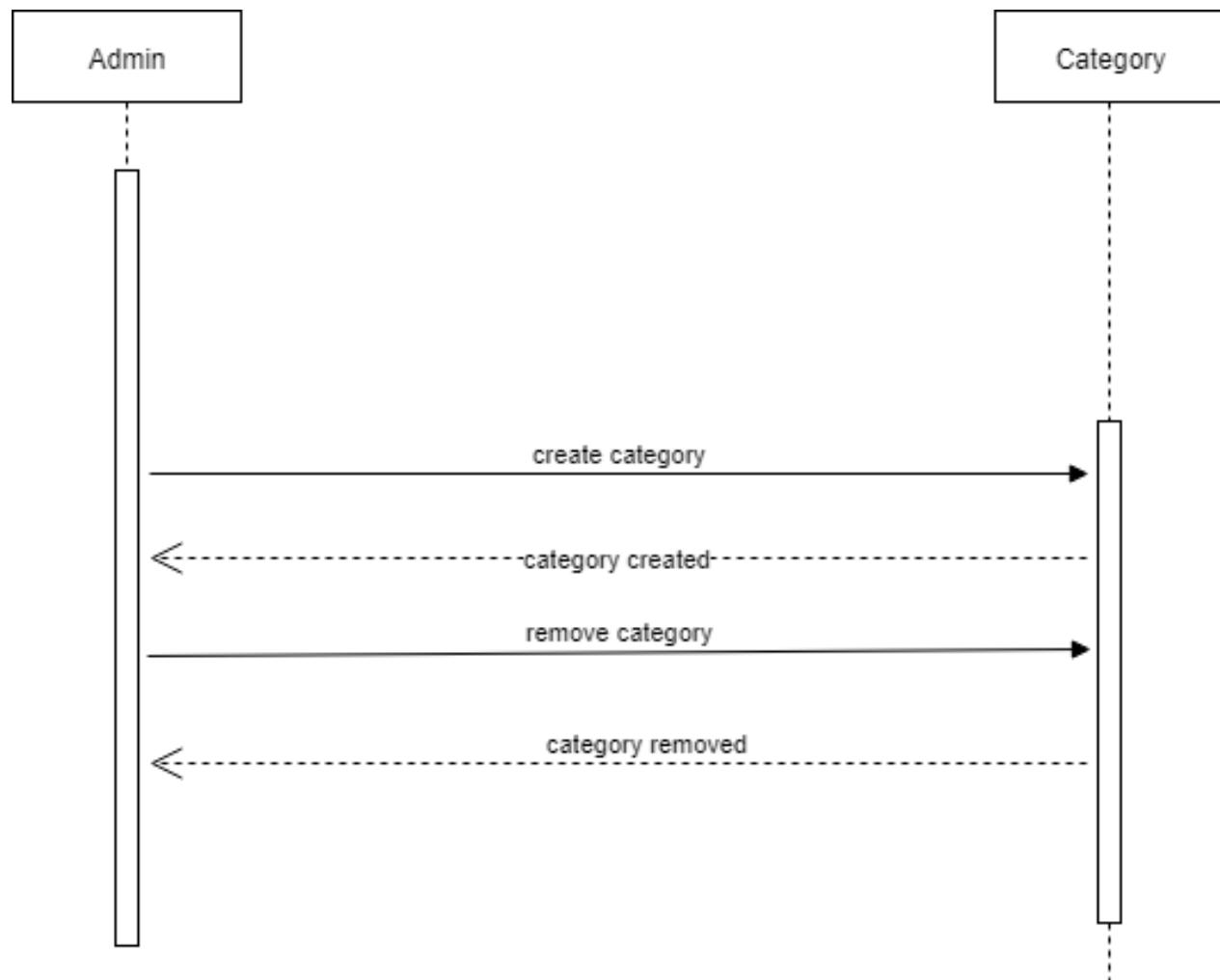
Bar Management System



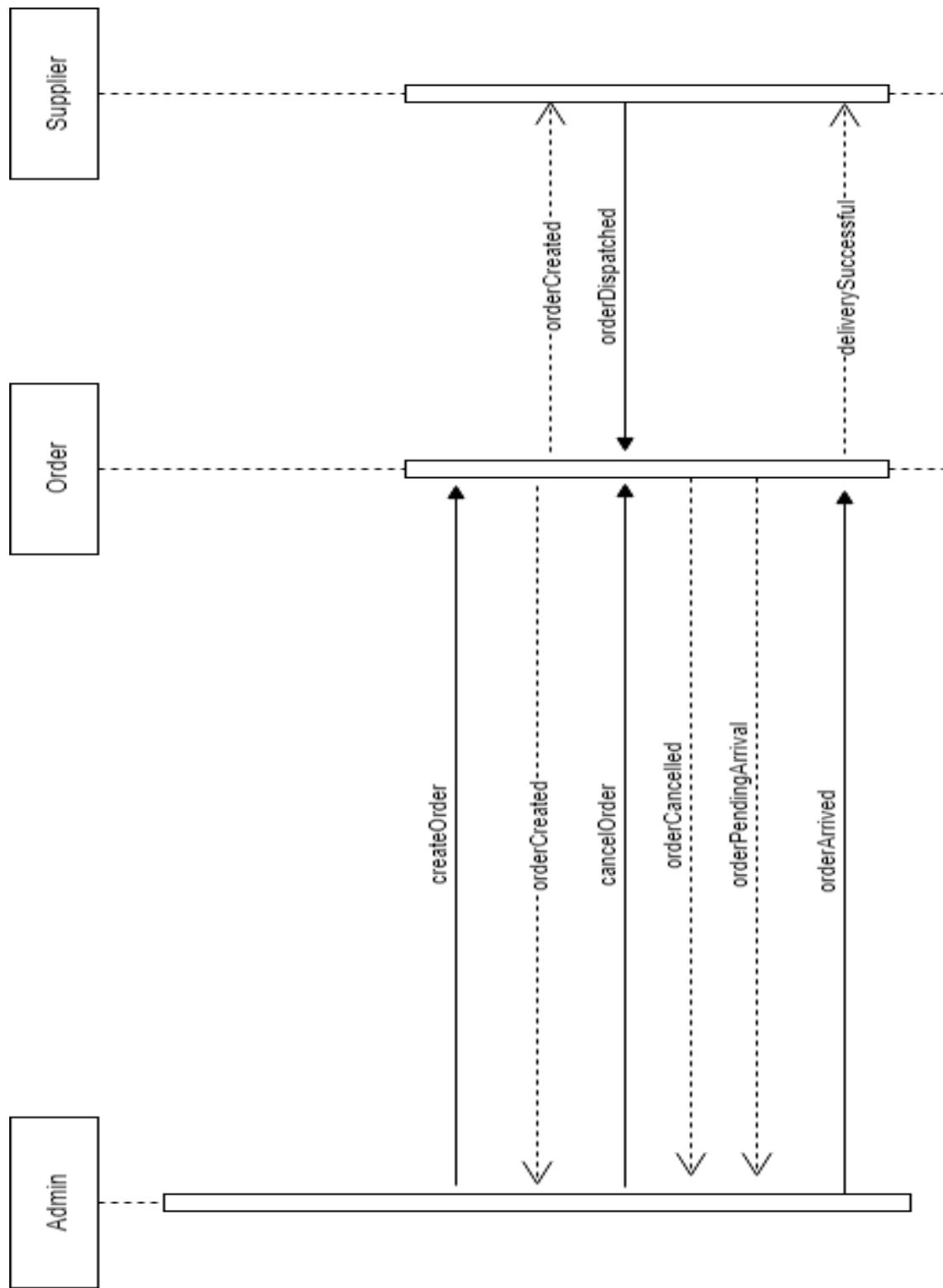
4.7 Sequence Diagrams



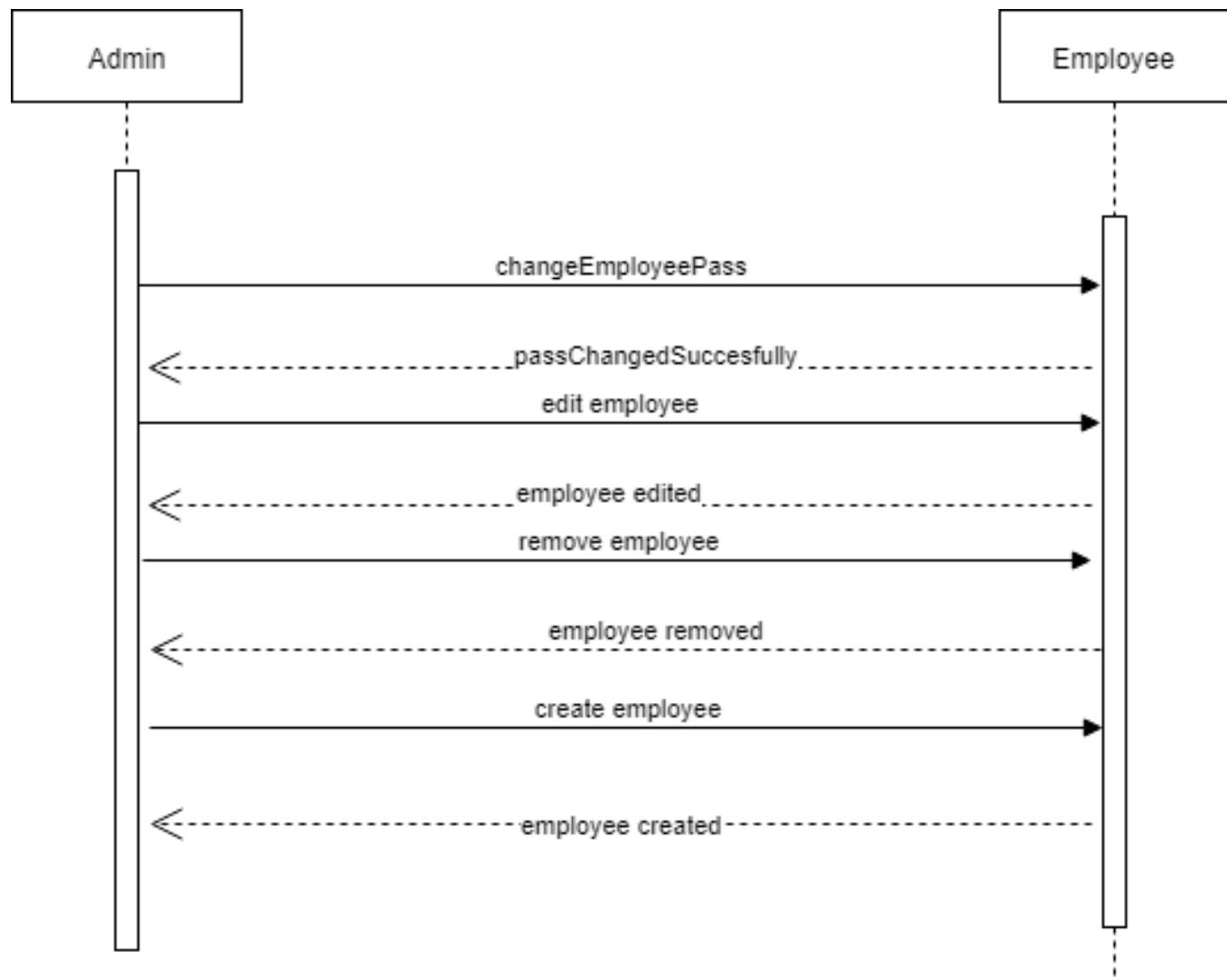
Bar Management System



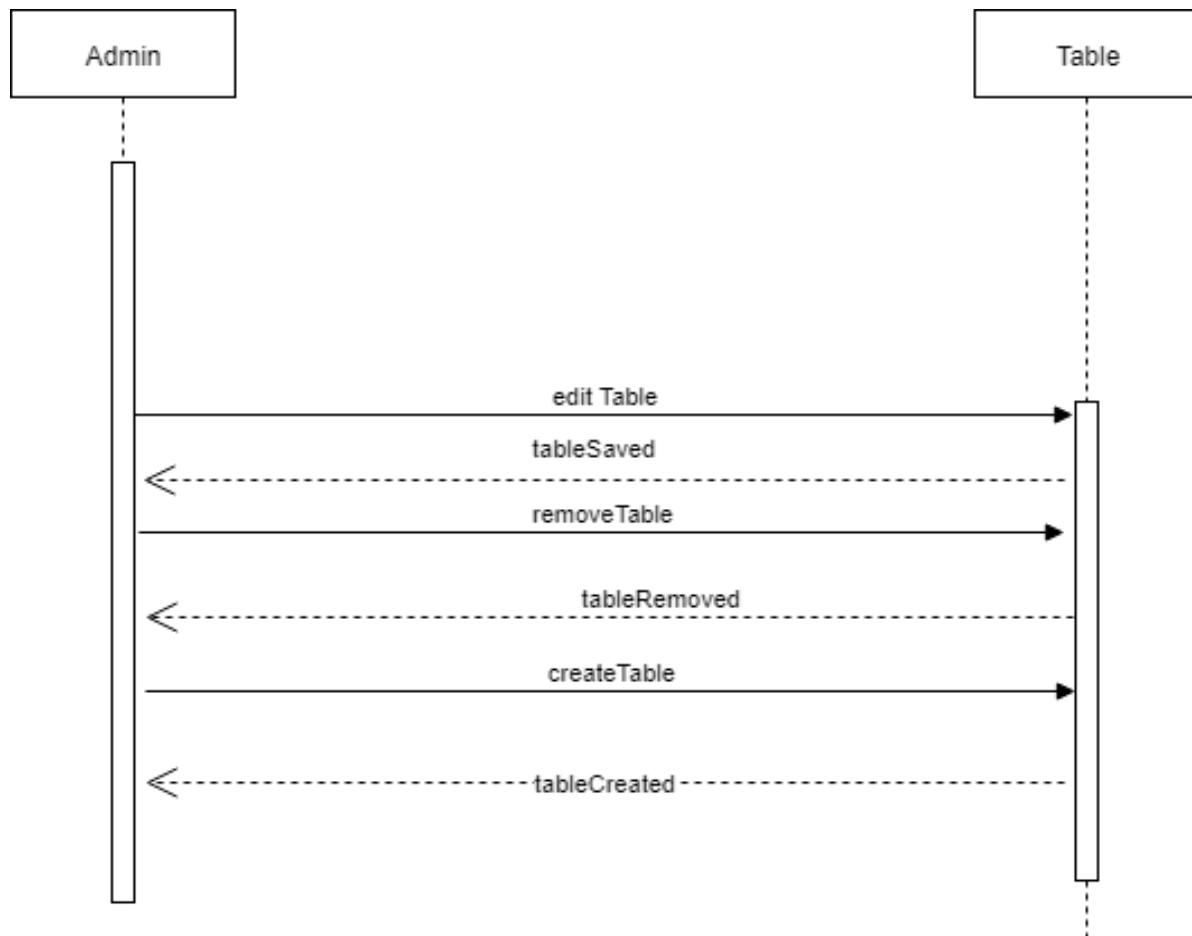
Bar Management System



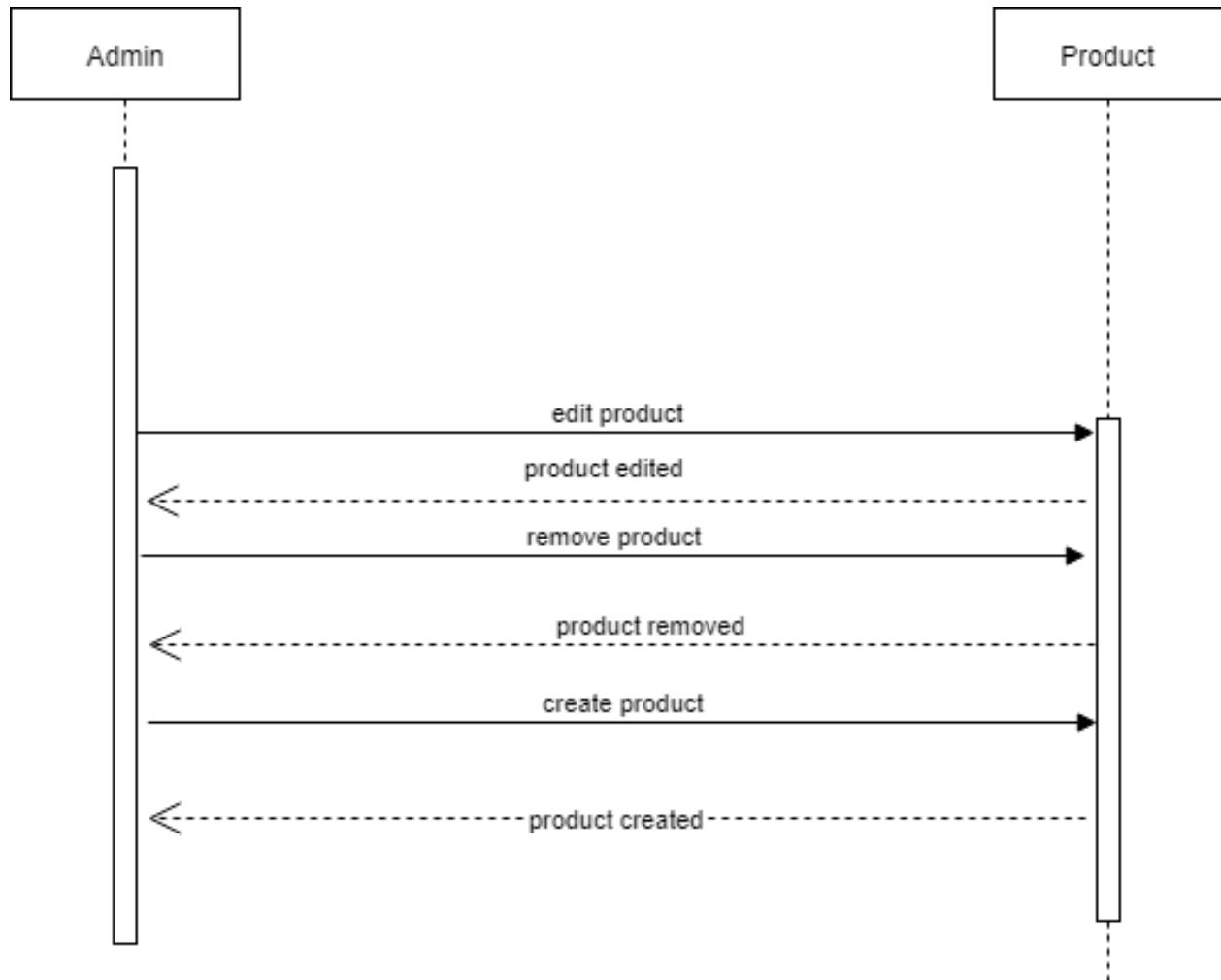
Bar Management System



Bar Management System

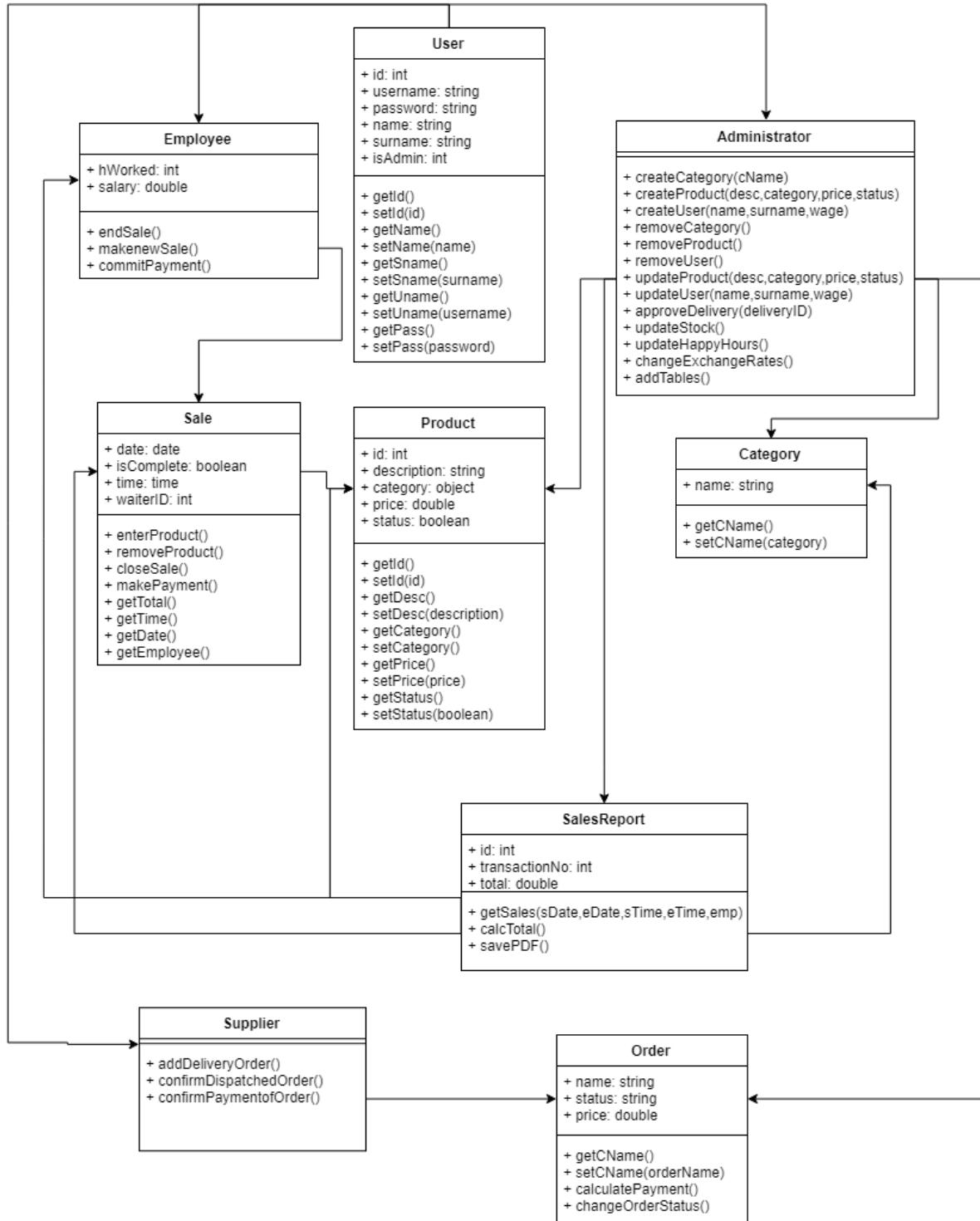


Bar Management System

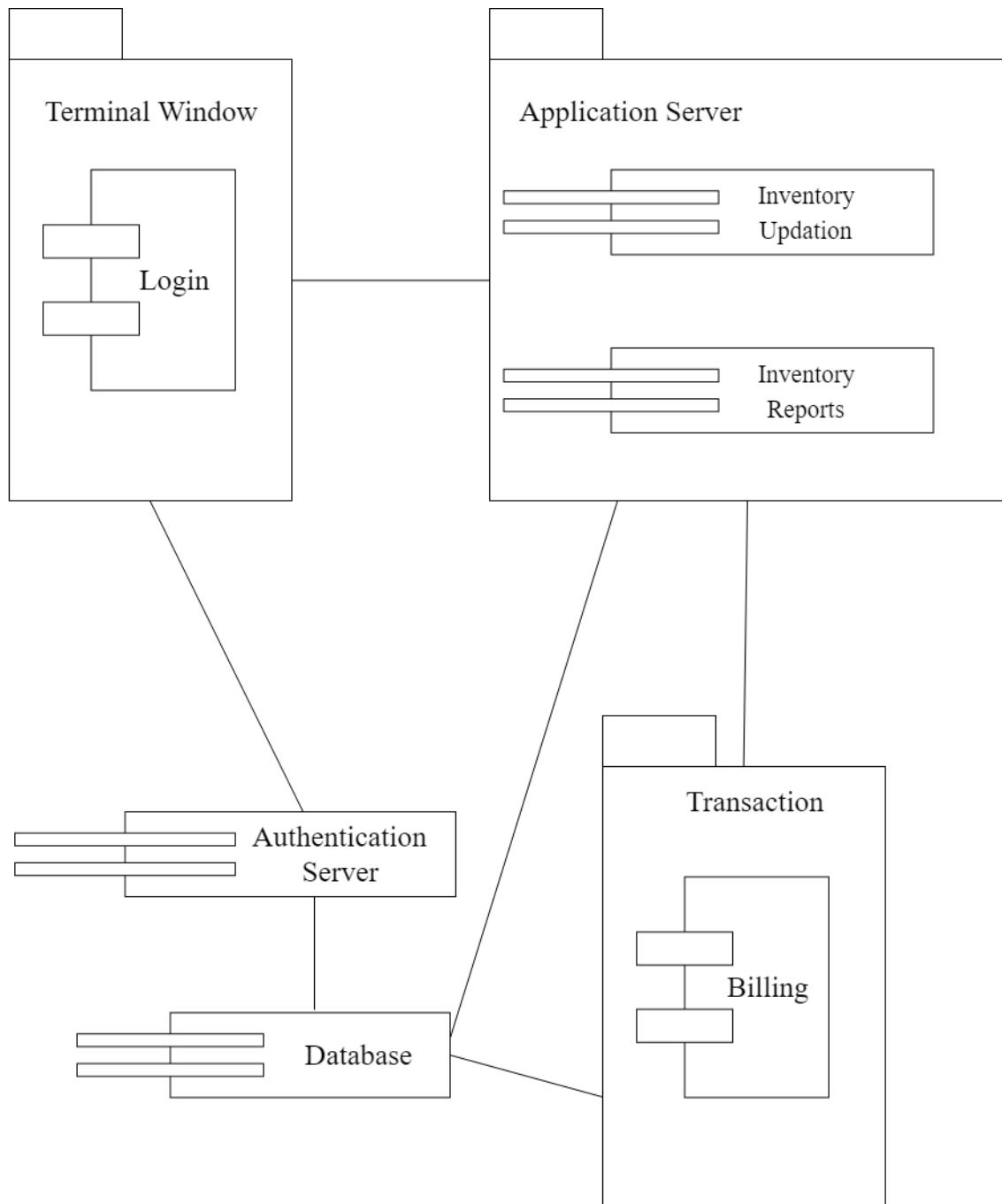


Bar Management System

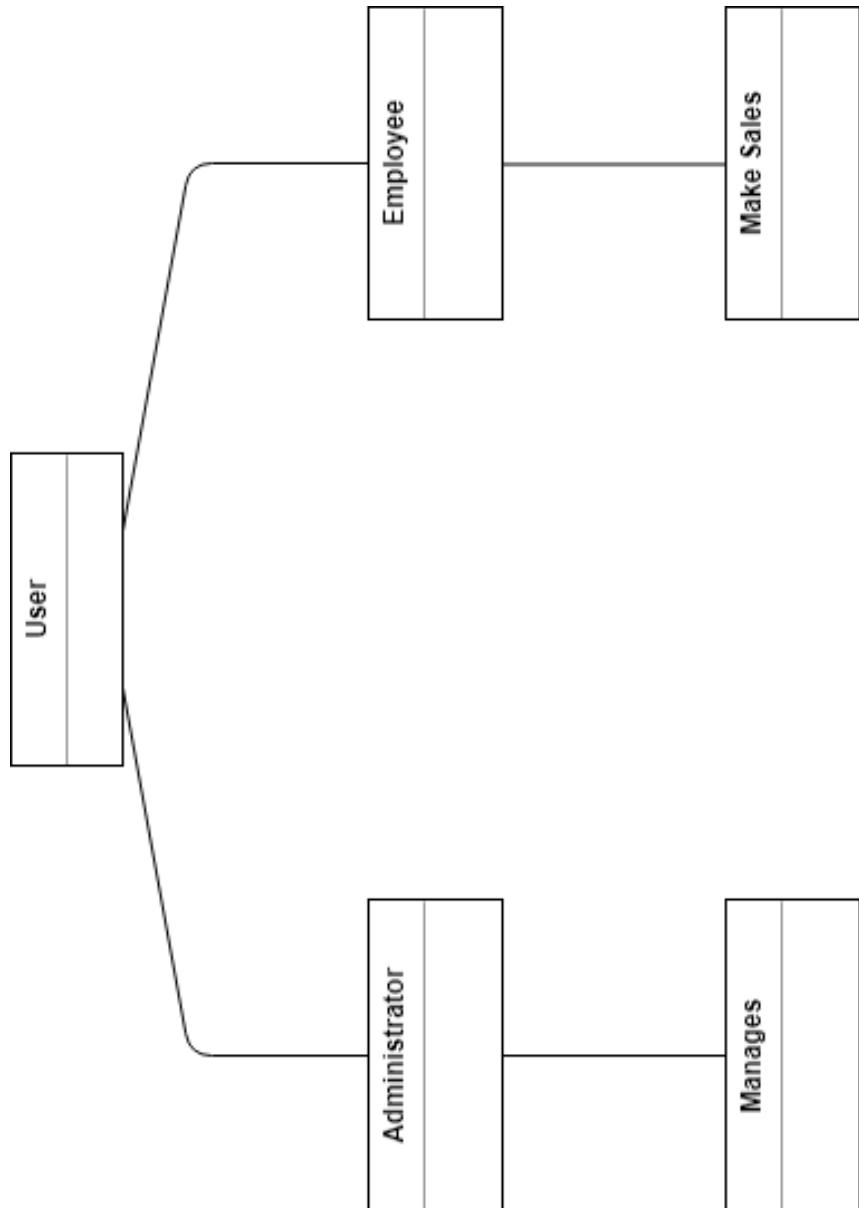
4.8 Class Diagram



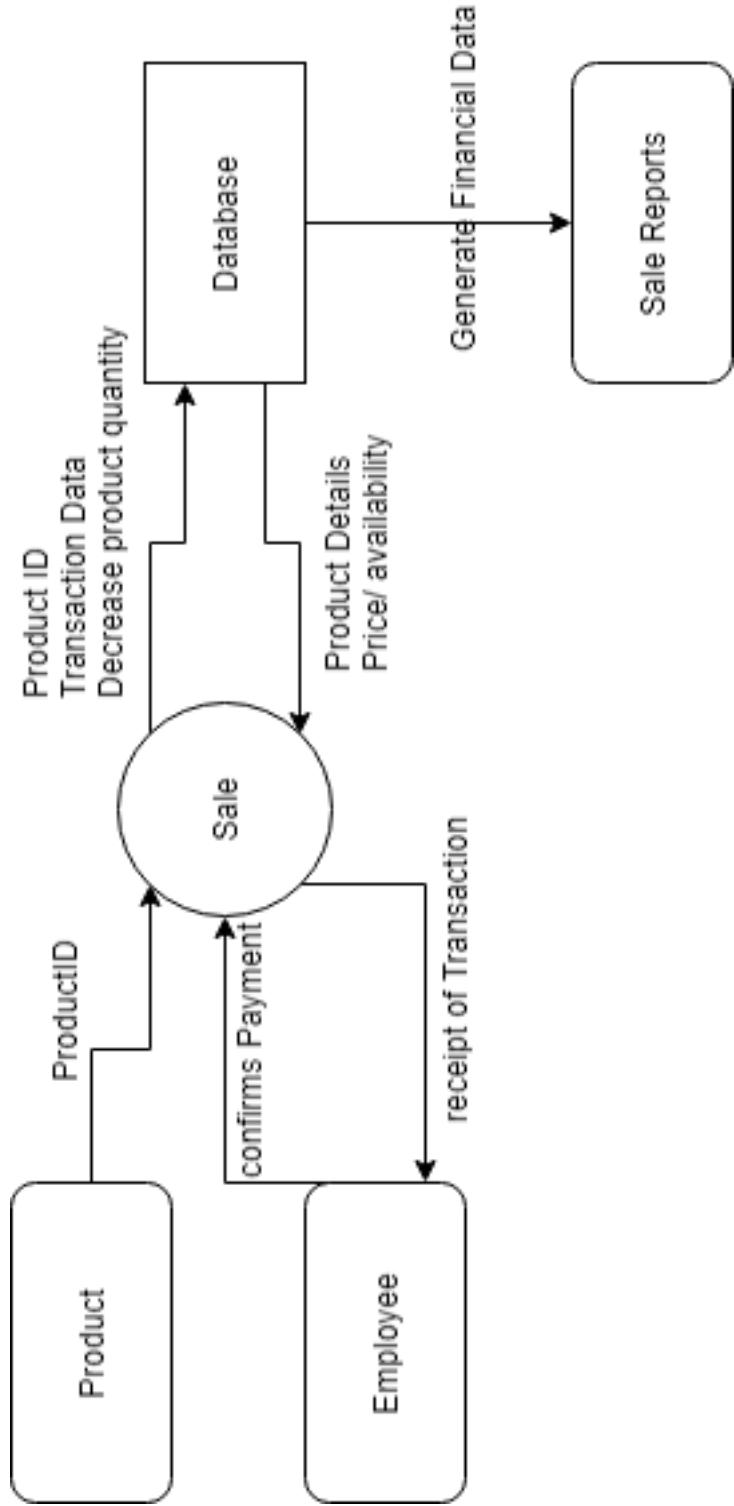
4.9 Components Diagram



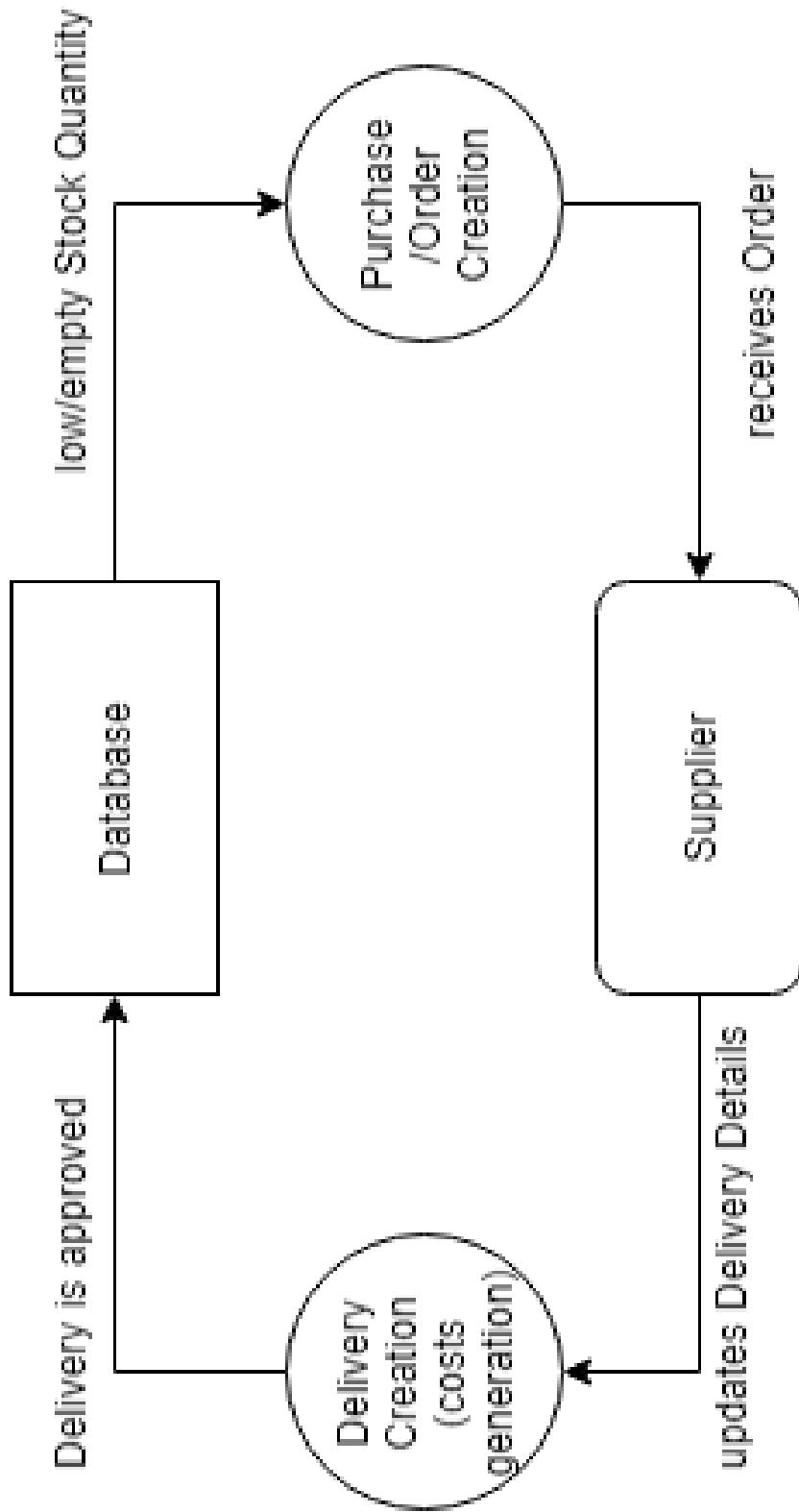
4.10 Object Diagram



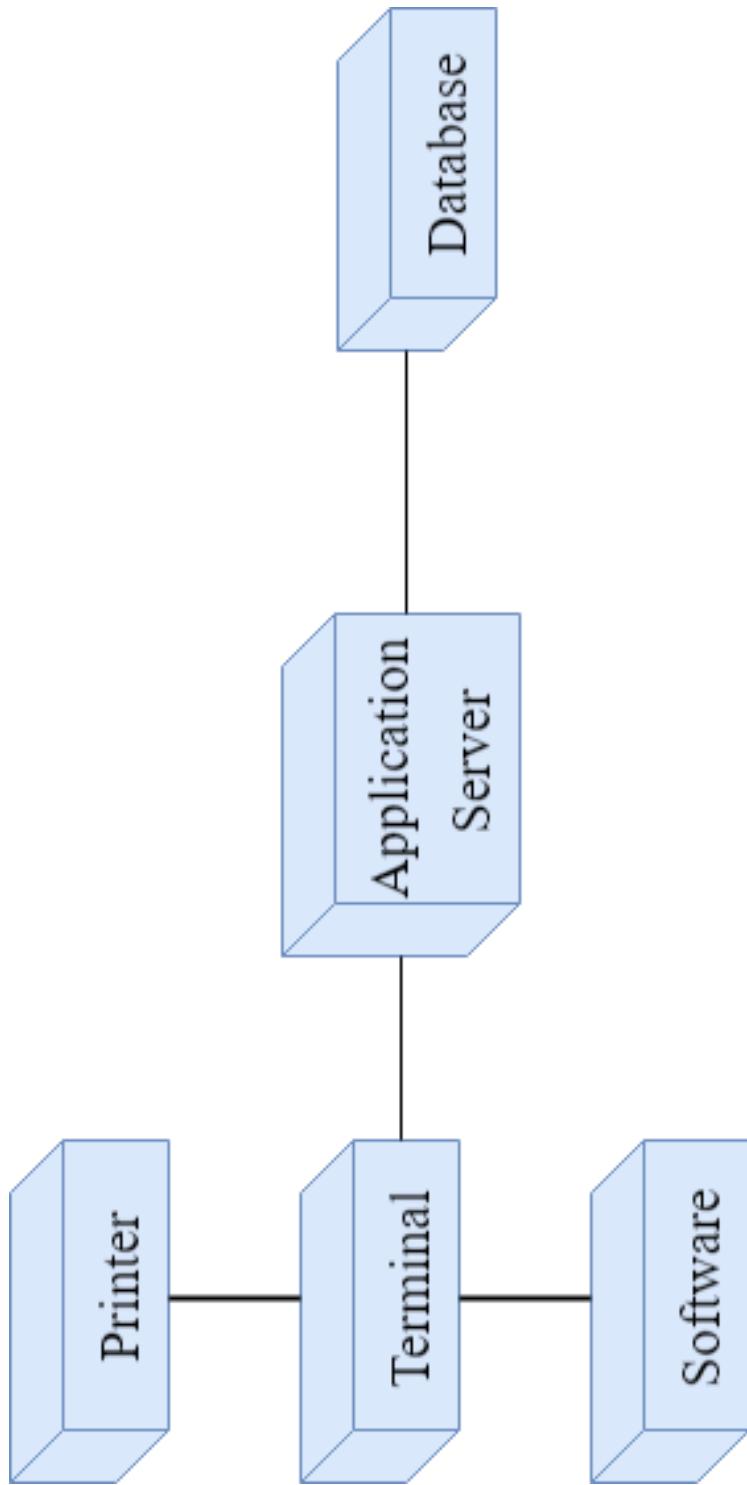
4.11 Data Flow Diagram



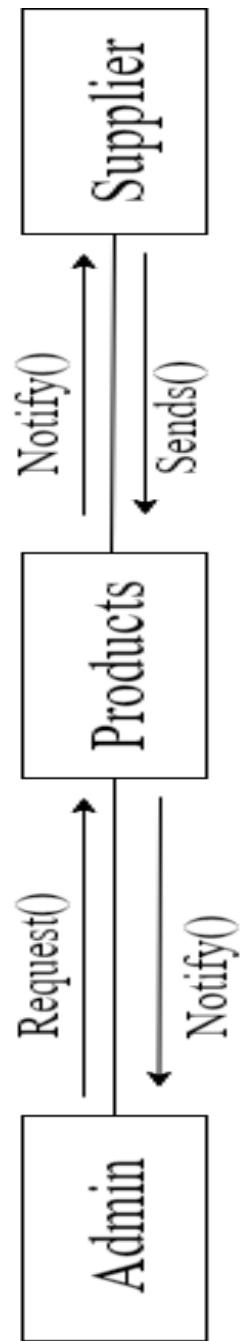
Bar Management System



4.12 Deployment Diagram

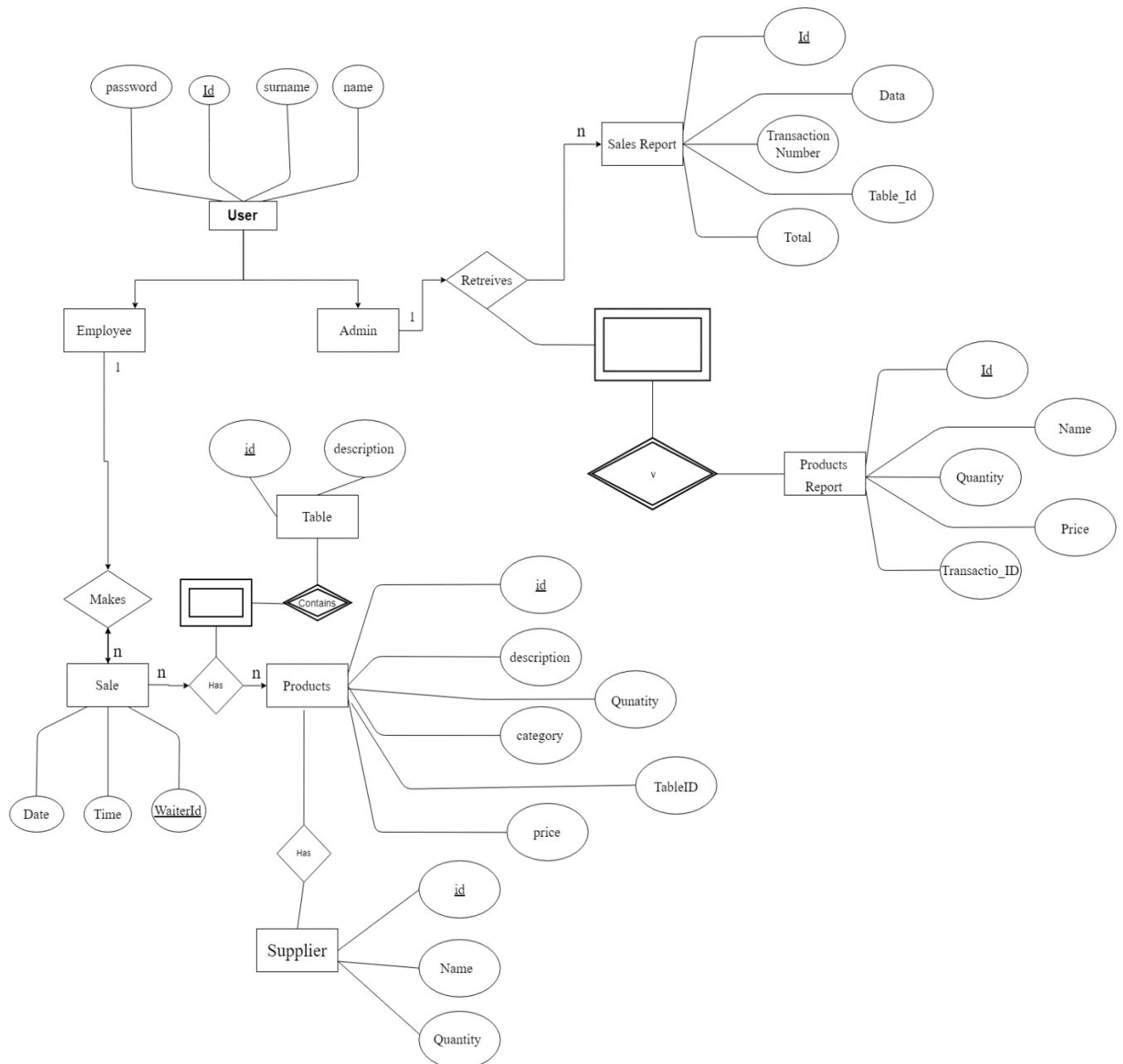


4.13 Collaboration Diagram



Bar Management System

4.14 ER Diagram



5. Implementation Technology

For the implementation of this project and as we specified in our repository main page we considered a dynamic approach to software implementation procedures. BarManagementSystem is a standardized Windows Application, developed in C# with the help of its internal components such as .NET4 and Windows Forms to display each image. We chose this approach as it is not only suitable for our project's scope but also because we decided as a team to challenge ourselves into coding in a new programming language to which we had never been introduced before. In order to create BarManagementSystem we had to explore multiple modules implemented inside C#'s ideal IDE: Visual Studio 2017.

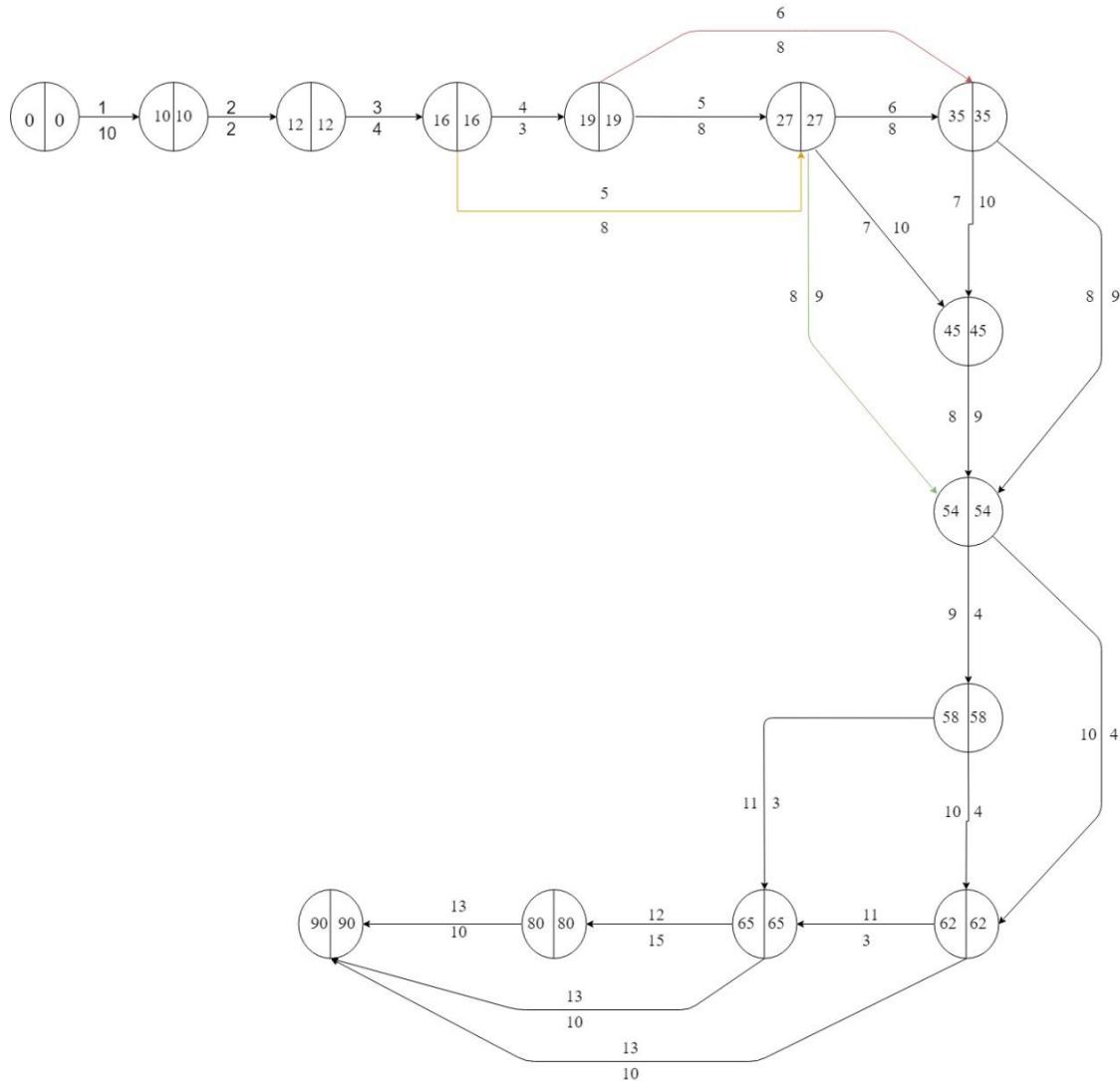
Some of which included:

- Microsoft SQL Server Tools Extensibility
- Microsoft SQL Server Database File (SqlClient)
- Entity Framework DB Context Scope
- Windows Forms Libraries
- System Data and Drawing Libraries

6. Project Planning

Number	Activity	Duration	Dependencies
1	Propose topics for the project	10	
2	Decide the topic	2	1
3	Project description	4	2
4	Structure	3	3
5	Working on requirements(specification)	8	3,4
6	Sketches, UML, Use Cases	8	4,5
7	User Scenarios, Use Case Diagrams	10	5,6
8	Sequence, State, Activity and Collaboration Diagrams	9	5,6,7
9	ER, DFD Diagrams	4	8
10	Class, Object, Component, Deployment Diagrams	4	8,9
11	Structure of the database	3	9,10
12	Design & Code	15	11
13	Finish & Installation	10	10,11,12

Bar Management System



Bar Management System



APPENDIX

APPENDIX A

Definitions, Acronyms and Abbreviations

- [1] The term ‘Tab’ is usually referred in this text as the currently opened order and to-be-printed receipt. Tab also refers to bills generated by the system with the information necessary to complete each sale
- [2] The term ‘Exception’ is used to represent errors which may be returned from the system in cases of faulty actions
- [3] ‘GUI’ is an acronym for the Graphical User Interface or the actual program which will interact with users to provide the specified facilities.
- [4] ‘CRUD’ stands for create, read, update, and delete. In this case CRUD refers to creating different instances of Users, Products, Categories, Tables or Orders.
- [5] ‘SQL’ means Structured Query Language which is the programming query language used to access, update and remove database information through back end programming.
- [6] ‘VAT’ is a value-added tax, also known as a consumption tax placed on a product whenever value is added at each stage of the supply chain, from production to the point of sale.

APPENDIX B

References

- [1] LIGJ Nr. 92/2014 PËR TATIMIN MBI VLERËN E SHTUAR NË REPUBLIKËN E SHQIPËRISË
- [2] Visual Diagrams Developed with:
[\[https://www.draw.io\]](https://www.draw.io)
- [3] IDE used during development:
[\[https://www.visualstudio.com/\]](https://www.visualstudio.com/)
- [4] Official Repository of this Project:
[\[https://github.com/oruda15/BarManagementSystem\]](https://github.com/oruda15/BarManagementSystem)

APPENDIX C

Screenshots

Kategoritë

- Te Ngrohta
- Pije Freskuese
- Birra
- Alkolike
- Pije Vendì
- Vere e hapur
- Vere
- Akullore
- Embelsira

Produktet

Porosia

Fatura: 04.06.2018 03:19
Kamarieri: Nr.tavoline:
Produkti Sasia Cmimi

Ospione

Faturat për tavolinën:		Totali i tavolinës:	
Nr.	Nr.Fature	Ora	Totali

Tavolinat

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Buttons at the bottom left: back, forward, close, and a red X.

Bar Management System

OrderView

Produktet		
Kafe	Makiato	Kafe_Shkurter
Kafe Amerikane	Caj i ngrohte	Cokollate e Zeze
Cokollate e Bardhe	Kakao	Kapucino

Kategoritë

- Te Ngrohta
- Pije Freskuese
- Birra
- Alkolike
- Pije Vendì
- Vere e hapur
- Vere
- Akullore
- Embelsira

Porosia

Fatura: 04.06.2018 03:20
Kamarieri: Nr.tavoline:
Produkti Sasia Cmimi

Opsione

Ju lutem zgjidhni një tavoline per te vazhduar me porositë
OK

Tavolinat

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Totali :

at për tavolinën: **Totali i tavolinës:**

Nr.	Nr.Fature	Ora	Totali

Icons:

- Printer icon
- Calculator icon
- Trash bin icon

Bar Management System

Kategoritë		Produktet		
Te Ngrohta	Fanta Portokall	Bravo Lyleshtrydhe	Bravo Rrushi	
	Bravo Molle	Bravo Pjeshke	Fanta Exotic	
	Ivi	Lemon Soda	Uje Pa Gaz	
	Uje Me Gaz	Cola		
Pije Freskuese				
Birra				
Alkolike				
Pije Vendí				
Vere e hapur				
Vere				
Akullore				
Embelsira				

←
→

X
↶

Porosia

Fatura: Data: 04.06.2018 03:20
 Kamarieri: Nr:tavoline: 5

Produkti	Sasia	Cmimi
Caj i ngrohte.	1	80
Cokollate e Zeze.	2	300
Bravo Molle.	1	180
Lemon Soda.	2	360

Totali : 920 ALL

Faturat për tavolinën: 5 Totali i tavolinës: 0

Nr.	Nr.Fature	Ora	Totali

Tavolinat

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Page 107 of 127

Bar Management System

Kategoritë

Te Ngrohta	Fanta Portokall	Bravo Lyleshtrydhe	Bravo Rrushi
Pije Freskuese	Bravo Molle	Bravo Pjeshke	Fanta Exotic
Birra	Ivi	Lemon Soda	Uje Pa Gaz
Alkolike	Uje Me Gaz	Cola	
Pije Vendí			
Vere e hapur			
Vere			
Akullore			
Embelsira			

Opsione

Faturat e Mia		Lista e Produktave
Sasia		Ndrysho Fjalëkalimin
Mbyll ditën	Mbyll Kasën	Transfero faturë

Porosia

Produkti	Sasia	Cmimi

Totali : 310 ALL

Faturat për tavolinën: 5		Totali i tavolinës: 1280	
Nr.	Nr.Fature	Ora	Totali
1	138	03:20	920
2	139	03:20	360

Tavolinat

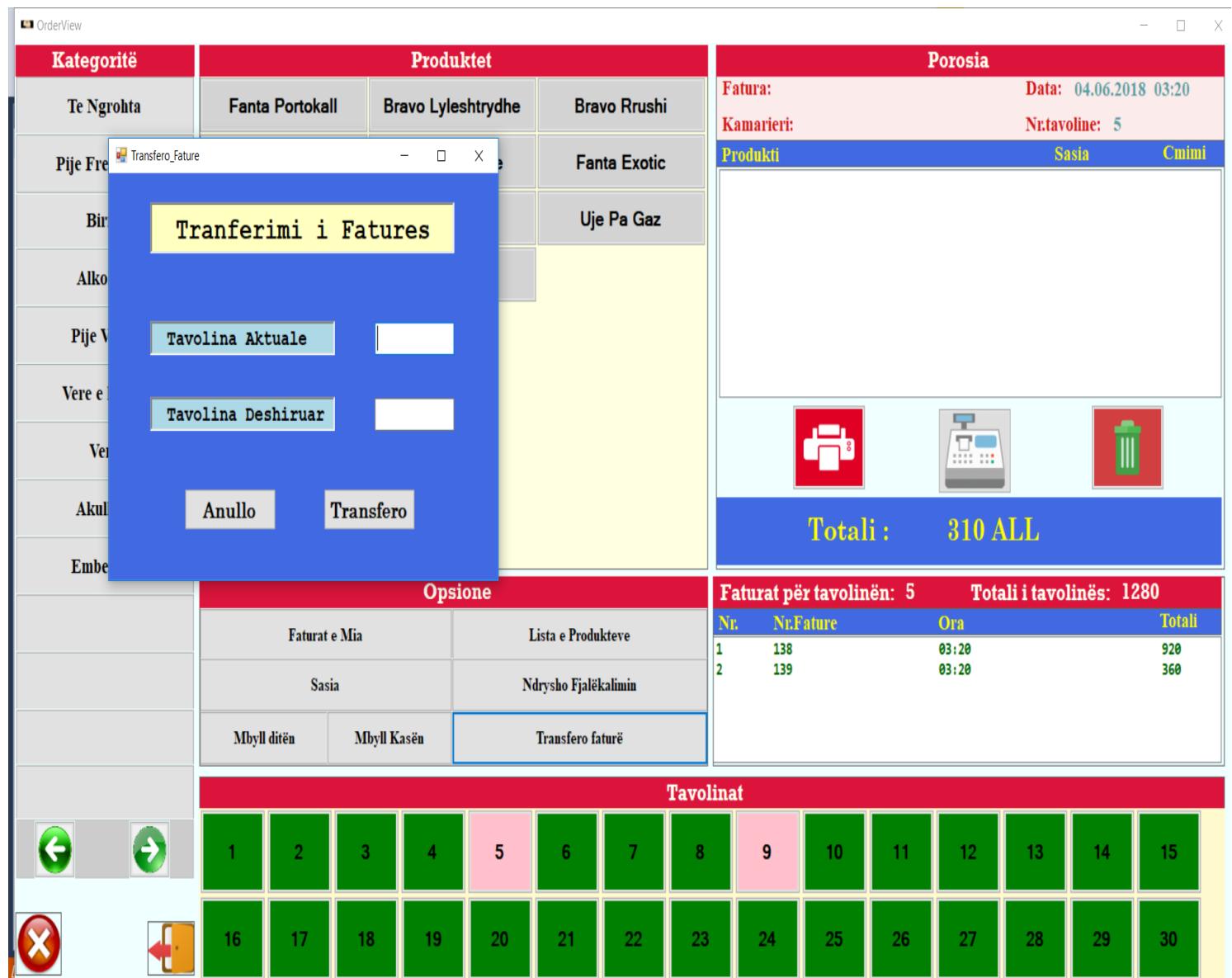
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Bar Management System

OrderView

Kategoritë	Produktet	Porosia
Te Ngrohta	Fanta Portokall	Data: 04.06.2018 03:20 Nr.tavoline: 5
Pije Freskuese	Bravo Molle	Sasia Cmimi
Birra	Ivi	
Alkolike	Kafe	70 Leke
Pije Vendë	Makiato	80 Leke
Vere e hapur	Kafe Shkurter	70 Leke
Vere	Kafe Amerikane	110 Leke
Akullore	Caj i ngrohte	80 Leke
Embelsira	Cokollate e Zeze	150 Leke
	Cokollate e Bardhe	150 Leke
	Kakao	130 Leke
	Kapucino	150 Leke
	Pije Freskuese	
	Fanta Portokall	180 Leke
	Bravo Lyleshtrydhe	180 Leke
	Bravo Rrushi	180 Leke
	Bravo Molle	180 Leke
	Bravo Pjeshke	180 Leke
	Fanta Exotic	180 Leke
	Ivi	130 Leke
	Lemon Soda	180 Leke
	Uje Pa Gaz	80 Leke
	Uje Me Gaz	80 Leke
	Cola	180 Leke
	Birra	
	Heineken	150 Leke
	Stela	100 Leke
	1	12
	2	13
		14
		15
	16	27
	17	28
	18	29
	19	30
	20	
	21	
	22	
	23	
	24	
	25	
	26	

Bar Management System



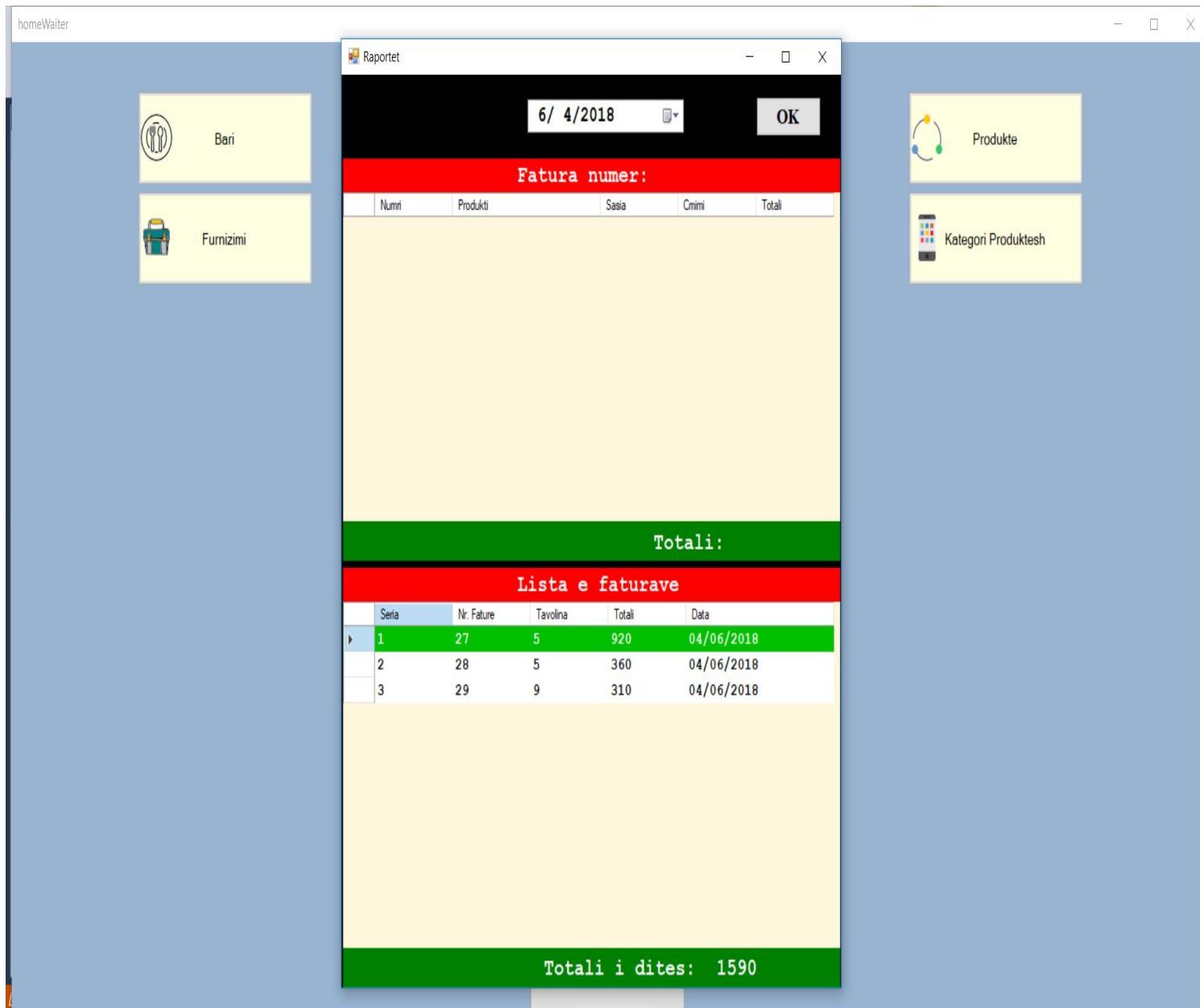
Bar Management System

homeWaiter

The screenshot shows a desktop application window titled "homeWaiter". The interface is divided into several sections:

- Top Row:** Three main menu items: "Bari" (with a glass icon), "Reporte" (with a money bag icon), and "Produkte" (with a circular arrow icon).
- Middle Row:** Two secondary menu items: "Furnizimi" (with a briefcase icon) and "Flete-Dalje" (with a document icon).
- Grid Section:** A large grid of 12 items arranged in 4 rows and 3 columns.
 - Row 1:** "Magazinat" (left), "Furnitoret" (right)
 - Row 2:** "Tavolinat" (left), "Njesi Matese" (right)
 - Row 3:** "Lokali" (left), "Perdoruesit" (right)
 - Row 4:** "Klientet" (left), "Opcionet e Sistemit" (right)
- Bottom Row:** A row of four items: "Emertimi i Pajisjeve", "Porosia", "Happy Hours", and "Taksat" (leftmost) on the left; and "Pajisjet per Pika Shitjeje", "Kursi i Kembimit", "Kategori Perdoruesish", and "Ndrysho Fjalekalimin" (rightmost) on the right.
- Bottom Center:** A single item labeled "Mbrapa".

Bar Management System



Bar Management System

homeWaiter



Bari



Furnizimi



Produkte



Kategori Produktesh

Raportet

6/ 4/2018

Fatura numer: 27

Numri	Produkti	Sasia	Cmimi	Totali
1	Lemon Soda	180	2	360
2	Bravo Molle	180	1	180
3	Cokollate e Zeze	150	2	300
4	Caj i ngrohte	80	1	80

Totali: 920

Lista e faturave

Seria	Nr. Fature	Tavolina	Totali	Data
1	27	5	920	04/06/2018
2	28	5	360	04/06/2018
3	29	9	310	04/06/2018

Totali i dites: 1590

Bar Management System

homeWaiter

The screenshot shows a Windows application window titled "Raportet". The main content area displays a receipt for "Fatura numer: 22" dated "6/ 2/2018". The receipt lists four items with their details and total amounts:

Numri	Produkti	Sasia	Cmimi	Totali
1	Rum Dopio	700	1	700
2	Jack Daniels Dopio	700	1	700
3	Rum Teke	400	1	400
4	Jack Daniels Teke	400	1	400

The total amount for this receipt is "Totali: 2200". Below this, there is a section titled "Lista e faturave" (List of invoices) showing a table of invoices with columns: Seria, Nr. Fature, Tavolina, Totali, and Data. The third invoice in the list is highlighted:

Seria	Nr. Fature	Tavolina	Totali	Data
1	20	4	440	02/06/2018
2	21	24	600	02/06/2018
3	22	24	2200	02/06/2018
4	23	24	6000	02/06/2018

The total amount for all invoices listed is "Totali i dites: 9240".

On the left side of the window, there is a sidebar with the following menu items:

- Bari (with a fork and knife icon)
- Furnizimi (with a briefcase icon)

On the right side, there are two more menu items:

- Produkte (with a circular arrow icon)
- Kategori Produktesh (with a color palette icon)

Bar Management System

homeWaiter

ProduktetCRUD

Lista e Produktave

ID	Pershkrimi	Cmimi	Kategoria
1	Kafe	70	1
2	Makiato	80	1
3	Kafe_Shkurter	70	1
4	Kafe Amerikane	110	1
5	Fanta Portokall	180	2
6	Caj i ngrohte	80	1
7	Cokollate e Zeze	150	1
8	Cokollate e Bardhe	150	1
9	Kakao	130	1
10	Kapucino	150	1
11	Heineken	150	3
12	Chardonay	3000	7
13	Stela	100	3
14	Peroni	200	3
15	Tirana	170	3
16	Korca	170	3
17	Peja	150	3
18	Elbar	150	3
19	Bravo Lyleshtrydhe	180	2
20	Bravo Rrushi	180	2
21	Bravo Molla	180	2

Produkte

Kategori Produktesh



mbarpa

Bar Management System

homeWaiter

ProduktetCRUD

Lista e Produktave

ID	Pershkrimi	Cmimi	Kategoria
11	Heineken	150	3
13	Stela	100	3
14	Peroni	200	3
15	Tirana	170	3
16	Korca	170	3
17	Peja	150	3
18	Elbar	150	3

Bira

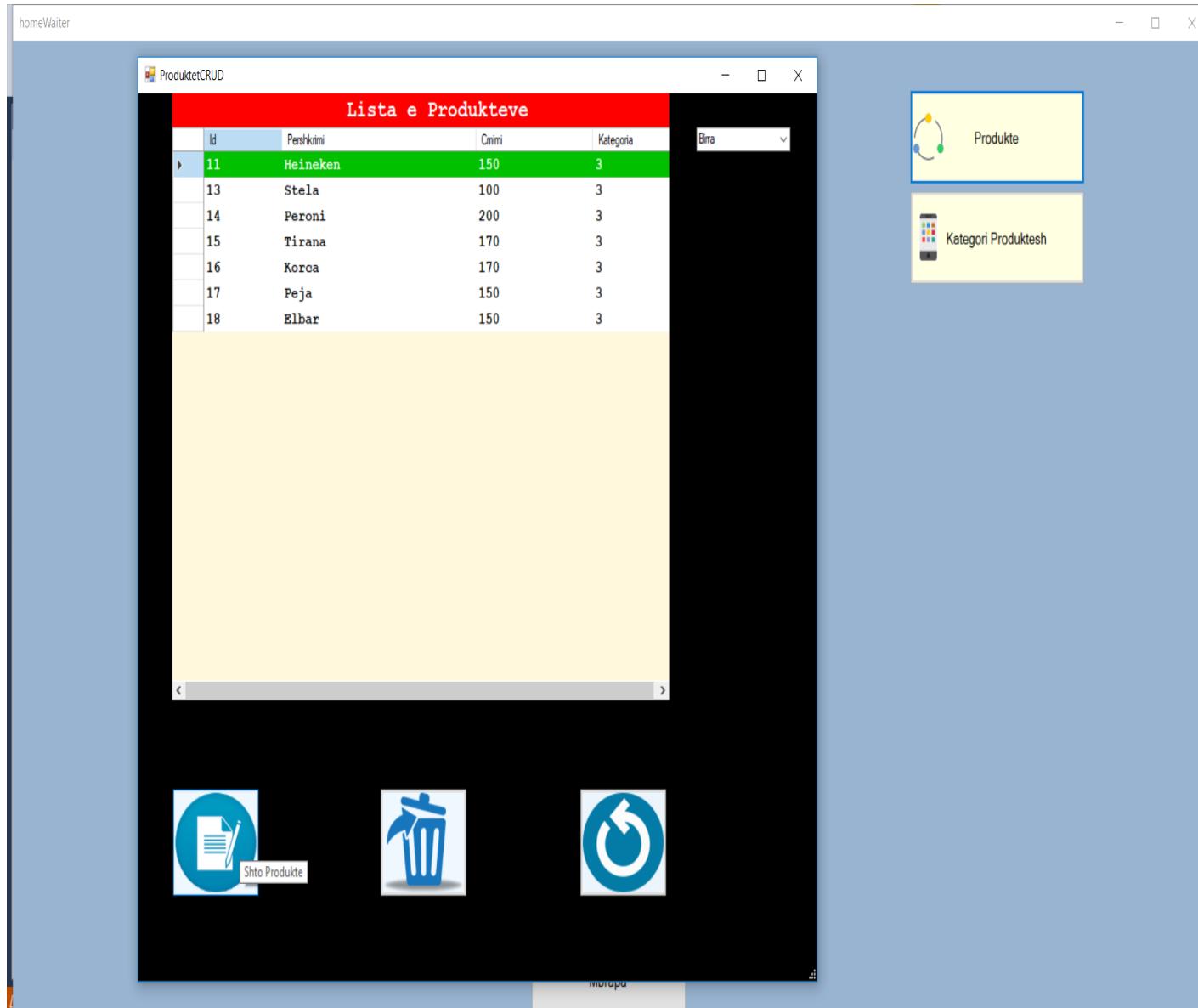
Produkte

Kategori Produktesh

← →

maturapd

Bar Management System



Bar Management System



Bar Management System

homeWaiter

ProduktetCRUD

Lista e Produkteve

ID	Pershkrimi	Cmimi	Kategoria
1	Kafe	70	1
2	Makiato	80	1
3	Kafe Shkurter	70	1
4	Kafe Amerikane	110	1
5	Fanta Portokall	180	2
6	Caj i ngrohte	80	1
7	Cokollate Zeze	150	1
8	Cokollate Bardhe	150	1
9	Kakao	130	1
10	Kapucino	150	1
11	Heineken	150	3
12	Chardonay		
13	Stela		
14	Peroni		
15	Tirana		
16	Korca		
17	Peja		
18	Elbar	150	3
19	Bravo Lyleshydhe	180	2
20	Bravo Rrushi	180	2
21	Bravo Molla	180	2

ShtoProduktet

Shto Produkte

Emri i Produktit: Martini

Kategoria: Alkolike

Cmimi i Produktit: 500

Hasia e Produktit: 100

OK

Cancel

OK

Anullo

Konfirmo







Bar Management System

homeWaiter

ProduktetCRUD

Lista e Produktave

ID	Pershkimi	Cmimi	Kategoria
11	Heineken	150	3
13	Stela	100	3
14	Peroni	200	3
15	Tirana	170	3
16	Korca	170	3
17	Peja	150	3
18	Elbar	150	3

Bira

Produkte

Kategori Produktesh

Hiq Produkte

monapa

The screenshot shows a window titled 'ProduktetCRUD' displaying a list of products. The table has columns for ID, Name, Price, and Category. A dropdown menu shows 'Bira' selected. To the right, there are two cards: 'Produkte' and 'Kategori Produktesh'. At the bottom, there are three icons: a document, a trash bin, and a circular arrow.

Bar Management System

homeWaiter

ProduktetCRUD

Lista e Produkteve

ID	Pershkimi	Cmimi	Kategoria
1	Kafe	70	1
2	Makiato	80	1
3	Kafe Shkurtër	70	1
4	Kafe Amerikane	110	1
5	Fanta Portokall	180	2
6	Caj i ngrohte	80	1
7	Cokollate e Zeze	150	1
8	Cokollate e Bardhe	150	1
9	Kakao	130	1
10	Kapucino	150	1
11	Heineken	150	3
12	Chardonay	300	
13	Stela	100	
14	Peroni	200	
15	Tirana	170	
16	Korca	170	
17	Peja	150	
18	Elbar	150	3
19	Bravo Lyleshtrydhe	180	2
20	Bravo Rrushi	180	2
21	Bravo Molla	180	2

Produkti Kafe eshte fshire me sukses

OK

Produkte

Kategori Produktesh

Bar Management System

homeWaiter

ProduktetCRUD

Lista e Produktave

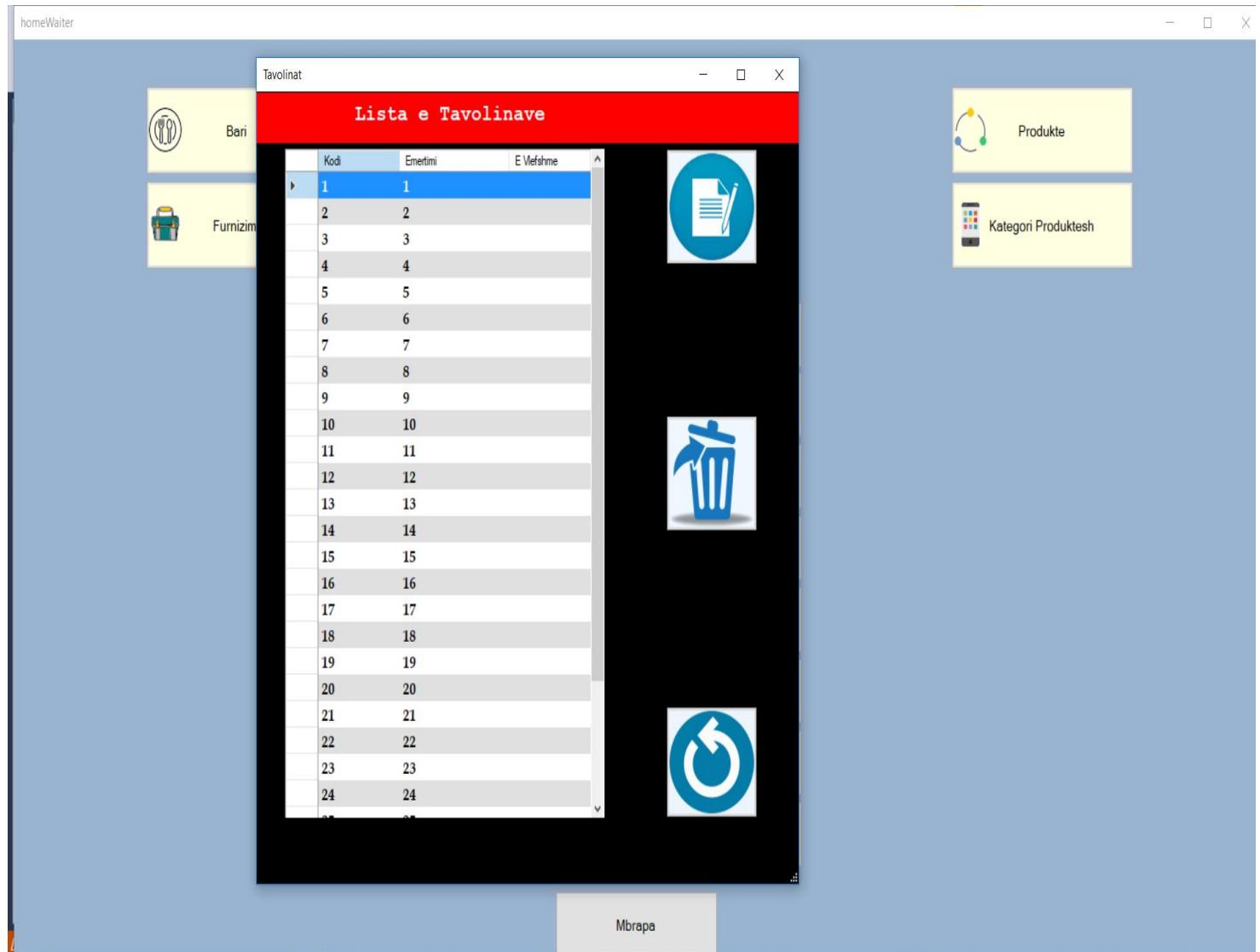
Id	Pershkrimi	Cmimi	Kategoria
2	Makiato	80	1
3	Kafe_Shkurter	70	1
4	Kafe Amerikane	110	1
5	Fanta Portokall	180	2
6	Caj i ngrohte	80	1
7	Cokollate e Zeze	150	1
8	Cokollate e Bardhe	150	1
9	Kakao	130	1
10	Kapucino	150	1
11	Heineken	150	3
12	Chardonay	3000	7
13	Stela	100	3
14	Peroni	200	3
15	Tirana	170	3
16	Korca	170	3
17	Peja	150	3
18	Elbar	150	3
19	Bravo Lyleshtrydhe	180	2
20	Bravo Rrushi	180	2
21	Bravo Molle	180	2
22	Bravo Bireshka	180	2

Produkte

Kategori Produktesh



Bar Management System



APPENDIX D

Sketches

Bar Management System

Order View				Products		Order Tab			-		<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Categories				Tab:	Waiter:	Product	Qty	Price	Date:			Table No:	
	Fanta	Orange	Cola	Pepsi									
Warm Drinks													
Cold Drinks	1v1		Ice Tea	7up									
Beers		Water		Bravo		Lemon Soda							
Alcoholic Bev													
Wines													
Ice Creams													
Desserts	My Tabs	Options	List of Product			Tabs per Table: 3 Table Total: 350			Table No.			Time Total /	
	Quantity		Change	Password									
	End Shift		Transfer Tab										
	Tables												
	1	2	3	4	5	6	7	8	9	10	11		
	12	13	14	15	16	17	18	19	20	21	22		

Bar Management System

Bar Management System

