iRestaurant Requirements Specification

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1. Executive Summary

1.1 Project Overview

The “Restaurant Automation System” is created to reduce the manual work and enhance the accuracy of work in a restaurant. The project is focused on making the restaurant fully automated such that it is easier to coordinate various work activities that go on inside a restaurant. The idea initially was focused on Bar - Restaurant “Brilant”, but later on was developed as a system for a typical restaurant. This system manages and maintains the record of employees’ daily routines which will be controlled and organized by the administrator or the manager. The manager controls information of his workers, hours worked also their payrolls also conducts “business” in an easy way with all the suppliers. By achieving this concept which was designed with full consideration to help the users in an easy manner without any unnecessary wastage of time, it will lead in an increase of profits by reducing operating costs also a raise of revenues by increasing efficiency.

In this paper we will try to explain in detail, our thoughts and ideas we had in order to put this project together. The methods we used to implement it, how we managed to design it and what makes our practice one of the best.

Keywords: Restaurant, automation, employees, manager, admin, operations.

1.2 Purpose and Scope of this Specification

The purpose of this software application is to automate some crucial services of restaurants into one application. The software will be used by almost all the actors operating a restaurant, from the owner, manager to employees.The current system that the restaurant uses is desktop system for daily operations, although, the desktop system is not-up-to date enough to cover the existing needs. The restaurants uses software programs such as MS-Excel for recording the employee data, that is when new employee is hired, his/ her information have to be filled in the computerized work contract form that contains personal details of employee including age, name, sex, date, address etc.

Then this information is kept computerized that is present in the hired office and the necessary details are recorded in the other computers later on. However this is not frequently used in the digitalized world.

The new System makes it easier to manage the employees effectively. However, the restaurant automation system that is computer-based application will provide a working environment that will be

flexible, efficient by affording easy of work with significant reduction of time. In a computer platform that many remote clients can access. The manager of the system will be capable to give different privileges and permissions to the users of the system, and all the permissions will be monitored from him.

Users:

- **Manager**

The manager will have access to all data of the application, including financial statements, employees management(accounts, salaries based on clock in/out), management of suppliers and inventory, access to all the bills. The managers interface will allow him to open and edit the accounts of all the employees he want to add or remove from his business with their names and id's and provide them with their certain payment for each category of employees he has based on the hours they work which will be calculated from when they check in and out when they open their accounts. It will allow him to add suppliers he wants for different products the restaurant will provide with the respective prices he can get from them. This will allow the manager to add the items he wants in its inventory and also provide the price he will sell this items for in his restaurant. A benefit to this is that the software will calculate by itself the profits the company will have from deducting the buying price from suppliers to the price the restaurant sells the products. He will also have access to all the bills to provide him the opportunity to see how much work he has during the day or the week or the month, or also see the progress of the servers he has to see which of them will bring him the most profit so he can implement any policy to reward the one who has worked harder.

- **Servers**

The servers can daily deduct the inventory by selling good each time they print a recipe. Each recipe will be assigned to a certain table that the server will choose. When there are less then needed items in inventory an alert will be sent to the manager so he can order goods to the suppliers to replace the goods sold. He may even choose to automate the requests sent to the suppliers when the inventory reaches a certain level. Each server will have to clock in when they arrive to work and clock out when they leave the work , this way their wage will be calculated.

- **Bar tender**

The Bar tender will receive the receipt sent out by the server concerning to drinks and snacks. He will be able to see them so that he can prepare the orders in the order they are sent and alert the server when the order is ready

The software will also have the ability to create some basic financial statements like income statements and the cash flow.

2. Product/Service Description

2.1 Product Context

Our software will be distributed firstly at “Restaurant Brilant“. It will be used by the servers, bartenders, managers and admin. The purpose of this software application is to automate some crucial services of restaurants into one application. The software will be used by almost all the actors operating a restaurant, from the owner, manager to employees.

2.2 User Characteristics

- ***Manager***

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2.3 Constraints

- The project should be affirmed by an accounting audit. He will examine if the bar's financial statements are accurate.
- The program is constrained by an external government audit, to include taxes and other details.
- Each major operation should be secured by a password that only the user specified for that action can know.
- We may encounter further constraints
- We should try to Keep It Simple, in order for the program to be easy to use but also include all the requirements.

2.4 Dependencies

- This new product will require internet service to work.
- You will need a pc to run this web based program.

3. Requirements

The aim of this project is to develop a restaurant automation system, that would help the restaurant manager to manage the restaurant more effectively and efficiently by computerizing orders, bills and inventory control. Restaurant automation system can store all the data relates to the employees. It will remove the manual operations that are done by pen and paper. The automation system will make better coordination of the activities, by making the restaurant fully automated. It will save time for both the customer and restaurant management team. The main features of the project are:

* Coordinating work activities of the various actors – Manager, Waiter, Bartender etc.

* Keeping record of the working hours for each worker

* Increasing profits by reducing operating costs

* Increasing efficiency by minimizing the time between placing the order and getting the order

* System will effectively manage the inventor

* Software can track and monitor the sales of the day per each employee

Problems with Previous Systems

The traditional system is a manual system which keeps data in the restaurant with pen and paper. It spends a lot of time for the waiter to get the orders and to calculate bills. Also, the manager has difficulties to coordinate all the works in the restaurant and to keep track of the working hours for each worker, in order to calculate their payments. This takes some time and reduces efficiency.

Our Software Solution

We are suggesting a software system that would remove all the above problems. Our Restaurant Automation system is focused on making the restaurant fully automated, in order to facilitate the coordination of different work activities. The employees in the moment that start work will make check in in the system and check out when they left work. This is done to calculate their wage depending on the working hours. Each employee would have its profile in the system, which is managed by the manager. Manager can create and modify profiles, can view the amount of money that each worker has done daily. Also, the system keep data about the suppliers and products that they offer. The main features of our software are:

* To increase efficiency by minimizing time between an order is placed and the billing.

* By increasing efficiency, the restaurant will have higher revenues.

* Another benefit of the system will be higher profits because various operating costs will be reduced.

* It will make easier the coordination of work activities for manager, waiters, bartender etc.

* To keep track of the information and hours worked for each of them.

3.1 Functional Requirements

The restaurant owners would be very interested in this system because it immediately affects their business and they want to improve efficiency and customer satisfaction. In our system there are several types of stakeholders, starting from the manger that controls the entire system and employees like the waiter, bartender etc who have access to one part of the system.They will be directly utilizing the system in order to automate periodic tasks. Customers are stakeholders who do not directly have access to the system, but they benefit from the system since the system reduces their time of waiting for the order. In our system, the manager, waiters, bartenders are all involved in the daily functions performed by the system.

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_01	Register the restaurant name on the database	Enter restaurants details.	3	31/03.2019	
BR_02	Handle multiple account types	Based on the user status, each will have their own view of the system	1	31/03.2019	
BR_03	There can only be many admins, and many users	The system can have many users with admin rights, and many others as servers		31/03/2019	
BR_04	Each account should be secured with passwords	The password should fulfill the regular expression rule	1	31/03/2019	
BR_05	Handle the unregistered users	The system should be able to handle unregistered users, giving limited info	2	31/03.2019	
BR_06	Admin manages servers and bartenders	The administrator is responsible for create, read, update and write functionalities	2	31/03/2019	
BR_07	Keeping track of servers/bartenders actions	The admin should be able to keep track of the checked bills from the bartenders, when they start their shifts, or edit their info etc.	1	31/03/2019	
BR_08	Handle suppliers	Admin can add and edit suppliers.	1	31/03/2019	
BR_09	Be able to buy products from suppliers	Admin should be able to buy new products from the suppliers	1	31/03/2019	
BR_10	Add a new category, to add a new product and to edit the information about a product.	The admin can add a new category of products and assign each product to a category.	2	31/03/2019	
BR_11	Admin will put the wage of waiters	This wage will be later calculated along with the bonuses	3	1/04/2019	

BR_12	System should show inventory dashboard	Admin can see the initial and the selling price of a product and how much of each product is left.	2	1/04/2019	
BR_13	Be able to watch the revenue, and number of the bills.	The administrator should be able to watch the revenue raised till the moment he checks and also the number of the bills that have been checked so far.	2	1/04/2019	
BR_14	Able to watch the time of the employees per shift and the respective wages	The administrator can watch the working hours of each employee, and the payment they should get	1	1/04/2019	
BR_15	Staff payroll and bonus management	The administrator calculates payrolls based on working hours	1	1/04/2019	
BR_16	Handle employee payments	The system should show the employees that should be paid and the ones that are already paid	1	1/04/2019	
BR_17	Able to watch the current cash flows.	Administrator rights	1	1/04/2019	
BR_18	Able to view revenue, expenses, net profit and net loss.	Administrator rights.	2	1/04/2019	
BR_19	Able to view all cash flows	Administrator rights.	2	1/04/2019	

BR_20	Able to view the starting date, ending date of each cash flow , revenue, expenses and net profit.	Administrator rights.	2	1/04/2019	
BR_21	Each waiter has its own account in the system	The waiter can not view other users information	3	1/04/2019	
BR_22	Waiters can not edit products info	They have only view access to the price and quantity	3	1/04/2019	
BR_23	Waiter can check quantity	Enter the system and checking the available items and their quantity left.	2	1/04/2019	
BR_24	Waiter can view the current revenues and number of bills	During the period waiter is clocked in into the system he can only view the revenues and bills.			
BR_25	Modify the tab of the table	Waiter can add or delete products from the tab	3	1/04/2019	
BR_26	Waiters can clock in and out of their shift	The system will keep track of working hours the waiter has made in his shift	1	1/04/2019	
BR_27	Waiters can select an item from the categories	The system will automatically calculate how much each order costs, his item will be automatically subtracted from the quantity left	1	1/04/2019	
BR_28	When checking out an order the system should apply the VAT automatically	Before printing the receipt the VAT (20%) will be calculated and displayed	1	1/04/2019	

BR_29	Close the tab of a customer	When a customer is ready to pay, the waiter should be able to charge payment	3	2/04/2019	
BR_30	View the tables and select from them	Waiter will make the order with the table number in the order tab	2	2/04/2019	
BR_31	Be able to watch the number of tables he has served	The waiters orders will have the date, id, number and the total price of each.	2	2/04/2019	

3.2 Non-Functional Requirements

Non-functional requirements are also very essential in system development. There is not a significant distinction between functional and non-functional requirements. Non-functional requirements relate to the superficial conditions needed for the system, such as number of clicks needed to complete a task for individual actors.

- The menu and categories should be easy to read and understand.
- The table of suppliers and employees should contain detailed information about each of them.
- Managerial tasks should be limited to the manager's user interface to prevent potential security breaches
- In product the category should be included for a faster usability.
- Inventory should keep detailed track of the remaining items.
- There should be a reminder for Clocking In and Out.
- In the bill there should be also written the VAT value, for the customers to be clearer.

3.2.1 Product Requirements

Data Management

➔ **Employee Information**

-can be accessed upon login

-admin has access of user views

-uniquely represented by id

-name, surname, address, telephone number required when registered

➔ **Product Information**

-accessible from each employee: admin can register new products and buy products from the suppliers, whereas the server can check bills in order to sell the products and earn revenue.

-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

➔ **Cash flows**

-can be accessed by admin only

-dynamically change as the receipts are checked and other revenues are earned.

The main goal of the interface is to be very simple and fast to use so that little time is wasted while inputting orders or doing other tasks. The most part of the interface will be

with html and CSS. A majority of the choice menus will be dropdown so that waiter will not spend time to type them.

All users of the system will be presented with a Login page into which they will login in order to have access in their responsible pages. This page will also serve as the Sign-In for payroll purposes. Every employee will also have a button to clock in and clock out of their shift. Both of these buttons will create records in order to calculate hours worked that will help to calculate their payments in the end.

3.2.2 Usability

The system's user interface will be very simple and understandable for the users. The servers will use touch-screen tables which are very comfortable to move around while taking orders and are nowadays a trend. They are very easy to adapt to and use. The server can simply select the items he wants in the tablet and the bill will be processed. Meanwhile the administrator can also use the system from a browser in computer. This will better since he will have in his control many functions of the system like employees, products, suppliers, inventory etc that will be better managed by a computer screen. However, this does not mean the administrator cannot use a tablet for managing this restaurant.

3.2.3 Performance

The system will be used by the administrator and the servers of the restaurant and can work without any error or bug. But for this to happen the employees have to use the system correctly. For example, the servers should not forget to Clock in when they begin their shift and Clock out when they finish their shift. In this way the system can calculate the amount of time they have worked for day and their salary at the end of the week.

However, they can log in and log out of the system as many times as they needs . The administrator and the servers should keep in mind their login credentials in order not to create any delays during their work. It is important to be provided high speed wireless connection in the restaurant for the administrator and servers to be able to use the system.

We would suggest that each person that uses our system should provide a tablet and this is necessary for the servers that need to take the orders in different tables around the restaurant. They can use different web browsers for operating in the Restaurant Automation System. That's why we highlight the need of high speed wireless connection that will not create any problem.

Performance Requirements:

- 2GB RAM
- 250GB HDD
- UP TO 1.5GHZ PROCESSOR
- WINDOWS OPERATING SYSTEM

3.2.4 Capacity

The web application will work at the same time for both the admin and waiters. While the waiters are serving tables and adding receipts the admin, in real time, can check inventory changes, tables occupied and revenues.

3.2.5 Availability

Availability requirements will form a users perspective of functional capabilities that are implemented via processes. The solution on our restaurant will be available during the whole day and each server can use it during their working hours. In case of any problem, the admin will send a message to the servers about the availability of the program during that day.
The application is available to everyone who has a computer or tablet connected to the Internet, so they can access their data anywhere.

3.2.6 Organizational Requirements

Monitoring

Include any requirements for product or service health monitoring, failure conditions, error detection, logging, and correction.

Maintenance

Our system will use a central database to store and manage all data. We decided to do the relational database model. All our data will be separated into tables, organized appropriately based on a set of rows and columns. Each column consists of data attributes, with each row storing different data. It provides easy access for our system to retrieve data and all operations on data will simply be implemented on the tables. Also, it is important to emphasize that each data separated into smaller pieces is related to one another in one form or another. Our software application act as the clients to the server and do not have to deal with the manipulation of the database directly. Their only task is to make requests for the server to perform the assigned operations. This holds several advantages as supposed to a database built without a server. Having a database with a built-in server allows the server to maintain a backup of the data and add sophisticated features.

3.2.7Operations

The system function is separated into admin and server panel.

- Admin keeps track of information about employees, suppliers, products, inventory, orders and cash flow.The admin or manager can add, sort, delete the menu. He also can register new employees or editing information. While the server can select tables and categories and checkout bills.

- Waiter Panel includes tables, cold drinks, express, hot drinks, meat, ice cream, desserts and any type of categories the admin has included in the system with their respective products.

3.2.8 Environmental Requirements

Restaurants are a very popular and sometimes over-floated business in Albania. The traditional system that restaurants use is a manual system which keeps data in the restaurant with pen and paper. It spends a lot of time for the waiter to get the orders and to calculate bills. Also, the manager has difficulties to coordinate all the works in the restaurant and to keep track of the working hours for each worker, in order to calculate their payments. This takes some time and reduces efficiency.

3.2.9 External Requirements

Network and Hardware Interfaces

The system will be distributed to a workgroup (restaurant) and won't be distributed online.It will be installed on 2 or 3 points of sale in order to share the areas and to avoid queues between orders and servers.

Systems Interfaces

The admin will have access to four different functions and each will have its associated page. There will be buttons for:

* Add/Edit/Remove Employees

* Add Category/Add Product/Edit/Delete

* Manage Inventory

* Add/Edit/Remove Suppliers

* Report orders

* Reports Screen

3.2.10 Security Requirements

The system requires username and password authentication as a measure of security, although some basic rules still apply.

- Robust access-control system
- Column and row-level security

Protection

- The system will include a register function on the login screen for the manager and servers.
- If an employee/server wants to change his username, the manager must be notified
- The password will be encrypted at the time of registration

3.2.11 Authorization and Authentication

- Users will be authenticated with a username and a password.
- If a user tries to login with a username which is not found in the database, the user must not be logged in, and he shall be alerted for the login failure.

3.2.12 Legislative Requirements

The system calculates and prints the receipt with the total amount and also the VAT.This is a must for each business so the software includes it such that it can also give information to the customer about the percentage of VAT. According to the Albanian tax law :

"**Neni 48**-Shkalla standard: Shkalla standarde e tatimit mbi vlerën e shtuar për furnizimet e mallrave dhe shërbimeve, e cila aplikohet si një përqindje e vlerës së tatueshme, është 20 për qind."

3.2.13 Portability

The system will be developed with PHP which offers many portability opportunities. The team has decided to develop a Web based system, so it can be easily accessed from different devices such as pc, mobile phone etc..

3.3 Other Non-Functional Requirements

Please provide all necessary non-functional requirements, similar to the requirements explained in the lesson slides or in the textbook.

4. User Scenarios

User Scenarios

These are the user scenarios of iRestaurant:

USERS:

1. Admin
2. Waiters

ADMIN

1. Taps Log In in the main Page

2. Enters his/her credentials
3. Will be redirected to Admin Page, with all the functionalities provided for the admin status such as:
    - Create, update, read and delete information about employees, suppliers, products.
    - Keep track of inventory, orders, cash flows, time of employees per shift.
    - Management of workers' salaries.

WAITERS

1. Taps Log In in the main Page
2. Enters his/her credentials
3. Will be redirected to Waiter Page, with all the functionalities provided for the waiter status such as:
    - Clocks in and out
    - Enters the number of table the customer.
    - Gets the order.
    - Order payment confirmation
    - Receipt printing

More Detailed User Scenarios

Scenario A1 – Successful Login

a. The admin enters his username.
b. The admin enters his password.
c. The admin attempts to Login after the fields are filled in.
d. If there is a match with an entry in the database, he is logged in to his account.
e. The admin is redirected to the home page of his account.

Scenario A2 – Unsuccessful Login

a. The admin enters his username.
b. The admin enters his password.
c. The admin attempts to Login after the fields are filled in.
d. If the credentials are wrong, there won't be a match in the database, therefore the user will be displayed an error message, saying "Wrong password".
e. The Login page will be refreshed, so the admin can enter the username and password again.

Scenario A3 – Admin creates a new employee

a. Administrator of the software is logged in the system.
b. Administrator goes to the employee page.
c. Administrator creates a new employee(waiter).
d. Administrator is displayed a form, with the basic information needed to be provided.
e. Administrator fills in the information, regarding name, surname, birthday, username, password, address, type, wage.
f. Administrator confirms the procedure after filling in the spaces.

g. Member is created as an entry in the Employee table of the database.
h. Administrator is redirected to the Employee Page.

Scenario A4 – Admin creates a new supplier.
a. Administrator of the software is logged in the system.
b. Administrator goes to the supplier page.
c. Administrator creates a new supplier.
d. Administrator is displayed a form, with the basic information needed to be provided.
e. Administrator fills in the information, regarding company name, address, phone number.
f. Administrator confirms the procedure after filling in the spaces.
g. Supplier is created as an entry in the database.
h. Administrator is redirected to the supplier page.

Scenario A5 – Admin creates a new category
a. Administrator of the software is logged in the system.
b. Administrator goes to the product page.
c. Administrator creates a new category.
d. Administrator is displayed a form, with the basic information needed to be provided.
e. Administrator fills in the information regarding category
f. Administrator confirms the procedure after filling in the spaces.
g. Category is created as an entry in the product table of the database.
h. Administrator is redirected to the product page.

Scenario A6 – Admin creates a new product
a. Administrator of the software is logged in the system.
b. Administrator goes to the product page.
c. Administrator creates a new product.
d. Administrator is displayed a form, with the basic information needed to be provided.
e. Administrator fills in the information, regarding category, buying and selling price.
f. Administrator confirms the procedure after filling in the spaces.
g. Product category is created as an entry in the product table of the database.
h. Administrator is redirected to the product page.

Scenario A7 – Admin faces an error while creates a new employee
a. Administrator of the software is logged in the system.
b. Administrator goes to the employee page.
c. Administrator creates a new employee Member.
d. Administrator is displayed a form, with the basic information needed to be provided.
e. Administrator fills in the information, regarding name, surname, username, initial password, phone number and category.
f. Administrator confirms the procedure after filling in the spaces.
g. If the validation functions detect an anomaly, Administrator is displayed an error message, telling him where the problem with the entered data is.

h. Administrator enters the data again, until there are no validation problems.
i. Administrator is redirected to homepage.

Scenario A8– Admin faces an error while creates a new supplier
a. Administrator of the software is logged in the system.
b. Administrator goes to the supplier page.
c. Administrator creates a new supplier.
d. Administrator is displayed a form, with the basic information needed to be provided.
e. Administrator fills in the information, regarding company name, address, phone number.
f. Administrator confirms the procedure after filling in the spaces.
g. If the validation functions detect an anomaly, Administrator is displayed an error message, telling him where the problem with the entered data is.
h. Administrator enters the data again, until there are no validation problems.

Scenario A9 – Admin faces an error while creates a new category
a. Administrator of the software is logged in the system.
b. Administrator goes to the product page.
c. Administrator creates a new category.
d. Administrator is displayed a form, with the basic information needed to be provided.
e. Administrator fills in the information, regarding category name.
f. Administrator confirms the procedure after filling in the spaces.
g. If the validation functions detect an anomaly, Administrator is displayed an error message, telling him where the problem with the entered data is.
h. Administrator enters the data again, until there are no validation problems.

Scenario A10 – Admin faces an error while creates a new product
a. Administrator of the software is logged in the system.
b. Administrator goes to the product page.
c. Administrator creates a new product.
d. Administrator is displayed a form, with the basic information needed to be provided.
e. Administrator fills in the information, regarding category, buying and selling price.
f. Administrator confirms the procedure after filling in the spaces.
g. If the validation functions detect an anomaly, Administrator is displayed an error message, telling him where the problem with the entered data is.
h. Administrator enters the data again, until there are no validation problems.

Scenario A11 – Admin modifies employee information
a. Administrator of the software is logged in the system.
b. Administrator goes to the employee page.
c. Administrator searches through the employee members list the name of the user he wants to edit.
d. After finding the user, he starts the editing procedure.

e. Administrator is displayed the page containing user's details, which are editable by the administrator.
f. After editing, administrator saves changes.
g. Administrator is redirected to the Staff page again.

Scenario A12 – Admin Deletes employee

a. Administrator goes to the Employee Page.
b. Administrator searches through the Employees list the name of the user he wants to modify.
c. After finding the user, he chooses the edit
d. Administrator is displayed the page of employee information with an option to edit or delete.
e. Administrator deletes the employee.
f. Administrator is faced with a popup to confirm or not the deletion of the employee.

Scenario A13 – Admin modifies employee information, validation check

a. Administrator of the software is logged in the system.
b. Administrator goes to the Employee Page.
c. Administrator searches through the Employees list the name of the user he wants to modify.
d. After finding the user, he starts the editing procedure.
e. Administrator is displayed the page containing employee's details, which are editable by the administrator.
f. If there was a mistake during the process, the administrator will be displayed an error massage, telling him where the problem with the entered data is.
g. Administrator enters the data again, until there are no validation problems.

Scenario A14 – Admin edits the information of the suppliers.

a. Admin is logged in the system.
b. Admin goes to the Suppliers section.
c. Admin is shown a table with all the Suppliers that currently supply restaurant.
d. When admin wants to edit the information of the suppliers, it changes the content of the text fields of company name, address and phone.
e. The admin can edit them and then save changes after.
f. The admin is redirected to the Suppliers page.

Scenario A15 – Admin modifies supplier information, validation check

a. Administrator of the software is logged in the system.
b. Administrator goes to the Supplier Page.
c. Administrator searches through the supplier list the name of the user he wants to modify.
d. After finding the user, he starts the editing procedure.
e. Administrator is displayed the page containing supplier's details, which are editable by the

administrator.
f. If there was a mistake during the process, the administrator will be displayed an error massage, telling him where the problem with the entered data is.
g. Administrator enters the data again, until there are no validation problems.

Scenario A16 – Admin modifies products information, validation check
a. Administrator of the software is logged in the system.
b. Administrator goes to the products Page.
c. Administrator searches through the products list the name of the user he wants to modify.
d. After finding the user, he starts the editing procedure.
e. Administrator is displayed the page containing products' details, which are editable by the administrator.
f. If there was a mistake during the process, the administrator will be displayed an error massage, telling him where the problem with the entered data is.
g. Administrator enters the data again, until there are no validation problems.

Scenario A17 – Admin views Employees Time Clock
a. Admin is logged in the system.
b. Admin goes to the Time Clock section.
c. Admin is displayed a list of the employees along with their time of Clocking In or Clocking Out, Hours Worked and the total Accumulated Wage.

Scenario A18 – Admin adds bonuses to the Employee
a. Admin is logged in the system.
b. Admin goes to the Paying Employee section.
c. Admin is shown a table with his Employees list and the Hours Worked and Hourly Wage.
d. The system calculates the wage.
e. Admin is shown an option to add a **Bonus** to the total wage.
f. Admin marks the payment as done.

Scenario A19 – Admin updates the monthly salary for an employee.
a. Admin is logged in the system.
b. Admin goes to the Salary section.
c. Admin is displayed a list of the employees and their salaries next to their names so the admin knows he hasn't updated the payment.
d.Admin clicks "Pay salary" button to pay the employees.
e. After entering the salaries, admin saves the changes.

Scenario A20 – Admin purchases products from suppliers.
a. Admin is logged in the system.
b. Admin goes to the Suppliers Page.
c. Admin will be displayed the suppliers.

d. Admin selects the suppliers he wants to order from and checks the products he wants and the quantities.
e. After finishing marking the needed products, he submits the request.
f. Admin is redirected to home page again.

Scenario A21 – Admin saves Current Cash Flows
a. Admin is logged in the system.
b. Admin goes to the Current Cash Flows page.
c. Admin will be displayed the Revenues, Expenses and the Net Profit.
d. Admin can save the page and the cash flows will then start from beginning (from 0).

Scenario A22 – Admin views All Cash Flows
a. Admin is logged in the system.
b. Admin goes to the All Cash Flows page.
c. Admin will be displayed all the registered Cash Flows with their Starting and Ending Date.
d. Admin can view the Net Profit and Loss.

Scenario W1 – Successful Login
a. The waiter enters his username.
b. The waiter enters his password.
c. The waiter attempts to Login after the fields are filled in.
d. If there is a match with an entry in the database, he is logged in to his account.
e. The waiter is redirected to the home page of his account.

Scenario W2 – Unsuccessful Login
a. The waiter enters his username.
b. The waiter enters his password.
c. The waiter attempts to Login after the fields are filled in.
d. If the credentials are wrong, there won't be a match in the database, therefore the user will be displayed an error message, saying "Wrong password".
e. The Login page will be refreshed, so the waiter can enter the username and password again.

Scenario W3– Waiter clocks in and out.
a. Waiter is logged in the system.
b.Waiter clocks in to start the shift.
c.Waiter checks bills.
d. Waiter clocks out when he ends his shift.

Scenario W4 – Waiter assigns the status to a table.
a. Waiter is logged in the system.
b.Waiter clocks in to start the shift.
c. Tables are displayed as tabs and the waiter can choose the status for each of them. (available/busy)

d.Receipt is displayed in the system.

Scenario W5– Waiter confirms payment.

a. Waiter is logged in the system.
b.Waiter clocks in to start the shift.
c.Waiter goes to Tables Dashboard and selects one of the tables
d.Waiter selects one of the categories.
e.A list of products is displayed from which the waiter can choose from
c. As soon as the client pays, the waiter can checkout the bill.

Scenario W6– Waiter adds and removes products from the bill.

a. Waiter is logged in the system.
c.Waiter goes to Tables Dashboard and selects one of the tables
d.Waiter selects one of the categories.
e.A list of products is displayed from which the waiter can choose from

c.Waiter clicks on the product on the bill to delete it or lower quantity.
d.Waiter checks the bill.

Scenario W7– Waiter prints the bill.

a. Waiter is logged in the system.
b.Waiter clocks in to start the shift.
c.Waiter goes to Tables Dashboard and selects one of the tables
d.Waiter selects one of the categories.
e.A list of products is displayed from which the waiter can choose from
f.Waiter selects products to add to the bill
g. As soon as the client pays, after payment confirmation by the waiter, he can also print the generated bill.

Scenario W8– Waiter dismisses the bill

a. Waiter is logged in the system.
b.Waiter clocks in to start the shift.
c.Waiter goes to Tables Dashboard and selects one of the tables
d.Waiter selects one of the categories.
e.A list of products is displayed from which the waiter can choose from
f. Waiter selects products to add to the bill
g. Waiter can dismiss the bill.

Scenario W9– Waiter views Bill Dashboard

a. Waiter is logged in the system.
b.Waiter clocks in to start the shift.
c.Waiter checks Bills Dashboard with all the bills he has checked during the day and total revenue.
d. Waiter clocks out when he ends his shift.

Use Cases

Use Case UC-1	Create Account
Primary Actor	Manager
Actor's Goal	Add new employee to the database
Stakeholder	Employee
Precondition	There is a new employee to be added which is not already in the database
Post condition	The employee has been added to the database

- Manager selects the interface to enter in a new employee and enters in the SSN, Wage, Password, employee type, first name, last name
- Validation. The system checks if the data entered is correct, complete, and not already in the system.
- Employee successfully added into the system and informed of his ID and Password.

Figure 1- Create account Use Case

Use Case UC-3	Delete Account
Primary Actor	Manager
Actor's Goal	Delete employee to the database
stakeholder	Employee
Precondition	Employee account already exists
Post condition	Employee has been deleted from the database

- Manager selects the interface to delete an employee information of an existing worker
- Manager selects employee from drop down menu
- Delete employee from the system

Figure 2 - Delete Account Use Case

Use Case UC-4	Register Suppliers
Primary Actor	Manager
Actor's Goal	Register suppliers in the system with their products
stakeholder	Supplier
Precondition	There is a supplier to be registered which is not already in the database
Post condition	Supplier has been added in the database

- Manager selects the interface to enter in a new supplier and fills in the Company Name, Address, Phone number, Product
- Validation. The system checks if the data entered is correct, complete, and not already in the system.
- Supplier successfully added into the system

Figure 3 - Register Suppliers Use Case

USE case UC-5	Edit Supplier
Primary Actor	Manager
Actor's goal	Edit existing supplier in the database
Stakeholders	Supplier
Preconditions	There is a product category to be ad which is not already in the database
Post conditions	The relevant supplier information is updated

- Manager selects the interface to edit in a new supplier and fills in the Company Name, Address, Phone number, Product
- Validation of the fields
- Updating supplier information

Figure 4 - Edit Supplier Use Case

USE case UC-6	Add category
Primary Actor	Manager
Actor's goal	Add product category in the database
Stakeholders	Supplier
Preconditions	A product category is added in the database for particular Supplier whose information needs to be updated
Post conditions	A product category has been added in the database

- Manager selects the interface to enter in a new Category and fills in the name the product
- Validation. The system checks if the data entered is correct, complete, and not already in the system.
- Category successfully added in the system

Figure 5 - Add Category Use Case

USE case UC-7	Purchase product
Primary Actor	Manager
Actor's goal	Purchase products from supplier and add the information in the database
Stakeholders	Supplier
Preconditions	There is a product which is not already in the database needed to be purchased
Post conditions	A product that was purchased has been added in the database

- Manager selects the interface to purchase product from suppliers
- Validation. The system checks if the data requested exists in the database, check it is selected from the existing supplier.
- Product has been successfully added in the database

Figure 6 - Purchase Product Use Case

USE case UC-8	Add product
Primary Actor	Manager
Actor's goal	Add product in the category database
Stakeholders	Product
Preconditions	There is a product which is not already in the category database
Post conditions	A product that wasn't in the category has been added in the category database

- Manager selects the interface to add product in the category
- Validation. The system checks if the data requested exists in the database, check if it is selected from the existing category.
- Product has been successfully added in the category database

Figure 7 - Add Product Use Case

USE case UC-9	Inventory dashboard
Primary Actor	Manager
Actor's goal	Purchase products from supplier and add the information in the database
Stakeholders	Manager
Preconditions	There is a product which is not already in the database needed to be purchased.
Post conditions	A product that was purchased has been added the database and recorded as inventory in the inventory dashboard.

- Manager selects the interface to view inventory dashboard.
- Validation. The system checks if the data requested exists in the database, check inventory a its data.
- Product has been successfully recorded and added in inventory

Figure 8 - Inventory Dashboard Use Case

USE case UC-10	Select table
Primary Actor	Server
Actor's goal	Select table
Stakeholders	Tables
Preconditions	There is a table waiting to be served
Post conditions	A table that hasn't been selected was selected

- Server selects the interface to select the table being served
- Validation. The system checks if the data requested exists in the database, check if it is selected from the selected tables.
- Table has been successfully selected in the database

Figure 9 - Select Table Use Case

USE case UC-11	Select a cold drink
Primary Actor	Server
Actor's goal	Select a drink and add it to the order
Stakeholders	Cold Drinks
Preconditions	There is a drink which has been ordered and it should be taken off from inventory
Post conditions	Drink has been selected, added to the order an inventory decreased

- Server selects the interface to select the product
- Validation. The system checks if the data requested exists in the database, check if it is selected from an amount available
- Drink has been successfully selected, added to order and amount has decreased from inventory database

Figure 10 - Select Cold Drink Use Case

USE case UC-12	Select an espresso
Primary Actor	Server
Actor's goal	Select an espresso and add it to the order
Stakeholders	Ekspres
Preconditions	There is an espresso which has been order it should be taken off from inventory
Post conditions	Espresso has been selected, added to the c and inventory decreased

- Server selects the interface to select the product
- Validation. The system checks if the data requested exists in the database, check if it is selected from an amount available
- Espresso has been successfully selected, added to order and amount has decreased fror inventory database

Figure 11 - Select Espresso Use Case

USE case UC-13	Select a hot drink
Primary Actor	Server
Actor's goal	Select a drink and add it to the order
Stakeholders	Hot Drinks
Preconditions	There is a drink which has been ordered and it should be taken off from inventory
Post conditions	Drink has been selected, added to the order a inventory decreased

- Server selects the interface to select the product
- Validation. The system checks if the data requested exists in the database, check if it is selected from an amount available
- Drink has been successfully selected, added to order and amount has decreased from inventory database

Figure 12 - Select Hot Drink Use Case

USE case UC-15	Select an ice-cream
Primary Actor	Server
Actor's goal	Select ice-cream and add it to the order
Stakeholders	Ice Cream
Preconditions	There is an ice-cream which has been ordered and it should be taken off from inventory
Post conditions	Ice-cream has been selected, added to the order and inventory decreased

- Server selects the interface to select the product
- Validation. The system checks if the data requested exists in the database, check if it is selected from an amount available
- Ice-cream has been successfully selected, added to order and amount has decreased from inventory database

Figure 13

- Select Ice Cream Use Case

USE case UC-17	Checking out order
Primary Actor	Server
Actor's goal	Check out the order for a specific table
Stakeholders	Order
Preconditions	Checking out order should be done, with the respective table, products, quantity and price
Post conditions	The Check-out has been proceeded with the overall price and VAT

- Server selects the interface proceed with the check out
- Validation. The system checks if the data requested exists in the database, check if it is selected from the categories.
- Check-out has been successfully proceeded, together with the respective table, products, quantity and price with VAT

Figure 14 - Check out Order Use Case

USE case UC-18	Clock In and Clock Out
Primary Actor	Server
Actor's goal	Beginning and finishing his shift
Stakeholders	Server Panel
Preconditions	When taking and finishing his shift, server has to enter and exit his system
Post conditions	Server makes the clock-in and the time when he entered is saved, when he makes the clock-out the time he has worked is calculated.

- Server makes the log in and log out
- Validation. The system checks the time the server enters and type of account
- Check in and check out has been done and the user is logged in his account. The system saves the entering and finishing time to calculate the time the server worked.

Figure 15 - Clock In/ Out Use Case

USE case UC-19	Bill Dashboard
Primary Actor	Manager
Actor's goal	To see the revenue done and the number of bills
Stakeholders	Order
Preconditions	Admin wants to see the revenue and the nr of bills that have been done till at checking time
Post conditions	System will show him the total amount of revenue and the number of bills proceeded with their respective information

- Admin selects the interface to check the bills
- Validation. The system checks and calculates the revenue
- System will show the total amount of revenue and the number of bills proceeded with their respective information

Figure 16 - Bills Dashboard Use Case

USE case UC-20	Employee Time Clock
Primary Actor	Manager
Actor's goal	To see the hours worked and wages of employees
Stakeholders	Employee Time Clock
Preconditions	Admin wants to see the time an employee has worked, time of clocking in and out and the hourly and overall wage.
Post conditions	System will show the time an employee has worked, time of clocking in and out and the hourly and overall wage.

- Admin selects the interface to check the time clock
- Validation. The system checks the database with the information
- Check in and check out has been done and the user is logged in his account. The system saves the entering and finishing time to calculate the time the server worked.

Figure 17 - Employee Time Clock Use Case

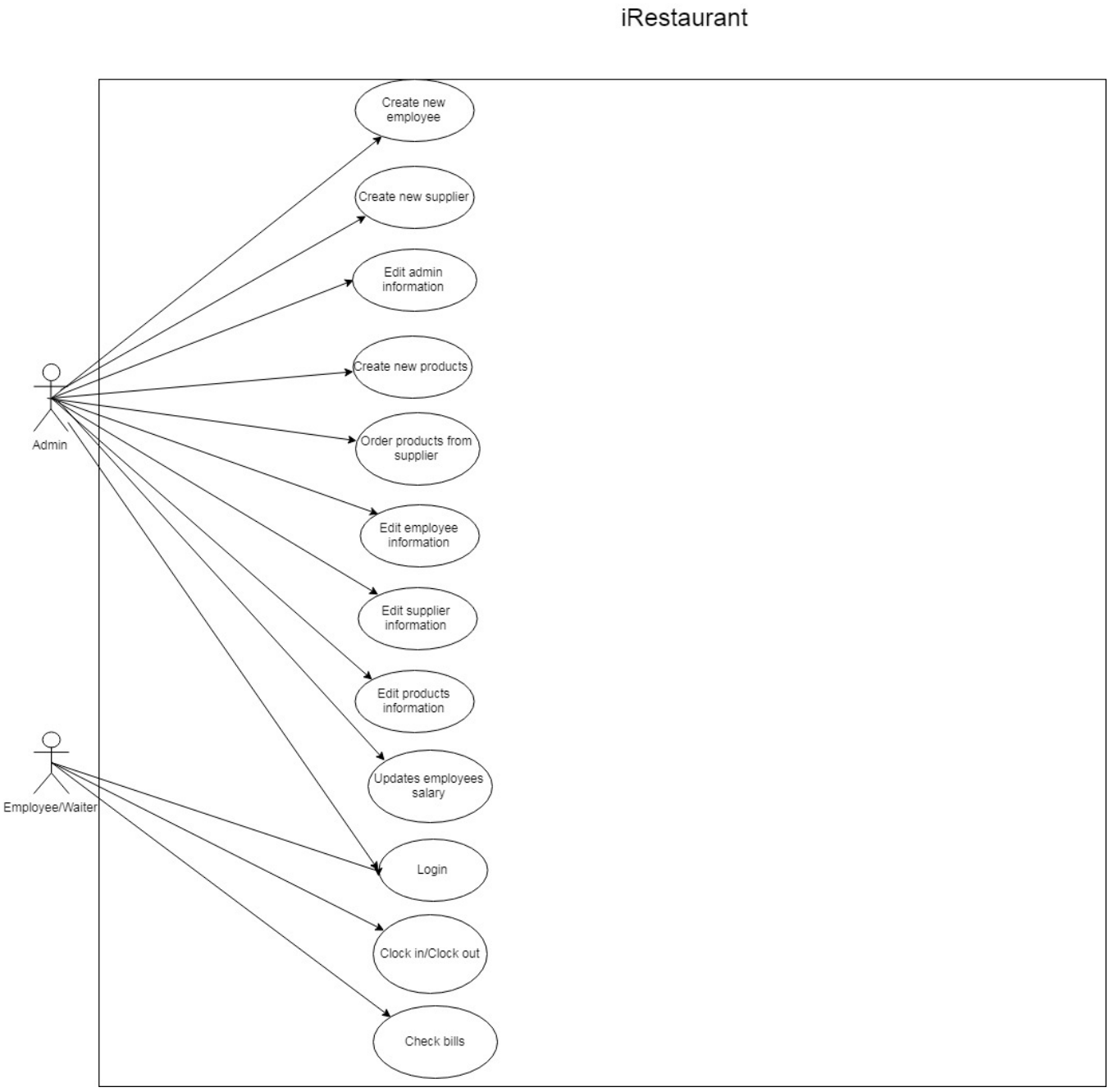

Figure 18 - Main System Use Case

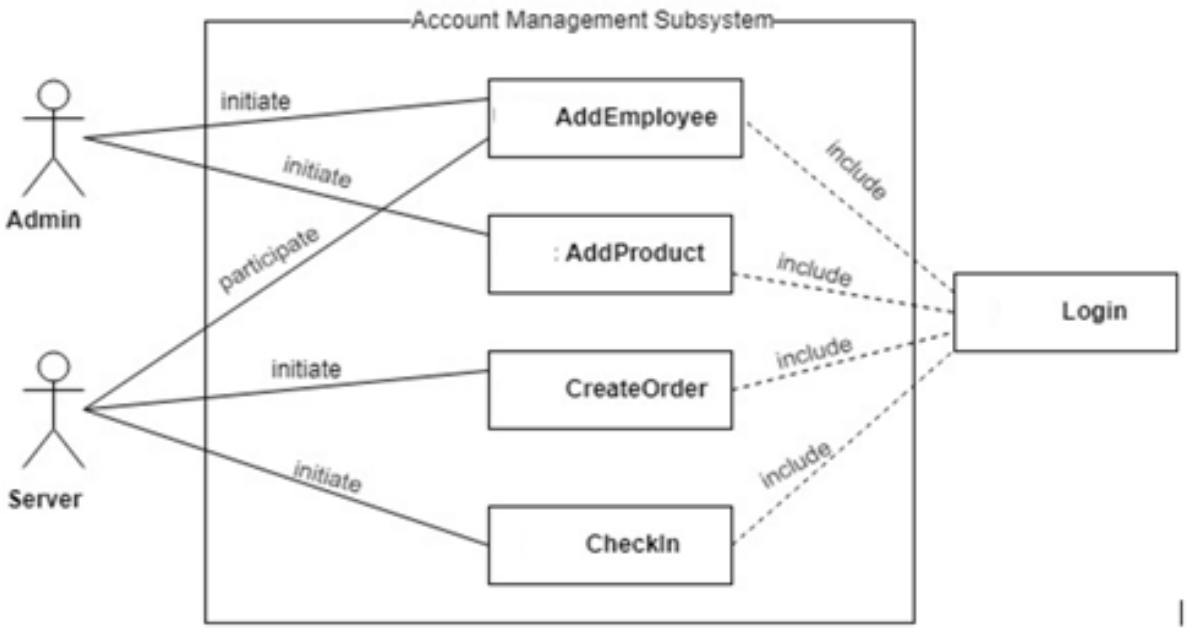

Figure 19 - Account Management Subsystem Use Case

Diagrams

Activity Diagrams

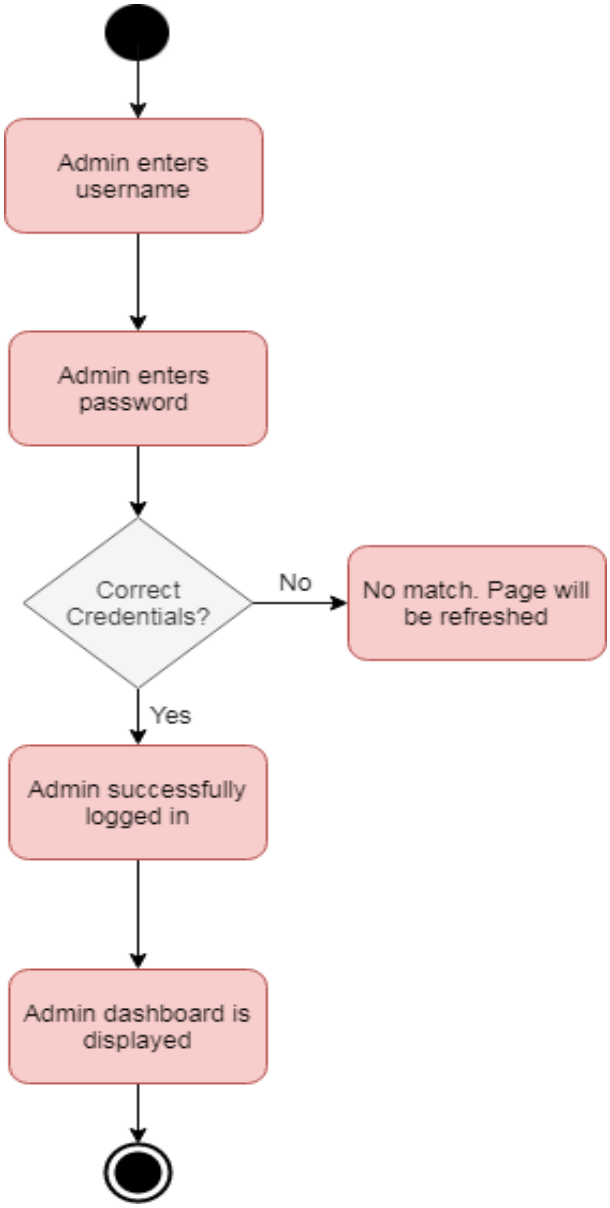

Figure 20 - Activity Diagram 1 - Log In - Scenario A2

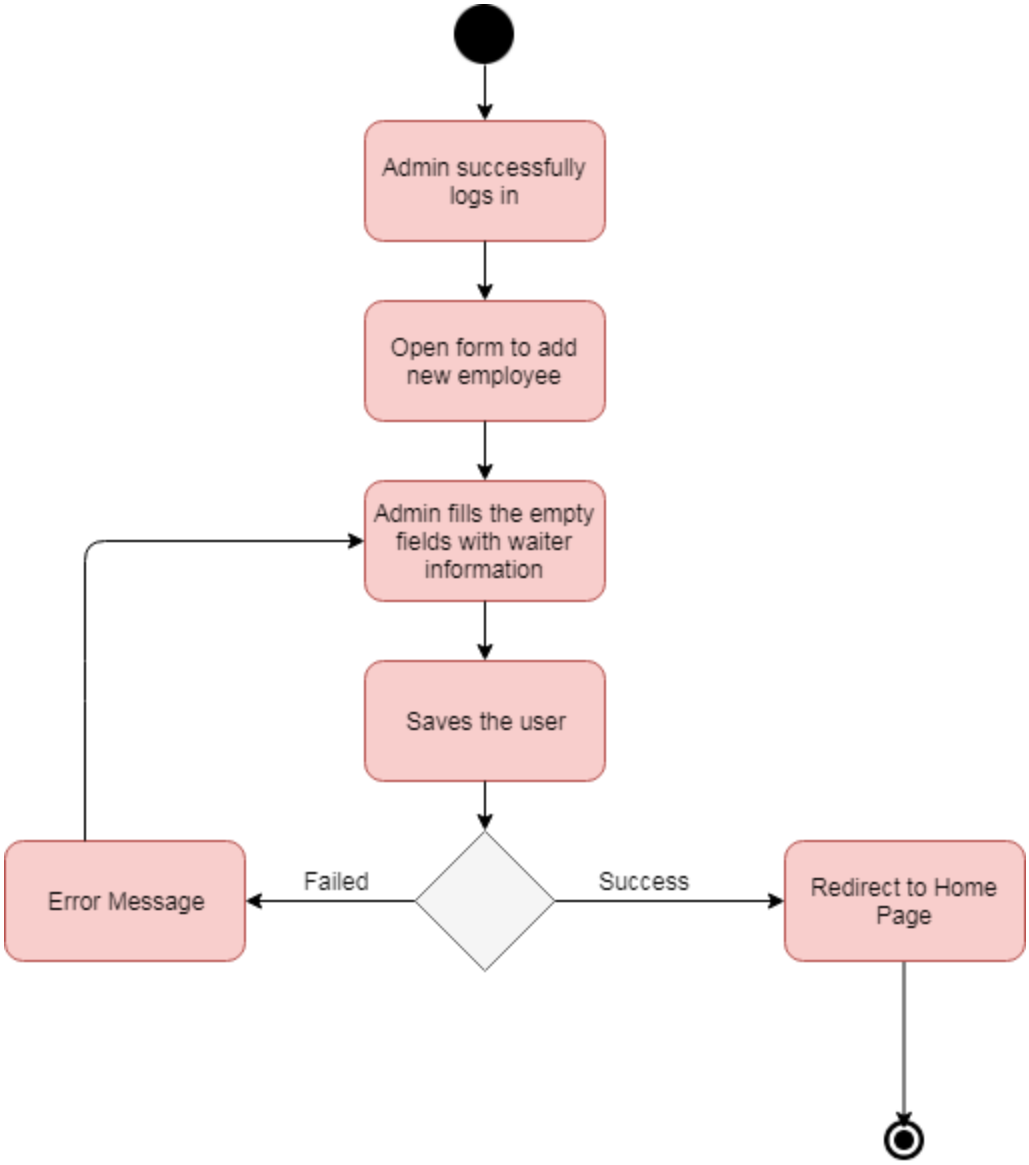

Figure 21 - Activity Diagram 2 - Admin add new employee - Scenario A3

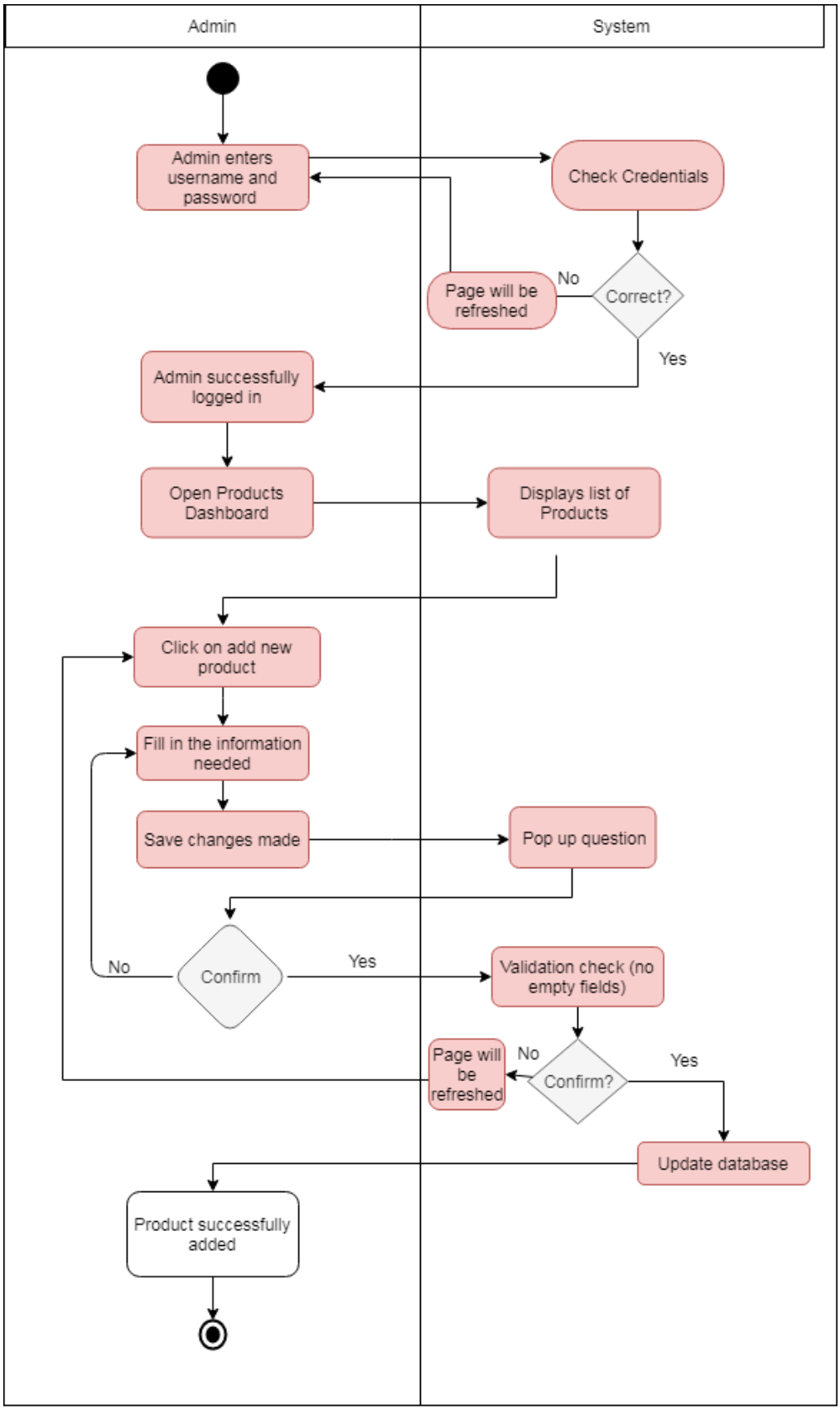

Figure 22 - Activity Diagram 3 -Admin creates a new product - Scenario A5

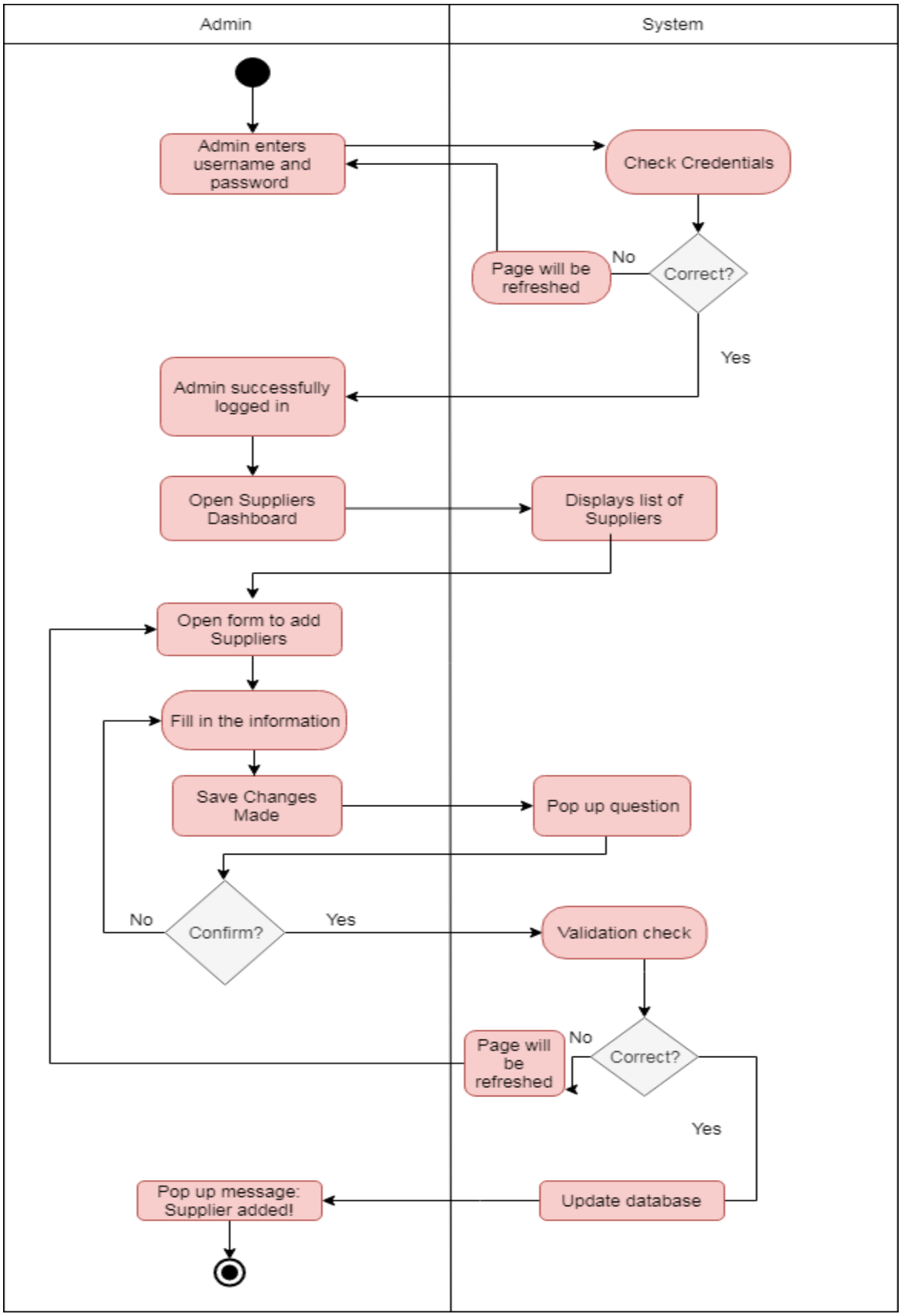

Figure 23 - Activity Diagram 4 -Admin creates new supplier - Scenario A7

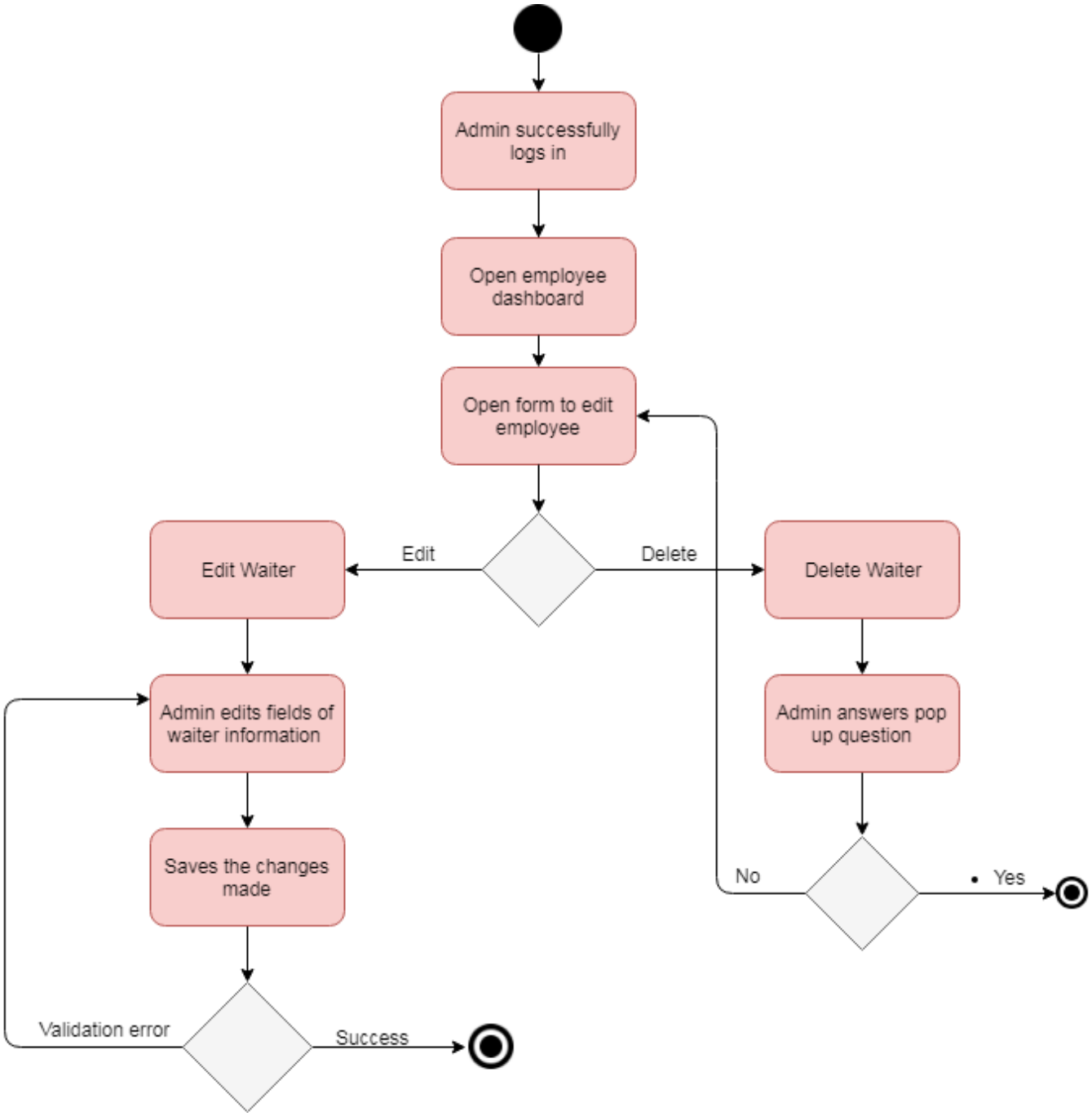

Figure 24 - Activity Diagram 5 -Admin edit employee information - Scenario A11

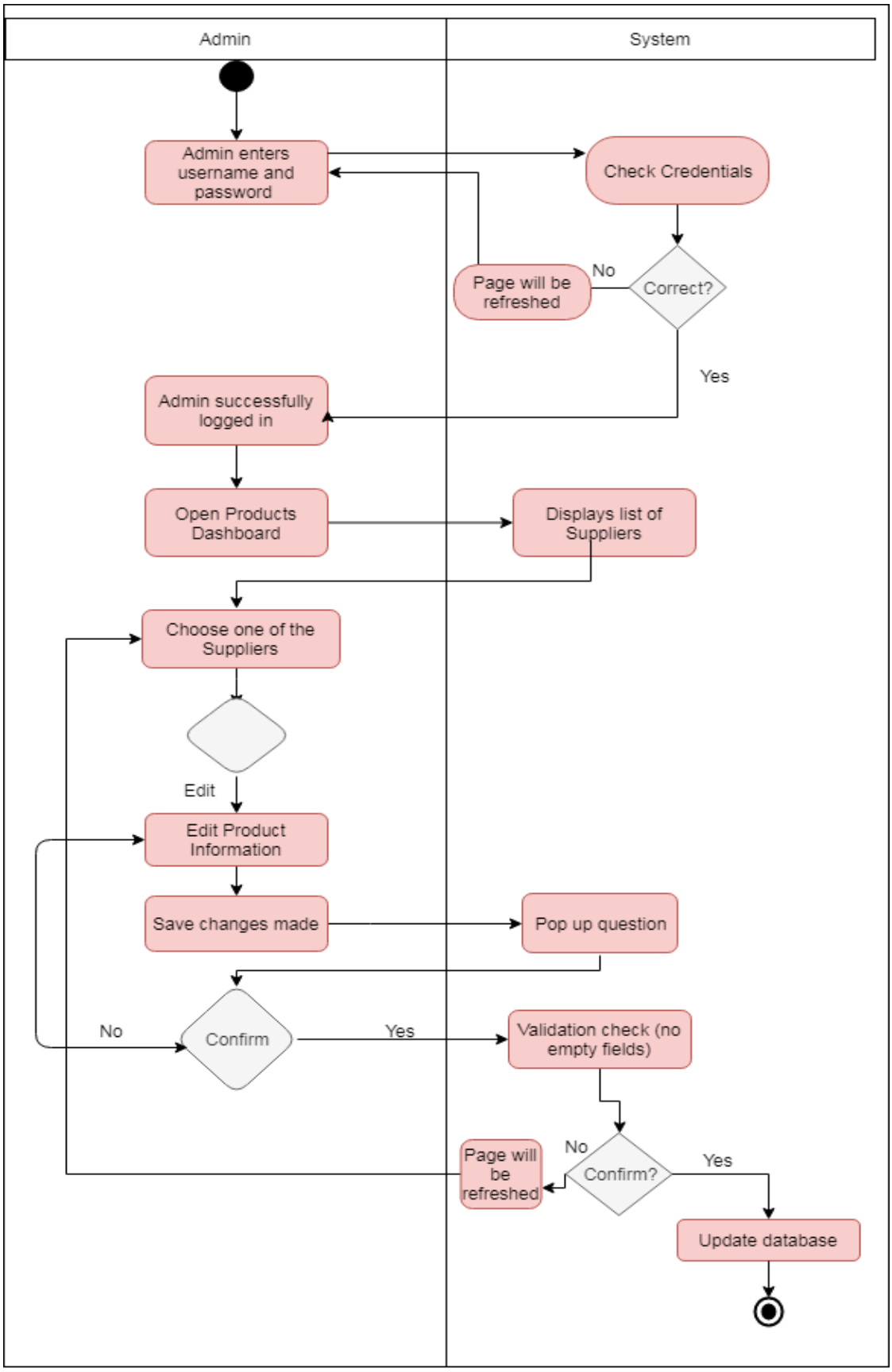

Figure 25 - Activity Diagram 6 -Admin modifies supplier - Scenario A12

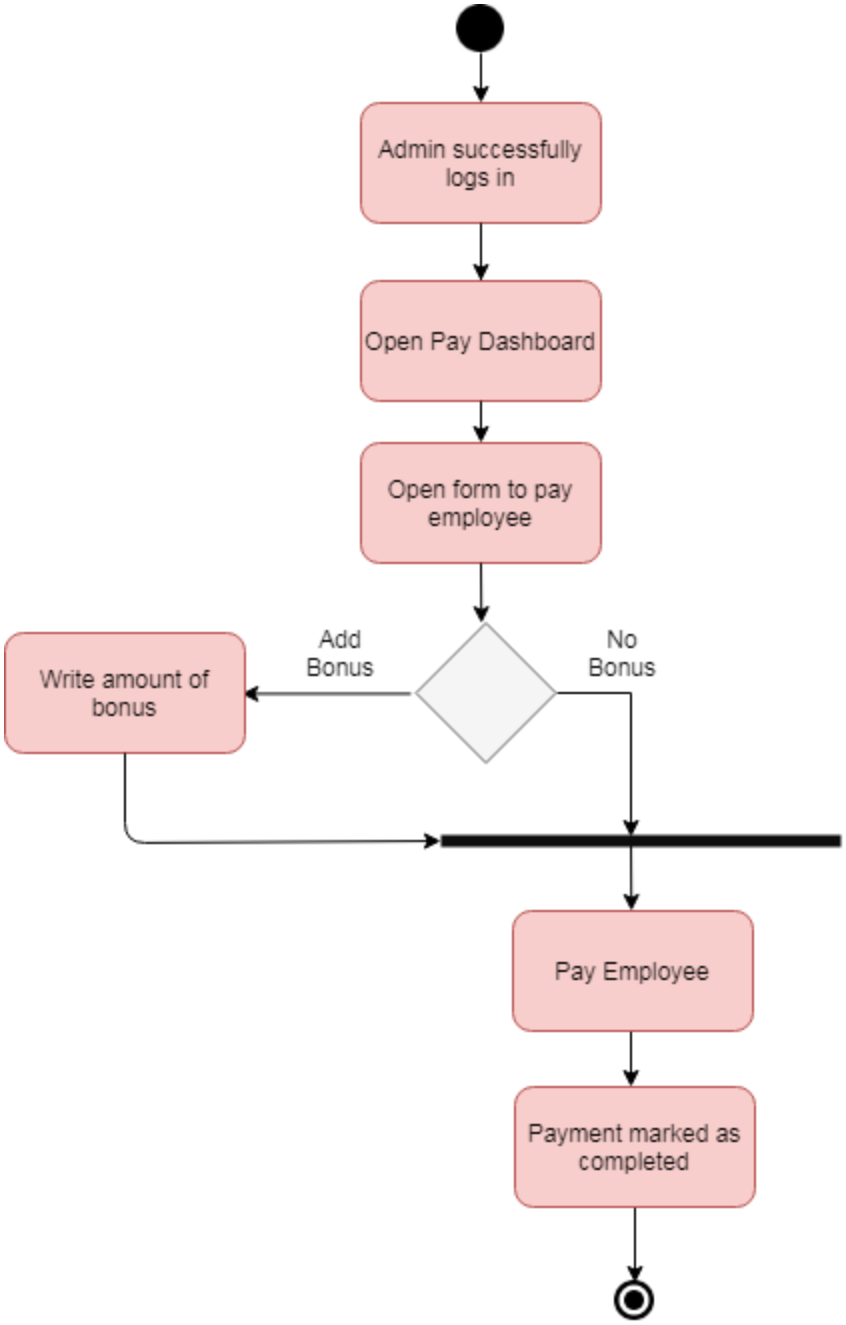

Figure 26 - Activity Diagram 7 - Admin pays employee - Scenario A16, A17

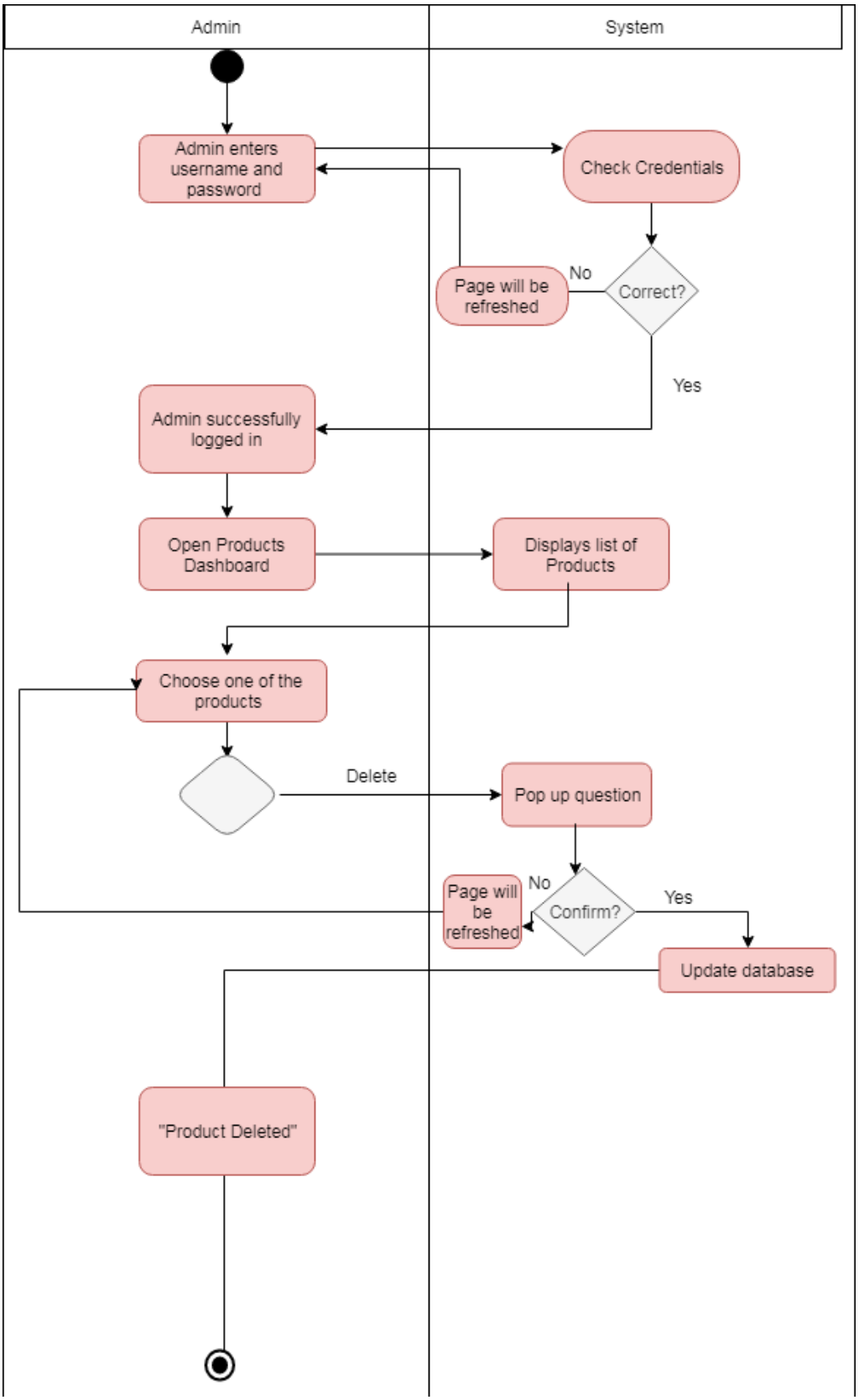

Figure 27 - Activity Diagram 8 -Admin deletes product - Scenario A14

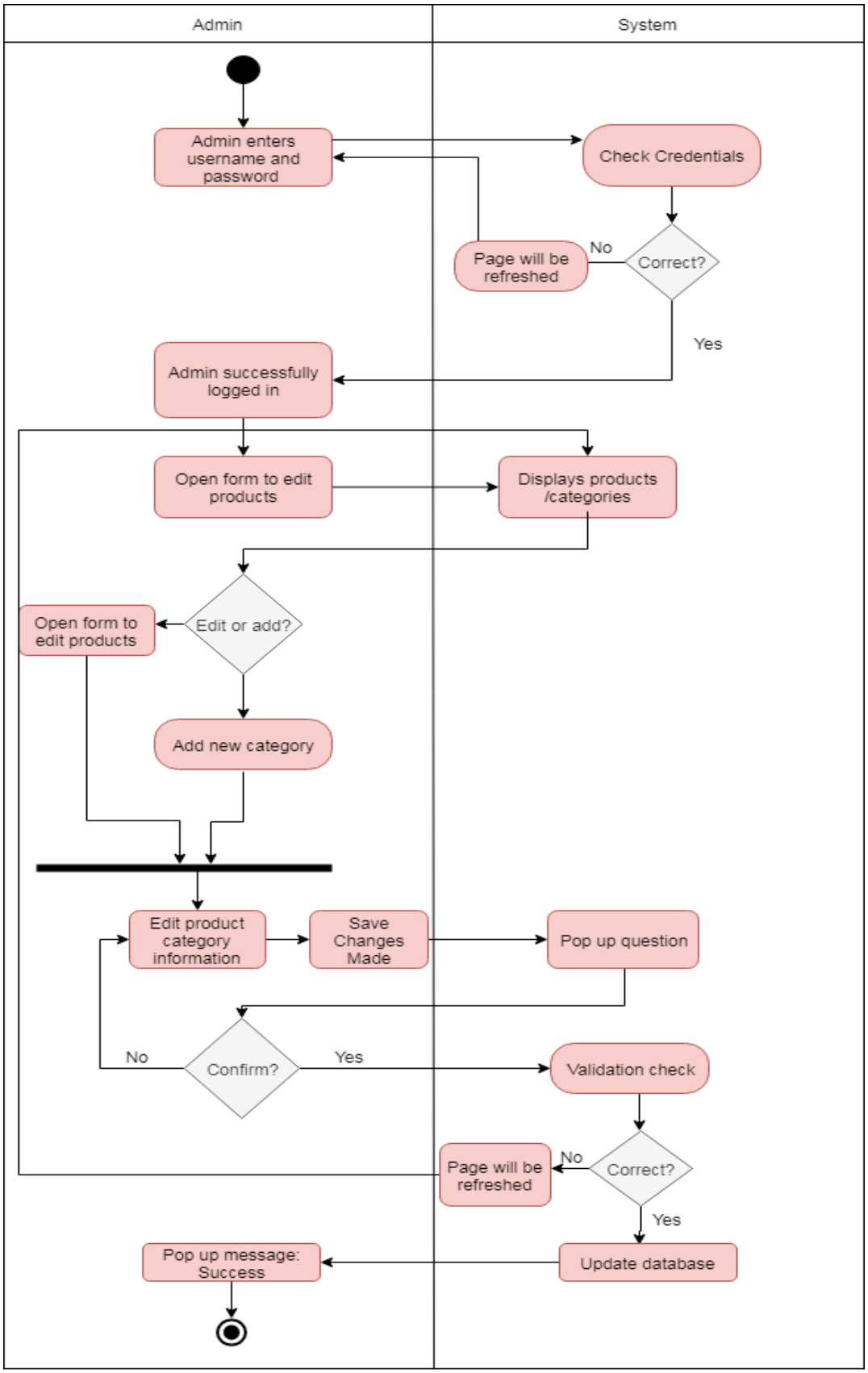

Figure 28 - Activity Diagram 9 -Admin add & edit category of products- Scenario A5, A16

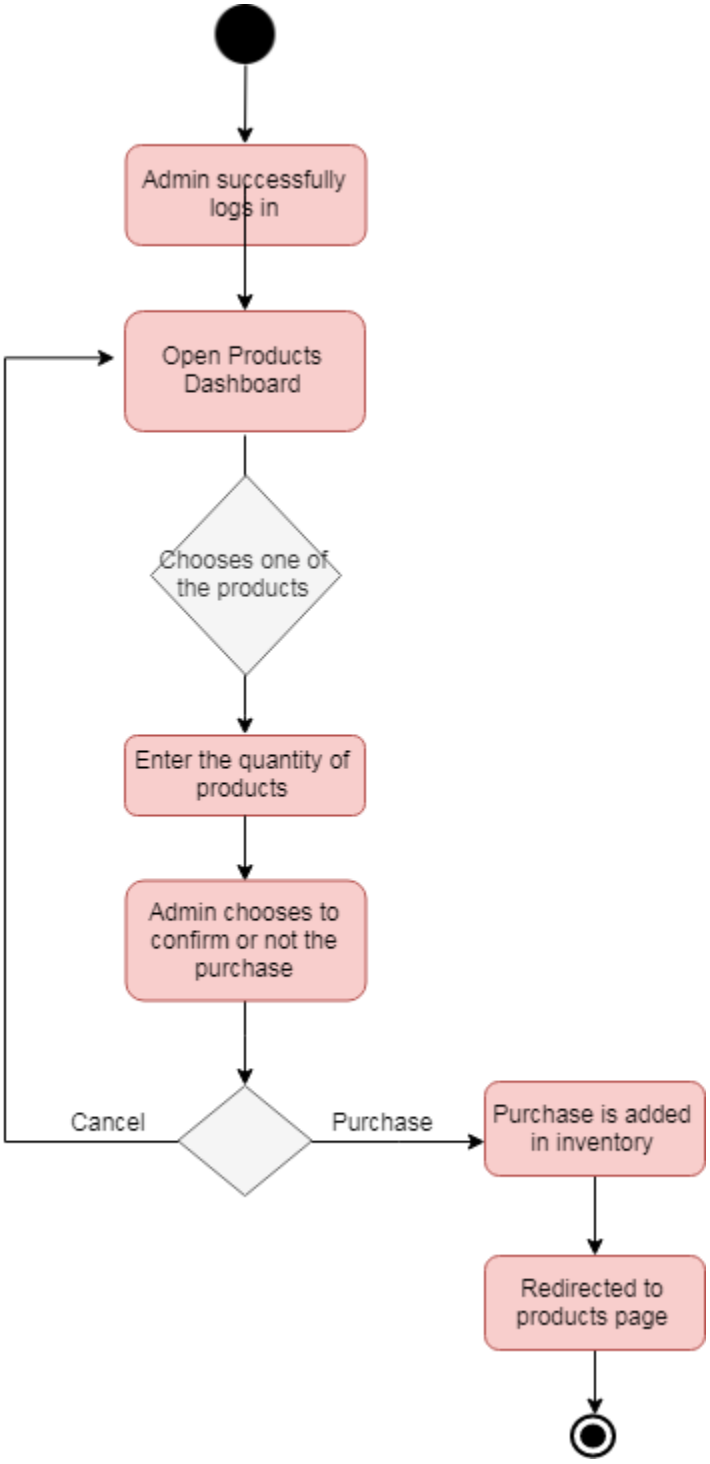

Figure 29 - Activity Diagram 10 -Admin purchases product - Scenario A18

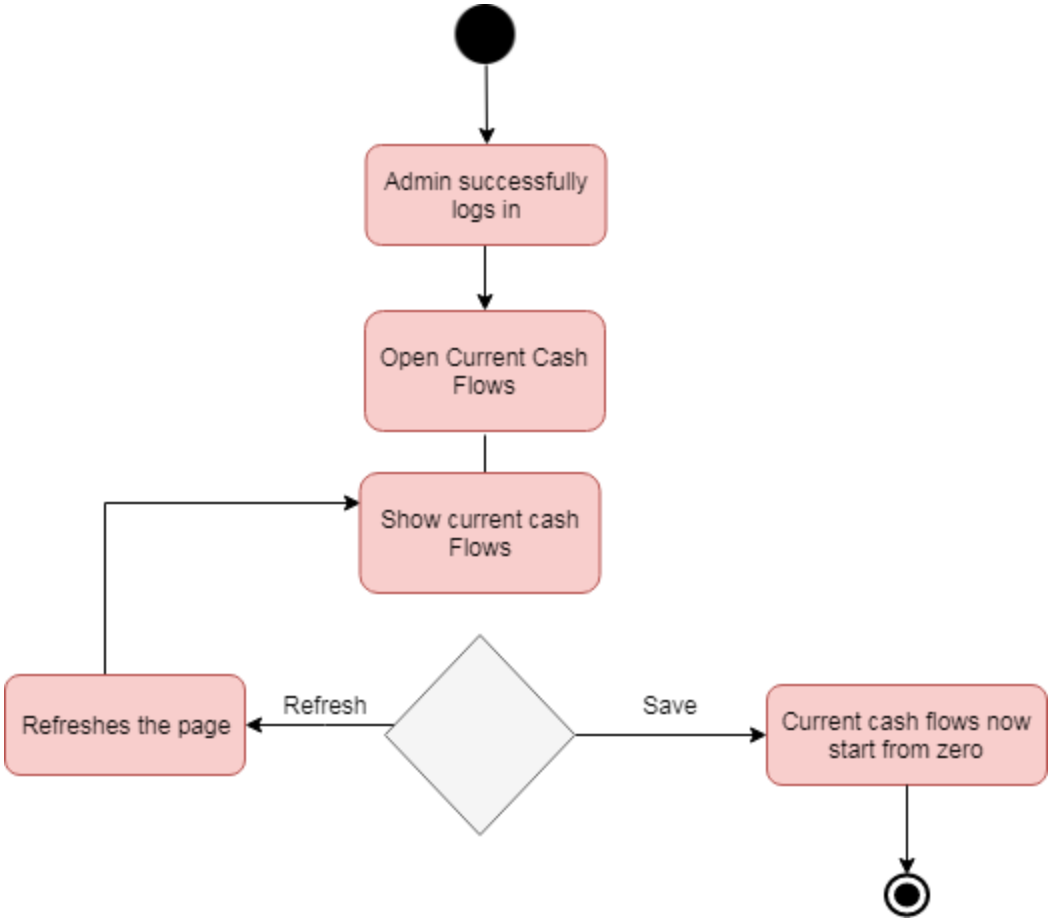

Figure 30 - Activity Diagram 11 -Admin saves Current Cash Flows - Scenario A19

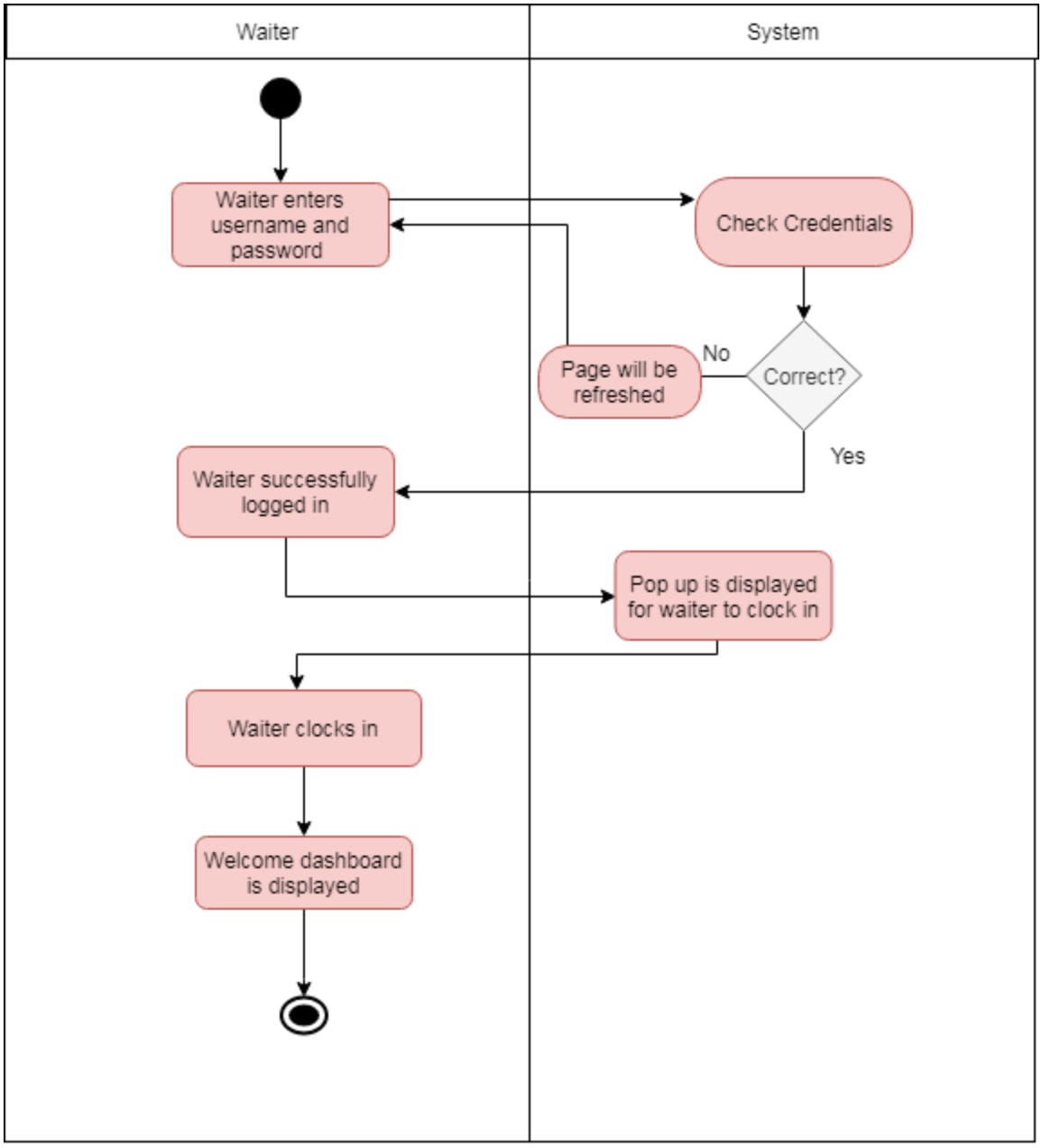

Figure 31 - Activity Diagram 12 -Waiter Clocks In - Scenario W3

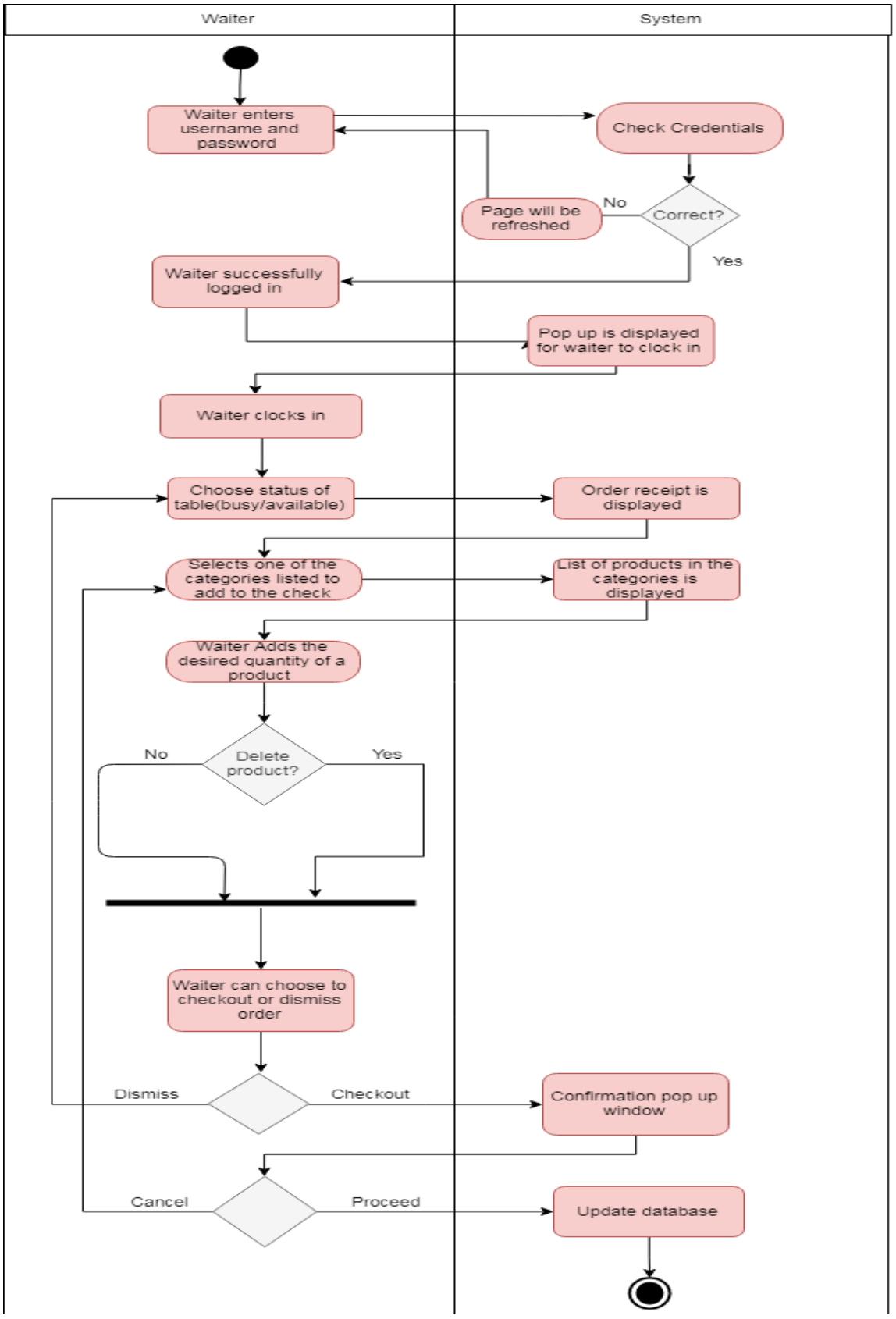

Figure 32 - Activity Diagram 13 -Waiter Order Process - Scenario W6, W7, W8

Data Flow Diagrams

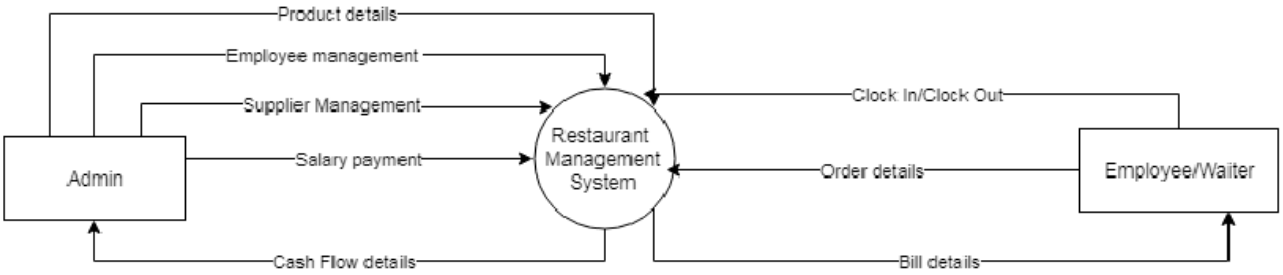

Figure 33- DFD: Level 0

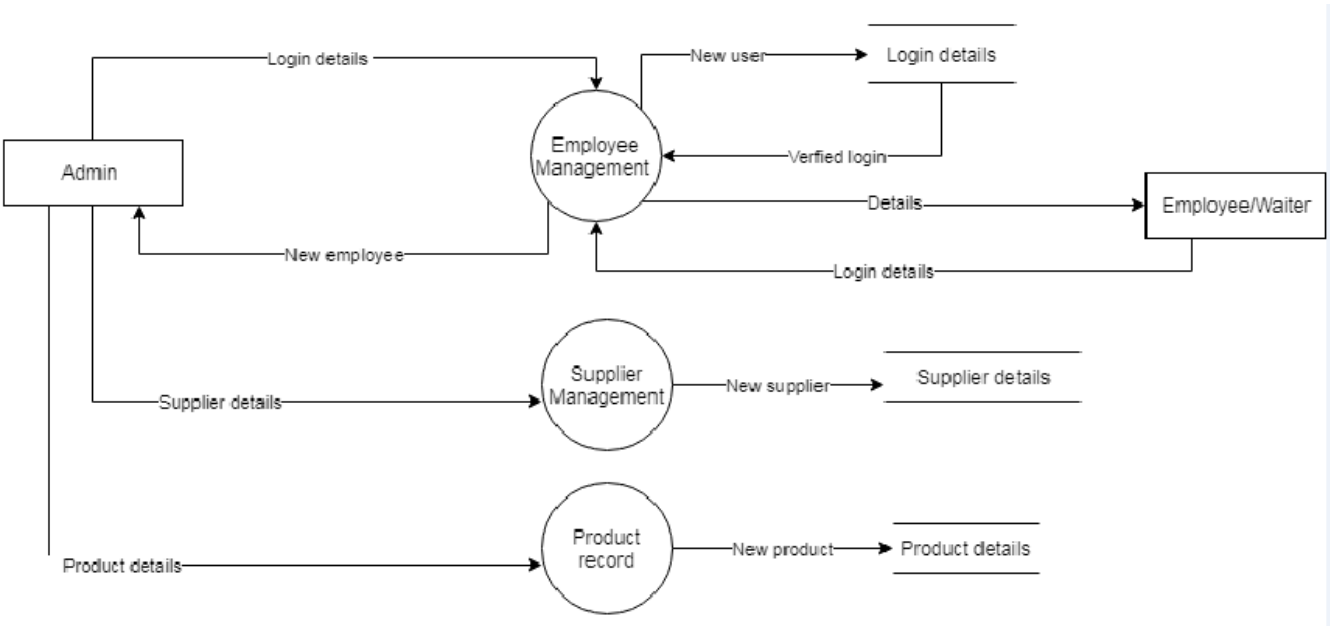

Figure 34 - Admin Level 01

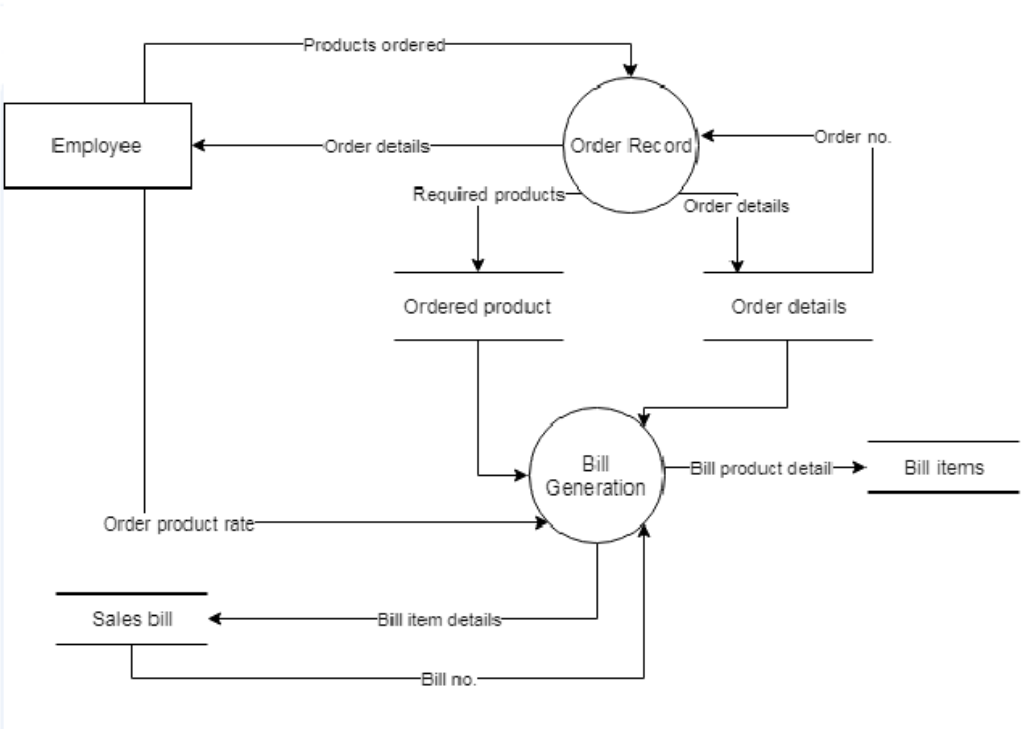

Figure 35 - Employee Level 01

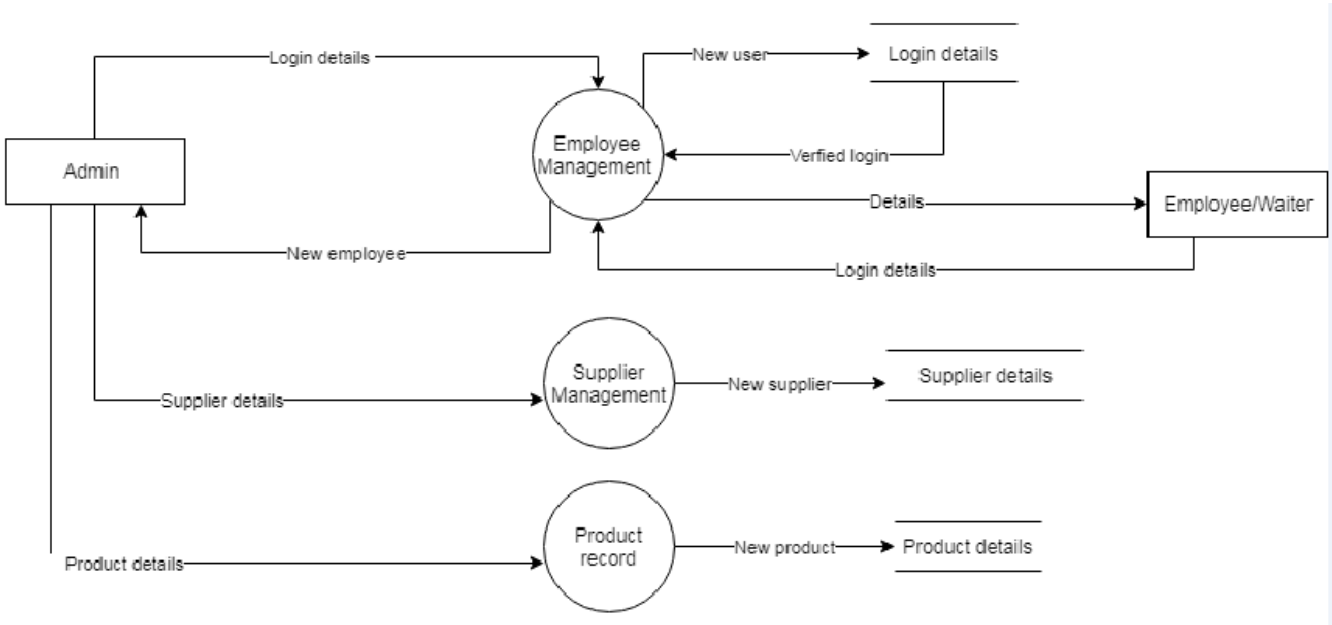

Figure 36 - Admin Level 01 (continued)

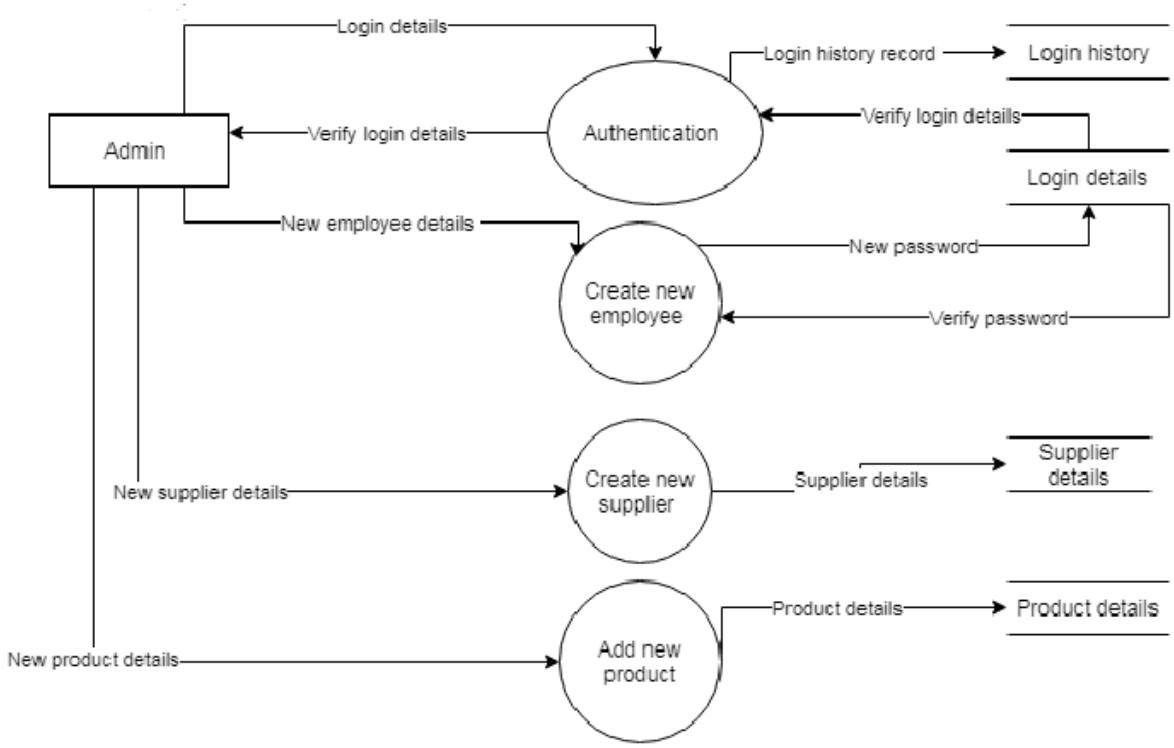

Figure 37 - Admin Level 02

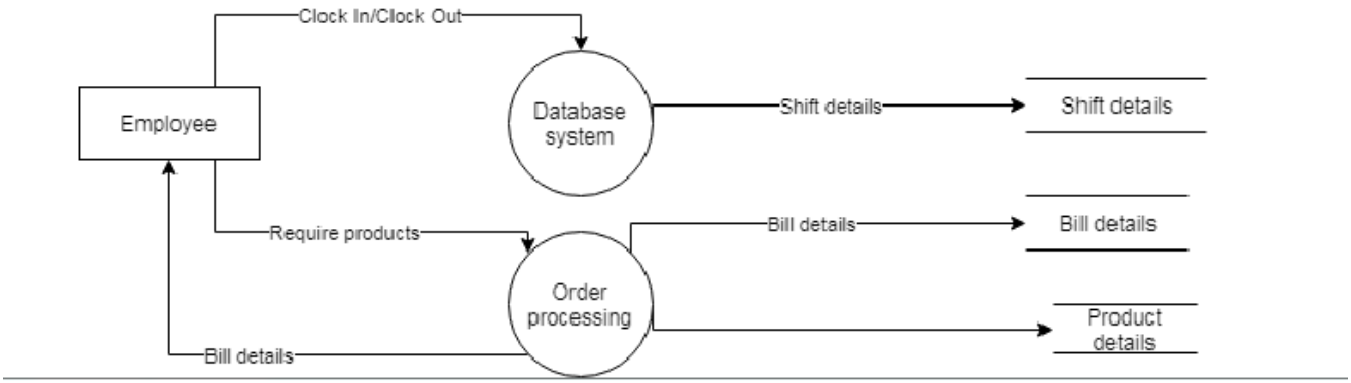

Figure 38 - Employeee Level 02

Activity Diagrams

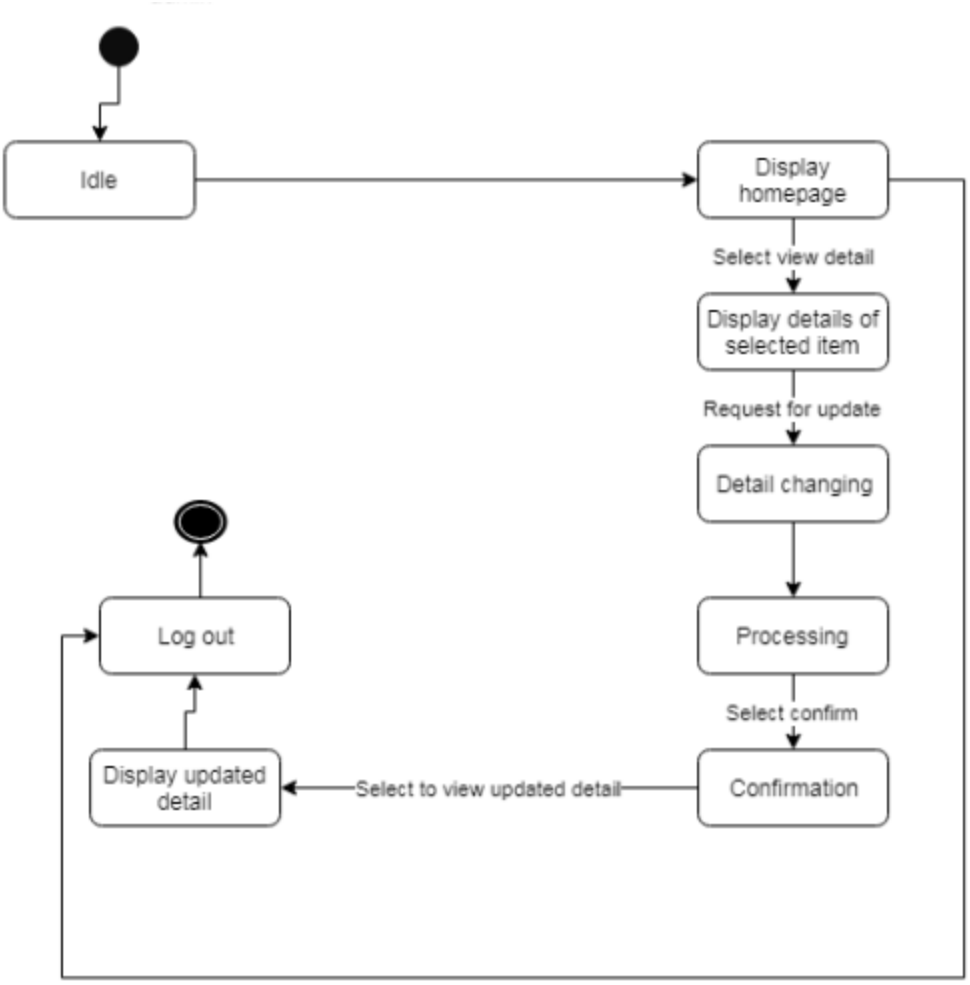

Figure 39 - Admin State

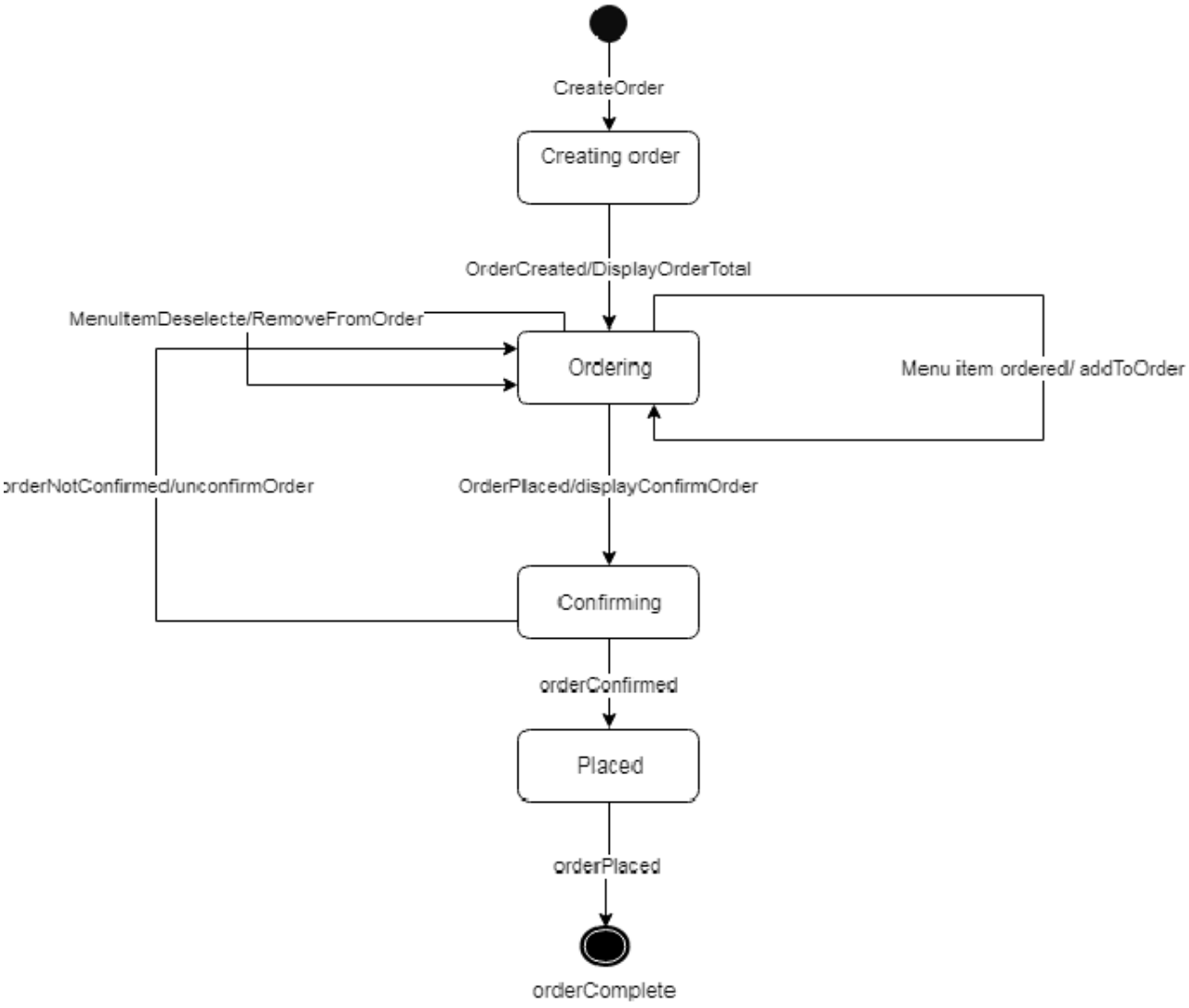

Figure 40 - Order State

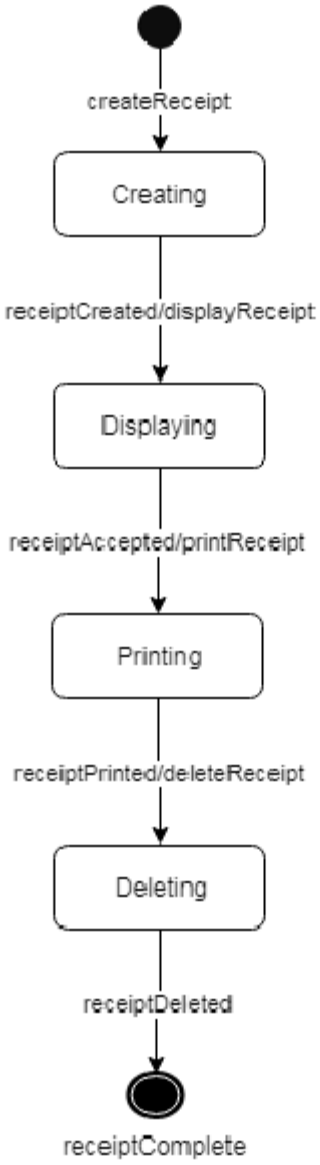

Figure 41- Receipt State

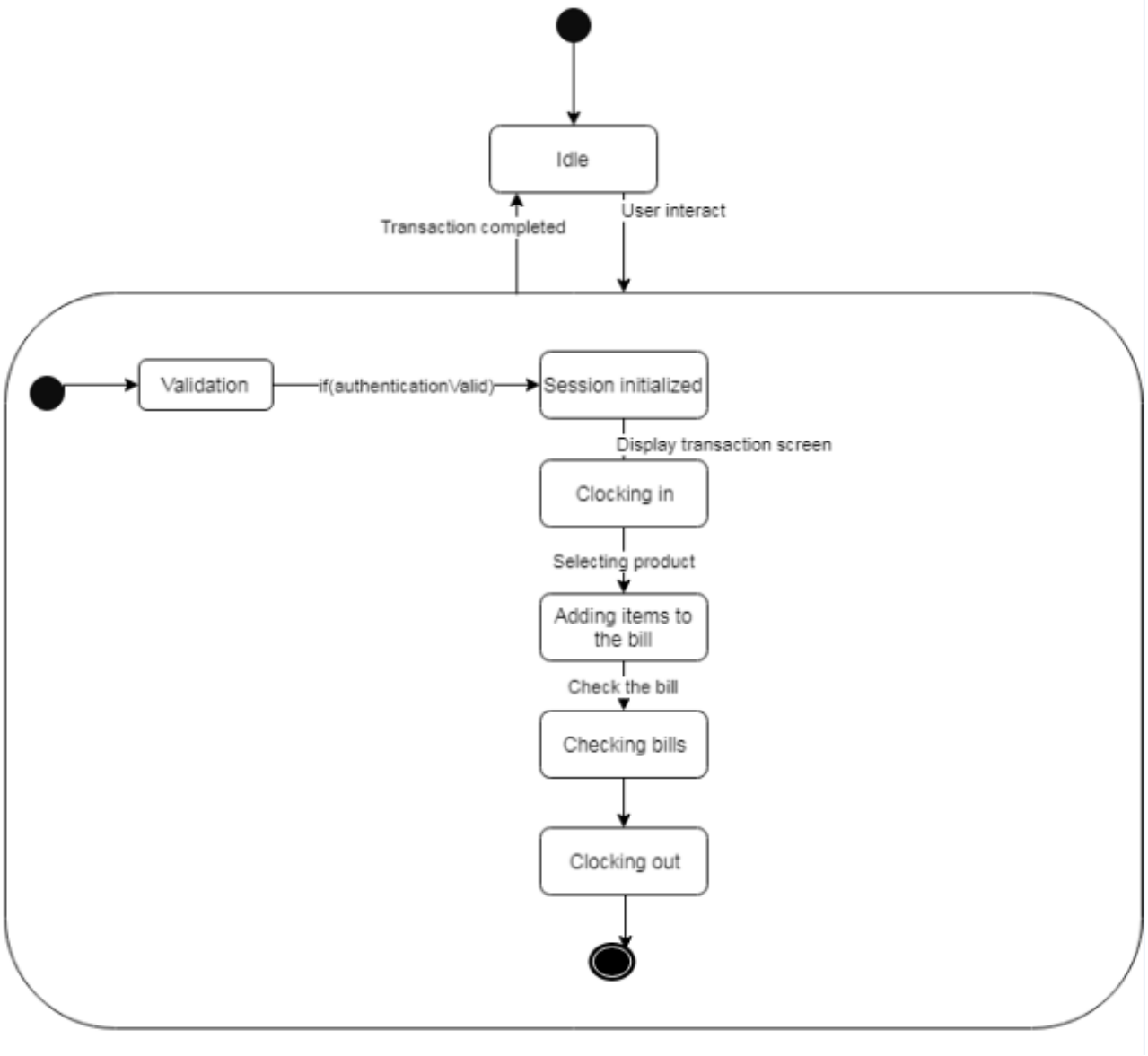

Figure 42 - Server State

Class Diagram

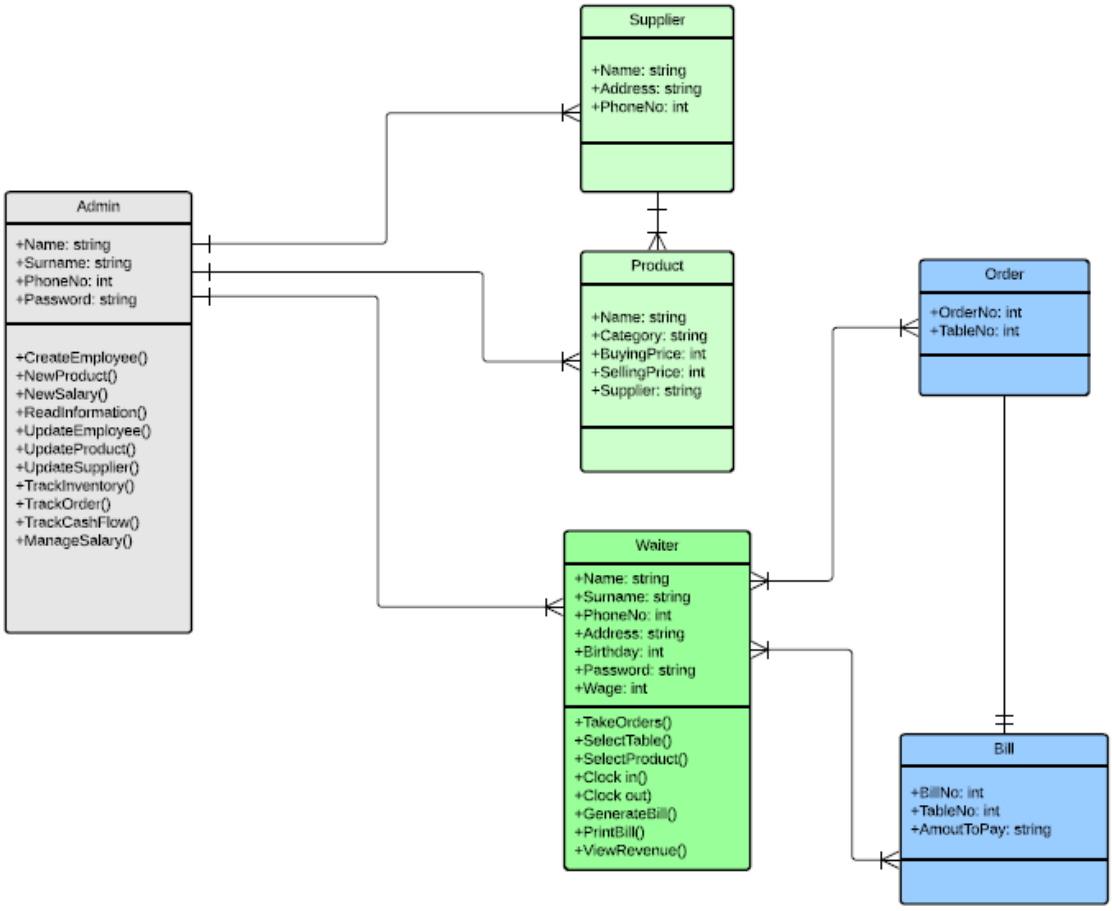

Figure 43 - Class Diagram

Object Diagram

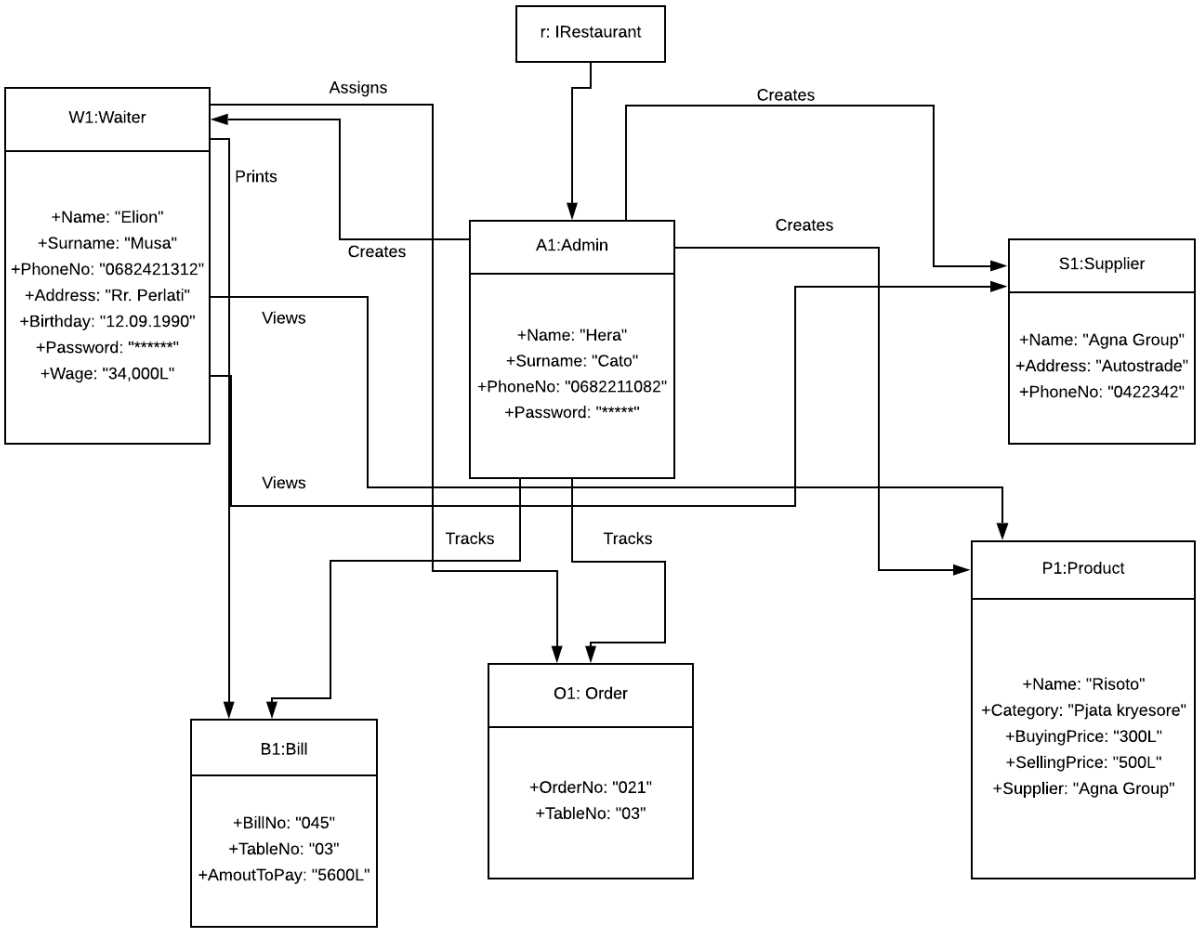

Figure 44 - Object Diagram

ERD

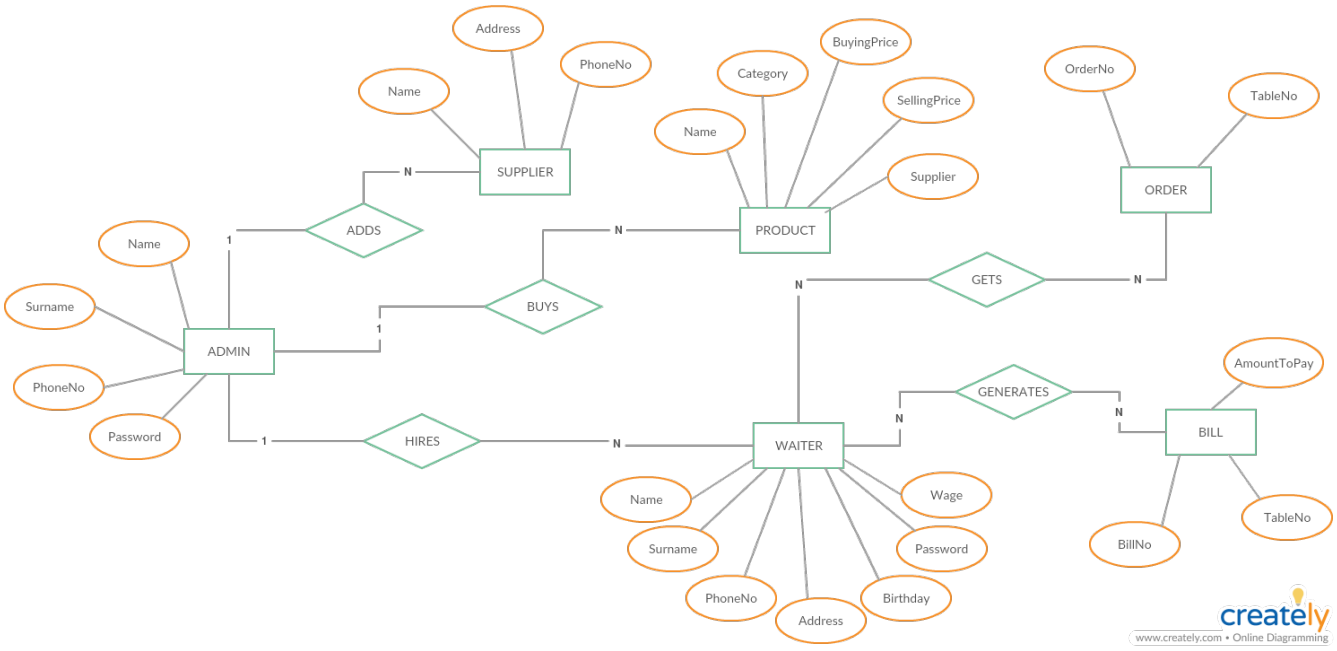

Figure 45 - ERD

APPENDIXES

Appendix A. Definitions, Acronyms, and Abbreviations

LIST OF NOTATIONS / ABREVIATIONS / GLOSARY OF TERMS

· **Manager**-Controls and oversees all of the business. In charge of editing the menu items available to the customers. The manager is also responsible for assessing restaurant performance.

· **Waiter** – Assists customer upon request. Waiter is responsible for

serving food.

· **Clock In/Clock Out** – A system function that allows employees to enter their hours for manager to run payrolls.

· **Payroll** – The amount of money each employee will receive for their services. The payroll differs for each employee.

· **User Interface** – The visual on the computer and tablet that allows user interaction with the system. Allows touch screen interaction to order, pay bill, call waiter and view order.

· **Table Status** – Shows the availability of a table as well as the waiter in charge of serving that table.

· **Wireless Access Point** – Access points used in home or small business networks are generally small, dedicated hardware devices featuring a built-in network adapter, antenna, and radio transmitter. Access points support Wi-Fi wireless communication standards.

· **POS** – Point of Sale System

Appendix B. References

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APPENDIX C - Web Application Screenshots

Web Application Screenshots

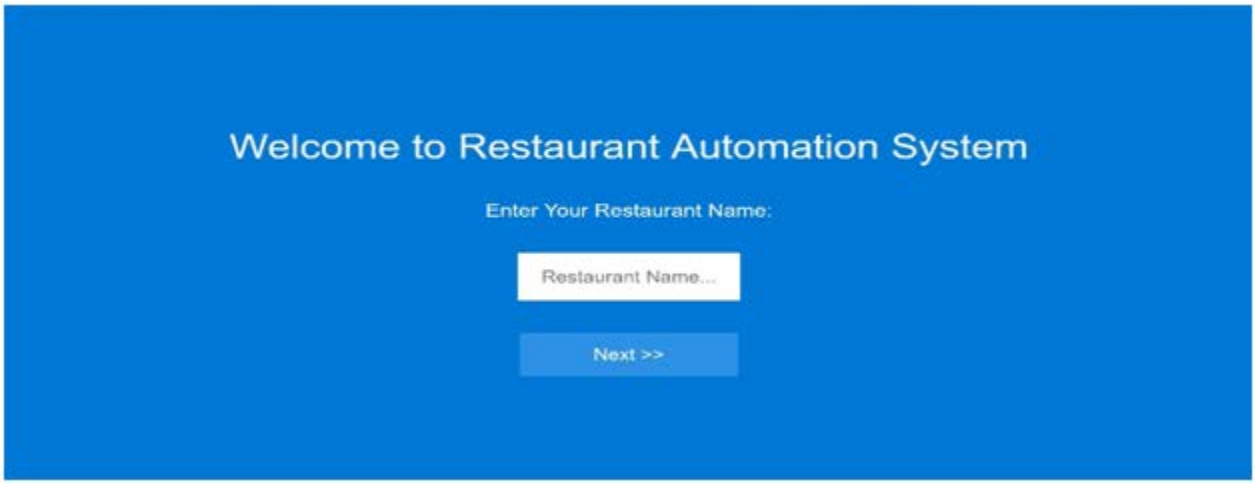

Figure 01 - Welcome Page

Figure 02 - Register Restaurant Information

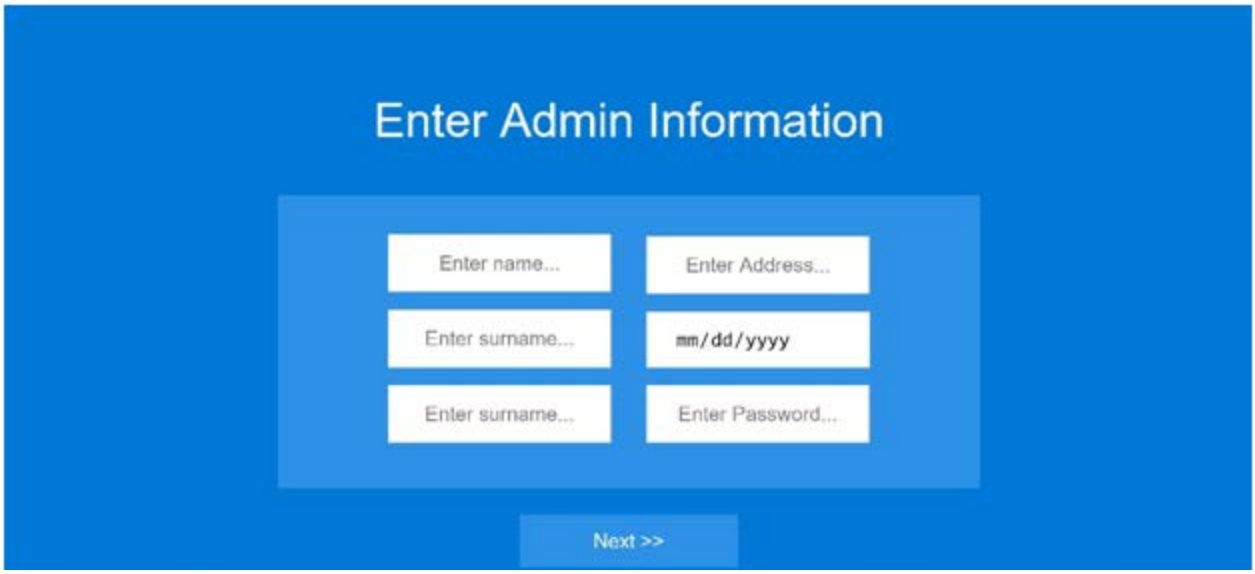

Figure 03 - Register First Admin

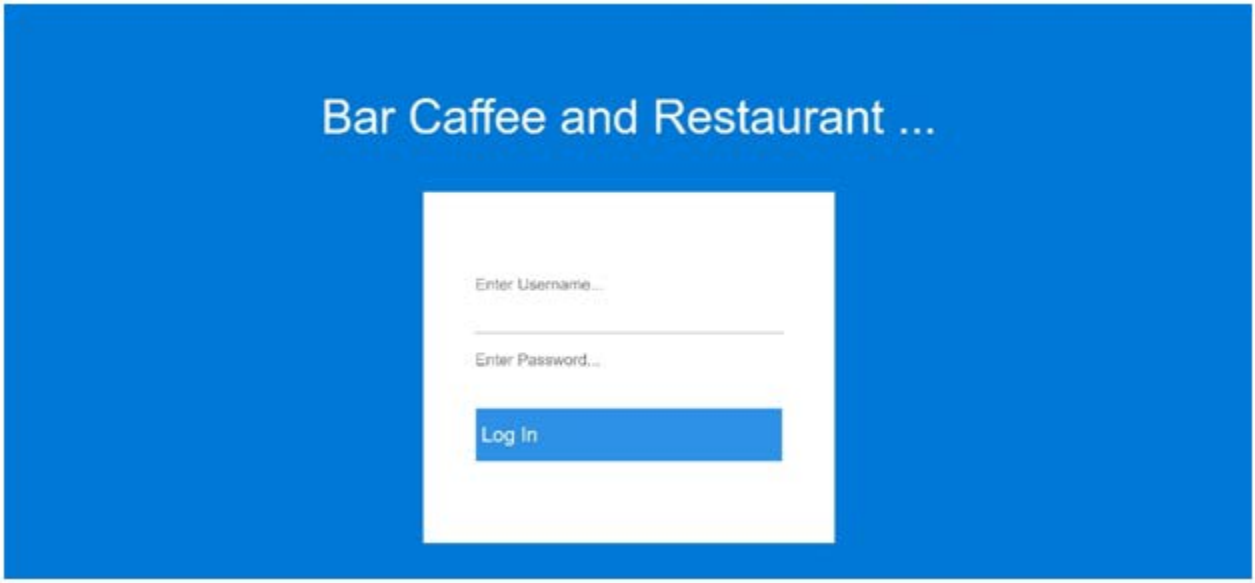

Figure 04 - User Login

AFigure 05 - Admin Panel First Page