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## Project report for

# SUPERMARKET AUTOMATION SYSTEM

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# SUPERMARKET AUTOMATION SYSTEM

## 1. INTRODUCTION

### 1.1 OBJECTIVE

The main objective of the Supermarket Automation System (SAS) is to automate the billing , Inventory system and statistic sales of Supermarket which makes the users comfortable and effortless in maintaining the Supermarket

### 1.2 SCOPE

- Creating and printing transaction bills
- Maintaining and updating the inventory of the various products of the supermarket
- Displaying and printing the sales statistics for any period

## 2. OVERALL DESCRIPTION

This system provides the customer to bill the transaction, maintaining the inventory system and sales statistics.

### 2.1 PRODUCT PERSPECTIVE

The SAS is a new system that replaces the current manual process of billing, inventory management and sales statistics in a supermarket.

### 2.2 PRODUCT FUNCTIONS

1. Perform sales transactions
2. Generation of the bill
3. Update inventory
4. Check inventory
5. Print sales statistics

### 2.3 OPERATING ENVIRONMENT

The supermarket automation software system can operate in any system which enables java.

### 2.4 DEISGN AND IMPLEMENTATION CONSTRAINTS

System should maintain sufficient database to store information about the products.

## 3. USER CLASSES AND CHARACTERISTICS

### 3.1 SALES CLERK

The supermarket sales clerks who are responsible for carrying out the transaction with customers and creating, printing bills for the transactions

### 3.2 EMPLOYEE

They are responsible for maintenance of the products in the supermarket and addition of newly arrived products to the inventory.

### 3.3 MANAGER

A Manager manages the supermarket's revenue and sales function. He view the inventory, review and printing the sales statistics

## 4. INTERFACE

### 4.1 SALES CLERK INTERFACE

The SAS screen displays an interface to commute a transaction with a customer and produces/prints a bill for the transaction.

### 4.2 EMPLOYEE

The SAS screen displays an interface to update the inventory for the each arrival of new supplies.

### 4.3 MANAGER

The SAS screen displays interfaces to view the inventory change the prices of the products, view and print sales statistics.

### 4.4 HARDWARE INTERFACE

For the software to function properly, the clerk will enters product ID and quantity for each product and finally printer prints the bill of a transaction.

### 4.5 SOFTWARE INTERFACE

Inventory Query :

- The Manager queries for the product which he/she wants to modify the price of an item in a database.

Add to inventory:

The SAS updates the product in database on arrival of the new products.

New Transaction :

- The Sales Clerk provides the details of the product ready to be purchased.
- On pressing the print button, the details of the inventory are updated and bill is produced and printed along with confirmation message.

Communication interface:

- Any changes made to the inventory of the Supermarket is automatically updated in the database.

## 5. FUNCTIONAL REQUIREMENTS

### 5.1 SALES TRANSACTIONS

Introduction :

- A sales transaction authorizes and payment method is indicated on payment the bill of the transaction is generated.

Input :

- Product ID from the bar code reader.
- Weight readings from the weighing machine.

Processing :

- The SAS queries the database for the product information and calculates the total amount payable after inclusion of taxes.
- A bill is created in a printable format.

Outputs :

- A formatted bill is printed for the customer.

### 5.2 VIEWING SALES STATISTICS

Introduction :

- The Manager views the sales statistics and prints them in tabular format and graph.

Input :

- Item identification parameter (such as product ID or name).
- Time period or duration.

Processing :

- The SAS looks into the database, the cost and selling price of the particular product for every transaction in that period and generates the profit statistics in the requested format.

Output :

- The profit statistics are displayed in the requested format for the manager, which he prints for his convenience.

## 5.3 UPDATING PRICES

Introduction :

- The Manager easily updates the prices for all the items available in the Supermarket according to the changing prices in the market.

Input :

- The product identification parameter.
- New price for the product.

Processing :

- The SAS looks into the database and shows information.
- Updates the database with the new price.

Output :

- The product information with updated price is shown.

## 5.4 UPDATING INVENTORY

Introduction:

The Supermarket staff add new items to the inventory which have newly arrived.

Inputs :

- The product ID and quantity of the product arrived.

Processing :

- The SAS looks into the database, if the product ID already exists in the inventory database, the quantity is uploaded otherwise new product information has to be added to the database.

Output :

- A message is displayed confirming the update regarding the product ID and amount.

## 6. NON FUNCTIONAL REQUIREMENTS

### 6.1 PERFORMANCE REQUIREMENTS

- The performance of the system should be fast and accurate.
- The system should be able to handle the large amount of data.
- The search features should be easy to find out the products.

### 6.2 SAFETY REQUIREMENTS

Due to technical issues the software fails, so it is necessary to maintain the backup of data.

### 6.3 SECURITY REQUIREMENTS

- Every user is provided with unique login ID and password. So unauthorized users cannot have the permissions to access.
- No user can access other functionalities which are not allowable to the particular user.

### 6.4 SOFTWARE QUANTITY ATTRIBUTES

Maintainability :

- The software can be able to modify according to change in requirements.

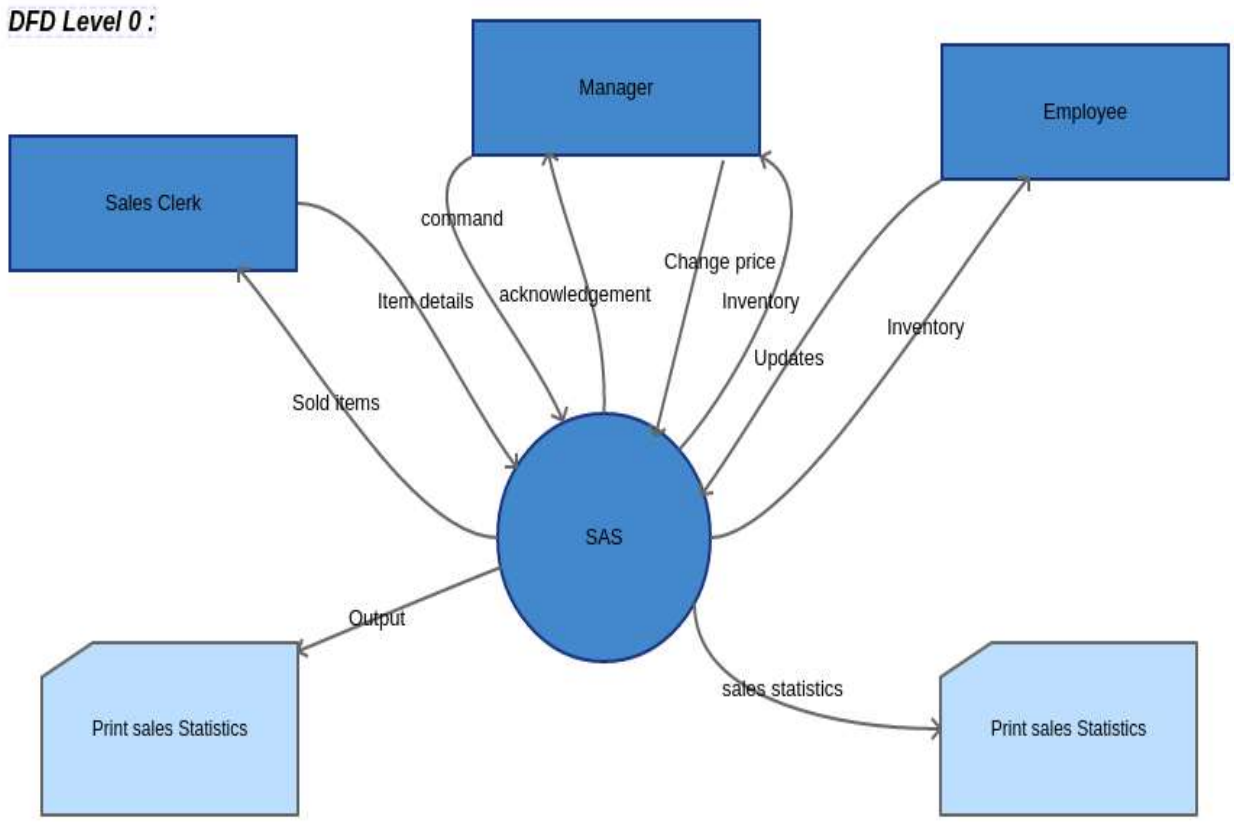
Portability :

- It can be able to run on any platform which supports Java

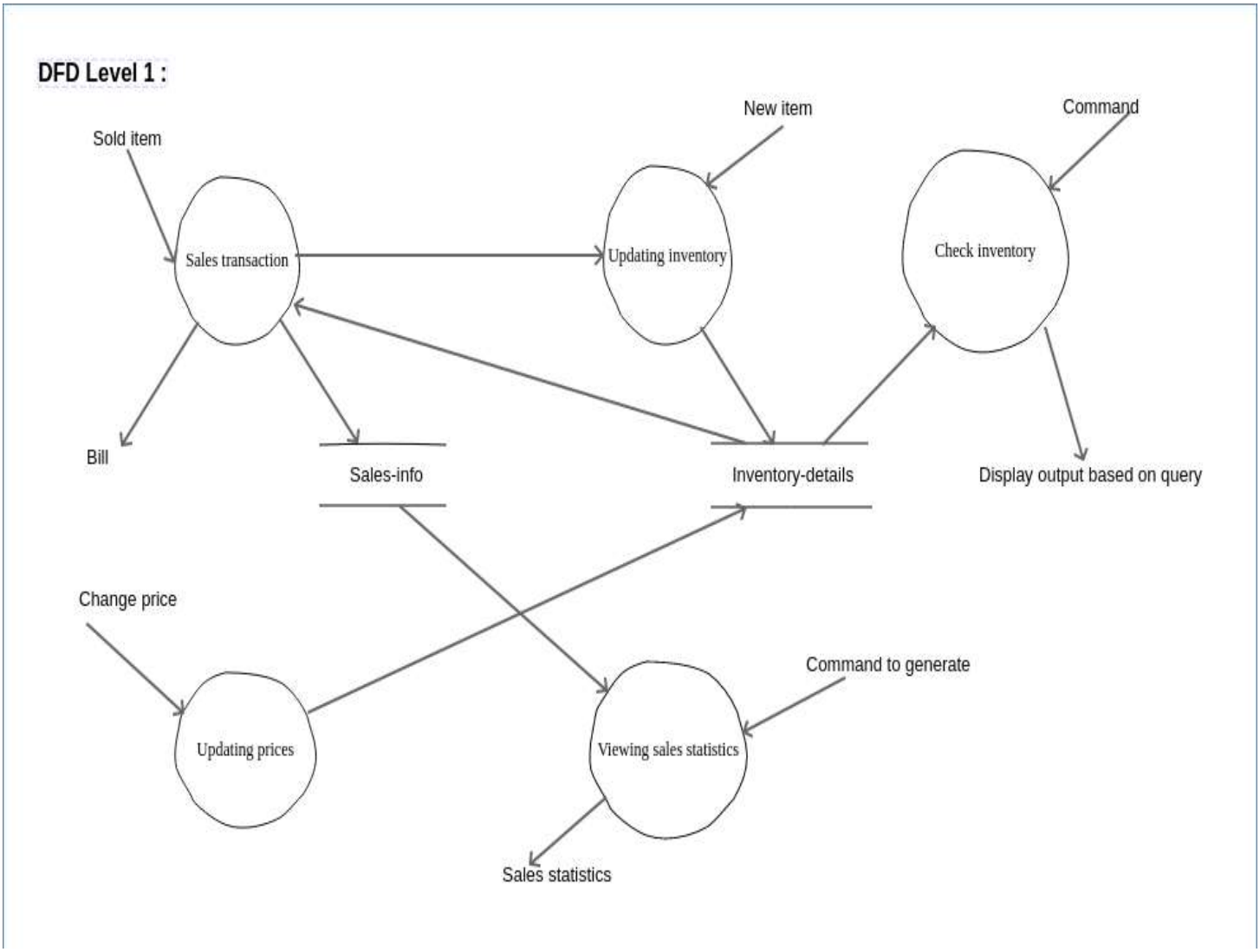
# 7. Diagrams

## 7.1 DFD

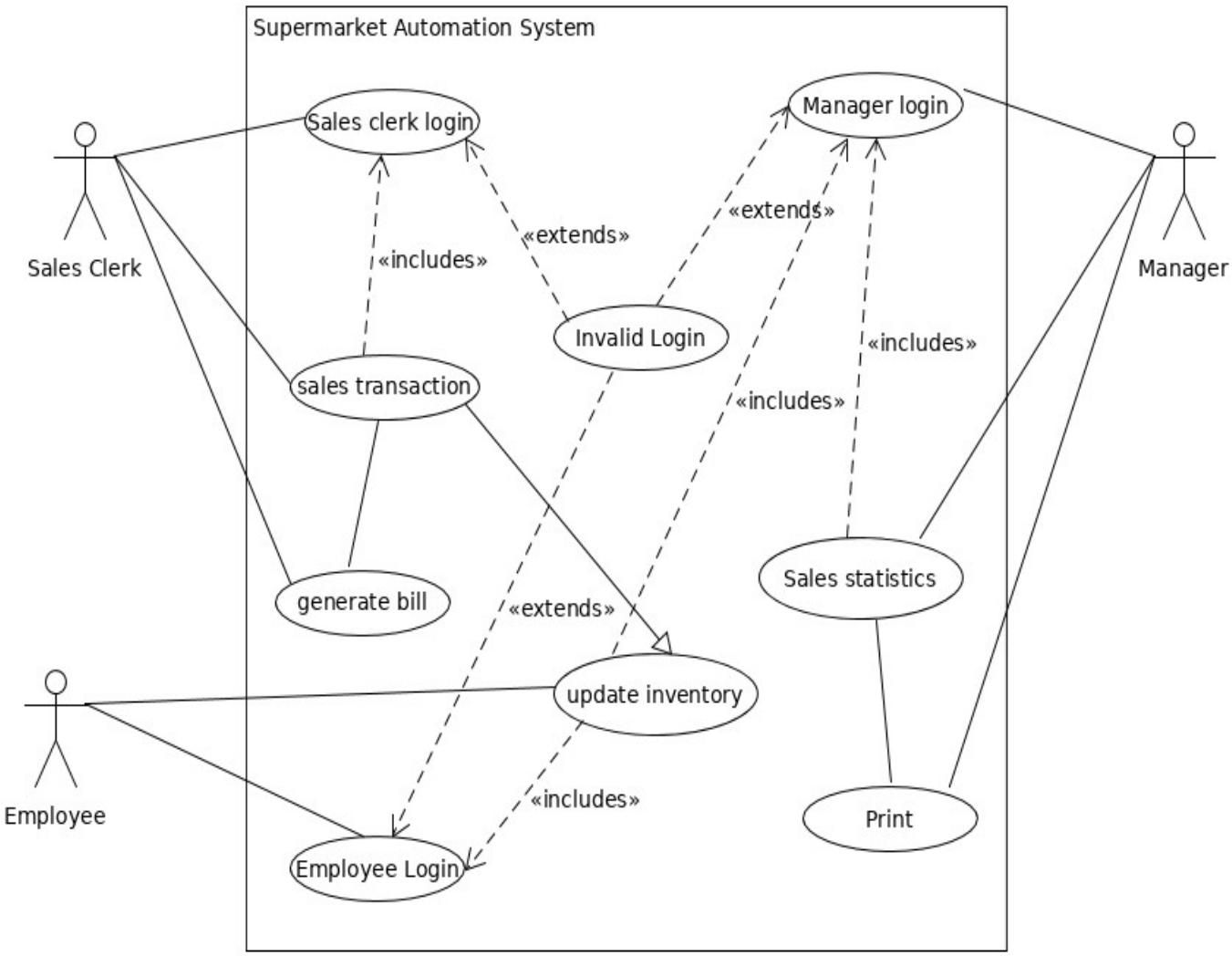
- Level 0



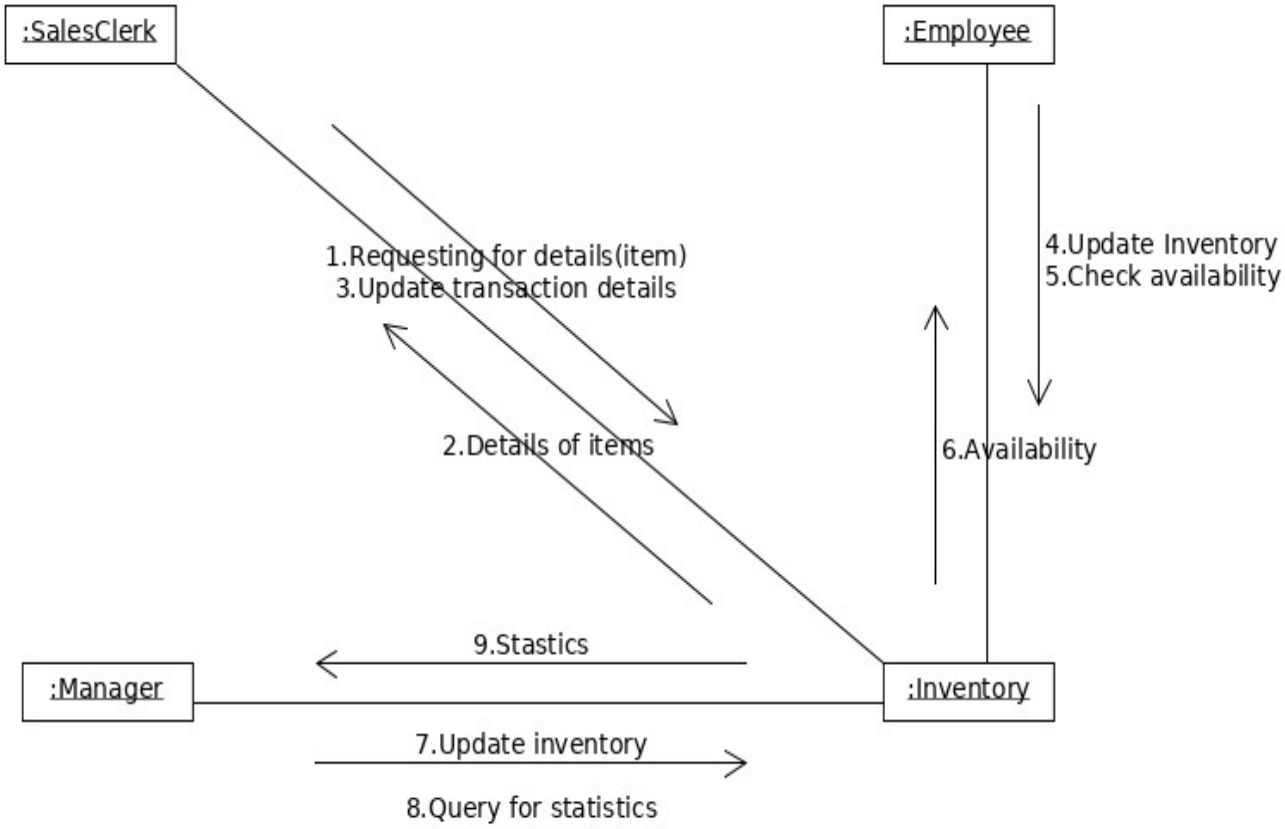
- Level 1


DFD Level 1 :
Sold item
New item
Command
Sales transaction
Updating inventory
Check inventory
Bill
Sales-info
Inventory-details
Display output based on query
Change price
Command to generate
Updating prices
Viewing sales statistics
Sales statistics

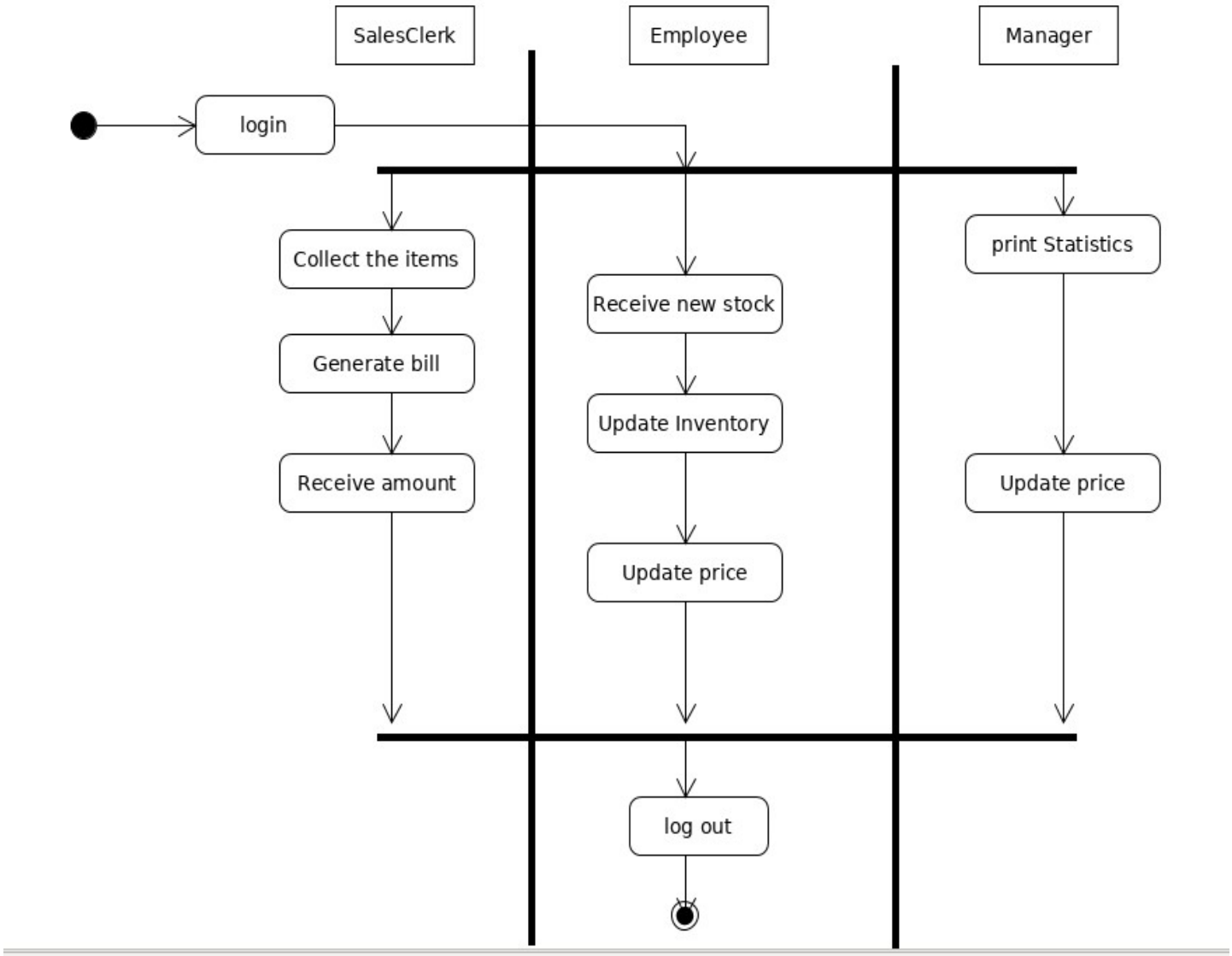
## 7.2 Use case diagram



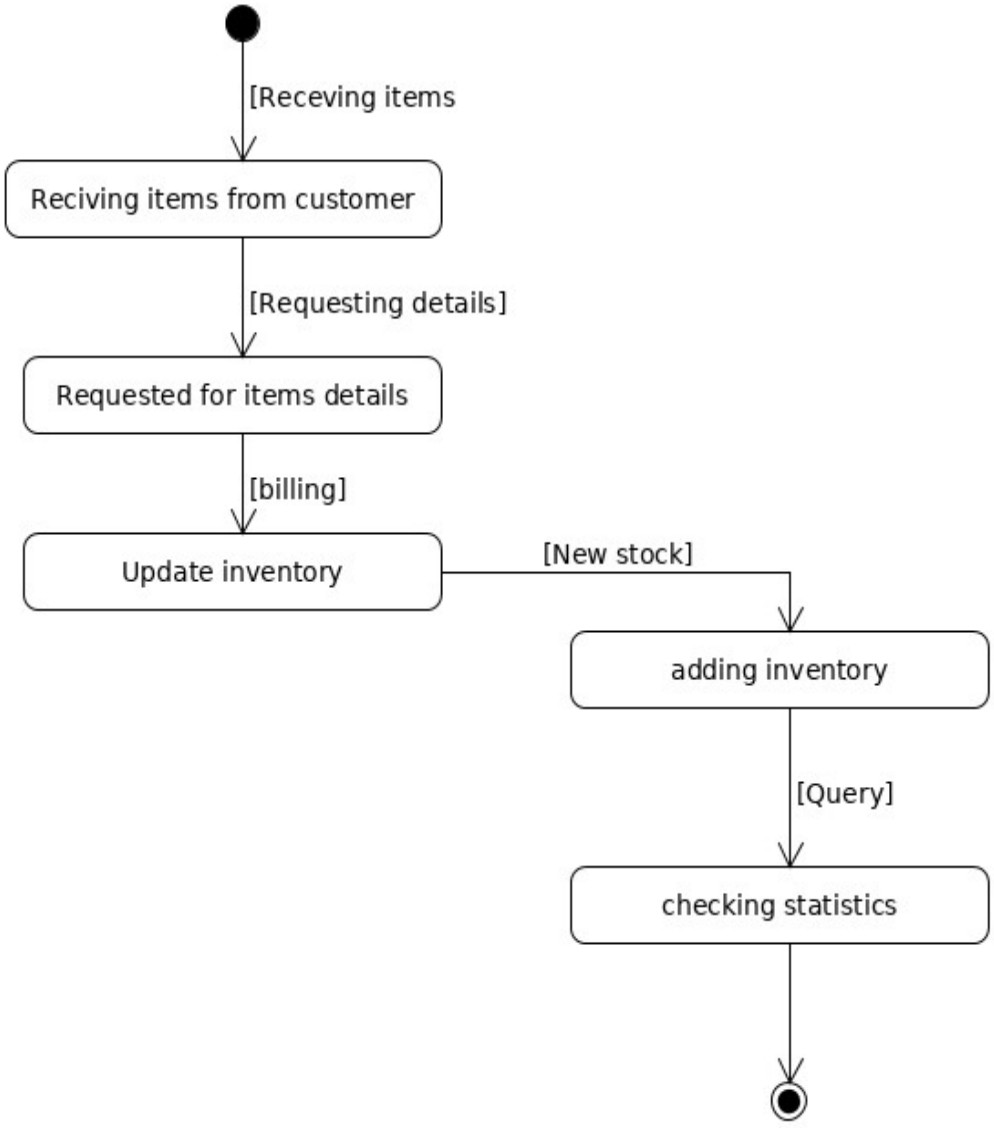
## 7.3 Collobaration diagram



## 7.4 Activity diagram



## 7.5 State diagram



## 7.6 Sequence diagram