Intro To SWE 3313

Section W05
Requirements Document

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Requirements Definitions

<Each functional and non-functional requirement should follow the user story style and have a Unique ID (this will assist in the completion of the system design docs). >

1. Functional Requirements

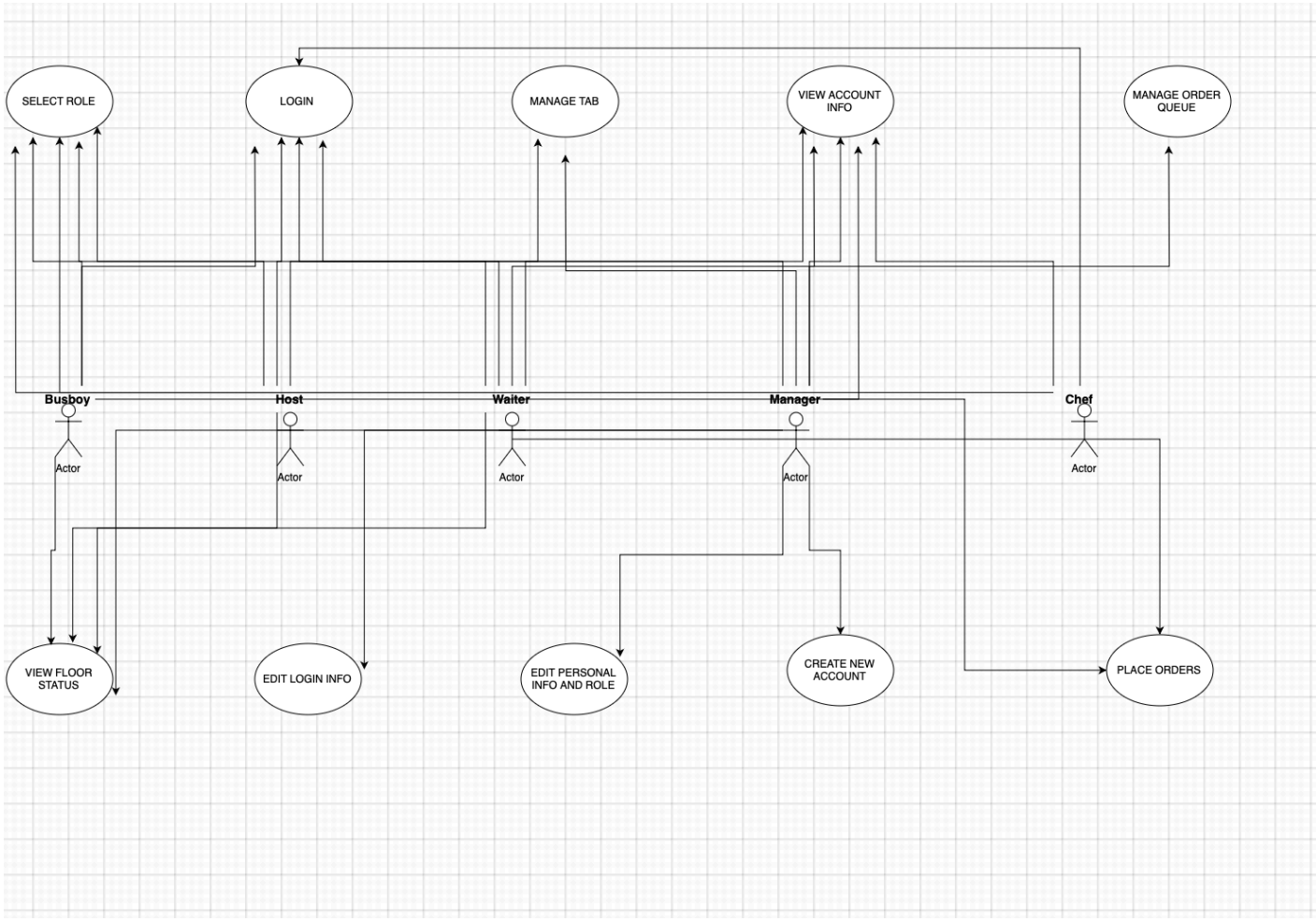
- **Connection:** Using a JDBC Driver, allows us to connect the MySQL database and the Java GUI programs for interaction.
- **Compatibility:** This system must be compatible with all devices, including Laptops, Desktops, tablets, and mobile phones for maximum usage. Regarding Hardware, this system requires a minimum of 4 GB RAM and an Intel i3 processor.
- **Usability:** Customers can log in, access the menus, and order. Employees can also do the same and perform specified actions based on their role.
- **Storage:** Docker allows us to store our database in a container instance, to allow then Docker to run and maintain our MySQL database.

2. Non-Functional Requirements

- **Security**: It is important to protect the data of our customers as well as the restaurant's data such as bills using our restaurant's Data Management Plan by allowing employees to only access the information that is relevant to their role.
- **Performance:** Ensuring our system runs smoothly without crashes and delays.
- **Scalability**: Scaling the information of the employees in the database as necessary allows us to meet the needs of growing and newer information.
- **Maintainability:** Maintaining the database to begin with allows us to access crucial information that can then be viewed, changed, or moved as per the needs of employees and customers.
- **Portability**: The database information can be moved easily, as it is stored in a container.

Requirement Specification Documents

1. Use Case Diagram



2. Use Case Flow of Events

1.0 Log-in: Flow of Events for the Log-In Use Case

1.1 Preconditions

- N/A

1.2 Main Flow

- The User is presented with a login screen for their Employee role.
- The User types in their username/password.
- The User clicks the login button.

1.3 Subflows:

- N/A

1.4 Alternate Flows:

- If the user inputs a username or password that doesn't exist the screen doesn't proceed to the next screen concerning their role. An error will show up saying "Invalid Username/Password"
- If the user inputs nothing for the username or password, an error will show up saying "Empty Username/Password"

2.0 Table Status: Flow of Events for the Table Status Use Case

2.1 Preconditions

- The following user must be logged in to see table status: Manager, Host, Waiter, & Busboy

2.2 Main Flow

- The user is presented with a login screen.
- The user types their information.
- The user clicks the login button.
- The user is presented with a screen of all the open tables and their statuses. Also, each table is clickable.

2.3 Sub Flow

- When the user hits the logout button on the table status, a different employee can now log in and has access to the Table Status. (Host, Waiter, Busboy)
- The Waiter/Host can click on a table and change the status of the table and this is updated on the Busboy Screen
- The Busboys can only make a dirty table available, but they cannot assign customers to a table.

2.4 Alternate Flows

- If the Host or Waiter attempts to change the status of the table from occupied to available, it will throw an error; as only the busboy has the permissions to do so.

3.0 Order Queue: Flow of Events for the Order Queue Use Case

3.1 Preconditions

- The user must have a Chef/Cook role
- The user must be logged in

3.2 Main Flow

- Cook sees a list of orders
    - New orders are placed at the bottom of the list
    - Each unprepared order has a button labeled "UNPREPARED"
- When an order is ready, the cook presses the "UNPREPARED" button
    - The button changes the label to "READY" with a green color
    - The "Waiter Notified" message is briefly shown
    - Order is removed from the list

3.3 Subflows

- N/A

3.4 Alternate Flows

- N/A

4.0 Ordering and Payment: Flow of Events for the Ordering and Payment Use Case

4.1 Preconditions
- User must have items in their cart
- The user must select a payment type

4.2 Main Flow

4.3 Sub Flow
- User can add as many items to their order and remove items from the order

4.4 Alternate Flows
- If there are no items in the user's cart, there will be a payment error that tells the user that nothing is in their order.
- If the payment method fails, the system informs the cashier to try another method.
- If the payment is less than the total amount, the system prompts for additional payment.

5.0 Employee Activity Screen: Flow of Events for the Employee Activity Screen Use Case

5.1 Preconditions
- The user must have the Manager Role
- The user must be logged in

5.2 Normal Flow
- The user is shown a grid of various restaurant activities
- Clicking an activity to User to that subflow

5.3 Sub flow
- Host Activity - 2.0 Table Status Flow of Events
- Waiter Activity - 2.0 Table Status Flow of Events
- Cook Activity - 3.0 Order Queue Flow of Events
- Busboy Activity - 2.0 Table Status Flow of Events

5.4 Alternate Flows
- N/A

6.0 Inventory Management: Flow of Events for the Inventory Management Use Case

6.1 Preconditions
- The user must have the Manager role
- The user must be logged in

6.2 Normal Flow
- From the Manager Admin Panel, the user clicks on "Inventory Status"
- The user is shown a list of all inventory items along with quantities
- Users can click "Back" to return to the Manager Admin Panel

6.3 Sub flow

6.3.1 - Add Item to Inventory
- The user clicks the "Add Item +" button
- The user is shown a dialog box prompting for name, quantity, and ounce of item
- The user clicks "Add" to add the item to the inventory
    - Users can also click "Cancel" to abort the operation

6.4 Alternate Flows
- N/A

7.0 Restaurant Statistics and Analytics: Flow of Events for the Restaurant Statistics and Analytics Use Case

7.1 Preconditions

- The user must have a Manager role
- The user must be logged in

7.2 Normal Flow

- From the Manager Admin Panel, the user clicks on "Sales Analytics"
- The user is shown a two-panel screen displaying "End of Day Report" and "Revenue"
    - End of Day Report
        - Best-selling menu item
        - Worst-selling menu item
        - Number of tables served
        - Out-of-stock items
    - Revenue shows restaurant revenue broken down by type
        - Credit Card
        - Apple Pay
        - Cash
        - Tips

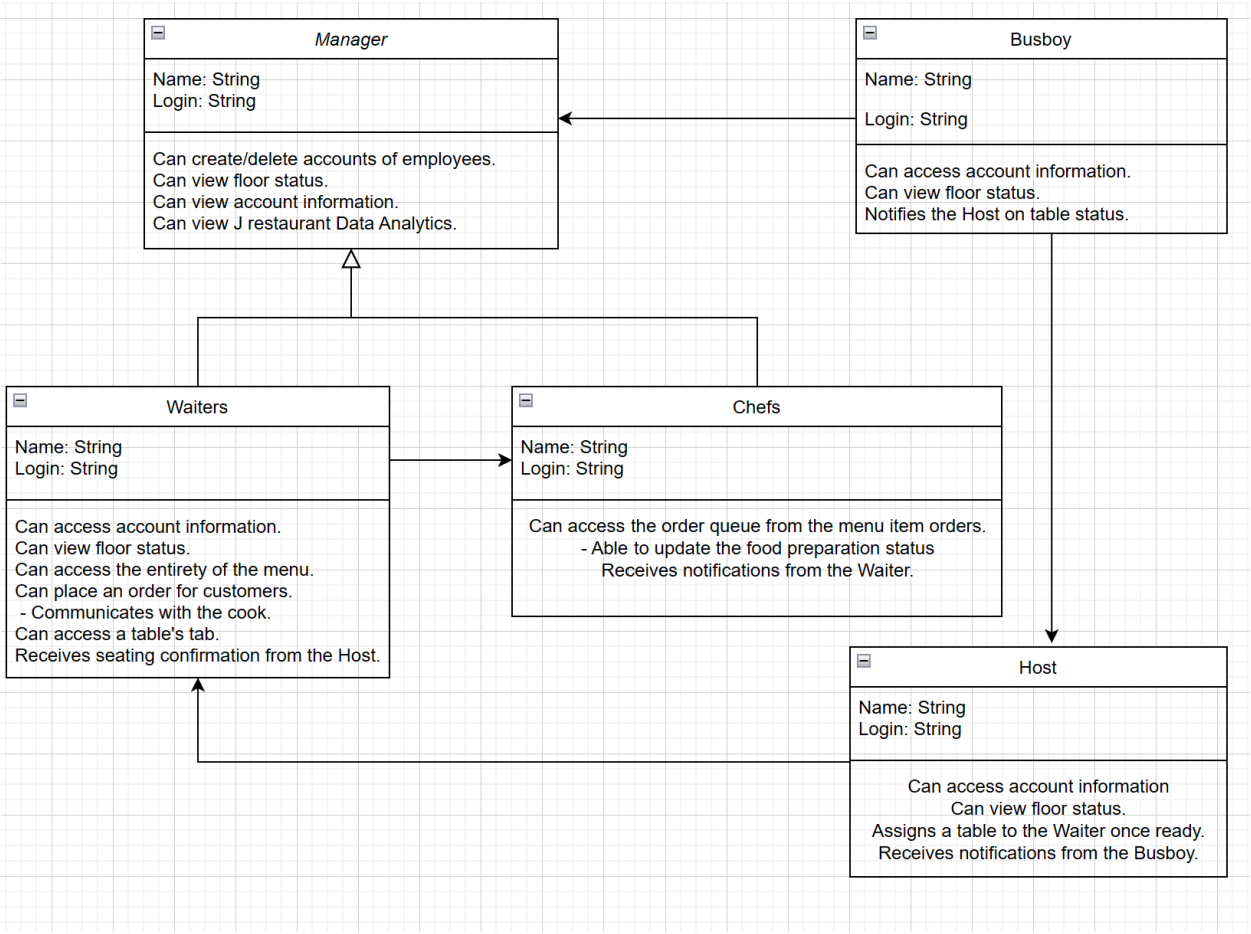
7.3 Sub flow

- Users can hit the "Back" button to return to the previous screen
- Users can click "Logout" to log out of the current session

7.4 Alternate Flows

- N/A

3. Class Diagrams



4. Class Documentation

Manager:

Functions:

- Can create/delete accounts of employees.
- Can view floor status.
- Can access account information.
- Can view J Restaurant data analytics.
    - I.e. Best Seller, Worst Seller, Tables Served, Items out of Stock, etc…

Interactions:

- Employee Activity
- Inventory Status
- Sales Analytics

Busboy:

Functions:

- Can view floor status.
- Can access account information.

Interactions:

- Direct link between busboy and hosts. (Hosts assign a busboy to a dirty table to clean)

Chef:

Functions:

- Can access account information.

Interactions:

- Direct link between chef and waiter. (The waiter sends the chef a queue of what the customer(s) ordered)

Customer:

Functions:

- Can access the menu.
- Can place an order.

Interactions:

- A direct link between the waiter and the customer.

Waiter:

Functions:

- Can access account information.
- Can view floor status.
- Can place an order for customers.
- Can access a table’s tab

- Send Busboy and Host information on what tables are occupied/available

Interactions:

- A Direct link between the waiter and host.
- A Direct link between the waiter and the cook.
- The host assigns a waiter to a specific table.

Host:

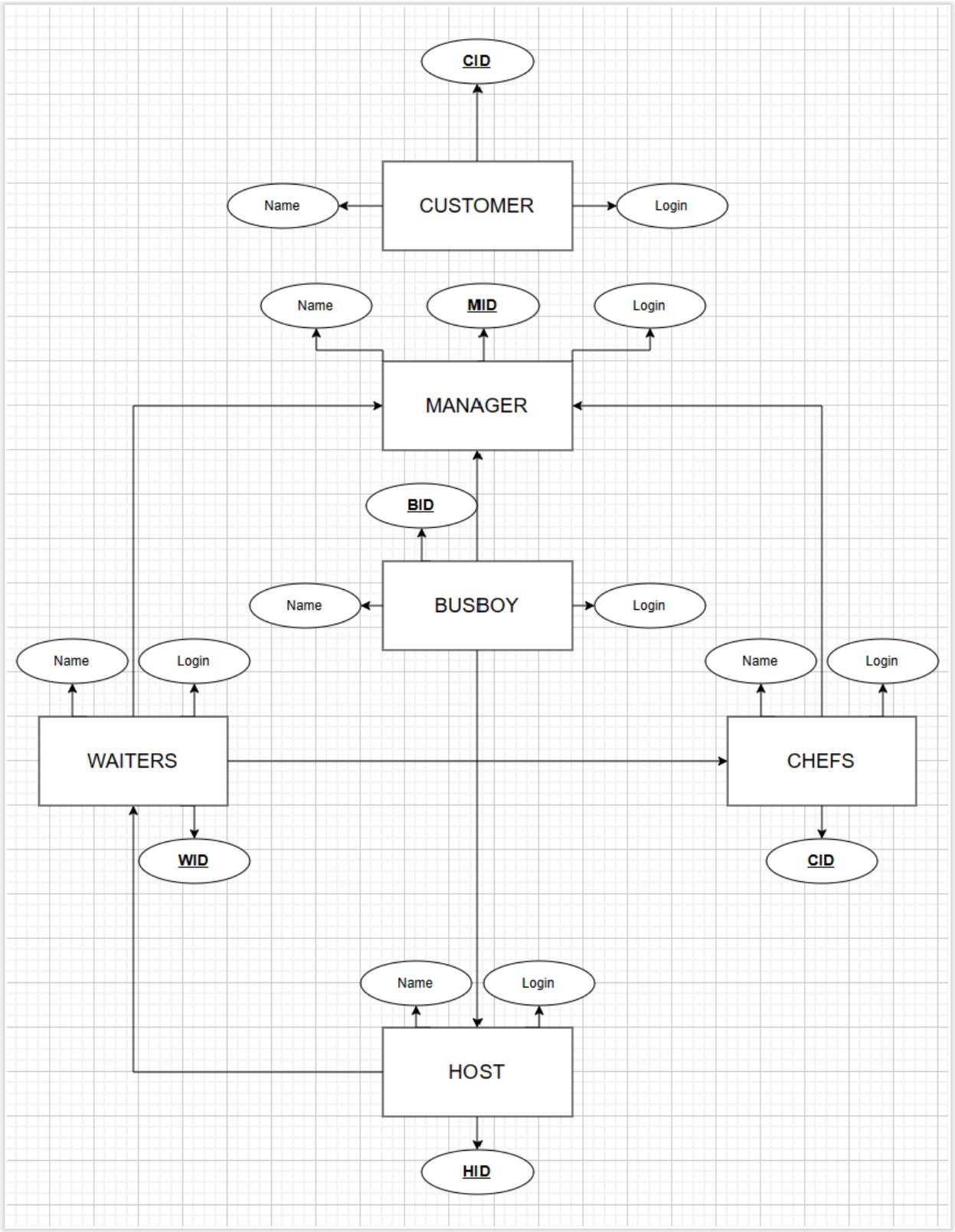
Functions:

- Can access account information.
- Can view floor status.
- Send Waiter and Busboy information on what tables are occupied/available

Interactions:

- A Direct link between host and busboy.
- A Direct link between host and waiter.

5. ER Diagram


CID
CUSTOMER
Name
Login
Name
MID
Login
MANAGER
BID
BUSBOY
Name
Login
Name
Login
Name
Login
WAITERS
CHEFS
WID
CID
Name
Login
HOST
HID

Customer:

Column_Name	Type	Key	Required	Remarks
CustomerID	BigInt	Primary	Yes	
Name	varchar(50)	No	Yes	
Login	varchar(50)	No	Yes	

Host:

Column_Name	Type	Key	Required	Remarks
HostID	BigInt	Primary	Yes	
Name	varchar(50)	No	Yes	
Login	varchar(50)	No	Yes	

Busboy:

Column_Name	Type	Key	Required	Remarks
BusboyID	BigInt	Primary	Yes	
Name	varchar(50)	No	Yes	
Login	varchar(50)	No	Yes	

Chef:

Column_Name	Type	Key	Required	Remarks
ChefID	BigInt	Primary	Yes	
Name	varchar(50)	No	Yes	
Login	varchar(50)	No	Yes	

Manager:

Column_Name	Type	Key	Required	Remarks
ManagerID	BigInt	Primary	Yes	
Name	varchar(50)	No	Yes	
Login	varchar(50)	No	Yes	

Waiter:

Column_Name	Type	Key	Required	Remarks
WaiterID	BigInt	Primary	Yes	
Name	varchar(50)	No	Yes	
Login	varchar(50)	No	Yes	

6. Decision Table or State Transition Diagram

Decision Table	1	2	3	4	5
Employee Type	Manager	Host	Busboy	Waiter	Chef
Login	x	x	x	x	x
Manage Tab	X				
View Account Information	x				
View Floor Status	x	x	x		
Edit Login Information	x				
View/Manage Order Queue	x				

Place Order	x			x	
View Restaurant Statistics	x				
Create New Account	x				
Edit Personal Information and Role	x				

Link to Timesheet:

https://docs.google.com/document/d/19gQdVWKrYEZs3342mp0YZ6Cl2Htgh0Na1XRR5LpsidI/edit#heading=h.3pqfhpw3729n