אפיון מערכת – מודל ספקים-מלאי

מגישים: אייל גרמן (325295673), זיו כהן גבורה (324022284), יונתן שניץ (212743850),
אלי בן שימול (212880066)

Requirements part2

ID	Module	F/NF	Description	Priority	Risk	Status
1.	Suppliers	F	The system needs to be able to open supplier account	MH	LR	**DONE**
2.	Suppliers	F	The system must manage for each supplier the necessary details: account number, bank account, payment agreement, save contacts and their contact Information	MH	LR	**DONE**
3.	Suppliers	F	The system must manage the products which each supplier can supply with their price and catalog number at the supplier	MH	HR	**DONE**
4.	Suppliers	F	The system must save for each product of the same supplier a unique catalog number	MH	HR	**DONE**
5.	Suppliers	F	The system may give discount for a supplier base on the number of products in order	NTH	HR	**DONE**
6.	Suppliers	F	The system may give discount for a supplier base on the number of specific products in an order	NTH	HR	**DONE**
7.	Suppliers	F	The system must be able to create a new order from a supplier	MH	HR	**DONE**
8.	Suppliers	NF	When open an order the system must save the creation date	MH	LR	**DONE**
9.	Suppliers	F	The system should transfer the order details to the supplier's system	NTH	HR	**IN PROGRES**
10.	Suppliers	F	The system needs to save for each order who is the deliver, "Super Li" or the supplier	MH	LR	**DONE**
11.	Suppliers	F	The system needs to be able to save for supplier Fixed delivery days.	MH	LR	**DONE**
12.	Suppliers	F	The system will allow authorized user to update the Product list of a supplier that has fixed delivery days before, each delivery	MH	HR	**DONE**
13.	Suppliers	NF	The system should save all the past orders	NTH	LR	**DONE**
14.	Storage	F	The system will save for every product's his minimal amount	MH	LR	**DONE**

			using the demand to know if there is enough in stock			
15.	Storage	F	The system will alert in the case that a product reached its minimal amount	MH	LR	**DONE**
16.	Storage	F	The system will save all the products and be able to get each product	MH	LR	**DONE**
17.	Storage	NF	The system will follow products that are out of stock	NTH	HR	**DONE**
18.	Storage	F	The system will save the locations of every product in the store (storage shelf number, store shelf number)	MH	HR	**DONE**
19.	Storage	F	The system will save who is the manufacturer for every product	NTH	LR	**DONE**
20.	Storage	F	The system will save the current amount of every product in the store	MH	LR	**DONE**
21.	Storage	F	The system will save current amount for every product in storage	MH	LR	**DONE**
22.	Storage	F	The system will save the price and the cost of every product	MH	LR	**DONE**
23.	Storage	F	The system will save the current discount for every product	MH	HR	**DONE**
24.	Storage	F	The system will allow for authorized users to change the discount of every product if it is needed	MH	HR	**DONE**
25.	Storage	F	The system will be able to create new categories	MH	LR	**DONE**
26.	Storage	F	The system will save for every category the products that are inside.	MH	HR	**DONE**
27.	Storage	F	The system will allow authorized users to change the discount of every category	MH	LR	**DONE**
28.	Storage	F	The system will allow for every category to create new subcategory	MH	HR	**DONE**

29.	Storage	F	The system will allow for every subcategory to create new sub subcategory	MH	HR	**DONE**
30.	Storage	F	The system will allow to insert a given product to given categories	MH	LR	**DONE**
31.	Storage	F	The system will be able to produce a product report for every product that will include amount in store, amount in storage, minimal amount, if the product needs a refill and how much needs to be ordered so that the amount will be larger than the minimal amount	NTH	HR	**DONE**
32.	Storage	F	The system will be able to produce category reports which includes every product in the category and its details	MH	HR	**DONE**
33.	Storage	F	The system will allow authorized users to report damaged items	MH	LR	**DONE**
34.	Storage	F	The system will follow and save the damaged items	MH	LR	**DONE**
35.	Storage	F	The system will allow to produce a report which includes all the damaged items that were reported	MH	LR	**DONE**
36.	Storage	F	The system will allow to produce refill report that includes all the products that need to be refilled	MH	LR	**DONE**
37.	Storage/ Supplier	F	The system will place an order from supplier of a product when the product amount is less than its minimal amount	MH	HR	**DONE**
38.	Storage/ Supplier	F	In order of fixed delivery days, the system will check a day before the delivery date the supplies in storage and update the amounts in the order according to the storage amount	MH	HR	**DONE**
39.	Storage/ Supplier	NF	When creating a refill order the system will update the order so that every product in the order after the order occurred will have more than the minimal amount	MH	HR	**DONE**

40.	Storage/ Supplier	NF	Before creating a refill order the system will compare supplier prices for each supplier and will order from the supplier with the cheapest price	MH	HR	**DONE**
41.	Workers	F	The system will save for each employee the days and hours in the week which he can work in	MH	HR	**OUT OF SCOPE**
42.	Workers	F	The system will save for each employee the roles he can work in	MH	HR	**OUT OF SCOPE**
43.	Workers	F	The system will be able to assign the employees to shifts and allow the HR manager to decide who will do each role	MH	HR	**OUT OF SCOPE**
44.	Workers	F	The system will allow the shift manager to add/remove employees to a given shift	MH	HR	**OUT OF SCOPE**
45.	Workers	F	The system will allow every employee to sign in the schedule that he can work at and change it if needed	MH	HR	**OUT OF SCOPE**
46.	Workers	F	The manager will be able to change the details of workers in the system	MH	LR	**OUT OF SCOPE**
47.	Workers	F	The system will allow to certify employees to different positions	MH	HR	**OUT OF SCOPE**
48.	Workers	F	The system will display an error message if a shift manager wasn't assigned to a shift	MH	LR	**OUT OF SCOPE**
49.	Workers	F	The shift manager is certified to scan a cancellation card in the register	MH	LR	**OUT OF SCOPE**
50.	Workers	F	The system will allow the manager to manage his employees	MH	LR	**OUT OF SCOPE**
51.	Workers	F	The system will save for each employee the following details: name, id, bank details, salary, starting date, terms and conditions	MH	LR	**OUT OF SCOPE**
52.	Workers	F	The system will allow the manger to add new positions	NTH	LR	**OUT OF SCOPE**
53.	Workers	F	To every position the system will show a list of people that can be assigned to it	NTH	HR	**OUT OF SCOPE**

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54.	Workers	F	The system will not allow employees to change shifts in which they can work until the shift manager hasn't done assigning them	NTH	HR	**OUT OF SCOPE**
55.	Workers	NF	The system will save the shift history and details up to six months back	NTH	HR	**OUT OF SCOPE**
56.	Workers	F	The system will allow to change shifts between employees	NTH	HR	**OUT OF SCOPE**
57.	Workers	NF	The shifts in the system will be divided to morning and evening shifts	MH	LR	**OUT OF SCOPE**
58.	Workers	NF	In every shift there must be a shift manger	MH	LR	**OUT OF SCOPE**
59.	Workers	NF	In every shift there will be at least one person in each of following roles: warehouse worker, shelf worker, register worker, driver, shift manger	MH	HR	**OUT OF SCOPE**
60.	Workers	NF	The manager positions work only in the morning shifts	MH	LR	**OUT OF SCOPE**
61.	Transport	F	The system should alert the user if a truck is not suited for the transport	MH	LR	**OUT OF SCOPE**
62.	Transport	F	the system will save for every destination in transport a document which includes a list of products that are transported to this destination	MH	HR	**OUT OF SCOPE**
63.	Transport	F	The system needs to allow the user to create new transport	MH	HR	**OUT OF SCOPE**
64.	Transport	F	When the truck weight exceeds the max weight, the system needs to alert and allow the user to either change the supplies, destinations or truck	MH	LR	**OUT OF SCOPE**
65.	Transport	F	The system will allow authorized user to view all the transport documents that exists in the system	NTH	LR	**OUT OF SCOPE**
66.	Transport	NF	The system will save for each supplier and store its transport area	MH	LR	**OUT OF SCOPE**

67.	Transport	NF	The system should save all the transports created	MH	LR	**OUT OF SCOPE**
68.	Transport	F	The system will manage drivers, trucks, suppliers and sites	NTH	HR	**OUT OF SCOPE**
69.	Transport	F	The system must be able to assign a driver to a truck according to their licenses, truck's type and availability	MH	LR	**OUT OF SCOPE**
70.	Transport	F	The system will save for every transport a transport document that will contain the following details: origin location, destination, date, departure hour, truck number and driver's name	NTH	LR	**OUT OF SCOPE**
71.	Transport	F	Before a truck is leaving the needs to be able to save the weight of the truck in the transport document	MH	LR	**OUT OF SCOPE**
72.	Transport	F	The system will save for each driver his driving licenses	MH	LR	**OUT OF SCOPE**
73.	Transport	F	The system will save for every truck its: license plate, module, starting weight (without any additional weight) and maximum weight	MH	HR	**OUT OF SCOPE**
74.	Transport	F	The system will save for every site: address, phone number and contact's name	MH	LR	**OUT OF SCOPE**
75.	Transport	F	The system will calculate the total weight of the order after the user finished creating the order	NTH	HR	**OUT OF SCOPE**
76.	Transport	F	The system will save every transport in transport manager	MH	LR	**OUT OF SCOPE**
77.	Transport/ Workers	F	The system needs to allow drivers to be assigned in to shifts	MH	HR	**OUT OF SCOPE**
78.	Transport/ Workers	F	The system will check that for transport the driver is assigned to the shift that the transport took place in			
79.	Transport/ Workers	F	The system will allow the driver to sign in as worker	MH	HR	**OUT OF SCOPE**

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80.	Transport/ Workers	F	The system will check that for every transport there is a driver assigned to it	MH	HR	**OUT OF SCOPE**
81.	Transport/ Workers	F	The system will check for each transport that the license of the driver allows him to drive the truck type	MH	HR	**OUT OF SCOPE**
82.	Transport/ Workers	F	The system will make sure that every time there is a transport there must be a warehouse worker to receive the transport in each shift	MH	HR	**OUT OF SCOPE**
83.	All modules	NF	The system must have a database that will store all the necessary details for each module	MH	HR	**OUT OF SCOPE**
84.	All modules	F	The system will assign driver for each order from a supplier that super li is responsible for the transportation	MH	HR	**OUT OF SCOPE**

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Concepts in the supplier – storage module:

Supplier: someone who supplies products to the store.

Order: a list of products and there amounts that the supplier will provide in a number of days.

Product: a product that the store will sell and manage.

Item: an instance of a product that will have its own expiration date and location in the store.

Authorized user: someone that may interact with the system and do actions such as: make orders, add items and products.

Category: a set of products that have something in common for example: dairy products.

Site: location of super li store or a location of supplier's store/factory.

shift: a time in the day which workers work in.

demand: the average amount a product is sold in a day.

Refill order: an order that was placed because of a shortage in product amount.

Fixed days delivery order: an order that occurs in a fixed number of days.

Changes that happened in the supplier – storage module:

1) Added data base, so both modules implemented DAL layer with object mappers.

2) in the storage module we added functions that place order from supplier if needed or if fixed time had passed.

3)In the supplier module we added unique product id to merge product of suppliers with product of storage module.

Assumptions for the supplier – storage module:

- The system should not work on Saturday
- The payment between supplier and super li will be made outside of the system.
- The system will be used in the storage office.
- The system will calculate a discount in the following way: First, calculate on the amount of product and then add the discount on the numbers of items in the order.
- The system will allow to make a report whenever an authorized user would like.
- The system will account the damaged items and will not include them in the product amount.
- An item location is determined by if it is in the STOREAGE or in the STORE and by its shelf number.

<u>אפיון מערכת – מודל ספקים-מלאי</u>

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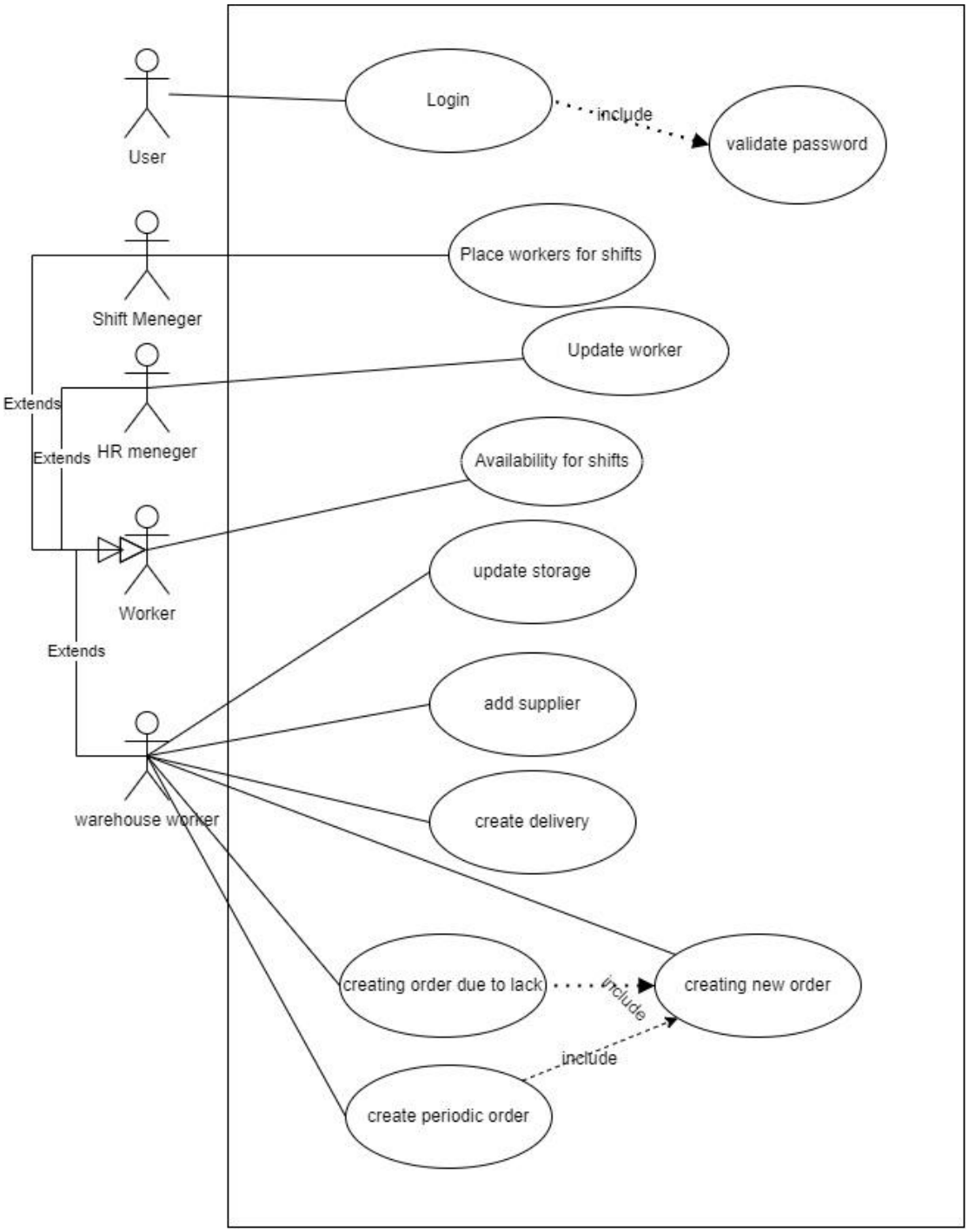
- Every product can be in only one category
- For every product the discount that applies to it, is the last discount that has entered the system.
- There are only category, subcategory and sub subcategory.
- The demand of a product is the average times it was sold in a given day.

<u>תרשים use case diagram</u>



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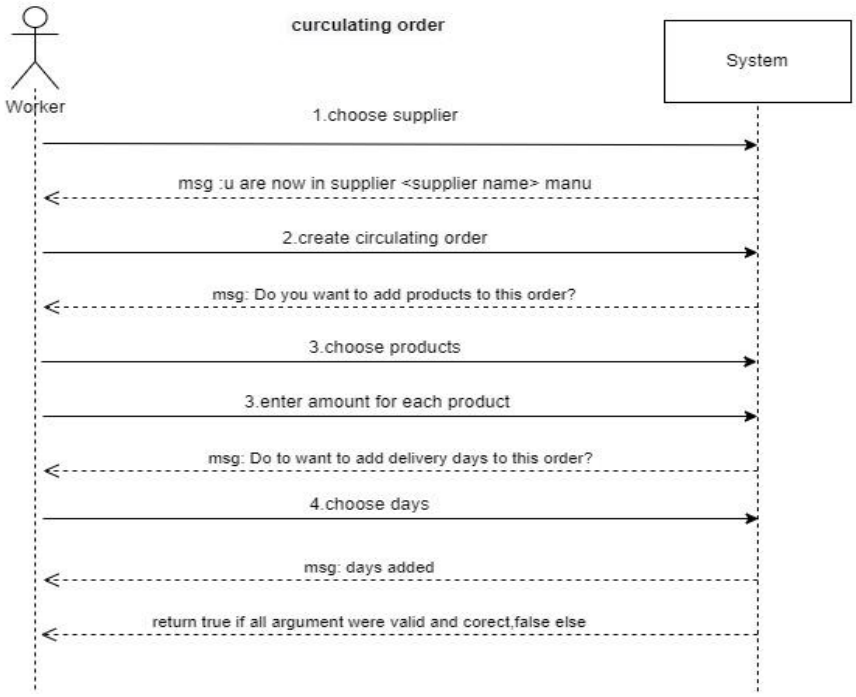
Use case e:

- name: create circulating order
- Textual Description: Create an order that will be sent in a fixed days
- List of Actors: Worker
- Pre-conditions: The chosen supplier exist in the system
- Post-conditions:
    a. A required supplier is chosen
    b. An Order instance o was created
    c. A Product instances were created by demand
    d. Each product p was associated with the current order
    e. The order o gets amount for each product p
    f. The current order o was associated with the Store (to add it to the historical orders)
- Main success scenario:
    a. Worker chooses supplier
    b. Worker creates a circulating order
    c. Worker adds product and amounts to the order
    d. Worker send/save the order
- Alternatives/Extensions:
  A* in any point the: system fails- need to recovery the system.

  1. the worker choose supplier that isn't exist: the system signals the error to the worker

  2. the worker choose the same product multiple times: the system signals the error to the worker

  3. the worker choose the same day twice or invalid day (i.e. 8,9, -1): the system signals the error to the worker



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Use case f:

- Name: create order due to lack
- Textual Description: Creating an order that will be sent when there is a lack of particular product
- List of Actors: worker, cashier
- Pre-conditions:
    a. The worker specific min amount to product
    b. The worker specify amount to refill
    c. The amount of the specific products reached to the minimum
    d. The chosen supplier exists in the system
- Post-conditions: (after the trigger is triggered)
    a. An Order instance o will be created
    b. A Product instances will be created
    c. Each product p was associated with the current order o
    d. The order o gets an amount product p
    e. The current order was associated with the Store (to add it to the historical orders)

- Main success scenario: (When there is a lack of this product)
    a. The system selects the supplier with the cheapest price on the product
    b. The system creates a new order to this supplier
    c. The system adds the product and amount to the order
    d. The system send\save the order
- Alternatives/Extensions:
  A* in any point the: system fails- need to recovery the system.
  1. the worker choose product that isn't exist: the system signals the error to the worker
  2. the worker specify invalid amount to refill: the system signals the error to the worker
  3. there is no supplier which supply the specific product: the system signals the error to the worker

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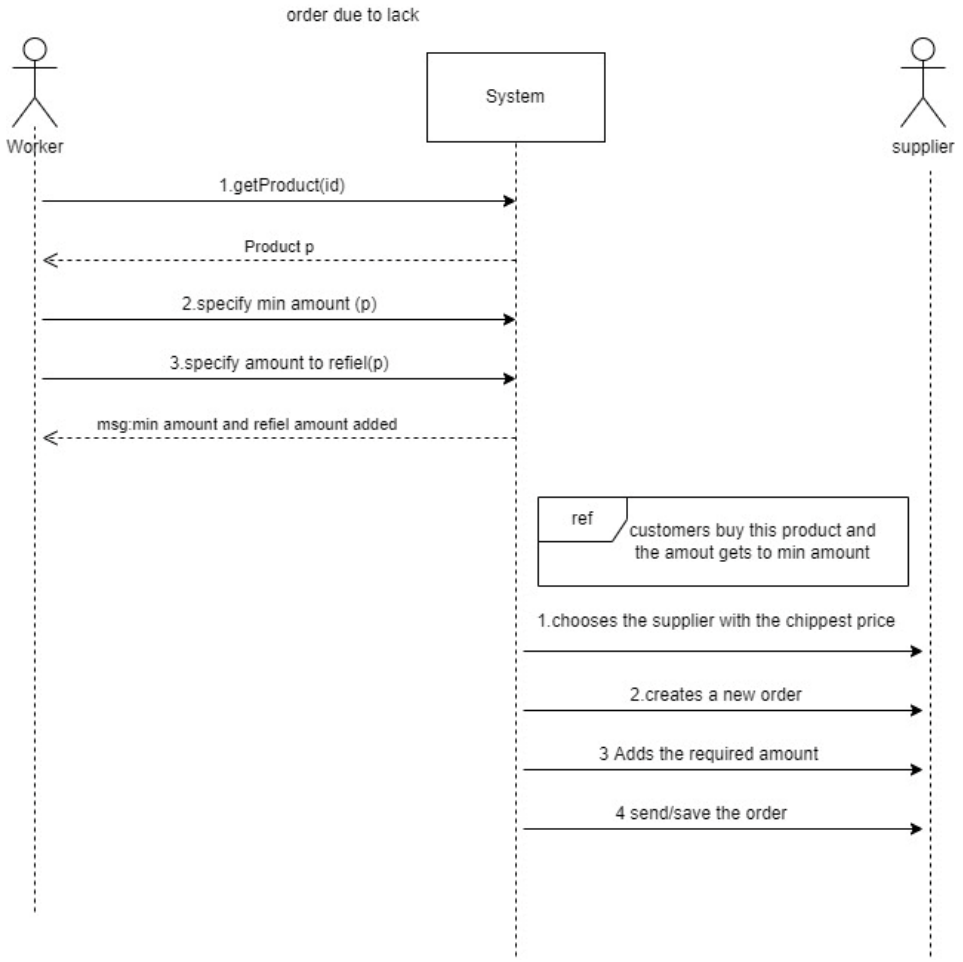

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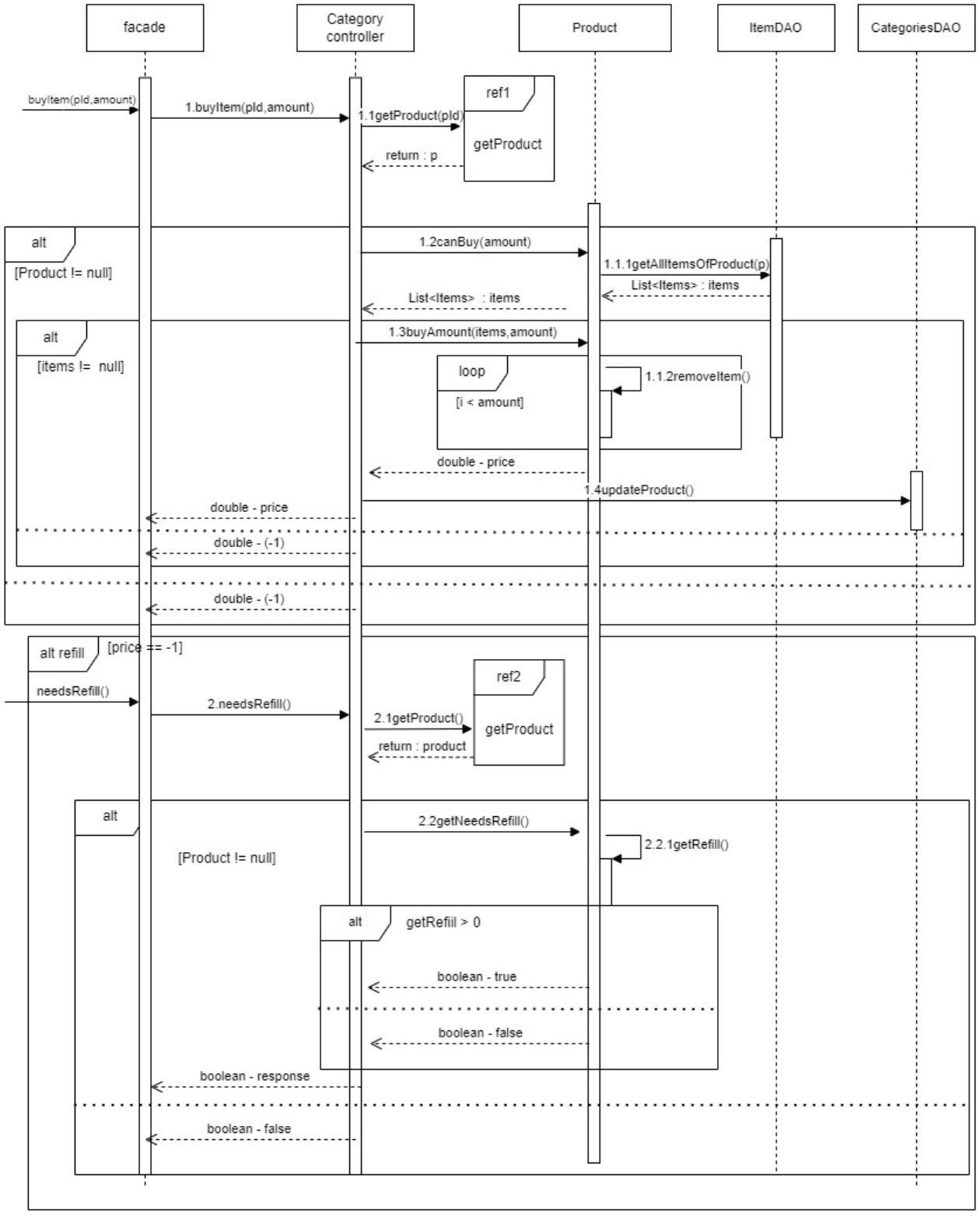
<u>תרשים C</u>

<u>Sequence Diagram c</u>



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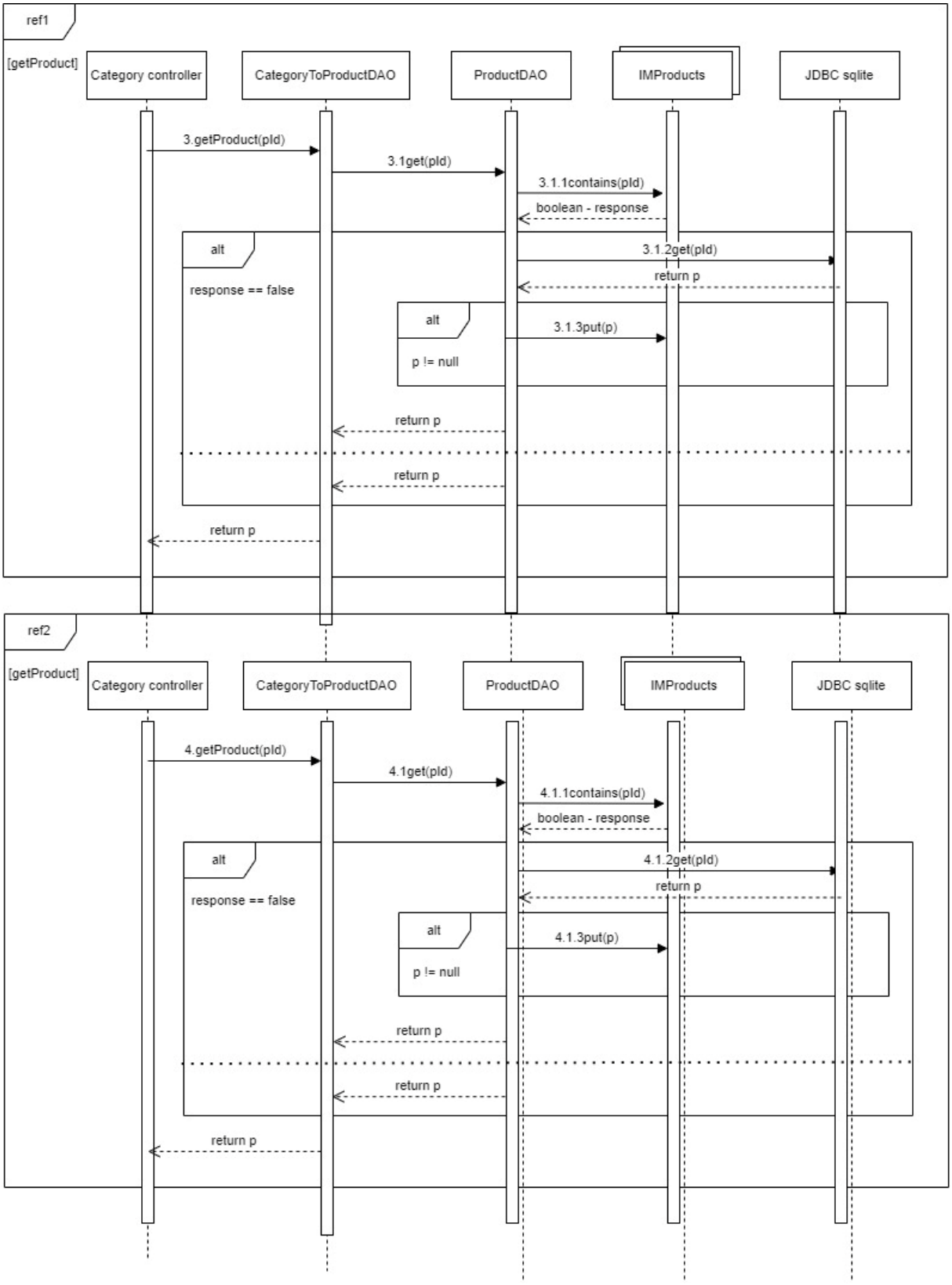

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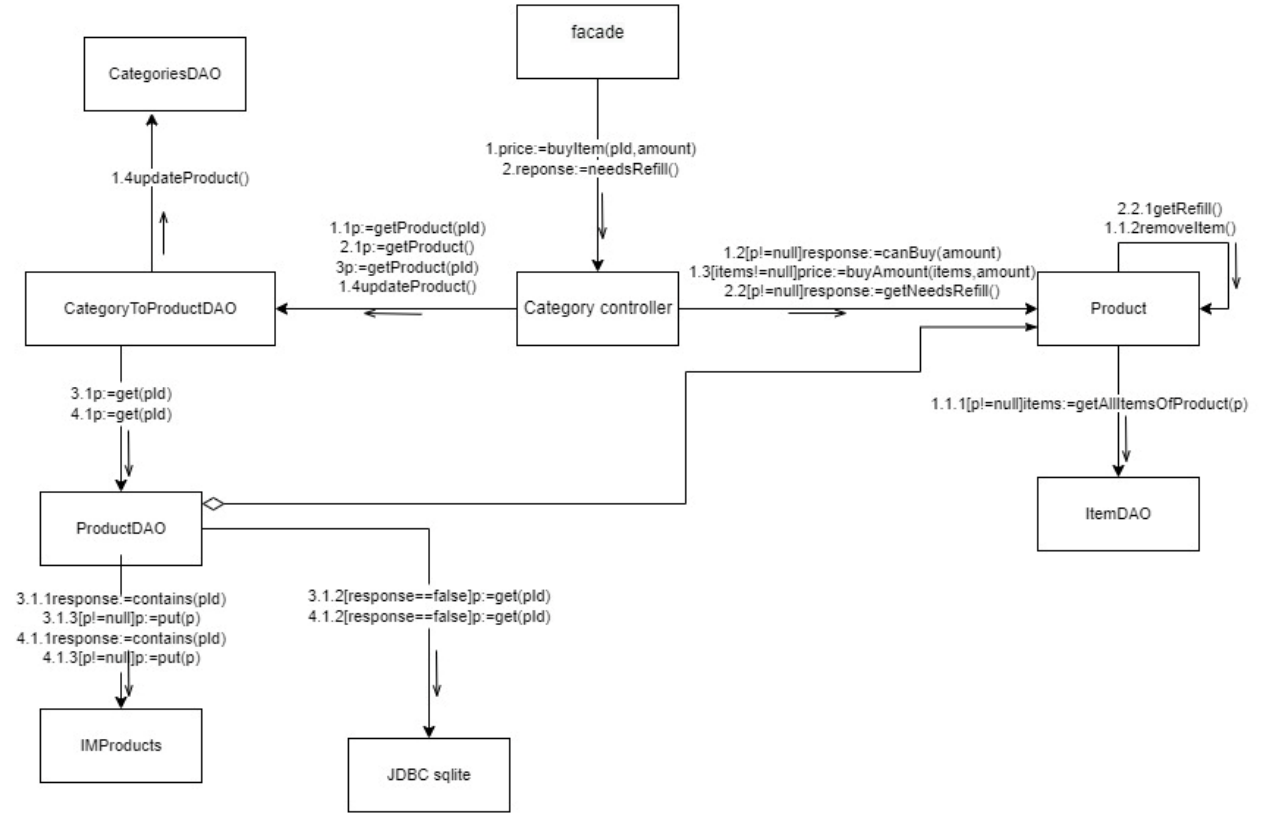
<u>Collaboration Diagram c</u>



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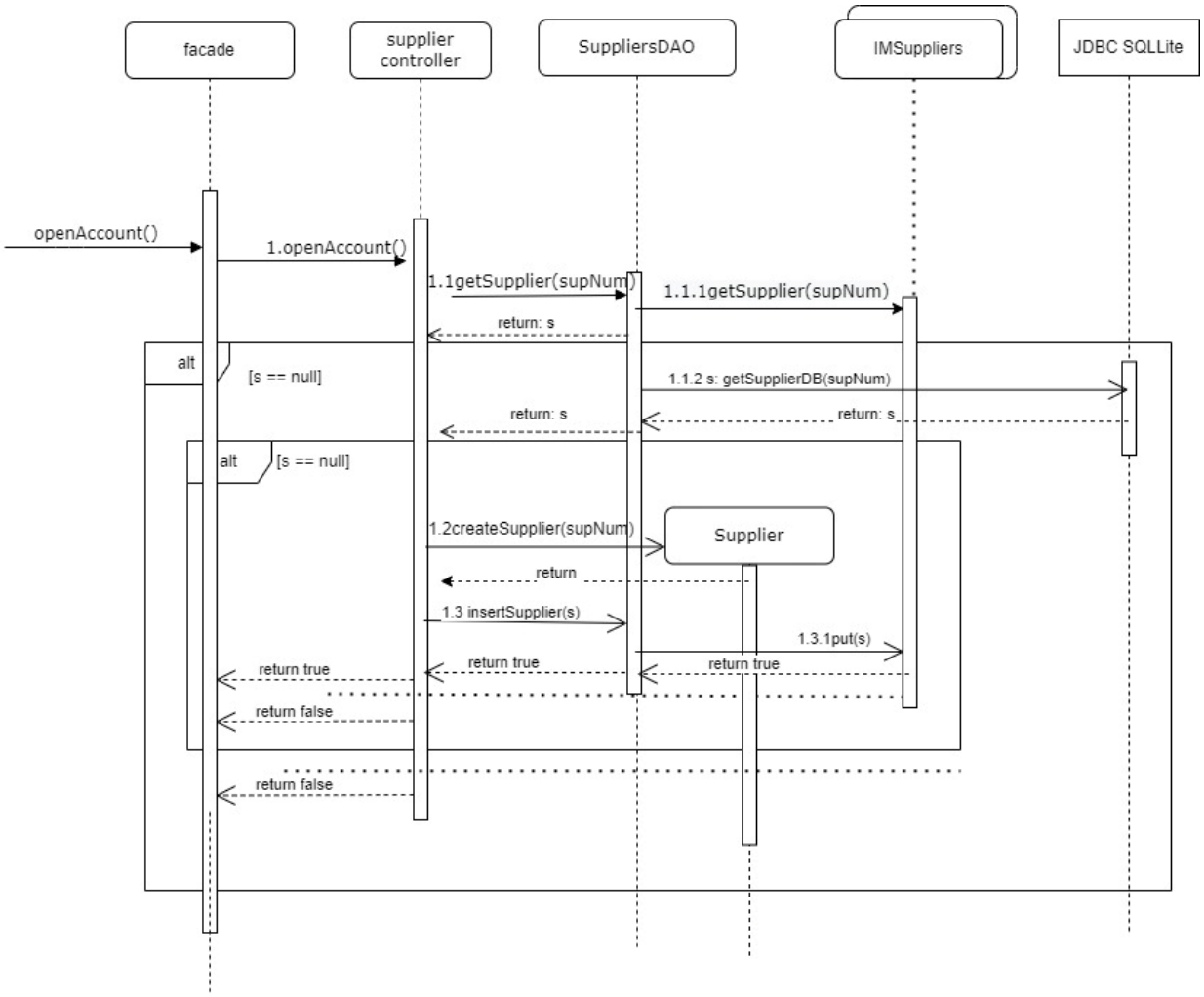
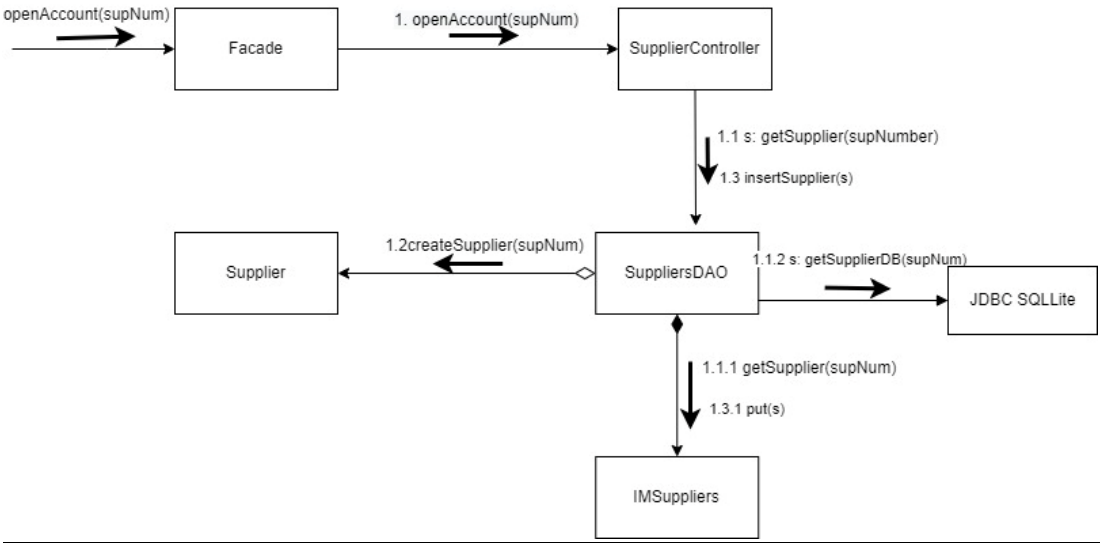
<u>תרשים D</u>

<u>Sequence Diagram</u>



<u>Collaboration Diagram</u>



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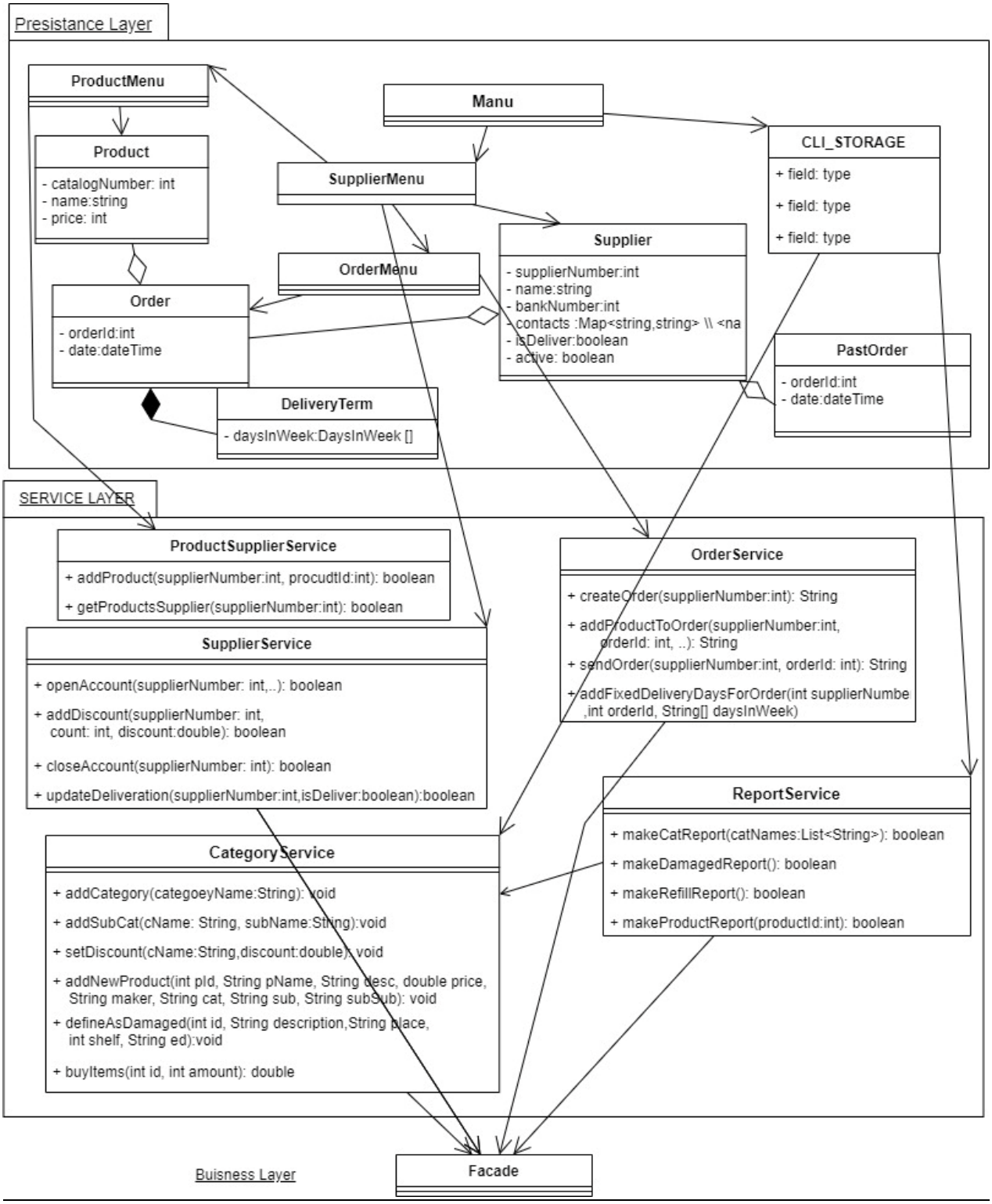
<u>תרשים מחלקות:</u>



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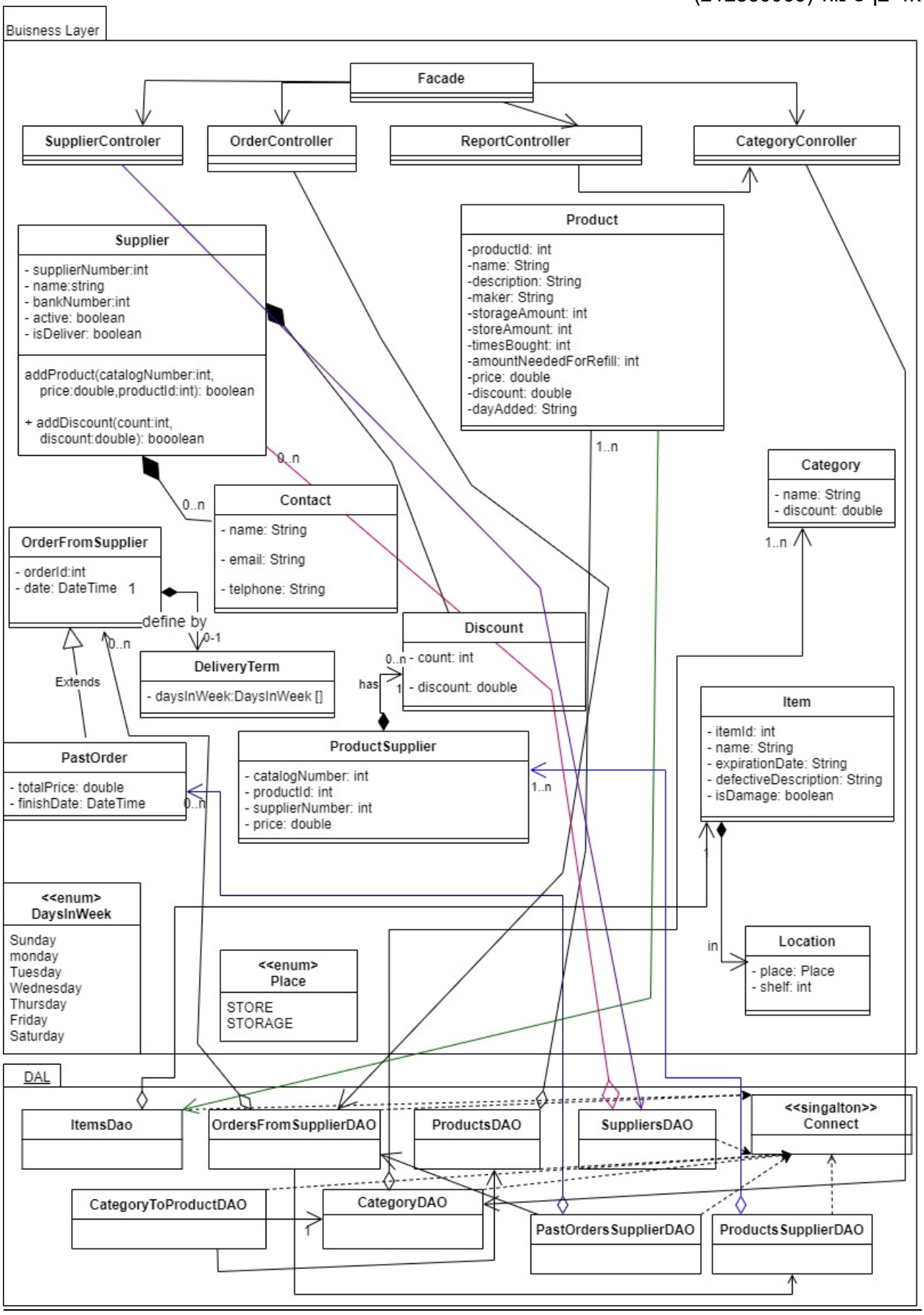

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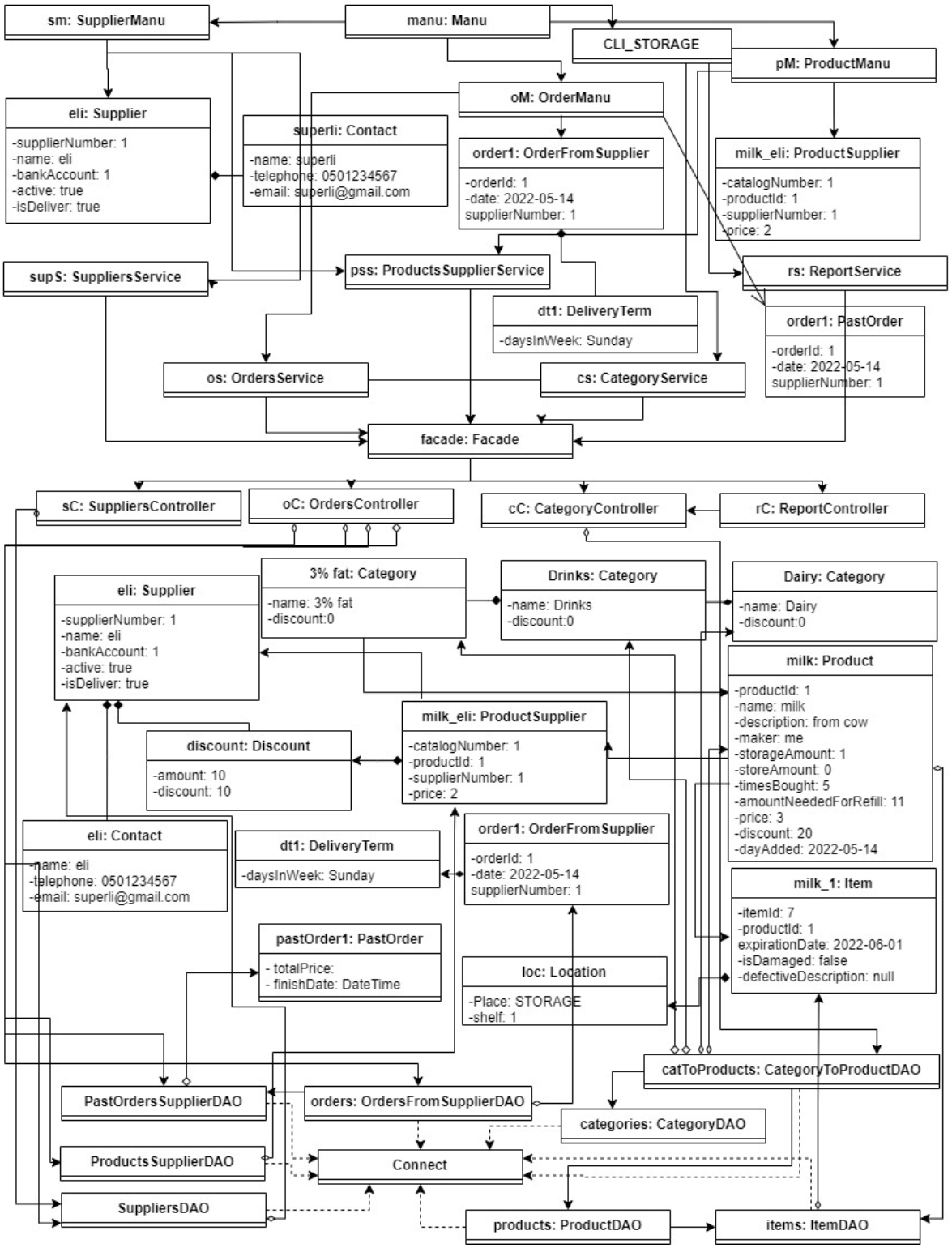
<u>תרשים אובייקטים:</u>

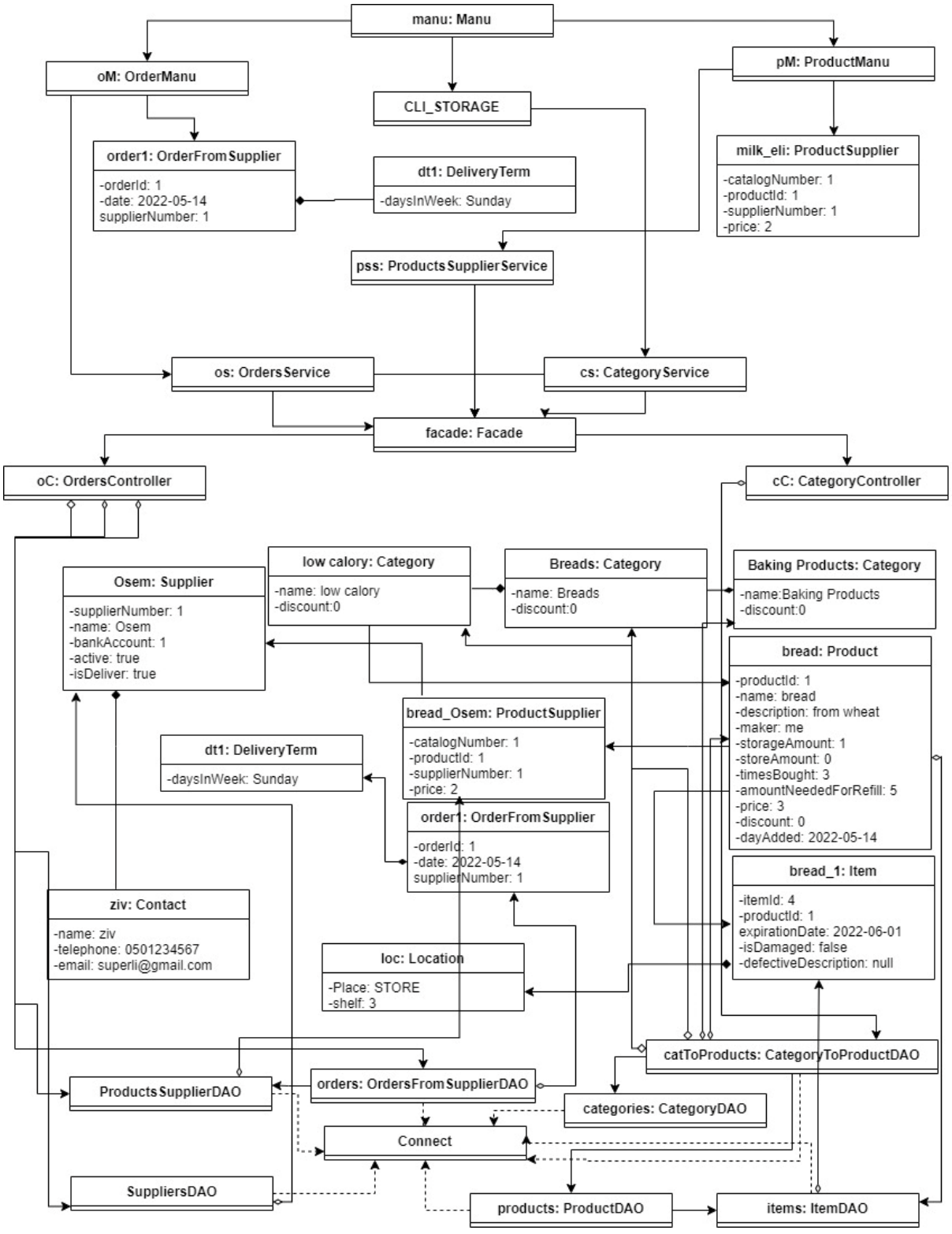
תרחיש 1: יום אחד נעשית קניית חלב בחנות, הלקוח יוסי קונה 6 חלב ולאחר מכן נמצא כי ישנו חוסר בחנות, נשאר רק חלב אחד ויש להזמין עוד 11 כדי להגיב לביקוש של חלב. המערכת מנסה לייצר הזמנה אך נמצא כי אין ספק שמביא את החלב המסוים שהחנות רוצה למכור ולכן מוצאים ספק חדש שיש לו את החלב הספציפי שהחנות רוצה. המערכת מייצרת הזמנה חדשה ממנו ולאחר ביצוע ההזמנה הספק ישירות מודיע שההזמנה יצאה ובדרך לחנות.



<u>אפיון מערכת – מודל ספקים-מלאי</u>

מגישים: אייל גרמן (325295673), זיו כהן גבורה (324022284), יונתן שניץ (212743850), אלי בן שימול (212880066)

תרחיש 2: בתחילת היום שמעון (אחראי המלאי) מדליק את המערכת וכתוצאה מכך המערכת עוברת על כל ההזמנות הקבועות ומעדכנת להם את המלאי שהם מביאים לפי החוסרים שיש בחנות. נמצא כי ישנה רק הזמנה קבועה אחת שמספקת לחם וכי עד כה היא אמורה להביא 2 לחם לחנות ביום ראשון. המערכת מוצאת כי מאז נקנה עוד לחם וכעת יש להזמין 5 לחם כדי שיהיה מספיק בחנות ולכן מעדכנת את כמות הלחם בהזמנה.



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תרשים ERD