به نام خداوند بخشنده مهربان

متا شاپِرز

Meta Shoppers

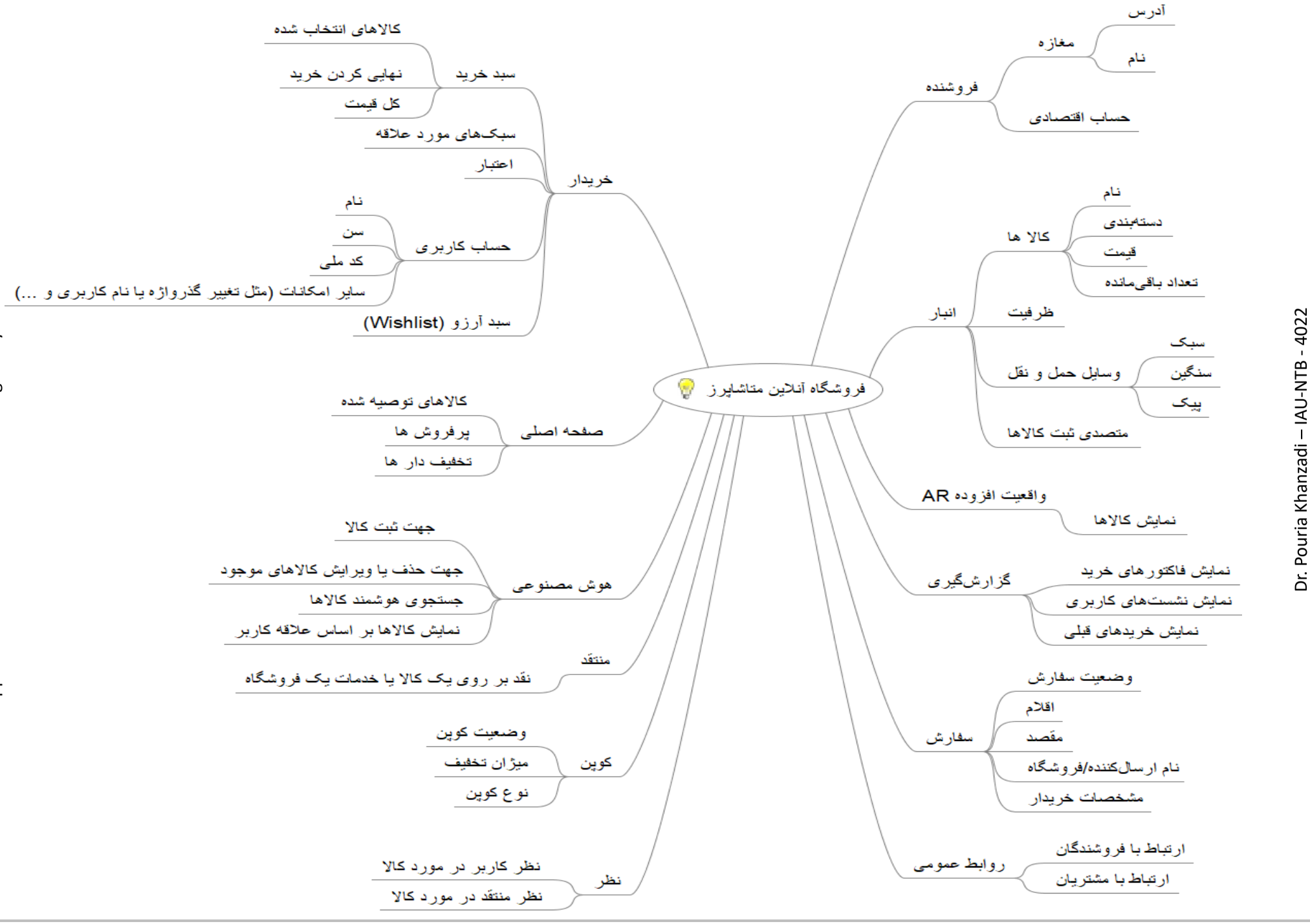
مستندات نرم‌افزار

مهربد ملاکاظمی خوبده

استاد راهنما: جناب آقای دکتر پوریا خانزادی

ترم ۴۰۲۲

دانشگاه آزاد اسلامی واحد تهران شمال



MetaShoppers – Software Documentation – Designed by: **Mehrbod Molla Kazemi**

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// File: metashoppers.DSL

// Developer: Mehrbod Molla Kazemi

// Professor: Dr. Pourya Khanzadi

/** Mogram **/

meta shopper website

seller

customer

product

inventory

order

coupon

critic

comment

ai

landing page

cart

wishlist

warehouse keeper

/** Informal Definition **/

MetaShoppers website is a brand-new e-commerce store (B2C), with the power of AI to enhance productivity.

/** Symbols Definition **/

Symbol	Definition
MSW	Meta Shoppers Website
SEL	Seller
CUST	Customer
INV	Inventory
ORD	Order
COP	Copoun
CRIT	Critic
COMM	Comment
AI	Artificial Intelligence (AI)
LAND_P	Landing Page
PROD	Product
CART	Cart
WISHL	Wishlist
WHK	Warehouse Keeper
=>	Forward Interaction
<=	Backward Interaction
<=>	Two-Way Interaction
=?	Vague Interaction
?	Unknown Entity
*	EVERY ELEMENT AVAILABLE

/** VERY GENERAL Scenario **/

Assuming that MSW supports Shop-To-Go (Order without logging in!),

A CUST surfs on the internet and finds MSW, and they decide to visit it. They arrive at LAND_P.

They may look for a PROD they desire that is provided by a SEL, so they search it on MSW.

If they find the PROD they are looking for, then they may look at its price. If satisfied, they'll add it to their CART.

On the other hand, if the item is too expensive/not available at the moment, they may add the PROD to their WISHL.

INV is always checked to update availability of current PRODs.

When done, the CUST will finalize their CART.

They may provide a COP for discount, so its validity must be checked.

Afterwards, they will be taken to the payment page.

If the result of transaction is successful, an ORD is submitted for the user with a unique ID which can be tracked.

WHK may manipulate products, which the process can become way easier with the help of AI. They can read a PROD's barcode, and then it is submitted in INV (an example).

A CUST may empty their WISHL.

Some CUST or approved CRITs may leave COMMs under PRODs pages.

/** Numerical constants **/

Not anything meaninful to be taken care of at the moment... Assume all N.

/** Interactions **/

MSW <=> *

CUST, SEL => PROD

WHK => PROD

CUST => ORD

LAND_P <= CUST, SEL, PROD

CART <=> WISHL

CUST => WISHL, CART

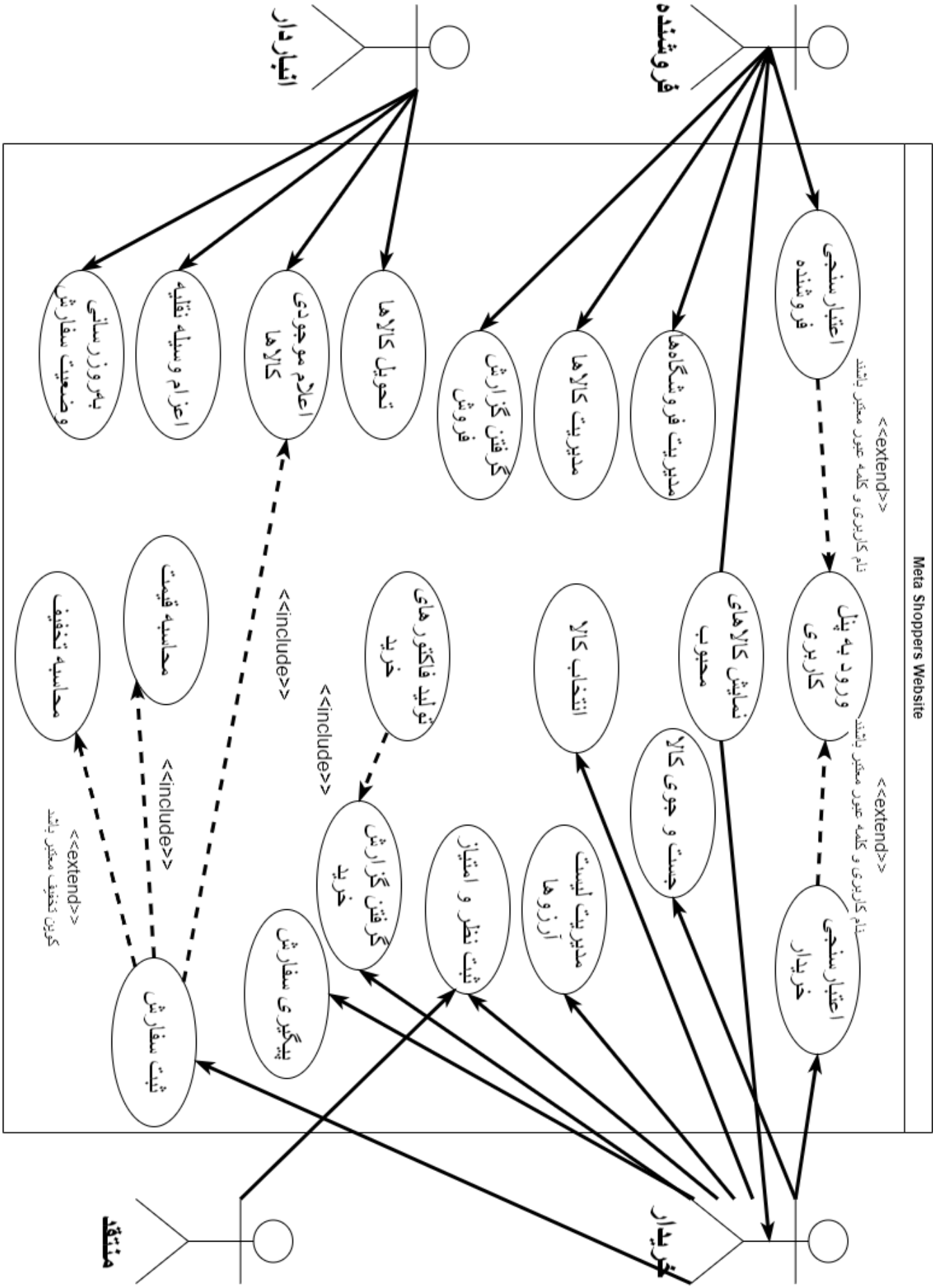
SEL =? WHK

AI <=> CUST, SEL, WHK

In the name of God

MetaShoppers Software - Dictionary

واژه	نوع	معادل انگلیسی
تولیدکننده	Noun	Manufacturer
فروشگاه	Noun	Store
کالا	Noun	Product
مشتری (خریدار)	Noun	Customer
انبار	Noun	Inventory
منتقد	Noun	Critic
پیک	Noun	Delivery
کوپن	Noun	Coupon
سبد خرید	Noun	Cart
نظر	Noun	Comment
سبد آرزو	Noun	Wishlist
حساب کاربری	Noun	Account
روابط عمومی	Noun	Support
سفارش	Noun	Order
مدیریت فروشگاه‌ها	Verb	Manage Stores
مدیریت انبار	Verb	Manage Inventory
ارسال کالا	Verb	Send Product
توصیه کالا	Verb	Suggest Product
اضافه به سبد خرید	Verb	Add To Cart
اضافه به آرزوها	Verb	Add To Wishlist
مقایسه کالا	Verb	Compare Products
نهایی کردن خرید	Verb	Finalize Purchase
گرفتن گزارش	Verb	Get Report
ثبت نظر	Verb	Submit Comment
بررسی کوپن تخفیف	Verb	Coupon
جستجوی کالا	Verb	Search Product
پیگیری سفارش	Verb	Track Order


Meta Shoppers Website
فروشنده
انباردار
خریدار
منتقد
اعتبارسنجی فروشنده
ورود به پنل کاربری
مدیریت فروشگاه‌ها
مدیریت کالاها
گرفتن گزارش فروش
تحویل کالاها
اعلام موجودی کالاها
اعزام وسیله نقلیه
به‌روزرسانی وضعیت سفارش
اعتبارسنجی خریدار
نمایش کالاهای محبوب
جست و جوی کالا
انتخاب کالا
مدیریت لیست آرزوها
ثبت نظر و امتیاز
گرفتن گزارش خرید
تولید فاکتور های خرید
پیگیری سفارش
ثبت سفارش
محاسبه قیمت
محاسبه تخفیف
<<extend>>
نام کاربری و کلمه عبور معتبر باشند
<<extend>>
نام کاربری و کلمه عبور معتبر باشند
<<include>>
<<include>>
<<include>>
<<extend>>
کوپن تخفیف معتبر باشد

Use Case Name:	Select Product	**ID:** 1	**Importance Level:**	High
Primary Actor:	Customer	**Use Case Type:**		Detail, Essential

Brief Description:

This use case allows a customer to select a product and place it in their shopping cart, or change the quantity of the already selected product.

Trigger: Customer intends to select a product for purchase.
Type: External

Pre-Condition: Customer clicks on '+' or '-' sign on a product listed.
Post-Condition: Selected product is either now in customer's shopping cart or its quantity has been modified.

Relationships:

Association: Customer
Include:
Extend:
Generalization:

Normal flow of events:

1. Check which option is chosen by customer:
   If the product was not present in customer's cart and clicked on '+':
   Perform S-1: Add new product to cart sub-flow.
   If the product was present in customer's cart and clicked on '+':
   Perform S-2: Increase the quantity of product in cart sub-flow.
   If the product was not present in customer's cart and clicked on '-':
   Do nothing.
   If the product was present in customer's cart and clicked on '-':
   Perform S-3: Decrease the quantity of product in cart sub-flow.
2. Inform user about the result of the operation.

Sub-flows:

S-1 New Product:

1. Add the currently selected product to cart and reserve it for 1 quantity for customer.

S-2 Increase Product Quantity:

1. Add 1 to product's quantity in cart and reserve it.

S-3 Decrease Product Quantity:

1. Decrease 1 from product's quantity and un-reserve it.
2. If quantity reached 0, then totally mark this product as removed from customer's cart.

Alternate/Exceptional Flows:

S-1 1, S-2 1:

- Product quantity availability in inventory might be insufficient.
- Shopping Cart capacity exceeded.

Use Case Name:	Manage Wishlist	**ID:**	2	**Importance Level:**	Medium
Primary Actor:	Customer	**Use Case Type:**		Detail, Essential	

Brief Description:

This use case allows a customer to mark items as their 'wishes' so they may have better access to them in the future.

Trigger: Customer intends to modify the wishing status of a product.
Type: External

Pre-Condition: Customer clicks on the star '*' icon on a product.
Post-Condition: Wishing status for a product has been successfully modified.

Relationships:

Association: Customer
Include:
Extend:
Generalization:

Normal flow of events:

1. Customer intends to add or remove an item from their wishlist by clicking on the star '*' icon.
2. Upon clicking,
   If the item was not previously starred, then
   Perform S-1: Add to wishlist sub-flow.
   Otherwise
   Perform S-2: Remove from wishlist sub-flow.
3. Wishlist status has been updated.

Sub-flows:

S-1 Add to wishlist:

1. Star currently selected product and add it to customer wishlist.

S-2 Remove from wishlist:

1. Un-star currently selected product and remove it from customer wishlist.

Alternate/Exceptional Flows:

Use Case Name:	Submit Score	**ID:**	3	**Importance Level:**	High
Primary Actor:	Customer	**Use Case Type:**		Detail, Essential	

Brief Description:

This use case allows a customer or a critic to tell their opinion about a previously purchased product, so other customers will know what they should expect.

Trigger: Customer/Critic intends to submit a score with a comment under product.

Type: External

Pre-Condition: Logged in -> Critic intends to submit an official rating or a customer intends to submit a score on a product in a previous purchase.

Post-Condition: Score with its comment is successfully submitted.

Relationships:

Association: Customer, Critic

Include:

Extend:

Generalization:

Normal flow of events:

1. A 'Score Submission' form is displayed.
2. The score is requested from the user on a scale of 0 to 5 (one-decimal point).
3. The opinion of the user is requested as a 'comment'.
4. User clicks the 'Submit' button.
5. The comment is submitted under product's page and the average score has been updated.
6. If the user is an official Critic, display a 'verified' sign next to their name.

Sub-flows:

Alternate/Exceptional Flows:

4:

- A previous score had been submitted by the user (no double-scoring allowed).
- Product may have been removed by the owner.
- Comment may contain inappropriate words.
- Authenticity of the submitted score must be guaranteed (no personal/passive-aggressive attack against the seller).

Use Case Name:	Search Product	**ID:**	4	**Importance Level:**	High
Primary Actor:	Customer	**Use Case Type:**		Detail, Essential	
Brief Description:	This use case allows a customer to search for a product based on specific category(ies) or filter(s).				
Trigger:	A customer intends to search for a product.				
Type:	External				
Pre-Condition:	Customer clicks on 'Search' button.				
Post-Condition:	Search results are displayed successfully.				
Relationships:	**Association:** Customer **Include:** **Extend:** **Generalization:**				
Normal flow of events:	1. A 'search' form is displayed. 2. Customer chooses which criteria they are looking for. - Name - Date Submitted - Price Range - Availability - Brand Name - Category 3. Required fields based on previous step are checked. 4. Software searches the whole inventory for matching results. 5. Results are eventually displayed to the customer.				
Sub-flows:					
Alternate/Exceptional Flows:	4: - No matches might not be found, inform user upon this.				

Use Case Name:	Get Purchase Report	**ID:**	5	**Importance Level:**	High
Primary Actor:	Customer	**Use Case Type:**		Detail, Essential	

Brief Description:

This use case enables the customer to retrieve details about a purchase.

Trigger: A customer intends to get report of a purchase.
Type: External

Pre-Condition: Customer enters the OrderID of a purchase and hits 'Get Report'.
Post-Condition: Report is displayed successfully.

Relationships:

Association: Customer
Include: Generate Purchase Papers
Extend:
Generalization:

Normal flow of events:

1. Ask the user about the range of purchases to be filtered (by date, price, or any other factors).
2. Gather and process required information about current purchase.
3. Create a new purchase report paper.
4. Fill out the fee paper automatically.
5. Call: 'Generate Purchase Papers' use case -> Generate Misc. information regarding the purchases report.
6. If more purchases are found, then go to step 2.

Sub-flows:

Alternate/Exceptional Flows:

2: There might be no purchases available using selected filters.

Use Case Name:	Track Order	**ID:**	6	**Importance Level:**	High
Primary Actor:	Customer	**Use Case Type:**		Detail, Essential	
Brief Description:	This use case enables the customer to gather information about their order status and details.				
Trigger:	A customer intends to know about their status of order.				
Type:	External				
Pre-Condition:	Customer enters the 'Track Order' page.				
Post-Condition:	Order details is displayed successfully.				
Relationships:	**Association:** Customer **Include:** **Extend:** **Generalization:**				
Normal flow of events:	1. Request Order ID from customer. 2. Search the database for corresponding Order ID. 3. Display order details in a printable form. 4. Highlight order status for convenience.				
Sub-flows:					
Alternate/Exceptional Flows:	2: No matching Order ID is found in database, or the corresponding order is too old.				

Use Case Name:	Submit Purchase	**ID:**	7	**Importance Level:**	High
Primary Actor:	Customer	**Use Case Type:**		Detail, Essential	

Brief Description:

This use case is called upon the user finalizing their purchase.

Trigger: A customer intends to know about their status of order.
Type: External

Pre-Condition: Customer clicks on 'Finalize Purchase' button in their cart page.
Post-Condition: Order is submitted successfully.

Relationships:

Association: Customer
Include: Calculate Total Price, Calculate Discount, Get Product's Quantity
Extend:
Generalization:

Normal flow of events:

1. Call ' Get Product's Quantity ' -> Software checks the availability of all of the items selected by the customer respect to their quantity.
2. Request user to enter their discount coupon ID, or select an option from season offerings.
3. Call 'Calculate Total Price' use case -> Calculate the total price of products selected.
4. Call 'Calculate Discount' use case, providing the coupon ID.
5. Subtract discount from total price to calculate net worth.
6. Take user to a temporary page, which acts as an intermediary between software and payment page.
7. Submit order with a status of 'Awaiting Payment'.
8. Redirect to payment page and await payment.
9. Mark order as 'Pending' eventually.

Sub-flows:

Alternate/Exceptional Flows:

4: Coupon is invalid or expired.
9: Payment may be unsuccessful.

Use Case Name:	Manage Stores	**ID:**	8	**Importance Level:**	High
Primary Actor:	Vendor	**Use Case Type:**		Detail, Essential	

Brief Description:

This use case enables the vendor to manage their underlying stores.

Trigger: A vendor intends to modify their submitted stores.
Type: External

Pre-Condition: Vendor is about to modify a store.
Post-Condition: Store is modified successfully.

Relationships:

Association: Vendor
Include:
Extend:
Generalization:

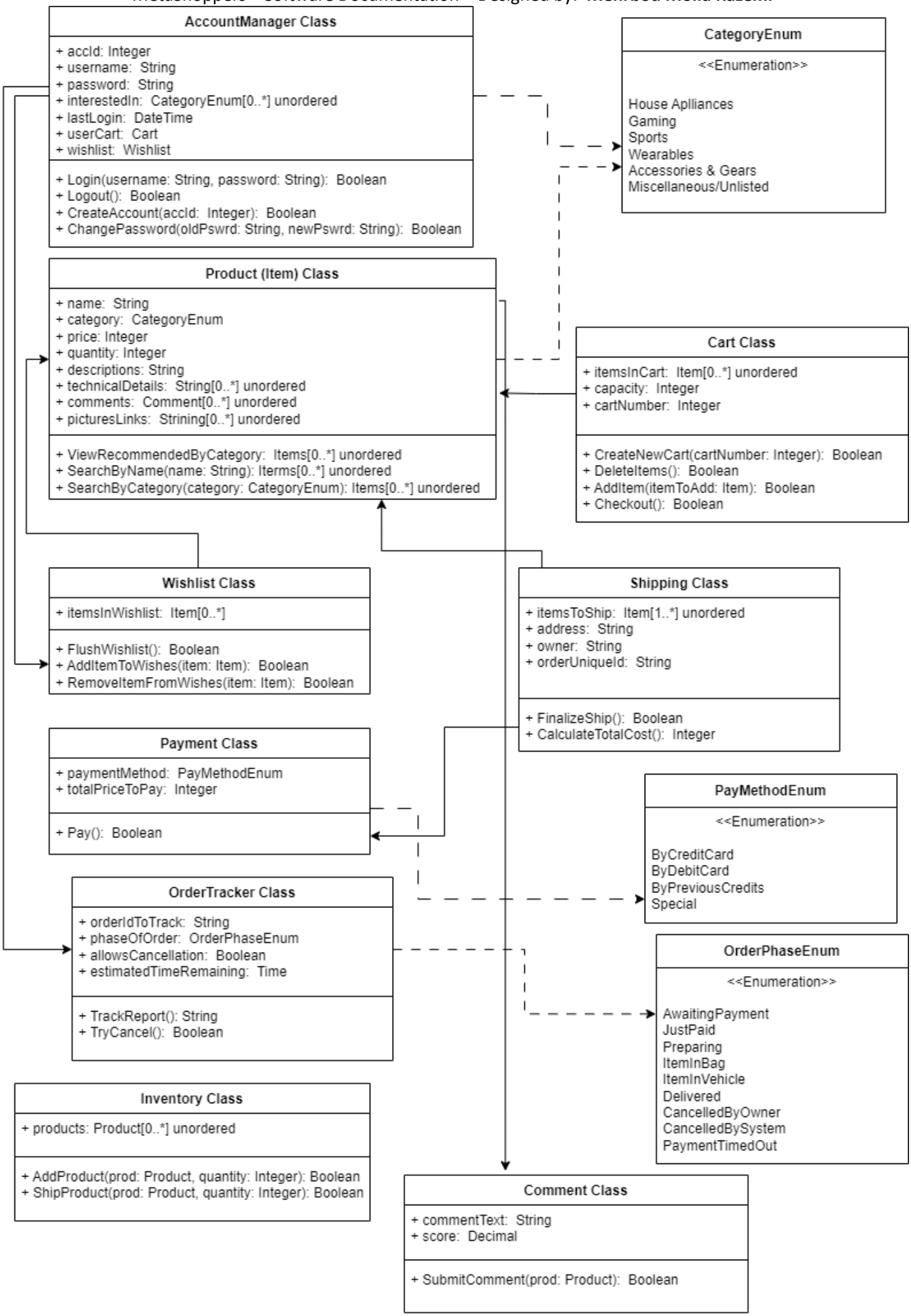
Normal flow of events:

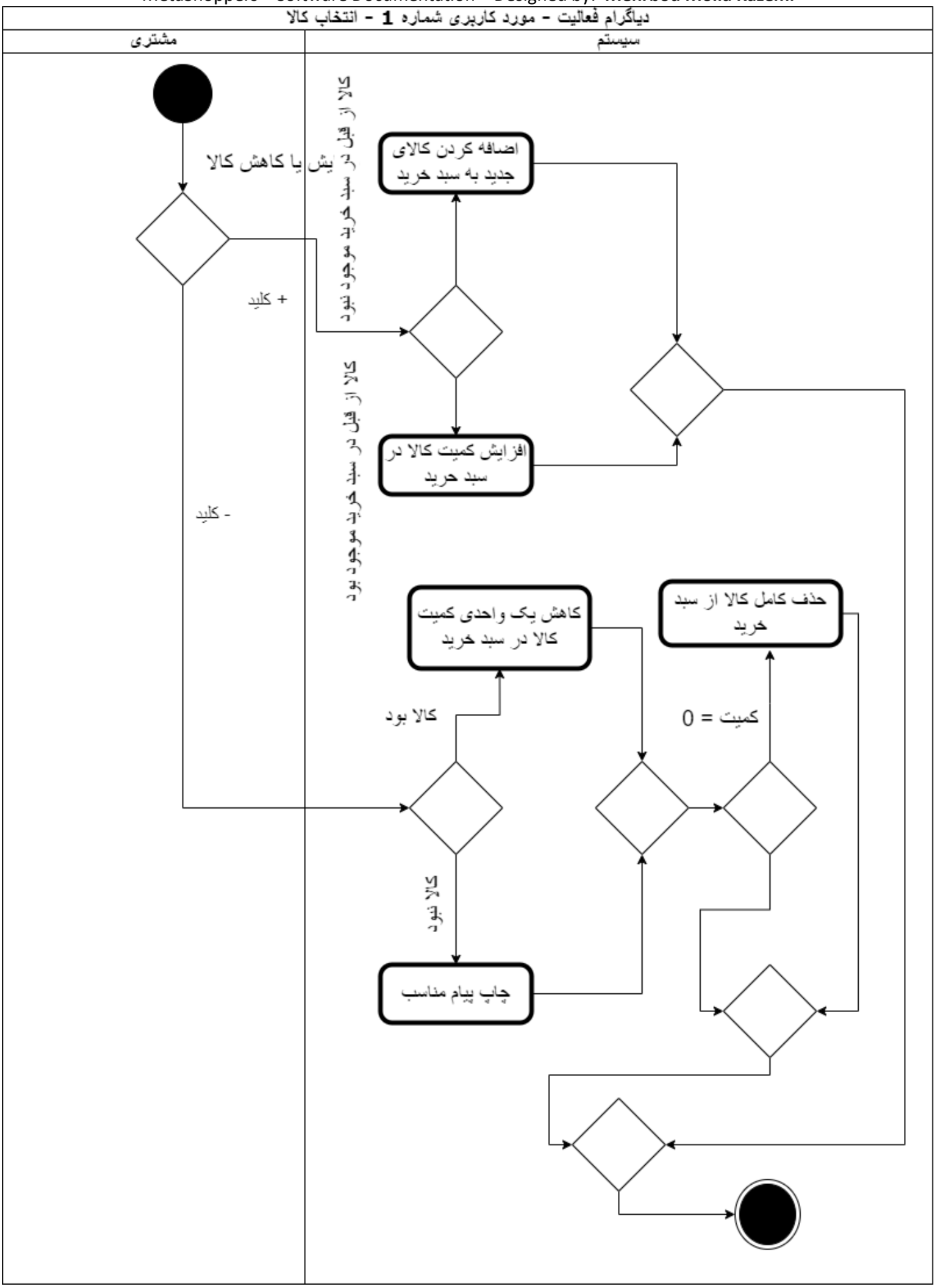
1. Vendor goes to 'My Stores' page.
2. Vendor clicks on 'Edit Store'.
3. Vendor edits store details.
4. Clicks on 'Apply'.

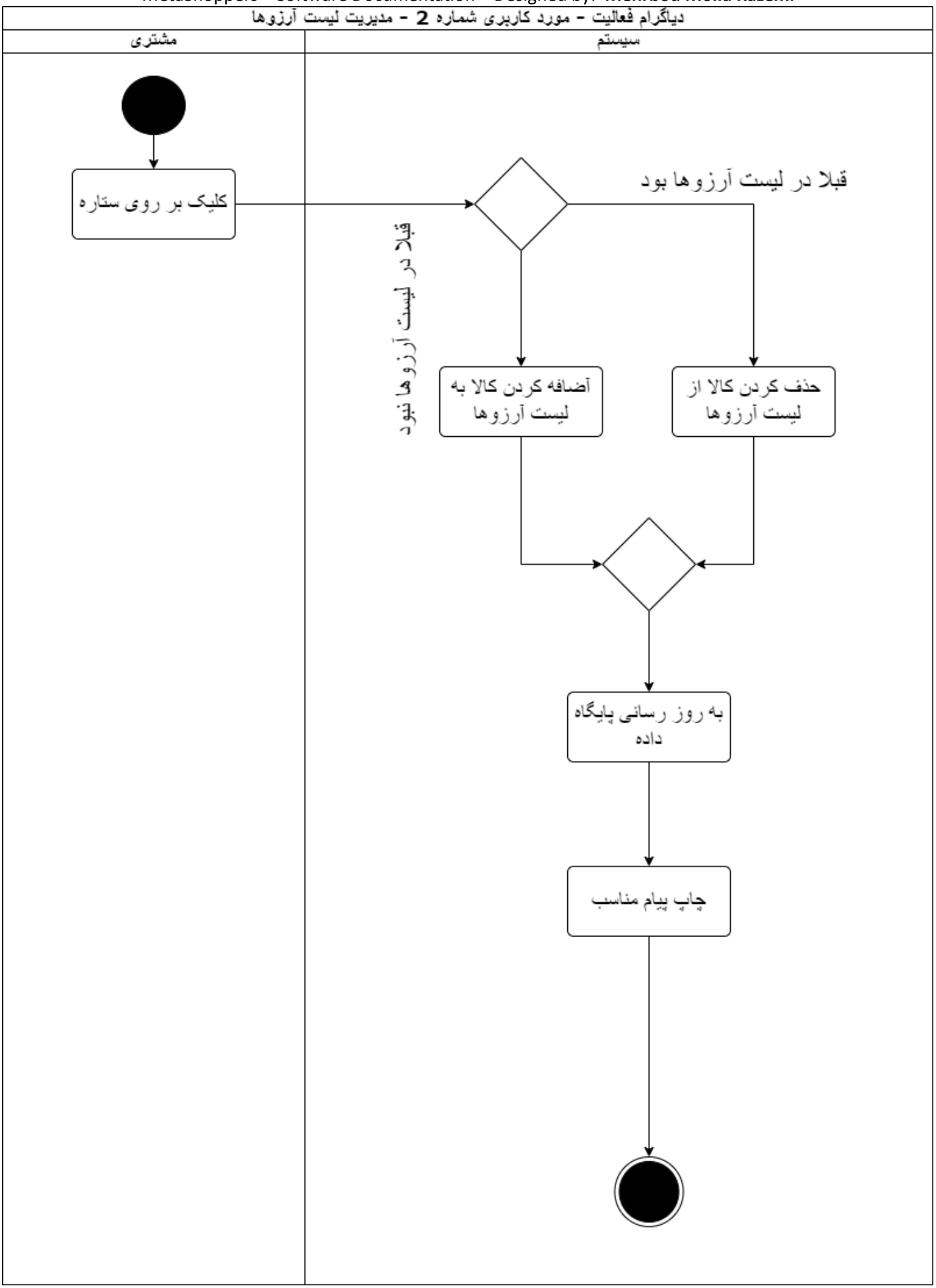
Sub-flows:

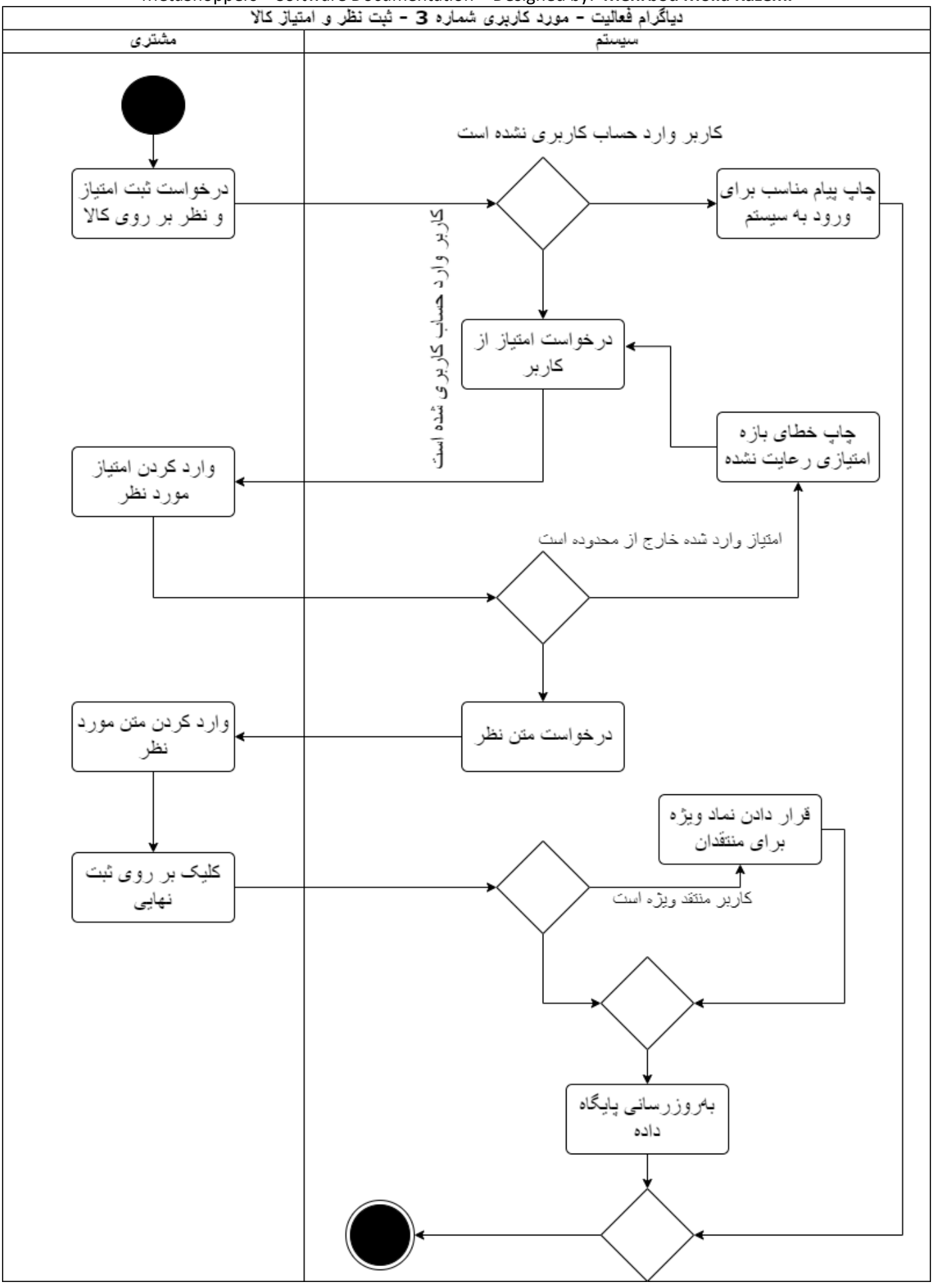
Alternate/Exceptional Flows:

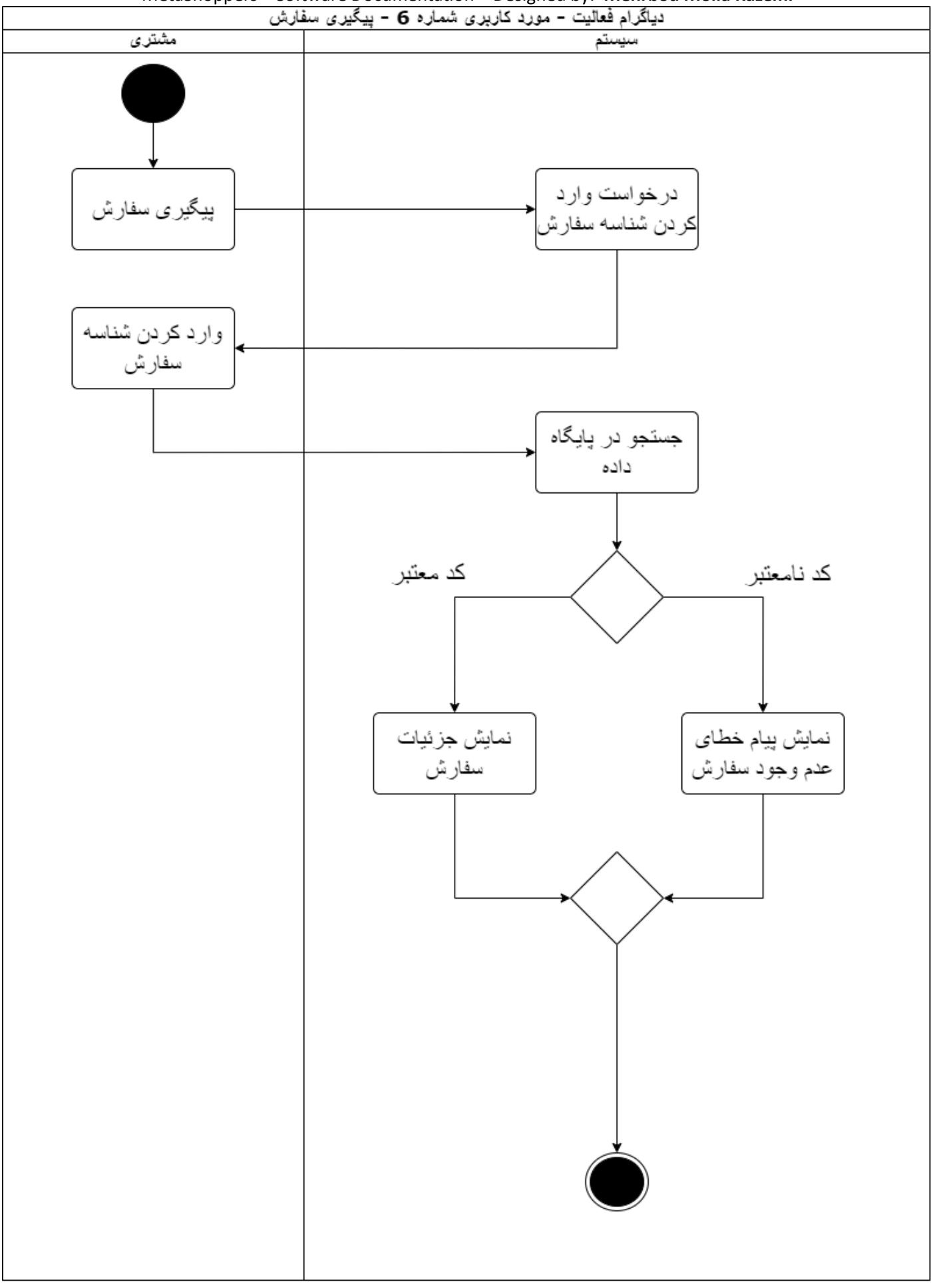
4: They may change their mind about such edition.

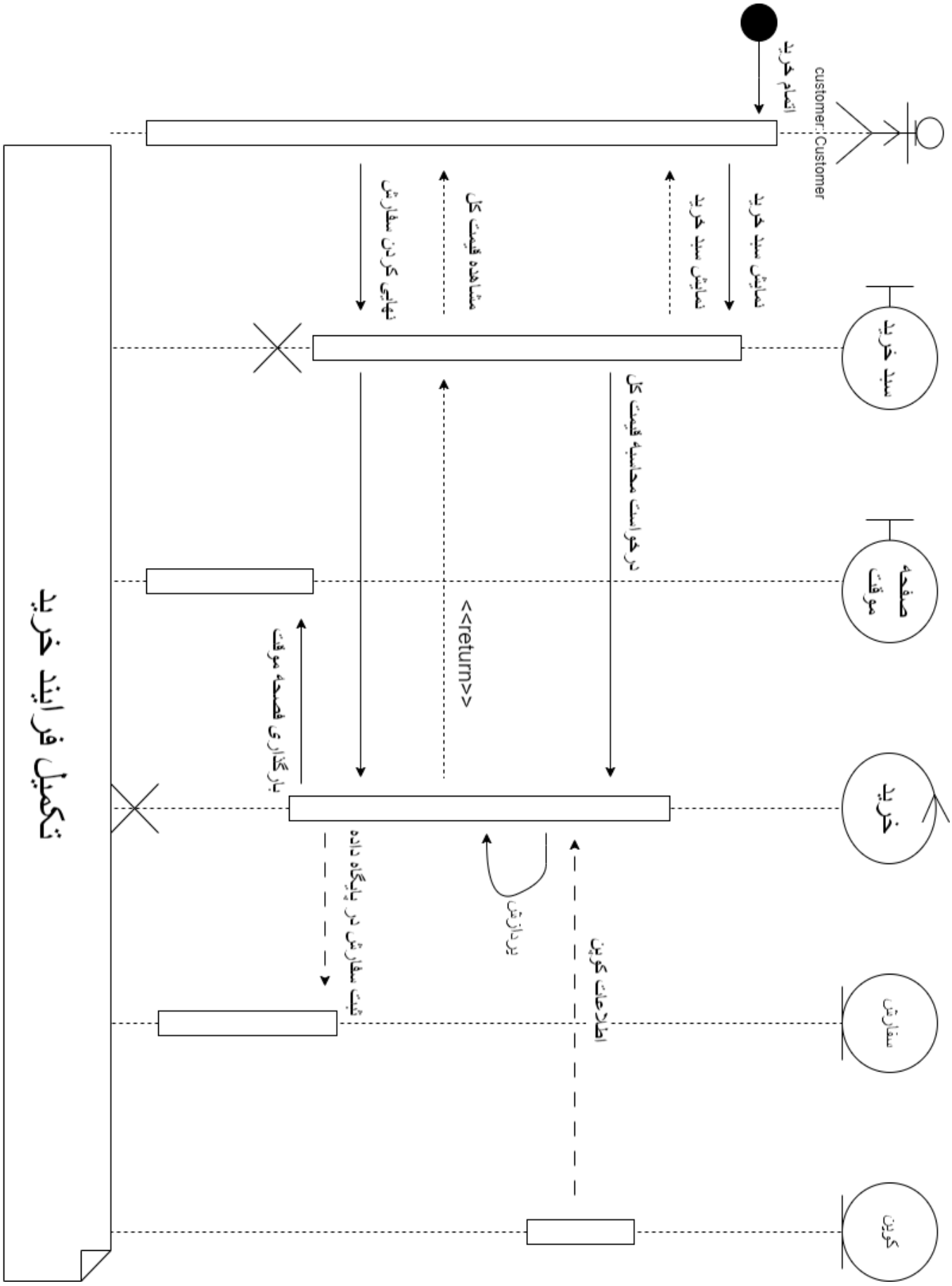

AccountManager Class
+ accId: Integer
+ username: String
+ password: String
+ interestedIn: CategoryEnum[0..*] unordered
+ lastLogin: DateTime
+ userCart: Cart
+ wishlist: Wishlist
+ Login(username: String, password: String): Boolean
+ Logout(): Boolean
+ CreateAccount(accId: Integer): Boolean
+ ChangePassword(oldPswrd: String, newPswrd: String): Boolean
CategoryEnum
<<Enumeration>>
House Aplliances
Gaming
Sports
Wearables
Accessories & Gears
Miscellaneous/Unlisted
Product (Item) Class
+ name: String
+ category: CategoryEnum
+ price: Integer
+ quantity: Integer
+ descriptions: String
+ technicalDetails: String[0..*] unordered
+ comments: Comment[0..*] unordered
+ picturesLinks: Strining[0..*] unordered
+ ViewRecommendedByCategory: Items[0..*] unordered
+ SearchByName(name: String): Iterms[0..*] unordered
+ SearchByCategory(category: CategoryEnum): Items[0..*] unordered
Cart Class
+ itemsInCart: Item[0..*] unordered
+ capacity: Integer
+ cartNumber: Integer
+ CreateNewCart(cartNumber: Integer): Boolean
+ DeleteItems(): Boolean
+ AddItem(itemToAdd: Item): Boolean
+ Checkout(): Boolean
Wishlist Class
+ itemsInWishlist: Item[0..*]
+ FlushWishlist(): Boolean
+ AddItemToWishes(item: Item): Boolean
+ RemoveItemFromWishes(item: Item): Boolean
Shipping Class
+ itemsToShip: Item[1..*] unordered
+ address: String
+ owner: String
+ orderUniqueId: String
+ FinalizeShip(): Boolean
+ CalculateTotalCost(): Integer
Payment Class
+ paymentMethod: PayMethodEnum
+ totalPriceToPay: Integer
+ Pay(): Boolean
PayMethodEnum
<<Enumeration>>
ByCreditCard
ByDebitCard
ByPreviousCredits
Special
OrderTracker Class
+ orderIdToTrack: String
+ phaseOfOrder: OrderPhaseEnum
+ allowsCancellation: Boolean
+ estimatedTimeRemaining: Time
+ TrackReport(): String
+ TryCancel(): Boolean
OrderPhaseEnum
<<Enumeration>>
AwaitingPayment
JustPaid
Preparing
ItemInBag
ItemInVehicle
Delivered
CancelledByOwner
CancelledBySystem
PaymentTimedOut
Inventory Class
+ products: Product[0..*] unordered
+ AddProduct(prod: Product, quantity: Integer): Boolean
+ ShipProduct(prod: Product, quantity: Integer): Boolean
Comment Class
+ commentText: String
+ score: Decimal
+ SubmitComment(prod: Product): Boolean


دیاگرام فعالیت - مورد کاربری شماره 1 - انتخاب کالا
مشتری
سیستم
افزایش یا کاهش کالا
+ کلید
- کلید
کالا از قبل در سبد خرید موجود نبود
کالا از قبل در سبد خرید موجود بود
اضافه کردن کالای جدید به سبد خرید
افزایش کمیت کالا در سبد خرید
کاهش یک واحدی کمیت کالا در سبد خرید
حذف کامل کالا از سبد خرید
کالا بود
کمیت = 0
کالا نبود
چاپ پیام مناسب


دیاگرام فعالیت - مورد کاربری شماره 2 - مدیریت لیست آرزوها
مشتری
سیستم
کلیک بر روی ستاره
قبلا در لیست آرزوها بود
قبلا در لیست آرزوها نبود
آضافه کردن کالا به لیست آرزوها
حذف کردن کالا از لیست آرزوها
به روز رسانی پایگاه داده
چاپ پیام مناسب


دیاگرام فعالیت - مورد کاربری شماره 3 - ثبت نظر و امتیاز کالا
مشتری
سیستم
کاربر وارد حساب کاربری نشده است
درخواست ثبت امتیاز و نظر بر روی کالا
چاپ پیام مناسب برای ورود به سیستم
کاربر وارد حساب کاربری شده است
درخواست امتیاز از کاربر
چاپ خطای بازه امتیازی رعایت نشده
وارد کردن امتیاز مورد نظر
امتیاز وارد شده خارج از محدوده است
درخواست متن نظر
وارد کردن متن مورد نظر
قرار دادن نماد ویژه برای منتقدان
کلیک بر روی ثبت نهایی
کاربر منتقد ویژه است
به‌روزرسانی پایگاه داده


دیاگرام فعالیت - مورد کاربری شماره 6 - پیگیری سفارش
مشتری
سیستم
پیگیری سفارش
درخواست وارد کردن شناسه سفارش
وارد کردن شناسه سفارش
جستجو در پایگاه داده
کد معتبر
کد نامعتبر
نمایش جزئیات سفارش
نمایش پیام خطای عدم وجود سفارش


اتمام خرید
customer:Customer
نمایش سبد خرید
نمایش سبد خرید
مشاهده قیمت کل
نهایی کردن سفارش
سبد خرید
درخواست محاسبه قیمت کل
<<return>>
صفحه موقت
بارگذاری صفحه موقت
خرید
پردازش
ثبت سفارش در پایگاه داده
اطلاعات کوپن
سفارش
کوپن
تکمیل فرایند خرید

Manufacturer

Operations		Attributes	
1	Add To Products()	1	ManufacturerID
2	Manage Stock()	2	Name
3	Manage Profile()	3	Products Available
4	Get Report()	4	Date Established
		5	Rating
		6	Sales

Store

Operations		Attributes	
1	Manage Products()	1	StoreName
2	Manage Customers()	2	Products
3	Manage Manufacturers()	3	Customers
4	Manage Orders()	4	Manufacturers
5	Manage Inventory()	5	Critics
		6	Orders
		7	Inventory
		8	Coupons

Product

Operations		Attributes	
1	Update Quantity()	1	ProductID
2	Transfer Ownership()	2	Name
3	Send To Inventory()	3	Quantity
		4	Manufacturer
		5	DateAdded
		6	DateUpdated
		7	IsOnSale
		8	Price
		9	NumberOfPurchases
		10	Comments
		11	Rating

Customer

Operations		Attributes	
1	Add To Cart()	1	CustomerID
2	Change Password()	2	FirstName
3	End Session()	3	LastName
4	Finalize Purchase()	4	NationalID

5	Empty Cart()	5	DateJoined
6	Add To Wishlist()	6	NumberOfOrders
7	Empty Wishlist()	7	NumberOfPurchases
		8	Rank
		9	Friends
		10	Interests
		11	Cart
		12	Wishlist
		13	Interests

Inventory			
Operations		Attributes	
1	Add To Inventory()	1	ProductsInInventory
2	Submit Order()	2	OrdersPending
3	Remove From Inventory()	3	DeliveriesAvailable
4	Mark Order as Done()	4	MaximumCapacity
5	Get Report()		

پایان

با تشکر از توجه شما

مهربد ملاکاظمی خوبده

۱ خرداد ۱۴۰۳