



DVVM

Object Oriented Design

TEAM9 김동민, 송현우



목차

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2045	Define Design Class Diagrams
2046	Design Traceability Analysis



Use Case	1.Process stock sales
Actors	Machine
Purpose	Manage stock sales
Overview	If there is a change in stock due to user actions, the stock status is updated
Type	Primary
Cross Reference	R1.1, R2.2, R3.2
Pre-Requisites	Sufficient stock to sale
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This event is executed when there is enough stock of the item selected by the user. 2. User : the User leaves with the items. 3. Machine : the machine reduces the stock.
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	2. Process prepaid item
Actors	Machine
Purpose	To store the prepayment information requested by another machine
Overview	Store the code of the prepayment requested by another machine in the table
Type	Primary
Cross Reference	R4.2, R4.3
Pre-Requisites	this machine respond true to a prepayment request from another machine
Typical Courses of Events	<ol style="list-style-type: none"> 1. This event is executed When this machine respond true to a prepayment request from another machine 2. The machine remove the item in the stock table 3. The machine Store the code in the code table
Alternative Courses of Events	...
Exceptional Courses of Events	<ol style="list-style-type: none"> 1. If a duplicate code exists in the code table, a duplicate error is output

2041. Define Real Use Cases

Use Case	3. Insert code
Actors	User
Purpose	allow users to enter code
Overview	Enter the code that the user received when making the prepayment into the machine
Type	Primary
Cross Reference	R1.2, R2.1, R2.2, R2.3
Pre-Requisites	Prepayment completed
Typical Courses of Events	1. User : The User enters the code they received when they prepaid.
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	4. Offer prepaid item
Actors	Machine
Purpose	Provide prepaid items to user
Overview	Offer the item that a user has prepaid for
Type	Primary
Cross Reference	R1.2, R2.1, R2.2, R2.3
Pre-Requisites	code validation successful
Typical Courses of Events	<ol style="list-style-type: none"> 1. Machine : The machine offers the item that user prepaid. 2. User : The user leaves with items provided by the machine
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	5. Check code
Actors	Machine
Purpose	To validate the code entered by the user
Overview	Checks that the code entered by the user is actually a valid code
Type	Primary
Cross Reference	R1.2, R2.1, R2.2, R2.3, R2.4
Pre-Requisites	Insert code
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This event is executed after the user insert the code 2. Machine : The machine verifies the code that the user has inserted and the machine has stored
Alternative Courses of Events	...
Exceptional Courses of Events	<ol style="list-style-type: none"> 1. Machine : This event is executed when the verified code is invalid 2. Machine : The machine prints that the code is invalid for the user

2041. Define Real Use Cases

Use Case	6. Dispose code
Actors	Machine
Purpose	To dispose of code that users have used
Overview	Delete the code that the user used from the data
Type	Primary
Cross Reference	R2.3, R2.4
Pre-Requisites	code validation successful
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This event is executed when the user prepays for an item and takes them away 2. Machine : The machine disposes of the code from database
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	7. Select item
Actors	User
Purpose	The user selects the desired items from the machine
Overview	The user selects the desired item and number of items from the machine
Type	Primary
Cross Reference	R3.1, R3.2, R3.3
Pre-Requisites	...
Typical Courses of Events	1. User : The user inserts the desired item and number into the machine
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	8. Offer item
Actors	Machine
Purpose	To give the user items of their choice
Overview	The machine offers items that user selected
Type	Primary
Cross Reference	R3.1, R3.2
Pre-Requisites	The items selected by the user exists on this machine
Typical Courses of Events	<ol style="list-style-type: none"> 1. Machine : This use case runs when the user's selected item is in sufficient stock. 2. User : The user insert the card and pays 3. Machine : Provides items to users. 4. User : The user leaves with items provided by the machine
Alternative Courses of Events	...
Exceptional Courses of Events	<ol style="list-style-type: none"> 1. This event is executed when this machine is out of stock 2. The machine prints that the machine is currently out of stock and sends a request to another machine

2041. Define Real Use Cases

Use Case	9. Request stock state
Actors	Machine
Purpose	To request the stock of other machines
Overview	Request other machines the stock of the item that user selected
Type	Primary
Cross Reference	R3.1, R3.3,R3.4,R3.8
Pre-Requisites	The items selected by the user is out of stock in this machine
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This event is executed when the user's selected item isn't in sufficient stock. 2. Machine : Request stock data to other machines.
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	10. Choose whether prepayment
Actors	User
Purpose	To let users choose whether or not to prepay
Overview	Allow users to choose whether they want to prepay or not via buttons.
Type	Primary
Cross Reference	R3.3, R3.4, R3.5
Pre-Requisites	When requesting stock state, the response is that there is enough stock
Typical Courses of Events	<ol style="list-style-type: none"> 1. Machine : This event is executed when the user's selected items isn't in sufficient stock and other machine responded that it has sufficient stock. 2. User : User select whether prepayment with a button.
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	11. Request prepayment state
Actors	Machine
Purpose	To pass the user's prepaid information to other machines
Overview	Passes the information and code for the items that user selected to other machines.
Type	Primary
Cross Reference	R3.4, R3.5, R3.6
Pre-Requisites	The user selects the prepayment
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This event is executed when the user selects the prepayment. 2. Machine : Request prepayment state to closest machine.
Alternative Courses of Events	...
Exceptional Courses of Events	<ol style="list-style-type: none"> 1. Responding to a prepayment request that it is not possible 2. Send a prepayment request to the closest machine after the machine you sent the previous request 3. All machines responding that it is impossible to make a prepayment request 4. Print Prepayment Impossible error

2041. Define Real Use Cases

Use Case	12. Make code
Actors	Machine
Purpose	Create a code to send to requests for prepayment
Overview	The machine generates a code to send a prepayment request and sends a prepayment request to another with the request format
Type	Primary
Cross Reference	R3.4, R3.5, R3.6
Pre-Requisites	The user selects the prepayment
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This event is executed when user selects prepayment 2. Machine : Creates a 10-character string containing lowercase letters and numbers.
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	13. Print coordinate and code
Actors	Machine
Purpose	Prints coordinates and codes to allow users to receive prepaid items
Overview	After receiving a response that it is possible to prepayment, print the coordinates to the machine and code
Type	Primary
Cross Reference	R3.5, R3.6, R3.7
Pre-Requisites	Responding to a prepayment request that it is possible
Typical Courses of Events	<ol style="list-style-type: none"> 1. Machine : This event is executed after use case number 11. 2. User : The user insert the card and pays 3. Machine : Coordinate and code of the machine are print on the screen.
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	14. Print coordinate
Actors	Machine
Purpose	To provide the coordinates of the machine where the use's selected item is in stock
Overview	The screen outputs the coordinates of the machine that has enough of the user's selected item in stock
Type	Primary
Cross Reference	R3.4, R3.8
Pre-Requisites	When choosing whether to prepayment or not, respond NO
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This event is executed when user choose not to prepay. 2. Machine : Coordinate of the machine is print on the screen.
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	15. Response stock state
Actors	Machine
Purpose	Responding to the stock state request from another machine
Overview	Response the stock status of a specific items requested by another machine
Type	Primary
Cross Reference	R4.1
Pre-Requisites	Another machine requested stock state
Typical Courses of Events	<ol style="list-style-type: none"> 1. Machine : This event is executed when other machine request stock state. 2. Machine : Response with stock state of the requested item and the machine's coordinate.
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	16. Response prepayment state
Actors	Machine
Purpose	To handle when another machine requests a prepayment
Overview	Process the prepayment information requested by other machines
Type	Primary
Cross Reference	R4.2, R1.2
Pre-Requisites	Another machine requested stock state
Typical Courses of Events	<ol style="list-style-type: none"> 1. Machine : This event is executed when other machine request prepayment. 2. Machine : If machine has enough stock, response true state. If not, response with false state. 3. Machine : If machine response true state, remove the prepaid items from the stock and store the items in the prepayment table
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	17. Insert card data
Actors	User
Purpose	To proceed with payment for the selected items
Overview	The user enters the card information to proceed with the payment
Type	Primary
Cross Reference	R3.2, R3.7, R5.1
Pre-Requisites	<ol style="list-style-type: none"> 1. The user selects the desired item and the items are in sufficient stock 2. Responding to a prepayment request that it is possible
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This use case is executed when the user makes a payment or prepayment. 2. User : User insert card data into input.
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

Use Case	18. Check card data
Actors	Machine
Purpose	To verify if there is a balance on the card
Overview	If there is a change in stock due to user actions, the stock status is updated
Type	Primary
Cross Reference	R5.1, R5.2
Pre-Requisites	User insert card data
Typical Courses of Events	<ol style="list-style-type: none"> 1. Machine : This use case is executed after user inserts card data 2. Machine : The machine verifies that the inserted card has a sufficient balance
Alternative Courses of Events	...
Exceptional Courses of Events	<ol style="list-style-type: none"> 1. If the card information does not exist, it outputs an error 2. If the card's balance is not sufficient, an error will be output

2041. Define Real Use Cases

Use Case	19. Manage manager authentication
Actors	User
Purpose	To Login & Logout as a manager
Overview	If user wants to login or logout as a manager, enters manager data
Type	Primary
Cross Reference	R6.1, R6.2, R6.3
Pre-Requisites	User insert manager data
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This use case is executed when the user wants to login or logout as a manager. 2. User : User insert ID and password to input.
Alternative Courses of Events	...
Exceptional Courses of Events	<ol style="list-style-type: none"> 1. If the manager data is invalidated, print manager data invalid error

2041. Define Real Use Cases

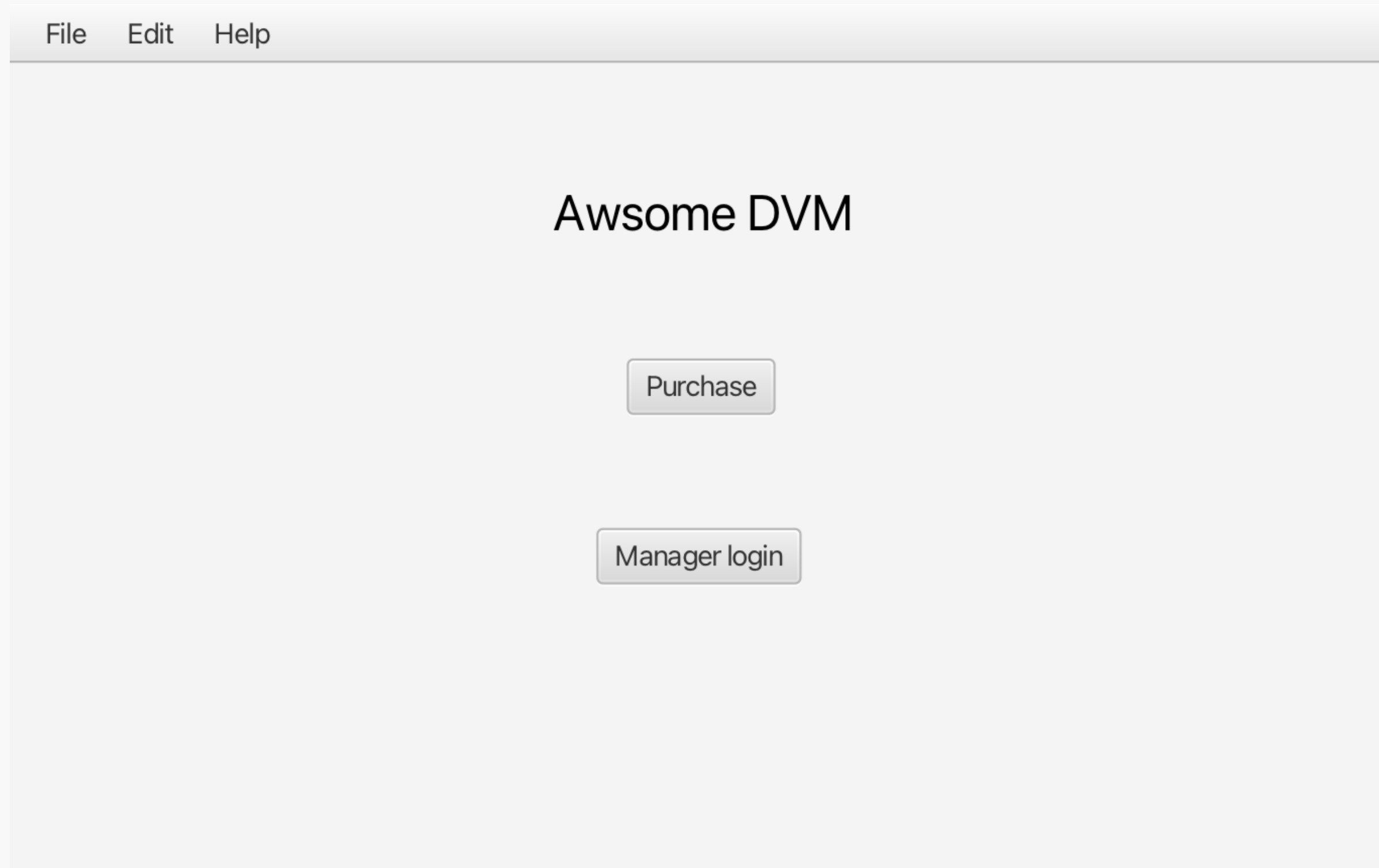
Use Case	20. Manage stock
Actors	User
Purpose	To manage stock
Overview	If manager wants to change in stock, manager enters stock data
Type	Primary
Cross Reference	R6.1, R6.2
Pre-Requisites	Manager Login
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This use case is when the manager wants to manage stock 2. User : manager insert item_code and item_num to input.
Alternative Courses of Events	...
Exceptional Courses of Events	<ol style="list-style-type: none"> 1. If item_code does not existed, print invalid item_code error 2. If item_num is invalid, print invalid item_num error

2041. Define Real Use Cases

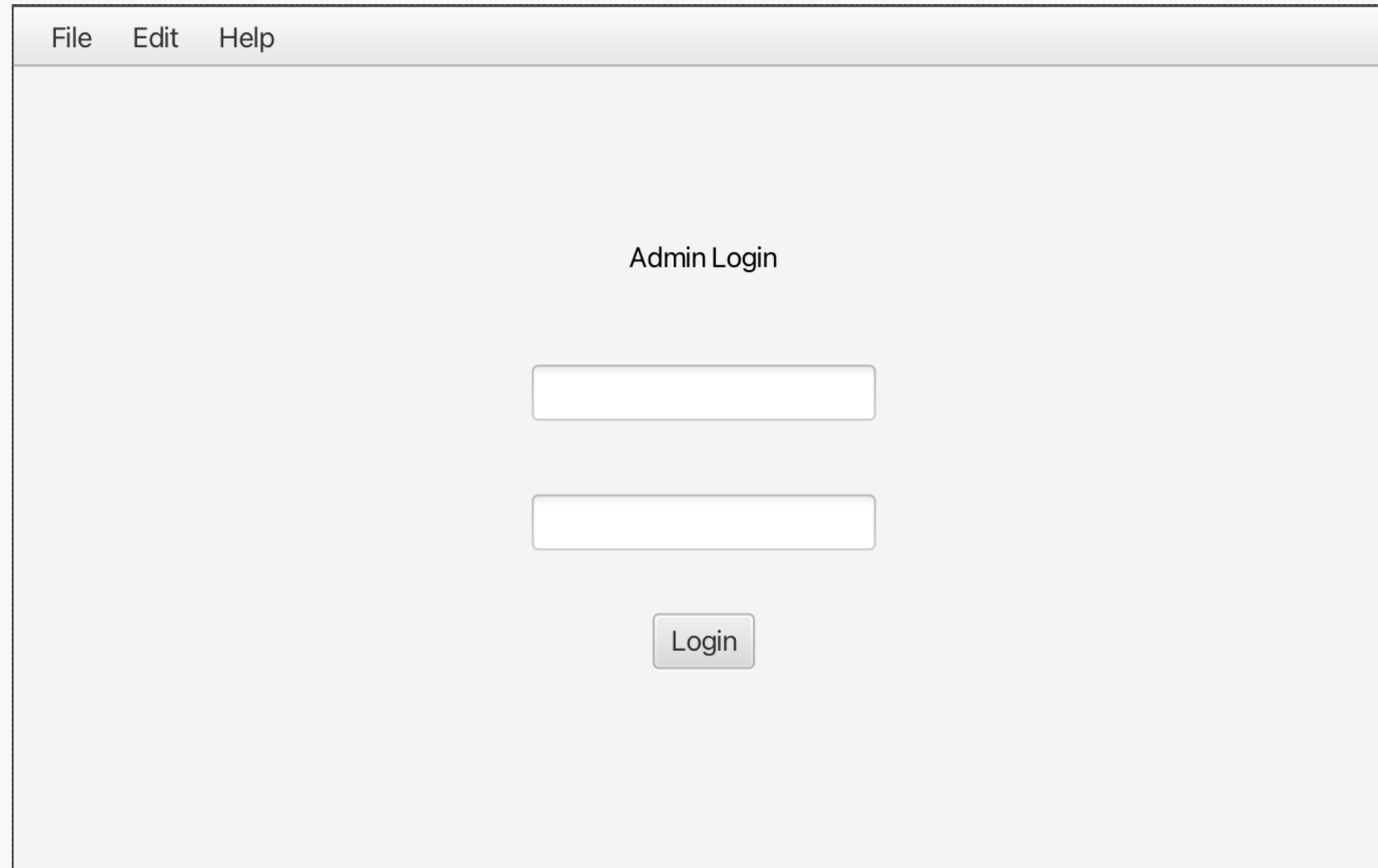
Use Case	21. Manage other DVM
Actors	User
Purpose	To manage other DVM data
Overview	If there is a change in other DVM, manager edit other DVM data
Type	Primary
Cross Reference	R6.1, R6.3
Pre-Requisites	Manager Login
Typical Courses of Events	<ol style="list-style-type: none"> 1. User : This use case is executed when there are changes in other dvm 2. User : Manager edit dvm data
Alternative Courses of Events	...
Exceptional Courses of Events	...

2041. Define Real Use Cases

User - Select task



Admin - Login

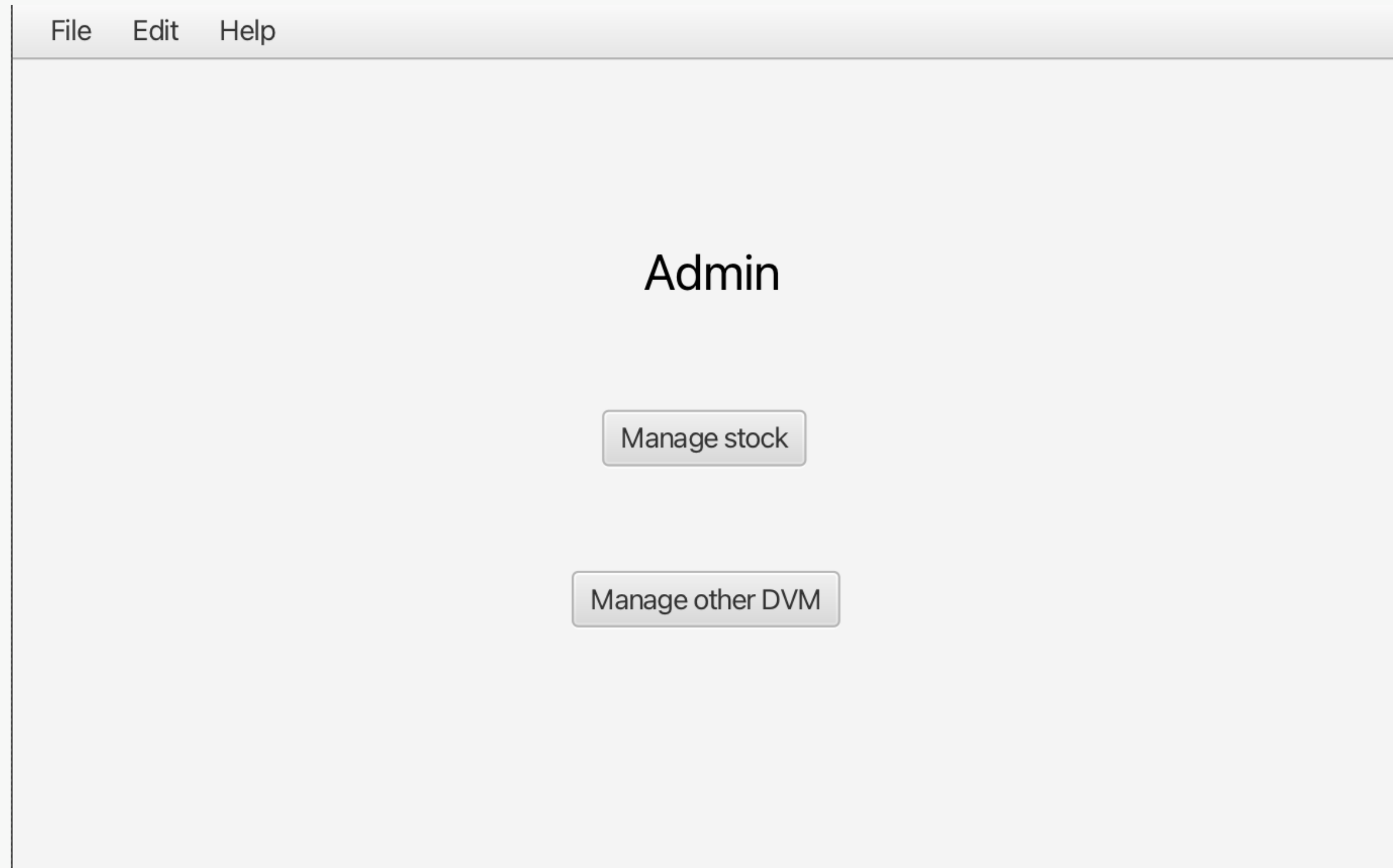


The image shows a window titled "Admin - Login" with a menu bar containing "File", "Edit", and "Help". The main content area is centered and contains the text "Admin Login" above two empty text input fields. Below the input fields is a "Login" button.

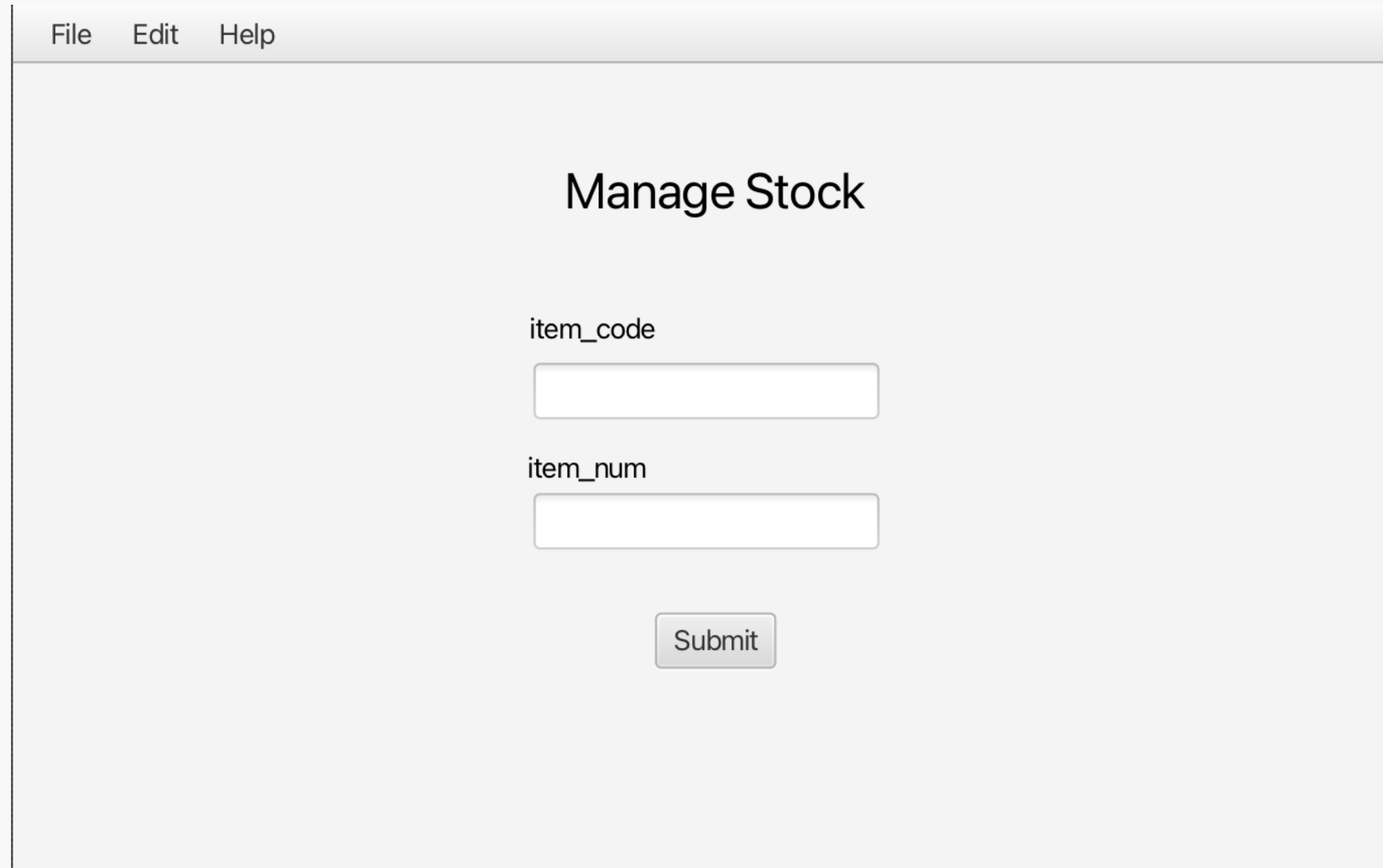
File Edit Help

Admin Login

Admin - Select task



Admin - Manage stock



The image shows a web application window titled "Admin - Manage stock". The window has a menu bar with "File", "Edit", and "Help" options. The main content area is titled "Manage Stock" and contains two input fields: "item_code" and "item_num". Below these fields is a "Submit" button.

File Edit Help

Manage Stock

item_code

item_num

Submit

Admin - Add DVM

File Edit Help

Add DVM

id

IP address

port

Submit

Admin - Remove DVM

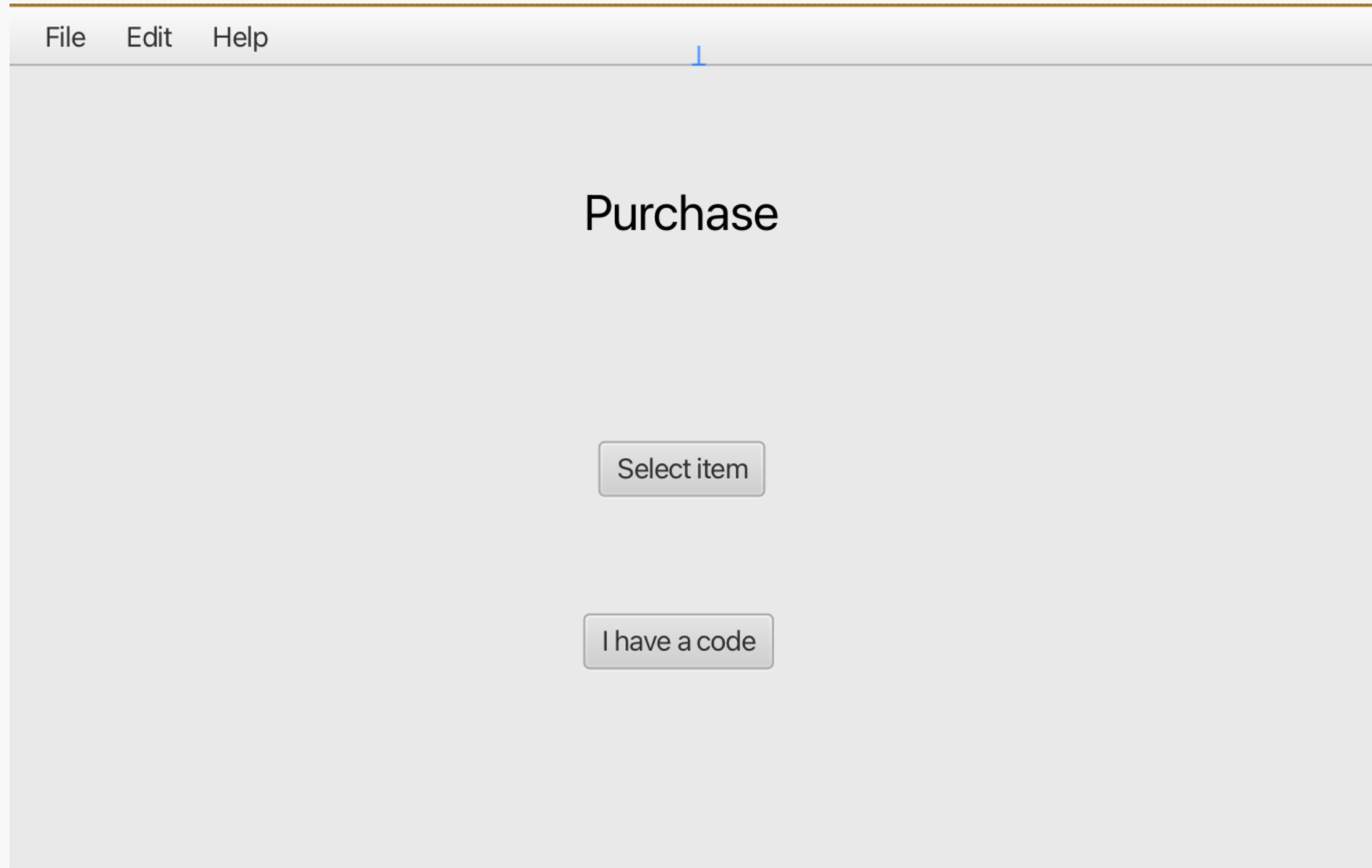
File Edit Help

Remove DVM

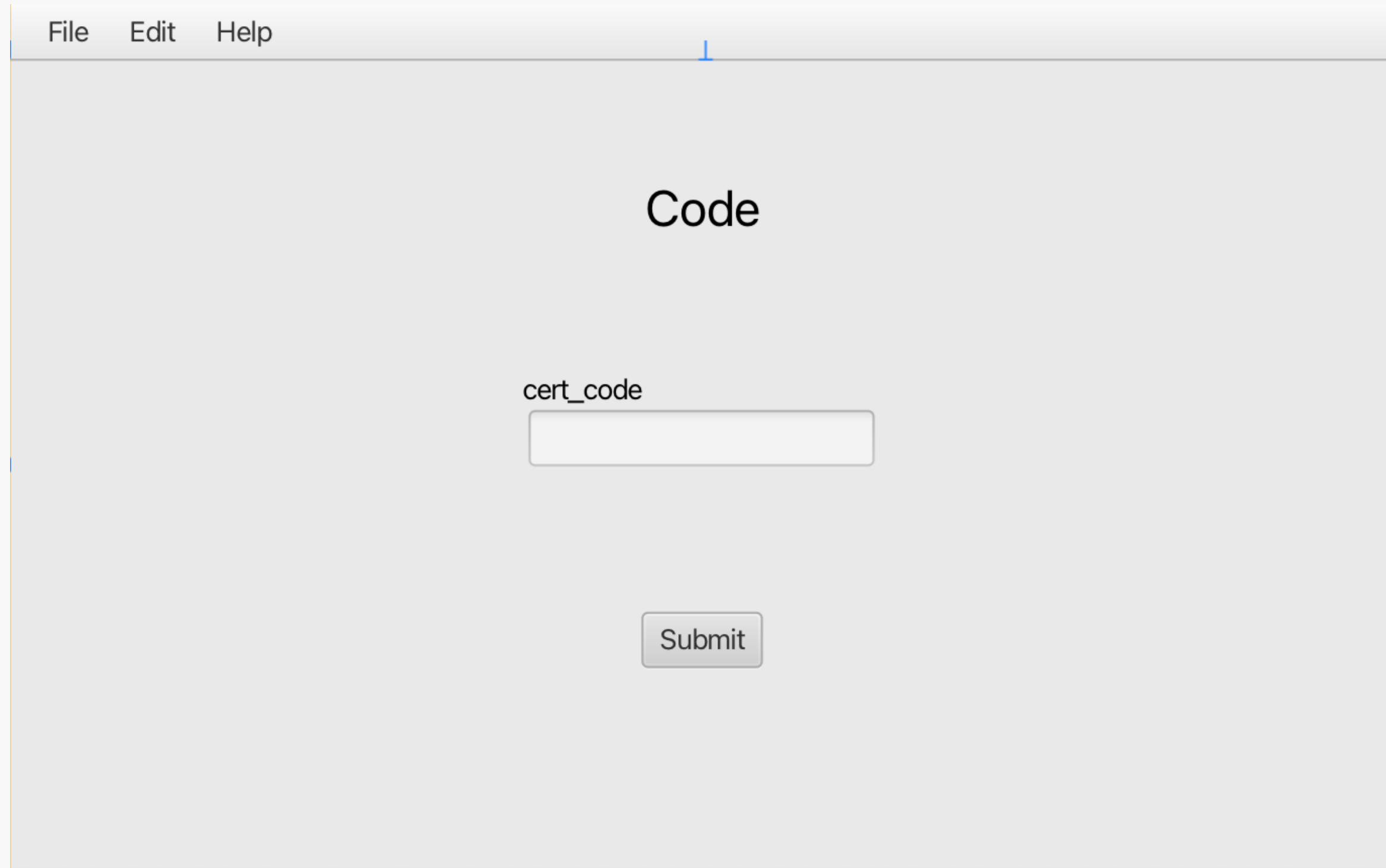
id

Remove

User - Select task



User - Insert code



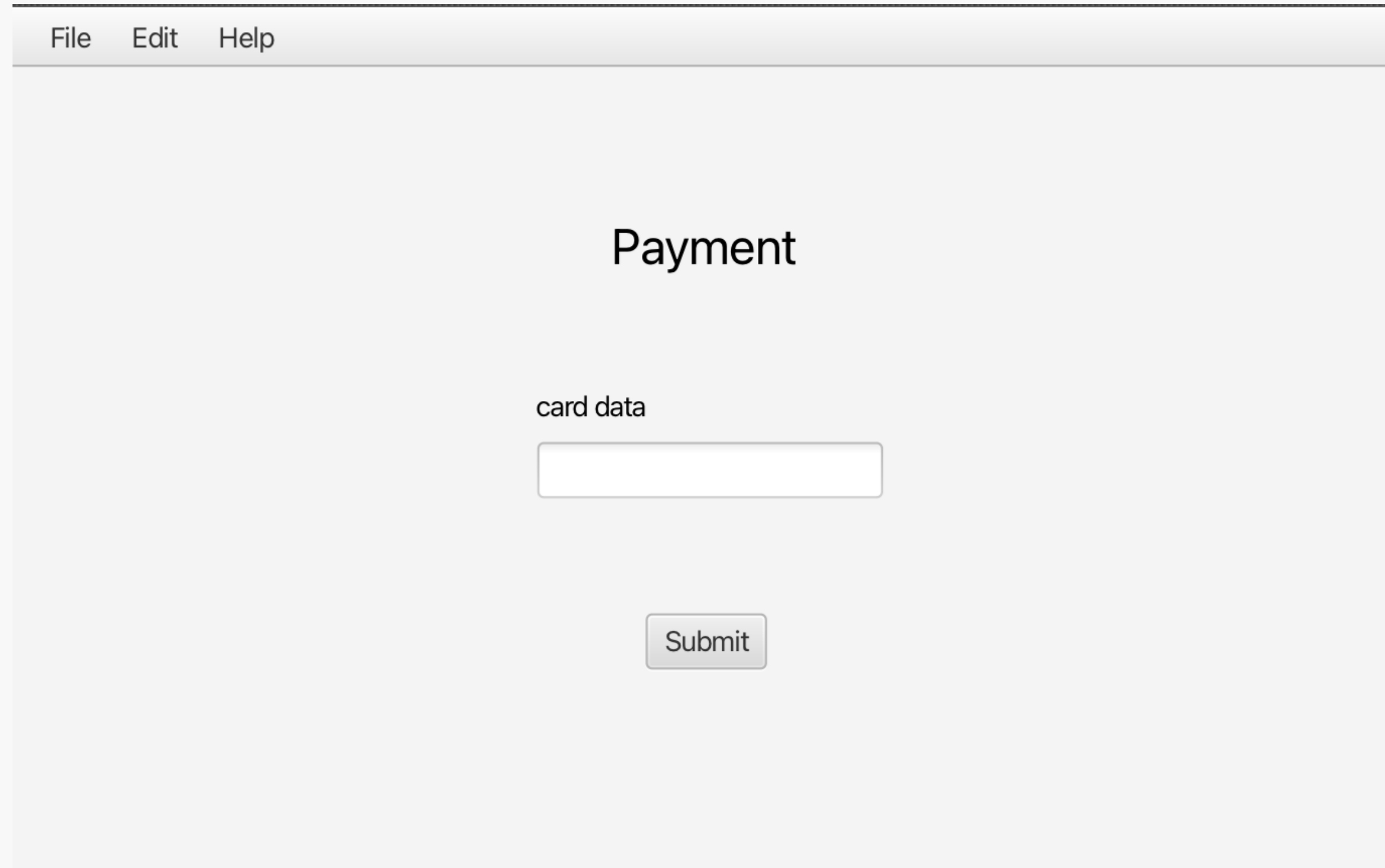
The image shows a web application window with a light gray background. At the top, there is a menu bar with three items: 'File', 'Edit', and 'Help'. Below the menu bar, the word 'Code' is centered in a large, black, sans-serif font. Underneath 'Code', there is a text input field with the label 'cert_code' positioned to its left. The input field is empty and has a thin gray border. Below the input field, there is a 'Submit' button with a light gray background and a thin gray border. The button is centered horizontally relative to the input field.

User - Select item

The image shows a window titled 'Purchase' with a menu bar containing 'File', 'Edit', and 'Help'. The main content area contains the following elements:

- The word 'Purchase' centered at the top.
- The label 'item_code' followed by a text input field.
- The label 'item_num' followed by a text input field.
- A 'Submit' button centered below the input fields.

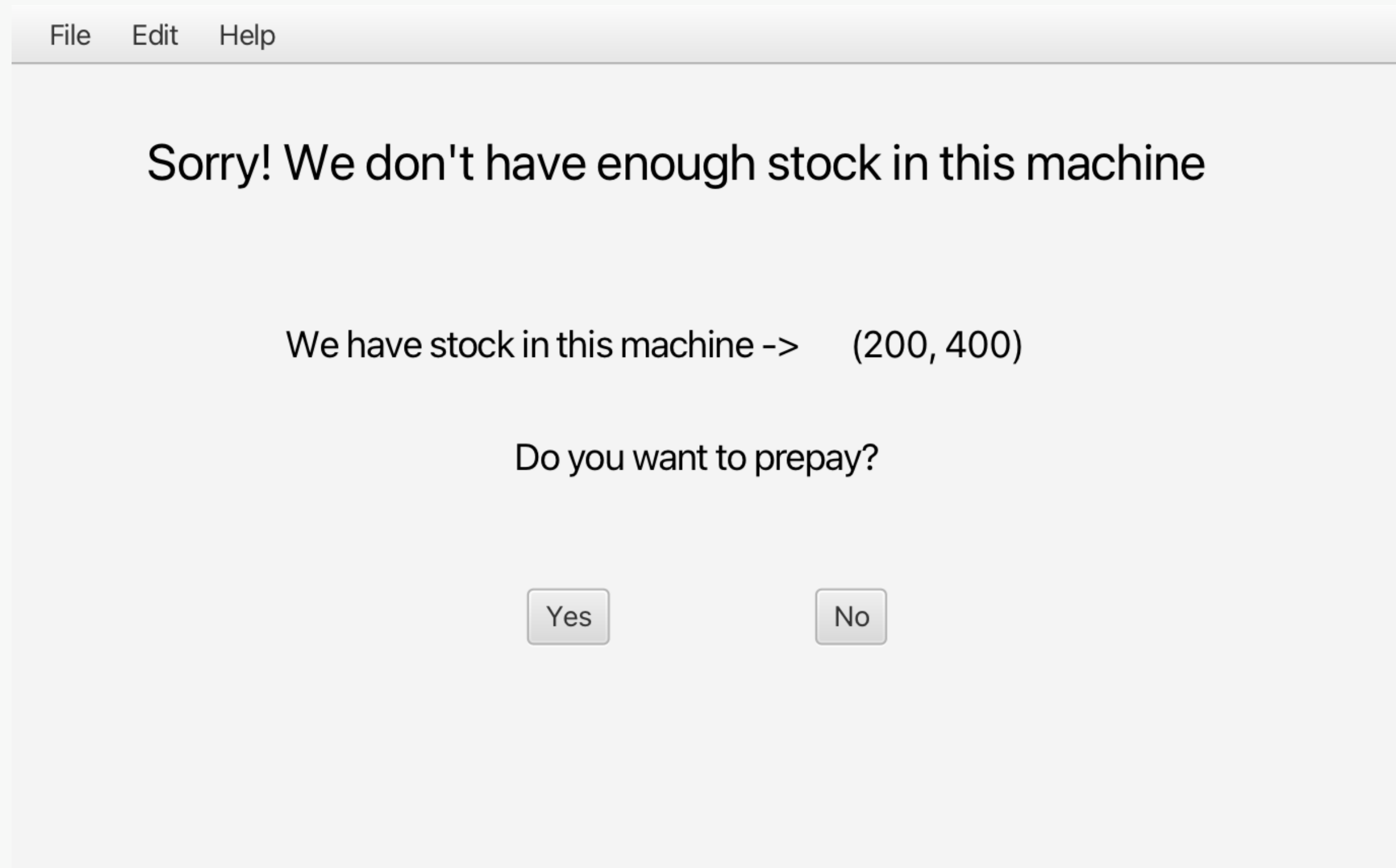
User - Insert card data



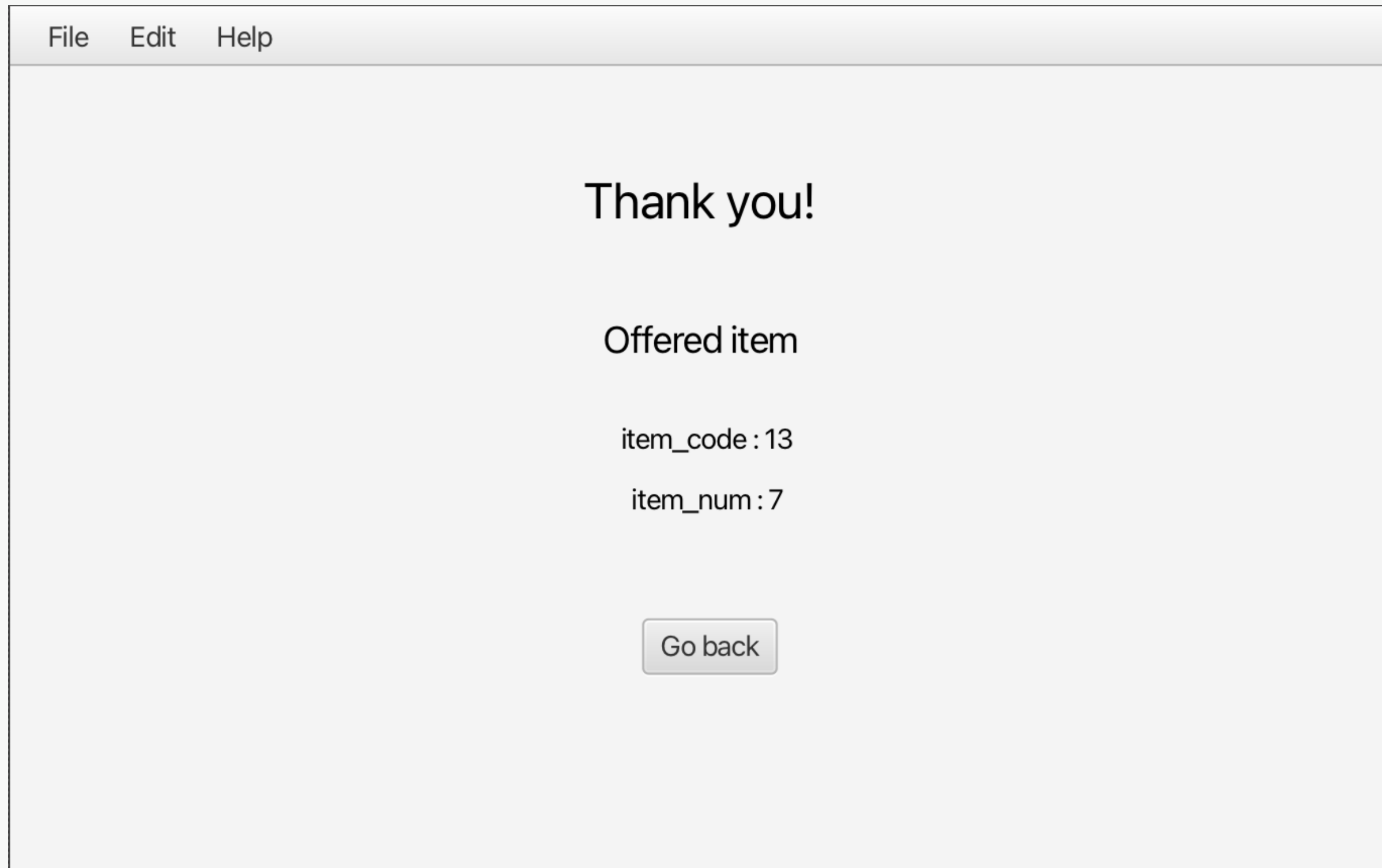
The image shows a web browser window with a menu bar containing 'File', 'Edit', and 'Help'. The main content area is titled 'Payment' and contains a form with the following elements:

- A label 'card data' positioned above a single-line text input field.
- A 'Submit' button located below the input field.

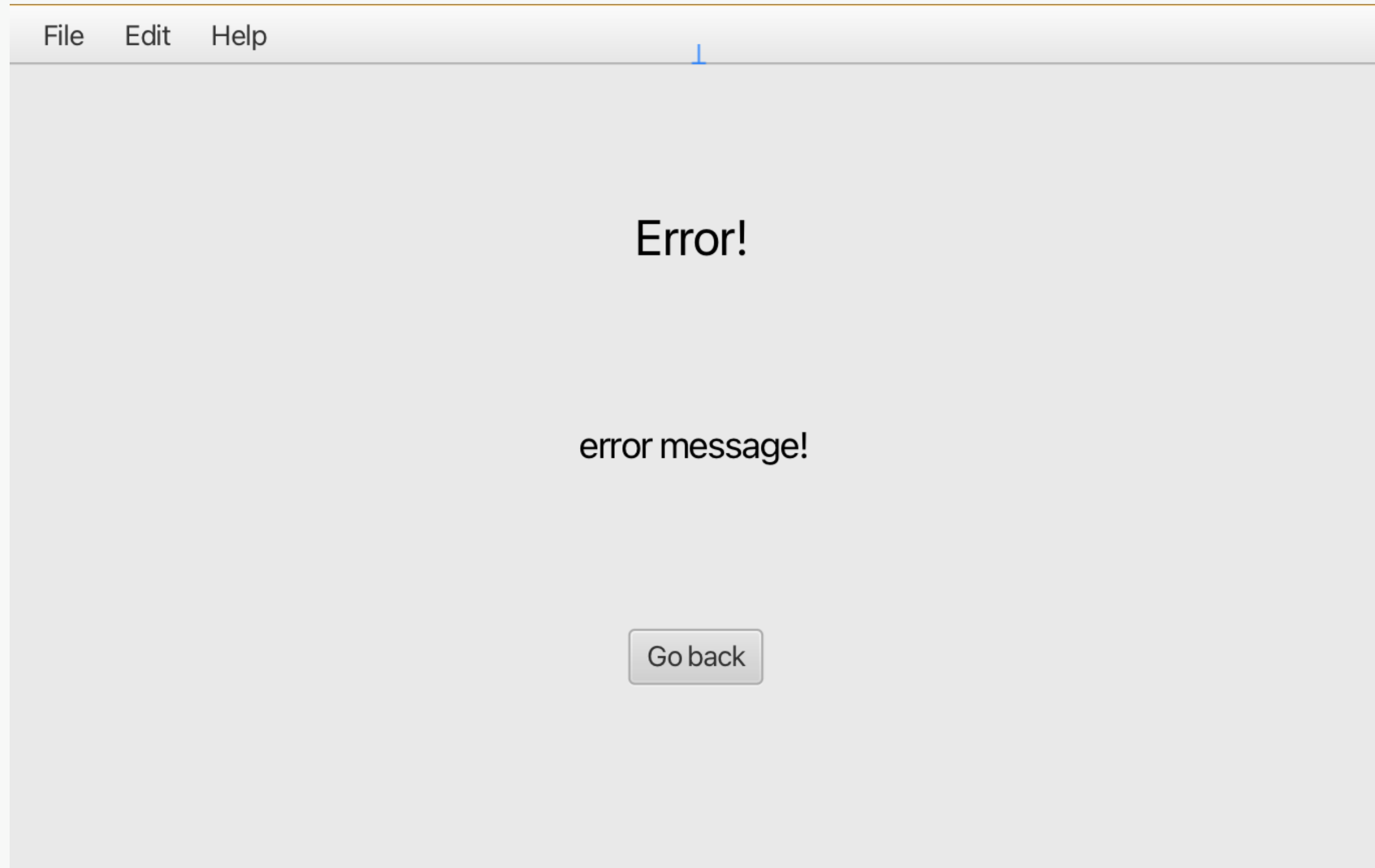
User - Choose whether prepayment

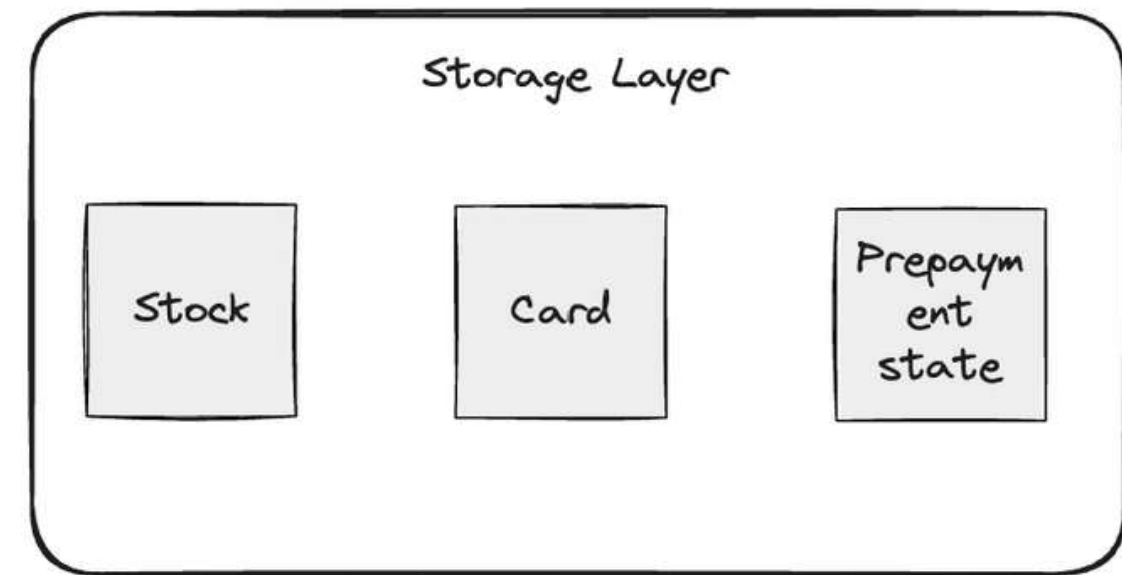
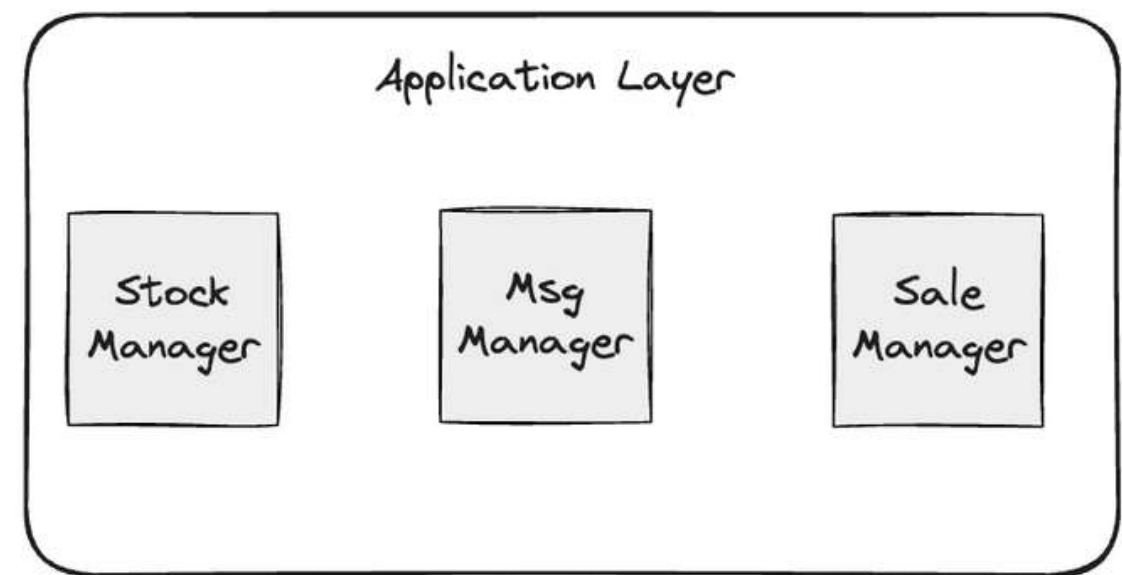
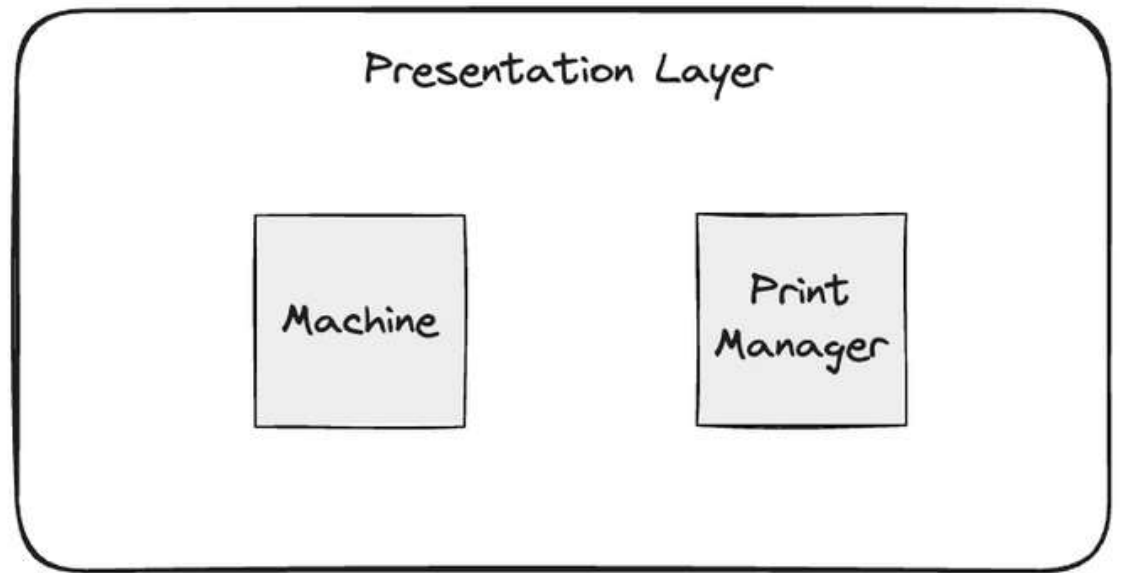


User - Offered item



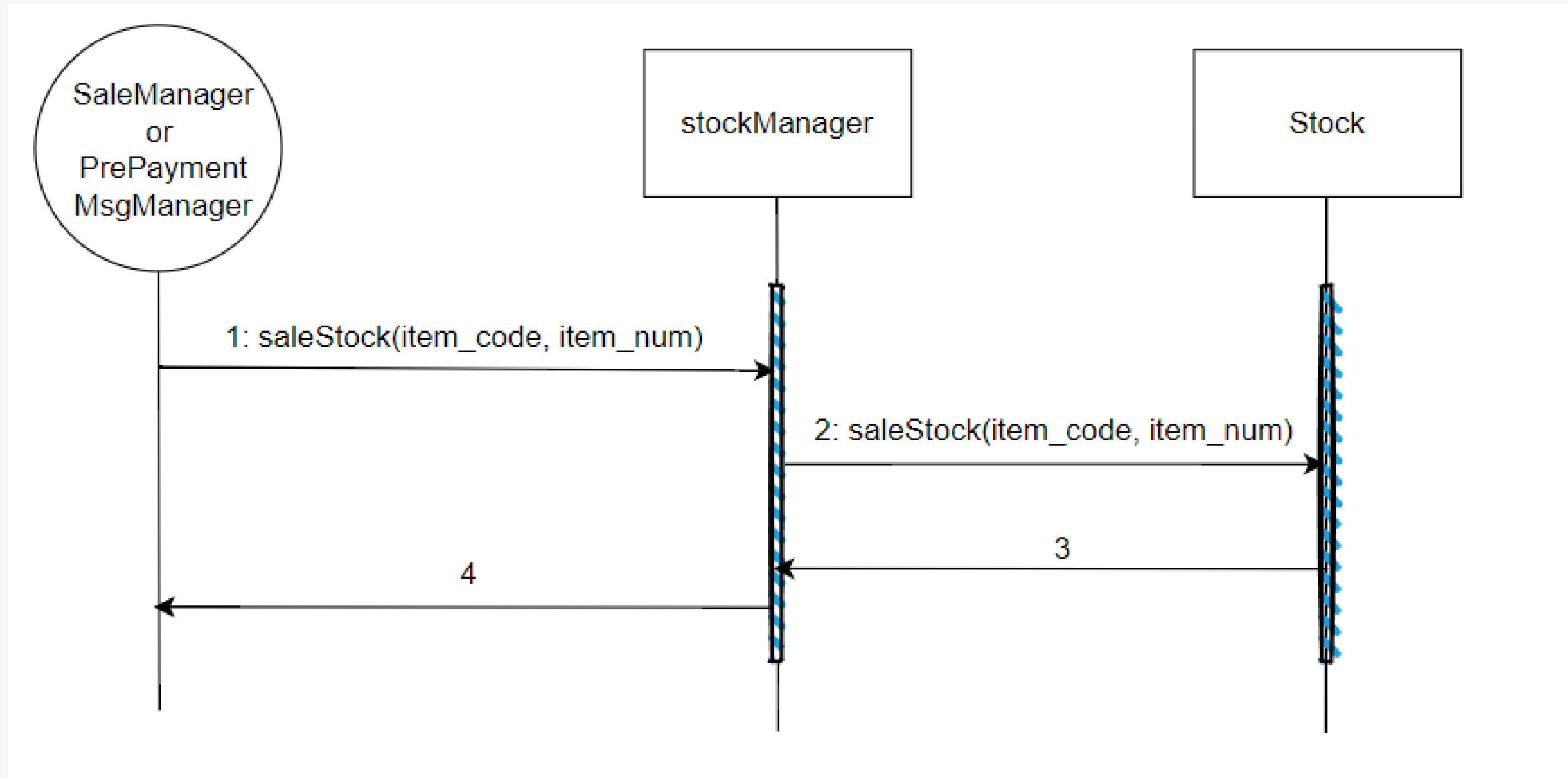
User - Error Page



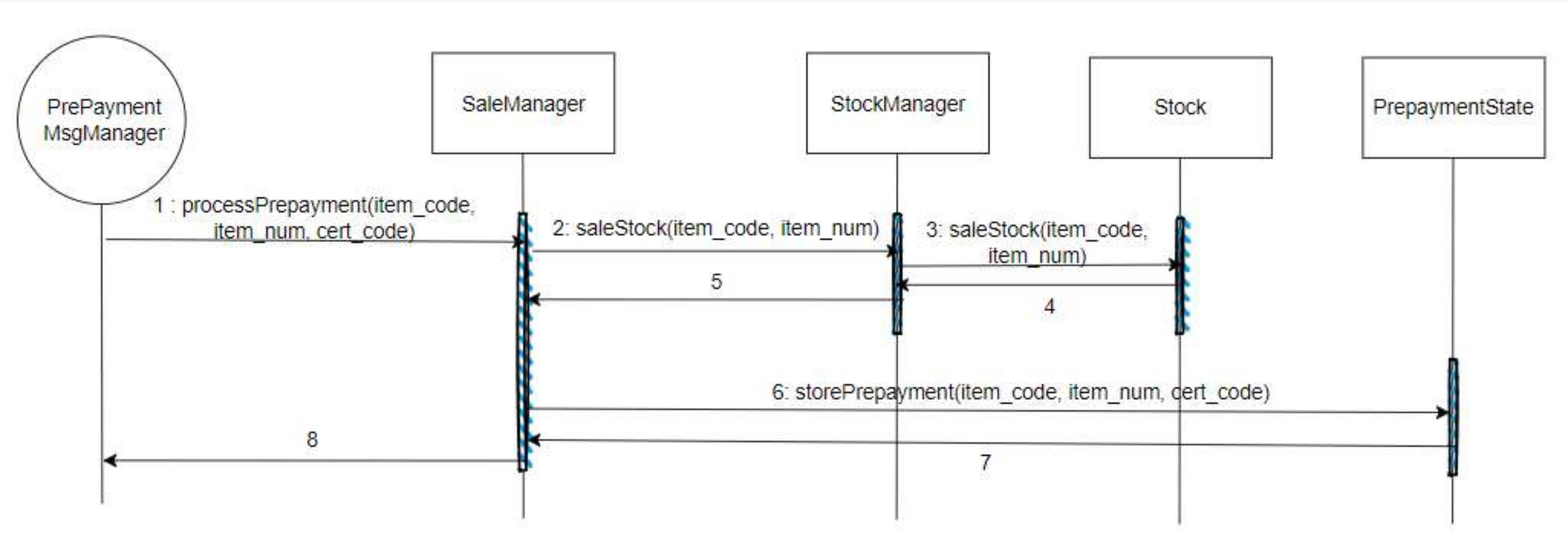


2043. Refine System Architecture

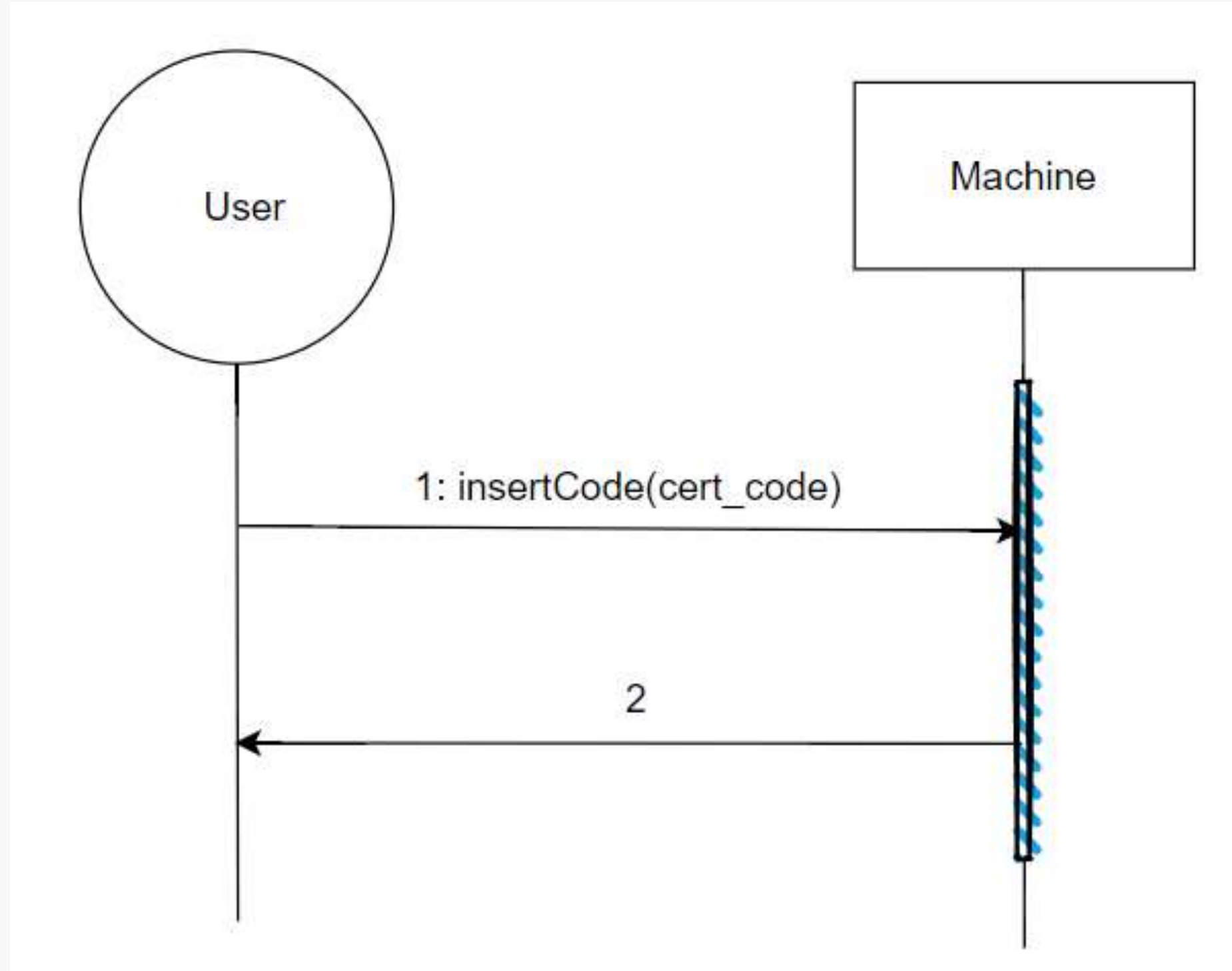
Use Case 1. Process stock sales



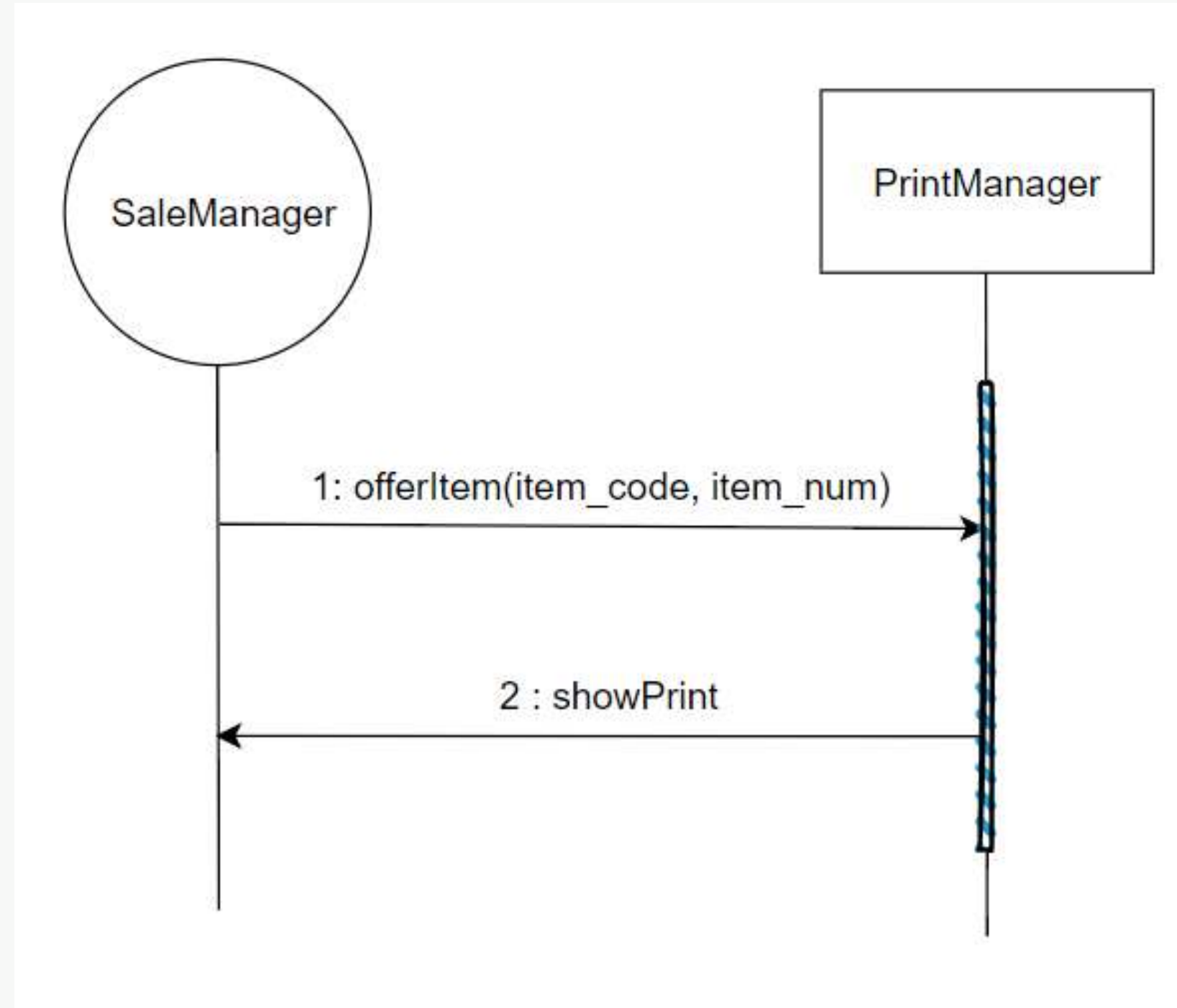
Use Case 2. Process prepaid item



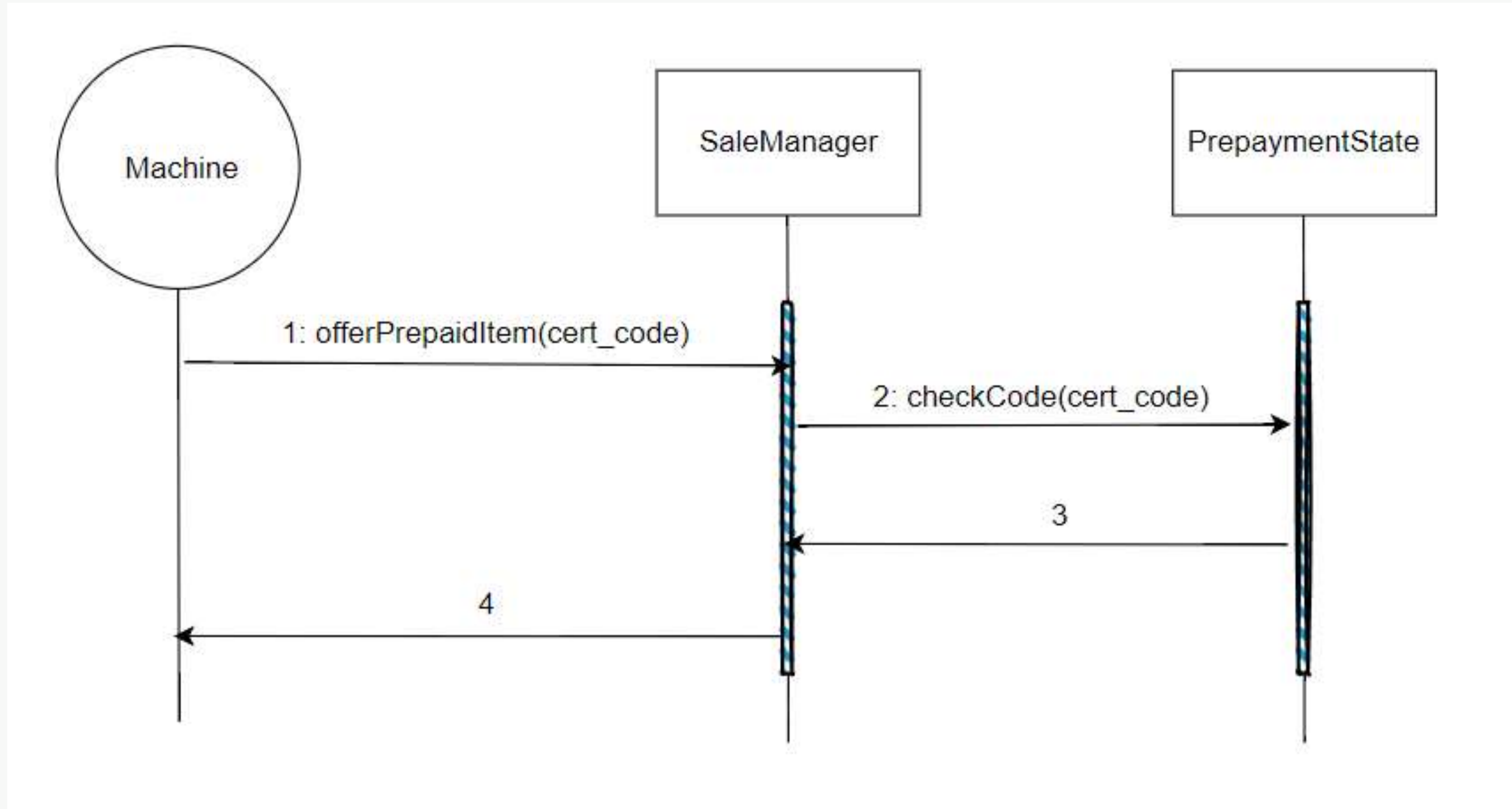
Use Case 3. Insert code



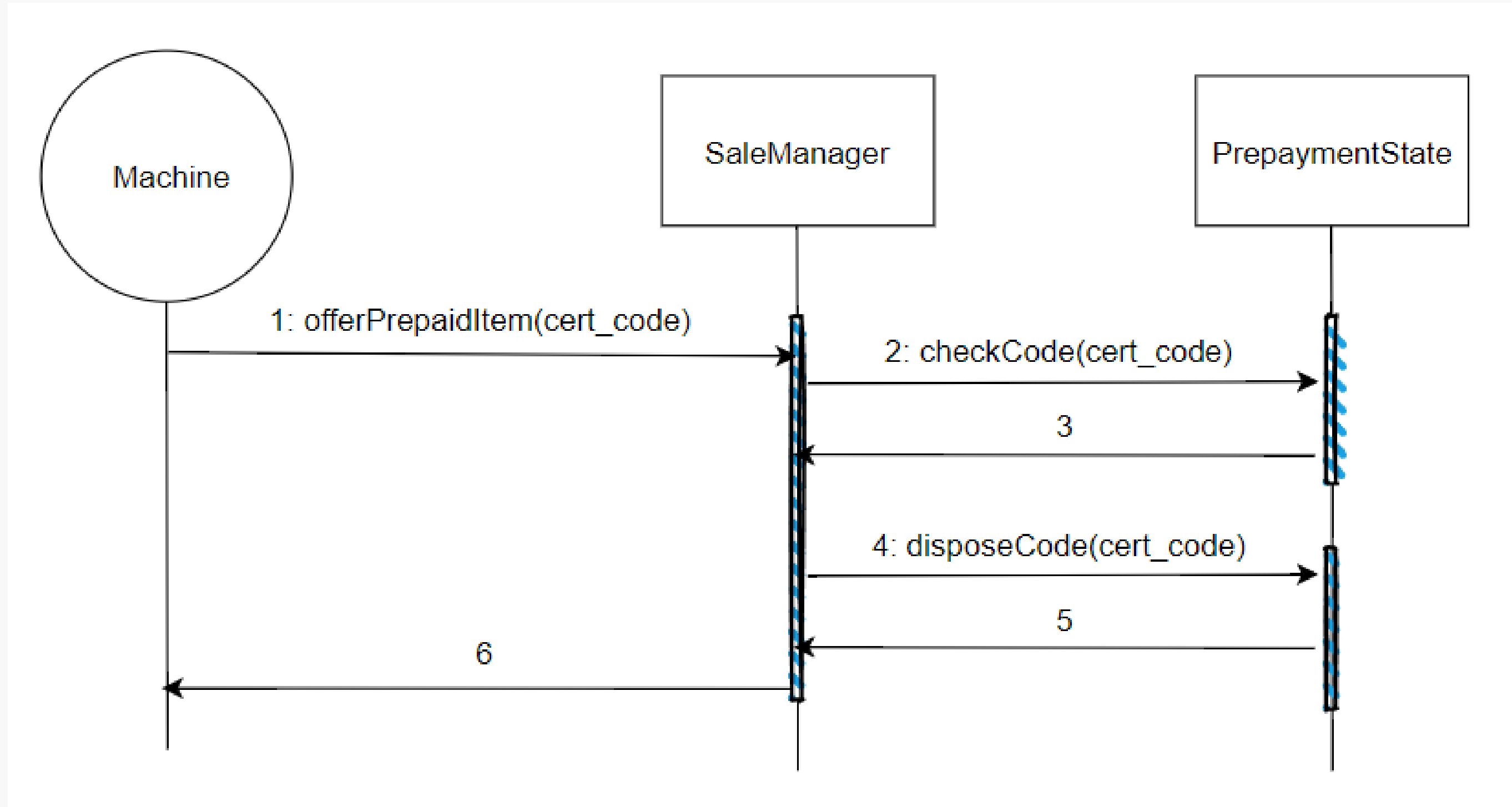
Use Case 4. Offer prepaid item



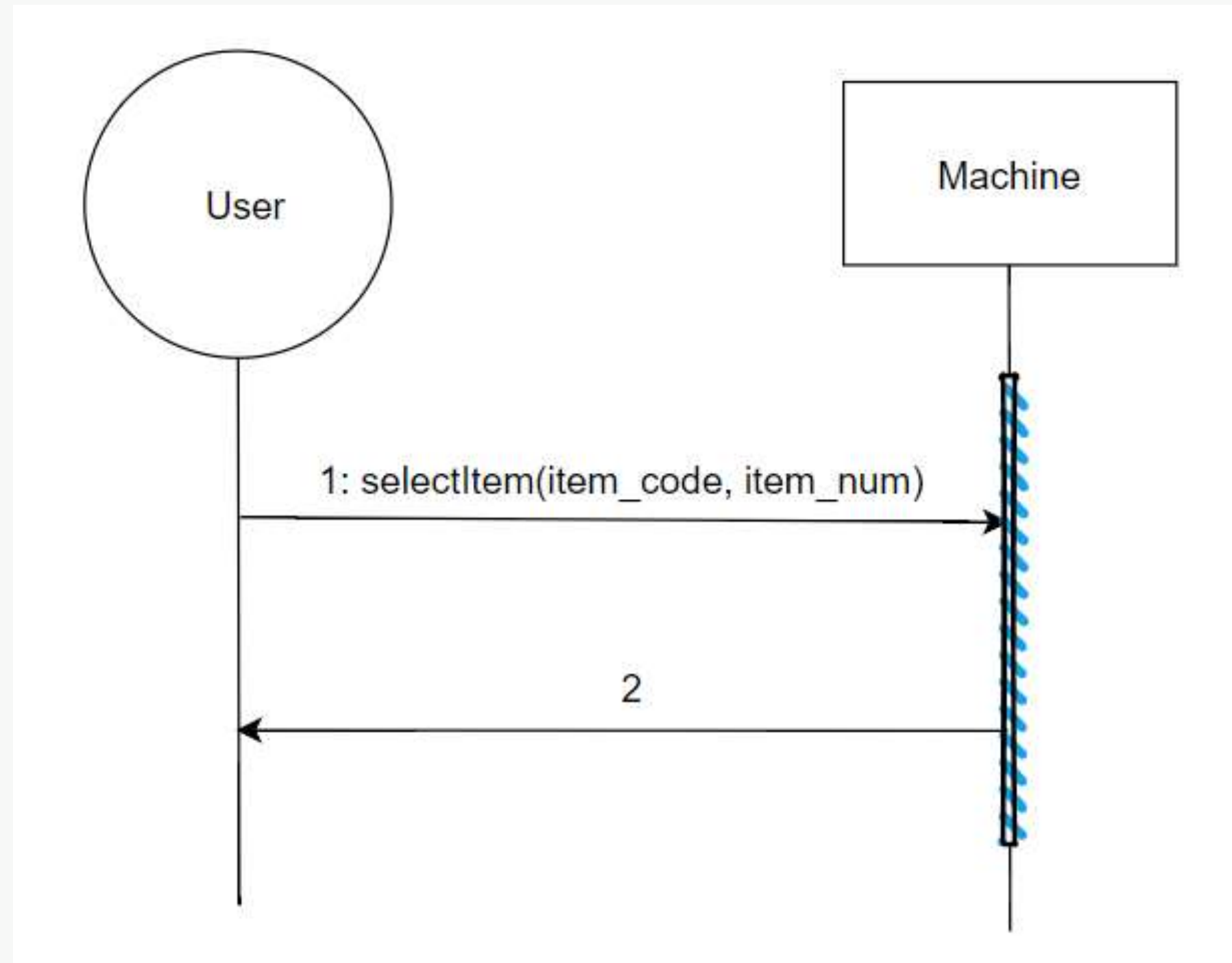
Use Case 5. check code



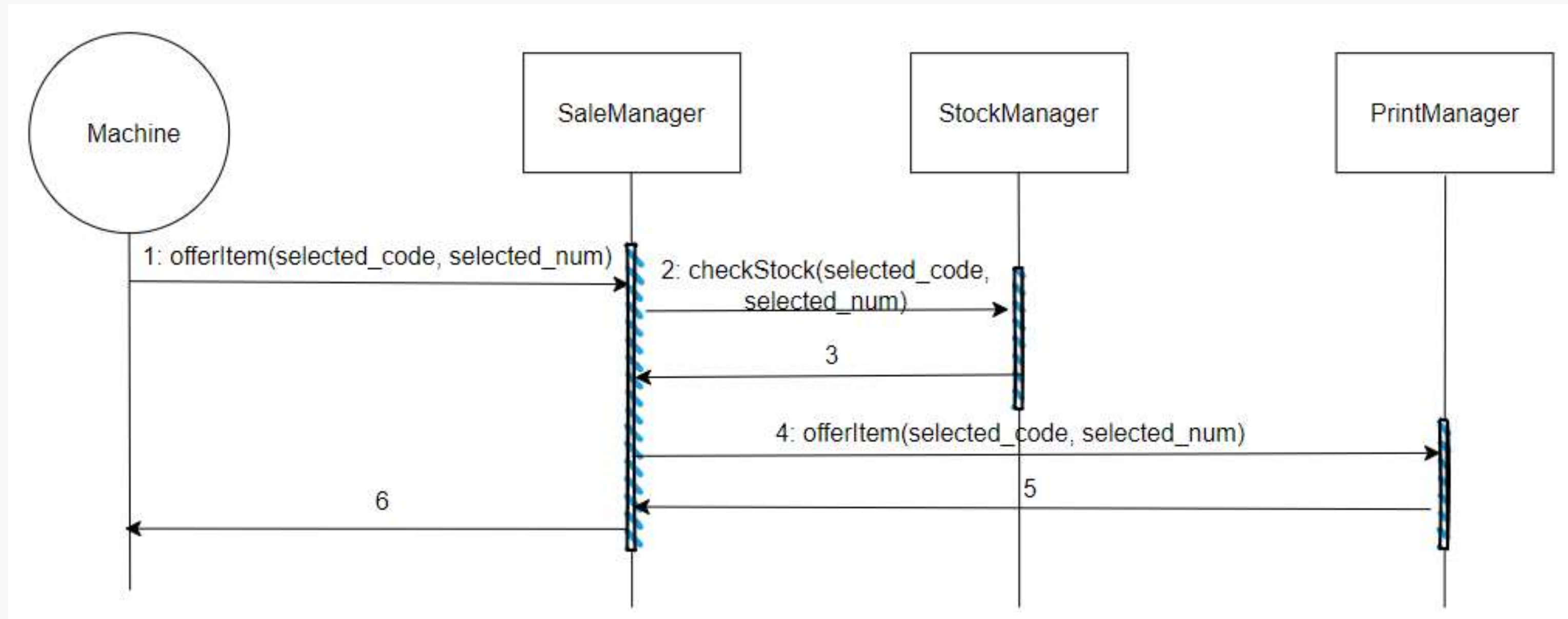
Use Case 6. dispose code



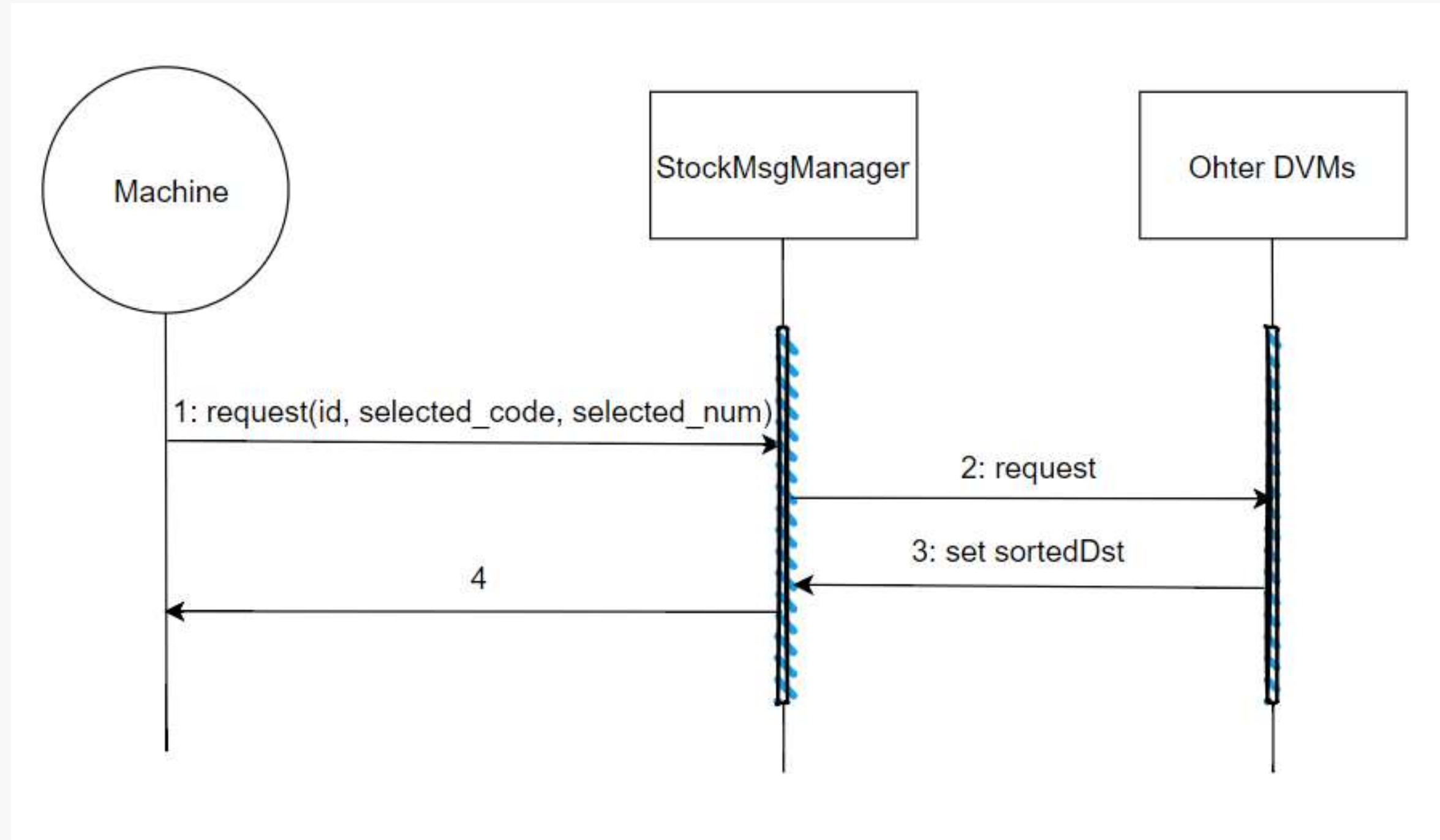
Use Case 7. Select item



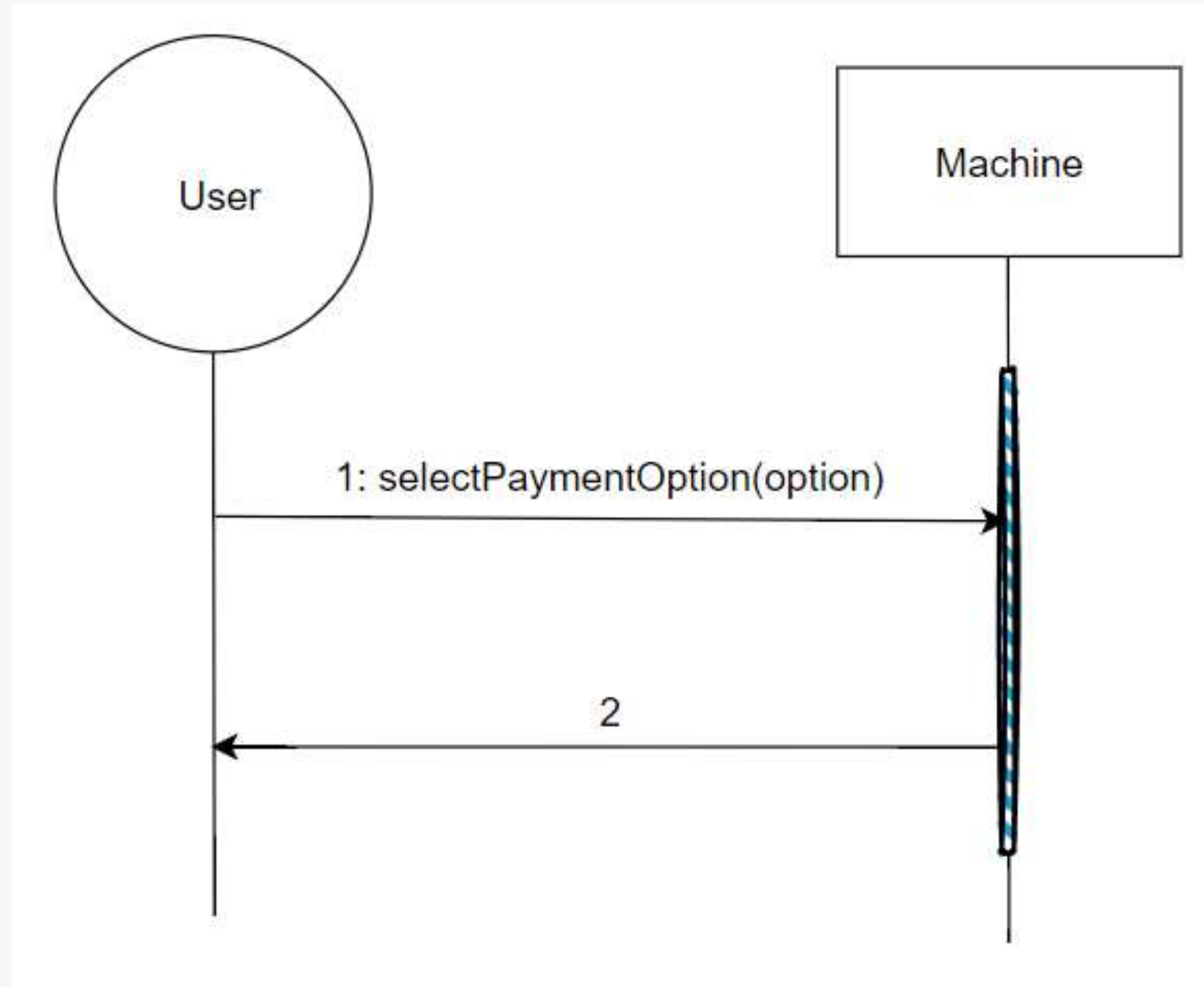
Use Case 8. Offer item



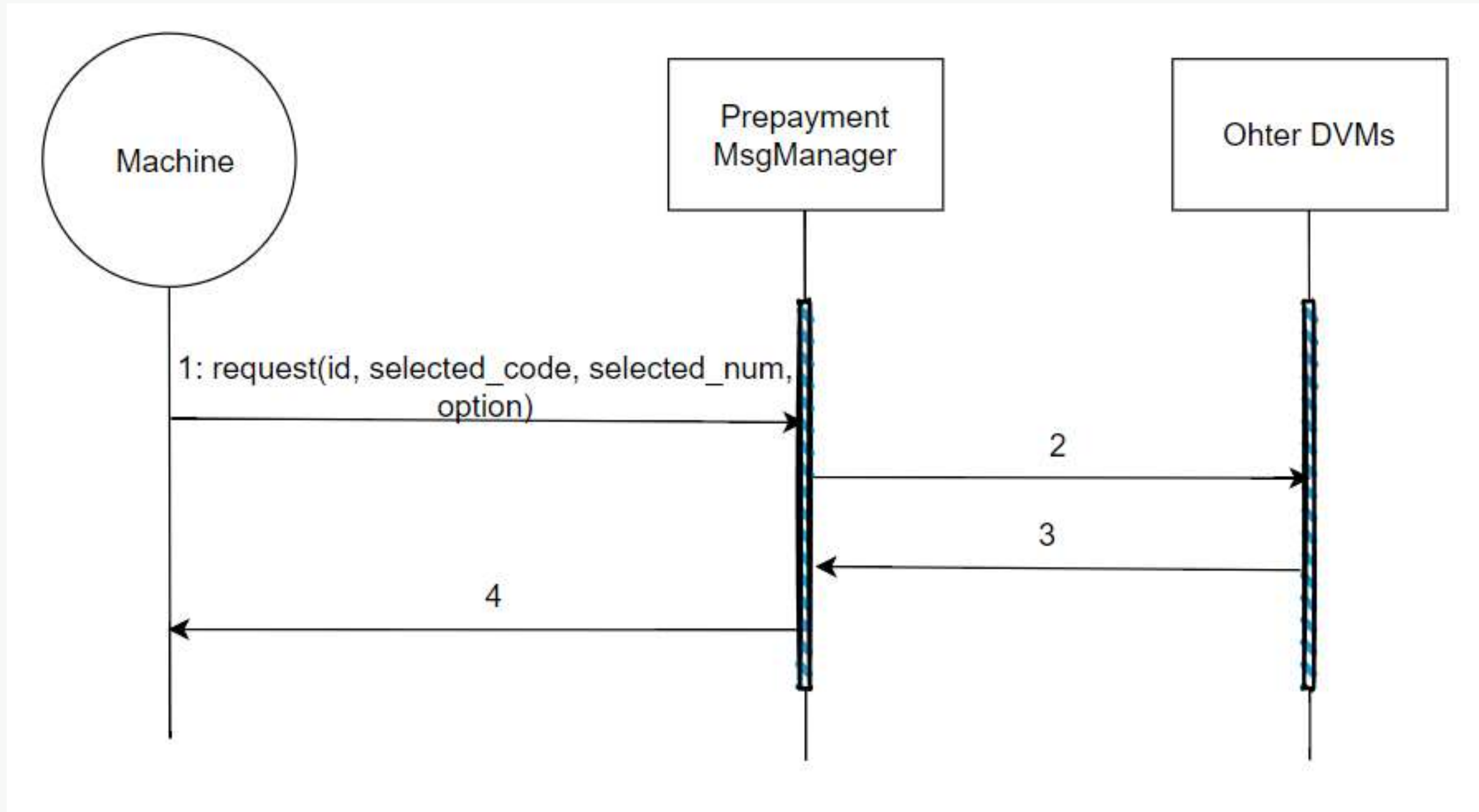
Use Case 9. Request stock state



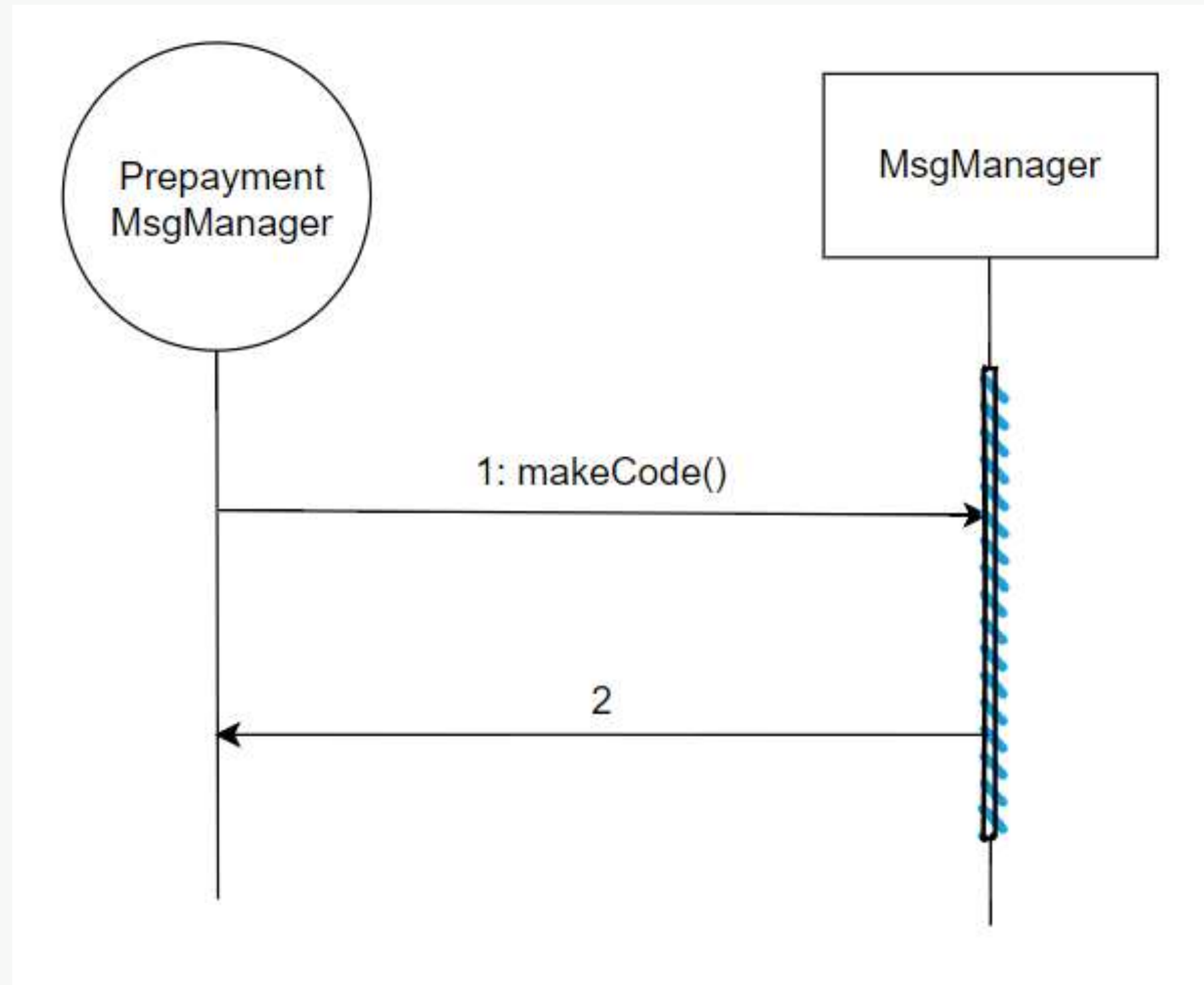
Use Case 10. Choose whether prepayment



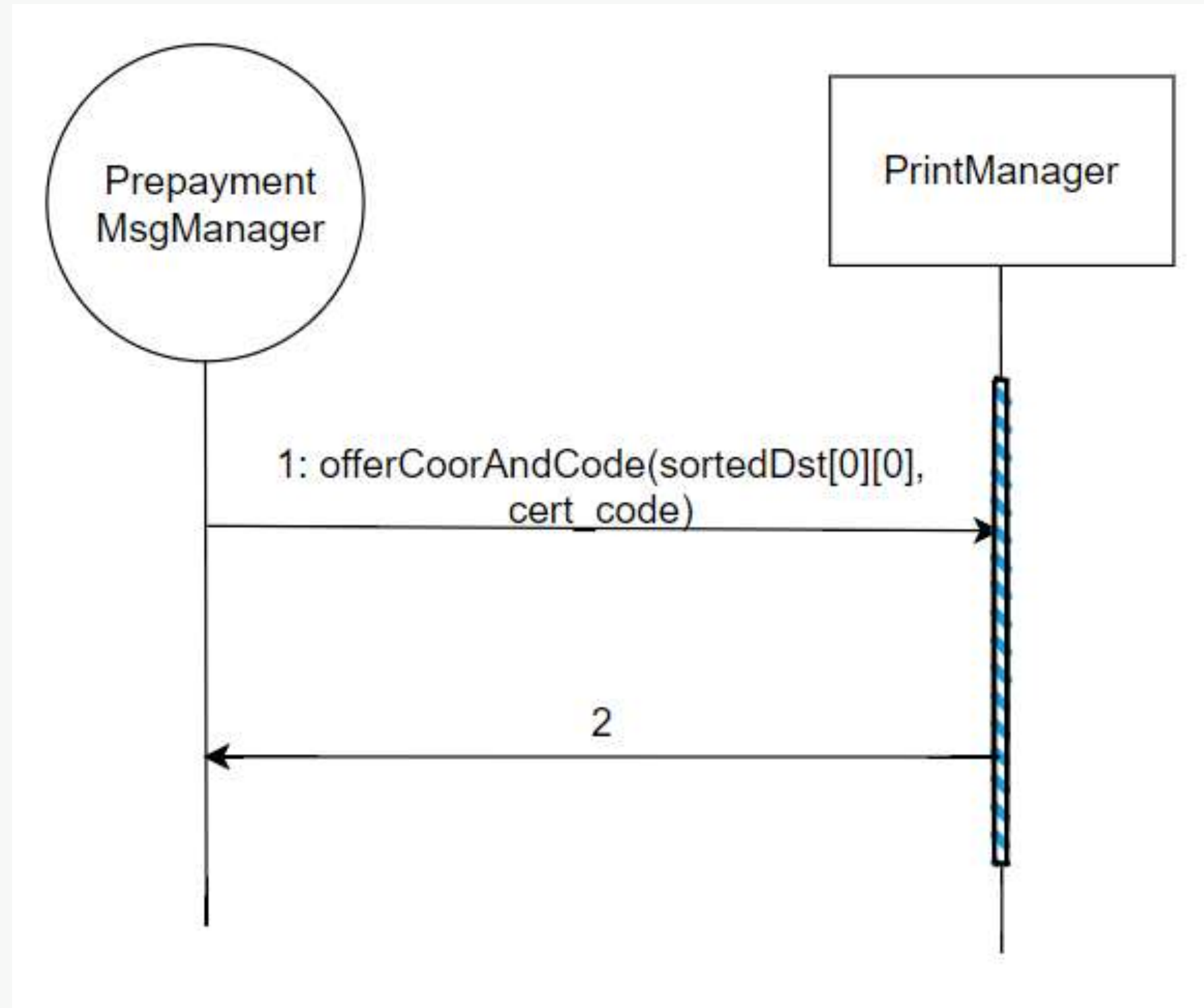
Use Case 11. Request prepayment state



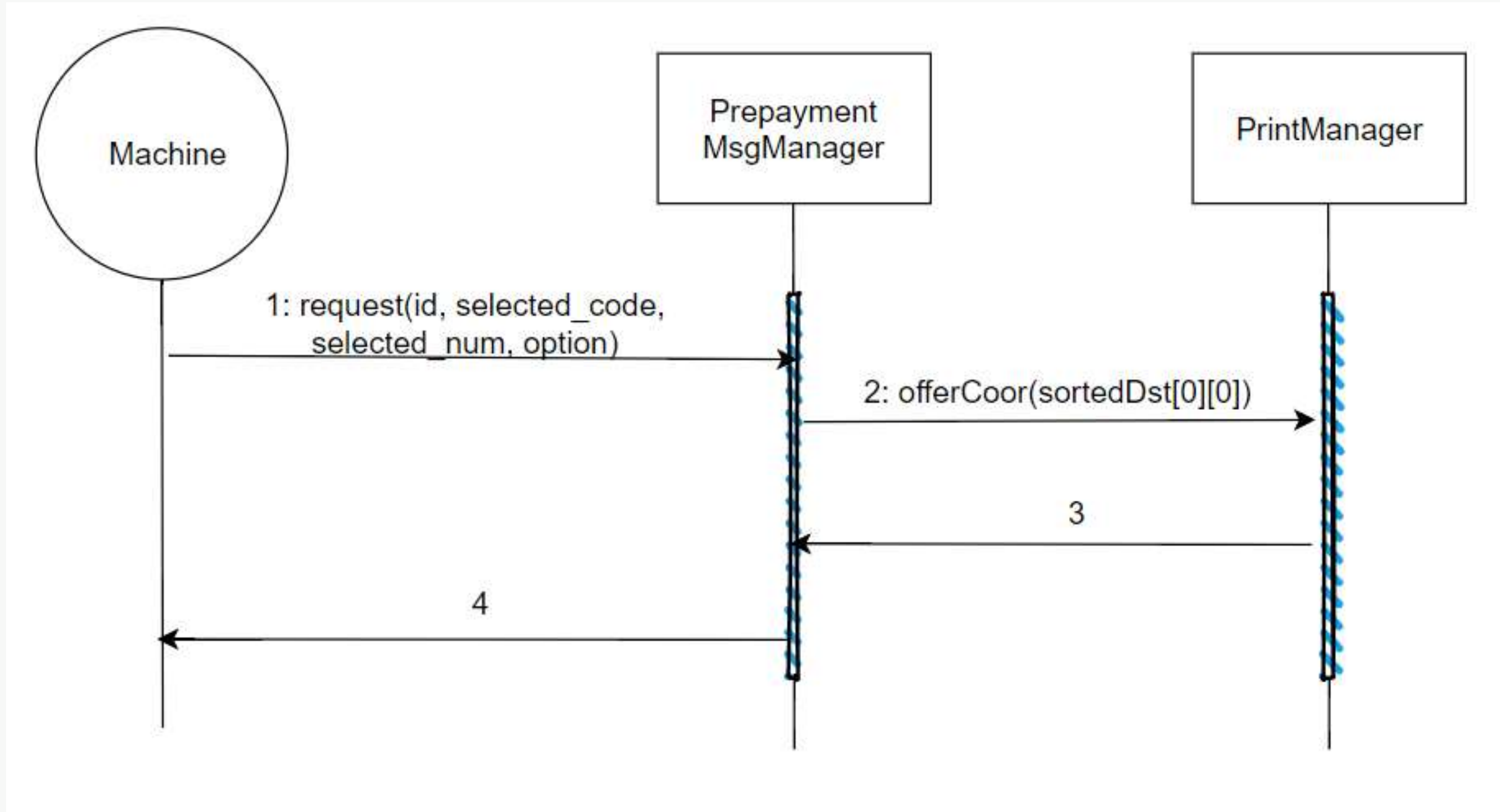
Use Case 12. Make code



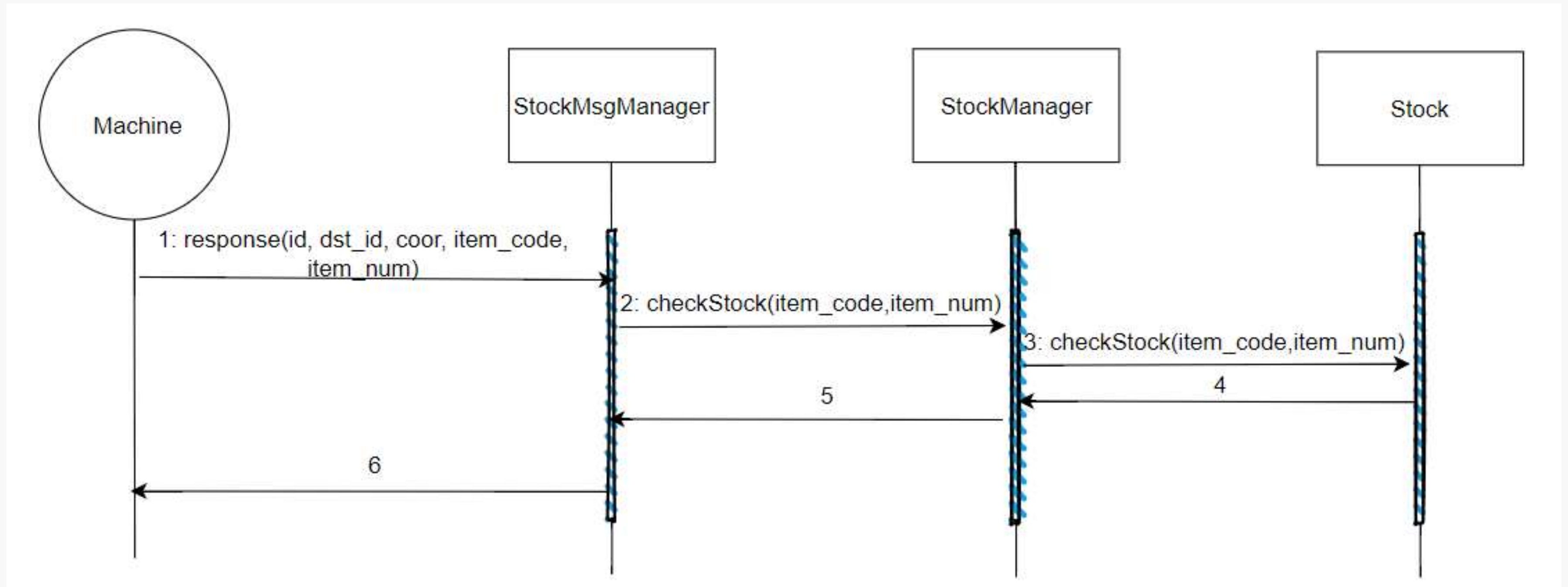
Use Case 13. Print coordinate and code



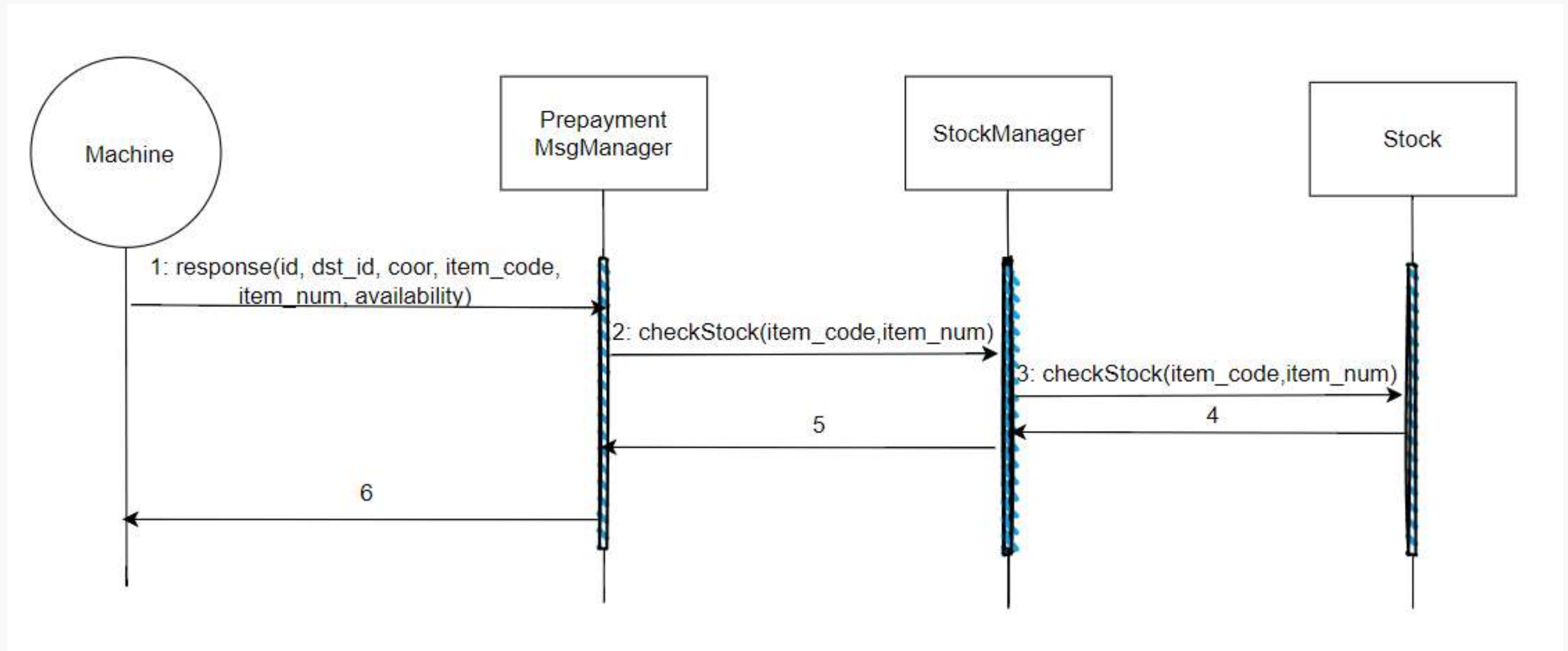
Use Case 14. Print coordinate



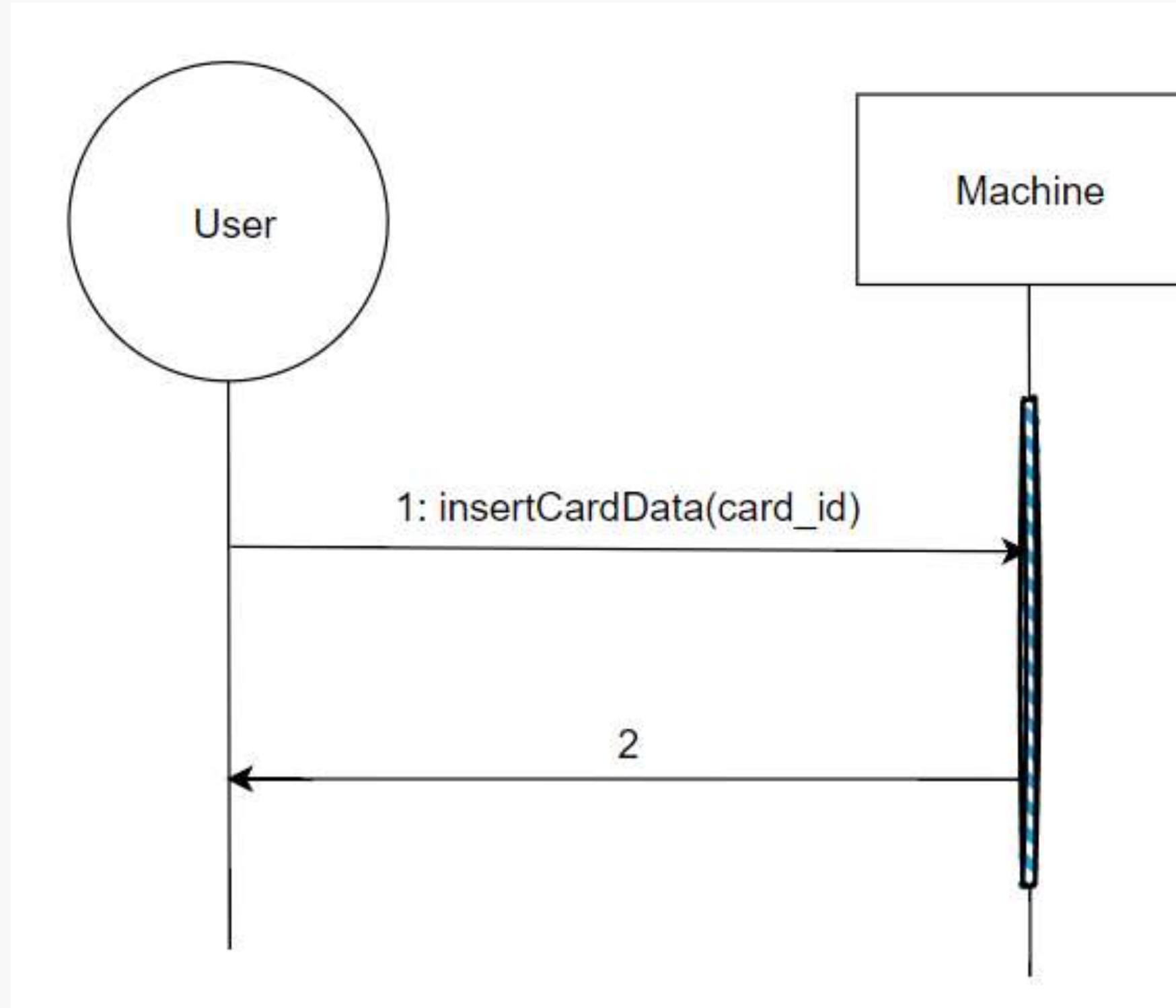
Use Case 15. Response stock state



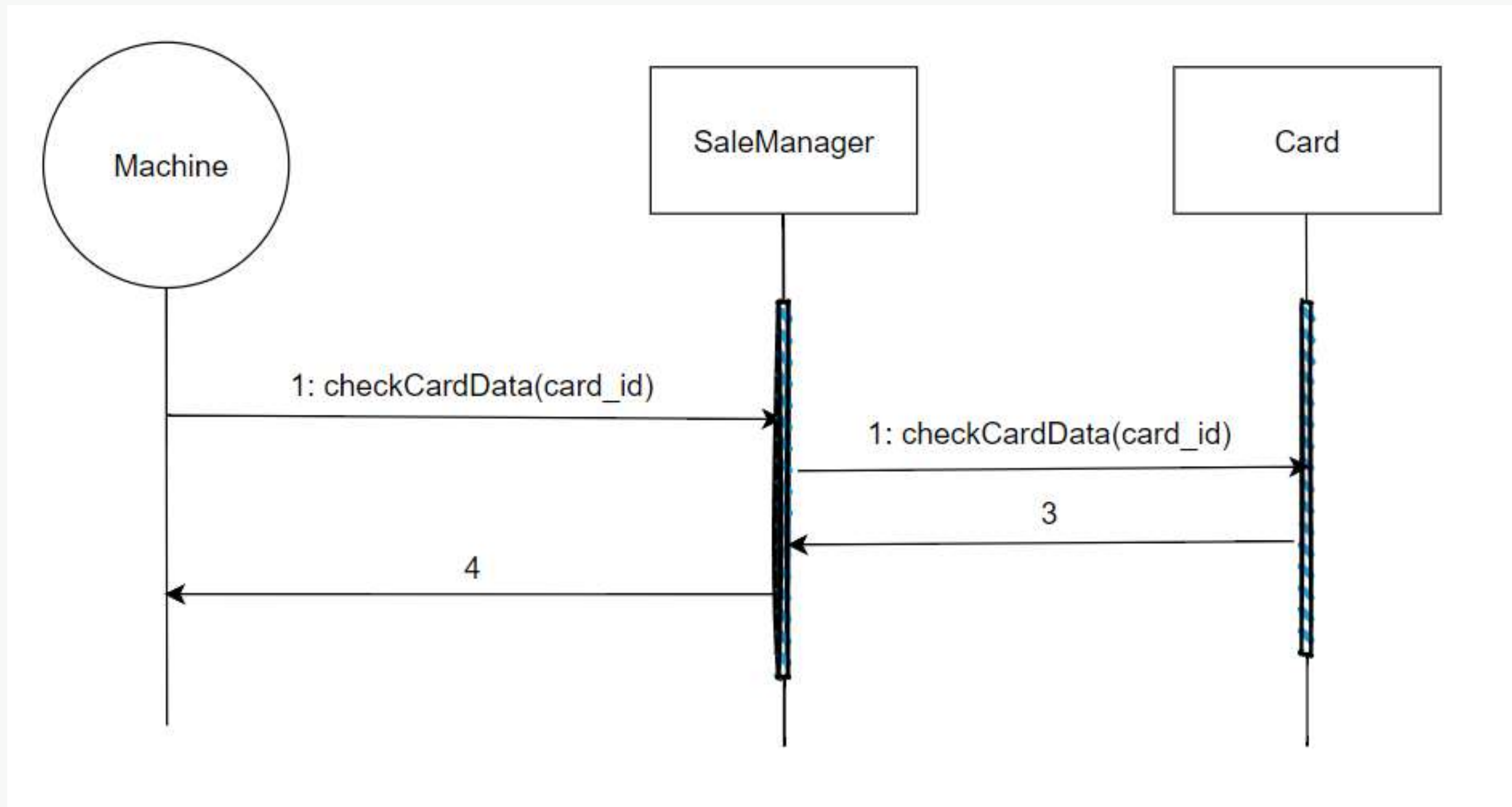
Use Case 16. Response prepayment state



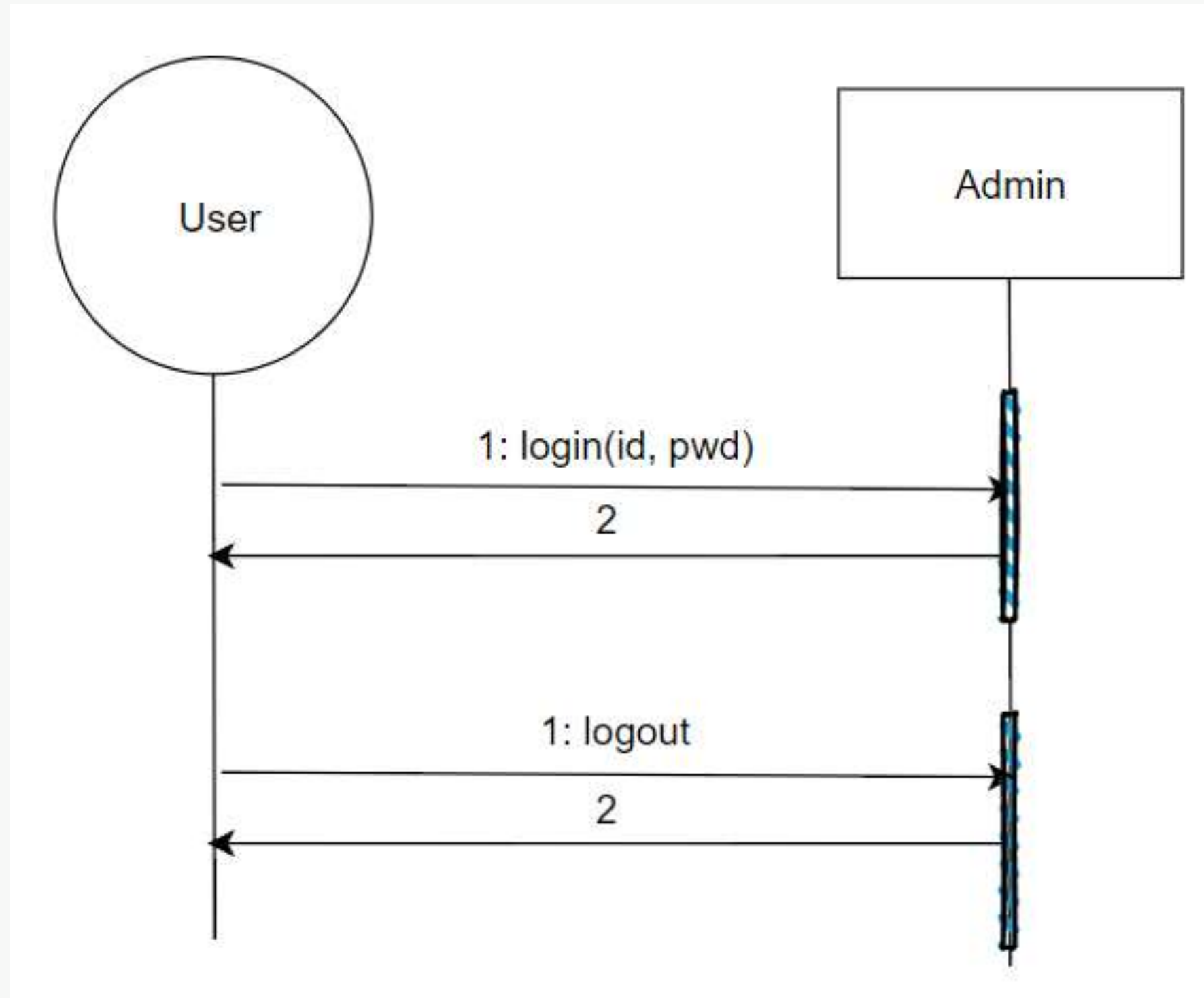
Use Case 17. Insert card data



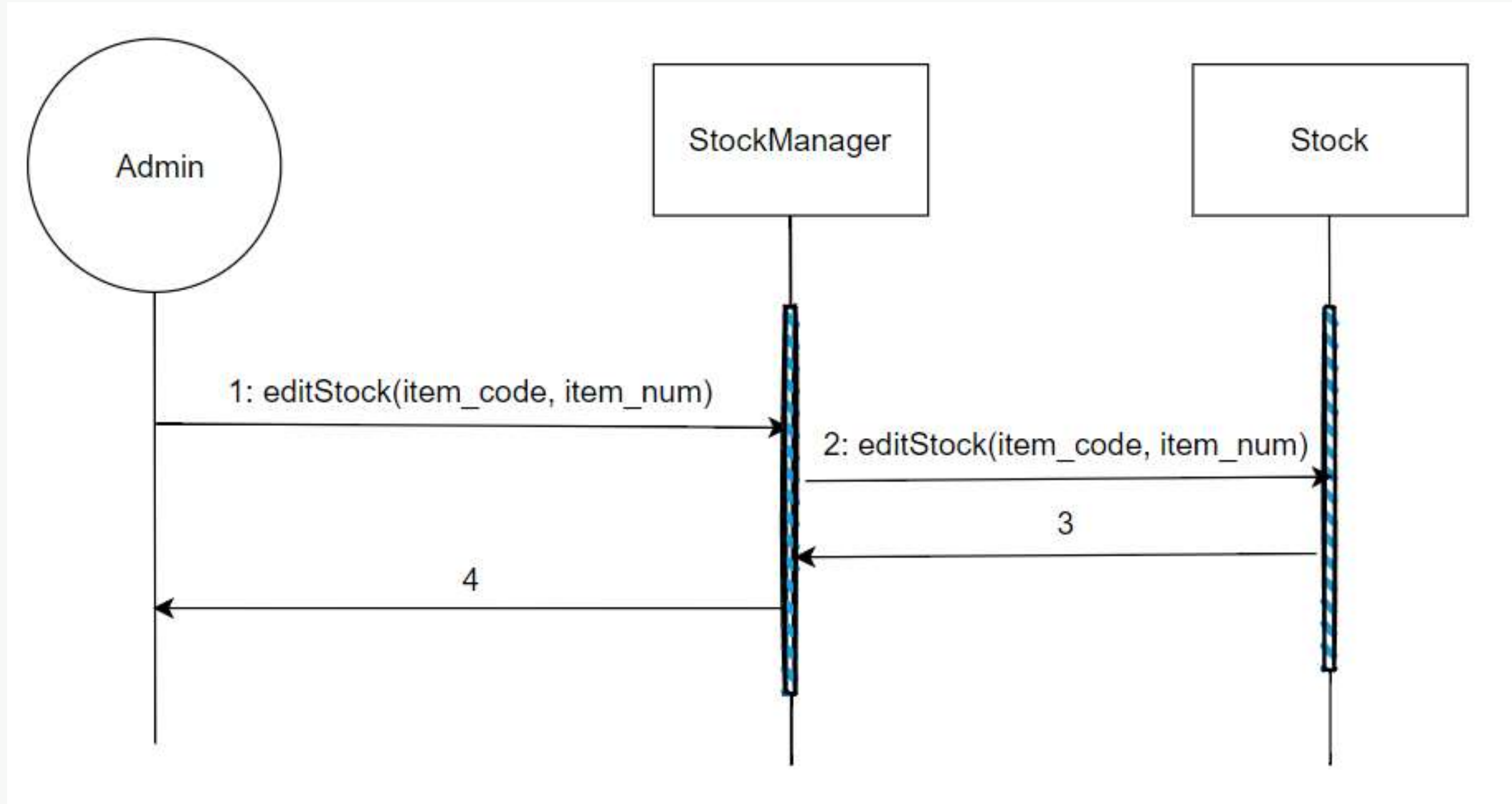
Use Case 18. Check card data



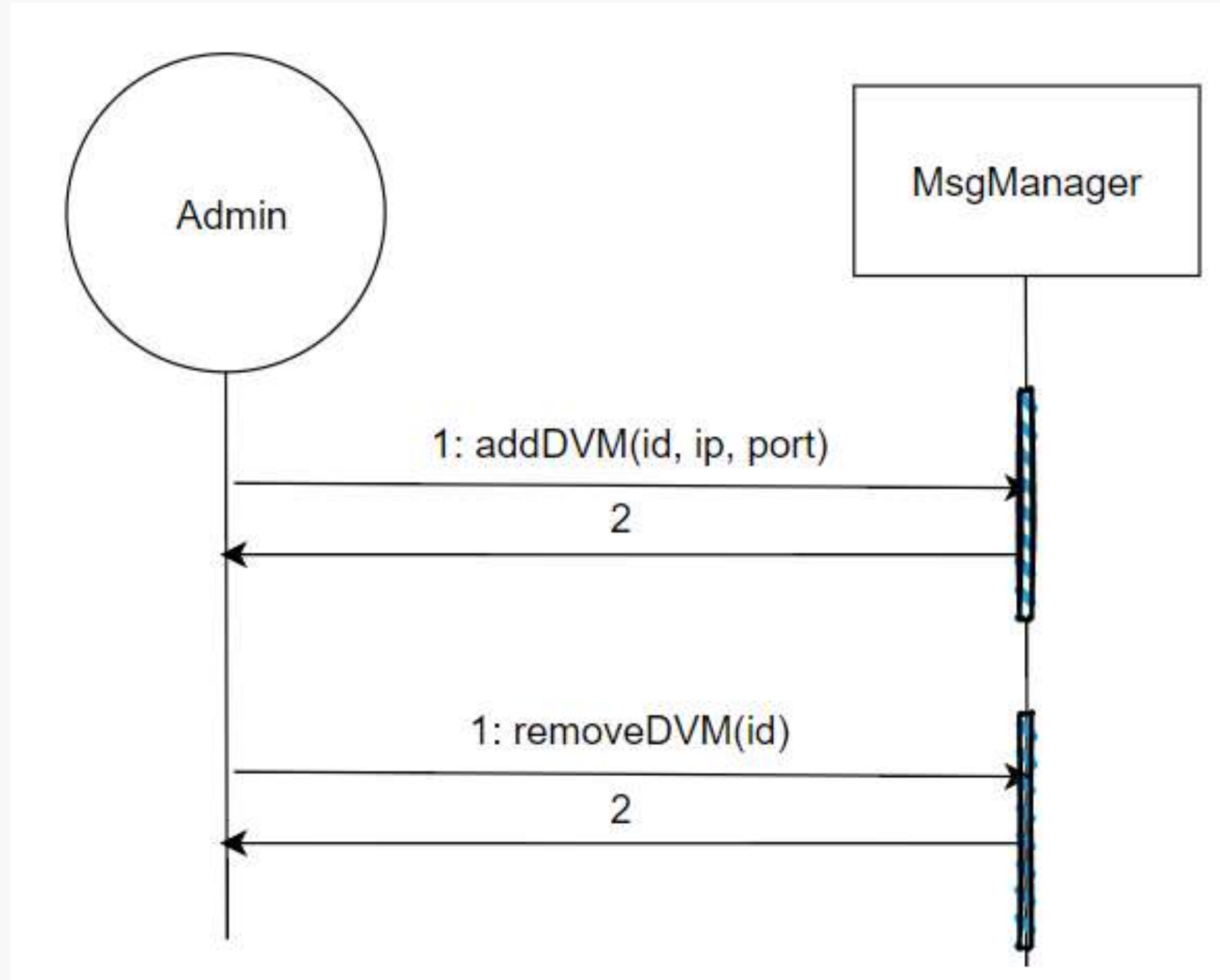
Use Case 19. Manage manager authentication

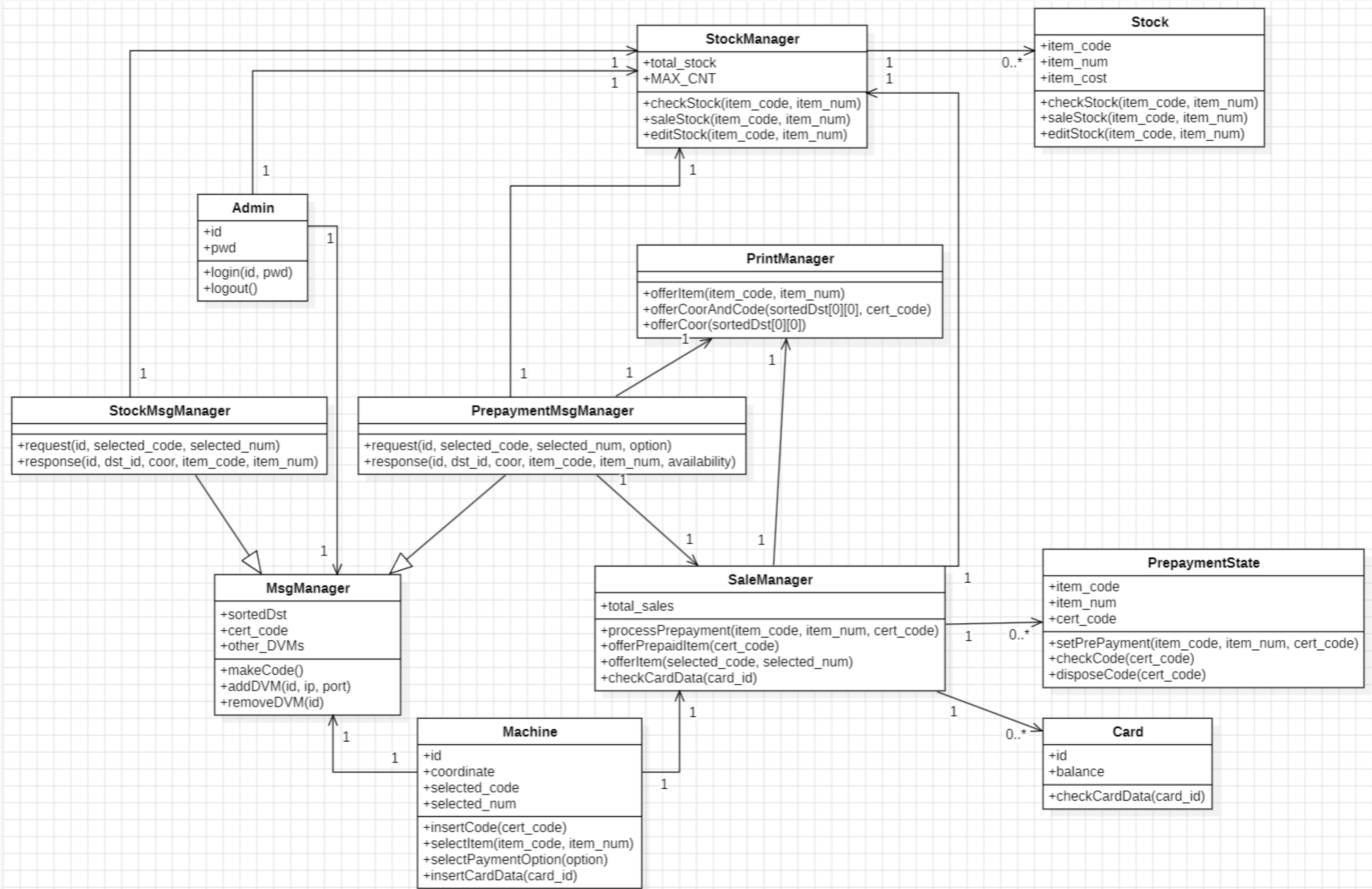


Use Case 20. Manage stock

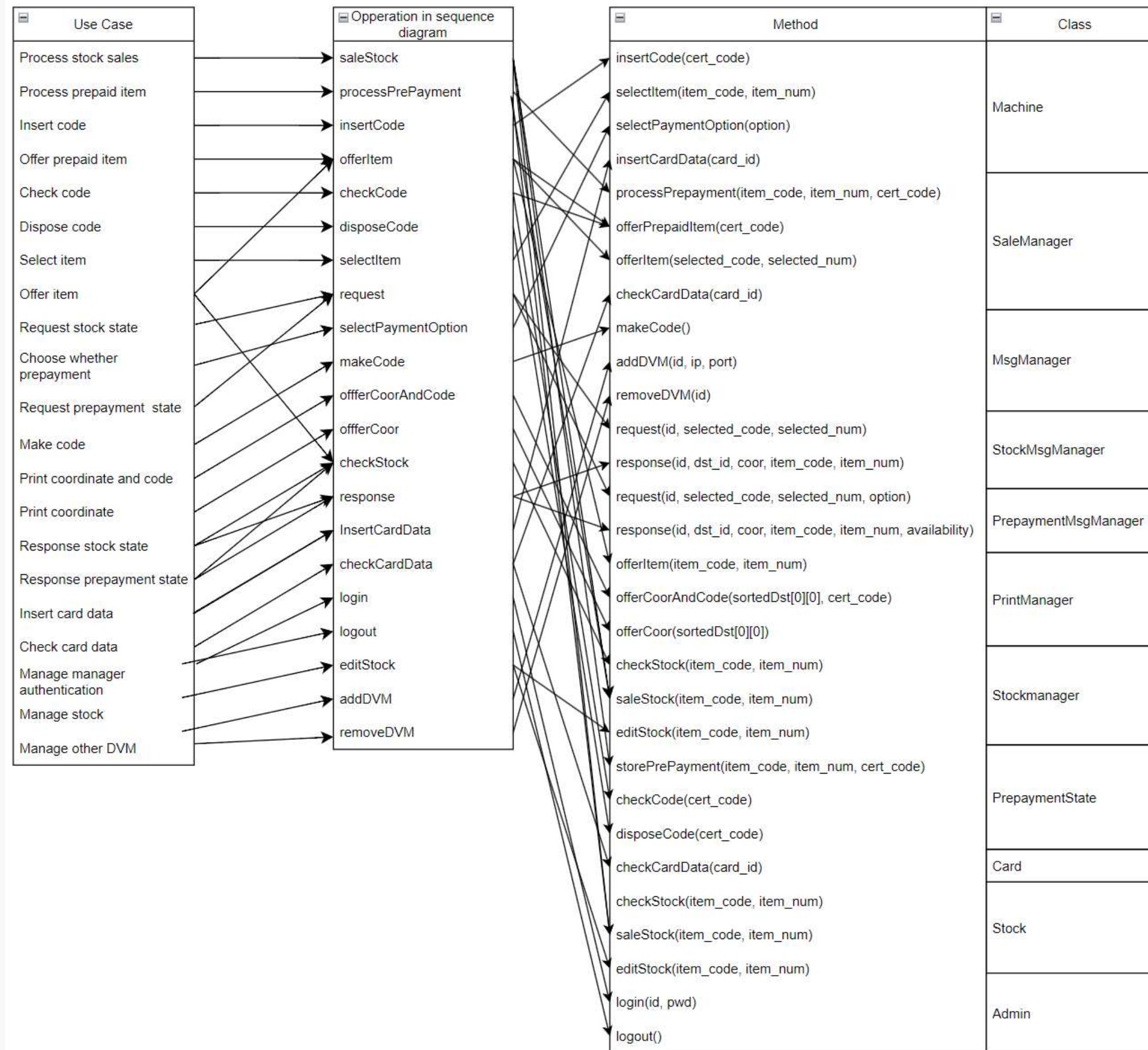


Use Case 21. Manager other DVM





2045. Define Design Class Diagrams



2046. Design Traceability Analysis

경청해주셔서
감사합니다

TEAM9

김동민, 송현우

