



## **SOFE3650 – Assignment 2**

### **Group 3**

### **Group Members**

**Soumil Thete : 100797938**

**Kevin Yung :100619031**

**Angad Singh 100814038**

# Use Cases

Use Case	Description	Associated Requirement
UC-1: Initiating Purchase Session	Cashier initiates the product purchasing session using the keyboards before scanning any barcodes.	R-01
UC-2: Displaying product details	After a barcode of a product gets scanned, its name and price are displayed on the screen.	R-03
UC-3: Product cancellation	In case a customer requests an item to be removed from the list of scanned items, a Cashier shall remove the product by selecting the product cancellation option on the keyboard and then scanning or typing in the barcode of the product which is to be removed.	R-07
UC-4: Session cancellation	A cashier shall cancel an entire purchase session to nullify all items that were scanned prior to canceling the purchase session.	R-02
UC-5: Payment	After all items have been scanned the Cashier shall select one of the three payment options: Cash, Credit Card or Debit Card. In case of Credit or Debit card transaction, a third party system shall be used to process the payment.	R-05
UC-6: Ending Purchase session	After payment has been verified, the cashier shall end the purchase session and print a receipt with unit price and quantity of each scanned product and a total price	R-06

## Quality Attribute Scenarios

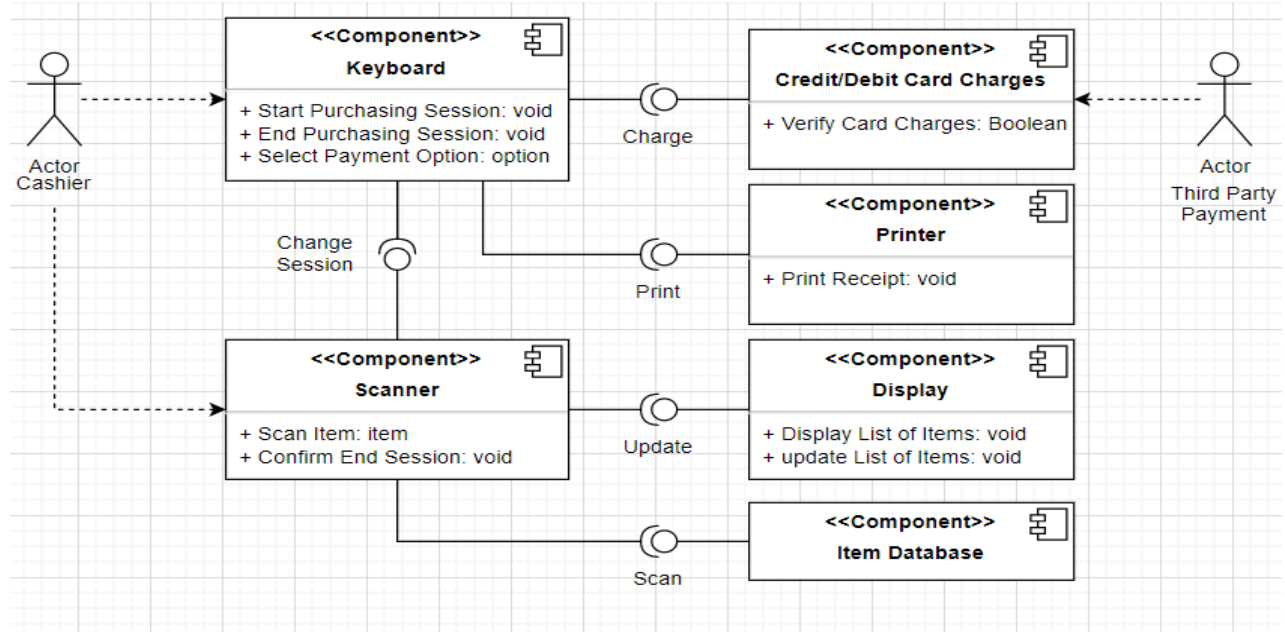
ID	Quality Attribute	Scenario	Associated Requirement
QA-1	Availability	Due to software/network issues, a failure occurs in the Cash register system under normal operating conditions. The system resumes operation in at most 3 minutes.	All
QA-2	Interoperability	In order to retrieve data regarding different products, the system accepts requests from the user and connects to the external database. The system completes the entire process within 30 seconds and resumes normal operation.	R-09
QA-3	Security	The cashier attempts to log in to the system during normal operations. The system responds by authenticating the user's credentials. If	All

		the entire system is compromised, the recovery time is less than 2 hours	
QA-4	<b>Usability</b>	When the user (cashier) clicks on any button or option, the associated data or event is displayed within 2 seconds.	All

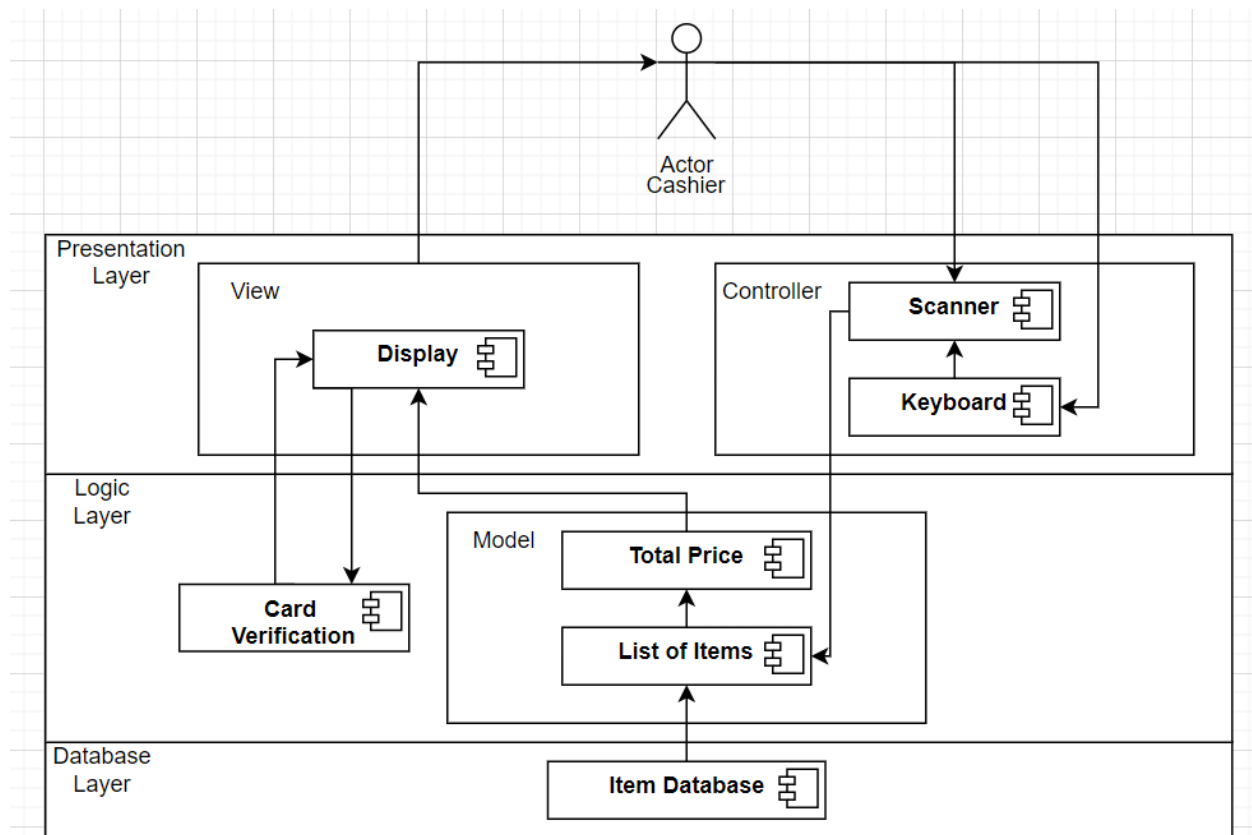
## Constraints

CON	Description	Associated Requirements
CON1	When a product has been identified using a barcode scanner, its name and price will be displayed on a display	R-03
CON2	A Cashier can cancel the a purchasing session at anytime, nullifying all the items that have been scanned from the start of the session	R-02
CON3	It will be possible to change hardware platforms in the future	R-08
CON4	The Cash Register will contain a local database of products	R-09

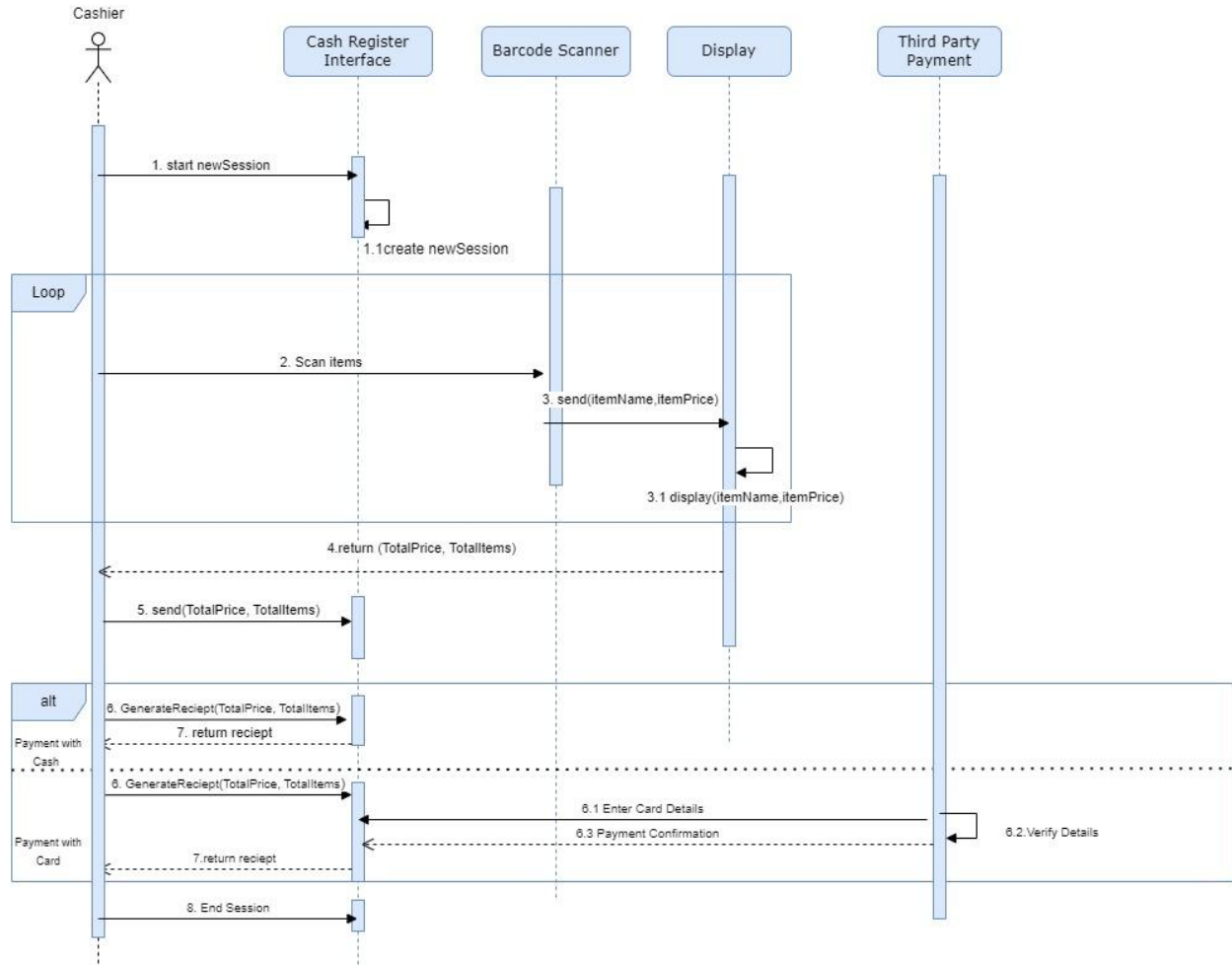
## Component Dependency Diagram



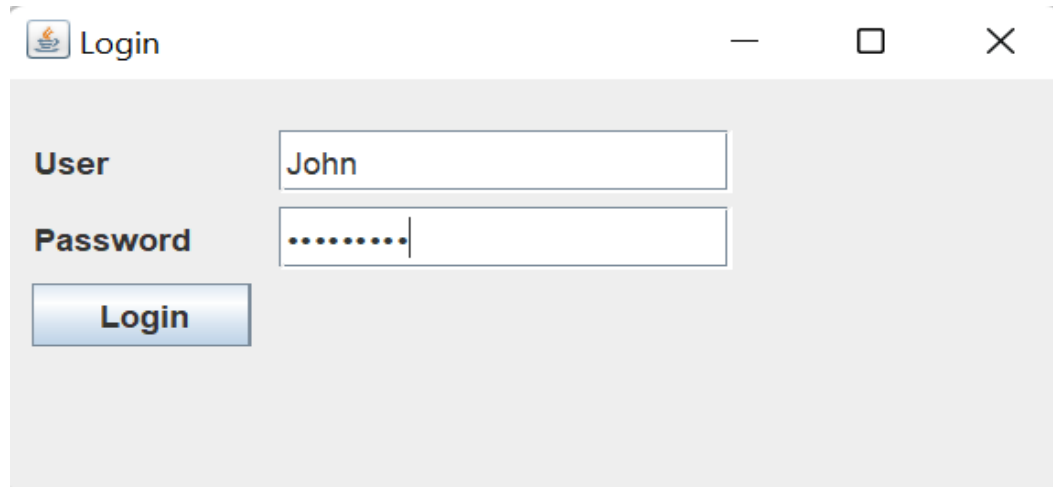
## MVC and Layered View



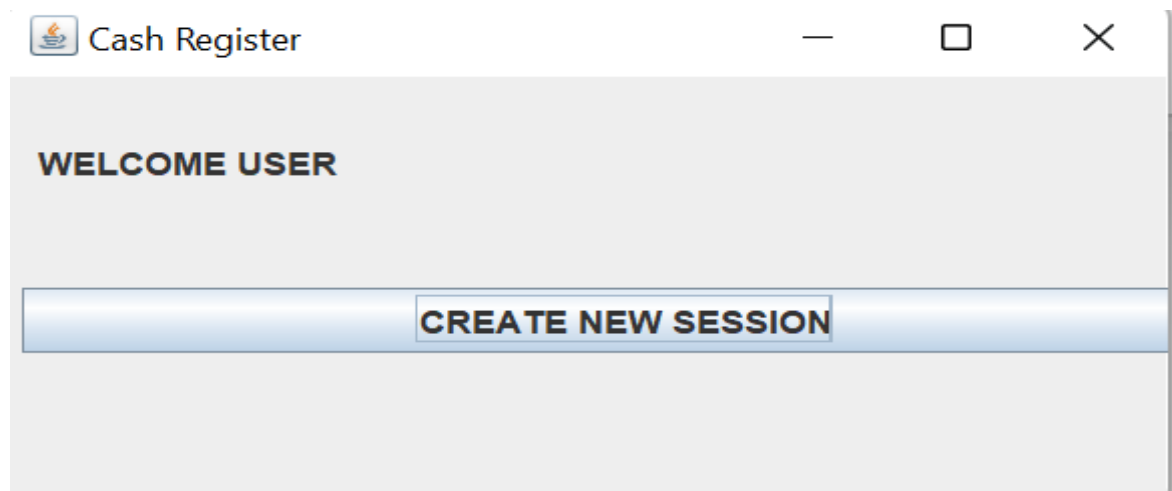
# Sequence Diagram



## Java Swing GUI

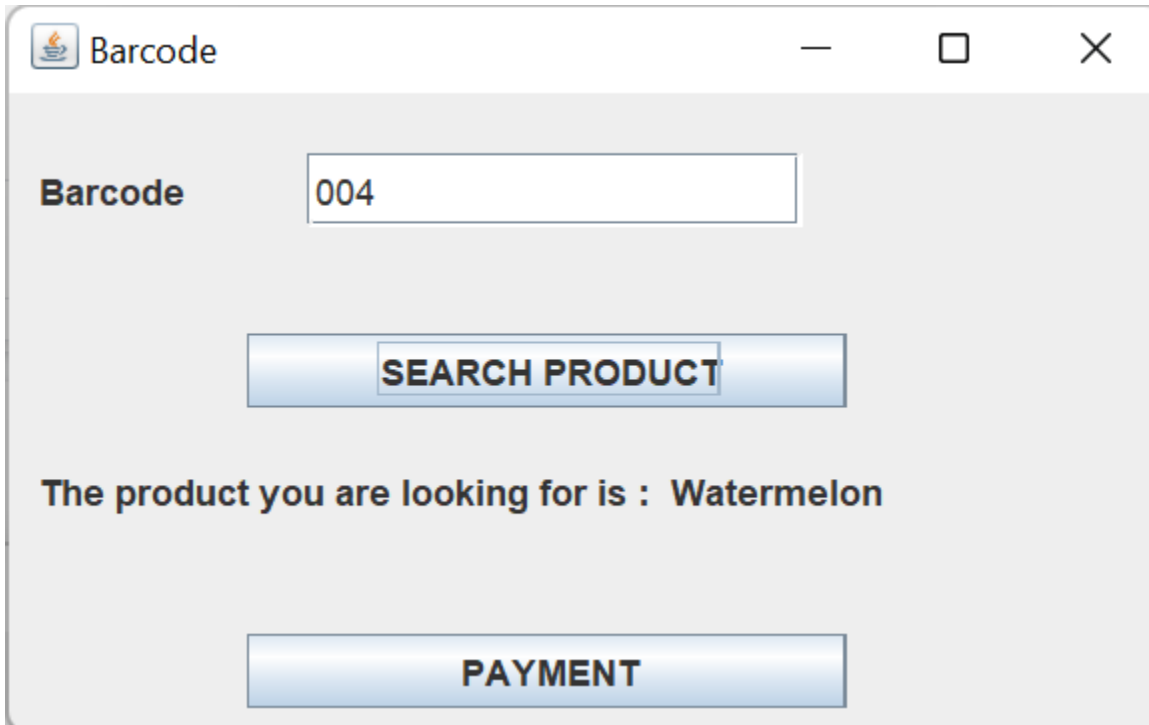


The user (cashier) must login to the system using valid credentials in order to use the cash register system.



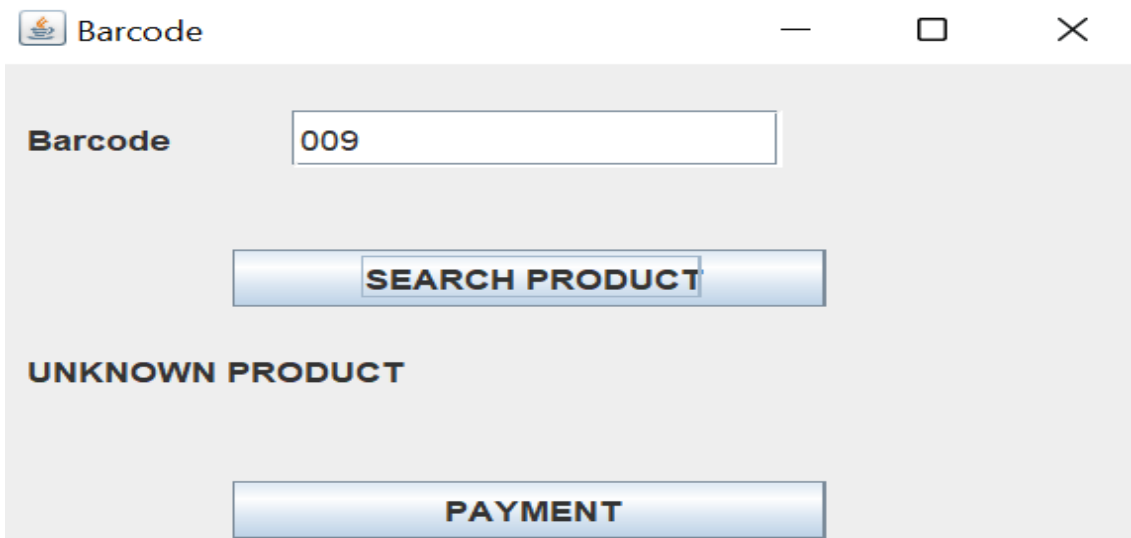
After a successful login, the system will prompt the user to create a new session as shown in the picture above.

The Barcode GUI allows the cashier to search for the product that the barcode scanner cannot identify, the code can be entered via the keyboard.



The image shows a window titled "Barcode" with a standard Windows-style title bar (minimize, maximize, close buttons). Inside the window, there is a label "Barcode" followed by a text input field containing the value "004". Below the input field is a button labeled "SEARCH PRODUCT". Underneath the button, the text "The product you are looking for is : Watermelon" is displayed. At the bottom of the window is another button labeled "PAYMENT".

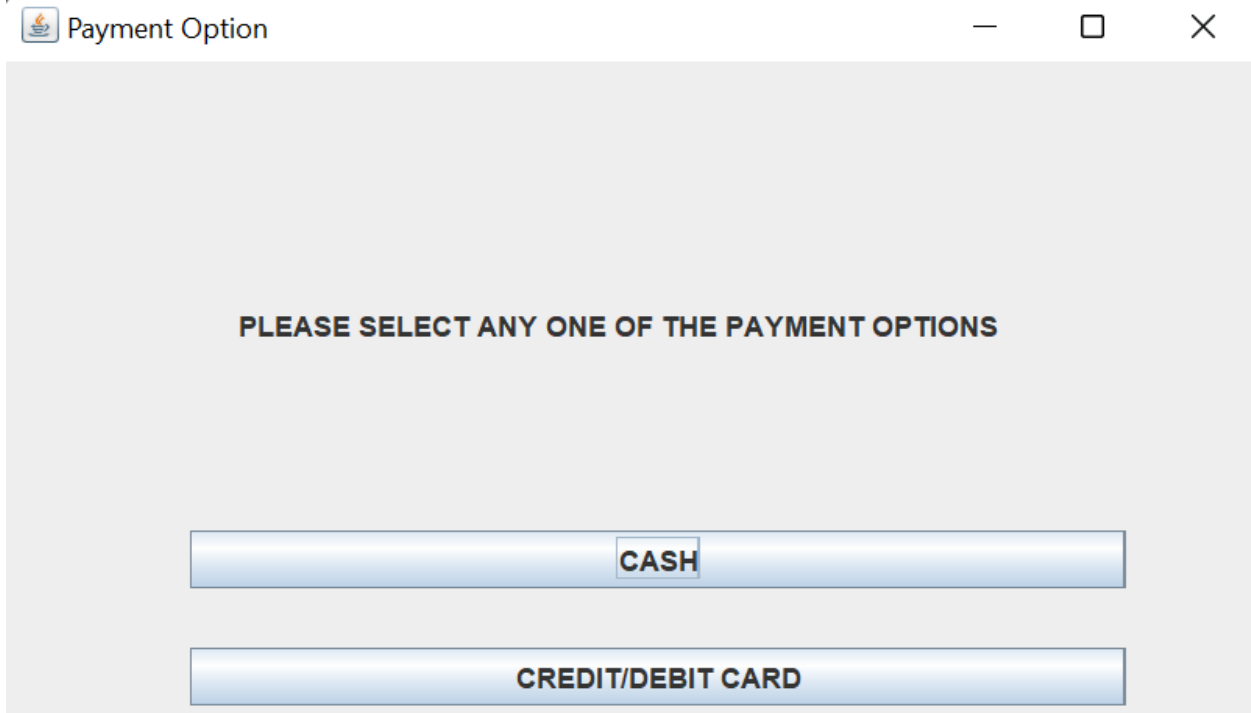
If the barcode is not found the following message is displayed:



The image shows a window titled "Barcode" with a standard Windows-style title bar. Inside the window, there is a label "Barcode" followed by a text input field containing the value "009". Below the input field is a button labeled "SEARCH PRODUCT". Underneath the button, the text "UNKNOWN PRODUCT" is displayed. At the bottom of the window is another button labeled "PAYMENT".

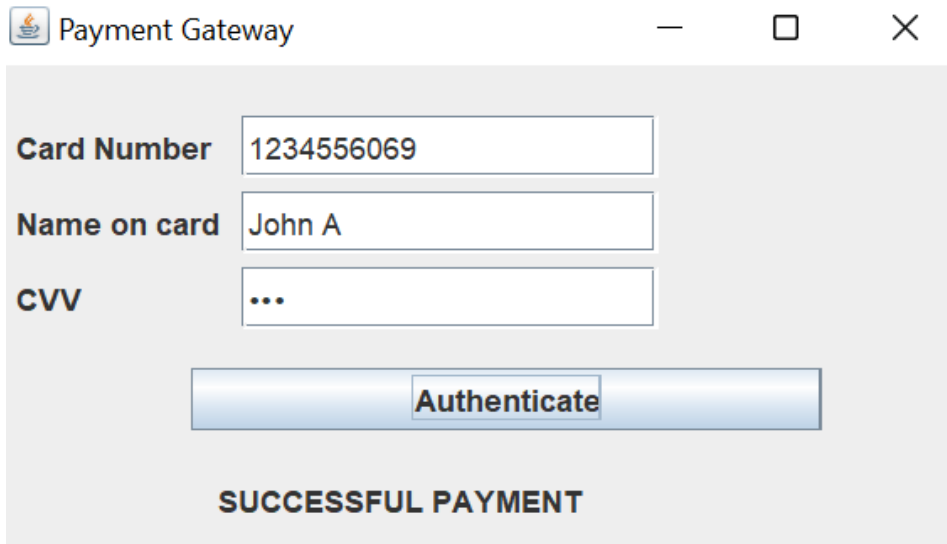


The cashier can click on the payment button to select one of the following options:



A screenshot of a software window titled "Payment Option". The window has a standard title bar with a minimize button, a maximize button, and a close button. The main content area is light gray and contains the text "PLEASE SELECT ANY ONE OF THE PAYMENT OPTIONS" in bold, uppercase letters. Below this text are two blue, rectangular buttons with white text. The first button is labeled "CASH" and the second button is labeled "CREDIT/DEBIT CARD".

If the cashier selects the credit/debit card payment option a payment gateway GUI is displayed to the cashier. The credit/debit card transactions will be handled by this third party system. Please check the image below.



A screenshot of a software window titled "Payment Gateway". The window has a standard title bar with a minimize button, a maximize button, and a close button. The main content area is light gray and contains three input fields for card information. The first field is labeled "Card Number" and contains the text "1234556069". The second field is labeled "Name on card" and contains the text "John A". The third field is labeled "CVV" and contains three dots "...". Below these fields is a blue, rectangular button with white text labeled "Authenticate". At the bottom of the window, the text "SUCCESSFUL PAYMENT" is displayed in bold, uppercase letters.

After successful payment the cashier will be directed to the end session interface. The user can end the session by selecting the end session button.

