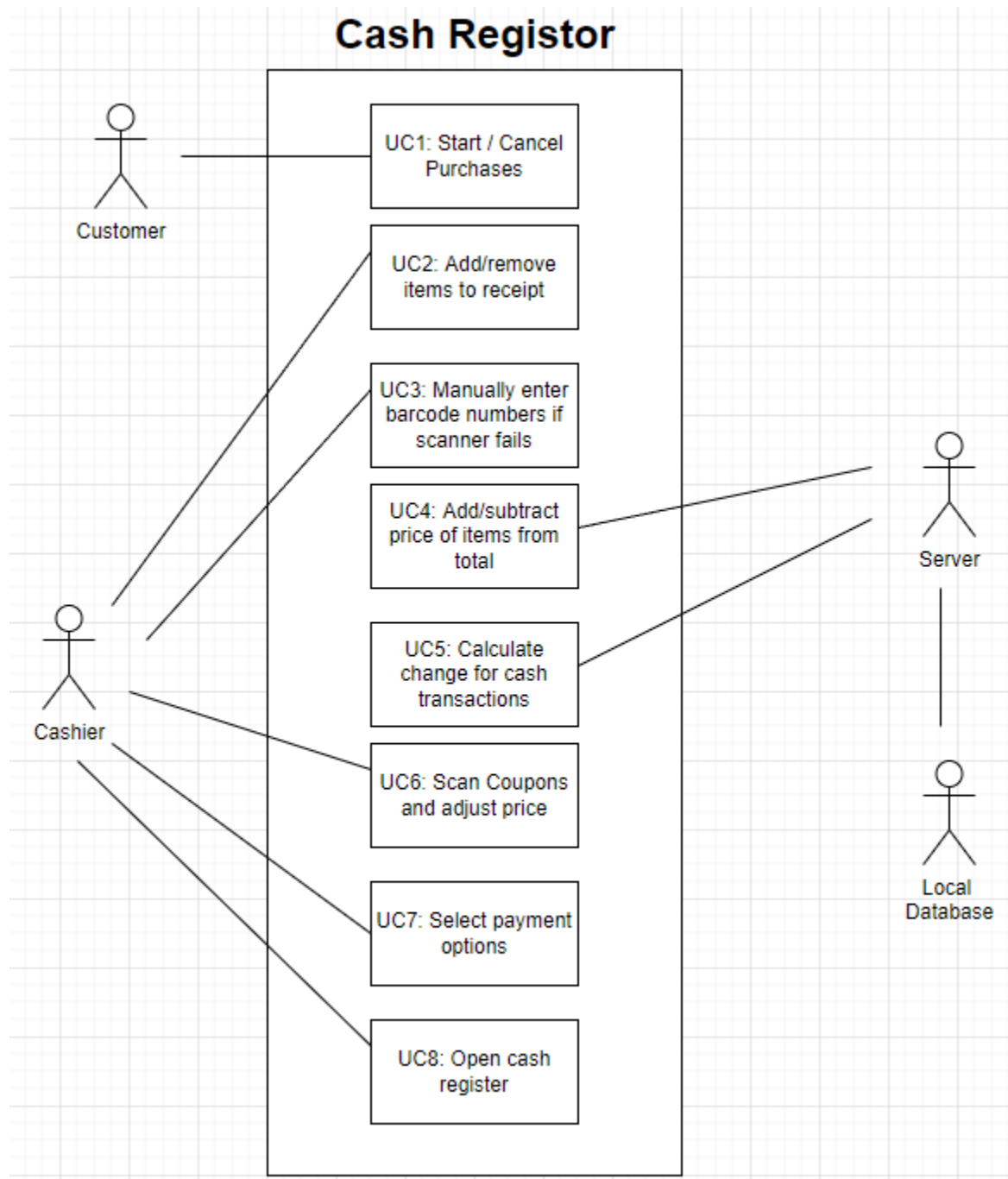# SOFE 3650U - Assignment 2: Architectural Patterns and Design Drivers

Date: October 31, 2022

| Name | Student Number |
|---|---|
| Rayan Pasha | 100704599 |
| Mohammed Khan | 100756901 |
| Andy Lau | 100754380 |

1)

# Cash Registor

**Customer**

**Cashier**

**Server**

**Local Database**

UC1: Start / Cancel Purchases

UC2: Add/remove items to receipt

UC3: Manually enter barcode numbers if scanner fails

UC4: Add/subtract price of items from total

UC5: Calculate change for cash transactions

UC6: Scan Coupons and adjust price

UC7: Select payment options

UC8: Open cash register

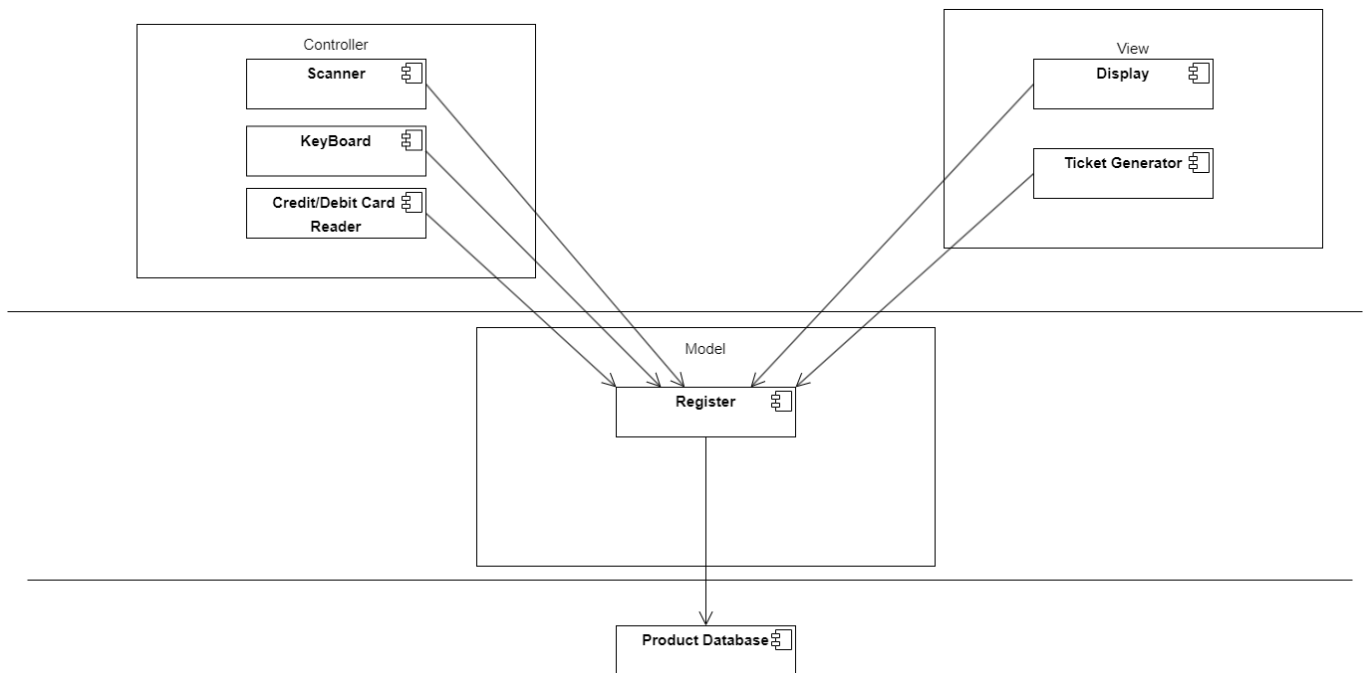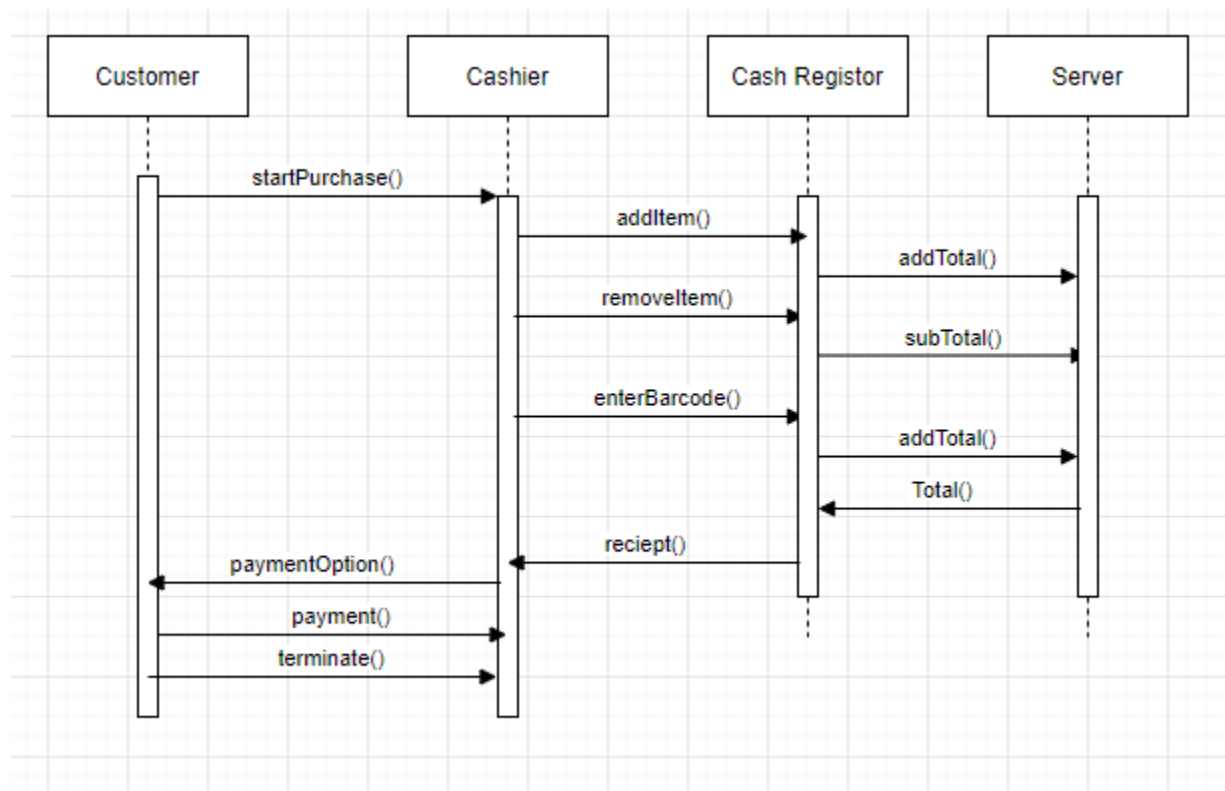| Use Cases | Description |
|---|---|
| UC1: Start/cancel purchases | the customer or cashier must be able to start or cancel their purchases |
| UC2: Add/remove items to receipt | The customer is able to add or remove any item to their receipt |
| UC3: Manually enter barcode numbers if scanner fails | If the case a barcode does not read, a error message will print saying "Unknown error" and the cashier would be able |
| UC4: Add/subtract price of items from total | The server accesses the database which has the price of the items scanned and adds them up to get the total. Items can also be removed from the receipt which in turn subtracts their price from the total. |
| UC5: Calculate change for cash transactions | If the customer pays with cash, the system must calculate the amount of change they would get based on how much money they gave the cashier. |
| UC6: Scan Coupons and adjust price | The system must be able to read and scan coupons to adjust the prices of the total cart. |
| UC7: Select payment options | The customer can choose between the variety of payment options available to purchase the items on their receipt |
| UC8: Open cash register | The cashier can open the cash register to give the customer their change |

| ID | Quality Attribute | Scenario | Associated Use Case |
|---|---|---|---|
| QA-1 | Availability | If the system fails during normal operations, then log fault and restart the system in 1 second. | All |
| QA-2 | Security | If a customer uses a credit card or debit card, card info is verified with the associated bank. | UC7 |
| QA-3 | Modifiability | It is expected in the future to change hardware in the future, so the software must be easy to install and use on new hardware. | All |

| ID | Constraint |
| --- | --- |
| Con-1 | Some items may be only sold to a limit |
| Con-2 | Some items may require an age restriction |
| Con-3 | If product doesn't have barcode or product number then manager is needed to enter price separately |
| Con-4 | Cash register can only be opened after a transaction |
| Con-5 | Unable to scan items that aren't in directory |
| Con-6 | No limit on total items or price |

2)

3)



4)