UML Class Diagram — Credit Card Processing

+authenticate

+Credit card system
+authenticate ()

+0..*

Customer
+name: text
+email: text
+details ()

+has

Credit Card
+number: int
+expiry: date
#+cvv: int
+balance: int
+name: text
+get balance ()
+credit ()
+deposit ()
+info ()

Bank
+name: string
+address: string
+verify ()
+cancel ()

Payment Gateway
+process ()
+authorize ()

Fraud Detection
+check fraud ()

+raises

Transaction
+tcard: int
+amount: double
+date: date
+cardno: int
+status: string
+get status ()
+get card ()

+manages

Transaction Management
+trans history ()
+cancel ()
+refund ()

1..*

0..*
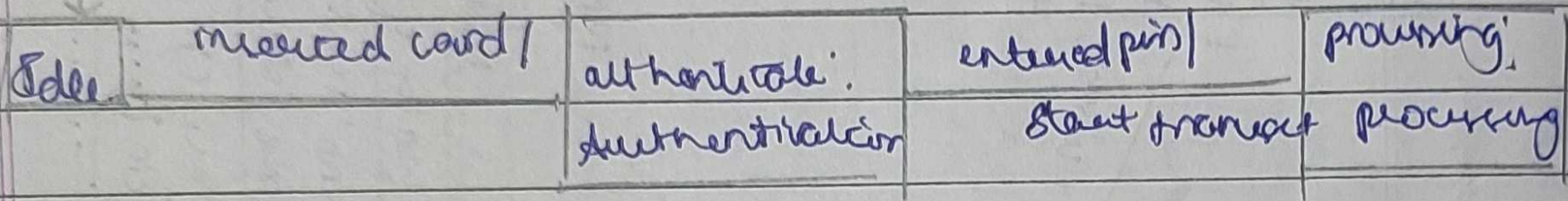
0..*

credit card processing

Credit card Processing
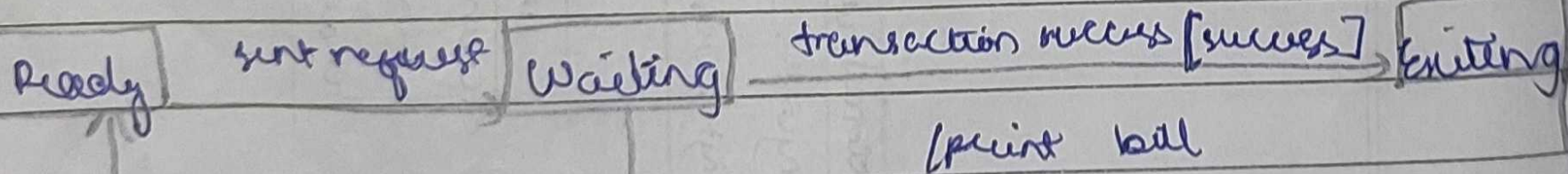
```
                    card removal
                                              [ Done ]

┌──────┐  inserted card/  ┌──────────────┐  entered pin/   ┌──────────────┐
│ Idle │ ───────────────→ │ authenticate.│ ──────────────→ │ processing.  │
└──────┘                  │Authentication│   Start transact│  processing  │
                          └──────────────┘                 └──────────────┘
```

Authentication

```
┌─────────┐  entered Pin  ┌──────────────┐  [success]   ┌───────┐
│ waiting │ ────────────→ │ Logging/N    │ ───────────→ │ Ready │
└─────────┘               │do/search for │              └───────┘
                          │    match     │
                          └──────────────┘
```

Processing
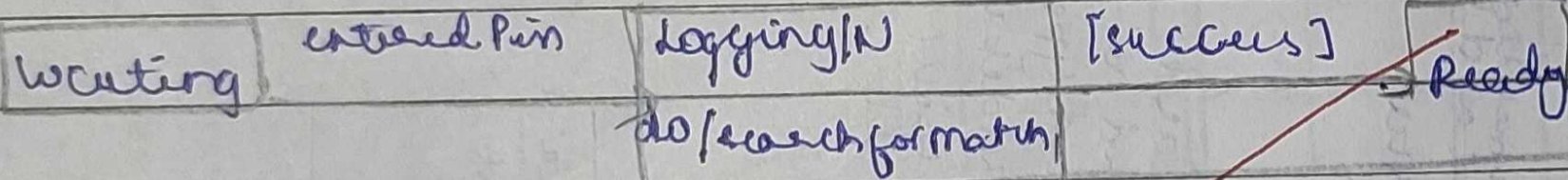
```
┌───────┐ sent request ┌─────────┐ transaction success [success]  ┌─────────┐
│ Ready │ ───────────→ │ waiting │ ──────────────────────────────→│ Exiting │
└───────┘              └─────────┘          [print bill           └─────────┘
   ↑
   └────────── [transaction failure)
```

Credit card processing

Use Case Diagram:

- Customer
- Bank
- login Authorization
- present card
- Verify card «include»
  - cardnum
  - enpiry date
  - available credit
- update available credit
- enter pin
- Transaction «extend»
  - withdrawal
  - Deposit
  - Transfer
  - Inquiry
  - Envalied PIN
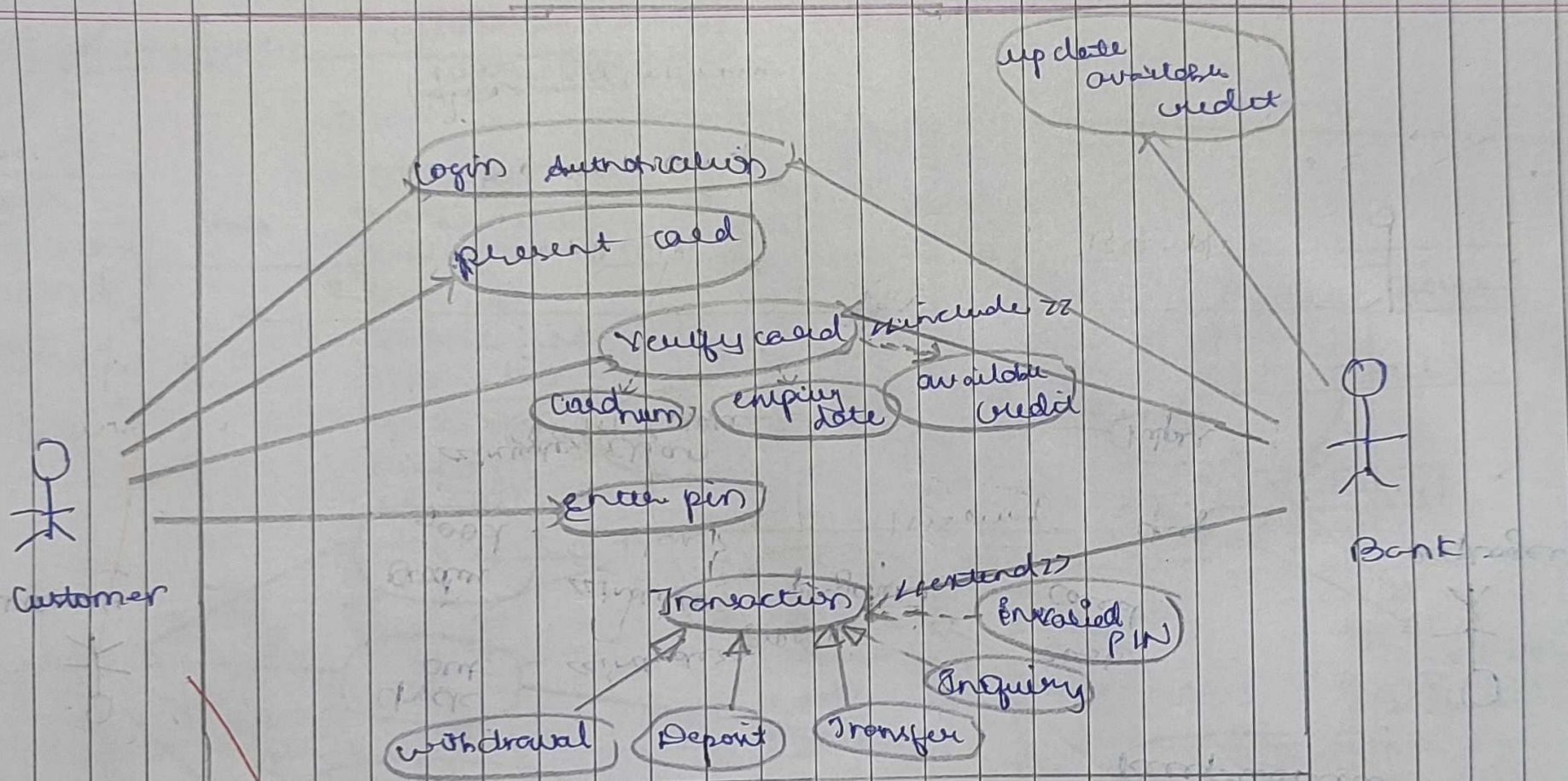
Credit card processing

User   **processing system**

(present card) ————→ (display enter password)

(enter pin) ————→ (verify)

(fraud detection)

[no]   ◇   [yes]   ◉

(entered amount) ←———— (enter amount)

(eject card) ←———— (amount / transfercash)

◉

Credit card processing.