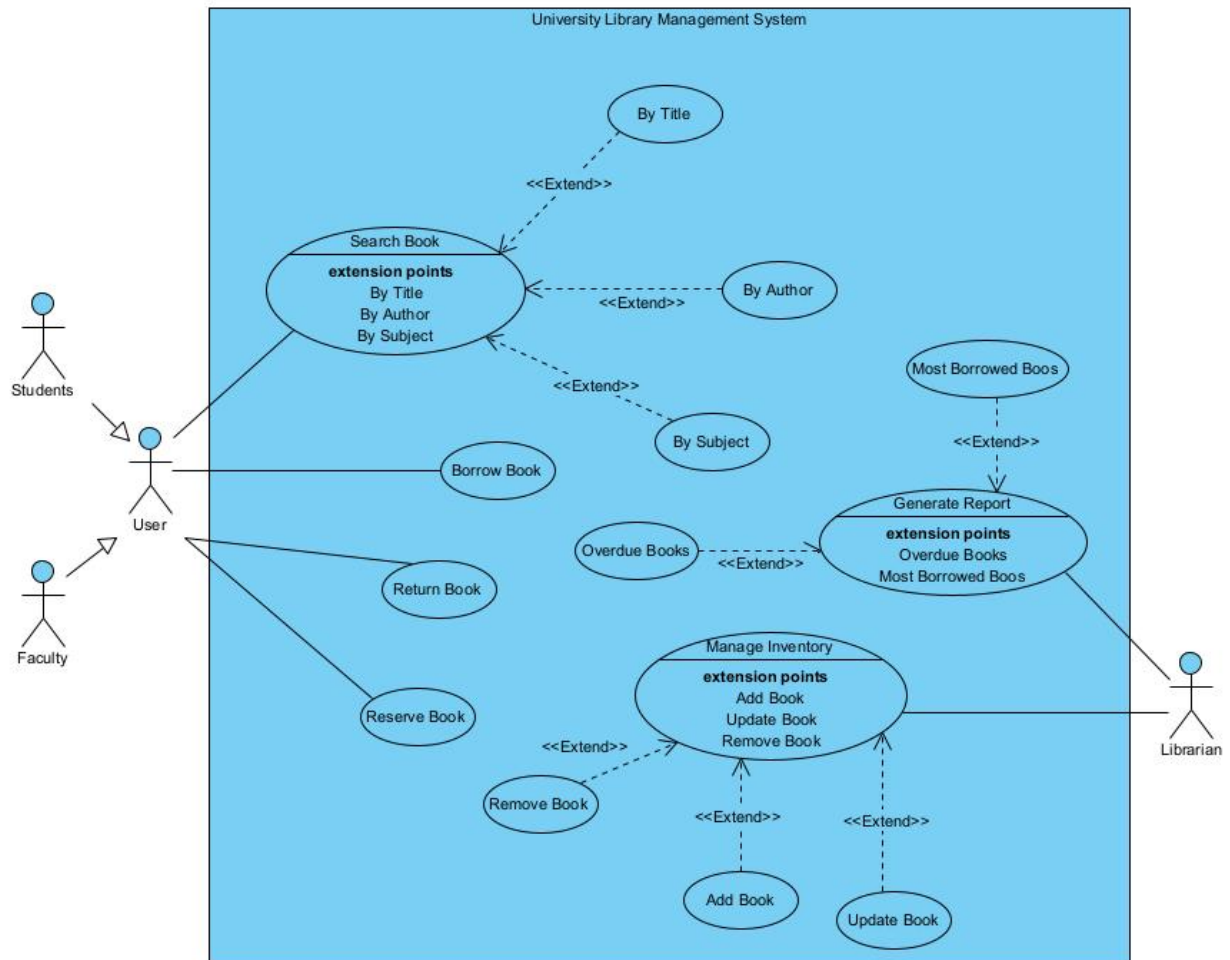


## Question: Use Case Diagram for Library Management System



**Use Case Name:** Search for Books

**Actors:**

- Student
- Faculty

**Pre-conditions:**

- The user must be logged into the library management system.
- 

**Post-conditions:**

- The system displays a list of books that match the search criteria entered by the user.

**Main Success Scenario:**

1. The use case begins when the user selects the “Search for Books” option from the library management system’s interface.
2. The system prompts the user to choose a specific search criterion: title, author, or subject.
3. The user selects a search criterion (e.g., title).
4. The system extends the corresponding use case (e.g., “Search by Title”) to handle the specific search.
5. The system displays a list of books that match the search criteria.
6. The use case ends successfully.

**Alternate Scenario:**

- **No Matching Books Found**
  1. If no books match the search criteria, the system displays a message indicating that no matching books were found.
  2. The use case returns to the main success scenario at Step 2 to allow the user to modify the search criteria and try again.

**Use Case Name:** Search by Title

**Base Use Case:** Search for Books

**Actors:**

- Student
- Faculty

**Pre-conditions:**

- The user must be logged into the library management system.

**Post-conditions:**

- The system return a list of books that match the title entered by the user.

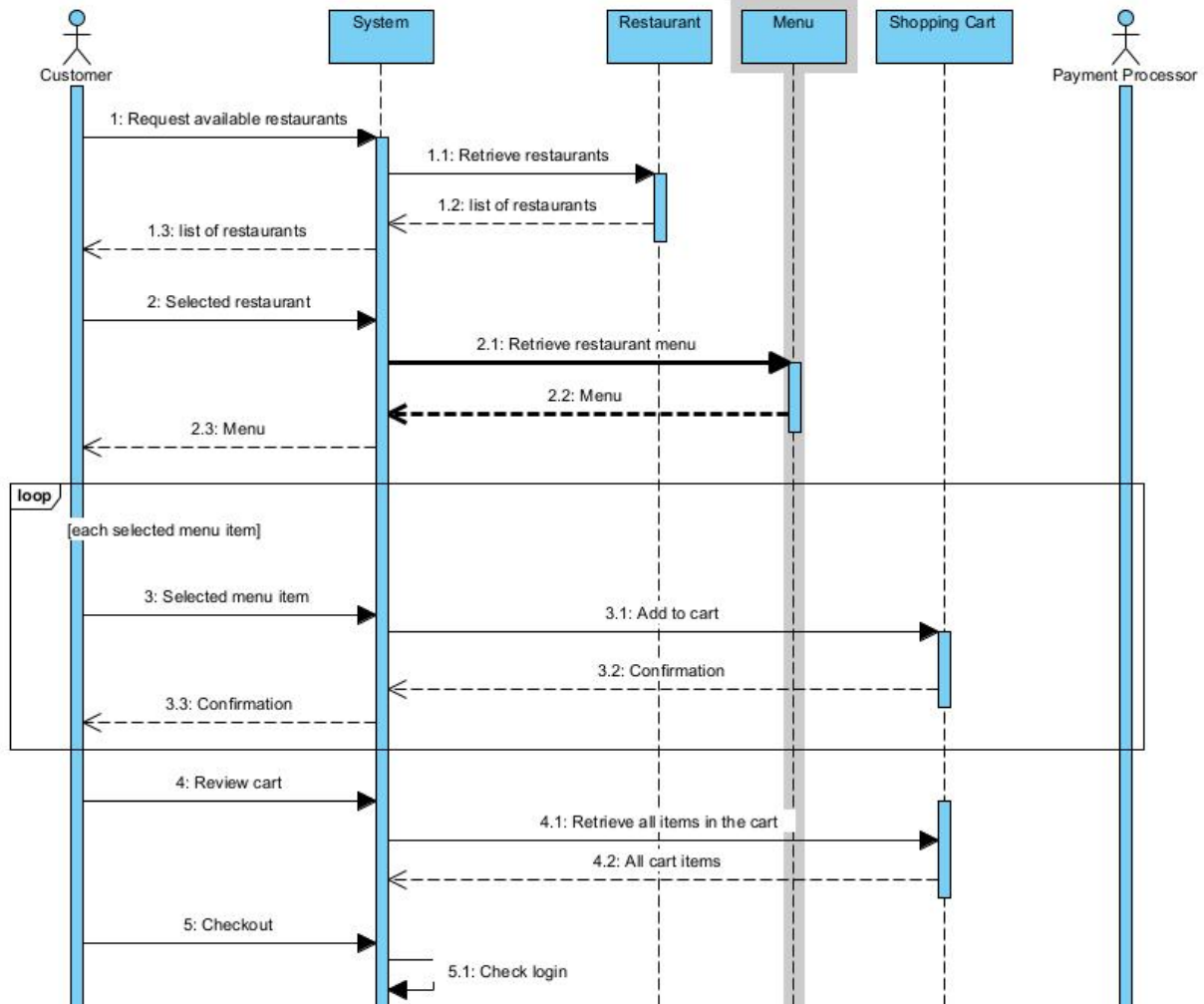
**Main Success Scenario:**

1. The use case begins when the user selects the “Search by Title” option within the “Search for Books” use case.
2. The system prompts the user to enter the title of the book.
3. The user enters the title and submits the search request.
4. The system searches the library catalog for books that match the entered title.
5. The system return a list of books that match the title to the base use case.
6. The use case ends successfully.

**Alternate Scenario:**

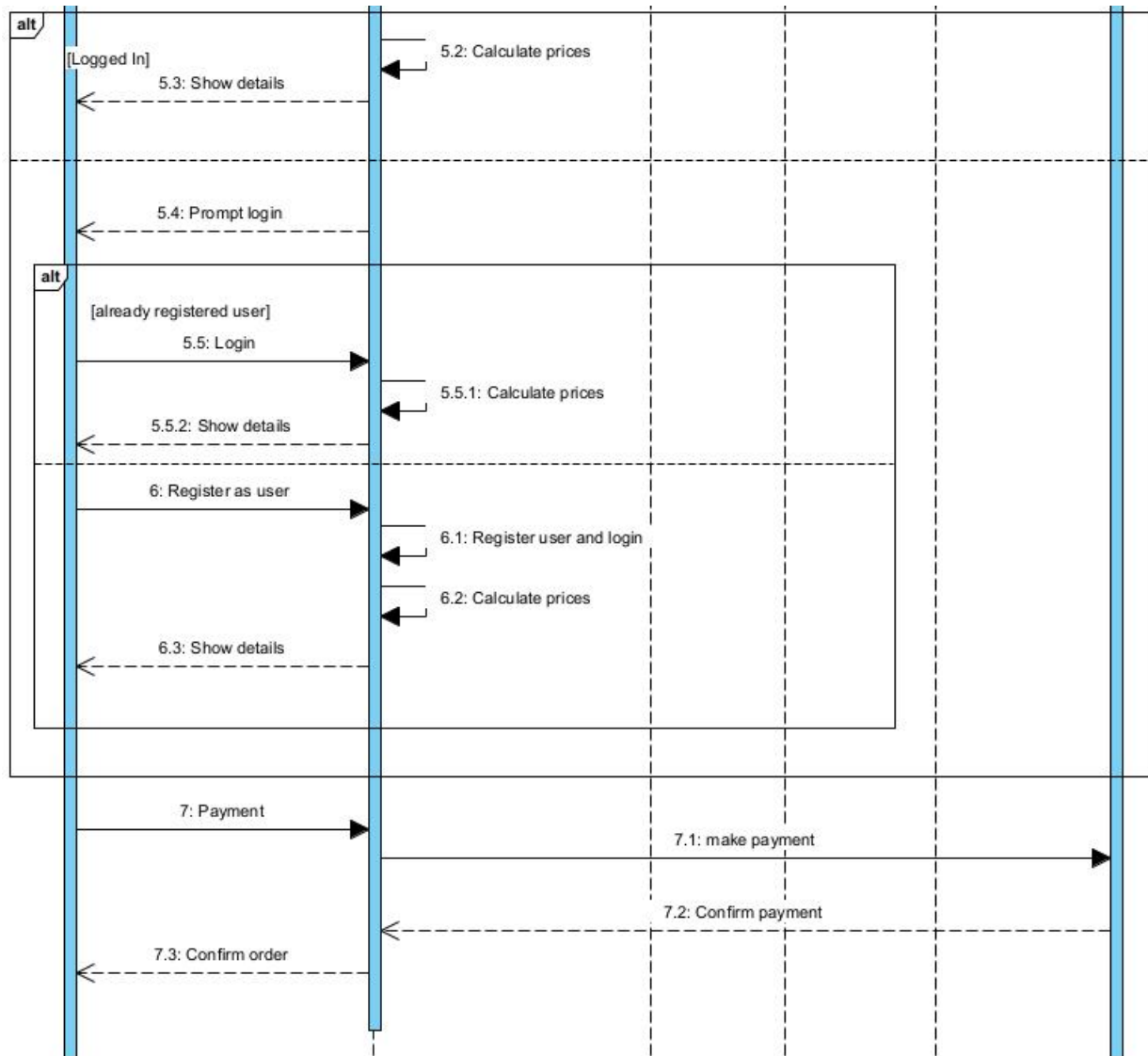
- **No Matching Books Found**
  1. If no books match the title, the system return empty list indicating that no matching books were found.

## Question: Sequence Diagram for Online Food Delivery System

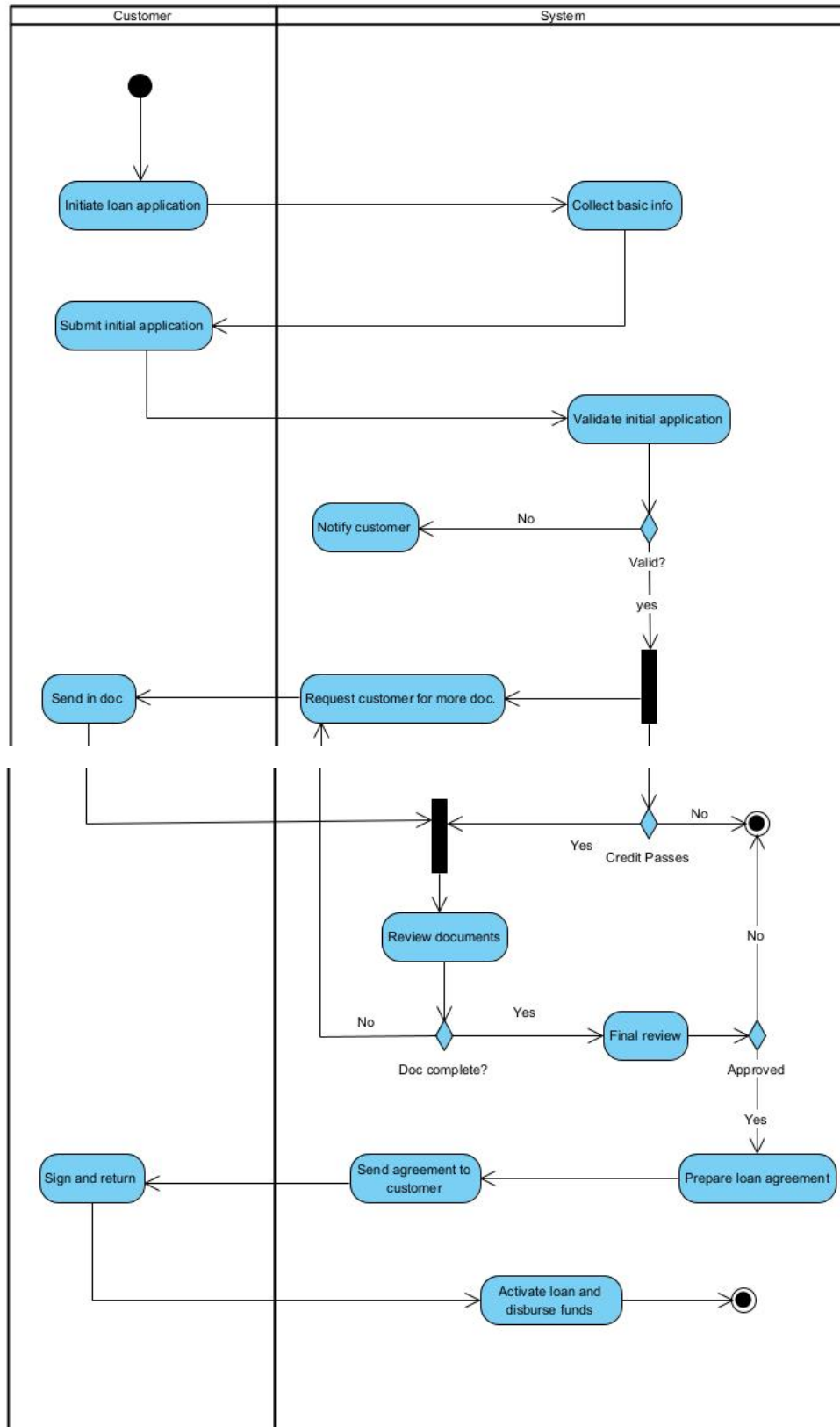


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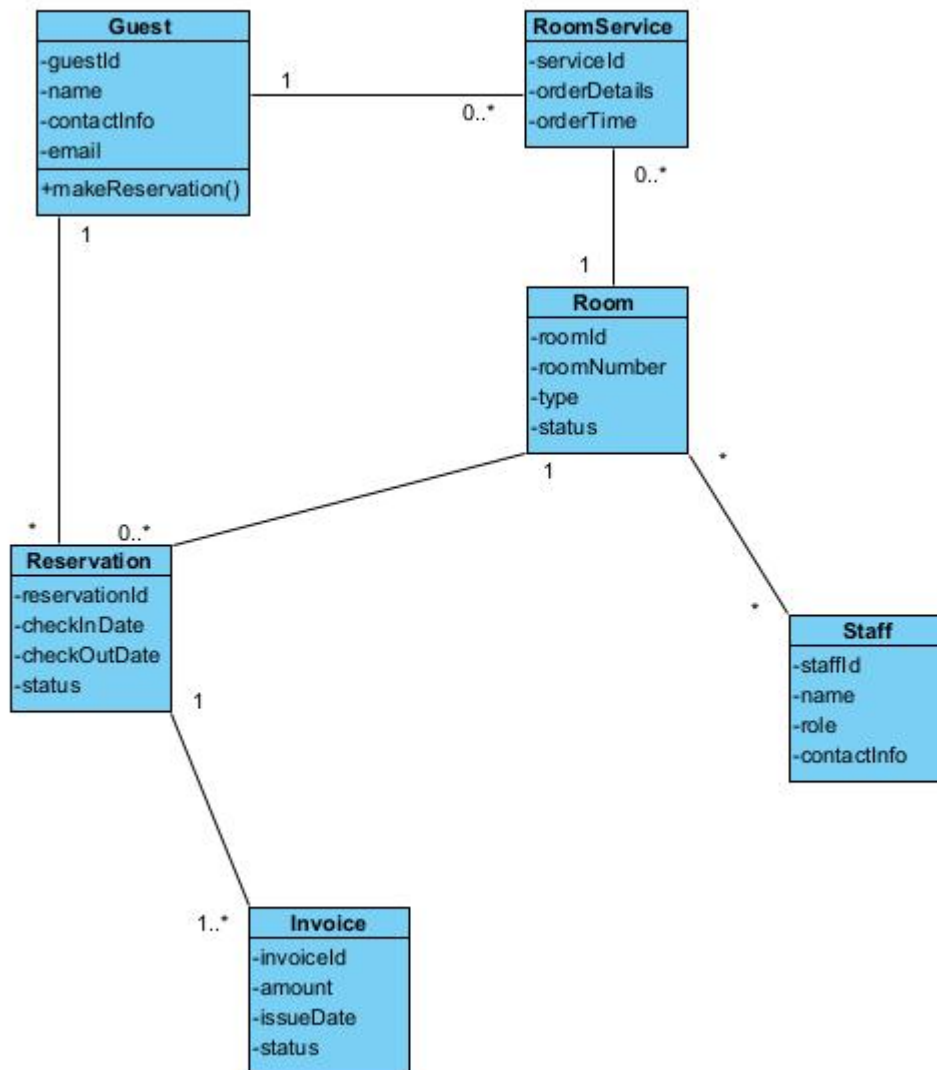
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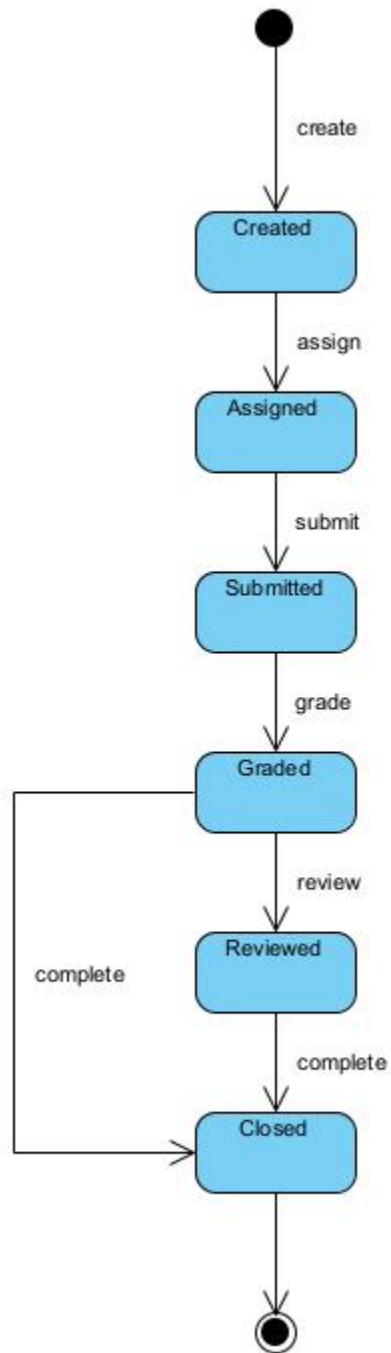
## Question: Activity Diagram for Multi-Step Loan Application Process



## Question: Class Diagram for a Hotel Management System



### Question: State Machine Diagram for a Study Management System





## Question: State Machine Diagram for Loan Application Process

Use the information below to derive the answer.

1. **Initial State:** The process starts when a customer submits a loan application.
2. **Application Received:**
  - **Entry Action:** Log the receipt of the application.
  - **Do Action:** Check the application for completeness.
  - **Exit Action:** Notify the customer that the application has been received.
3. **Under Review:**
  - **Entry Action:** Assign the application to a loan officer.
  - **Do Action:** Perform credit check, income verification, and other evaluations.
  - **Exit Action:** Compile the review report.
4. **Approved:**
  - **Entry Action:** Notify the customer of the approval.
  - **Do Action:** Prepare loan documents.
  - **Exit Action:** Schedule a meeting with the customer for document signing.
5. **Rejected:**
  - **Entry Action:** Notify the customer of the rejection.
  - **Do Action:** Archive the application.
  - **Exit Action:** Close the application process.
6. **Document Signing:**
  - **Entry Action:** Prepare the meeting room and required documents.
  - **Do Action:** Conduct the document signing meeting.
  - **Exit Action:** Finalize the loan agreement.
7. **Loan Disbursed:**
  - **Entry Action:** Initiate the fund transfer.
  - **Do Action:** Transfer the loan amount to the customer's account.
  - **Exit Action:** Send a confirmation email to the customer.