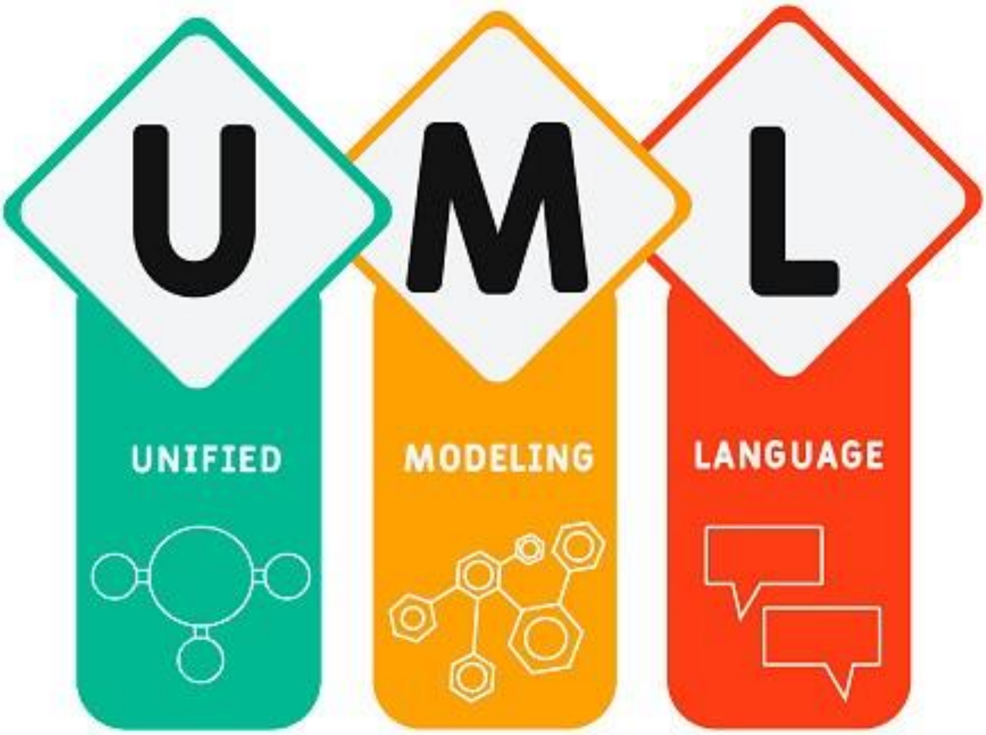
Software Engineering

Project 2



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Use Case Analysis

1. Actors that are participating in the movie store system process are:

- Customer
- System User
- Administrator
- Seller

2. Use Cases for movie system when a customer searches for a video and payment process are:

- Searches to access DVD and video database
- Communicate to buy movie
- Purchase movie
- Remove profile from database
- Email Invoice

3. Scenarios for when customers purchase a movie.

Primary scenario: The customer finds the movie.

- Customer successfully finds the movie they want to purchase.

Alternative: Customer can't find the movie.

- The movie is not in their database.
- The system displays message to customer to re-enter movie name.
- The customer then re-enters the name and searches again.

Primary scenario: Making the payment.

- Customer enters card details.
- Payment is made successfully.

Alternative: Payment Failed.

- Card is declined because of insufficient funds.
- System must inform customer about the payment failure.
- The system then displays message to customer to re-enter card details and try again.

  Use Case Diagram:

Use Case Diagram

Use Case diagram Documentation:

The customer searches through the DVD and video database to find a movie they want to purchase, once they have found a movie they want to purchase, a communication with the customer and seller is made to purchase the movie. The communication between the customer and seller is made by the system user. The customer then purchases the movie, and their profile is removed from the database and an invoice is sent from the administrator to the customer via email.

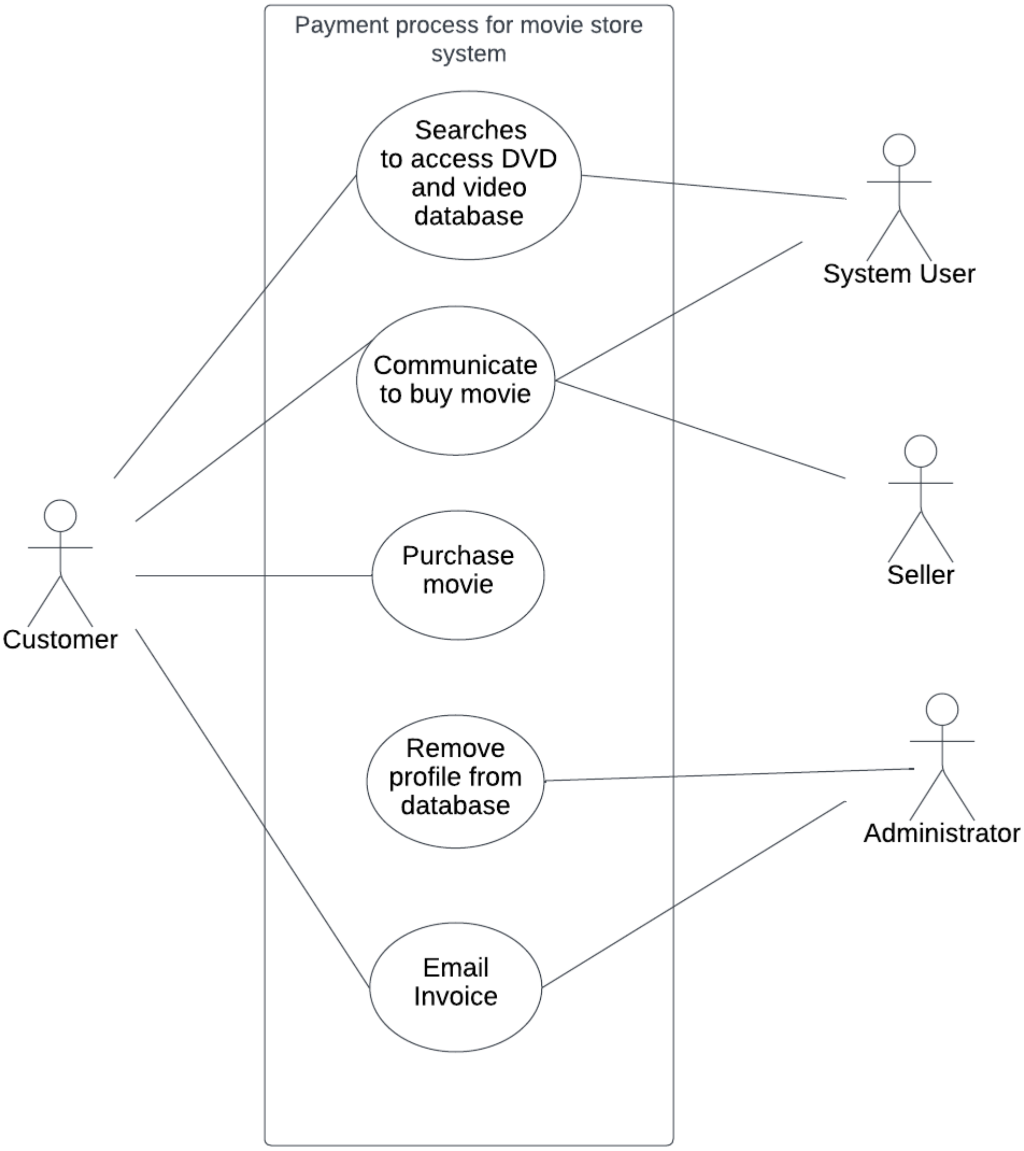
Payment process for movie store system
Searches to access DVD and video database
Communicate to buy movie
Purchase movie
Remove profile from database
Email Invoice
Customer
System User
Seller
Administrator

Figure 1 Use Case Diagram

Activity Diagram

Activity Diagram Documentation:

This activity diagram shows the swimlanes/partitions for the Customer, System, Administrator and System User that all interact with each other, and it points out decisions where if the customer's registration form is invalid, they need to complete the registration again.

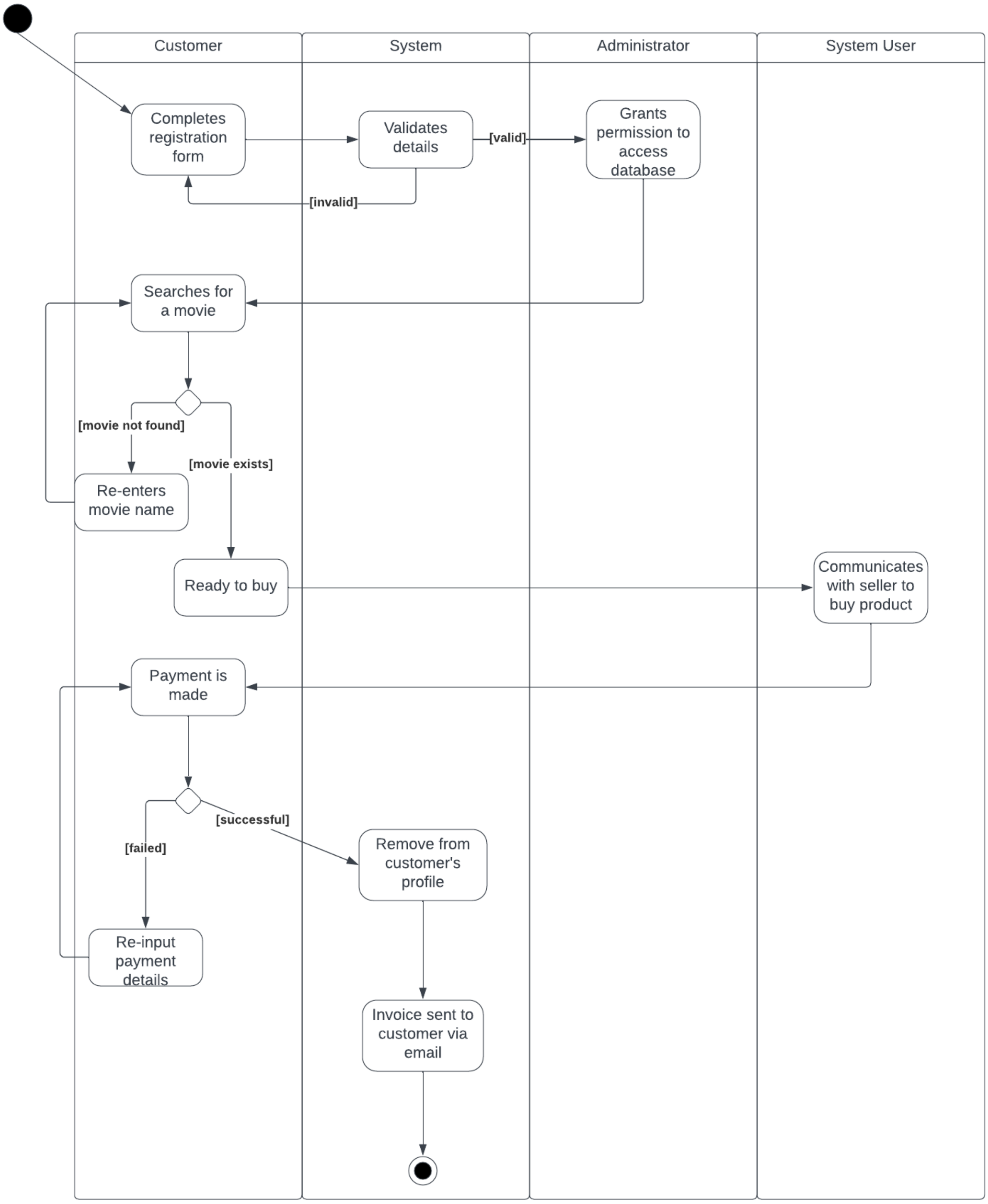

Figure 2 Activity Diagram

Once it’s completed the admin will grant permission to the customer to search and buy a movie, if the movie they want is not found, they could re-enter it. If the payment is invalid, they must re-enter the payment details until payment becomes successful and at the end an invoice is emailed to the customer.

Class Diagram:

Class Diagram Documentation:

In this class diagram we have got included five classes namely Database, Customer, Administrator, Movie and System User. The database is our central class and has an association relationship between the administrator, customer, and movie class. We have also got our system user class who interacts with the movie class to add movies to the database.

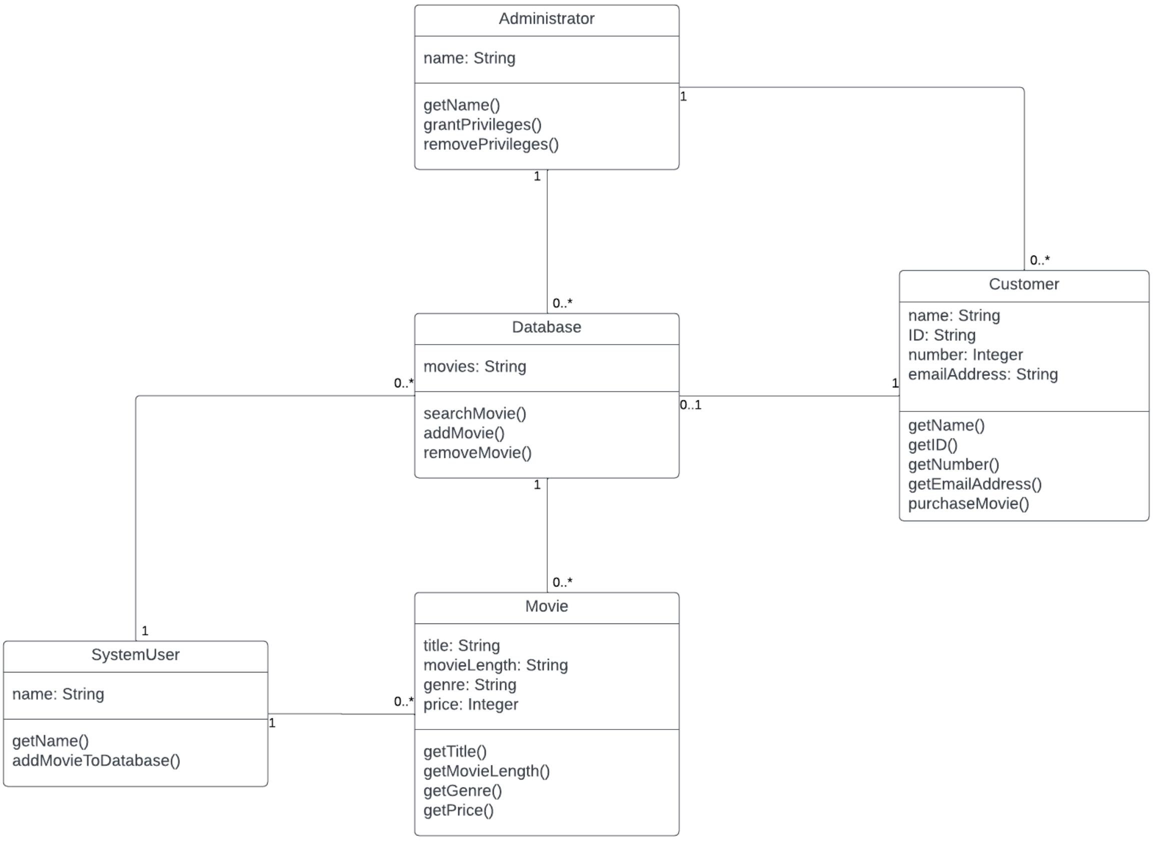

Figure 3 Class Diagram

Multiplicity between:

Database and Customer: 1 Customer interacts with the database whereas there can be 0 or 1 database serving the 1 customer.

Database to Movie: There can be 0 or more movies added to 1 database.

Database to Administrator: 1 Admin manages 0 or more Databases.

Administrator to Customer: 1 Admin manages 0 or more customers.

System User to Movie: 1 system user can add 0 or more movies to the database.

Communication Diagram

Communication Diagram Documentation:

This diagram depicts that the Seller as an Actor requests an invoice to the GUI object which then creates the Invoice object. The GUI object then retrieves information from the customer of what they purchased; the GUI then adds it to the Invoice which now the Invoice Object carries that information of the details from what the customer purchased. The Invoice is then displayed so the seller can see if the information is correct, and the seller emails the invoice to the customer and the invoice object is then destroyed.

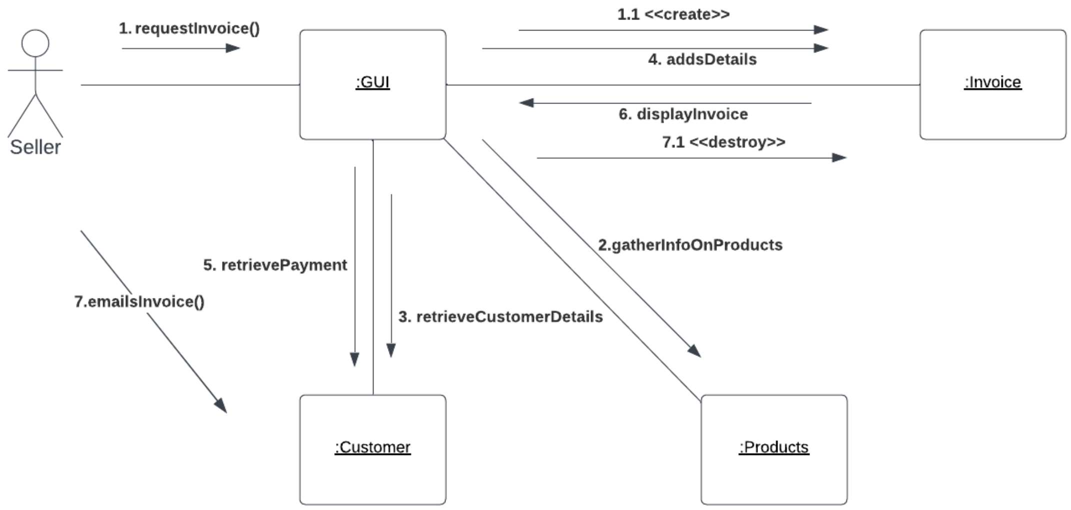

Figure 4 Communication Diagram

State machine diagram

State machine diagram documentation:

In this state machine diagram, the customer order details are entered into an invoice being created, only once the payment is redeemed successful the invoice can then be emailed to the customer but if payment fails the customer can try again and if it fails again the invoice is cancelled.

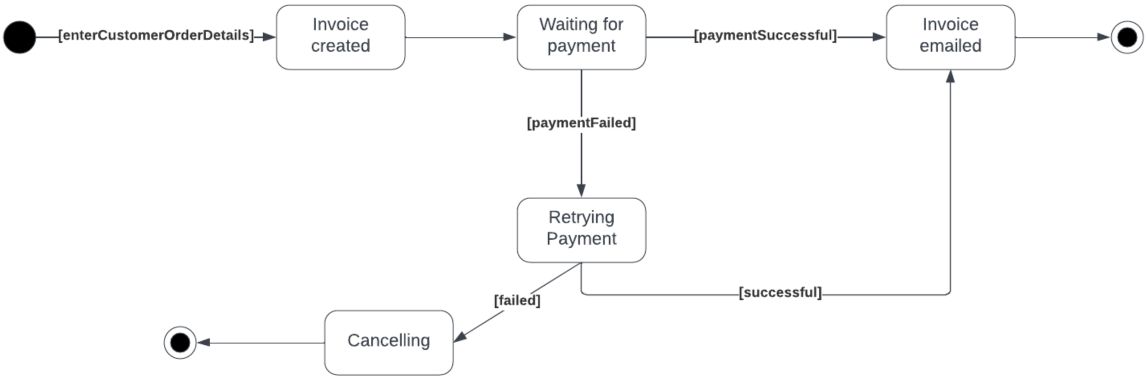

Figure 5 State machine diagram

Software Development Methodologies:

1. Scrum – It is a very common to use for developers because of the simplicity. It is a management framework software to help create an organized project for teams which also allows for roles to be given within the team to make the project more manageable.

   Mistakes can be easily corrected; you are more in control of the project and the project can be delivered fast enough within the scheduled time.

2. Waterfall – This is one of the most popular because it uses an easily readable classic cycle to represent what the project depicts. You can not go back to the previous step, so you must make sure each step is correct.

   It is easy to understand the Waterfall methodology, you can save time with this, but it requires precision because all the steps are completed at the time.

3. Rapid Application Development (RAD) – RAD makes sure to deliver the best result possible that is certain to be of high quality and the reason why it gives such an outcome is because it allows the user to participate in the process. RAD methodology gives feedback to you as well.

4. Extreme Programming Methodology – Extreme also provides high quality software with high flexibility which will make ease for the project and lower mistakes. Extreme does save money and time on the other hand.

5. V model - The V model takes down the main steps and summarizes it into actions that need to be executed. The V model is based more on a testing phase.

   For this project, I would choose the Waterfall methodology because the specifications for the project requires the basic minimum to receive for the outcome which the waterfall model can easily do, the team that needs to work on this just needs to make sure to always check each step because you can’t go back to the previous step.