SEG3102 – Fall 2024

Assignment 1

This assignment can be submitted in teams of 2 maximum. Only one submission per team. Be sure to identify all authors on the cover page of the submission by providing student names and numbers.

Any submission of which you are not the author constitutes a violation of academic integrity. This includes solutions provided by any third party including those generated by artificial intelligence systems.

Problem

Consider the following use case developed as part of the requirements for an Online Rental Application System (ORAS).

Use case name: Create Rental Agreement
Primary Actor: *Renter*
Secondary Actor: *Landlord, Credit Reporting Agency, Payment Gateway*
Precondition:
- Both the Renter and Landlord are registered users of the system
- The Renter is visiting the ORAS website and viewing a property listed for rent posted by the Landlord
- The Landlord has specified the rental terms for the property

Steps :
1. The Renter selects to apply for a lease on the property
2. The ORAS prompts the Renter to input their information details
3. The Renter provides the requested details
4. The ORAS conducts a credit check through a third-party Credit Reporting Agency
5. The ORAS notifies the Landlord that a rental application has been submitted, shows the application details and the Renter's credit report
6. The Landlord reviews the rental application
7. The Landlord signals approval to proceed
8. The ORAS generates a Rental Agreement e-document based on the rental application information
9. The ORAS notifies the Renter of the approval, presents the Rental Agreement e-document
10. The Renter electronically signs the Rental Agreement
11. The ORAS prompts the Renter for Credit Card Information
12. The Renter provides their Credit Card information
13. The ORAS adds the Credit Card information to the Renter's file
14. The ORAS submits the initial payment (deposit, first month's rent) for processing to an external Payment Gateway
15. The Payment Gateway approves the initial payment
16. The ORAS notifies the Landlord of the Rental Agreement

17. The Landlord electronically sign the Rental Agreement
18. The ORAS finalizes the Rental Agreement and notifies the Renter

Alternatives
- **At Step 4**: The Renter's credit score is below the required threshold
  - The ORAS notifies the Renter of the application rejection
- **At Step 7**: The Landlord refuses the application
  - The ORAS notifies the Renter of the application rejection
- **At Step 14**: The payment is unsuccessful
  - The ORAS notifies the Renter of the application rejection

Postcondition:
- A Rental Agreement was successfully created and signed by both parties
- The Renter and Landlord have received a copy of the signed agreement
- The initial payment was successfully processed

The rental terms specified by a Landlord for a property:
- rent amount
- deposit
- lease duration
- other conditions

The information submitted by a renter:
- Personal details
  - fistname
  - lastname
  - date-of-birth
  - social-insurance-number (SIN)
- Address
- Phone number
- Scan of Identification document (e.g. Driving Licence, Passport, ...)
- Proof of income (e.g. Employment letter, Bank Statements)
- Rental history
- References

Credit Card information:
- number
- expiry year, month
- billing address
- CVC

Question

Identify the application command(s) arising from use case *Create Rental Agreement*, indicate the step where each command occurs and provide <u>DDD Contracts</u> (including the specification of DTOs if any) for these.

You are only required to provide contracts for domain significant application commands (that result in changes to the domain).

State your assumptions if any.