MLA// EXTENDED ASSESSMENT TASK

Please make a copy of this document

NAME OF SESSION	DESIGN CHOICES
STUDENT NAME	Funkeyi Jessica Omoro

ASSESSMENT FOCUS	DESIGN APPROACH (DDD)
TASK	1. Read the problem scenario below 2. Utilise Domain-Driven-Design to define the domain model for the three subsystems (by defining domains, entities, and value objects) 3. Define 2-3 user stories (scenarios) for BDD.

PROBLEM SCENARIO:

- Imagine the need for an application in a car rental company to address various business cases, such as: accepting rental requests, validating cars, assigning the cars to the drivers and producing bills with the corresponding amounts of money, for the requested duration.

- The application consists of a collaboration between multiple subsystems:

    - **Vehicle subsystem**: Responsible for the vehicle inventory, tracking each vehicle's status (e.g. needs maintenance, availability, assigned, millages, year of production, etc)
    - **Driver subsystem**: Responsible for customer registration, storing all relevant information, along with any status/ rating based on previous rental experience (e.g: banned, received a lot of tickets)
    - **Billing subsystem**: Responsible for analysing rental requests, calculating the contract prices and then saving it, based on:
        - Price of the vehicle
        - Driver's Status (e.g: increased price for poor rental history or additional insurance)
        - Request details (days needed, average miles, old/ new car)
        - Any discounts or promotion

YOUR ANSWER:

Domain Model Design / Diagram:
[INSERT DIAGRAM HERE]

https://figma.com/@38836267_cef3_4

Define 2-3 user stories (scenarios) for BDD.

User Story 1: Standard Vehicle Rental
As a registered driver with good rental history
I want to rent an available vehicle for a specific period
So that I can use it for my transportation needs and receive a fair price

Acceptance Criteria:

Given I am a driver with ACTIVE status and rating ≥ 4.0
When I request a vehicle that is AVAILABLE for 3 days
Then the system should calculate standard pricing (basePrice × days)
And create a rental contract with no additional premiums
And change vehicle status to RENTED
And generate an invoice with the total amount

User Story 2: High-Risk Driver Rental
As a driver with poor rental history
I want to rent a vehicle despite my low rating
So that I can still access transportation while paying appropriate premiums

Acceptance Criteria:

Given I am a driver with ACTIVE status but rating < 3.0
When I request a vehicle for 5 days
Then the system should apply a 25% driver premium to base pricing
And require additional insurance coverage
And create a contract with stricter terms
And generate an invoice reflecting the premium pricing

User Story 3: Vehicle Maintenance Blocking
As a system administrator
I want to prevent rentals of vehicles requiring maintenance
So that customer safety is maintained and vehicle damage is prevented

Acceptance Criteria:

Given a vehicle has status MAINTENANCE or mileage > 50,000 miles
When a driver attempts to request this vehicle
Then the system should reject the rental request
And suggest alternative available vehicles
And log the rejection reason for audit purposes

And notify maintenance team if required