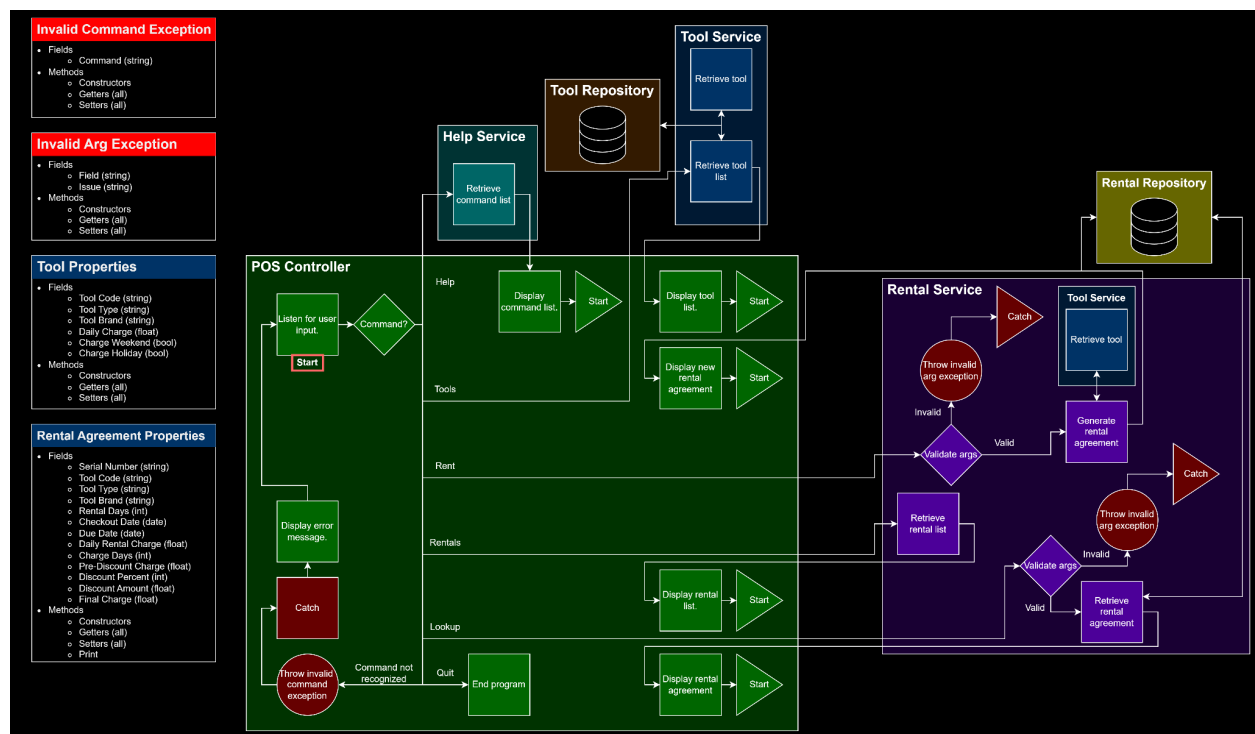


Tool Rental

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Visual Aid



Problem

As an applicant, I want to design and implement a technical solution to the prompt provided by Cardinal Financial.

Specs

- Application
 - Technologies
 - Java
 - Junit
 - Mockito
 - Lombok
 - No UI required.
 - No database required.
 - Purpose
 - POS app for a hardware store.
 - A customer rents tools for a number of days.
 - Upon rental, the application produces a Rental Agreement.
 - Each day of rental accrues a daily rental fee, varied by tool type.
 - Certain tools are free-of-charge on weekends and holidays.
 - Clerks may apply discounts to customers on certain days of the rental period, reducing the overall due amount.

Solution

- Preface
 - Considering the application would work much like the backend API for a POS UI, I will be structuring it as such.
 - Without a database component, I will be using an initialization method to populate what would be the database layer. These will be basic objects with getters and setters like standar VO's.
- Controller
 - Acts as the entry point for the application. This will contain the IO loop required to interface with the application in the absence of a UI component.
 - This controller class will receive user requests, direct the request to the proper service class, catch any exceptions, and output proper responses.
- Help Service
 - The help service is a product of the constraints of the project.
 - In the absence of a UI, the user may need some additional assistance in interfacing with the application properly.
 - The help service will provide the instructions list required for the user.
- Tool Service
 - The tool service will handle retrieving the list of tools and individual tools by tool code.
- Rental Service
 - The rental service will handle requests regarding renting tools.
 - The rental service will handle the generating and looking up Rental Agreements.

- Invalid requests will throw an exception that will be bubbled up to the controller for handling.
- Tool Repository
 - The tool repository is the stand in for the tool database component.
 - The tool repository will store tool information and be used for retrieving tool details to generate rental agreements and lookup tool details.
- Rental Repository
 - The rental repository is the stand in for the rental agreement database component.
 - The rental repository will store generated rental agreements and be leveraged when looking up rental agreements.