Reward Point System

Project Description

A Spring Boot application for managing customer transactions and calculating reward points based on spending patterns.

## Features

* Customer Management
  + Registration & Login
  + Email uniqueness validation
* Transaction Tracking
  + Add/Update/Delete transactions
  + View transaction history
  + Reward Points Calculation
  + Real-time point calculation (50-100 = 1pt, >100 = 2pts per dollar)
  + 3-month reward summary
* Exception Handling
  + Custom exceptions (`ResourceNotFound`, `DuplicateEmail`, etc.)
  + Global exception handler with consistent JSON responses

## Tech Stack

|  |  |
| --- | --- |
| Backend | Spring Boot 3.4.3 |
| Database | PostgreSQL 9.3 |
| ORM | Spring Data JPA + Hibernate |
| API Docs | OpenAPI 3.0 (Swagger UI) |
| Utilities | Lombok (Boilerplate reduction)  ModelMapper (DTO-Entity conversion) |

## API Endpoints

**Customer API**

|  |  |  |
| --- | --- | --- |
| **Endpoint** | **Method** | **Description** |
| /customers/register | POST | Register new customer |
| /customers/login | POST | Customer login |

**Transaction API**

|  |  |  |
| --- | --- | --- |
| **Endpoint** | **Method** | **Description** |
| /transactions/add | POST | Add new transaction |
| /transactions/customer/{customerId} | GET | Get all transactions for customer |
| /transactions/update/{transactionId} | PUT | Update transaction |
| /transactions/delete/{transactionId} | DELETE | Delete transaction |

**Rewards API**

|  |  |  |
| --- | --- | --- |
| **Endpoint** | **Method** | **Description** |
| /rewards/customer/{customerId} | GET | Get all reward records |
| /rewards/last-three-months/{customerId} | GET | Get formatted 3-month reward summary |

## Exception Handling

|  |  |  |
| --- | --- | --- |
| **Exception** | **HTTP Status** | **Trigger Condition** |
| ResourceNotFoundException | 404 | Entity not found |
| DuplicateEmailException | 409 | Email already registered |
| InvalidInputException | 400 | Invalid request data |