Group Report

ITSS Software Development - IT3290E

Project: EcoBikeRental

Solution for Bike Renting Management



Outline

- I. Overview
- II. Interaction Diagram
- III. Class Diagram
- IV. Design Consideration

Overview

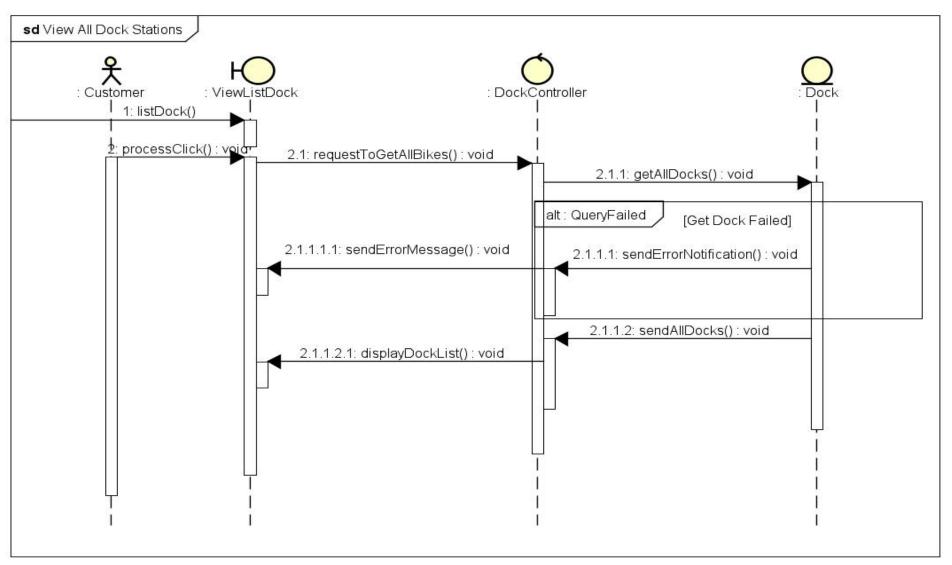
- Programming Language: Dart
- Framework: Flutter
- Database Management System: PostgreSQL
- Using Subsystem: Interbank System for Card Management,
 Database System for Getting Data from Database

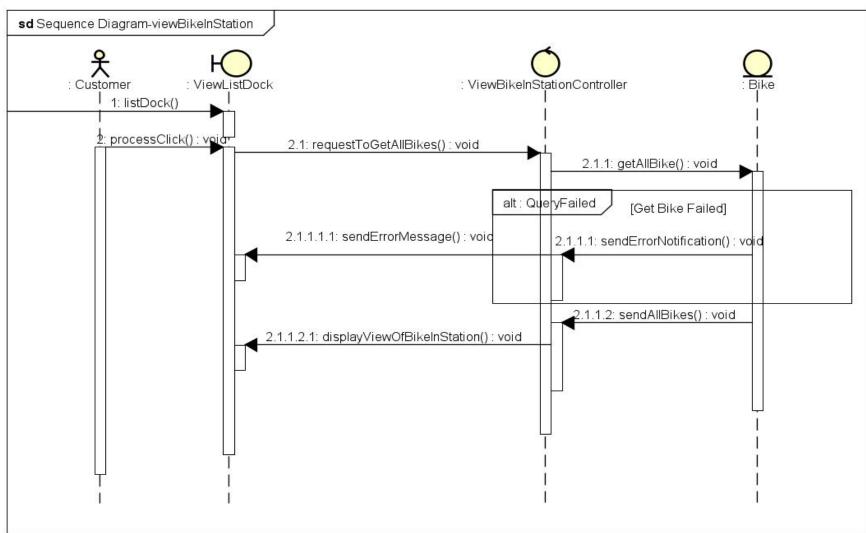
Overview

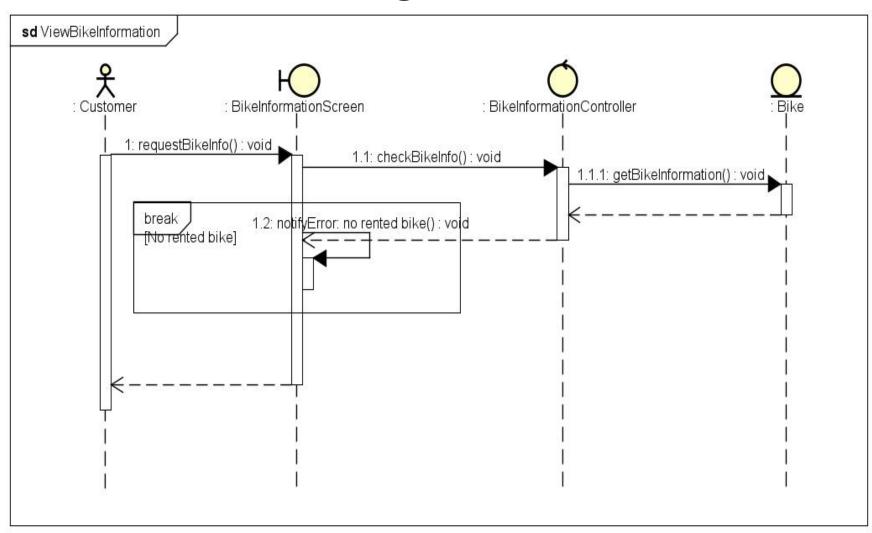
- Member of this project:
 - Vu Trung Dung 20176727
 - Nguyen Xuan Hoang 20176763
 - Nguyen Trung Nghia 20176835
 - Nguyen Ngoc Quy 20143712

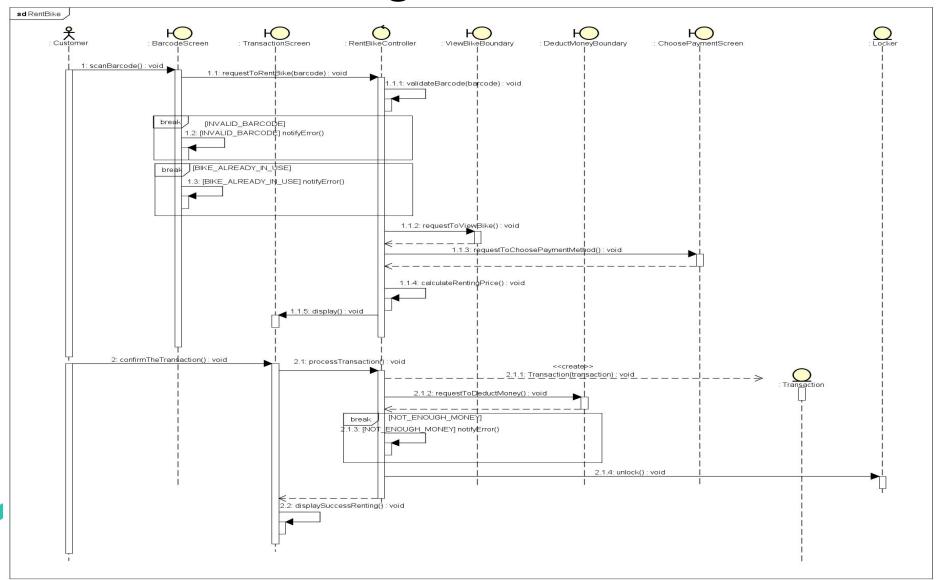
Overview

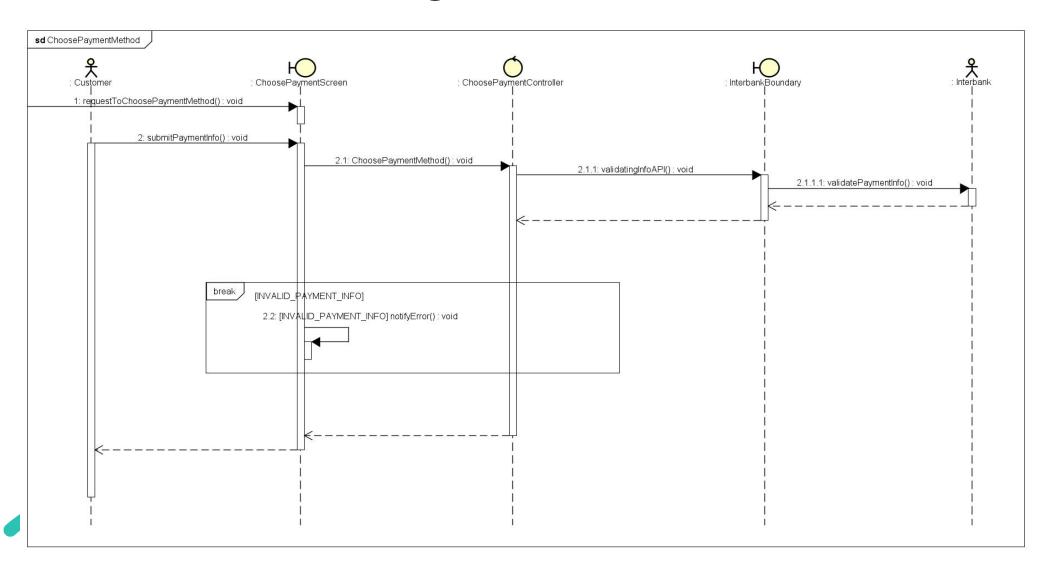
- Contribution:
 - SRS Documentation: Vu Trung Dung (20%), Nguyen Xuan Hoang (20%), Nguyen Trung Nghia (25%), Nguyen Ngoc Quy (35%)
 - SDD Documentation: Vu Trung Dung (20%), Nguyen Xuan Hoang (20%), Nguyen Trung Nghia (30%), Nguyen Ngoc Quy(30%)
 - Programming: Vu Trung Dung (40%), Nguyen Xuan Hoang (35%), Nguyen Trung Nghia (15%), Nguyen Ngoc Quy(10%)
 - Testing: Vu Trung Dung (20%), Nguyen Xuan Hoang(30%), Nguyen Ngoc Quy(30%), Nguyen Trung Nghia (20%)

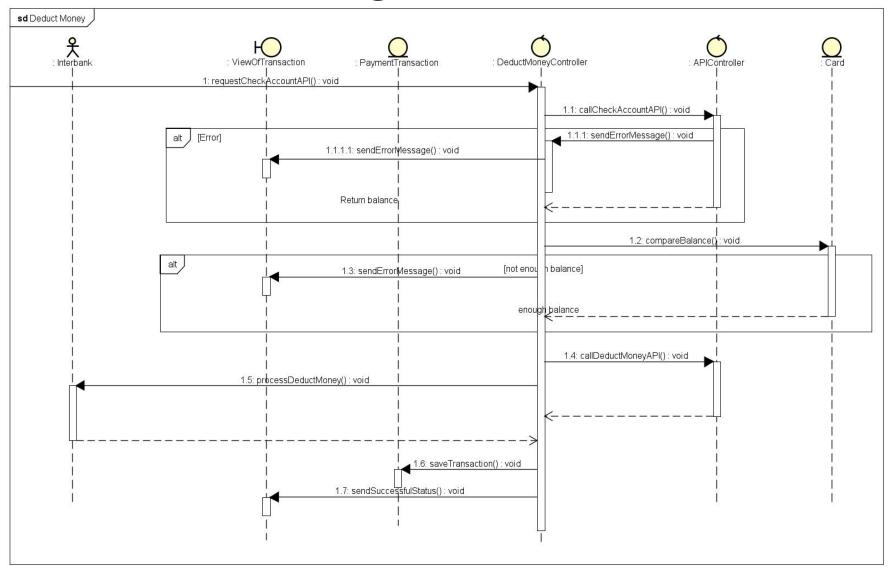


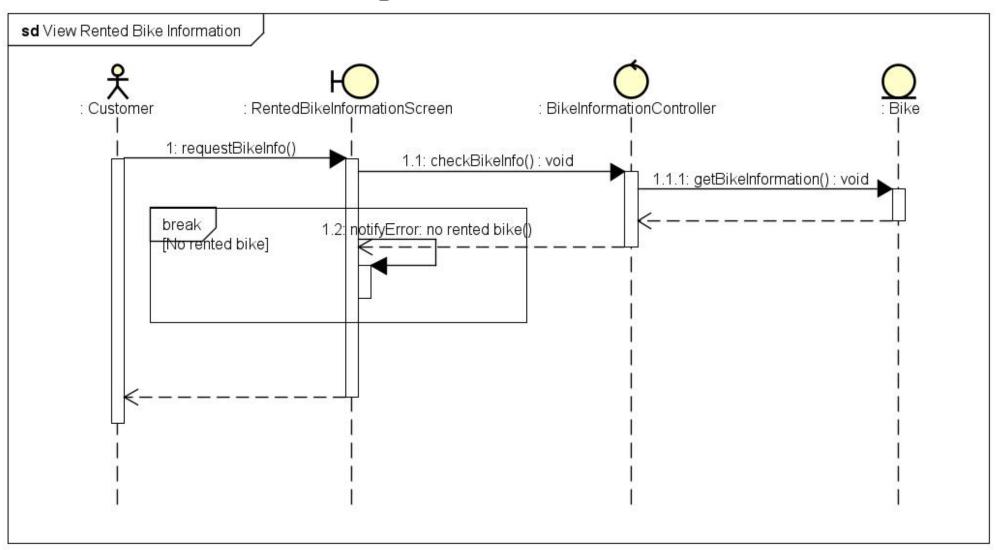


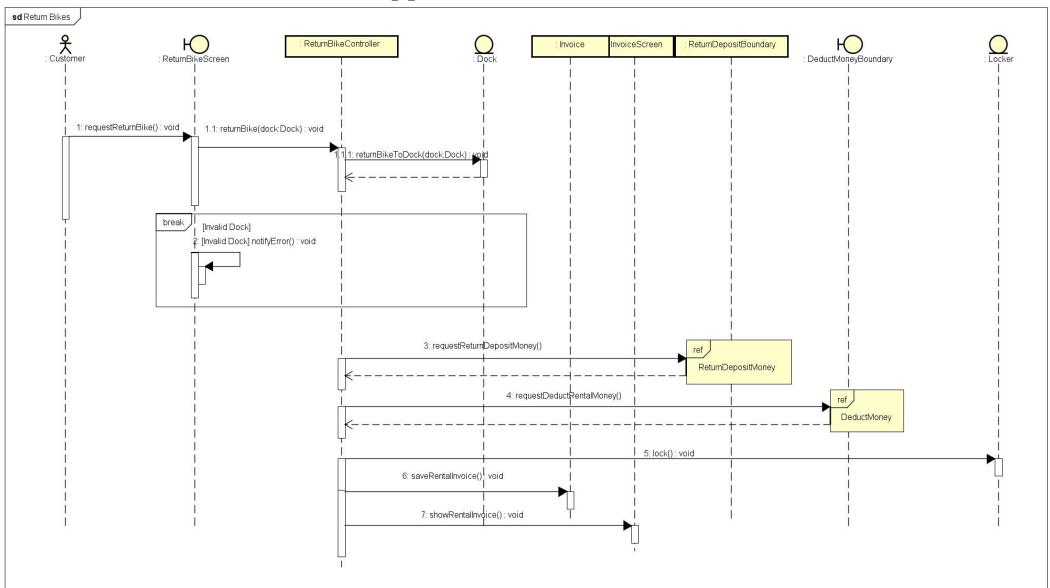


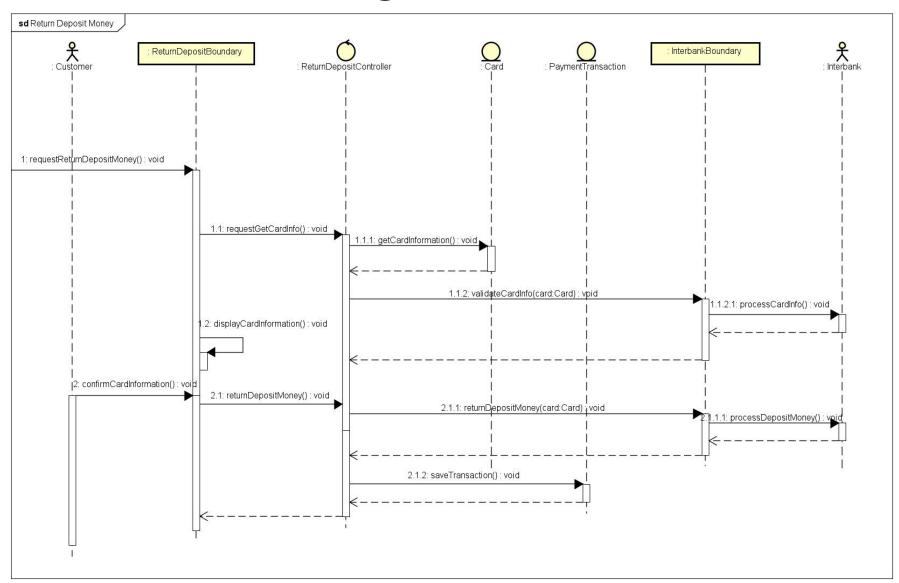




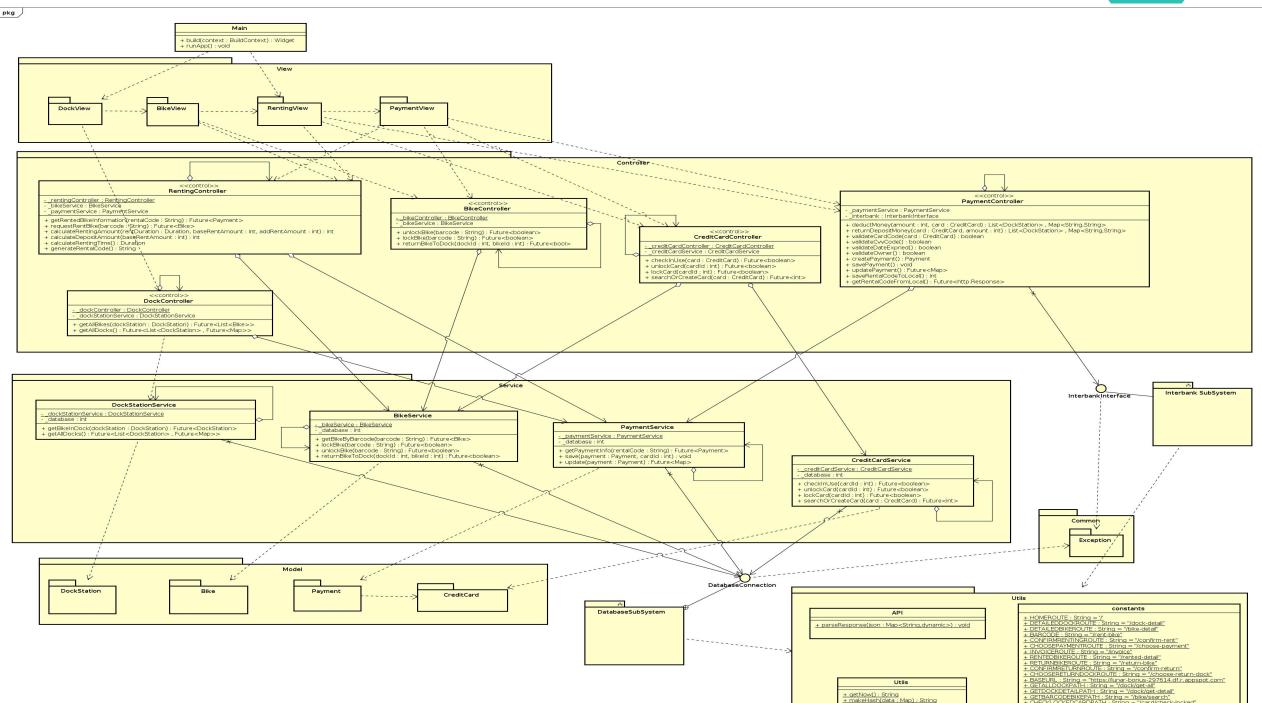


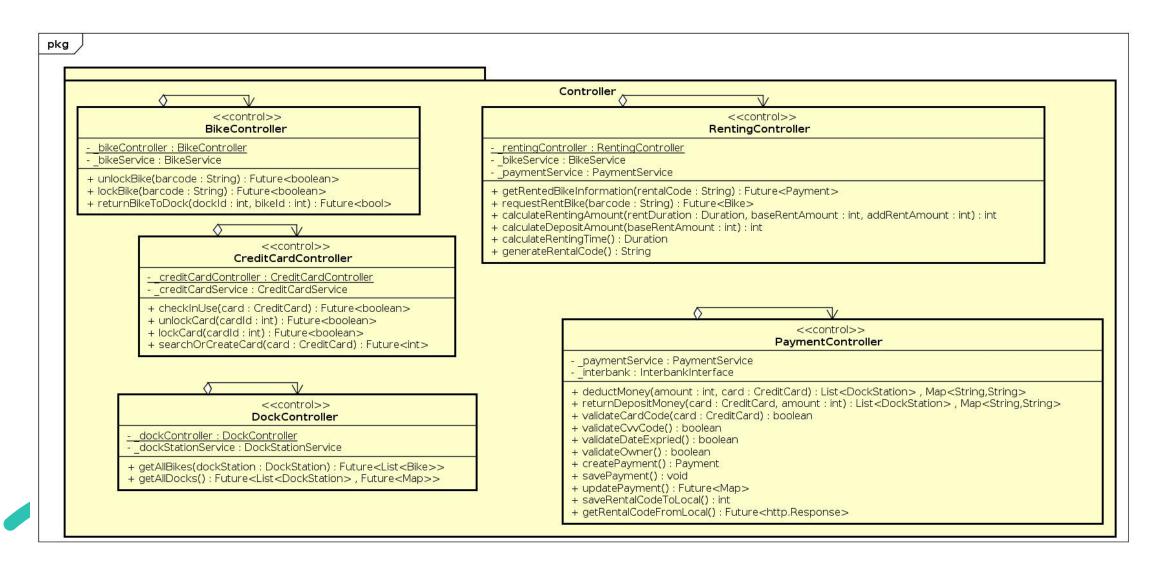


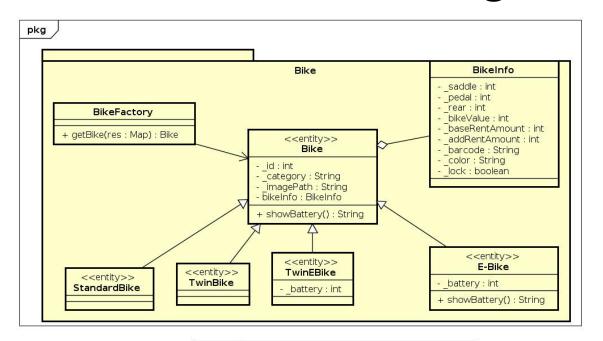


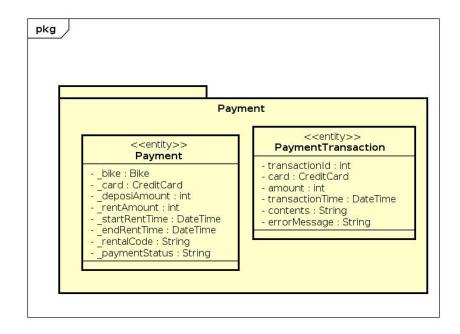


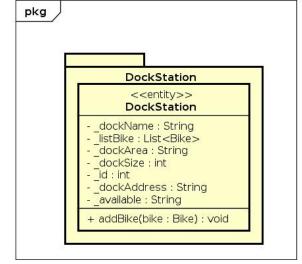
General Class Diagram

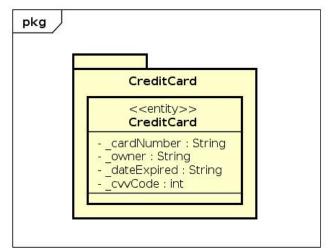


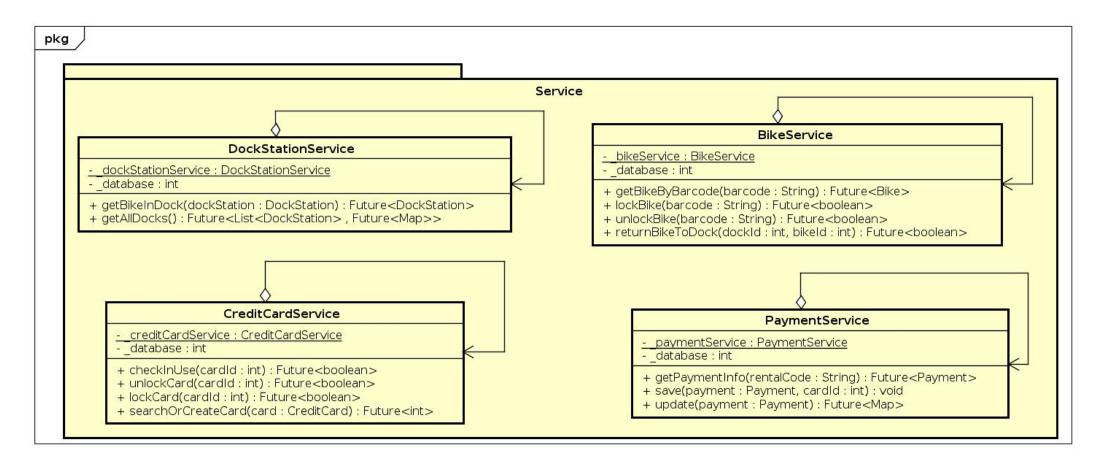


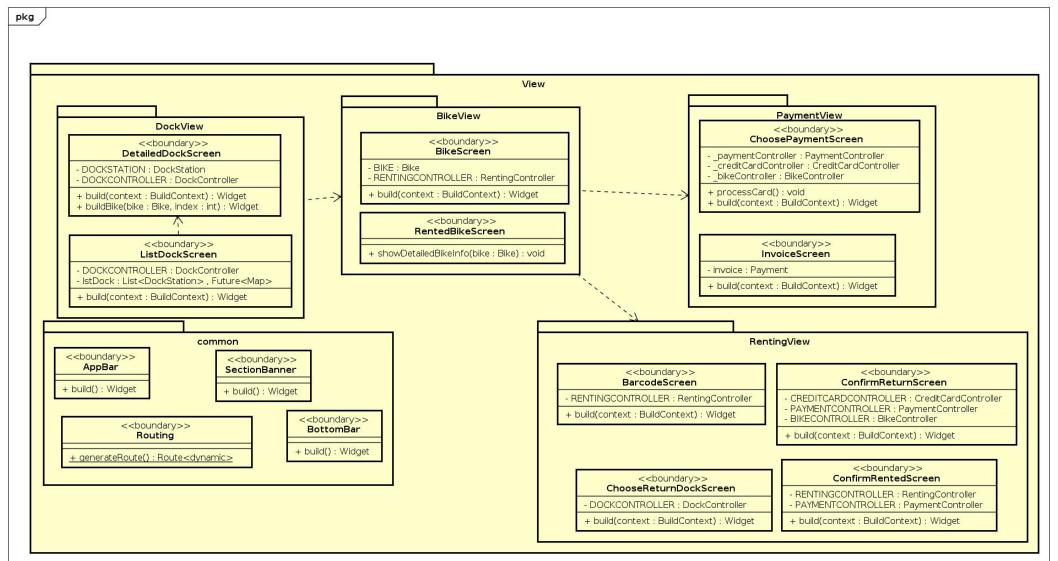


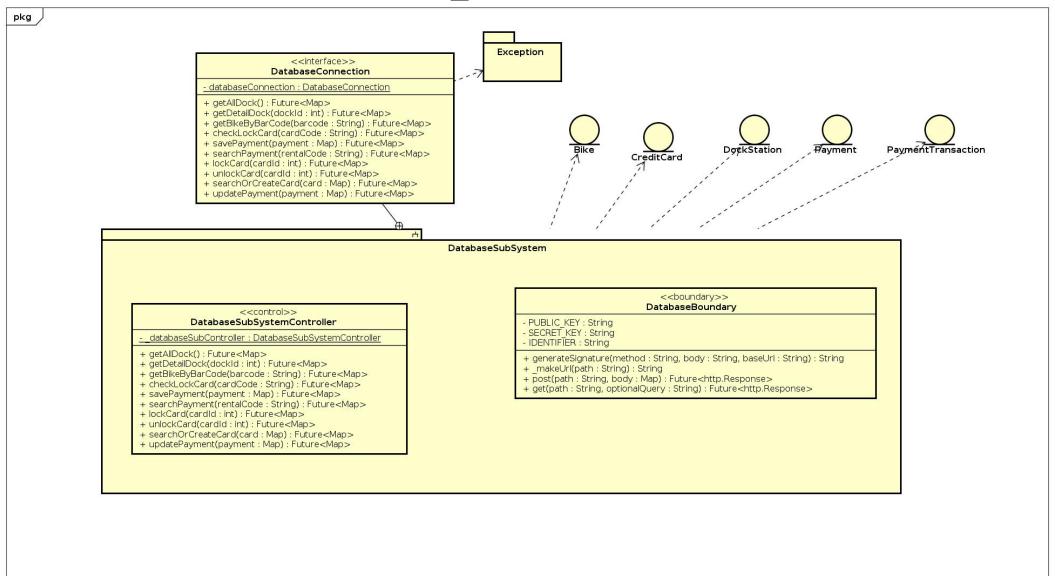












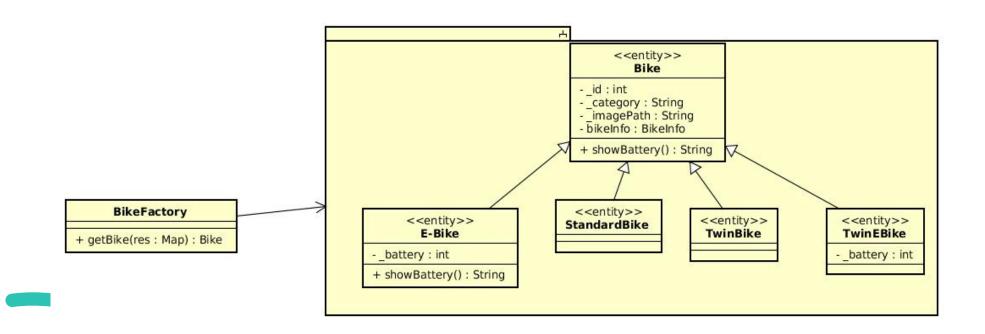
- Coupling: Our Project has both Data Coupling & Control Coupling:
 - Data Coupling: RentingController class only knows how to get data from Bike Entity class and use it for a totally different method to take it to the View package
 - Control Coupling: In class BikeFactory, we pass the parameter "category" string to know which category will be taken, then return the responding child class Ebike or Standardbike,...

- Cohesion: Our Project Use Functional Cohesion:
 - calculateRentingAmount method in RentingController class performs the calculation task and sends it to RentedBikeView. The RentedBikeView class only renders the returned value.

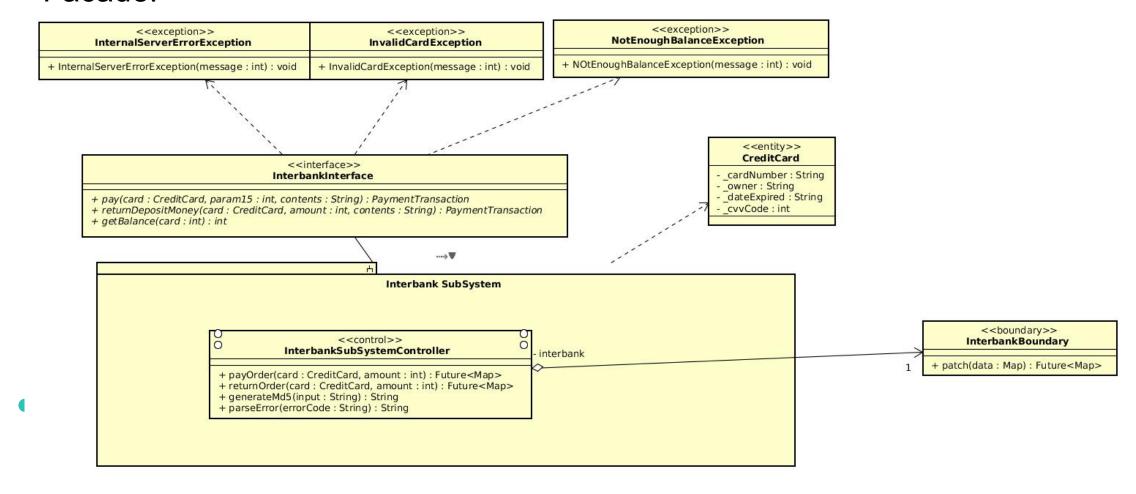
- Design Pattern:
 - Singleton:

BikeService - bikeService : BikeService - database : int + getBikeByBarcode(barcode : String) : Future<Bike> + lockBike(barcode : String) : Future<boolean> + unlockBike(barcode : String) : Future<boolean> + returnBikeToDock(dockId : int, bikeId : int) : Future<boolean>

- Design Pattern:
 - Factory Method:

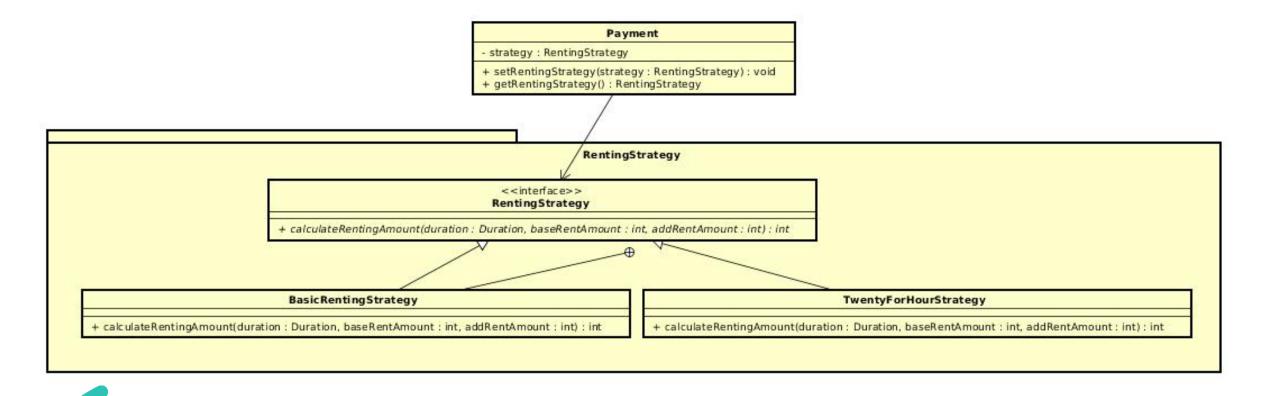


- Design Pattern:
 - Facade:



- Additional Requirement:
 - Add New Kind of Bike:

- Additional Requirement:
 - Add new Renting Type:



- Additional Requirement:
 - Add Pause Time Features:
 - In this additional requirement, we will consider in the Rented Bike View Screen to pause counting up the duration. Then the renting amount will not be counted until the user push the button to unlock the bike, the duration will continue.

THANK YOU!