



# M3 Integration Team – Assignment – REST Application

## Description

Design and implement a car rental application as REST service. You can keep data objects in-memory. You can define the data types and structure yourself, but they should have the business meaning. You need to create a backend application which provides the REST service and a client application which uses those services and makes concurrent random calls.

## Business Requirements (Minimum)

- Register a car with its plate number
- Register availability of a car from date/time, to date/time, rental price per hour
- Search for available cars to rent from date/time, to date/time, maximum rental price per hour
- Register a user (to rent a car)
- Book a car from date/time, to date/time, user id, car id
- Report of booked cars from date/time, to date/time
- Report of number of booked cars per hour from date, to date
- Report of total payment from date, to date

## General Requirements

- In addition to the backend, you should also implement a client application which simulates 5 users who register cars and get reports and 10 users who book cars. They should run until the client program is stopped.
- In the backend application, provide at least 1 system test case which should be run using a different maven profile.
- The application should be able to handle concurrent requests while maintaining data integrity.
- It should handle exceptions and error cases gracefully.
- You can choose any open source framework/server to help you run your application.
- You need to provide a simple documentation on your design and how to build, run tests and run and test the application.
- You should use Java (minimum version 8) and Maven 3+ for build.
- You can send your code in a ZIP or host it on for example GitHub or GitLab or similar.
- We should be able to build, run tests and run the application and test it without any changes or configuration needed.
- You should make the application executable using Maven.