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**FlixBus**  
**Supplementary Specification**

**Version 1.0**

FlixBus	Version: 1.0
Supplementary Specification	Date: 12/03/2019
Project_SupplementarySpecification.pdf	

## Revision History

Date	Version	Description	Author
12/03/2019	1.0	Initial Requirements Statement	Paul Linca

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# Supplementary Specification

## 1. Introduction

The Supplementary Specification captures the system requirements that are not readily captured in the use cases of the use-case model. Such requirements include:

- Legal and regulatory requirements, including application standards.
- Quality attributes of the system to be built, including usability, reliability, performance, and supportability requirements.
- Other requirements such as operating systems and environments, compatibility requirements, and design constraints.

## 2. Non-functional Requirements

### 2.1 Availability

The system is not expected to be used in urgent scenarios so we can afford a SLA<sup>1</sup> of 99.5%. This translates into a yearly downtime of roughly 1 day and 19 hours, or a monthly downtime of 3 hours and 39 minutes. This time can be used to perform software updates, data compression and garbage collection.

### 2.2 Performance

Performance isn't the most important feature of the system but should also not be passed as insignificant. The better performance, the less will our user be stressed. Thus, we can allow a response time of up to 30 seconds for purchase submissions in the worst-case scenario. The average response time, however, depending on the load of the system, should be 1 second. The time of processing the monetary transaction is not in our control.

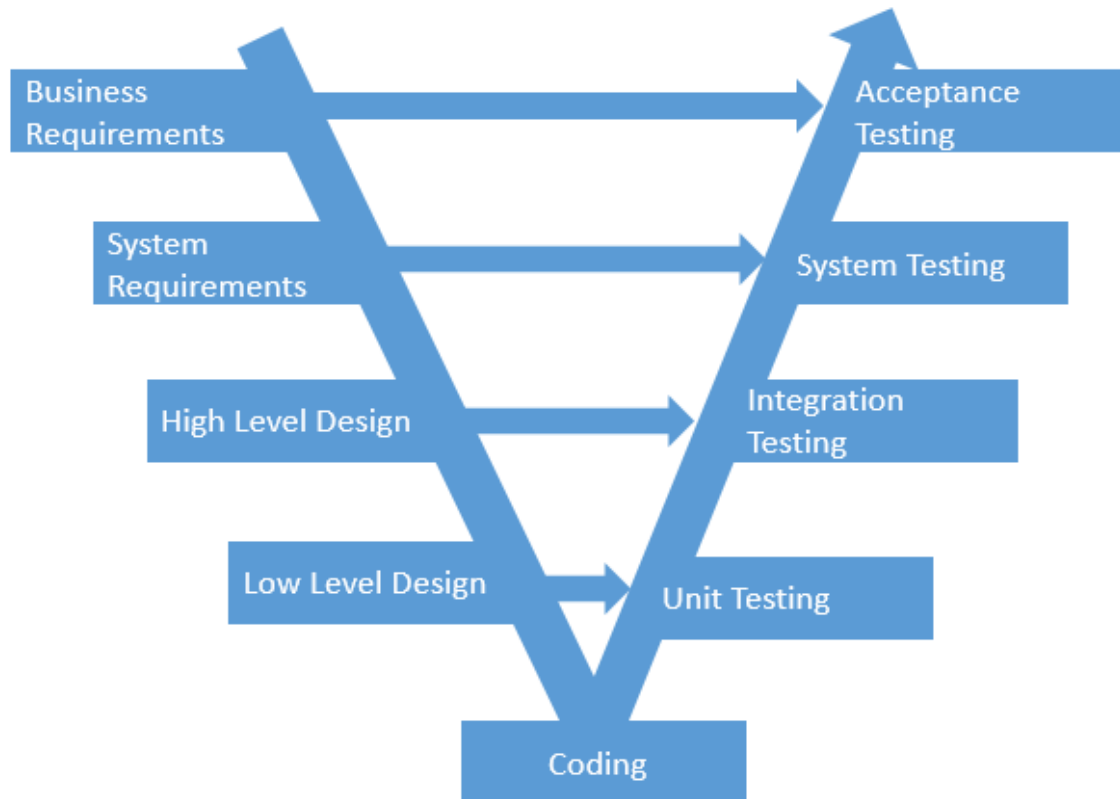
### 2.3 Security

The system will be secured using https encrypted connections. Also, we will demand user authentication and will not keep passwords in plain text. Other user data will not be encrypted as we do not find it as being sensible information.

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## 2.4 Testability

The business logic of the application must be tested independently from the user interface. We will employ V-Model testing as illustrated in the figure below. We aim to have over 90% test coverage, through unit and integration tests. With respect to manual testing, the system will log all information that is not displayed in the user interface, so that the system is fully observable and testable.



## 2.5 Usability

The user should be able to reach any desired goal in under 20 mouse clicks. Before any modification of a purchase, the user must be presented a confirmation dialog that describes the consequences of the action. The ticket inspector should be able to check the validity of any ticket fast and efficiently since there will be many passengers on the bus, so under 5 clicks this operation should be executed.

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### 3. Design Constraints

The system is constrained to use Java 8 as implementation language. The software development process will be the Rational Unified Process (RUP), tailored to fit the team and the project. The conceptual architecture of the system will be a client server as illustrated in the figure below. The required development tools are either Eclipse IDE or IntelliJ IDEA. In terms of libraries we will use: JavaFX, Hibernate, JDBC and GSON.

