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Software Engineering 2: My Taxi Service  
**Integration Testing Plan Document**

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# Contents

<b>1</b>	<b>Introduction</b>	<b>2</b>
1.1	Revision History . . . . .	2
1.2	Purpose . . . . .	2
1.3	List of Reference Documents . . . . .	2
<b>2</b>	<b>Integration Strategy</b>	<b>3</b>
2.1	Entry Criteria . . . . .	3
2.2	Elements to be Integrated . . . . .	3
2.3	Integration Testing Strategy . . . . .	3
2.4	Sequence of Component . . . . .	3
<b>3</b>	<b>Individual Steps and Test Description</b>	<b>5</b>
3.1	Integration test cases . . . . .	5
3.1.1	Integration test case I1 - REGISTRATION . . . . .	5
3.1.2	Integration test case I2 - LOGIN . . . . .	5
3.1.3	Integration test case I3 - RIDE CREATION . . . . .	5
3.1.4	Integration test case I4 - REQUEST . . . . .	6
3.1.5	Integration test case I5 - RESERVATION . . . . .	6
3.1.6	Integration test case I6 - JOIN . . . . .	6
3.1.7	Integration test case I7 - UNJOIN . . . . .	7
3.1.8	Integration test case I8 - CANCEL RESERVATION . . . . .	7
3.1.9	Integration test case I9 - DRIVER ACCEPTANCE/REFUSE . . . . .	7
3.1.10	Integration test case I10 - DRIVER STATUS CHANGE . . . . .	8
<b>4</b>	<b>Tools and Test Equipment Required</b>	<b>9</b>
<b>5</b>	<b>Program Stubs and Test Data Required</b>	<b>10</b>

# **1 Introduction**

## **1.1 Revision History**

- 15/01/2016 First redaction of the document

## **1.2 Purpose**

This document is the Integration Testing Plan Document for myTaxiService project. The purpose of this document is to list all the tests that will be performed on the my taxi service application. In particular we will focus on the integration part, describing how the test will be executed, which components will be tested and in which order. We will also list all the tools used to perform the integration tests.

## **1.3 List of Reference Documents**

- MyTaxiService Requirement Analysis and Specification document: `RASD.pdf`
- MyTaxiService Design document: `DD.pdf`
- Assignment 4: integration test plan: `Plan.pdf`
- Integration Test Plan Example document: Integration Test Plan: `Example.pdf`

## **2 Integration Strategy**

### **2.1 Entry Criteria**

Before integration tests may begin all the primary functions and components of the application must be finished and working. Specifically: registration, login, requests, reservation and taxi sharing functions must work as planned. To do so all the components listed in the design document must be working as well. Exception made for the user interface component.

### **2.2 Elements to be Integrated**

The components to be integrated are:

- Client component
- Ride manager component
- User manager component.

For a more detailed description on how these components should work refer to architectural design section of the Design Document

### **2.3 Integration Testing Strategy**

We will adopt a bottom-up testing strategy, integrating first the sub-components and later on the higher level. We choose this strategy because the sub-components of our system are independent one to each other and they can be integrated separately.

### **2.4 Sequence of Component**

Since we adopt a bottom-up integration strategy, we will start from the lower level component (database manager), then the components that directly access the database, thus account and rider creator, then the manager of those components and finally the user interface.

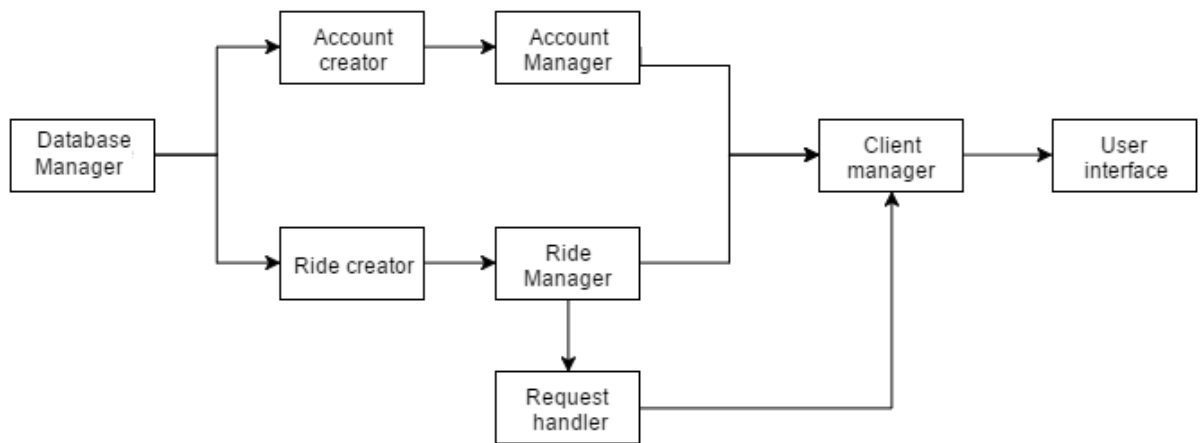


Figure 1: This flowchart show the sequence of integration of the components

### 3 Individual Steps and Test Description

#### 3.1 Integration test cases

##### 3.1.1 Integration test case I1 - REGISTRATION

<b>Test Procedure Identifier</b>	I1T1
<b>Test Item(s)</b>	Account Creator → Database Manager
<b>Input Specification</b>	Create a typical and well formed Account Creator input.
<b>Output Specification</b>	Check if the Database Manager fulfills the tasks given by the Account Creator and if the correct methods are called in the Database Manager
<b>Description</b>	The test must check if every type of given methods work fine and if the Database Manager creates the account in the correct way with an INSERT.
<b>Environmental Needs</b>	Database available

##### 3.1.2 Integration test case I2 - LOGIN

<b>Test Procedure Identifier</b>	I2T1
<b>Test Item(s)</b>	Client Manager → Account Manager
<b>Input Specification</b>	Create a typical and well formed Client Manager input.
<b>Output Specification</b>	Check if the correct functions are called properly in the Account Manager
<b>Environmental Needs</b>	I1 succeeded, Database working

### 3.1.3 Integration test case I3 - RIDE CREATION

<b>Test Procedure Identifier</b>	I3T1
<b>Test Item(s)</b>	Ride Creator → Database Manager
<b>Input Specification</b>	Create a typical and well formed Ride Creator input.
<b>Output Specification</b>	Check if the correct methods are called in the Database Manager.
<b>Test Description</b>	The test must check if every type of given methods work fine and if the Database Manager creates every kind of ride in the correct way with a the right INSERT.
<b>Environmental Needs</b>	Database available

### 3.1.4 Integration test case I4 - REQUEST

<b>Test Procedure Identifier</b>	I4T1
<b>Test Item(s)</b>	Client Manager → Request Handler
<b>Input Specification</b>	Create a typical and well formed Client Manager input.
<b>Output Specification</b>	Check if the correct methods are called in the Request Handler.
<b>Environmental Needs</b>	I3 succeeded, Database working

### 3.1.5 Integration test case I5 - RESERVATION

<b>Test Procedure Identifier</b>	I5T1
<b>Test Item(s)</b>	Client Manager → Request Handler
<b>Input Specification</b>	Create a typical and well formed Client Manager input.
<b>Output Specification</b>	Check if the correct methods are called in the Request Handler.
<b>Environmental Needs</b>	I1, I3 succeeded

### 3.1.6 Integration test case I6 - JOIN

<b>Test Procedure Identifier</b>	I6T1
<b>Test Item(s)</b>	Client Manager → Ride Manager
<b>Input Specification</b>	Create a typical and well formed Client Manager input.
<b>Output Specification</b>	Check if the correct methods are called in the Ride Manager.
<b>Test Description</b>	It produces the activation of different TRIGGERS, the methods must work fine and activate the right ones.
<b>Environmental Needs</b>	I3, I4,I6 succeeded.

### 3.1.7 Integration test case I7 - UNJOIN

<b>Test Procedure Identifier</b>	I7T1
<b>Test Item(s)</b>	Client Manager → Ride Manager
<b>Input Specification</b>	Create a typical and well formed Client Manager input.
<b>Output Specification</b>	Check if the correct methods are called in the Ride Manager.
<b>Test Description</b>	The un UNJOIN, like the JOIN, may produce the activation of different TRIGGERS, the methods must work fine and activate the right ones.
<b>Environmental Needs</b>	I3, I4, I6 succeeded.

### 3.1.8 Integration test case I8 - CANCEL RESERVATION

<b>Test Procedure Identifier</b>	I8T1
<b>Test Item(s)</b>	Client Manager → Ride Manager
<b>Input Specification</b>	Create a typical and well formed Client Manager input.
<b>Output Specification</b>	Check if the correct methods are called in the Ride Manager.
<b>Test Description</b>	Tests must check every typical situation with the normal reservations and the shared rides as explained in the RASD.pdf
<b>Environmental Needs</b>	I3 succeeded.



### 3.1.9 Integration test case I9 - DRIVER ACCEPTANCE/REFUSE

<b>Test Procedure Identifier</b>	I9T1
<b>Test Item(s)</b>	Client Manager → Ride Manager
<b>Input Specification</b>	Create a typical and well formed Client Manager input.
<b>Output Specification</b>	Check if the correct methods are called in the Ride Manager.
<b>Environmental Needs</b>	I4 succeeded

### 3.1.10 Integration test case I10 - DRIVER STATUS CHANGE

<b>Test Procedure Identifier</b>	10T1
<b>Test Item(s)</b>	Client Manager → Account Manager
<b>Input Specification</b>	Create a typical and well formed Client Manager input.
<b>Output Specification</b>	Check if the correct methods are called in the Account Manager.
<b>Test Description</b>	Check on the methods called and a simple check in the database before and after UPDATE.
<b>Environmental Needs</b>	Database working

## 4 Tools and Test Equipment Required

The software tools used to automate the integration testing are the following:

**JUnit** JUnit is the most used unit testing framework in Java. We use it to tests the single components, but it can also be used for integration testing with Mockito and Arquillian.

**Arquillian** Arquillian is a test framework which can also manage the test of the containers and their integration with JavaBeans.

**Mockito** Mockito is a framework used to generate mockups for unit testing, stubs and drivers. We use it to mock stubs and drivers for the components to test.

## 5 Program Stubs and Test Data Required

We'll begin the integration test when the primary functions of the application are developed. It may happen that some secondary software components are not fully developed when we will begin the tests. We will then need stubs and drivers for those components that still doesn't exists.

**Test database:** the testing environment need to include a DBMS configured in the same way it will be deployed when the whole system is complete.

**Lightweight client:** to test the business tier without a complete client application, we need a simple client that interacts with the business tier by simple HTTP requests.

**Stub of the Business Tier:** used to provide a set of data to test the web tier when the business tier is not fully developed.