myTaxiService

Design Document

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Contents

Chapter 1

Introduction

1.1 Purpose

This document contains the complete design description of myTaxiService. This includes the architectural features of the system down through details of what operations each code module will perform and the database layout. It also shows how the use cases detailed in the RASD will be implemented in the system using this design. The primary audiences of this document are the software developers.

1.2 Scope

MyTaxiService is a taxi service for a large city. The main goals of the system are:

- simplify the access of passengers to the service
- guarantee a fair management of taxi queues

The system architecture will be a three-tier architecture: client, server application and database. It will be created by using the MVC architectural pattern.

The system will be divided into components with respect to the principles leading to good design:

- Each individual component will be smaller in order to be easier to understand
- Coupling will be reduce where possible
- Reusability and flexibility will be increase in order to make easier future implementation

The system will have efficient algorithm in order to increase its performance; in the document will be given special attention to the sharing algorithm.

1.3 Definitions, Acronyms, Abbreviations

Definitions

- User: person that uses the service applications
- Visitor: user that has not registered nor logged in
- Registered user: user that has registered to the service
- Passenger: passenger registered to the service
- Taxi driver: taxi driver registered to the service
- System: the union of software and hardware to be developed and implemented

Acronyms

- RASD: requirements analysis and specification document
- AES: Advanced Encryption Standard
- FIFO: First In First Out
- ETA: estimated time of arrival
- API: application programming interface
- GPS: Global Positioning System
- MVC: Model View Controller

1.4 Reference Documents

- Software Engineering 2 Project AA 2015/2016: Project Description And Rules
- Software Engineering 2 Project AA 2015/2016: Assignments 1 and 2 (RASD and DD)
- Software Engineering 2 Project AA 2015/2016: Structure of the design document

1.5 Document Structure

This document is essentially structured in seven parts:

- Introduction: it gives a description of the document and some basical information about the system design and archicture.
- Architectural Design: This is the core of the document. It gives general information about the architectural design. It also describes how the system will be divided into components and how the components communicate. It also has a description of the design pattern and architectural styles that will be used.
- Algorithm Design: it gives a description of the main algorithm that will be implemented. More focus will be given in the sharing algorithm.
- User Interface Design: it gives a description of the user interfaces of the system and the flow from one interfece to another.
- Requirements Traceability: this section documents the life of a requirement and provides bi-directional traceability between various associated requirements.
- References: it gives information on the guidelines used in order to redact this document.
- Appendix: it provides informations that are not considered part of the actual DD. It includes: software and tools used, project group organization.

Chapter 2

Architectural Design

2.1 Overview

2.2 High level components and their interaction

2.3 Component view

2.4 Deployment view

2.5 Runtime view

2.6 Component interfaces

2.7 Selected architectural styles and patterns

2.8 Other design decisions

Chapter 3

Algorithm Design

Chapter 4

User Interface Design

Chapter 5

Requirements Traceability

Chapter 6

References

Appendix A

Appendix

A.1 Software and tool used

- LaTeX (http://www.latex-project.org/) : to redact and to format this document
- Balsamiq Mockups (http://balsamiq.com/products/mockups/): to create mockups
- Microsoft Office Visio 2013 (https://products.office.com/it-it/Visio/flowchart-software): to create sequence diagrams and state-charts
- Eclipse Luna (https://eclipse.org/luna/): to draw global use case and class diagrams

A.2 Working hours

This is the time spent for redact the document

- Belluschi Marco : xx hours
- Cerri Stefano : xx hours
- Di Febbo Francesco : xx hours