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- DD -

Design Document

Computer Science and Engineering

Software Engineering II

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Contents

1 Introduction

1.1 Purpose

The main target of this document is to describe the **Customer Line-Up** (*CLup*) design from a more detailed point of view. This document follows faithfully what was defined in the Requirement Analysis and Specification Document and must be read carefully before starting the software implementation in order to understand the software design in detail. Moreover, we tried to maintain independence between *DD* document and *RASD* document in order to allow greater flexibility in case you want to reuse the design model.

1.2 Scope

CLup is a booking application and nowadays this type of applications are more and more widespread in people's everyday life and are becoming more and more indispensable. For this reason, intelligent design choices have been made that extrapolate the positive aspects of existing booking apps, in order to make CLup really "achievable" in real life.

The main purpose of CLup is to facilitate customers to access at a store in **security**, both allowing them to reserve a spot on the queue for entering the store through the app and to book a visit at the store at a determined time of a certain day, selected by the customer. Thanks to this, store managers can manage the **affluence** in their store more easily, and moreover can reduce the crowd in front of the store, that is one of the main purposes of the application. Another important feature deals with obtaining statistics from customers and generic information from stores in order to help customers during their reservation. For this, the system has to store a very large amount of data. This data are mined and used later, which is why it is very important to identify the user's role so that we can provide him with more accurate and suitable information. Indeed a customer wants to provide information about the stores while, for example, a store manager is more interested in information about customer permanence in the store.

1.3 Definitions, Acronyms, Abbreviations

1.3.1 Definitions

QR Code	Bi dimensional bar code that allows the user to check-in/check-out at the store entries/exits
Reservation	Indicates both booked visits and spots on the queue to enter the store as soon as possible
Customer	The clients of the store, that uses the system to get a reservation to access the store
Store manager	The app user that access to stores' bookings, occupancy and settings, in order to manage the flow of customers
QR Code Reader	Device used to scan customers' *QR Code*
Totem	Electronic device that allows customers to physically get a spot on the queue to enter the store a soon as possible; it allows to specify the same parameters that can be inserted through the app
QR Code Printer	Device used by totems to print *QR Code*
Department	Part of the store that contains the same category of products
Query	Synonym for request

1.3.2 Acronyms

RASD	Requirement Analysis and Specification Document
DD	Design Document
ETA	Estimated Time of Arrival
GPS	Global Positioning System
API	Application Programming Interface
UML	Unified Modeling Language
DBMS	DataBase Management Service
OS	Operative System
HTTPS	HyperText Transfer Protocol over Secure Socket Layer
TCP	Trasmissione Control Protocol
IP	Internet Protocol

1.3.3 Abbreviations

IIT	Implementation, Integration and Testing
Rn	Requirement number n
ASAP	As soon as possible

1.4 Revision History

Version	Date	Changelog
1.0	29/11/2020	First version

1.5 Software and Tools

- LaTeX as software system for docuement preparation
- UMLet for the UML diagrams and other diagrams
- Photoshop for the mockups
- Git & Github as work space. The repository is here.

1.6 Reference Documents

- Specification Document
- Slides of the lectures

1.7 Document Structure

The structure of the document is thought with the intention of allowing simple navigation through it. Also, various abbreviations, highlighted in Abbreviations section, have been used to make the content smoother. Hence, the structure of the document is the following one:

- **Introduction**: this section gives a general view of the problem and describes the scope and purpose of the *DD*, including a set of definitions, acronyms and abbreviations used.
- **Architectural Design**: this section starts with a high level description of the architecture of the system and continues going into details, specifying the components and interfaces used.
- **User Interface Design**: this section presents the mockups of the application, describing how the clients can navigate the application, highlighting the actions they can do.
- **Requirements Traceability**: this section describes the connection between the RASD and the DD, identifying the relation between goals and requirements described previously and the components that allow to realize them.
- **Implementation, Integration and Test Plan**: this section establishes a plan for the development of components, identifying the conditions needed to be met before starting the development process and then maximizing the efficiency of the developer teams with a precise schedule.

- **Effort Spent**: the main focus of this section is to track the time spent to complete this project. In particular, is highlighted the subdivision of the working hours of the various sections.
- **References**: this section is dedicated to all references used in this project.