

RASD

**Requirements Analysis and Specification Document**

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# Introduction

## Purpose

Our *Requirements analysis and specification document (RASD)* contains the description of the scenarios, the most realistic use cases, and the models describing requirements and specification for the problem under consideration: CLup – Customers Line-up.

This document has the purpose to guide the developer in the realization of the software which offers concrete help during the Covid-19 emergency.

## Scope

CLup – Customers Line-up is an easy-to-use application that, on one side, allows store managers to regulate the influx of people in the building and, on the other side, saves people from having to line up and stand outside of stores for hours on end.

The necessity of an app like Clup rises in order to avoid having crowds inside the grocery shopping, which typically results in long lines forming outside, which are themselves a source of hazards during the healthcare emergency.

The application would work as a digital counterpart to the common situation where people who are in line for a service retrieve a number that gives their position in the queue.

It offers to the clients three ways to visit the supermarket:

* **Mode 1:** it would allow customers to “line up” (i.e., retrieve a number) from their home, and then wait until their number is called (or is close to being called) to approach the store. In addition, the application could be used to generate QR codes that would be scanned upon entering the store, thus allowing store managers to monitor entrances.
* **Mode 2:** in addition to managing lines in real-time, the application could also allow customers to “book” a visit to the supermarket. A customer might indicate also the approximate expected duration of the visit. Alternatively, for long-term customers, this time could be inferred by the system based on an analysis of the previous visits.
* **Mode 3:** fallback options should be available for people who do not have access to the required technology; for example, stores should also have the possibility to hand out “tickets” on the spot, thus acting as proxies for the customers.

The CLup also includes features that allow you to suggest alternative slots (on one day, or different days) to visit the store, or to recommend different stores in the same chain if the preferred one is not available, or to notify the available slots in one day/time range.

### World Phenomena

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| --- | --- |
|  |  |
| WP1 | **User needs to go to a grocery shop** |
| WP2 | **User has a smartphone** |
| WP3 | **Grocery shop has long line at the entrance** |
| WP4 | **User needs to respect rule in order to maintain social distancing due to the pandemic** |
| WP5 | **Users need to buy different things according to their necessities** |

### Shared Phenomena

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| --- | --- |
|  |  |
| SP1 | **User asks to line up in order to enter a shop** |
| SP2 | **User is assigned to his place in a virtual line** |
| SP3 | **CLup can generate a QR code for each user** |
| SP4 | **Every store can scan the QR code of the customer to monitor entrances** |
| SP5 | **CLup notify the user when it is time to go to the store** |
| SP6 | **User can require a physical ticket for the queue** |
| SP7 | **User can book a visit to the store for a future moment** |
| SP8 | **User indicates the categories of what he wants to buy and the duration of the visit** |
| SP9 | **CLup can suggest to the user alternative slot if the chosen one is occupied** |
| SP10 | **CLup can suggest a different store if the chosen one is full** |
| SP11 | **CLup can periodically suggest free slot when they are available based on the habits of the user** |

### Goals

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| G1 | **Allows store managers to regulate the influx of people in the building** |
| G2 | **Allows people to avoid hazards and wasting time lining up outside of the store** |
| G3 | **Makes easier to respect social distancing** |
| G4 | **Allows every demographic the possibility to use the service easily** |
| G5 | **Notifies the user of the right time he needs to leave the house and go to the store by keeping track of the distance (between his house and the supermarket) and his travelling habits (by car, on foot, exc.)** |
| G6 | **Gives the store the possibility to hand out physical ticket if the user has not got access to the needed technology** |
| G7 | **Allows people to book their visit in a future moment** |
| G8 | **Stores the data concerning the visits of a user** |
| G9 | **Uses the stored data to find the optimal way to plan the visits** |
| G10 | **Gives the users the possibility to always find the nearest slot to their necessity, even if in other stores [if chain-independent]** |
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## Definitions, Acronyms, Abbreviations

### Definitions

### Acronyms

### Abbreviations

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| --- | --- |
|  |  |
| WPn | **World phenomena number n** |
| SPn | **Shared phenomena number n** |
| Gn | **Goal number n** |

## Revision History

## Reference Documents

* Specification Document: “CLup-Customers Line-up Mandatory Project Assignment.pdf”
* Slides of the lectures