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CLup - Customer Line-up

RASD
Requirement Analysis and Specification Document

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Todo list

Contents

1 Introduction

General introduction. Text.
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General introduction. Text.
General introduction. Text.

This is a todo
This is a warning
This is a request
This is an info

1.1 Purpose

This document is the Requirement Analysis and Specification Document for the Customers Line-Up system. The purpose of this document is to describe the system focusing on scenarios, use cases, requirements and specifications, analyzing what the software will do, how it will be used and the constraints under which it will operate. This document is intended both for users and developers.

1.2 Scope

here we include an analysis of the world and of the shared phenomena

Customers Line-Up (CLup) is a tool that allows supermarket managers to regulate the influx of people inside physical stores and aims reduce the time spent by customers waiting in line, especially in emergency lockdown scenarios. The system allows users to This tool reaches the goal by offering a number of functionalities, including:

revise/add more

- access to the service via mobile app or website
- physical alternatives for people that do not have Internet access
- monitor the amount of people in a store
- book a visit, notifying customers of any change in the schedule
- suggest alternate stores and/or time frames
- track the time spent by customers to estimate waiting times

1.2.1 Current System

While there are already existing similar services, they are usually indipendent from store chains and therefore have limited functionalities. CLup is a service that supermarket chains can implement alongside their existing services. The system is as indipendent as possible from existing infrastructures, and it can be used with minimal setup.

1.2.2 Goals

1. Allow a User to sign up for an Account after providing a mobile phone number.
2. Allow a User to book a visit to a specific store.
   (a) Allow a User to book a visit via Mobile App.
   (b) Allow a User to book a visit via Website.
   (c) Allow a User to book a visit in a specified time.
   (d) Allow a User to book a visit as soon as possible.
3. Allow a User to find Stores nearby their current location.
4. Allow a User to find Stores nearby a specified location.
5. Allow a User to preview an estimate of the queue time.
6. Allow a User to cancel their booking.
7. Allow a User to retrieve a scannable QR Code/Barcode that they must present in order to be granted access to a store.
8. Allow a User without Internet access to retrive a ticket from a physical location that counts as a booking for a certain time.
9. Allow a User to book for someone else.
10. Allow a User to link their Account to the Store Loyalty Program.

(a) Users do not have an Account cannot are not entitled to this feature.

11. The System notifies the Users affected by delay.
12. The System will postpone Users visits in case of a delay.
13. The System will not anticipate User visits when a User delete their reservation.
14. The System must enforce the limits on the allowed number of concurrent Customers inside a store.
    (a) There can be less Customers than the limit.
    (b) There cannot be more Customers than the limit.
    (c) The queue is updated each time a Customer exits or enters the store.
15. The System will not admit Users that arrive earlier, even if the current number of Customers isn't maximum.
16. The System will grant a User access only after the User's time of booking.
17. The System will invalidate a User's booking if they do not show up during a certain time interval.
18. The System will reserve a certain number of the allowed quote of customers for a special category of Users.
    (a) The system will grant access to Users without a booking that show up at the store and are pregnant women, elderly or with disabilities.
19. Allow System Managers to set a limit to the people allowed into the store at a time.
20. Allow System Managers to not provide the physical ticket option.
21. Allow System Managers to enable the link Account to Loyalty Program feature.

Are we sure about this?

1.3 Definitions, Acronyms, Abbreviations

1.3.1 Definitions

- Customer/User/Visitor: A person that intends to shop at a store.
- Registered User: A User that has registered an Account withing the System.
- System Manager: An employee of the store chain that can tweak the parameters of the System.
- Account: A reference to a specific User in the System, that allows to track the User across multiple visits.
- Booking/Reservation: A User securing beforehand their Visit to a specific Store at a specific time.
- Visit: The time frame in which the User enters the store, shops and exits.

1.3.2 Acronyms

- RASD: Requirement Analysis and Specification Document.
- API: Application Programming Interface
- CLup: Customer Line-up
- REST: REpresentational State Transfer

1.3.3 Abbreviations

- [Gn]: n-goal.
- [Dn]: n-domain assumption.
- [Rn]: n-functional requirement.

1.4 Revision History

1.5 Reference History

- Problem Specification Document: "Assignment AY 2020-21.pdf"
- https://standards.ieee.org/standard/29148-2018.html

Should we upload it?

1.6 Document Structure

2 Overall Description

2.1 Product Perspective

here we include scenarios and further details on the shared phenomena and a domain model (class diagrams and state charts)

Customers Line-Up is developed for both shop managers and customers. The intent is to provide functionalities adding value to the interactions between the two. Managers will be able to understand more about their customers through insightful analytics and will avoid big crowds inside and outside their stores. Customers will have an easy way of avoiding lines by booking a visit to stores, and will be aided in their selection of the best place and time. The system will have two modes, one for customers who have a registered account and one for customer who don't. Customer who do not have an account will not be tracked and will not be able to receive advice.

va qua?

The system will be developed from scratch, giving great flexibility. The privacy of the customers will be guaranteed according to the latest privacy related norms.

2.1.1 Scenarios

A. Customer with Mobile App and arrives in time:
Ian wants to buy groceries to make a cake. Ian uses CLup to get a ticket for the supermarket with the shortest queue in his area. The app provides Ian with an estimate on the travel time (by car or by foot) and the time of the reserved slot. Ian arrives at the supermarket in the correct time-slot, scans the generated QR code and is granted access the store. Once he pays his groceries he scans again his QR code, so that he can increase the points associated with his account in this chain.

2.2 Product Functions

quanto fare dettagliato?

here we include the most important requirements

- Manager:
  - monitor the current status of all stores
  - obtain information on the behavior of customers
- Customer:
  - account:
    - register a new account
    - show the reservation history
    - obtain information related to the account, namely the average stay and the preferred stores
  - booking:
    - book a visit to the store
    - give advice regarding when and where to book
    - send notifications regarding the status of the reservation, its delay, or its deletion
    - cancel a reservation
  - view stores nearby and their availability

2.3 User Characteristics

here we include anything that is relevant to clarify their needs

2.4 Assumptions, Dependencies, and Constraints

here we include domain assumptions

3 Specific Requirements

Here we include more details on all aspects in Section 2 if they can be useful for the development team.

3.1 External Interface Requirements

3.1.1 User Interfaces

3.1.2 Hardware Interfaces

3.1.3 Software Interfaces

3.1.4 Communication Interfaces

3.2 Functional Requirements

Definition of use case diagrams, use cases and associated sequence/activity diagrams, and mapping on requirements

3.3 Performance Requirements

3.4 Design Constraints

3.4.1 Standards Compliance

3.4.2 Hardware Limitations

3.4.3 Any Other Constraint

3.5 Software System Attributes

3.5.1 Reliability

3.5.2 Availability

3.5.3 Security

3.5.4 Maintainability

3.5.5 Portability