

**Requirements Analysis**

**And**

**Specification Document**

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1. **Introduction**
   1. **Description of the Problem**

The aim of the project is to improve taxi services of large cities. The objective is on one hand to simplify the access by users, making bookings easier and faster, and on the other hand to grant fairness in queue assignment for taxies.

The system should be able to register two main consumer categories: User and Taxi Driver. A Taxi Driver has to be registered in order to access the service, so it can communicate its availability and accept or deny a request.

An unregistered User could call a taxi just giving its identification data, without a regular access and even without a formal registration.

A Registered User could obviously call a taxi, once it accessed the system, and also book it in advance, providing starting and arriving point.

This is the peculiarity of this product, because it implements a feature that does not exist in the actual taxi service. In fact, it is impossible to reserve a taxi well in advance without using an application like the one that has been analysed here.

* 1. **Glossary**

Before starting to describe in details the project, it is necessary to define some words that will assume a specific meaning during the documentation:

* + - GUEST: a person who has not signed up yet. Guests have no power until they sign up with one exception. If a Guest just want to call a taxi it could simply insert its identification data.
    - USER: a person that has already signed up as a costumer. It could call a taxi, as guest does, but it also could reserve it in advance, compiling a specific form.
    - TAXI DRIVER: a person who has signed up as a taxi driver. In order to complete its registration it has to provide its identification data and its driving license too.
    - SYSTEM: the environment formed by the application itself and its features.
    - QUEUE: an ordered list of taxi drivers that have previously provided their availability.
    - CALL A TAXI: the action which can be performed both by guests and user, that consists in asking for a single taxi ride without any advance.
    - RESERVE A TAXI: the action that could be performed only by Users. A user can forward the request for a taxi from a specified place to another in advance.
    - SERVICE: the service that is provided by the application.
    - CITY ZONE: each city is divided in zones. Every zone has more or less the same territorial extension, so a city zone is one of this portion of the metropolitan area.
    - DENY: when a request is not satisfied. It produce the shifting of the considered taxi driver to the bottom of the queue
  1. **Goals**

The system will provide the following features, grouped by user category:

* + - User
      * Sign Up into the system
      * Log into the system
      * Book a Taxi in advance
      * Call a taxi
    - Taxi Driver
      * Sign Up into the system
      * Log into the system
      * Give/Remove availability (Take place into a queue)
      * Respond to a request (Accept or Deny)
    - The system should track out the position of each Taxi and User in different moment for each one:
      * When a Taxi driver gives its availability
      * When User request for a Taxi
  1. **Domain Properties**
  2. **Assumption**

It is necessary to make some assumption in order to build an unambiguous system. These decisions will remain unchanged for the whole documentation:

* + - Each queue has a First In – First Out (FIFO) policy based on chronological order: when a taxi driver give its availability it will be placed in the last position of its zone queue
    - There is no way to change the position of a particular taxi driver in a queue: at every request the queue will shift of one position
    - After a predetermined time, if the person who requested the taxi fails to appear to the rendezvous point it will be considered as a deny
    - After a predetermined time, if the taxi driver is not responding to a request (is on top of the queue but it does not accept or deny) it will be considered as a deny
    - Taxis after giving its availability will not exit its zone
    - Users can have just one reservation at a time
  1. **Proposed System**
     1. **Product Perspective**

The service has to be consumed both through a web application and a mobile app. For this reason it will be implemented a web application, reachable simply by any kind of browser, and a dedicated app which will adapt the user interface of the web application to the mobile devices.

Farther the system will provide all needed APIs to grant the possibility for future implementation.

* + 1. **Constraints**
    - Regulatory Policy:
      * Privacy of all registered people must be granted; it means that the system will save all the data in order to work properly but nothing of these data will be visible or sold to third parts;
  1. **Stakeholder**

1. **Specific Requirements**
   1. **Functional Requirements**