

Application for Bike Sharing

Requirement analysis

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Risk event

1. Overview

- Our application has the scope of managing shared bicycles, providing useful means of optimizing the cost of maintenance and providing an user-friendly UI which will help users find the closest bicycle

2. What will this app do

- The user should be able to register via email / password, phone / password, or via social media (Facebook, Google), and may verify their identity using an ID card.
- Users should be able to specify a destination and/or an estimate time of release when they select a bicycle, which are optional
- The application should provide a map of bicycles, with their current status and relevant information, which may include an estimate time of release, and a destination address if specified.
- The user should be able to scan a bicycle's code (QR) which will determine the application to unlock the bicycle for the user and mark it as 'already in use'.
- The application should suggest bicycles to users in an optimized manner, and may even suggest to wait for another user having a destination in the proximity of the user and minimal arrival time to release their bike, if none are available.
- The application should 'suggest' to users places to release their bike in an optimized manner, based on the statistics of users looking for available bicycles, or based on the bicycles center location
- Users should be able to view their rent history and statistics.
- The administrators should be able to restrict the access of renting bicycles to certain users.

- The bicycles administrators should be able to track down all their bicycles and view their current status and location, and should be presented with relevant statistics of bicycles usage.
- The application should state a deadline for releasing the bicycle and provide useful notifications with the amount of time left, based on a maximum rental time which may be changed by an administrator.
- Users should be able to report any malfunctions regarding the state of the bicycles to an administrator, which will be immediately notified.

3. Components

- Mobile Application
- Web Application
- Authentication Service
- Database Module
- Web API
- Data Collection Module

4. Actors

- User
- Administrator
- Application

5. Technologies

- Java Spring - Web API
- React Native - Mobile Application
- Angular - Web Application
- PostgreSQL - Database
- Google Firebase - Authentication, Notifications
- WebSockets - Real time communication
- Google Maps - Maps integration