

**CodeKataBattle project by Russo Mario  
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**POLITECNICO**  
MILANO 1863

# **Requirement Analysis and Specification Document**

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# 1 Introduction

## 1.1 Purpose

The motivation behind the existence of the CodeKataBattle platform is to provide students with a dedicated platform for practicing their programming skills. The platform aims to create a competitive environment where teams of students can participate in programming tournaments and solve programming challenges.

By offering a platform specifically designed for programming practice, CodeKataBattle aims to provide students with a structured and engaging way to improve their coding abilities. The competitive nature of the platform adds an extra layer of motivation and excitement, encouraging students to push their limits and strive for excellence.

Overall, the motivations behind the existence of the CodeKataBattle platform are to create a dedicated space for programming practice, foster healthy competition among students, and provide a means for tracking and improving programming skills.

### 1.1.1 Goals

- G1 Educator can create a tournament
- G2 Educator can set up battles for a tournament
- G3 Student can compete in a tournament
- G4 Team of students can compete in a battle
- G5 Educator can evaluate the performance of a student in a battle
- G6 CKB notify the student about upcoming tournaments
- G7 CKB notify the student about upcoming battles

## 1.2 Scope

The scope of CKB is to provide a platform for programming practice. The platform will allow students to participate in programming tournaments and solve programming challenges. The tournaments consist of a series of battles. In order to participate to a battle a student must be subscribed to the tournament in which the battle takes place. In each battle the students have to form teams by inviting other students to join. The platform will allow educators to create tournaments. For the single tournament, the educator is able to invite other educators to join the tournament as educator. The educator is able to create battles for the tournament by uploading the code kata composed by the description and software project. In addition, he should be able to upload a set of configuration for scoring. For each battle the educator is able to set restrictions such as the minimum and maximum number of team members, the registration deadline and the submission deadline. The educator is also able to set a time limit for the battle. CKB will assign the scoring for each team of the battle based on some automated tests regarding the functional aspects, timeliness, quality of the code and the set of configuration for scoring provided by the educator for the battle. In addition to this automated scoring the educator will also be able to assign a manual scoring for each team of the battle. In order to submit the solution for a battle, CKB provides a GitHub repository. The teams must fork the repository and work on their solution in the forked repository. For each push to the remote repository CKB will be informed through an API call made with GitHub Actions which teams must set up.

### 1.2.1 World phenomena

WP1 Student wants to compete in a tournament

WP2 Educator wants to create a tournament

WP3 Educator wants to manually evaluate the performance of a student in a battle

WP4 Educator wants to set up a battle for a tournament

### 1.2.2 Shared phenomena

Phenomena controlled by the world and observed by the machine:

SP1 Student push the solution of the battle to the forked repository

SP2 Educator sets deadlines for tournaments and battles

SP3 Educator sets the configuration for scoring

SP4 Educator uploads the code kata for a battle to CKB

SP5 Educator sets the restrictions for a battle

Phenomena controlled by the machine and observed by the world:

SP6 CKB notifies the student about upcoming tournaments and battles

SP7 CKB notifies about the students about the results of the battle and the tournament

SP8 CKB shows information about the scoring of the battle and the tournament

SP9 CKB provides a GitHub repository for each battle

## 1.3 Definitions, Acronyms, Abbreviations

### 1.3.1 Definitions

### 1.3.2 Acronyms

### 1.3.3 Abbreviations

## 1.4 Revision history

## 1.5 Reference documents

## 1.6 Document structure

This document is structured as follows:

- **Introduction:** it provides a general description of the product, its purpose and the goals that the project aims to achieve. It also contains the scope of the product, the phenomena that the product will interact with and the shared phenomena between the product and the world. Finally, it contains the definitions, acronyms and abbreviations used in the document.
- **Overall Description:** TODO
- **Specific Requirements:** TODO
- **Formal Analysis:** TODO
- **Effort Spent:** TODO
- **References:** it contains the list of the documents used to redact this document.

## **2 Overall Description**

### **2.1 Product Perspective**

#### **2.1.1 Scenarios**

- 1. Student wants to compete in a tournament**
- 2. Educator wants to create a battle for a tournament**
- 3. Student invite other students to join the team**
- 4. Student push the solution of the battle to the forked repository**
- 5. Educator manually updates the score of a team**
- 6. CKB notifies student about the result of the battle**

### **3 Specific Requirements**

Organize this section according to the rules defined in the project description.



## **4 Formal Analysis Using Alloy**

Organize this section according to the rules defined in the project description.

## 5 Effort Spent

Provide here information about how much effort each group member spent in working at this document. We would appreciate details here.

## References