



**POLITECNICO**  
**MILANO 1863**

**SCUOLA DI INGEGNERIA INDUSTRIALE  
E DELL'INFORMAZIONE**

# Software Engineering 2

## Design Document

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# 1 | Introduction

## 1.1. Purpose

This document contains the design description of the *CodeKataBattle* system. It includes the architectural design, the user interface design and the description of all the operations that the system will perform. It also shows how the requirements and use cases detailed in the RASD document are satisfied by the design of the system.

This document is intended to be read by the developers of the system, the testers and the project managers. It is also intended to be used as a reference for the future maintenance of the system.

## 1.2. Scope

The *CodeKataBattle* system is a web application that allows educators to create challenges for their students based on solving programming problems. In particular the system is based on the concept of *Code Kata* that is an exercise in programming which helps a programmer hone their skills through practice and repetition. The system will allow the educators to create competition and battle based on *Code Kata*. The students will be able to participate in the battles with a team or by themselves and solve the challenges in order to earn points. The system will also provide a leader board that will show the ranking of the students based on their scores.

A more detailed description of the system can be found in the RASD document, whilst in this document is provided a detailed description of the design of the system to implement the requirements and use cases described in the RASD document.

## 1.3. Definitions, Acronyms, Abbreviations

### 1.3.1. Definitions

User	Anyone interacting with the system, it can be both a Student or an Educator
Manage	Create, supervise and edit a certain element of the application.
Code Kata	A challenge intended to improve programming abilities, including description, test cases and build automation scripts.

Table 1.1: List of definitions

### 1.3.2. Acronyms

ST	Student
ED	Educator
CKB	CodaKataBattle
RASD	Requirements Analysis and Specification Document
SAT	Static Analyzer Tool
T	Team

Table 1.2: List of Acronyms

## 1.4. Revision history

## 1.5. Reference Documents

## 1.6. Document Structure

## 2 | Architectural design

- 2.1. Overview: High-level components and their interaction
- 2.2. Component view
- 2.3. Deployment view
- 2.4. Runtime view
- 2.5. Component interfaces
- 2.6. Selected architectural styles and patterns
- 2.7. Other design decisions





## 3 | User interface design

In this section we will describe the user interface design of the system. We will provide a mockup of the main pages of the system and a description of the main functionalities of the system.

The user interface of the system is designed to be simple and intuitive. As the system is intended to be used with a desktop browser, the interfaces presented here are based on a desktop browser, but the interface is thought to be responsive and consequently usable also on mobile devices.



## 4 | Requirements traceability



# 5 | Implementation, integration and test plan



# 6 | Effort Spent

Members of group	Effort spent (hours)	
Filippo Balzarini	Introduction	<i>0h</i>
	Architectural design	<i>0h</i>
	User interface design	<i>0h</i>
	Requirements traceability	<i>0h</i>
	Implementation, integration and test plan	<i>0h</i>
	Reasoning	<i>0h</i>
Christian Biffi	Introduction	<i>1h</i>
	Architectural design	<i>4h</i>
	User interface design	<i>6h</i>
	Requirements traceability	<i>0h</i>
	Implementation, integration and test plan	<i>0h</i>
	Reasoning	<i>4h</i>
Michele Cavicchioli	Introduction	<i>0h</i>
	Architectural design	<i>5h</i>
	User interface design	<i>0h</i>
	Requirements traceability	<i>0h</i>
	Implementation, integration and test plan	<i>0h</i>
	Reasoning	<i>0h</i>

Table 6.1: Effort spent by each member of the group





## References

