



**POLITECNICO**  
**MILANO 1863**

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

# **Software Engineering 2**

## **Design Document**

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# 1 | Introduction

1.1. Purpose

1.2. Scope

1.3. Definitions, Acronyms, Abbreviations

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. Deployment view
- 2.5. Runtime view
- 2.6. Component interfaces
- 2.7. Selected architectural styles and patterns
- 2.8. Other design decisions





## 3 | User interface design



# 4 | Requirements traceability

## 4.1. Requirement Traceability

	Description	Components
R1	CKB shall allow an unregistered user to create an account	Authentication Service, Data Manager
R2	CKB shall allow users to log in	Authentication Service, Data Manager
R3	CKB shall allow ED to create competition	Dashboard Manager, Competition Manager, Data Manager
R4	CKB shall allow ED to create battle within a competition that he/she manages	Dashboard Manager, Battle Manager, Data Manager
R5	CKB shall allow ED to invite other EDs to manage battles in a competition	Dashboard Manager, Competition Manager, Battle Manager, Data Manager, Notification Service
R6	CKB shall allow ED to upload the code kata	Dashboard Manager, Battle Manager, Data Manager
R7	CKB shall allow ED to set a registration deadline to the battle	Dashboard Manager, Battle Manager, Data Manager
R8	CKB shall allow ED to set a minimum number of STs per group in a battle	Dashboard Manager, Battle Manager, Data Manager
R9	CKB shall allow ED to set the maximum number of STs per group in a battle	Dashboard Manager, Battle Manager, Data Manager
R10	CKB shall allow ED to set a final submission deadline	Dashboard Manager, Battle Manager, Data Manager
R11	CKB shall allow ED to set how to perform static analysis	Dashboard Manager, Battle Manager, Static Analyzer
R12	CKB shall allow ST to subscribe to a competition	Dashboard Manager, Competition Manager, Data Manager

R13	CKB shall send notifications about a new competition to ST	Competition Manager, Notification Service
R14	CKB shall send notification about battle created within a competition ST are subscribed in	Battle Manager, Notification Service
R15	CKB shall allow ST to join a battle on his own	Dashboard Manager, Battle Manager, Team Manager, Data Manager
R16	CKB shall allow ST to invite other ST in a T for a battle	Dashboard Manager, Team Manager, Data Manager, Notification Service
R17	CKB shall create a GitHub repository containing the description, software project and the build automation scripts	Dashboard Manager, Battle Manager
R18	CKB shall send the Github repository link to ST member of a T competing in the battle	Battle Manager, Data Manager, Notification Service
R19	CKB shall supply API to call with Github actions	Battle Manager
R20	CKB shall be able to pull sources from GitHub	Battle Manager
R21	CKB shall be able to send the ST source code to the correct SAT	Evaluator Controller, Static Analyzer
R22	CKB shall be able to receive the evaluation given by SAT on a source code	Point Manager, Data Manager
R23	CKB shall be able to run tests on code	Code Evaluator
R24	CKB shall evaluate the code in terms of test cases passed	Code Evaluator
R25	CKB shall evaluate the code in terms of timeliness	Code Evaluator
R26	CKB shall allow ED to assign a score to codes	Dashboard Manager, Team Manager, Data Manager
R27	CKB shall update the score of a T (as soon as new push actions are performed)	Evaluator Controller, Code Evaluator, Static Analyzer, Point Manager, Data Manager
R28	CKB shall allow ED to go through sources produced by Ts	Dashboard Manager, Battle Manager
R29	CKB shall notify ST when final battle ranks are available	Battle Manager, Notification Service

R30	CKB shall update the personal competition score of a ST at the end of each battle	
R31	CKB shall create a rank with students' performances in a competition	Competition Manager, Data Manager
R32	CKB shall allow ST to see all ST's rank in battle where is enrolled	Dashboard Manager, Battle Manager, Data Manager
R33	CKB shall allow ED to see all ST's ranks in the battle that he/she manages	Dashboard Manager, Battle Manager, Data Manager
R34	CKB shall allow EDs and STs to see all ST's rank in competitions	Dashboard Manager, Competition Manager, Data Manager
R35	CKB shall allow ST to see the list of ongoing competitions	Dashboard Manager, Competition Manager, Data Manager
R36	CKB shall allow ED to close a competition	Dashboard Manager, Competition Manager, Data Manager
R37	CKB shall allow ED to define badges in the context of a competition	Dashboard Manager, Competition Manager, Badge Manager, Data Manager
R38	CKB shall assign badges to students at the end of the competition	Competition Manager, Badge Manager, Data Manager
R39	CKB shall allow ED to define new rules for badges	Dashboard Manager, Competition Manager, Badge Manager, Data Manager
R40	CKB shall allow ED to define new variables for badges	Dashboard Manager, Competition Manager, Badge Manager, Data Manager
R41	CKB shall allow users to visualize badges obtained by a ST	Dashboard Manager, Competition Manager, Badge Manager, Data Manager
R42	CKB shall allow users to visualize a ST profile	Dashboard Manager, Data Manager
R43	CKB shall allow ST to join a T for which is invited	Dashboard Manager, Team Manager, Data Manager
R44	CKB shall allow ST to join a public T	Dashboard Manager, Team Manager, Data Manager
R45	CKB shall allow ST to create a T	Dashboard Manager, Battle Manager, Team Manager, Data Manager

R46	CKB shall allow ST to set a T to public or private	Dashboard Manager, Battle Manager, Team Manager, Data Manager
R47	CKB can distinguish between an ED user and a ST user	Authentication Service, Data Manager
R48	CKB shall not allow ST/ED to see the rankings of battles they are not involved in	Battle Manager, Data Manager
R49	CKB shall have the environments for all the programming language it supports	Static Analyzer
R50	CKB shall allow ED to close a battle they manage	Dashboard Manager, Battle Manager, Data Manager

# 5 | Implementation, integration and test plan





# 6 | Effort Spent

Members of group	Effort spent (hours)	
Filippo Balzarini	Introduction	0h
	Architectural design	10h
	User interface design	0h
	Requirements traceability	2h
	Implementation, integration and test plan	0h
	Reasoning	2h
Christian Biffi	Introduction	0h
	Architectural design	0h
	User interface design	0h
	Requirements traceability	0h
	Implementation, integration and test plan	0h
	Reasoning	0h
Michele Cavicchioli	Introduction	0h
	Architectural design	5h
	User interface design	0h
	Requirements traceability	0h
	Implementation, integration and test plan	0h
	Reasoning	0h

Table 6.1: Effort spent by each member of the group



## References

