

**Cairo University**  
**Faculty of Computers and Information**



**CS251**

# **Software Engineering I**



# **Bright M<sup>3</sup>inds**

**Software Requirements Specifications**

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# CS251: Phase 1 – Eden

## Project: Bright Minds

# Software Requirements Specifications

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## Project: Bright Minds

## Software Requirements Specifications

### Team

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### Document Purpose and Audience

- **Document purpose:** This document is the Initial Software Specifications Document, it captures complete description about how the system is expected to perform. The document shows the software purpose, scope, functional and non-functional requirements, use case model and the use case tables that describe the actions of the software.
- **Audience:** CEO, clients, the software developers, the software analysts, sponsors and testers.



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## Project: Bright Minds

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## Introduction

### Software Purpose

- The software is a non-profit game based educational website, developed with the aim of providing skills for a certain subject to users by solving interactive exercises in the form games. The software also allows users if they are teacher to add new games to the website and enhance their old ones.

### Software Scope

- **Users:**
  - Student.
  - Teacher.
- **Sign In:**
  - Email / Account name.
  - Password.
- **Sign Up:**
  - Name – Gender – Phone – Age – Nationality.
  - Email.
  - Password.
  - Student's school degree / Teacher's serial number.
- **Categories:**
  - Math.
  - Science.
  - Coding.
  - Technology.
- **Games Types:**
  - Match pictures.
  - Multiple Choices game.
  - Run code game.
- **Games Options:**
  - For Students: Play – Comment – Rate – Display score.
  - For Teachers: Play – Edit – Remove – Respond to comments.



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### Definitions, acronyms, and abbreviations

Accounts	Users should register in system to be able to play (for student) and add games (for teachers).
Categories	The subject/type of games that the user should choose between.
Complexity	The user can choose the state of each game whether it easy, intermediate or advanced.
Rate	The user can say his opinion by rating a game and saying whether it's boring, normal or interesting.
Score	The points the user earned by playing the game and completing levels in.
Quality	The resolution of the games graphics.
Graphical Interface	A type of user interface that allows users to interact with the system through graphical icons and visual indicators.

## Requirements

### Functional Requirements



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- **If The User is Teacher:**

1. He should be able to create new game and determine optional complexity levels to his game (5)
2. He should be able to try any game (3)
3. He should be able to Edit / Remove his games (4)
4. He should be able to respond to students' comments on his games (2)

- **If the User is Student:**

1. He should be able to play any game (3)
2. He should be able to rate / comment on any game (2)
3. He should be able to choose any complexity level in each game before playing. (3)
4. He should be able to show the Top 10 Scores in any game (2)

## Non Functional Requirements

	Details
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<b>Performance</b>	<ul style="list-style-type: none"> <li>Any Page Will Load within 0.05 to 5 sec.</li> <li>The system accesses database within 2 to 10 sec.</li> <li>The game take 1 min to be uploaded on the system by the teacher-</li> <li>when removing game from the website it will take 10 to 30 sec. -</li> <li>Any Game will load within 10 sec to 2 min.</li> <li>Time to show the high score of the student in specific game will take 1 sec or less.</li> <li>Time to show the Top 10 players' scores on a specific game will take 1 sec or less.</li> <li>The website will change from one quality to another within 10 sec to 2 min.</li> <li>The system takes within 1 to 2 sec to upload any comment, rate, respond in any game in the website.</li> </ul>
<b>Scalability</b>	<ul style="list-style-type: none"> <li>The system allow 1000 user to play any game at the same time.</li> <li>The system allows 1000 user to rate, respond and comment in any game at the same time.</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>The system should protect the users data stored in their profiles by only allow the authorized person who knew the profile password to login.</li> <li>When a teacher is signing up the system will ask for the teachers serial number , check it and verify the signing up process</li> </ul>
<b>Usability</b>	<ul style="list-style-type: none"> <li>The system must have a graphical interface that the users can easily use and do whatever he want without facing many problems in how to do it.</li> </ul>

## System Models

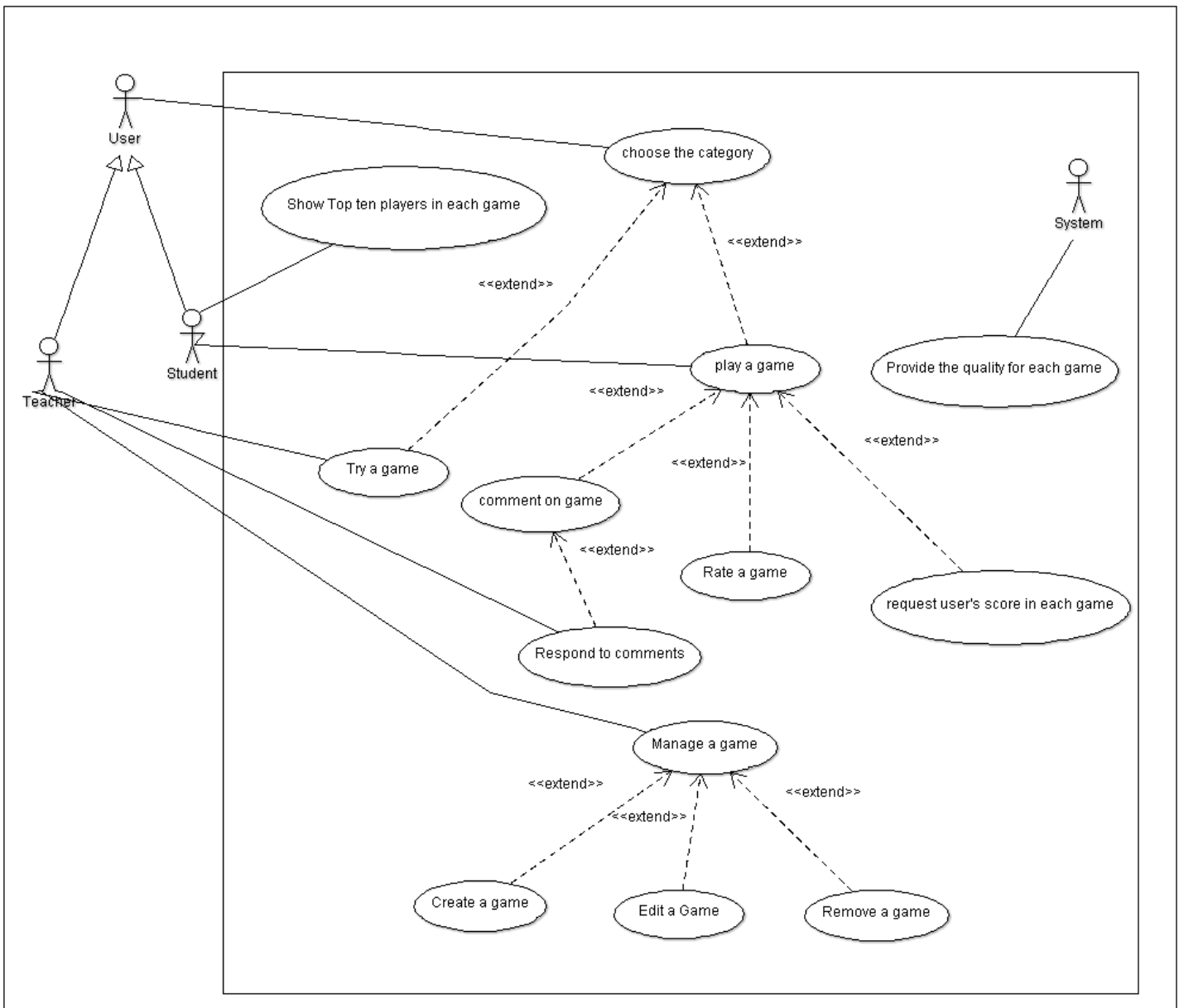


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## Software Requirements Specifications

### Use Case Model



### Use Case Tables





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## Software Requirements Specifications

Use Case ID:	1	
Use Case Name:	Choose category	
Actors:	User	
Pre-conditions:	User should has an account and open it.	
Post-conditions:	Choose correct category	
Flow of events:	<b>User Action</b>	<b>System Action</b>
	1- User Enter User name and Password.	
		2- System Verify user data
	3-User Enter his choice “Teacher” or “Student”.	
	4- User Select category of the game he/she want.	
		5-System displays all games in chosen category.



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Use Case ID:	2	
Use Case Name:	Try a game	
Actors:	Teacher	
Pre-conditions:	Teacher should sign in and choose the category of the game.	
Flow of events:	<b>User Action</b>	<b>System Action</b>
	1- Teacher Enter user name and Password.	
		2- System Verify teacher data.
	3- Choose Teacher type.	
		4- System open the options to choose category and try any game.
	5-Teacher choose the game he/she want to try.	
Includes:	Extend from Use case 1.	



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## Software Requirements Specifications

Use Case ID:	3	
Use Case Name:	Play a game	
Actors:	Student	
Pre-conditions:	Student should have an account.	
Flow of events:	<b>User Action</b>	<b>System Action</b>
	1- Student Enter User name and Password.	
		2- System Verify student data.
	3- User Select a his type “Student” and choose category of the games.	
		4- System displays all games of chosen category.
	5-Student can choose the game and its levelsand play it.	
Includes:	Extend from Use case 1.	



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Use Case ID:	4	
Use Case Name:	Request user's score.	
Actors:	Student	
Flow of events:	<b>User Action</b>	<b>System Action</b>
	1- Students play games.	
		2- System save and list the scores.
	3-Student request to show user's score of each game.	
		4- System retrieves the score of student.
Exceptions:	<b>User Action</b>	<b>System Action</b>
	1- If Student never play a game.	
		2- System refused to retrieve the score.
Includes:	Extend from Use case 3.	



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Use Case ID:	5	
Use Case Name:	Rate a game	
Actors:	Student	
Pre-conditions:	Student play this game.	
Flow of events:	<b>User Action</b>	<b>System Action</b>
	1- Student play a game.	
		2- System displays an option to rate or comment on the game.
	3- Student choose to rate on a game.	
		4- System save his rate.
Exceptions:	<b>User Action</b>	<b>System Action</b>
	1- Student rate the game he/she never play.	
		2- System refused to allow student to rate.
Includes:	Extend from Use case 3.	



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Use Case ID:	6	
Use Case Name:	Comment on a game	
Actors:	Student	
Pre-conditions:	Student play this game.	
Flow of events:	User Action	System Action
	1- Student play a game.	
		2- System display an option to rate or comment on the game.
	3- Student choose to comment on a game.	
		4- System save his comment and allow teacher to respond to it.
Includes:	Extend from Use case 3.	



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## Software Requirements Specifications

Use Case ID:	7	
Use Case Name:	Responds to comments.	
Actors:	Teacher	
Pre-conditions:	Student write comments.	
Flow of events:	<b>User Action</b>	<b>System Action</b>
	1- Student play and write a comment on the game.	
		2- System save the comment and display it to teacher.
	3- Teacher responds to these comments.	
		4- System displays the responds to students.
Includes:	Extend from Use case 6.	



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Use Case ID:	8	
Use Case Name:	Manage a game	
Actors:	Teacher	
Flow of events:	User Action	System Action
	1- Teacher should sign in and choose the “Teacher” type and choose category.	
		2- System displays all features that teacher can do.
	3- Teacher can choose to create, edit or remove a game.	





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Use Case ID:	9	
Use Case Name:	Edit a game	
Actors:	Teacher	
Pre-conditions:	The game is already exist.	
Post-conditions:	The edition not change the category that the game belongs.	
Flow of events:	<b>User Action</b>	<b>System Action</b>
	1- Teacher should sign in and his type and choose category.	
		2- System displays all the games in the chosen category.
	3- Teacher choose a game and edit on it.	
		4- System allow the teacher to edit.
Exceptions:	<b>User Action</b>	<b>System Action</b>
	1- Teacher make changes that change the type of this game.	
		2- System display error message to change the category-if exist- or to discard the changes.
Includes:	Extend from Use case 8.	



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Use Case ID:	10	
Use Case Name:	Create a game	
Actors:	Teacher	
Pre-conditions:	Teacher should sign in.	
Flow of events:	User Action	System Action
	1- Teacher Enter User name and Password.	
		2- System Verify teacher data.
	3- Teacher choose to create a game.	
	4-Teacher can add feature of the levels of the game and try to play the game after the creation.	
Includes:	Extend from Use case 8.	



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Use Case ID:	11	
Use Case Name:	Remove a game	
Actors:	Teacher	
Pre-conditions:	The game is already exist.	
Flow of events:	<b>User Action</b>	<b>System Action</b>
	1- Teacher should sign in and choose his type and category.	
		2- System displays all the games in the chosen category.
	3- Teacher choose to delete a game.	
		4- System delete this game.
Exceptions:	<b>User Action</b>	<b>System Action</b>
	1- Teacher choose to delete the last game of its category.	
		2- System displays error message that the category will be also deleted.



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Use Case ID:	12	
Use Case Name:	Show top 10 players of game	
Actors:	User	
Pre-conditions:	Students should play games.	
Flow of events:	<b>User Action</b>	<b>System Action</b>
	1- Student play games and choose to show top 10 in a game.	
		2- System displays top 10 players of chosen game.

Use Case ID:	13	
Use Case Name:	Provides Quality of a game	
Actors:	System	
Flow of events:	<b>User Action</b>	<b>System Action</b>
		1-Before the user play the game, System provides the user to choose the quality of the game.
	2- User choose the quality that he want.	



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## Ownership Report

Item	Owners
Document Purpose and Audience, Software purpose, Software scope, Definitions, acronyms, and abbreviations.	Amira Sherif Alsayed
Functional and Non-Functional requirements.	Dina Essam El-Din
Use Case Model.	Younna Essam Fawzy
Use Case Tables.	Nouran Mohssen El-Halawanny

## GitHub Account

<https://github.com/AmiraAlsayed/Software-Engineering-I>