Cairo University
Faculty of Computers and Information

CS251

Software Engineering I

Project Name

Software Requirements Specifications

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CS251: Phase 1- BGMS-16
Project: IntelliFun

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Document Purpose and Audience

The main purpose of this document is to provide the reader with a comprehensive and thorough description of the project's functionality and features. The said features were documented after analyzing the client's needs. All functional and nonfunctional requirements that were formed as a result of the requirements elicitation process are included. The procedure in which the system and user would interact under all circumstances is likewise documented. Therefore, this document should act as the main reference for both the client and the developers during the software delivery lifecycle. Accordingly, the client, the developers and also the stakeholders of the project are the primary audience of this document.

Introduction

Software Purpose

The purpose of this software is simple. It is to be developed mainly to create a simultaneously enjoyable and educational environment for young students to learn and communicate while having fun. The students that are to play the games on the site can also compete with each other for a higher overall score. This should make the software engaging and appealing to young students. In addition, teachers can help the content of the website to thrive and include even more fun and challenging games by creating their own games in various subjects.

Software Scope

This software system will be a game-based educational website for school students. It is designed to strengthen students' education and knowledge through an enjoyable and entertaining manner by providing games in different subjects that reinforce their understanding. Students will be able to choose a specific subject and play any game included in it while being able to view their overall score at any time. Teachers will be able to create new games using provided templates and under any subject category. They will also be able to edit or remove any of their own games.

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Definitions, acronyms, and abbreviations

Term	Definition
Student	Person who uses the website to play the games and learn in a fun educational environment
Teacher	Person who uses the site to create games for students to use and help students
User	Student or Teacher
CAPTCHA	Stands for Completely Automated Public Turing Test To Tell Computers and Humans Apart A program that checks for spam by generating tests to tell humans and bots apart

Requirements

Functional Requirements

1. The system should allow the user to create an account and login.
2. The system should allow the user to play any game on the website.
3. The system should automatically update a student's score after playing a game.
4. The system should have ready-made templates for games to be created.
5. The system should allow only the teacher to create a new game using given templates.
6. The system allows the student to rate any game.
7. The system allows the user to comment on any game.
8. The system allows the teacher to edit a game created by them.
9. The system allows the teacher to remove a game created by them.
10. The system allows the user to view a profile.
11. The system automatically removes any game with low rating after a specific duration of time.
12. The system should allow the user to search for any game.
13. The system should allow the user to choose a subject and view the games categorized under the chosen subject.

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Non Functional Requirements

Usability:

Simple to create an account: User needs just 3 steps to create an account.

Simple to play a game: Each game should have a quick guideline and intuitive interface, so user could easily learn how to play the game.

Simple to create a game: System should contain quick video tutorials for teachers to create a game from the provided templates.

FAQ's and answers: System should answer the Frequently Asked Questions.

Online help: System should allow the users to help each other. (through comments for example)

Interface: The user should be able to browse the system easily.

Robustness:

The system should be able to check the validation of the user inputs.

Response Time:

Authentication email should be sent within 1 minute maximally after the user creates the account.

The response time during a game should not exceed 0.5 second.

The game should be loaded and opened in less than 10 seconds.

The game should be uploaded to the system within 1 minute on average.

Availability:

The percentage of system failure should not exceed 5%, the system should be available most of the time.

Scalability:

System should be able to contain 100,000 games.

System be able to support up to 2000 game players simultaneously.

Maintainability:

The system should be adaptive in order to update the game templates or types and fix its own problems.

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Interface:

System interface should be attractive to students to make them interested in learning.

System interface should be understandable to users.

Safety:

The system should automatically backup all student scores and games created to ensure that all the data is safe from failure.

By using secured protocols, the system ensures that the information is securely transmitted to the server.

Security:

The system should be able to protect all data from any unauthorized access or attacks.

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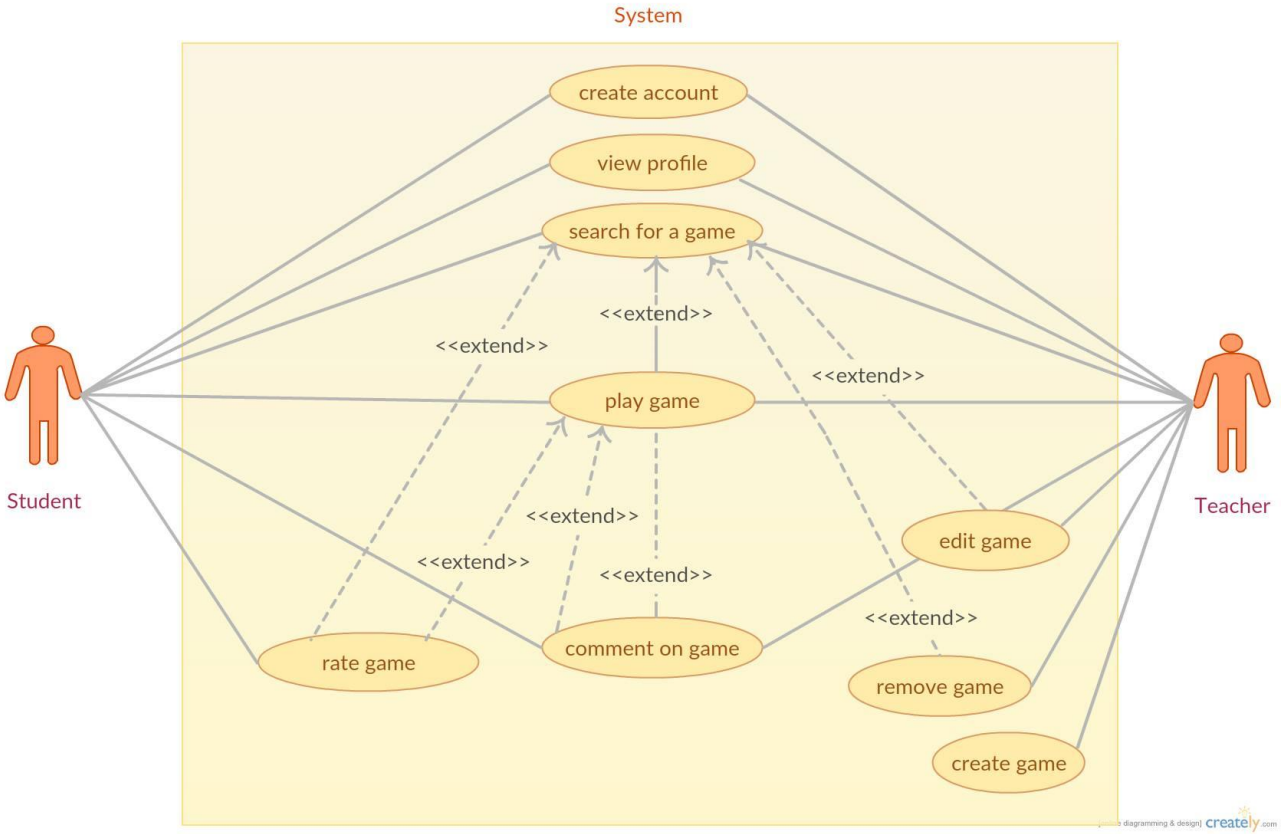
System Models

Use Case Model



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Use Case Tables

Use Case ID:	UC-1	
Use Case Name:	Create Account	
Actors:	Student Teacher	
Pre-conditions:	The user should have an email.	
Post-conditions:	User has created an account successfully.	
Flow of events:	**User Action**	**System Action**
	1. The user opens the website and presses the sign up button.	
		2. The system opens the sign up page.
	3. The user chooses a username and enters it in its textbox.	
		4. The system checks the availability of the username. 4.1. If the username is available a green mark is shown. 4.2. If the username is not available the user is asked to choose another one.
	5. The user writes a password it in its textbox.	
		6. The system checks the validation of the password regarding the explained restrictions (The length should not be less than 8 characters and has at least one capital letter). //bafty

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		6.1. If the password is valid a green mark is shown. 6.2. If the password is not valid the user is asked to write another one.
	7. The user enters email in its textbox.	
		8. The system checks the validation of the email. 8.1. If the email is valid a green mark is shown 8.2. If the email is not valid the user is asked to write another one.
	9. The user presses the 'sign up' button.	
		10. The account is created and the system sends an authentication email to the specified email written by the user. 10.1. If the user clicks the authentication link within 2 days the account will be activated. 10.2. If the user doesn't click the authentication link within two days the link will be expired. Another email will be sent instead if he tried to activate his account.
Exceptions:	User Action	System Action
	Authentication link is never clicked	
		System deactivates the account linked to the email used.

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Use Case ID:	**UC-2**	
Use Case Name:	**Play Game**	
Actors:	**Student** **Teacher**	
Pre-conditions:	**The user should have an account first.**	
Post-conditions:	**The game is played and score is updated.**	
Flow of events:	**User Action**	**System Action**
	1. The user opens the website and logs in.	
		2. System opens the dashboard with the list of subjects and the grid of most played games. The system also allows the user to search for any game using tags.
	3. If the user chooses a specific subject category.	
		4. A list of the games classified under chosen category is shown.
	5. The user chooses a game to play.	
		6. The system opens the game and loads it.
	7. The user plays the game according to the specified instructions.	

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	7.1. If the user presses exit button during the game before finishing the round.	
		8. The system calculates the score of the player as long as he is playing. 8.1. The system exits the game without updating the user's score for this round.
	9. The user finishes the whole round.	
		10. The system shows the score of the round to the user and asks the user to rate the game.
	11. If the user chooses to rate the game.	
		12. The system saves this rate for the user and recalculate the average rate of the game and saves it.
	13. If the user comments on the game.	
		14. The system saves the comment and notifies the creator of the game.
Exceptions:	User Action	System Action
	1. The user opens the website and logs in.	
		2. The system validate the login as invalid and asks user to enter their username and password again.
Includes:	Rate game, comment on game, search for game	

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Use Case ID:	**UC-3**	
Use Case Name:	**Create Game**	
Actors:	**Teacher**	
Pre-conditions:	**The user should have an account first.**	
Post-conditions:	**The game is created successfully.**	
Flow of events:	**User Action**	**System Action**
	1. The teacher opens the website and logs in.	
		2. The system opens dashboard.
	3. The teacher presses 'create a game' button.	
		4. The system opens the page of creating games.
	5. The teacher chooses a game template.	
		6. The system opens the chosen template.
	7. The teacher enters game title, subject, and specific topic tags.	
		8. The system saves the information and proceeds to entering game data page.
	9. The teacher enters the data of the game according to the chosen game category and clicks 'create game' button.	
		10. The system saves the data, creates the game, and adds it to teacher's profile.
Exceptions:	**User Action**	**System Action**

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	1. The teacher opens the website and logs in.	
		2. The system validate the login as invalid and asks teacher to enter their username and password again.

Use Case ID:	UC-4	
Use Case Name:	Rate Game	
Actors:	Student - Teacher	
Pre-conditions:	The user should have an account	
Post-conditions:	The average rating of the game is updated	
Flow of events:	**User Action**	**System Action**
	1. The user opens the website and logs in.	
		2. The dashboard is opened the list of subjects appears and a grid of most played games. The system allows the user to search for a game.
	3. If the user chooses a subject	
		4. A list of the games classified under chosen category is shown.
	5. User chooses a game to open	
		6. The system opens the game and loads it and the rating button appears on top of the game.
	7. User rates the game	

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		8. The rating the user entered is saved and average rate is recalculated, appeared and saved.
Exceptions:	User Action	System Action
	1. The user opens the website and logs in.	
		2. The system validates the login as invalid and asks teacher to enter their username and password again.
Includes:	Search for game	

Use Case ID:	UC-5	
Use Case Name:	Comment on game	
Actors:	Student Teacher	
Pre-conditions:	The user should have an account	
Post-conditions:	The comment is added to the game's discussion	
Flow of events:	User Action	System Action
	1. The user opens the website and logs in.	
		2. The dashboard is opened, the list of subjects appears and so does a grid of most played games. The system

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		allows the user to search for a game.
	3. If the user chooses a subject	
		4. A list of the games classified under chosen category is shown.
	5. User chooses a game to open.	
		6. The system opens the game and loads it and the comment box appears below the game.
	7. User enters his comment in the textbox.	
		8. The system gives the user a CAPTCHA box to protect discussion box from spam
	9. The user solves the spam test	
		10. The system adds the user's comment to the discussion.
Exceptions:	**User Action**	**System Action**
	1. The user opens the website and logs in.	
		2. The system validates the login as invalid and asks teacher to enter their username and password again. The system allows the user to search for a game.
	3. The user fails at passing the CAPTCHA text and gives up	

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		4. The comment is not added to the discussion
Includes:	Search for game	

Use Case ID:	UC-6	
Use Case Name:	Edit game	
Actors:	Teacher	
Pre-conditions:	The teacher has an account and has previously created a game.	
Post-conditions:	The new changes or edits are saved.	
Flow of events:	User Action	System Action
	1. The teacher opens the website and logs in to their account	
		2. The dashboard is opened, the list of subjects appears as well as a grid of most played games. The system allows the user to search for a game.
	3. If the teacher chooses a subject	
		4. A list of the games classified under chosen category is shown.

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	5. The teacher chooses the game to open	
		6. If the game is not created by the teacher, the system does not show any edit options. 7. If the game is created by the teacher, the edit options are shown.
	8. The teacher edits the game and enters new changes.	
		9. The new changes are saved by the system and the teacher is notified of the successful edit.
Exceptions:	User Action	System Action
	1. The teacher opens the website and logs in.	
		2. The system validates the login as invalid and asks teacher to enter their username and password again.
Includes:	Search for game	

Use Case ID:	UC-7
Use Case Name:	Remove game
Actors:	Teacher
Pre-conditions:	The teacher has an account and has previously created a game.

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Post-conditions:	**The game previously created is removed from the site.**	
Flow of events:	**User Action**	**System Action**
	1. The teacher opens the website and logs in to their account	
		2. The dashboard is opened, the list of subjects appears as well as a grid of most played games. The system allows the user to search for a game.
	3. If the teacher chooses a subject	
		4. A list of the games classified under chosen category is shown.
	5. The teacher chooses the game to open	
		6. If the game is not created by the teacher, the system does not show any edit options. 7. If the game is created by the teacher, the edit options are shown.
	8. The teacher chooses the delete or remove button.	
		9. The system prompts the teacher and asks them if

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		they are sure they want to remove the game.
	10. The teacher checks the 'yes' button.	
		11. The system removes the game after the confirmation of the teacher.
Exceptions:	**User Action**	**System Action**
	1. The teacher opens the website and logs in.	
		2. The system validates the login as invalid and asks teacher to enter their username and password again.
	3. The teacher does not confirm the remove prompt.	
		4. The system does not remove the game.
Includes:	Search for game	

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Use Case ID:	**UC-9**	
Use Case Name:	**Search for game**	
Actors:	**Teacher** **Student**	
Pre-conditions:	**The user has an account**	
Post-conditions:	**The game searched for is found**	
Flow of events:	**User Action**	**System Action**
	1. The user opens the website and logs in to their account	
		2. The dashboard is opened, and the search box appears.
	3. The user enters the name or search tags for a game in the search textbox.	
		4. The system searches for the game using the tags entered by the user and shows the results of the search.
Exceptions:	**User Action**	**System Action**
	1. The user opens the website and logs in.	
		2. The system validates the login as invalid and asks user to enter their username and password again.

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Ownership Report

Item	Owners
Requirements	*Bayan Mokhtar*
Use case tables	*Ghada Othman*
Document purpose, software purpose and definitions	*Menna Fateen*
Use case model & Software scope	*Salma Hassan*

Github repository link: https://github.com/mennafateen/IntelliFun