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Software Requirements Specification

1. User Stories

User Story #1	Create levels of the videogame	
Description As a user I want to be able to create, upload and play levels of the videogame using existing elements.		
 Validation Criteria The game is developed in Unity The necessary mechanics are enabled in order to create a level Every button that performs an action such as save and play will be shown on screen The necessary buttons and inputs will be available in the user interface to create a level and play it one finished Se tendrá una pantalla de inicio, una pantalla de creador y una pantalla de selección de niveles y una de créditos dentro del juego The game will have a start screen, a create mode screen, a play mode screen, a level selector screen and a credits screen 	Value: 10 Priority: 1 Estimation: 3 days	

User Story #1.1	Create wrote wiednames
Description As a developer I want to implement different mechanics in the create mode	
 Validation Criteria The elements can be dragged and dropped into the level to add them Once placed, the elements will be able to be erased The music to be played during the level will be able to be chosen 	Value: 10 Priority: 1.1 Estimation: 3 days

User Story #1.2

Create Mode User Interface

Description

As a user I want to have access to different interactable elements in the interface of the create mode

Validation Criteria

- The buttons needed to create and play a level in the will be displayed in the create mode
- The elements available to build a level will be shown in the screen at all times
- The user interface of the create mode will be intuitive

Value: 8 Priority: 1.2 Estimation: 1 day

User Story #1.3

Game Mode Mechanics

Description

As a developer I want to implement different mechanics and rules in the game mode

Validation Criteria

- The character can move side to side and jump
- The character can push boxes
- The character can collect dreamcatchers
- The character can cross portals using the corresponding dreamcatcher
- There will be a timer to put some pressure on the user to finish the level on a limited time

Value: 7
Priority: 1.1

Estimation: 3 days

User Story #1.4

Game Mode User Interface

Description

As a user I want to have access to different interactable elements in the interface of the game mode

Validation Criteria

- Display the remaining time at all times
- Display collected dreamcatchers
- Implement pause button with Retry and go back to level selector buttons

Value: 7 Priority: 1.1 Estimation: 1 day

User Story #2	Store Created Levels
Description As a user I want to be able to save the levels I	have created.
 Validation Criteria Pressing the save button in maker mode will save the level. A text file is generated with a representation of the level elements. The text file is uploaded to the database. 	Value: 9 Priority: 3 Estimation: 2 days

User Story #3	Publish the created levels	
Description As a user I want to be able to publish the levels I have created in the game.		
 Validation Criteria The created game appears in the platform's general list of levels. Any user can access and play the published level. 	Value: 7 Priority: 4 Estimation: 3 days	

User Story #4	Level Selection
Description As a user, I can select any level that has been published.	
 Validation Criteria The published level can be found in the level list. There is a button to select the level. 	Value: 7 Priority: 5 Estimation: 2 days

User Story #5	Play the created levels
Description As a user I want to be able to play the levels that I created or select levels created by other users	
Validation Criteria ■ I can play all the levels that have been published, regardless of the	Value: 9 Priority: 2 Estimation: 2 days

user.

User Story #7

• There is a "play" button to start the game mode of the selected level.

the database and allows or denies access according to the data entered.

User Story #6 Authenticate the user Description As a user I can register on the platform with a username and password. Validation Criteria Value: 7 • The game prompts the user to **Priority:** 6 **Estimation:** 1 day register. The program ensures that there are no duplicates between user names. If the user is already registered, the game prompts the user for name and password. The program searches for matches in

Oser Story #7	database
Description As a developer I can access the database every time it's necessary to store, review and/or extract information.	
 Validation Criteria The database is being constantly updated. The queries are fast and consistent. The extracted values are consistent with the stored value, data integrity. 	Value: 8 Priority: 8 Estimation: 3 days

Store and extract information from the

User Story #7.1	Database creation and normalization
Description As a developer, I have a database that is normalized, fully functional and avoids data redundancy.	
 Validation Criteria The database is in the 3NF. The data entered by the user is 	Value: 9 Priority: 8.1 Estimation: 3 days

correctly stored.

User Story #8 Completely functional and connected webpage

Description

As a developer, I have a fully functional and stylized webpage that is connected to the videogame and the database. It also shows the relevant statistics and explains the project.

Validation Criteria

- Webpage integrated by a front and back end.
- Stylized and descriptive according to the project's vision.
- Connected to the videogame and database.
- Completely functional.
- The content is necessary and descriptive.
- Game tutorial.

Value: 10 Priority: 9

Estimation: 3 days

User Story #9	Show video-game in webpage
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Description

As a developer, I want the videogame to be embedded in the webpage.

Validation Criteria

- Connection between videogame-database-webpage.
- The webpage is being constantly updated and in communication with the database.
- The videogame is accessed through the webpage and every functionality is available.

Value: 10 Priority: 7

Estimation: 1 day

User Story #10	Select and show relevant statistics
Descripción	

As a developer, I show the most relevant statistics of the game and user are shown within the webpage.

Validation Criteria

• The statistics of every user are shown.

Value: 6
Priority: 10

Estimation: 1 day

- Statistics of items used in the maker are shown.
- Information from the database is constantly updated, thus, the statistics are updated.
- Statistics are shown through simple visual aids the user can understand.

2. Product Backlog

Functional Requirements

Video-game:

- 1. Create videogame levels
- 2. Maker Mode Mechanics
- **3.** Game Mode Mechanics
- 4. Maker Mode User Interface
- **5.** Game Mode User Interface
- **6.** Store created levels
- 7. Publish created Levels
- **8.** Select Published Level
- **9.** Play the created levels

Database:

- 10. Create a user account.
- 11. Authenticate user
 - **a.** Log-in user with registered credentials (user authentication)
- **12.** Database Creation and Normalization
- **13.** Store and extract information from the database

Página Web:

- **14.** Show video-game in webpage
- **15.** Completely functional and connected webpage
- **16.** Select and show relevant statistics

Non-Functional Requirements

- 1. The team will be composed of three people
- 2. The final product will be ready by the 5th week (subject to change).
- 3. Use a color palette and consistent style both in the design of the webpage and the graphic elements of the videogame.

Video-game:

- 1. The video game should not contain explicit or violent content
- 2. It is desirable to use Unity as a game engine to develop the game
- 3. It is desirable to have original sound effects and soundtrack.
- 4. It is desirable for sprites to be original and match the theme.
- 5. It is desirable for scripts to follow international guidelines (comments, organization, etc.)
- 6. It is desirable to have animations for each sprite.
- 7. It is desirable to have a friendly and intuitive user interface.

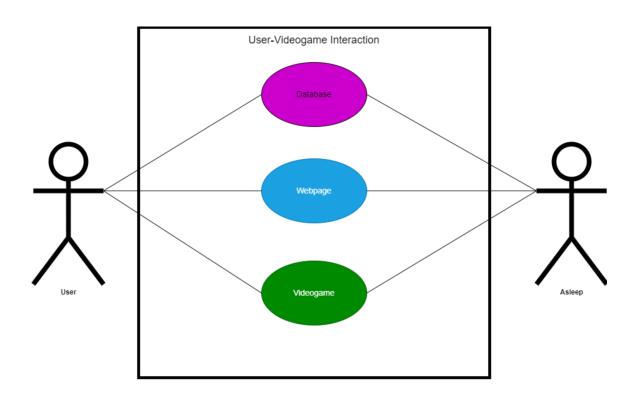
Database:

- 1. It is desirable to use MySQL.
- 2. Use UTF8 encoding.
- 3. It is desirable to use views to get information instead of getting it directly from the table/s.

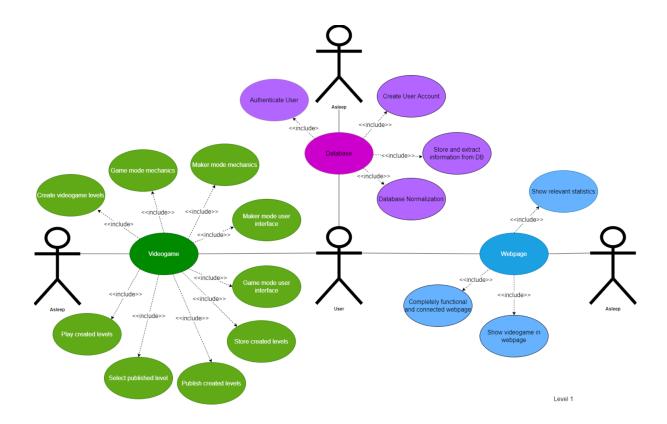
Webpage:

- 1. It is desirable to use Node JS for the backend implementation.
- 2. It is desirable to host the page in a hosting service.
- 3. It is desirable that the site is user friendly and intuitive.
- 4. It is desirable to use Bootstrap for the web page design.
- 5. It is desirable to include a tutorial section to guide the user.
- 6. It is fully responsive and user friendly (from the color palette to the text within).

3. Diagrams



Level 0, Contextual



4. Tables

User case name	1. Create levels of video game
Related Requirements	Every other requirement
Goal in context	An existing user is able to create savable and playable levels of the video game with pre-made elements
Preconditions	The user has to be signed-in and has entered create mode
Successful end Condition	The elements of the level are correctly placed and the level can be played and/or saved
Failed end Condition	The elements of the level are not placed correctly or it cannot be played/saved
Primary Actors	User/Creator of the level
Trigger	The user enters the level creator
Main Flow Step	Action
1	The user is authenticated in the login page

	2	The user enters "create mode"
	3	The user drags and drops elements to the scene and creates a level
	4	The user can choose to play the level or save
Extensions	Step	Branching action
	1.1	The user is not authenticated and the creation of the level is rejected

User case name	2.Create Mode mechanics
Related Requirements	Creator mode user interfaceStore created levels
Goal in context	The necessary mechanics are enabled during Creator Mode that allow the user to drag and drop elements to the level, delete placed elements and choose the music to be played
Preconditions	The user has to enter create mode
Successful end Condition	The user is able to perform all the actions listed before smoothly
Failed end Condition	One or more of the functions described before cannot be performed
Primary Actors	User
Trigger	The user enters the level creator
Main Flow Step	Action
1	The user enters "create mode"
2	The user can perform all of the actions needed to create a level

User case name	3.Creator mode user interface
Related Requirements	Create Mode mechanics
Goal in context	The necessary elements are displayed in the screen so that the user can drag elements

	into a level, erase them, enter play mode and save the level
Preconditions	The user has to enter create mode
Successful end Condition	The elements of the UI are correctly displayed in the screen and work properly
Failed end Condition	One or more elements of the UI fail to be displayed or work properly
Primary Actors	User/Creator of the level
Trigger	The user enters the level creator
Main Flow Step	Action
1	The user enters "create mode"
2	The user can interact with every element of the UI and they perform the necessary actions
Extensions Step	Branching action
2.1	The user cannot interact with the elements or they do not perform the necessary actions

User case name	4.Game Mode Mechanics
Related Requirements	Game Mode user interfacePlay created levels
Goal in context	The necessary mechanics are enabled during Game Mode that allow the user to move around in the map, push boxes, pick up dreamcatchers and cross portals, reach the level goal and lose when the timer runs out
Preconditions	The user has to enter game mode
Successful end Condition	The user is able to play the level, reach the main goal or lose when the timer runs out
Failed end Condition	The user is not able to play the game properly
Primary Actors	User/Player
Trigger	The user enters game mode

Main Flow Step	Action
1	The user enters "play mode"
2	The character reacts according to the input by the player
3	The player navigates the level to try reach the end goal
4	The player completes the level or loses when the timer runs out
Extensions Step	Branching action
2.1	The user cannot play the game properly
4.1	The player cannot finish the level nor lose

User case name	5.Game Mode user interface
Related Requirements	Game Mode Mechanics
Goal in context	The necessary elements are displayed in the screen so that the user can receive feedback on the time left and the dreamcatchers collected and the button; a pause button with options to Retry and go back to the level selector screen
Preconditions	The user has to enter game mode
Successful end Condition	The UI elements described before are correctly displayed and work properly
Failed end Condition	The elements are not displayed correctly or do not work properly
Primary Actors	User/Player
Trigger	The user enters game mode
Main Flow Step	Action
1	The user enters "play mode"
2	The timer is displayed at all times in the screen
3	When a player collects a dreamcatcher an

	indicator is displayed
4	The player may at any time press the pause button and interact with the different options
Extensions Step	Branching action
2.1	The timer is not displayed properly
3.1	The dreamcatchers collected are not displayed

User case name	6. Store created levels
Related Requirements	 Creator mode mechanics. Store and extract information from the database.
Goal in context	That all previously or recently created levels by any user are correctly stored inside the database, making possible the retrieval of the level for later modifications or download to game mode.
Preconditions	The level has to be previously created, saved and published by the user
Successful end Condition	The level is correctly stored in the database
Failed end Condition	The level isn't stored in the database
Primary Actors	User/Creator of the level
Secondary Actors	Database
Trigger	The user publishes the created level by clicking the "Publish" button on the creator mode panel.
Main Flow Step	Action
1	The user selects "create mode" from the main page.
2	The user creates a custom level inside the create mode.
3	The user clicks the "Publish" button.

4	The level is automatically stored inside the database.
Extensions Step	Branching action
3.1	The level created exceeds the permitted size for storage.
3.2	The storage of the level to the database is rejected.

User case name	7. Publish created levels
Related Requirements	Create levelsStore created levels
Goal in context	If the user wishes, its level is correctly published, that way allowing it to be selected and played by other users.
Preconditions	The level has to be previously created, and published by the user.
Successful end Condition	The level is correctly published in the database
Failed end Condition	The level isn't published in the database
Primary Actors	User/Creator of the level
Trigger	The user publishes the created level by clicking the "Publish" button on the creator mode panel.
Main Flow Step	Action
1	The user selects "create mode" from the main page.
2	The user creates a custom level inside the create mode.
3	The user clicks the "Publish" button.
4	The level is automatically published and ready for its selection by other players.
Extensions Step	Branching action

3.1	The level created exceeds the permitted size for storage.
3.2	The publishing of the level is rejected.

User case name	8. Select published level
Related Requirements	Publish created levels
Goal in context	That all published levels are correctly displayed in the "selection page" and can be selected by any player.
Preconditions	The level has to be previously published by its creator.
Successful end Condition	The level is selected by the player
Primary Actors	Player
Trigger	The player selects the desired level by clicking anywhere on top of the level.
Main Flow Step	Action
1	The player selects "game mode" from the main page.
2	The player is automatically taken to the "selection page"
3	The player selects the desired level by clicking anywhere on top of the level.
4	The level is selected.

User case name	9. Play created levels
Related Requirements	Select created levelsGame mode mechanics
Goal in context	A player is able to play a previously selected level.
Preconditions	The level has to be previously selected by

	the player.
Successful end Condition	The player is correctly taken to the "play" window with the level already downloaded and ready to be played.
Failed end Condition	The level cannot be retrieved and ready to be played.
Primary Actors	Player
Trigger	The player clicks the "play" button that appears after the selection of a level.
Main Flow Step	Action
1	The player selects "game mode" from the main page.
2	The play selects a level from the "level selection page".
3	The player clicks the "play" button.
4	The user is automatically taken to the "play" window with the level fully downloaded.
Extensions Step	Branching action
3.1	There was an error in the downloading of the level.
3.2	The level cannot be retrieved and ready to be played.

User case name	10. Create a user account
Related Requirements	• Store and extract information from the database.
Goal in context	A new user requests to create an account
Preconditions	That the account doesn't already exist.
Successful end Condition	An account for the user is created
Failed end Condition	The creation of a user account is rejected.
Primary Actors	User
Trigger	The user clicks the button "Confirm and

	create user account".
Main Flow Step	Action
1	The player selects the "sign-in" button from the main page.
2	The user enters the requested data (name, email etc.) and defines his user credentials (username and password).
3	The user clicks the button "Confirm and create user account".
4	The user is successfully created
Extensions Step	Branching action
3.1	The username or password already exists
3.2	The creation of a user account is rejected.

User case name	11. Authenticate user
Related Requirements	 Create a user account. Store and extract information from the database.
Goal in context	An already registered user can log-in into his account.
Preconditions	N/A
Successful end Condition	The user is able to log-in into his account
Failed end Condition	The user's log-in request is rejected
Primary Actors	User
Trigger	The user clicks the button "log-in" inside the log-in pane.
Main Flow Step	Action
1	The player selects the "log-in" button from the main page.
2	The user enters his credentials (username and password).

3	The user clicks the button "log-in".
4	The user is successfully created
Extensions Step	Branching action
2.1	The credentials are invalid.
2.2	The user's log-in request is rejected.

User case name		12. Database Creation and Normalization
Related Requirements		The correct storage of data and its integrity wholly depends in this requirement
Goal in context		The database works optimally and efficiently without any warnings or errors.
Preconditions		There exists a script for the database and the tables and relations have been previously outlined.
Successful end Condition		A database that is normalized until the 3rd normal form and doesn't have duplicates.
Failed end Condition		The database has data redundancy and doesn't work as intended.
Primary Actors		Developers
Trigger		The user creates an account, signs in, creates levels, data is collected and statistics are based on the database.
Main Flow St	tep	Action
	1	As developers, we outline the tables, attributes and relations of the data.
	2	Development of the database script.
	3	Database normalization.
	4	Feedback and corrections.

User case name	13. Store and extract information from the database
	database

Related Requirements	Store created levelsCreate a user accountDatabase normalization
Goal in context	As developers, we are able to store and extract any data and use it as we need.
Preconditions	The database is normalized and there is no data redundancy.
Successful end Condition	Every piece of information stored in the database remains intact and there is data integrity when extracting it.
Failed end Condition	When storing and extracting data, the data changes or is affected.
Primary Actors	Developers.
Trigger	The user creates an account, signs in, creates levels, data is collected and statistics are based on the database.
Main Flow Step	Action
1	Database normalization.
2	Feedback and corrections.
3	We experiment with testing data.
4	We make sure any stored data remains integral.

User case name	14. Show video game in webpage
Related Requirements	Completely functional and connected webpage
Goal in context	Embed the videogame in the webpage.
Preconditions	There is a front end for the webpage and the videogame is finished or almost finished.
Successful end Condition	The user can access the complete videogame through the webpage.
Failed end Condition	The access of the videogame to the user is limited or nonexistent.

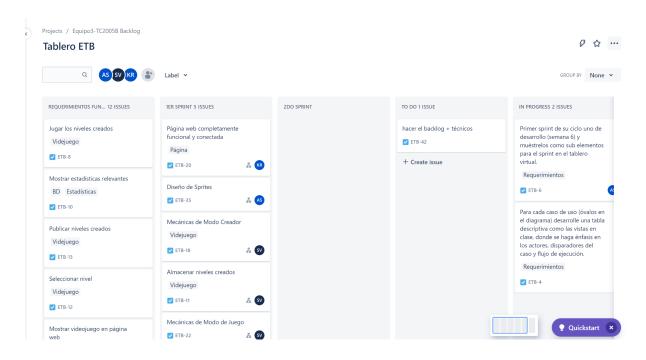
Primary Actors	Developers
Trigger	The user access the webpage and click the button to play the game.
Main Flow Step	Action
1	A front end where the videogame can be inserted exists.
2	The videogame is embedded to the webpage.
3	There are no errors when loading or playing the game.

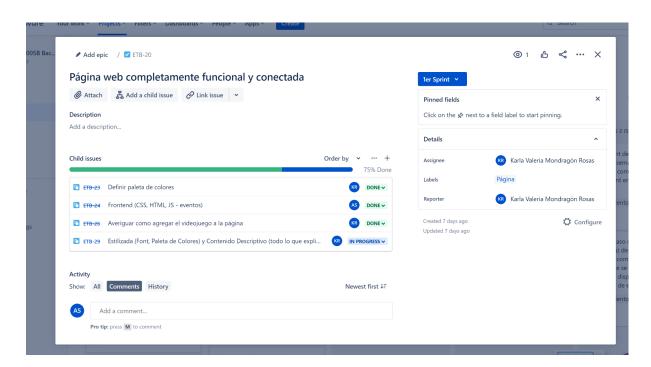
User case name	15. Completely functional and connected webpage
Related Requirements	 All of the database's and videogame's requirements. Show videogame in webpage.
Goal in context	Have a webpage fully connected with all the project's elements and fully responsive.
Preconditions	The database already exists in its relatively most optimal version and the videogame it's finished.
Successful end Condition	Have a webpage hosted in a server that is connected to the database and the videogame, it's also fully responsive, protected and user friendly.
Failed end Condition	One can edit the database from the webpage, the videogame can't be accessed from the webpage and/or the webpage itself isn't responsive.
Primary Actors	Developers
Trigger	The user access the videogame through the webpage, has full access to game's modalities, the user is saved in the database and statistics are shown.
Main Flow Step	Action
1	Finalization of database and videogame.

2	Working connection between front and back end.
3	Connection between database-videogame-webpage.
4	Stylized webpage, user friendly and with statistics.

User case name	16. Select and show relevant statistics
Related Requirements	 Store created levels Store and extract information from the database Completely functional and connected webpage
Goal in context	From the data, the most relevant statistics of the user and the games are selected and shown in the webpage.
Preconditions	There is information in the database, the webpage is connected to the database.
Successful end Condition	The user can interact with the statistics shown in the webpage.
Failed end Condition	The statistics aren't shown, there is no relevant information in the database.
Primary Actors	Developers
Trigger	The user clicks the button to see their statistics or the game statistics.
Main Flow Step	Action
1	Data analysis for the most relevant information.
2	Selection of visual aids (graphs) to show statistics.
3	There is a section for statistics in the webpage.
4	The statistics are shown and are comprehensible.

5. Sprint Backlog





6. SprintsTotal: 5 Sprints

# Sprint	Fechas
1	16 Mayo - 22 Mayo
2	23 Mayo - 29 Mayo
3	30 Mayo - 5 Junio
4	6 Junio - 12 Junio
5	13 Junio - 17 Junio