

Requirements Analysis Document

1. Introduction

B.O.X.E.S. is a puzzle game designed for all audiences, featuring a unique blend of puzzle-solving. This document covers the game's design, development, and deployment phases including Proposed Technologies and the Database.

2. Requirements

a. Overview

- i. A browser based video game

b. Functional Requirements

- i. Browser based video game
- ii. Utilizes a database to store high scores
- iii. 3 Levels
- iv. Interfaces with external API via URI (that doesn't exist yet)
- v. 2 extra features

c. Nonfunctional Requirements

- i. Mobile support
- ii. Modern, sleek, and easy to use UI

d. Constraints

- i. Has to be finished by April 4th, has to run in the browser.

3. Game Specification

The game consists of a player pushing boxes along a grid world onto targets. Only one box can be pushed at a time, creating interesting and difficult puzzles to solve. Walls will restrict player and box movement. Once all targets have a box on them, the level will be completed. Levels track the current score in the number of moves that the player has taken to complete the level. This game is heavily inspired by Sokoban.

The game will contain a level editor that players can use to make and play custom levels, which can then be shared and played by all other players. All levels will contain a leaderboard with each player that has completed the level and their least steps. For more information, see the Use Case Document / Diagram

4. Database Specification

The database shall use SQLite3. The database shall store data about players, levels, and top scores. The database shall be able to provide the data required for the public API. For more information, see the ER Diagram.

5. Proposed Technologies To Meet Requirements

- Game Engine
 - Phaser (Selected)
 - Pros
 - Tons of learning resources
 - Cons
 - Poor text input support
 - PixiJS
 - Pros
 - Lightweight
 - Cons
 - No game logic, just rendering
 - MelonJS
 - Pros
 - Level editor
 - Cons
 - Few tutorials
 - pyGame
 - Godot
- API Interaction
 - Postman
- Web Server
 - Flask
- Database management system
 - SQLite3