

## LAB 2 – REASONED.IO SPECIFICATION OUTLINE

### **Lab 2 – ReasonED.io Specification Outline**

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## **1. Introduction**

### **1.1. Purpose**

The intended goal of this document is to provide a comprehensive description of the ReasonED.io product. This document will detail the functionality of the features, what the intended userbase is and how they will interact with the product, and other parameters of the product such as accessibility and software/hardware performance. This document is intended to be accessed by the developers of ReasonED.io.

### **1.2. Scope**

In the current day where social media has more prevalence than ever before, people can interact with each more often and consistently. This constant access to social media leaves many people exposed to misinformation that constantly challenges their critical thinking skills. With the advent of image and article generation with the use of artificial intelligence, people must be able to identify logical fallacies in the content they consume and be able to discern the truth from the noise of social media posts. Team Crystal's solution to this problem is ReasonED.io. ReasonED is a game-based educational website that focuses on reinforcing critical thinking and logical fallacy detection skills.

### 1.3. Definitions, Acronyms, and Abbreviations

**Confirmation Bias** - A cognitive bias that involves seeking, interpreting, and remembering information that confirms one's preconceptions (American Psychological Association n.d.).

**Critical Thinking** - The ability to think clearly and rationally, understanding the logical connection between ideas and the ability to make reasoned judgements (American Psychological Association n.d.).

**Fact-Checking** - The process of verifying the accuracy of claims made in public discourse and journalism (Cambridge English Dictionary n.d.).

**False Dilemma** - A fallacy that presents a limited set of options as the only possible choices when there may be other alternatives (Excelsior OWL n.d.).

**Logical Fallacy** - An error in reasoning or a flawed argument that can make an argument appear valid when it is not (Nikolopoulou, 2023).

**Misinformation** - False or inaccurate information shared, often unintentionally, without the intent to deceive (Dictionary.com n.d.).

**Disinformation** - False information deliberately spread to deceive or mislead others (Dictionary.com n.d.).

**Slippery Slope** - A fallacy that suggests one small step will inevitably lead to a chain of related events, often with exaggerated consequences (Excelsior OWL n.d.).

**Straw Man Argument** - A fallacy that involves misrepresenting an opponent's argument to make it easier to attack and refute (Excelsior OWL n.d.).

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## **1.5. Overview**

The following sections of this document will cover the functional and nonfunctional details of the ReasonED.io prototype. The next section will provide a description in general terms of the product perspective and functions, the characteristics of the intended users, and other constraints and assumptions of the prototype. Section 3 will provide the specific requirement descriptions of the software, sorted by the system's features.

## **2. Overall Description**

### **2.1. Product Perspective**

ReasonED.io is a web-based suite of educational games focused on logical fallacies and critical thinking skills. ReasonED.io will host educational games for all educational levels, ranging from elementary to high school and beyond. These games focus on specific logical fallacies, with players needing to correctly identify the logical fallacy to progress in the game. The prototype will focus on three games: Hasty Harry, Straw Manny, and Slope Sadie. Hasty Harry focuses on hasty generalization by having players gather details before assuming, Straw Manny focuses on strawman fallacies by having players select the right response to a claim, and Slope Sadie has players guide the character Sadie down a path by correcting Sadie's fallacious claims with more reasonable statements. ReasonED will also keep track of the progress players make in these games. Users can choose to register for a free account, this allows for students to keep track of progress in the games they play and allows for educators to view the progress of their students.

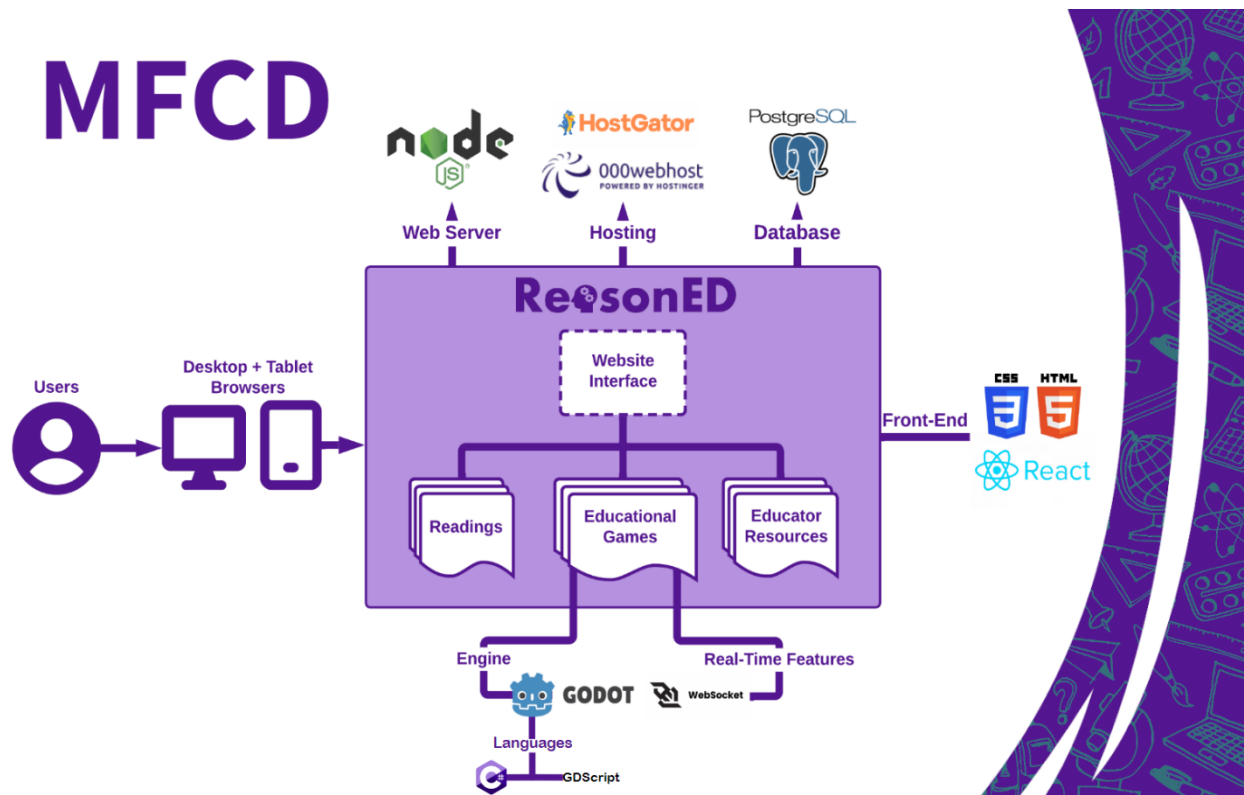


Figure 2-1: Product MFCD

ReasonED is intended to be accessed using desktop or tablet web browsers. React, HTML, and CSS will be used for the website interfaces, and a PostgreSQL database will be used for storing user data. For the back end, ReasonED will be utilizing a Node.js web server for its flexibility, and the Godot game engine will be used for the web games. The games themselves will use a combination of C# and Godot's scripting language, GDScript. ReasonED will be developed using Visual Studio Code as the IDE, since it's support with GitHub allows for control of in-development versions of the prototype. Other tools like Mocha and Chai help with the testing process of the prototype.

## 2.2. Product Functions

The ReasonED prototype will feature the three games: Hasty Harry, Straw Manny, and Slope Sadie. The prototype games will have complete functionality, although changes and additions are expected to be made for the final product. The features and gameplay loops for each game will be covered in more detail below.



### **2.2.1. Hasty Harry**

Hasty Harry starts with a main menu selection screen that allows players to play the game or be presented with a tutorial. The game has players controlling Harry around different planet landscapes in search of artifacts. Players must traverse the level in search of these artifacts to learn about the planet's environment and wildlife. Harry will make hasty generalizations about the planet, and the player must select the artifacts that disprove Harry's claims. After correcting Harry's claims, a new level is unlocked that players can travel to. The levels will have different environments and different claims made about them, but the gameplay loop is the same.

### **2.2.2. Straw Manny**

Straw Manny starts with a main menu selection screen that allows players to play the game or be presented with a tutorial. The game has players controlling Manny around different levels with opponents that challenge Manny with different claims. These opponents will spawn in random locations around the level, with the next level being unlocked after the player has completed all the challenges. The first level having the easiest challenges while later, unlockable levels have more difficult challenges. When a player approaches an opponent, they will be presented with a claim that they need to refute. The player has three options to choose, two incorrect answers that contain strawman arguments, and a correct way to respond to the claim.

### **2.2.3. Slope Sadie**

Straw Manny starts with a main menu selection screen that allows players to play the game or be presented with a tutorial. The game has players controlling Sadie down a slope. As Sadie approaches different obstacles on the slope, the player is given a fallacious claim that Sadie has made. The player must select the correct response that refute her claim, while the other responses support her claim. Choosing the correct response allows Sadie to continue, while choosing the wrong response causes Sadie to slip, making the player restart.

Features and Functionality	Description	Prototype Implementation
PC and Tablet Compatibility	The features of the prototype will work on both desktop and tablet. This includes using the web interface, and the games.	Full Implementation
Characters and Animations	The games will feature detailed character designs with functional animations.	Full Implementation
Accessibility Features	Features that allow users with disabilities to play the games as designed.	Text-to-Speech
Educator Tools	Tools that allow educators to track and provide more resources if necessary.	Progress Tracking
Games for k-12	Functional games that are designed for specific age groups.	1 Elementary Game, 1 Middle Game, and 1 High School Game

*Table 1 Demo Prototype Functionality*

### 2.3. User Characteristics

There are two primary end user groups of ReasonED.io: Educators and Students. Educators are expected to be handling a class of students and will be given tools to track and handle a class within ReasonED. Because of this, they are expected to register for an account. The Educators are not expected to be using/participating in the games themselves. Students however are more general than educators. They are expected to vary in age groups ranging from elementary to college. Because of this, there are not a lot of expectations from this user group. This means that creating an account won't be necessary, and it may require adding in more accessibility functionality to allow everyone to be able to use ReasonED. Students are not expected to be enrolled in a school and may freely experience and utilize the educational learning games ReasonED has to offer. However, for progress tracking for educators, an account will need to be made.

### 2.4. Constraints

N/A

## **2.5. Assumptions and Dependencies**

N/A