

**Lab 2 – ReasonED.io Product Specification**

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## **1 Introduction**

### **1.1 Purpose**

The purpose of this Software Requirements Specification (SRS) document is to outline the functional and non-functional requirements necessary for the development of ReasonED.io. It will explain the system's objectives, features, interfaces, functionalities, and operational constraints. This document will be proposed to Old Dominion University for its approval.

### **1.2 Scope**

The goal of ReasonED.io is to confront challenges associated with logical fallacies, misinformation, and inadequate critical thinking skills prevalent in today's digital landscape. Through the provision of engaging and effective educational resources, the platform aims to empower users to discern, analyze, and counteract flawed reasoning. Utilizing interactive 2D games, customized readings, and comprehensive teaching materials, the platform seeks to bolster critical thinking skills across diverse age groups and mitigate deficiencies in logical fallacy identification. Moreover, it supports educators by providing resources such as readings, lessons, and teaching strategies to facilitate the integration of logical fallacy education within classrooms. By fostering informed discussion and combatting the dissemination of misinformation online, ReasonED.io aspires to create an immersive learning environment conducive to the cultivation of critical thinking skills and the promotion of logical reasoning.

### 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**

Section 2 of this document provides an overall description of the product perspective, product functions, user characteristics, general constraints, and assumptions and dependencies.

Section 3 of this document presents the specific requirements, organized by feature. It will also explain the project's external interface, performance, design constraints, software systems, and other attributes.

## 2 Overall Description

### 2.1 Product Perspective

ReasonED.io is a comprehensive game-based learning platform designed to enhance users' logical reasoning skills through engaging educational resources. Tailored for learners of all ages, ReasonED.io offers a diverse array of interactive 2D games designed to make the understanding of logical fallacies both enjoyable and accessible. Alongside these games, the platform provides extensive readings on logical fallacies and offers valuable resources like lesson plans and teaching strategies for educators. With a dedication to accessibility, the platform incorporates features such as text-to-speech and color contrast to support users with varying needs. Furthermore, ReasonED.io fosters an environment of achievement and community through features like achievements, collectibles, and leaderboards.

### RWP MFCD

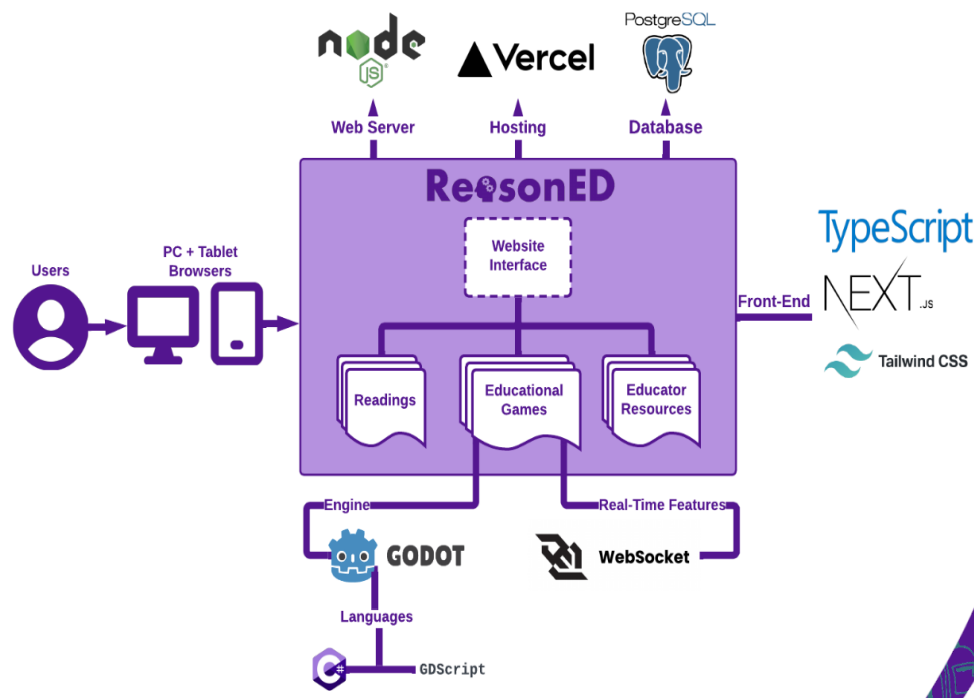


Figure 1: Real World Product Multi-Functional Component Diagram

### 2.2 Product Functions

ReasonED.io offers a range of features aimed at enhancing users' logical reasoning skills and providing an engaging learning experience. The platform provides access to games directly via the website, eliminating the need for additional downloads or logins. Embedded interactive



tutorials within the games offer step-by-step guidance for optimal learning experiences. Accessibility features like text-to-speech and color contrast cater to a broad audience, ensuring inclusivity. Engaging elements such as achievements, collectibles, and leaderboards are integrated to encourage user participation and foster community. Users can personalize their experience by freely signing up and creating usernames. Tailored reading materials introduce logical fallacies targeted at different age groups, facilitating age-appropriate learning. Educators benefit from resources like printable graphics, lesson plans, and teaching strategies to support instruction in physical and virtual classrooms. Games offer distinct difficulty levels organized by age group, allowing users to progress at their own pace while developing critical thinking skills.

A distinctive aspect of ReasonED.io is its innovative approach to learning. The platform features three engaging 2-D games, each personifying logical fallacies through unique characters, presenting them in engaging formats such as platformers and side-scrollers. For example, “Straw Manny” guides players in overcoming opponents while learning about the “straw man” fallacy, “Hasty Harry” challenges players to collect accurate planet information to combat “flawed generalizations”, and “Slippery Slope Sadie” navigates players through a snowy path, imparting knowledge about the “slippery slope” fallacy (Team Crystal, 2024).

## **2.3 User Characteristics**

### **2.3.1 Students**

Students from elementary to high school levels, as well as college students, form a significant user group. They engage with the platform to enhance their critical thinking skills through interactive games and educational resources tailored to their age group.

### **2.3.2 Educators**

Educators, including K-12 teachers, college professors, and other instructors utilize ReasonED.io as a valuable tool to integrate logical fallacy education into their teaching methods. They access curated reading materials, lesson plans, and teaching strategies to facilitate classroom interaction.

### **2.3.3 Administrators**

Administrators within educational institutions, such as school principals, district administrators, and college administrators, may oversee the implementation of ReasonED.io

within their curriculum. They ensure the platform aligns with educational objectives and may provide support for educators in integrating it into their teaching practices.

#### **2.3.4 Parents/Guardians**

Parents or guardians of students may also engage with ReasonED.io, either to support their child's learning at home or to gain insights into the educational resources available to their children.

### **2.4 Constraints**

#### **2.4.1 Technological Limitations**

The platform's functionality may be constrained by the capabilities of users' devices and internet connections. Ensuring compatibility across various devices and optimizing performance on lower-spec hardware presents a challenge.

#### **2.4.2 Regulatory Compliance**

Compliance with data protection regulations, such as COPPA and HIPPA, imposes constraints on data collection, storage, and usage practices. The platform must adhere to these regulations to safeguard user privacy and ensure legal compliance.

#### **2.4.3 Educational Standards**

Aligning educational content with established curriculum standards and educational best practices imposes constraints on content development. Ensuring educational efficacy while meeting curriculum requirements is crucial for platform acceptance and adoption.

### **2.5 Assumptions and Dependencies**

#### **2.5.1 Foundational Internet Literacy**

Users accessing ReasonED.io are assumed to have a basic understanding of operating a web browser and navigating online platforms. This assumption allows for the design of the platform's user interface and interactions to be tailored towards users with foundational internet literacy skills.

#### **2.5.2 Stable Internet Connectivity**

ReasonED.io relies on stable internet connectivity for optimal performance. Users are assumed to have access to reliable internet connections during their usage of the platform. This assumption ensures that users can access the platform's features and resources without disruptions due to connectivity issues.

### **2.5.3 Third-party Framework Reliability**

ReasonED.io is dependent on third-party libraries and frameworks for certain functionalities, such as game development and data management. Any updates or changes to these dependencies may impact the performance and functionality of the platform. Therefore, the platform's development and maintenance are contingent on the stability and compatibility of these external components.

### **2.5.4 Browser Compatibility**

The availability of updated browsers is crucial for the smooth operation of ReasonED.io. Users are recommended to use the latest versions of popular browsers, including Chrome, Firefox, Safari, and Edge, to ensure compatibility with the platform. This dependency ensures that users can fully utilize the platform's features and optimizations provided by modern browser technologies.