ESCAPE ROOM
SOFTWARE

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September 7th, 2025

Team Name: S²TN

Escape Room Software Requirements Part 2

1. Introduction project wide

1.1 Purpose

This document introduces the Escape Room Software project at a project wide level. It explains what the product is, why it exists, and how success will be measured over time. It is written so it can remain stable as the project grows while later sections are expanded.

1.2 Product vision

Deliver a single player browser-based escape and puzzle experience that is easy to start, accessible on common devices, and satisfying for different player types. The product should enable short sessions, progressive hinting, and a sense of achievement without requiring downloads or accounts for the MVP.

1.3 Goals and objectives

- Make onboarding simple so a first-time player can begin within one minute
- Support three player types with scalable challenge and guidance
- Provide save and resume that works reliably on desktop and mobile browsers
- Capture lightweight analytics that explain completion and drop off
- Build a foundation that can support episodic content in later releases

1.4 Scope boundaries

In scope at the project level
- Single player browser experience
- Progressive hinting and clear feedback
- Local save and resume using browser storage
- Basic analytics and reporting

Out of scope at the project level for MVP
- Multiplayer of any kind
- Native mobile applications
- Heavy 3D engines or large asset pipelines
- Third party marketplace for user generated rooms

1.5 Definitions and acronyms
- MVP Minimum Viable Product
- Session One playthrough from start to completion or exit
- Puzzle node A gated interaction that reveals progress when solved
- Save and resume Local persistence that restores puzzle state

2. Stakeholders and personas assignment deliverable, reusable

2.1 Stakeholders

- Players end users who want engaging puzzles and smooth onboarding
- Product and Design define puzzle flow, difficulty, and UX standards
- Engineering delivers the web app, puzzle engine, persistence, and analytics
- QA validates puzzles, states, hint logic, and accessibility
- Content creators design puzzle nodes, hints, and narrative text

2.2 Personas aligned to the team template

Persona 1 Jake Morrison Hardcore Puzzle Solver
- Snapshot Age 28, bachelor's in communications, single, enthusiastic gamer
- Hobbies and lifestyle multiplayer games, competitive puzzles, streams and forums
- Personality curious, competitive, detail oriented
- Quote I love the thrill of solving puzzles under pressure. If it feels real, I am hooked.

Persona 2 Daniel Rodriguez Medium Difficulty Seeker

- Snapshot Age 37, bachelor's in biology, married, casual gamer
- Hobbies and lifestyle cooking, streaming, mobile puzzle apps
- Social personality, relaxed, fun seeking
- "I just want a fun and easy to play puzzle game to spend my free time."

Persona 3 Maria Chen Casual Escape Enthusiast

- Snapshot Age 35, MBA in HR, married with one child, time constrained
- Hobbies and lifestyle reading, yoga, planning events
- Personality organized, empathetic, practical
- Quote I need engaging activities to fill my time like virtual puzzle games.

2.3 Persona driven priorities

- Jake high priority on challenge depth and precise input feedback
- Daniel has medium priority on guidance, clear affordances, and steady wins
- Maria medium priority on accessibility, low friction starts, and short sessions

Jake Morrison

Age: 28

Education: bachelor's in communications

Lifestyle: Single, enjoys online gaming

Hobbies: Multiplayer games, puzzle-solving

Personality: Curious, competitive, detail-oriented

Quote: *"I love the thrill of solving puzzles under pressure. If it feels real, I'm hooked."*

Goals: To play challenging, immersive puzzle games.

Extrovert — Introvert

Sensing — Intuition

Thinking — Feeling

Judging — Perceiving
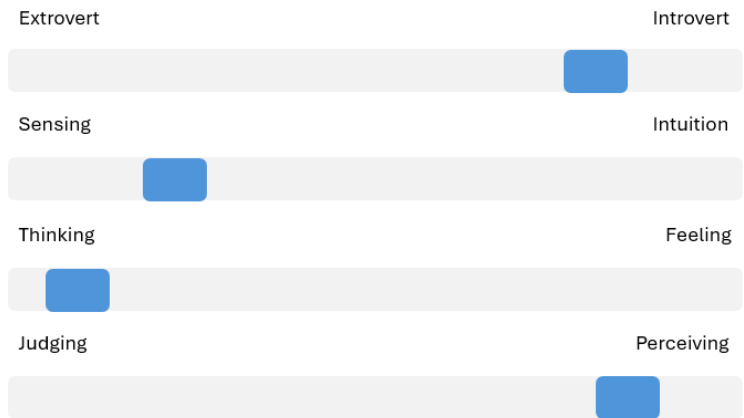
Goals	High Challenge
Secrets, Depth	Fast Feedback
Pain Points	Overly Obvious
Clunky Interactions	Long Reloads
Success Metrics	Without Hints
Difficultly Option	Optional Achievement

IT & Internet

Software

Mobile Apps

Social Networks

Relevant Brands

RAZER
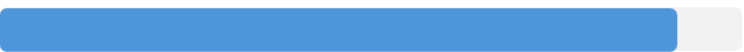
Daniel Rodriguez

Age: 37

Education: bachelor's in biology

Lifestyle: Married, enjoys casual online games

Hobbies: Cooking, Netflix, Puzzle Apps

Personality: Social, relaxed, loves fun experiences

Quote: *"I just want a fun and easy to play puzzle game to spend my free time"*

Goals: Play Exciting Puzzle escape room game.

Extrovert — Introvert

Sensing — Intuition

Thinking — Feeling

Judging — Perceiving
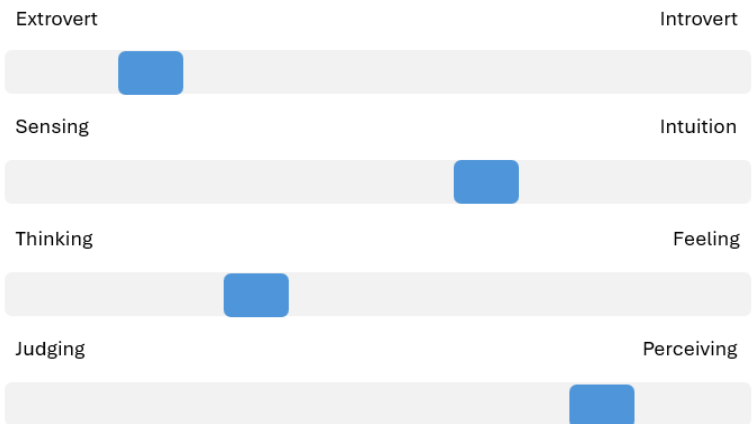
Goals	Clear affordance
Steady progress	Hints that guide
Pain Points	Confusing Controls
No guidance	Tiny hit targets
Success Metrics	Reduce early drop off
Positive session rating	Balance hint usage

IT & Internet

Software

Mobile Apps

Social Networks

Relevant Brands

Maria Chen
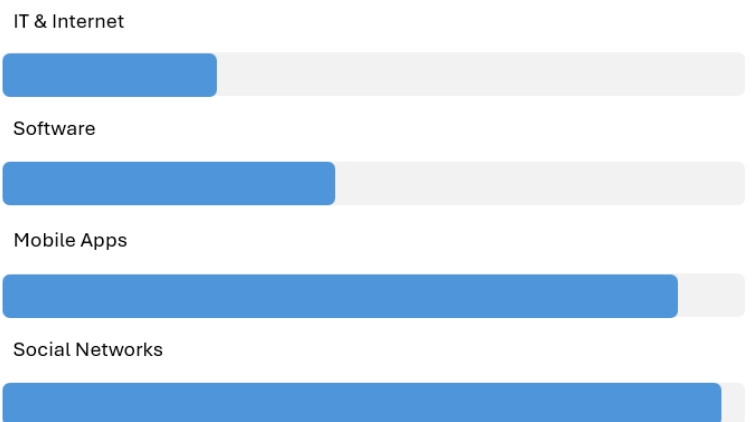
Age: 35

Education: MBA, Human Resources

Lifestyle: Married with one child, values alone time

Hobbies: Reading, Yoga, planning events

Personality: Organized, empathetic, practical

Quote: *"I need engaging activities to fill my time with like virtual puzzle games."*

Goals: Wants to play virtual escape rooms.

Extrovert		Introvert

Sensing		Intuition

Thinking		Feeling

Judging		Perceiving
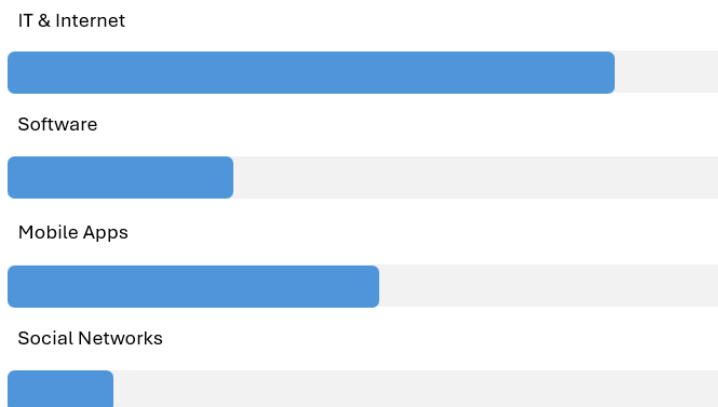
Goals	Start immediately
Accessible controls	Short Sessions
Pain Points	Heavy downloads
Strict Timers	Low contrast
Success Metrics	Win under 5 minutes
Accessibility check	Short sessions

IT & Internet

Software

Mobile Apps

Social Networks

Relevant Brands

	Jake	Daniel	Maria
Goal: Challenge and depth for solo play			
Tasks:			
Optional hard mode branches and meta puzzles	H	M	L
Precise interaction feedback and forgiving input matching	H	M	M
Minimal UI latency and fast transition	H	M	L
Optional timer and badges for master	M	L	L
Goal: Guidance and smooth Flow			
Tasks			
First session tutorial and guided start	M	H	H
Progressive hint system that moves from judge to reveal	M	H	L
Clear affordances and next step indicators	L	H	H
Undo and per puzzle reset without losing overall progress	L	M	H
Goals			
Tasks			
One click web start with no account wall	M	H	H
Save and resume using browser storage	M	M	H
Text size and contrast controls	L	M	L
Keyboard navigation and screen reader labels	L	M	H

Priority   User

H = High   Jake = Hardcore Puzzle Solver
M = Medium   Daniel = Likes medium difficulty puzzles
L = Low   Betty = Casually likes to play puzzle games

3. Constraints assignment deliverable, reusable

3.1 Platform and environment

- Single player only
- Modern desktop and mobile browsers
- Best experience on laptop or desktop
- No downloads and no plugins

3.2 Accessibility

- Keyboard navigable with consistent focus order
- Adequate contrast and scalable text
- Alt text or labels for icons and controls

3.3 Performance

- Fast first content full interaction
- Minimal assets and simple rendering
- Tolerate brief network hiccups without progress loss

3.4 Data and privacy

- Local save and resume via local Storage or Indexed DB
- Privacy respectful analytics on completion and drop off
- No collection of personally identifiable information for MVP

3.5 Content and legal

- Text and logic focused puzzles
- Only licensed or original assets
- Basic compliance awareness for education contexts when applicable

4. Overall description assignment deliverable, reusable

4.1 Product perspective

A self-contained browser app that loads from a URL. A single player progresses through puzzle nodes managed by a small state machine that tracks solved states, gates, and available hints. No plugins are required.

4.2 User classes and characteristics

- Hardcore solvers minimal hints and higher difficulty
- Medium difficulty players optional hints and clear affordances
- Casual players easy start, short sessions, and accessible UI

4.3 Operating environment

- Desktop latest Chrome, Firefox, Safari, Edge
- Mobile current iOS Safari and Android Chrome
- Storage browser storage for save and resume

- Analytics lightweight client events with anonymized session identifiers

4.4 Design and implementation notes

- Navigation point and click with textual and visual clues
- Hints escalate from nudge to reveal and never block progress
- Feedback explicit success criteria and immediate confirmation
- State puzzle engine exposes events for solved, progressed, and reset
- Internationalization strings externalized for future localization

4.5 Assumptions and open questions

- Assumptions of single player MVP, web only, progressive hinting, local persistence
- Open questions branding assets, target content rating, priority languages for localization, and desired analytics dashboards

5. Business Use Cases

5.1 Main Business Use Case Diagram

This business use case diagram illustrates the player's flow through the game, beginning with registration, login, or guest access, and leading to the main menu. From the main menu, players can access help, settings, save/load options, or the map before proceeding to puzzle-solving, which is the core gameplay loop. The diagram shows key interactions such as requesting hints, handling timers or fail states, and applying penalties for wrong answers. Finally, the flow concludes with the post-game score summary, followed by optional leaderboard and achievement displays, providing closure and motivation for players.
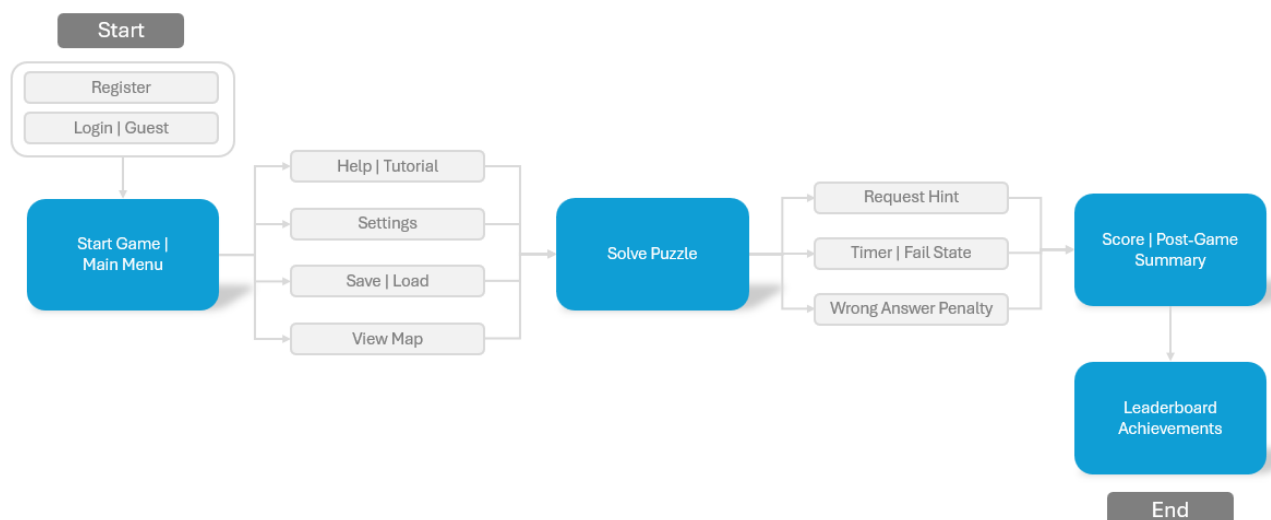
5.2 Entry Flow Diagram

This entry flow diagram outlines how players first access the game. After launching the game, players are directed to the main menu. From there, they can either register a new account, log in with existing credentials, or proceed with guest play. Once an access method is chosen, players can start the game, transitioning into the core gameplay experience.

Entry Flow

Launch Game
NFR-23

Main Menu
FR-14

| Register | Login | Guest Play |
| FR-6 | FR-1 | FR-7 |

Start Game
FR-15
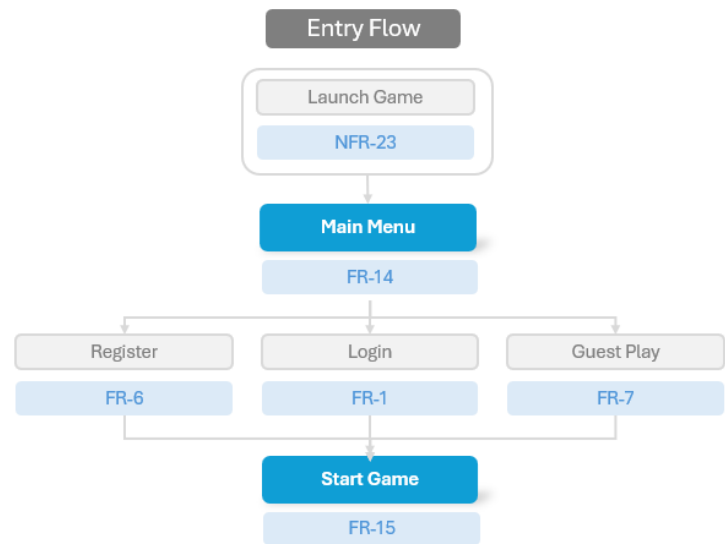
5.3 Player Onboarding | Settings

This diagram presents the onboarding and settings features available to players. It highlights tutorial guidance with an option to skip, access to the in-game map, and session controls such as pause and resume. Players can adjust settings like audio and accessibility, while saving options include autosave, manual save/load, and

Player Onboarding | Settings

| Tutorial | Tutorial Skip | Map Access |
| FR-18 | FR-22 | FR-23 |

FR-56-57.2
Settings
Audio

Autosave
FR-10
Save Load
FR-11-12
Multiple Save
FR-13

FR-17
Pause
Resume

multiple save slots. Together, these features support smooth onboarding, flexible session management, and accessibility adjustments for different player needs.
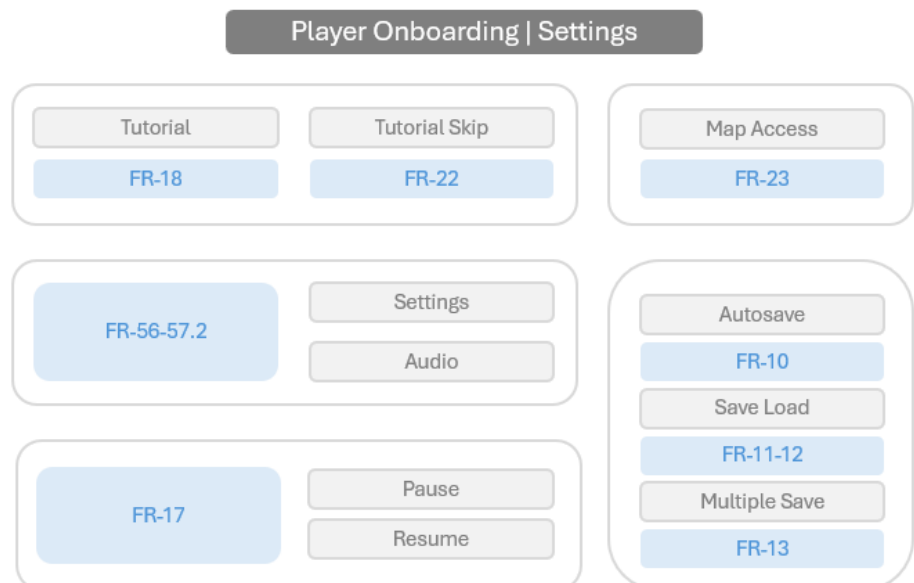
5.4 Gameplay Loop

This diagram illustrates the core gameplay loop. Players select puzzles from the objectives panel and attempt different puzzle types, including core puzzles, shape matching, and variations. When an attempt is correct, the system records completion, unlocks the next area, and plays a successful animation, advancing the player to the next puzzle. If the attempt is incorrect, penalties are applied by reducing score or progress, and the player must try again. This loop emphasizes progression, feedback, and balanced challenge.
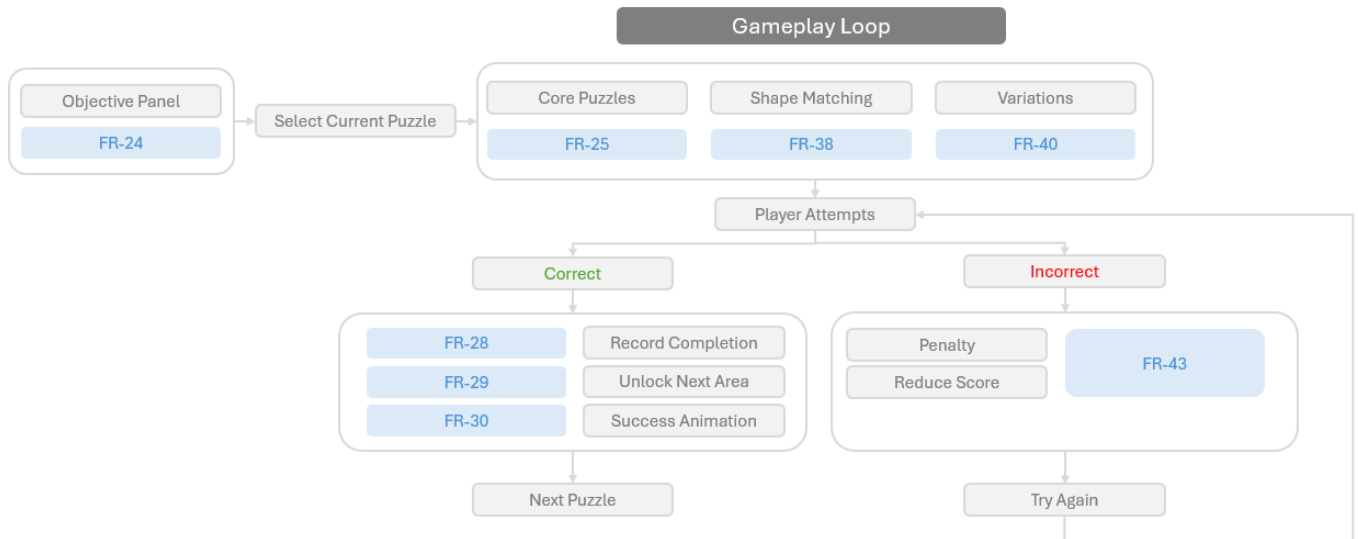
5.5 End Session

This diagram shows the sequence of events when a game session ends. The system ensures gameplay stays within the intended length, then calculates the player's score. A post-game summary is displayed, followed by a score card that includes encouragement. Finally, results may be added to the leaderboard, giving players recognition and closure to their session.
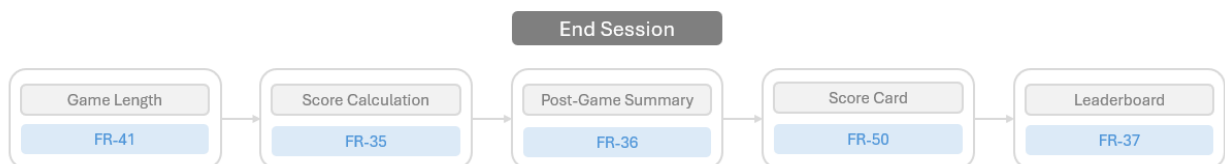
5.6 Account Profile

This diagram highlights account-related features available to players. Profile customization allows users to set a name and avatar, personalizing their experience. The clue inventory

provides storage and detail views for collected puzzle clues, helping players track progress. Together, these features support both personalization and functional gameplay management.
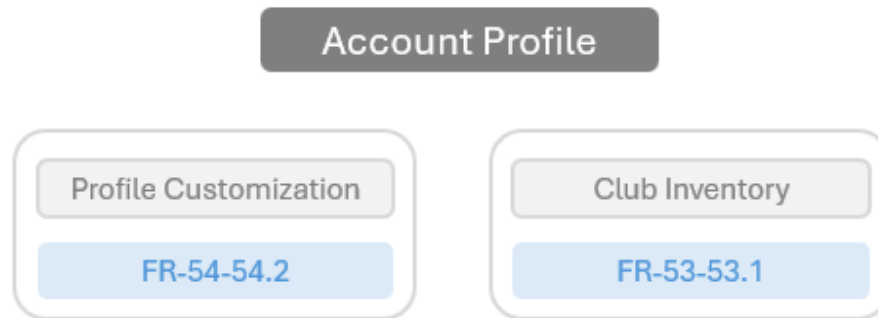
```
Account Profile

    Profile Customization              Club Inventory

        FR-54-54.2                        FR-53-53.1
```

6. Functional Requirements

The functional requirements cover account access, session management, navigation, puzzle gameplay, scoring, and end-game feedback. Features include login/guest play, saves, tutorials, puzzles with hints and penalties, dynamic difficulty, profiles, and accessibility settings.

Google Sheet Link: S²TN Software Requirements

Requirement ID	Requirement Name	Requirement Description	Priority	Rationale	Feature/Category
1	Login	The user shall log in through a login screen.	High	Required for secure access.	User Accounts
2	Credential Check	The system shall verify credentials for a registered user.	High	Ensures only valid users log in.	User Accounts
3	Invalid Login Error	The system shall display an error when credentials are invalid.	High	Provides feedback on failed attempts.	User Accounts
4	Account Lockout	The system shall lock out a user after five failed login attempts.	High	Protects against brute-force attacks.	User Accounts
5	Password Reset	The user shall reset a password via email if forgotten.	High	Allows account recovery.	User Accounts
6	Registration	The user shall create a new account with required fields:	High	Allows new players to join.	User Accounts
6.1	Required Info	- The user shall provide a username, password, and email address.	High	Basic identity data.	User Accounts
6.2	Age Confirmation	- The user shall confirm they are 10 years or older.	High	Ensures compliance with game's age rating.	User Accounts
7	Guest Account	The user shall play as a guest without creating an account.	Medium	Allows casual access.	User Accounts
8	Logout	The user shall log out of the system on request.	Medium	Supports session management.	Session Management
9	Session Timeout	The system shall log out the user automatically after 30 minutes of inactivity.	Medium	Improves security.	Session Management
10	Autosave	The system shall autosave progress after every puzzle solve.	High	Prevents progress loss.	Session Management
11	Manual Save	The user shall manually save progress from the pause menu.	Medium	Provides control over session.	Session Management
12	Load Game	The user shall load saved progress from the menu.	High	Required to resume play.	Session Management
13	Multiple Saves	The system shall allow the user to maintain multiple saved sessions.	Medium	Adds flexibility.	Session Management
14	Main Menu	The system shall display a main menu on start.	High	Provides entry point to game features.	Game Navigation
15	Start Game	The user shall start the game environment from the main menu.	High	Required to begin gameplay.	Game Navigation
16	Help Menu	The user shall open a help screen on request.	Low	Assists players when needed.	Game Navigation
17	Pause	The user shall pause gameplay using a menu command.	Medium	Allows breaks during play.	Game Navigation
18	Tutorial	The system shall provide tutorial guidance for new players.	Medium	Improves onboarding.	Game Navigation
19	Offline Play	The user shall play offline after downloading the game.	Low	Allows play without internet.	Game Navigation
20	Quit Confirmation	The system shall display a confirmation before quitting.	Medium	Prevents accidental exit.	Game Navigation
21	Resume	The user shall resume a paused game from the pause menu.	Medium	Improves flow.	Game Navigation
22	Tutorial Skip	The user shall skip the tutorial if desired.	Medium	Supports experienced players.	Game Navigation
23	Map Access	The system shall provide an in-game map of explored areas.	Medium	Improves navigation.	Game Navigation
24	Objectives Panel	The system shall display a persistent objectives panel.	Medium	Guides gameplay.	Gameplay & Puzzles
25	Core Puzzles	The system shall include primary puzzles.	High	Core gameplay feature.	Gameplay & Puzzles

7. Non-Functional Requirements

The non-functional requirements cover usability, performance, maintainability, security, cultural, and legal standards. Features include readability, accessibility, quick load times, reliable saves, crash recovery, secure data handling, cultural appropriateness for ages 10+, and compliance with COPPA, GDPR, and copyright laws.

Google Sheet Link: S²TN Software Requirements

Requirement ID	Requirement Name	Requirement Description	Priority	Rationale	Feature/Category
1	Replayability Priority	The system shall be designed for single playthrough; replayability is optional.	Low	Aligns with scope.	Gameplay & Puzzles
2	Text Size	The system shall render body text at least 14 px.	Medium	Ensures readability.	Look and Feel
3	Resolution Support	The system shall support the following resolutions.	Medium	Ensures device flexibility.	Look and Feel
3.1	720p	- The system shall support 1280 × 720 (720p).	Medium		Look and Feel
3.2	1080p	- The system shall support 1920 × 1080 (1080p).	Medium		Look and Feel
4	Text & Image Mix	The system shall present information using both pictures and short text.	High	Reduces cognitive load and avoids walls of text.	Look and Feel
5	Sound Support	The game shall include background music and sound effects.	Medium	Enhances immersion.	Look and Feel
6	Thematic Consistency	The game shall maintain a consistent "fantastic, far-out" theme across puzzles and story.	Medium	Ensures immersion and cohesion.	Look and Feel
7	Focus State	The system shall show a visible focus state on controls.	Medium	Improves accessibility.	Usability
8	Menu Load Time	The system shall load the main menu in under 3 seconds.	Medium	Improves usability.	Usability
9	Accessibility Standard	The system shall comply with WCAG 2.1 accessibility standards.	High	Meets accessibility requirements.	Usability
10	Tutorial Clarity	The tutorial shall be designed with clear, step-by-step instructions.	High	Ensures new players understand how to play.	Usability
11	Tutorial Skip	The system shall allow skipping the tutorial at any point.	Medium	Supports experienced players.	Usability
12	Encouraging Feedback	The system shall provide positive feedback messages in score cards and summaries.	Medium	Encourages players and reduces frustration.	Usability
13	Key Rebinding	The system shall allow players to rebind keys in settings.	Low	Supports accessibility and customization.	Usability
14	Accessibility Priority	Accessibility features (e.g., subtitles, contrast) shall be included with priority 4.	Low	Recognizes scope but ensures inclusivity.	Usability
15	Replay Limitation	The system shall be optimized for single playthrough; replayability is optional.	Low	Keeps design scope simple.	Usability
16	Achievement Tracking	The system shall store and display achievements for completed milestones.	Low	Provides motivation.	Usability
17	Key Rebinding	The system shall allow players to rebind keys in the settings menu.	Low	Supports customization.	Usability
18	Startup Speed	The system shall reach interactive state within 5 seconds.	High	Reduces wait time.	Performance
19	Save Speed	The system shall complete a save within 1 second.	High	Prevents gameplay disruption.	Performance
20	Availability	The system shall maintain 99.5% uptime during normal operations.	High	Ensures reliability.	Performance
21	Scalability	The system shall handle at least 200 concurrent users without performance loss.	Medium	Supports multiplayer use.	Performance
22	Session Duration	The system shall be designed to allow completion in 30–45 minutes.	High	Matches assignment scope and player expectations.	Performance
23	Offline Support	The game shall run fully offline once downloaded.	High	Ensures accessibility without internet.	Performance
24	Cross-Platform	The system shall support both Windows and macOS.	Medium	Expands usability across platforms.	Performance
25	Difficulty Adaptation	The system shall dynamically adjust difficulty based on player performance.	High	Keeps challenge balanced without frustration.	Performance
26	Platform	The system shall run on desktop computers without requiring internet access.	High	Supports offline play.	Performance
27	Cross-Platform	The system shall support Windows and macOS.	High	Broad accessibility.	Performance
28	Valid States	The system shall prevent unwinnable states under valid play.	High	Ensures fair gameplay.	Maintainability & Support

9. Competitive Analysis

Implications for MVP

- Keep the experience web only with minimal friction
- Provide progressive hints and clear success feedback
- Support save and resume locally to reduce abandonment
- Benchmark communication patterns and state handling before expanding to multiple episodes or multiplayer

The Java Shop's Perfect Grind

Product type	Online escape room custom narrative puzzle
How it's played	Play online in a single session solve coffee shop themed clues to locate hidden backup bean approximately 60 minutes
Players	1
Monetization	$15
Notable features, constraints	Priced per person and commonly offered for small groups but works well solo
Why it matters about your design	Shows how personal details can drive engagement supports the case for optional custom episodes and themed content reinforces the value of a clear timebox and a focused single session flow

Enchambered - Alone Together
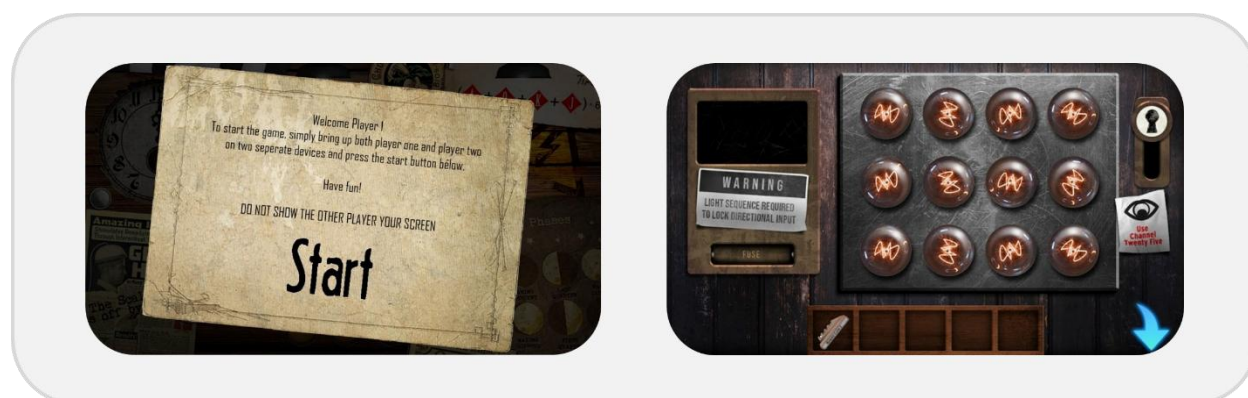
Product type	Browser-based puzzle game
How it's played	partner sees different clues; communicate to solve
Players	1
Monetization	Free
Notable features, constraints	Not timed (suggested ~45 min), best on laptop; relies on pure communication
Why it matters about your design	Benchmarks communication-locked puzzle design & accessibility (no downloads).

The Escape Game – Unlocked

Product type	Digital escape room series (point-and-click + ARG-style web)
How it's played	Play anytime on any device; start/stop/save
Players	1 (self-paced)
Monetization	Per-episode purchase; bundle discount
Notable features	Local save/resume; finite-state puzzle engine (interfaces)

Competitive Analysis Summary

Across the three reference products

- **The Java Shop's Perfect Grind** shows strong engagement through a focused 60-minute session, a simple online delivery, and the appeal of bespoke content that can be customized for special occasions.
- **Enchambered Alone Together** highlights low friction browser access and communication centered puzzle design that teaches us the value of clarity, accessibility, and zero download starts.
- **The Escape Game Unlocked** demonstrates an episodic model with start and stop convenience and save and resume, which keeps solo players in control of pacing.

What this suggests for our product

- Keep it **web only** with **no downloads** and make the first click to play as fast as possible.
- Target a **clear single session length of** around **5 to 60 minutes**, with a visible path to completion and lightweight analytics to monitor drop off.
- Ship a **progressive hint system** that moves from nudge to reveal so solo players never get hard stuck.
- Include **reliable save and resume** for players so sessions can pause without penalty.
- Consider **episodic content** and **optional custom themed episodes** as future offerings, taking cues from the proposal-based game and the series model.
- Maintain **accessibility basics** such as readable text, keyboard navigation, and clear affordances to keep friction low for all people.