LIFE SIMULATOR

Game Design Document

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Assets Credits:

Icons: https://clockworkraven.itch.io/raven-fantasy-icons

Character Templates: https://erisesra.itch.io/character-templates-pack

Modern Interiors: https://limezu.itch.io/moderninteriors

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1. Game Overview

1.1 Concept

Life Simulator is an AI-dynamically driven, text-based 2D life simulation game with pixel visual aesthetics. Players begin their journey at age 0 and navigate through a series of AI-generated or predefined major decisions and daily events, crafting a unique virtual life experience from birth, growth, career, and family to the final ending.

1.2 Core Features

AI-Driven Narrative (Primary Innovation)

The game's core appeal lies in its revolutionary use of AI technology. Utilizing the DeepSeek API, the system dynamically generates endless, logical, and surprising life events based on the player's real-time attributes, age, and past experiences. This breakthrough eliminates the traditional limitations of finite event libraries and repetitive gameplay found in conventional life simulation games.

Deep Attribute & Relationship System

Features 4 core attributes (Wealth, Health, Knowledge, Appearance), 3 hidden attributes (Happiness, Charm, Fame), and a complex relationship network including parents, siblings, friends, romantic interests, and spouses. Every player choice creates ripple effects throughout these interconnected systems.

Hybrid Visual Style

Combines retro pixel art for characters and environments with modern UI design featuring semi-transparent, high-contrast information panels. This approach creates immersion while ensuring clear information delivery.

Pivotal Life Stages System

The game ensures a coherent life narrative through predefined system events (college entrance exams, job applications, marriage, home purchases) while AI fills the spaces between these milestones with daily life and unexpected events, achieving "clear main storyline with infinite details."

Minimalist Interaction

Gameplay centers on choice-making through simple buttons and panels, allowing players to focus on the narrative itself while maintaining a low barrier to entry.

1.3 Target Audience

- Players who enjoy life simulation, text adventure, and narrative-driven games
- Explorers interested in AI technology applications in game creation

- Casual players seeking lightweight, immersive, and replayable experiences
- Fans of pixel art and retro aesthetics

1.4 Platform

Primary Platform: Web (PC browser optimized, mobile compatible)

Technical Implementation: HTML5, CSS3, JavaScript

2. Gameplay Mechanics

2.1 Core Loop

1. **Event Trigger:** System triggers a new event based on player's current state (age, attributes, etc.) - either AI-generated or predefined
2. **Narrative Display:** Event description appears with typewriter effect in the narrative panel
3. **Player Choice:** Player selects from 2-3 available options
4. **Stat/Relationship Update:** System updates core attributes, hidden attributes, and relationship values based on player choice
5. **State Feedback:** UI panels (attribute bars, relationship indicators) update in real-time to show consequences
6. **Age Progression:** Player ages and enters the next cycle

2.2 Attribute System

Core Stats

- **Wealth:** Financial resources that affect purchasing power, quality of life, and certain career opportunities.
- **Health:** Physical condition that influences lifespan, energy levels, and disease resistance. Key factor in game ending.
- **Knowledge:** Educational attainment that affects education level, career choices, and complex problem-solving abilities.
- **Appearance:** Physical attractiveness that influences social interactions, charm, and specific career opportunities.

Initial Allocation: At game start, players receive 15 free points to distribute among these 4 attributes (maximum 10 points per attribute).

Hidden Stats

- **Happiness:** Core emotional indicator affected by most events. Low values trigger negative events. Always visible to player.
- **Charm:** Composite of Appearance, Knowledge, and Health. Affects social success rates. Unlocks at threshold value.
- **Fame:** Composite of Wealth, Knowledge, and special achievements. Affects social status and special opportunities. Unlocks at threshold value.

2.3 Event System

Events drive the core gameplay and fall into four categories:

Normal Events

AI-generated events based on player's current life stage (childhood, youth, middle age, elderly) and status. These form the game's primary content.

System Events

Mandatory milestone events triggered at specific ages or conditions, such as college entrance exams at 18, job applications at 22, and housing/vehicle purchase opportunities. These ensure core game progression.

Random Events

Low-probability events with major impact, categorized as:

- **Positive:** Lottery wins, meeting influential people
- **Negative:** Accidents, unemployment
- **Major Decisions:** Marriage proposals, entrepreneurship opportunities

Relationship Events

Character-specific interactions (parents, friends, etc.) that directly affect affection ratings.

2.4 Relationship System

Affection Rating

Each important character (parents, siblings, friends, partners) has an affection value ranging from -100 (hatred) to +100 (devoted love).

Dynamic Generation

Friends, romantic interests, and other characters are dynamically generated through AI events during gameplay.

Interaction & Influence

High affection brings assistance and positive events (parental financial support, friend referrals), while low affection may cause conflicts and negative events.

2.5 Economy & Purchase System（FIXING）

Income

Primary source is employment salary, determined by profession, education level, and years of experience.

Assets

Players can buy or sell assets through the interaction panel, including housing and vehicles.

Investment

Players can make investments in stocks and real estate. Investment outcomes are randomized with high risk, high reward mechanics.

Debt

High-value asset purchases or certain educational paths create debt that affects financial status.

3. Technical Implementation

3.1 Tech Stack

Frontend

- **Structure & Styling:** HTML5, CSS3
- **Core Logic:** JavaScript (ES6+)
- **Visual Rendering:** p5.js drives pixel-style Canvas backgrounds, character animations, and visual effects

Backend

- **Architecture:** Vercel Serverless Functions (Node.js)
- **Purpose:** Acts as secure proxy, receiving frontend requests and safely calling external AI services with API keys, preventing client-side key exposure

Artificial Intelligence

- **Model:** DeepSeek API (deepseek-chat model)
- **Function:** Dynamically generates the majority of game event text and options

Deployment & Version Control

- **Code Repository:** GitHub
- **Automated Deployment:** Vercel (linked to GitHub repository for Push-to-Deploy functionality)

3.2 Development Pipeline

1. **Concept & Design:** Write GDD, establish core gameplay and visual style
2. **Prototyping:** Rapid UI framework and attribute system development using HTML/CSS/JS
3. **Backend & AI Integration:** Deploy Vercel Serverless Functions, implement secure DeepSeek API communication
4. **Core Mechanics Development:**
    - Implement event system and choice-consequence mechanics
    - Develop relationship and economic systems
5. **Visual System Development:**
    - Integrate p5.js and create PixelEngine
    - Implement scene loading, character spritesheet animation, and scene transition logic

6. **Audio & Localization（FIXING）:**
    - Integrate background music (BGM) and sound effects (SFX)
    - Build multilingual text library
7. **Testing & Optimization:**
    - Fix bugs (UI, logic, performance)
    - Optimize loading times, AI prompts, and animation smoothness
8. **Deployment:** One-click deployment to production via Vercel