

## Assignment 5: Final Game Project

**Objective:** As the culminating assignment of this course, students are required to deliver a final game project that showcases a complete, innovative, and technically sophisticated game, created collaboratively with your group mates using CrewAI and LLM-powered agents. This final submission should reflect the cumulative knowledge and skills acquired throughout the semester—including prompt engineering, multi-agent coordination, and advanced game mechanics.

The game must demonstrate:

- Innovative design
- Sophisticated game mechanics
- High-quality visuals and sound
- Clear contribution from CrewAI agents in all phases of development

## Instructions

- **Final Game Requirements**
  - The game concept must be original and significantly more ambitious than earlier assignments.
  - The game should feature:
    - Engaging and challenging mechanics
    - Appealing and dynamic visuals
    - A clear progression or scoring system
    - Responsive controls (keyboard and/or touch-based)
    - A mobile-friendly UI and gameplay experience
- **Game Design Document**
  - Prepare a concise design document covering:
    - Game concept and objectives
    - Core mechanics and features
    - Target audience and platform considerations
    - Screenshots or sketches (optional but encouraged)
- **CrewAI Integration**
  - You must utilize CrewAI with specialized agents:
    - Example roles: Game Logic Developer, UI/UX Designer, Asset Integrator, Prompt Engineer, Debugging & QA Tester, Etc.

- Each agent must use refined, role-specific GPT prompts informed by previous assignments.
- Agents should communicate and coordinate to collaboratively build and improve the game.

- **Version Control and Repository Management**

- Maintain your full project on a GitHub repository:
  - Include a README.md describing the project and setup instructions
  - Maintain a clean and traceable commit history
  - Include a .gitignore file to manage non-essential files

- **Game Implementation Guidelines**

- Ensure the game adheres to the HTML5 game structure and the provided game template:
  - game.html, game.css, game.js
  - Place assets in folders: images/<image-files>, sounds/<sound-files>, data/<other-game-assets>, etc.
  - **Responsive Design:**
    - Generate images with multiple aspect ratios to accommodate different device screen sizes.
    - Implement CSS media queries to switch between image versions based on device dimensions.
  - **Touch-Friendly Controls:**
    - Optimize UI elements and controls for touch interactions on mobile devices.
  - **Performance Optimization:**
    - Compress and optimize image and audio files to ensure quick load times and smooth performance on mobile devices.

**Deliverables:**

New game files (HTML, CSS, JavaScript) with images (images/PNGs, images/JPGs, etc.), sounds.

Video Demo (.mp4): A recorded demo of the game in action.

Link to updated Github repository with all of your latest code changes and game material.

A report including:

- **List of Image Assets Generated:** Screenshots and their usage purposes.
- **List of Audio Assets Integrated:** Descriptions of each audio asset and its role in the game.
- **Agent Roles and Interactions:** Explanation of how different agents contributed to asset generation and integration.
- **Challenges Faced and Solutions Implemented:** Insight into any difficulties encountered during asset integration and the strategies used to overcome them.