Challenge 3 Report

Vibe Coding: Play to Impact

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1. Introduction

Wildlife conservation is one of the most important challenges of our time. Many people are unaware of which animal species are facing extinction, partly because it's hard to recognize them. To help solve this problem, we decided to create a simple and fun game. Our goal is to raise awareness about endangered animals in a way that is engaging and memorable for everyone, not just experts.

Our project is an interactive web-based game designed to teach players to distinguish between common animals and those that are endangered, often listed in the "Red Book." By turning this learning process into a game, we hope to capture the attention of a wider audience. We believe that by making education enjoyable, we can help foster a greater appreciation for wildlife and encourage more people to support conservation efforts.

2. Game Overview

The game begins with a simple startup screen where the player enters their name to get started. After entering a name, they are taken directly into the main game. The screen fills with a vibrant, nature-themed background, and different types of animals begin to fall from the top of the screen towards the bottom. The player controls a hand icon with their mouse, which they can move anywhere on the screen.

The main objective is to "catch" the correct animals by hovering the hand over them. For every common, non-endangered animal the player catches, they earn one point. However, endangered animals also fall among the common ones. If the player accidentally touches one of these protected species, they lose a life. The game ends when the player runs out of all their lives, at which point their final score is displayed on a high-score table.

3. Game Mechanics and Design

The core mechanic of our game is a "falling object" system where the player interacts using simple mouse movements. There is no need for clicking; the player simply has to hover their hand over the falling animals to catch them. This makes the game very easy to pick up and play for people of all ages.

To make the game both fun and educational, we designed a special warning system. The very first time a player touches an endangered animal, the game pauses, and a message appears explaining that the animal is a rare species that shouldn't be touched. After the player acknowledges this message, the game continues. On any future contact with an endangered animal, the player will simply lose a life without a warning. This mechanic ensures the player learns from their first mistake. The game's difficulty also increases as the player scores more points, the animals fall faster, and more endangered animals appear on screen.

4. Technical Implementation

The game was built using standard and accessible web technologies, making it playable on any modern browser without needing to install anything. The main structure of the game is created with HTML, which sets up the different screens like the start screen, the game screen, and the final score screen. All the visual styling, including the layout, colors, and button designs, was

done using CSS.

The core logic that makes the game run is powered by JavaScript. We used the HTML *<canvas>* element to draw the game world, including the falling animals and the background. A central "game loop," created with the *requestAnimationFrame* function, updates the position of every animal on the screen and redraws the scene continuously to create smooth motion. Player high scores are saved in the browser using *localStorage*, allowing them to see their best results even after closing the game.

5. AI Integration and Development Process

A key part of our development process was using Artificial Intelligence to create the visual assets for the game. All of the beautiful and unique background images were generated using AI image creation tools. We provided these tools with text prompts describing natural habitats, like jungles and forests, and the AI produced artwork for us.

While the backgrounds were AI-generated, the animal images were sourced from various online resources. We then manually edited these images to remove their original backgrounds, making them transparent. This was an important step to ensure that the animals would look natural as they fell over our custom-made backgrounds.

6. Impact and Relevance

This game has a direct and positive impact by making environmental education more accessible and entertaining. Instead of requiring people to study lists of endangered species, our game uses interactive gameplay to teach them. This concept, known as "gamification," helps people learn and remember information more effectively because they are actively involved in the process. The immediate consequence of losing a life for touching an endangered animal creates a strong mental link and reinforces the learning objective.

The relevance of this project lies in its ability to raise awareness for a critical global issue. By helping players recognize endangered animals, we hope to spark their curiosity and encourage them to learn more about wildlife protection. A player who learns to avoid a specific animal in the game might be more likely to recognize its importance in the real world. In this way, our simple game can serve as a stepping stone towards a greater public appreciation of biodiversity and the need for conservation.

7. Reflection and Future Work

Reflecting on the project, we are proud to have created a fully functional and educational game from scratch. The core mechanics work well, and the warning system for first-time mistakes is an effective teaching tool. Using AI to generate the backgrounds was a major success, saving us a lot of time and resulting in beautiful visuals, though a key challenge was balancing the game's difficulty to ensure it was fun for new players but still engaging over time. Looking ahead, we plan to expand the game by adding more touchable and untouchable animals, introducing new levels set in unique habitats like the ocean or the arctic, and incorporating sound effects and background music to make the experience more immersive. Finally, creating a mobile-friendly version is a top priority to allow us to reach an even larger audience.

8. References

To ensure the educational accuracy of our game, the classification of animals as "endangered" or "untouchable" was based on information from globally recognized conservation authorities.

- IUCN Red List of Threatened Species. This was our primary source for identifying animals that are at high risk of extinction.
- MDN Web Docs (Mozilla Developer Network)**.** Used as a comprehensive reference for the implementation of HTML, CSS, and JavaScript technologies.
- AI Image Generation Platforms. Various AI tools were used for the conceptualization and creation of the game's background assets.