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School of Artificial Intelligence and Computer Science, Nantong University (人工智能研究院合署)

UI 设计基础

Introduction to UI Design Course

REPORT ON

USER INTERFACE DESIGN WITH UNITY

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Overview

This report outlines the various projects I completed during my learning journey in Unity game development. It includes an overview of the games I created, the skills and knowledge I acquired, and the outcomes of my efforts. Unity, as a versatile and user-friendly game development platform, provided me with a solid foundation to explore the world of interactive game creation. Through these projects, I gained hands-on experience in programming, designing game mechanics, and enhancing user experience with sound effects, particle systems, and intuitive user interfaces. Each project not only tested my problem-solving abilities but also encouraged me to think creatively and adaptively.

Introduction

Game development is a fascinating combination of art, logic, and user interaction, offering endless possibilities to bring creative ideas to life. My journey with Unity began as an exploration into the world of interactive programming and game design. This report reflects my progression through various projects designed to incrementally introduce me to Unity's powerful features and the fundamentals of C# programming.

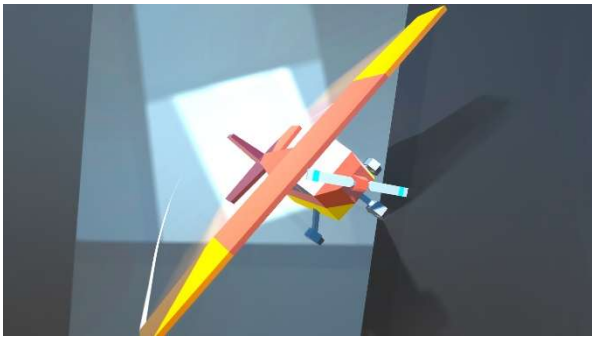
From programming the movement of a simple car to developing arcade-style battles and implementing UI elements, each project built upon the previous, reinforcing key skills and introducing new challenges. By the end of this learning journey, I became proficient in designing, scripting, and polishing games that are not only functional but also engaging and user-friendly.

Description of the Games

1. Unit 1: Player Control

- Programmed a car moving side-to-side on a floating road while avoiding obstacles and make a collision.

- **Challenge:** Controlled an airplane’s pitch and created a dynamic camera system.



2. Unit 2: Basic Gameplay

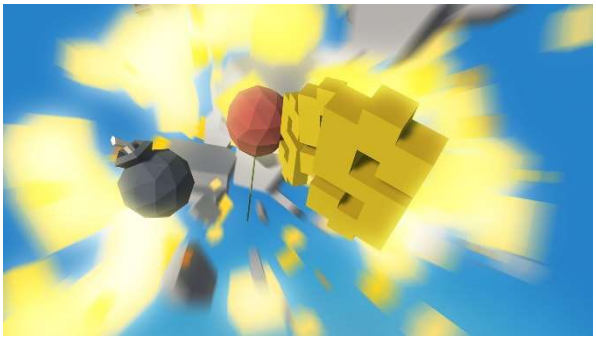
- Created a top-down game where food is thrown at stampeding animals to prevent them from reaching the player.

- Challenge: Developed a game where a dog catches randomly falling balls, using arrays, random generation, and collision detection.

3. Unit 3: Sound and Effects

- Designed an endless side-scrolling runner, integrating sound effects and particle systems for a more immersive experience.

- Challenge: Controlled a balloon to collect money tokens and avoid bombs, troubleshooting errors along the way.



4. Unit 4: Gameplay Mechanics

- Created an arcade-style Sumo battle game with increasing difficulty and power-ups to help the player survive.

- Challenge: Adapted Sumo mechanics to a soccer game, programming power-ups, enemy waves, and defensive strategies.

5. Unit 5: User Interface (UI)

- Developed a reflex-testing game where players destroy objects before they hit the ground, featuring a title screen, score tracker, and Game Over screen.

Learnings

Through these projects, I gained a thorough understanding of the Unity environment and essential game development concepts, including:

1. Programming in C#: Writing scripts to control player actions, object behaviors, and game mechanics.

2. Physics and Collisions: Understanding Unity's physics engine to detect and respond to object interactions.

3. Randomization: Implementing random value generation for dynamic and unpredictable gameplay.

4. Camera Mechanics: Creating dynamic camera systems that follow player movements for a seamless experience.

5. UI Design: Designing intuitive interfaces, including menus, scoreboards, and end-game screens.

6. Sound Integration: Adding music and sound effects to enhance the game's immersion and appeal.

7. Problem-Solving: Debugging errors, optimizing performance, and implementing feedback for improvement.

Outcomes

The successful completion of these projects resulted in:

- A strong foundation in Unity game development and C# programming.

- The ability to design and script functional, interactive, and engaging games.

- A portfolio of completed games demonstrating my skills and creativity.

- Improved problem-solving, debugging, and logical thinking abilities.

- Experience in creating user-friendly interfaces and visually appealing effects.

Conclusion

This series of Unity projects served as a transformative learning experience, equipping me with the technical and creative skills required for game development. By overcoming challenges and troubleshooting errors, I developed a deep appreciation for the intricacies of game design and the effort required to create a polished, engaging product. The knowledge gained through these projects lays the foundation for more advanced explorations into game development, including multiplayer functionality, AI integration, and procedural generation. As I continue to learn and grow, I am excited to push the boundaries of my creativity and technical skills, creating innovative and captivating games for players to enjoy.