Vietnam National University Ho Chi Minh City

University Of Science

Advanced Program in Computer Science

Visualization Game Development

Final - 3D Game

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Contents

1   Contribution

No	Name	Contribution (%)
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2   Idea

In "Cooking Mama", we invite players into a lively culinary world. The game revolves around a prestigious cooking competition, where aspiring chefs team up to showcase their skills. The objective is to rise through the ranks, impress judges, and win the competition. Players take on roles of chefs, each specializing in tasks like chopping, cooking, plating, or serving. Success is all about efficiently preparing diverse dishes, meeting customer demands, and keeping up with the game's increasing pace. The game emphasizes teamwork, time management, and culinary creativity, making it an exciting cooperative cooking simulation.

3   Features

No	Feature	Description	
1	Basic Movement	The fundamental ability for character movement in the game.	100%
2	Volume Change	Allows the user to change the volume	100%
3	Controller	For Keyboard and Gamepad. Users can change the control key.	100%
4	Timer	Set the timer for a game	100%
5	Counters	Multiple types of counters.	100%
6	Players interact with objects.	Players can hold an ingredient to cook or deliver out.	100%
7	Recipe List	Provide a recipe for the player to cook and get points.	100%
8	Delivery manager	Determine whether the plate given by the player is according to the requested menu or not and calculate the score.	100%
9	Skin color	Allow player to change the skin.	90%
10	Multiple players sync	Synchronize the playing process of many players together using netcode.	100%
11	Waiting room	Create a game and wait for another player to join and be ready to start the game.	90%
12	Sound effect	Sound effect in gameplay	100%

No	Feature	Description	
13	Auto save/load System	The Game will automatically save the Control or sound settings have been set.	100%
14	Adjust Volume	Provides options to control the audio volume level.	100%
15	Adjust Resolution and Fullscreen Mode	Allows players to customize display settings.	100%
16	Sound Effect	Enhances immersion with auditory cues and effects.	100%

4 Techniques: Multiplayer Network

In "Cooking Mama", the Multiplayer Networking technique is pivotal in shaping a seamless and engaging experience for players when they come together to play. The process involves various key elements:

4.1 Setting up Communication

Firstly, communication is established using Socket Programming, akin to setting up a direct line of real-time communication between players. Additionally, specialized tools such as Unity's Multiplayer High-Level API streamline this communication setup, eliminating the need to start from scratch.

4.2 Keeping Everyone in Sync

Secondly, ensuring synchronization among all players is paramount. Every player needs to have the same "picture" of the game, which necessitates sharing consistent and constant updates about the game state. This approach guarantees that each player perceives and interacts with the game in a coherent manner, even if there's a slight delay in receiving updates.

4.3 Efficient Data Handling

Efficient data handling is the final critical aspect. Careful selection and transmission of necessary game information, keeping it as compact as possible, contribute to a fast and smooth game. Only essential information is sent between players to optimize the gaming experience.

By employing this Multiplayer Networking technique, "Cooking Mama" enables players to collaborate or compete with one another, amplifying the excitement and overall enjoyment of the game.

5 Resources

- Netcode: https://unity.com/products/netcode

- Cinemachine: https://unity.com/unity/features/editor/art-and-design/cinemachine

- Input System: https://docs.unity3d.com/Packages/com.unity.inputsystem@1.7/manual/index.html

- UniversalRP: https://docs.unity3d.com/Packages/com.unity.render-pipelines.universal@7.0/manual/getting-started-with-universalrp.html

- Others: somewhere in https://google.com