# CS4530 Final Project - Trading Card

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Our Feature: Trading Card API

Our primary objective was to develop a collectible trading card API, designed to empower other developers by integrating our robust API into their games. This integration would enable a multitude of engaging features: players could loot unique cards from game/application designed by different groups, trade cards with fellow gamers, and take pride in crafting and showcasing their badges. This API would add a interactive layer to CoveyTown, enhancing the gaming experience for all future titles.

We crafted our approach from three components. First, we focused on the 'Inventory and Card Drop' system, which allows the developers to give customizable cards to players. Next, we established the 'Trading Table', allowing the players to exchange cards to fasten their collection in order for crafting badges. Finally, the 'Crafting Badge' module was designed to provide players with a sense of accomplishment, allowing them to create badges using cards and show off to other player in the town.
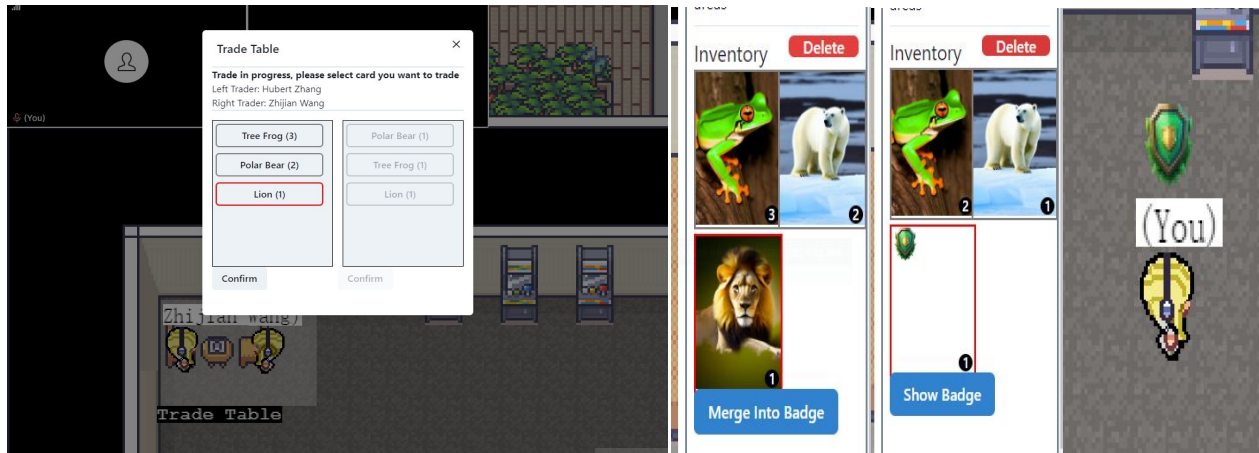
Hubert Zhang and Zhijian Wang are trading cards using the trade table

You can merge cards into badge and then display your badge in the town

Our Technonlgy Stack and Design

Inventory: The Inventory system forms the core, with a shared data structure holding each player's items. The backend stores inventory data in each Player with a helper InventoryManager. In the frontend, PlayerController stores inventory data for each player. Players interact with the inventory UI and send commands to the backend for actions like deleting items or merging cards. The backend processes these commands, performs the required actions, and communicates updated inventory data back to the frontend through events, prompting React components to update accordingly.

Trading Cards: TradeTableArea in the backend extending InteractableArea, and TradeTable tsx both holds trading information. This setup utilized the existing hooks in InteratableAreas and mirrors the Inventory logic, with backend performing logic, frontend sending commands and receiving/updating server-side changes.

Badge Display: This feature involves both frontend and backend collaboration. Players can show or hide badges, with updates communicated via the playersUpdate event. Badge images are preloaded using Phaser, and the frontend updates the display in response to server-sent events. The backend triggers playersUpdate events when there's a change in a player's badge display status.

Demo and Source

Online Demo: https://cs4530-group701-tradingcards-frontend.onrender.com

Code: https://github.com/neu-cs4530/fall23-team-project-group-701/tree/main

Future Work

1. UI refinement, like better badge display, card info, and trade invenoties.

2. Viewing all possible cards/badges in the town and the way to obtain them.