

# CS4530 Final Project: “Snake Game”

“Group 208”: Ravi, Samarth, Kunyang and Dezeng

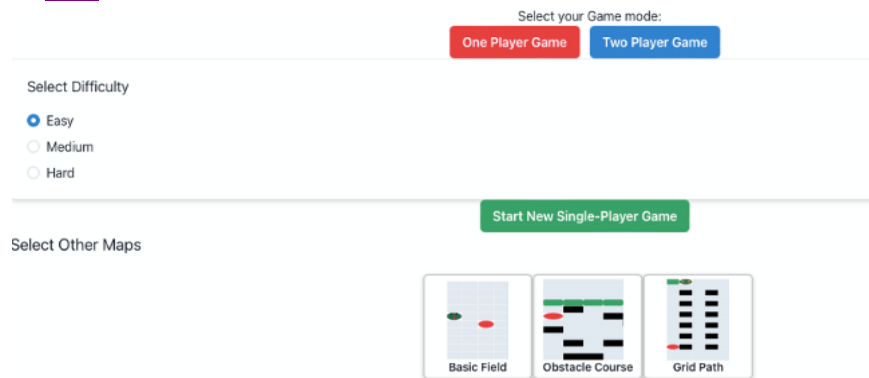
## Our Feature: Snake Game

Covey.town lacks interactable areas where users can compete in games and attempt to consistently improve and track their progress and scores. We solved this problem by implementing the popular game “Snake” within an interactable game area in Covey.town. Not only does implementing “Snake” serve to solve the problem of lack of interactable game areas, but it also gives users the ability to enjoy themselves on a Covey.town server without needing other users active on the same server. Currently, the other interactable game areas, like the “Conversation Area” require multiple users to be of any use. As Snake is a single player game, it allows for new users to immediately be able to immerse themselves within Covey.town and allow them to enjoy Covey.town without the prerequisite of having to invite friends into the same server. We also included multiple difficulty settings and map selections to make the game more engaging and interactive.

In addition to the standard Snake gameplay, we added our own custom spin on the game via a 2-player competitive mode. This mode functions by allowing two players to simultaneously start a game of “Snake” and compete within an infinite time gamemode. This further helps solve the issue of Covey.town lacking immersive gameplay that keeps users engaged. By introducing a 2-player mode, we have added a competitive element to Covey.town that it lacked.

## Demo and Source

Our code repository is available [here](#), and our deployed version is available [here](#)



To play the 1p Snake, one can simply click on the green button labeled “Start New Single-player Game”. The controls are simply arrow keys in any given direction. When you lose, you can see your final score and the last ten scores on the leaderboard!

## Our Technology Stack & Design

We followed the structural framework of the TicTacToe game, employing SnakeGame and SnakeGameArea as model components to manage the current game state. The SnakeController serves as the intermediary for communication between the front-end view and the back-end model. SnakeArea makes the environment where users engage in gameplay, both for 1p and 2p modes. In 1p mode, users can customize the game difficulty and settings. In 2p mode, asynchronous simultaneous play is facilitated.

Following the MVC framework gave us several advantages. Namely, it enhanced modularity, and allow for us to easily maintain, test and reuse code across relevant components. This framework also facilitated parallel development, allowing teammates to work on multiple components simultaneously. Our CI/CD pipeline runs an automated test suite on the frontend and backend components, and then deploys the site using Render.com.

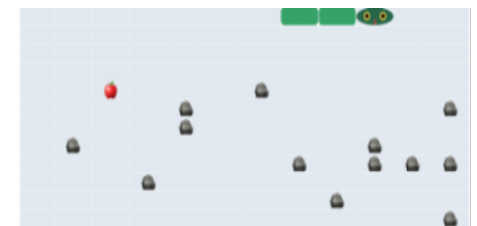
## Future Work

Currently, the difficulty settings and map selection only exist for the 1p game mode, due to complexity of the 2p game mode. Future work may involve adding these for the 2p Snake game. We also struggled with having our leaderboard keep track of other players score and increasing the test coverage for some components. These can be added by saving a global state for our game, involving a restructuring of some of our code and component interactions. This can also be part of future work, as our current implementation meets all “essential” user story requirements.

Future work might also consider implementing custom map generation, instead of choosing between preset maps and improving gameplay fluidity.



For 2p, players should click blue “Two Player Game” button. Once 2 players join, gameplay will begin!



The 1p Snake game also grants the ability to select from 3 different difficulty settings and 3 maps. Enjoy!