2023

PROJECT PORTFOLIO

Rachel Jan

About Me

Hello!

I'm Rachel, an undergraduate **computer science student** currently based in **Pittsburgh**.

My career interests include **software design** and engineering, machine learning and AI, and **game development**.

Thanks for taking the time to look over my portfolio!

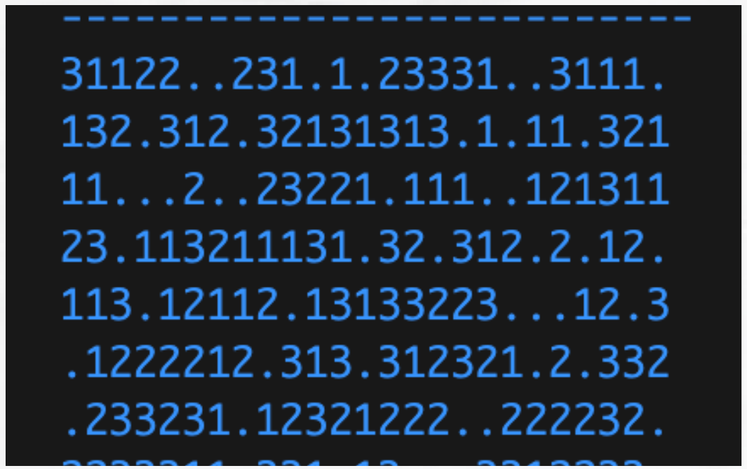
GAME OF LIFE

Simple Cellular Automaton Simulation
github.com/racheljayi/GameOfLife

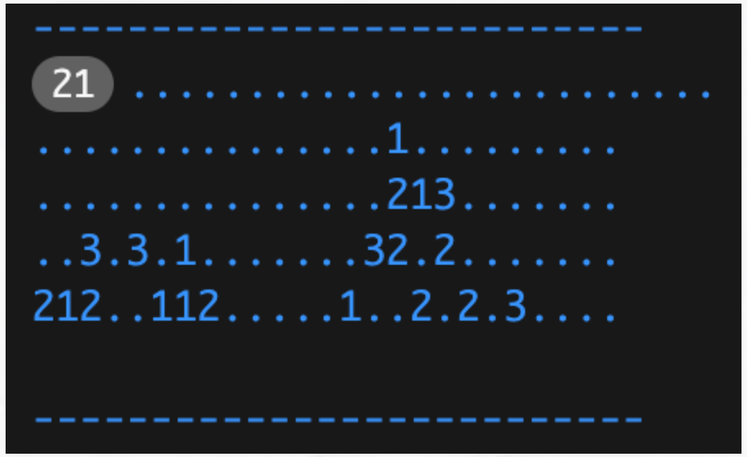
Based on Conway's Game of Life, this project is a simulation of a grid of cells that evolve, reproduce, and die based on certain rules. I modified the original rules of the simulation to account for lifespan and decay over time. This model can take many different configurations of my rules, which in turn affect the patterns that can be observed.

In the future, I anticipate using this model as a basis for a multi-player game where the goal is to "devour" the other player's cells or "conquer" the entire board.

Tech Stack: C++



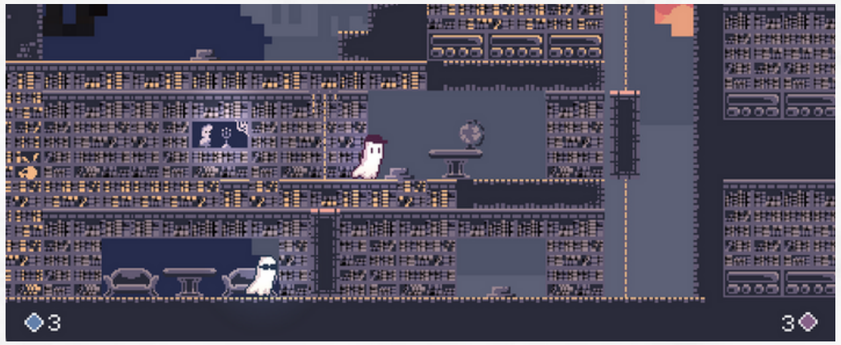
A random inital population

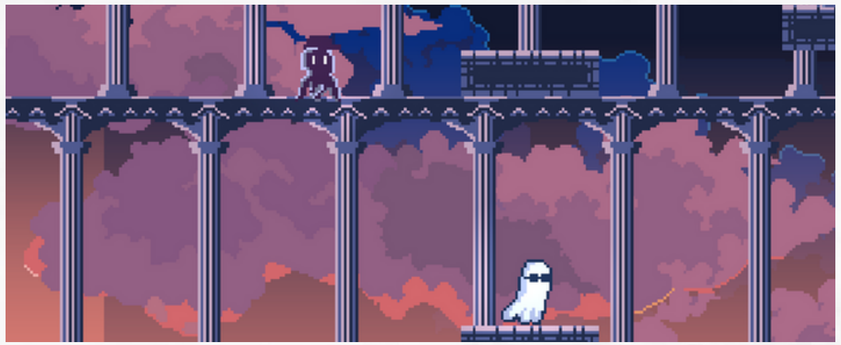


Over time, the cells split into two distinct clusters that iterate over similar patterns

TINY SHADOWS

Platformer Game made in Godot 4
github.com/racheljayi/TinyShadows





Tiny Shadows is a 2D, 2-player platformer game around 10 minutes long. It was developed in the Godot 4 engine for the 2023 GMTK Game Jam.

As this was a solo project, my responsibilities included:

- Art design & animation
- Gameplay development & design

A feature I would love to highlight is the multi-target camera used in this game, which allows for both players to always remain on-screen without the use of split-screen through dynamic zooming.

Tech Stack: Godot 4 Engine (GDScript)

HUDDLEUP

Social Media Web Application

github.com/amb10/huddleUp

SteelHacks 2023 Project

huddleUp is a Flask webApp that allows users to post and sign up for events and activities. It was made with college students in mind as a way for students to easily find and join events on campus.

I worked solely on the backend within our team of four. The features I was responsible for include:

- Joining events
- Post tagging and filtering
- Post updates & deletions

Tech Stack: Python, Flask, SQL

SheInnovates 2023 Project

KeyFinder is a full-stack Flask webApp that identifies key vocabulary and creates flashcards for the user. It was created as a solo project for the SheInnovates 2023 Hackathon.

KeyFinder uses the ChatGPT API to identify keywords in the text. Then, it utilizes the Google Knowledge Bank Search API to find definitions for the given list of keywords.

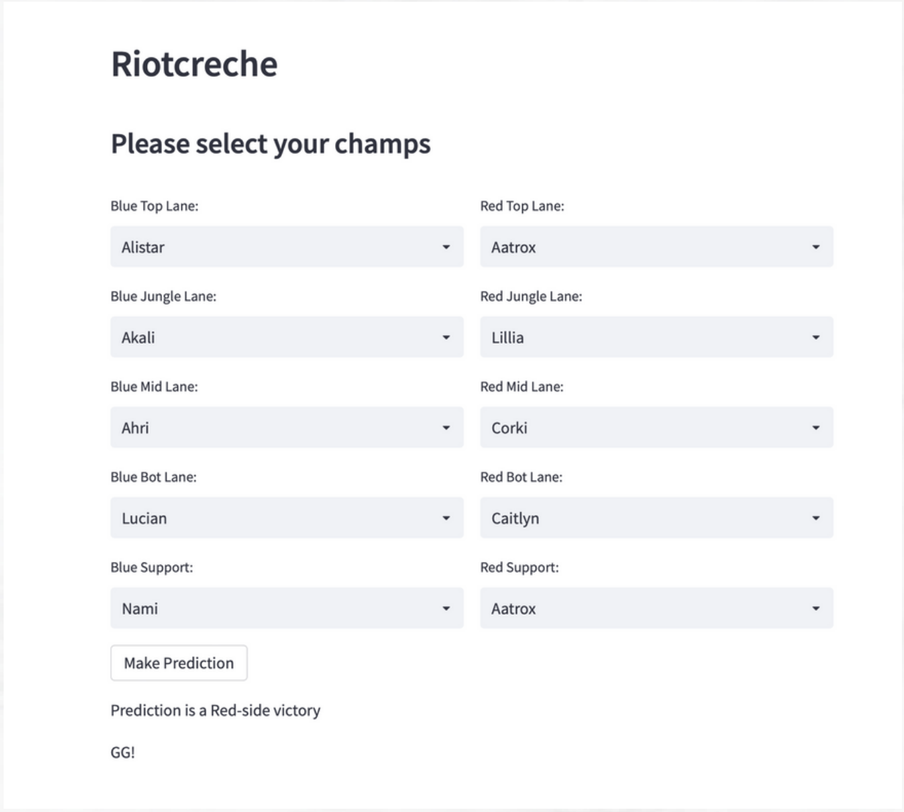
KeyFinder was built as a study tool for students and tested specifically on passages from my roommate's biology textbook. However, it can also be prompted to read from literary texts or articles.

Tech Stack: Python, Flask

KEYFINDER

Social Media Web Application

github.com/racheljayi/KeyFinder



The Python web-application interface for the model, when run locally, is shown above

RIOTCRECHE

Python Machine Learning Model
github.com/racheljayi/RiotCreche

Simplistic model that cleans web-scraped data from a game analytics site and builds a random-forest classifier to predict a game outcome.

This model is not very accurate as League of Legends has a constantly changing meta and varying factors beyond team composition. But, it was a fun exercise for me nonetheless and allowed me to practice manipulating data, working with large datasets, and using Python frameworks for game data analytics.

Tech Stack: Python, NumPy, PANDAS, scikit-learn

THANK YOU!

LET'S CONNECT

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