Pokemon Battle Simulator

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Abstract

This project concerns the development of a game centered upon 'battles' between two players or one player against an AI. This game is based off the popular series "Pokemon," and the goal is to emulate the battle function found in the game series. The game will utilize a graphical interface and multiple pages, such as the start screen, the "choose your fighter" screen, and the actual battle screen. Additionally, the game will also allow for the user(s) to choose their own team or have the program randomize a selection for them.

The main function/attraction of this program is the battle simulator. Though the options will be relatively simple (pick a move, view how much damage it will cause against the opponent, pick a move again), we aim to also emulate the complex algorithms, hidden stats/modifiers, and etc found in the actual Pokemon game series. Many factors hidden from the user--move-type and pokemon-type, pokemon's nature, status effects, etc--determine what a chosen move's power will be, meaning that movesets are not "one-size fits all." These complex hidden factors aim to involve thought and strategy into the game, and the goal is to properly simulate the above in this program.

Workflow

1. **Roles**

   Zihan Zheng: Data collection/retrieval - gathering the data necessary for the program to retrieve in a suitable format and developing methods/functions for this to occur.

   Tien VoNguyen: Battle logic/algorithms - developing the algorithms and logic needed for the battle function to work correctly using the appropriate data.

   Daisy Reyes: Graphic UI - developing the UI and design, images, creating special functions such as randomization, randomized moveset, health bar that updates itself, etc.

1. Concept phase
   a. Challenges
   b. Goals
   c. Design
      i. Home/start page
      ii. Pokemon selection
      iii. Battle
2. Preproduction
   a. Data collection

i. Gen. 1 Pokemon Pokedex (All the Pokemon's name and type in Gen.1, 156 Pokemon total.)
ii. Gen. 1 Pokemon Move List (All the skill moves that might use in the battle)
iii. Battle logic (e.g Fire type move deals 2x damage on Grass type Pokemon)

b. Early prototype

3. Production
   a. Design
   b. Developing
4. Testing
   a. Bugs
      i. Identifying
      ii. Fixing
   b. Feature exploitation
   c. Evaluation
      i. Difficulty
      ii. Functionality

5. **Meeting times**

   Due to the special situation, we decided to meet online. We have a group chat where we can communicate as needed. We plan to assign tasks and classes and share our work over GitHub, and can consult each other on specific issues as needed. We plan to split work as evenly as possible.

Project Design

This project will be designed using the Java language. This was in part because of our team member's shared familiarity with the language as well as its capabilities for creating a graphical UI while also managing large amounts of data. The graphical UI will be created using Java's Swing libraries, which offer the ability to create simple layouts with our desired labels, buttons, menus, and images. Additionally, we plan to develop the code using the softwares Atom or IntelliJ Idea, which both sufficiently meet our needs for the project.

The program itself will feature a graphical UI. There will be a start splash screen with a button, a team chooser screen with drop down menus with the ability to type in names of Pokemon or randomize a selection (limited to the first generation/151 characters for now, also shown in figure 1 below), and then, the actual battle which will feature an image of the current chosen Pokemon, a health bar that updates periodically, and menus to choose a move with an associated button. There will be a separate class(es) that will manage all of the data associated

with moves and Pokemon. To reduce complexity and encourage readability of the code, a lot of the data is planned to be stored in either .json or .txt files where it can be retrieved as needed.

Milestones

1. Finalizing rough layout of game
2. Data collection
    a. Pokemon abilities
    b. Battle Logic
    c. Sprites
3. Programming
    a. Battle logic
    b. Graphics
4. Fix bugs
5. Program runs
6. Graphics render as desired
7. Final test of game successful

Related projects

1.Pokemon Showdown

Pokémon Showdown is a Pokémon battle simulator that is fully animated. It would resemble the ultimate version of our project. It features the entire Pokedex and has online capabilities in that the user can play other users virtually. It is a full-fledged program that fully captures the battle capability found in the Pokemon game series.

https://play.pokemonshowdown.com/

2. “Pokemon battle” by fonse on Github

Below is a website for a similar project. It more closely resembles the simplicity of the program we wish to achieve, however, it conducts battle logic automatically without user input. We plan to allow for manual input of moves each turn of the battle and allow for more strategy like the above site.

https://pokemon-battle.herokuapp.com/

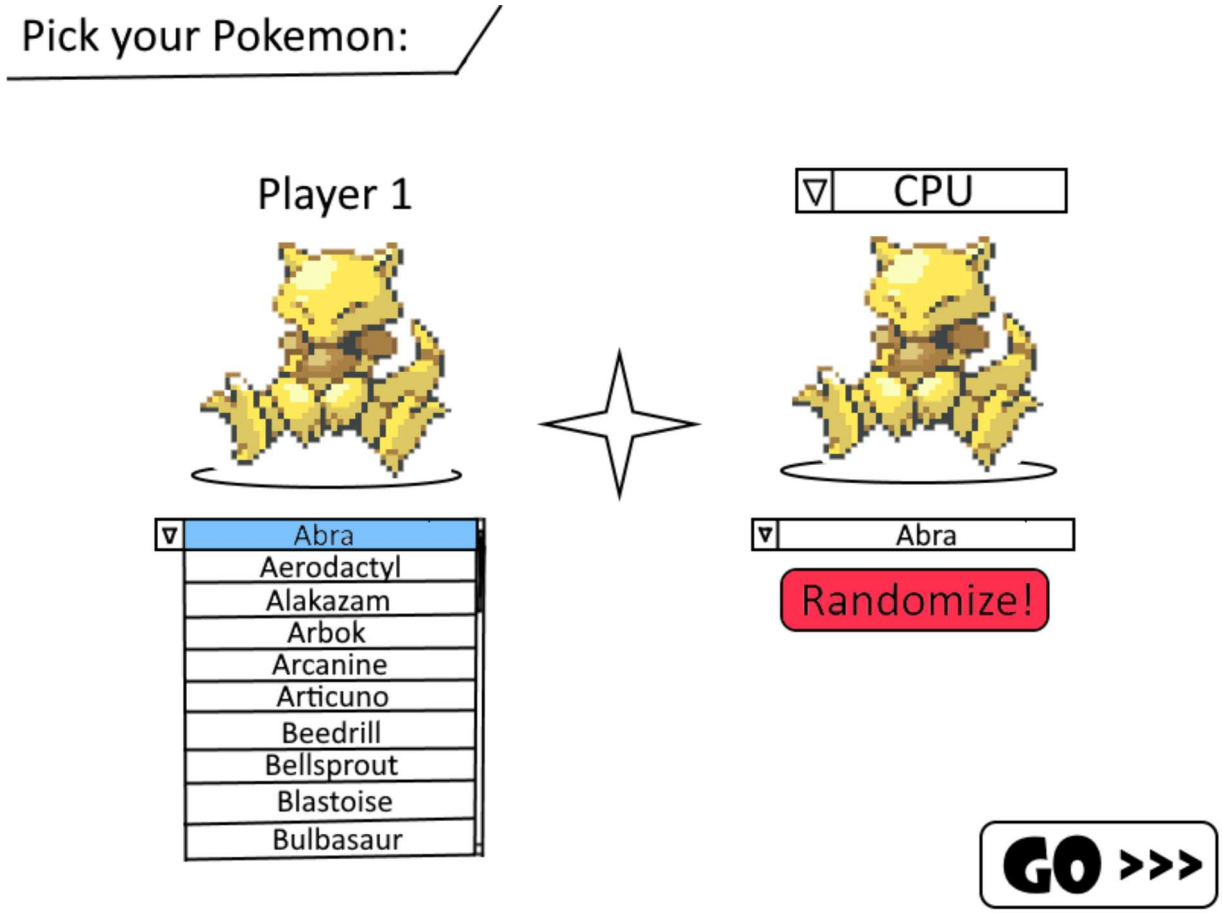

Fig. 1 : Mockup of Pokemon selection screen