Generals

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Overview

Generals is a multiplayer, turn-based, tactical game in which two teams of up to four people fight for victory. Each team gets 60 seconds per turn, during which all team members can control any of their team's units. A team wins once all of the other team's units are destroyed.

Each team has 12 units: 4 heavy fighters, 6 light fighters, and 2 healers. Units can perform up to 3 actions per turn, at the cost of 1 AP each.

Heavy units have 5HP, 10AP and can move 1 spot or attack enemies in a large radius for 3 HP. Light units have 3HP, 15AP, and can move 2 spots or attack in a small radius for 1 HP. Healing units have 3HP, 10AP, and can move 2 spots or heal in a small radius for 2 HP.

Units in range of an attack must either move out of range during their team's next turn or take the hit. Units with 0 HP are destroyed, and units with 0 AP are unable to perform any actions.

Technology Stack

The front-end of Generals is built with HTML, CSS, jQuery, and JavaScript. Preliminary action validation for error messages and fair gameplay are also handled in the front-end. Unit sprites are represented as HTML5 canvas elements, allowing their stats to be arbitarily set by the game admin while maintaining a small overall package size.

The back-end is built on WebSockets, ExpressJS, PostgresSQL, and NodeJS. Generals required realtime, asyncronous communication between the server and clients to handle both game and chat functionality, which made WebSockets the obvious choice. WebSocket messages are emitted for each player movement and chat message. All incoming action messages are validated server-side before being emitted to other clients, ensuring fair gameplay.

Game rooms, including their chat logs and board states are recorded in a PostgresSQL database handled by ExpressJS.