

# Generals

Ankit Dassar, Rohm Laxton, Kent Lee & Nicole Thomas

## 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 arbitrarily set by the game admin while maintaining a small overall package size.

The back-end is built on WebSockets, ExpressJS, PostgreSQL, and NodeJS. Generals required realtime, asynchronous 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 PostgreSQL database handled by ExpressJS.

												Team	Global
1	HEAVY 5HP 10AP	LIGHT 3HP 15AP	HEALER 3HP 10AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	LIGHT 3HP 15AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	LIGHT 3HP 15AP	HEALER 3HP 10AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	TIM: LOREM IPSUM
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12	HEAVY 5HP 10AP	LIGHT 3HP 15AP	HEALER 3HP 10AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	LIGHT 3HP 15AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	LIGHT 3HP 15AP	HEALER 3HP 10AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	
HEAVY A12: MOVE ATTACK												BLUE TURN 0:45	Type a Message

### Tutorial

Select a unit to perform actions. Units can only perform one action per turn. Turns are short so act fast!

**MOVE** Move the selected unit a limited distance with this button. Light units move further than heavy units.

**ATTACK** The Attack action will deplete HP from nearby enemies. Light units have shorter range and firepower than heavy units. Restore health with healer units!

												Team	Global
1	HEAVY 5HP 10AP	LIGHT 3HP 15AP	HEALER 3HP 10AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	LIGHT 3HP 15AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	LIGHT 3HP 15AP	HEALER 3HP 10AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	TIM: LOREM IPSUM
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12	HEAVY 5HP 10AP	LIGHT 3HP 15AP	HEALER 3HP 10AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	LIGHT 3HP 15AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	LIGHT 3HP 15AP	HEALER 3HP 10AP	LIGHT 3HP 15AP	HEAVY 5HP 10AP	
HEAVY A12: MOVE ATTACK												BLUE TURN 0:45	Type a Message

												Team	Global
1						LIGHT 3HP 15AP					LIGHT 3HP 15AP		TIM: PROTECT THE HEALER
2					LIGHT 3HP 10AP								STEVE: WATCH OUT FOR THE HEAVY
3													STEPH: ATTACK B6 WITH 8A
4									HEALER 2HP 5AP				TIM: PROTECT THE HEALER
5										HEAVY 5HP 4AP			STEVE: WATCH OUT FOR THE HEAVY
6		LIGHT 3HP 5AP											STEPH: ATTACK B6 WITH 8A
7						LIGHT 2HP 0AP							TIM: PROTECT THE HEALER
8	LIGHT 1HP 5AP										HEAVY 4HP 2AP		STEVE: WATCH OUT FOR THE HEAVY
9					HEAVY 1HP 6AP		HEALER 2HP 5AP					HEALER 1HP 5AP	STEPH: ATTACK B6 WITH 8A
10				HEAVY 3HP 7AP									TIM: PROTECT THE HEALER
11													STEVE: WATCH OUT FOR THE HEAVY
12							LIGHT 2HP 15AP		LIGHT 2HP 15AP				STEPH: ATTACK B6 WITH 8A
LIGHT A8: MOVE CONFIRM ATTACK												BLUE TURN 0:25	Type a Message