

GameNite!

AI-Powered Mafia & Competitive Leaderboards

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PROJECT FOCUS

This flier highlights our two main additions to GameNite: a fully playable Mafia game with AI-controlled participants, and a leaderboard system that tracks player performance over time.



FEATURE ONE

Mafia Game

A fully functional Mafia party game built from scratch with real-time multiplayer support.

- Lobby creation & role assignment
- Discussion & voting phases with live timers
- Elimination logic & win condition detection
- Real-time chat via WebSockets



FEATURE TWO

AI Agents

8 unique bot personalities powered by 4 LLM providers (GPT, Gemini, Grok, Claude) which are used fill empty slots so a user always has the ability to play Mafia.

- Contextual, personality-driven chat
- Analytical, provocative, diplomatic & more
- Vote during rounds like real players
- Session memory for tracking suspicion
- Replaceable by humans mid-game



FEATURE THREE

Leaderboard

A global ranking system tracking performance across all games on the platform.

- Points for wins, deductions for losses
- Win rate, games played, per-game stats
- Sortable columns & time-range filters
- Top-3 podium with monthly resets

| Rank | Player | Points | Wins | Losses | Games | Win Rate | Wins | Losses | Points |
|------|-----------|--------|------|--------|-------|----------|------|--------|--------|
| 1 | MC_GPT | 10 | 5 | 5 | 10 | 50% | 5 | 5 | 10 |
| 2 | MC_GEM | 8 | 4 | 4 | 8 | 50% | 4 | 4 | 8 |
| 3 | MC_GROK | 6 | 3 | 3 | 6 | 50% | 3 | 3 | 6 |
| 4 | MC_GEMINI | 4 | 2 | 2 | 4 | 50% | 2 | 2 | 4 |
| 5 | MC_GPT2 | 2 | 1 | 1 | 2 | 50% | 1 | 1 | 2 |
| 6 | MC_GPT3 | 1 | 0 | 1 | 1 | 0% | 0 | 1 | 0 |
| 7 | MC_GPT4 | 0 | 0 | 0 | 0 | 0% | 0 | 0 | 0 |
| 8 | MC_GPT5 | 0 | 0 | 0 | 0 | 0% | 0 | 0 | 0 |

Leaderboard Rankings

The screenshot shows a chat interface for a Mafia game. On the left, there are instructions for the Mafia game and a list of players. The main chat area shows messages from AI bots, including a discussion about voting and game progress. The interface includes a chat input field and a 'Send' button.

Mafia — AI Bots In Action

The screenshot shows the end of a game state. It displays a 'Mafia game' section with a list of players and their roles. The interface includes a 'Mafia game' section with a list of players and their roles, and a 'Mafia game' section with a list of players and their roles.

End of Game State

WHY WE BUILT THIS

The Problem

Mafia needs a minimum number of players to be fun, but finding 10 people online at once is rare. Our AI agents seamlessly fill empty slots and is able to do all functionality that a human might including chatting, voting, and strategizing—so every game feels complete. The leaderboard also adds a competitive layer that keeps the community coming back by encouraging healthy competition between friends.

TECHNOLOGY STACK

Design & Architecture

A monolithic repository with shared types across client and server.

- **Frontend:** React 19, Vite, React Router, Socket.IO Client
- **Backend:** Express 5, Socket.IO for real-time game state
- **Database:** MongoDB via Keyv for persistent storage
- **AI:** OpenAI SDK with Zod-validated structured outputs; unified adapter across GPT, Gemini, Grok & Claude
- **Testing:** Vitest + Playwright E2E
- **Validation:** Zod schemas in shared package

WHAT'S NEXT

Future Work

We aim to extend AI bots to other GameNite titles (Nim, Guessing) so all the other games can be played solo as well. Furthermore, we aim to add deeper personality systems with cross-session learning so the AI models are able to learn and excel from previous experiences. Lastly, we would like to explore voice-chat integration during discussion phases and expand the leaderboard with achievements and seasonal rewards such as 24-hr point multipliers and in-game powerups.

LIVE DEMO WEBSITE

spring26-project-spring26-project-group-y8vc.onrender.com

SOURCE REPOSITORY

github.com/neu-cs4530/spring26-project-spring26-project-group-506