MEMORANDUM

DATE: Thursday, 27th September 2020

TO: CEO

FROM: Atharva Shukla, Dhruvi Bakeri

SUBJECT: System design and planning for the Fish game

We provide a plan for the software components for the Fist game, and show how these fit together. Our three-layer architecture:

- **Data access layer**: We wish to use MongoDB as the database, it is a document-oriented database where we can store data in a JSON-like format. It's a schema-less database which makes it flexible to use and configure.
- **Presentation layer**: React is a front-end library for developing UI components. It serves well for fast changing data and is functional in nature. We could add Redux for client-side state if needed. We wish to use Canvas (or p5js library over it) to display the game view.
- **Application controller and business logic layer**: We wish to use Express.js (which runs on the Node.js JavaScript runtime) as our backend framework. It has a robust API and a host of middleware we could use. We wish to use Mocha and Chai for testing. For managing game-related state and networking we wish to use Colyseus.

The (MERN) stack presented above is open source and under active development. All the components use JavaScript as their language and the system outlined above will enable us to develop the Fish game faster.