

MEMORANDUM

DATE: Thursday, 27th September 2020

TO: CEO

FROM: Atharva Shukla, Dhruvi Bakeri

SUBJECT: System design and planning for the Fish game

Our plan for the software components for the Fish game:

We found a framework called Colyseus that caters to a lot of our requirements. Colyseus is a Multiplayer Game Server for Node.js and provides an easy solution for creating multiplayer games in Javascript/Typescript.

Our three-layer architecture (and how Colyseus plays into it) :

- Presentation layer:

- We wish to use React which is a front-end library for developing UI components. It serves well for fast changing data and is functional in nature. Colyseus comes with a Javascript Client which is compatible with React.
- We want our UI to serve a single purpose : rendering the current state of our game. Colyseus has in-built functions that help us communicate desired state changes from the front-end to the back-end, the changed state would then be sent back to the front-end and the updated game state would be rendered.

- Application controller and business logic layer:

- The default Colyseus template uses Express.js and we wish to use that as our backend server.
- Colyseus uses 'rooms' to implement game logic. A room handles client connections and also handles the game state.
- We wish to use Mocha and Chai for testing.

- Data access layer:

- We wish to use MongoDB as the database.

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.