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CO600: Design

Requirements Specification

Background

The contents of this document aim to define the ideas and ambitions for our project, including an idea of what components our implementation will end up requiring to function, at a high level conceptually.

The ideas discussed in this document reflect the decisions made collectively by all members of the group; consisting of:

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Introduction

The concept of our project was devised from existing video games that allow users to play together on a desktop screen using another device to control their input, such as their mobile phones as input over a Bluetooth connection. We decided that we would try and implement a similar example, using web technologies rather than local means of connection such as Bluetooth; as it is not as widely integrated on desktop machines.

This concept was originally rejected for being considered too trivial, and upon further discussion we decided to introduce many new elements that added considerable academic complexity. Including the use of multiple users (potentially hundreds or even thousands) of users connected to one session should the application allow it. With this potential use case in mind, it appeared that our platform would need to utilize a highly concurrent engine to process this many users as close to real-time as possible.

Requirements

In order for our project to meet certain standards of complexity, we have created a list of aims for which our system is expected to be implemented to the standard of:

- The platform should be built around a web application that runs on a single desktop user, to be connected to by many mobile users on smartphones or tablets.
- The platform should have as low an impact on input latency as possible.
- The platform should be highly scalable with many users connected simultaneously.
- The platform should be highly concurrent to ensure that messages input from users are processed in real-time as opposed to a single threaded queue.
- The platform should aim to simplify the process for building these collaborative input based web applications.
- The platform must be capable of running on most modern browsers, both on mobile and desktop.
- The platform must have an attractive, modern and efficient UI and UX.
- Mobile users will be able to join a lobby by scanning a generated QR code on the desktop display.
- The platform should consist of a database for storing persistent data such as registered users.
- We will develop some proof of concept applications to test and exhibit the platform in action.
- We will develop an API for developers to interface with for using our platform.
- Applications built on our platform should be capable of being implemented in the programming language of the developers' choice, as long as their choice language supports our platform's API standards.
- The platform API standards will aim to be as generic as possible, to make it as language agnostic as possible for developers.

From these initial requirements, we will create a functional specification on how we will meet these requirements from a technical point of view.