**Game Design Document**

**Team Fam: Multiplayer Doodle Jump**

For our multiplayer game we chose to create a networked version of Doodle Jump called *Face-Off*. Our game consists of two or more players jumping on platforms, racing to reach the highest score. A player's score is based on how high they jump. Players that fall off their own screen can no longer proceed, and the player with the highest score at the end wins.

The game objects are the players, the cameras, the platforms. The players can only jump, move horizontal, and if they exit the side of the screen they can reappear on the opposite side. The player can jump through the bottom of platforms. The camera follows the player only in the upwards vertical direction. Platforms can be of five different types. They can be a basic platform, a stronger jump platform, a pulsing (shrinking and growing) platform, a moving platform, and a solid platform(players cannot jump through solid platforms).

Players will need to login before playing the game and their login information will be stored in a database. Along with this information the database will also keep track of each player's highest score.

The players transform(location, rotation, and scale) will need to be synchronized over the network to the server and then to each client using UDP. This should be UDP because this information needs to be received by clients quickly. While some of the data may be dropped in the process, it is sent so frequently that the speed of the incoming data is more important than the reliability. To generate the maps the seeds must be created on the server and then synchronized with each client using TCP. This data will only be sent once at the beginning of the game and is therefore vital that it be sent with a reliable transport protocol(TCP). The maps can be generated locally because given the same seed, they will generate the same map. This is the only data we expect to synchronize over the network.