**CS 407 Project Charter**

# Mercury

Kai Tinkess (ktinkess@purdue.edu)
Kris Leungwattanakij (kleungwa@purdue.edu)
Alex Hunton (ahunton@purdue.edu)
Christopher Lee (lee3880@purdue.edu)
Leonard Pan (pan353@purdue.edu)

## Problem Statement:

Online services such as Twitch and YouTube provide video streaming and hosting to users. However, these are closed-gate applications that are slow, rely on corporate servers, and are designed in favor of large-scale communities that can be monetized. A free and open-source software (FOSS) tool that is decentralized and self-hosted offering the same utility to small groups would be able to prioritize speed, efficiency, and ease of use. A peer-to-peer approach provides security and stability, especially on a LAN, which would prevent exposure to the wider internet.

## Project Objectives:

- Develop a desktop application in C++ with a QT GUI that allows a user to watch a video streamed to them over the internet
- Include the ability for users to begin their own stream, self-hosted from their local computer
- Include the ability for any users connected to a stream to chat with other viewers in a chatroom
- Create a central server that hosts a list of streams for user browsing that streamers can optionally subscribe to

**Stakeholders:**

- Users/Customers: People streaming content and people viewing content.
- Developers: Alex Hunton, Kai Tinkess, Kris Leungwattanakij, Christopher Lee, Leonard Pan
- Project Owners: All members of the team.

**Deliverables:**

- A desktop application written in C++ that users can connect to and watch content streams with.
- A self-hosted streaming server that can be started using the GUI and allow for viewers to connect.
- A native and blazing fast user interface that is easy to pick up.

**CS 307 Project:**

For CS 307, all five members of our team built Clava, a management software targeted at college organizations. It offered a suite of utilities for their most common needs:

- A role based permission system for Officers
- An advanced Member database and editor
- A financial hub for income/expense tracking with reimbursement support
- An event manager with attendance tracking through generated QRs
- A centralized documentation system with Google Drive and YouTube integration

Additionally, Clava also offered an alternative frontend in the form of Discord integration, with servers being allowed to link themselves to a club. Various hubs could be accessed and edited through slash commands.

Clava was a MERN app developed with a frontend React application that, using HTTPS requests, communicated with a RESTful API running on an ExpressJS Node server. Information was stored in a MongoDB database that was interfaced with using Mongoose.