Shared Code Editor

Computer Science 3640

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Key Features

- Shared code editing in C++
- Real-time editor window updates
- Multi-user chat (per project)
- Version Control
- Server-side compiling and execution
- Ability to send input to stdin

Architecture

- Node.js backend for message passing

- MySQL database for accounts, versioning, and chat persistence

- PHP server-side scripting

- Javascript for client-side message processing

Message Passing

Four message types:

- **ConnectionMessage**
  - Generated by client to signal that a new connection has been established
  - Server responds with welcome message and historical chat log

- **AutoSaveMessage**
  - Generated by client to signal that a revision should be saved to the database
  - Server saves a copy of the code to database table

- **UserMessage**
  - User chat message
  - Generated by client, relayed to all connected clients and stored in database

- **CompileMessage**
  - Request to compile on the server side
  - Generated by client, responded to by server

Challenges

- Real-time code updates (as the user types)

- Limiting user chat and code updates to specific projects

- Passing input to a user's executing program

Editor Layout: