

# Cylaborate

COM S 309 Fall 2017



## Project Description:

CyLaborate provides an alternative to Github, offering a new style of version control. Instead of pulling local copies down and working on branches, the entire project will be constantly synced across all users' devices in real time. This will eliminate the need for merging commits and resolving merge conflicts.

### Users:

- Project Manager
  - Create projects
  - Assign work
- Developer
  - Edit code in files
  - Add files/projects
- Client
  - Review software
  - Request features

## User Interfaces

- Main editor
  - Code chunks
  - File selection
  - Project selection
  - Chat window for developers
- Sign In/Sign Up
- Client reviews/feature requests
- Manager page for compiling and running code

Username:	<input type="text"/>
Password:	<input type="password"/>
Email address:	<input type="text"/>
First name:	<input type="text"/>
Last name:	<input type="text"/>
Account type:	<input type="text"/>
Login: <input type="radio"/>	Register: <input checked="" type="radio"/>
<input type="submit" value="Submit"/>	



Welcome to the Cylaborate chat server!  
testClient: CyLaborate is a great tool for  
your team!

## Module Interfaces:

- Chunker
  - Divides sections of code so that developers can edit file simultaneously
  - Locks each chunk while editing to avoid concurrency issues
- Realtime Updates
  - Uses event-driven server instead of polling to reduce client-side resource consumption
  - Chat window uses Realtime, but in another library
- Database Querying
  - All database queries were converted to prepared statements
  - In real-world code, this enhances security of information retrieval and SQL Injection
- Code Compilation
  - Manager can save a certain version to disk, then compile and run the code
  - Output is shown on manager's page

## Design Decisions:

- Ratchet backend for realtime updates without polling
- Sidebar and Project Info bar are always present, content changes
- All Users in one database table with user type as a field
- Split files into chunks to avoid saving entire files on changes
- Chunks also allow for users to edit files simultaneously

## Team Info:

Team RB-C-4

Thomas Wesolowski - SE (JR)

Robert Guetzlaff - CPRE (SR)

Alex Mortimer - SE (JR)

## What went wrong:

- Changing realtime updating systems
- Database concurrency issues
- Changed WebSocket library
- Team member left

## What went right:

- Developers could edit code simultaneously
- No need for merge conflict resolution
- Add new projects, files, users

## Lessons Learned:

- Pros and cons of different realtime solutions
- Cleaner way to communicate between UI, front end, and back end parts