

# **Software Engineering Mini Project - II**

## **(Project Synopsis)**

TY Computer Engineering 2021-22

Div.: 1 Batch: T5

### **Group Members:**

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Proposed Topic:

**CollabPro – Online Collaborative Code Editor**

## Problem Statement:

To provide a web-based collaborative tool for coding and building projects in a single application.

## Software Requirements:

- o React : JavaScript framework for the Frontend
- o MongoDB: For storing user-information and editor information
- o Express : Back-end JavaScript library for back-end app
- o Node.js : Back-end JavaScript runtime environment.

## Objectives:

- o To provide an online collaborative tool for coding
- o A tool for building software projects collaboratively on the web
- o Support all the necessary tools and features that are provided by a code editor.
- o To give smooth, lag-free collaborative experience for the users.
- o Provide necessary security features to the end-users.

## Background:

- o Building software projects by students and by companies by working remotely is common these days. Hence collaborative tools for coding are essential while working on group or team-based projects.
- o Lot of collaborative tools are available on the internet which provide the facility of collaborative coding. But most of them do not focus on the features needed for building a project online.
- o CollabPro application provides solution of this problem.
- o Operational transformation is a technology for supporting a range of collaboration functionalities in advanced collaborative software systems.
- o By using Operational transformation library and socket programming, efficient collaborative environment can be created.
- o This tool enables users to do coding effectively within a group / team.

## Hardware Requirements:

- o Compatible processor
- o 4 GB RAM
- o 20 GB Hard Drive
- o Internet Connection

## Features/Functionalities:

- o OAuth based login authentication / authorization to the application.
- o Collaborative code editor based on operational transformation library
- o Chat-section for users to communicate with each other.
- o Todo-list for completing desired task in the coding session.
- o Shareable link for inviting users to the collaborative session.
- o Generating documentation of the code.
- o White-board for planning layout of the project or for learning purposes.
- o Syntax highlighting for various languages.

## References:

- 1] Operational Transformation: <https://srijancse.medium.com/how-real-time-collaborative-editing-work-operational-transformation-ac4902d75682/>
- 2] Socket Programming: <https://socket.io/>
- 3] Code-Mirror <https://codemirror.net/>