



Technical Review Tool

Project Review 3

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List of Contributors

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Table 1

Acknowledgement

I would like to express my special thanks and gratitude to my faculty Swathi JN who gave us the golden opportunity to do this wonderful project on the topic Technical Review Tool, which helped us doing a lot of research and we gained new insights into some of the most widely used tools in Software Engineering.

Executive Summary

Technical Review Tool aims to facilitate the technical review process during the software development life cycle efficiently.

The objective is to create a web application that will record the details of all the technical reviews conducted during the development with details related to each review. The details will include date of review, objective of the review, list of experts, moderator details etc. For every review the comments given by the experts will be recorded and stored in the database with details related to the comment like expert name and severity level. The status of a comment will indicate if it has been considered by the developers or not and if it is reviewed by the developers, the changes made to the software based on the comment will be indicated.

Overall, the Technical Review Tool can be used by software development teams to conduct technical review and track past reviews and issues resolved in the software.

Table of Contents

Topic	Page No
Acknowledgement-----	2
Executive Summary-----	2
Table of Contents-----	3
List of Figures-----	4
List of Tables-----	4
Abbreviations-----	4
1. Introduction-----	5
1.1 Objective-----	5
1.2 Motivation-----	5
1.3 Background-----	5
2. Project Description and Goals-----	5
3. Technical Specification-----	6
3.1 Requirements-----	6
3.2 Frontend Technologies Used-----	6
3.3 Backend Technologies Used-----	6
3.4 Database Used-----	6
4. Design Approach and Details-----	7
5. Schedule and Tasks-----	21
6. Project Demonstration-----	23
7. Result and Discussion-----	26

List of Figures

1. Work Breakdown Structure
2. Architecture Diagram
3. UseCase
4. DB Model
5. DB Model
6. DFD
7. DFD
8. Sequence Diagram
9. Collaboration Diagram
10. Sequence Diagram
11. Collaboration Diagram
12. Sequence Diagram
13. Collaboration Diagram
14. Sequence Diagram
15. Collaboration Diagram
16. Activity Diagram
17. Activity Diagram
18. Activity Diagram
19. State Transition Network
20. Gantt Chart
21. Activity Network
22. Timeline Chart
23. GUI
24. GUI
25. GUI
26. GUI
27. GUI
28. GUI

List of Tables

1. List of Contributors
2. Abbreviations

Abbreviations:

HTML	Hypertext Markup Language
Css	Cascading Style Sheets
JS	Javascript
GUI	Graphical User Interface
DB	Database

Table 2

1. Introduction

1.1 Objective:

The technical review tool is a web application which facilitates the software reviewing process by easing the communication between the managers, panel members and the developers. The Managers can conduct reviews which will contain the reviews of panel members and the corresponding software changes, if made, by the developers.

1.2 Motivation:

The motivation for doing this project was primarily an interest in undertaking a challenging project in an interesting area. The opportunity to learn about new technologies beneficial for software engineering in general and for our project specifically was very appealing. We also got an opportunity to learn how a software product is planned, developed and provided to the customer and also the regular updates that take place to meet customer needs, which was very overwhelming but at the same time instilled confidence in us that we are ready for the software industry.

1.3 Background:

Technical Reviews are documented and use a defect detection process that has peers and technical specialists as part of the review process. The Review process doesn't involve management participation. It is usually led by a trained moderator who is NOT the author. The report is prepared with a list of issues that need to be addressed. A web application can help centralize all these requirements and makes the entire process efficient.

2. Project Description and Goals:

2.1 Description:

The Technical Review Tool is a web application that can be used by software development teams for conducting technical review efficiently. The application provides features to developers to take action based on issues found in the software after a technical review is conducted. The employee can be authenticated based on their employee ID that is provided by their respective organisations. This ID defines the set of permissions that allows employees to use certain features on the website based on their designation.

2.2 Goals:

The basic goal of the technical review tool is to provide the user with easy to use gui where software development teams can conduct technical reviews without any hassle.

3. Technical Specification:

3.1 Requirements:

1. The system shall allow the managers and developers to authenticate by entering their employee id.
2. The system shall allow the managers and developers to authenticate by entering their employee id.
3. The system SHALL allow the Review Coordinator to add details of the review panel members.
4. The system shall allow the Review Coordinator to add the Objective of the technical review.
5. The system shall allow the Review Coordinator to add comments and severity level of a comment given by the Panel members.
6. The system shall allow the Review Coordinator to add comments and severity level of a comment given by the Panel members.
7. The system shall allow the managers and developers to view details of an old review that includes objective, review date, panel members details, comments, status, severity level.
8. The system shall allow the developer to edit an already conducted review.
9. The system shall allow the Developer to change the status of a review.
10. The system shall allow the developer to add description of changes made to the application following a comment by the panel member.
11. The system shall allow the developer to add the link to the commit made to the code on github following the review.
12. The system shall allow the managers and developers to logout of the application and exit the current session.

3.2 Frontend Technologies Used:

1. HTML
2. Css
3. Javascript
4. Bootstrap

3.3 Backend Technologies Used:

1. Node.js
2. Express js
3. Redis

3.4 Database Used:

1. MongoDB

4. Design Approach and Details:

4.1 Product based Work Breakdown Structure: (yEd tool)

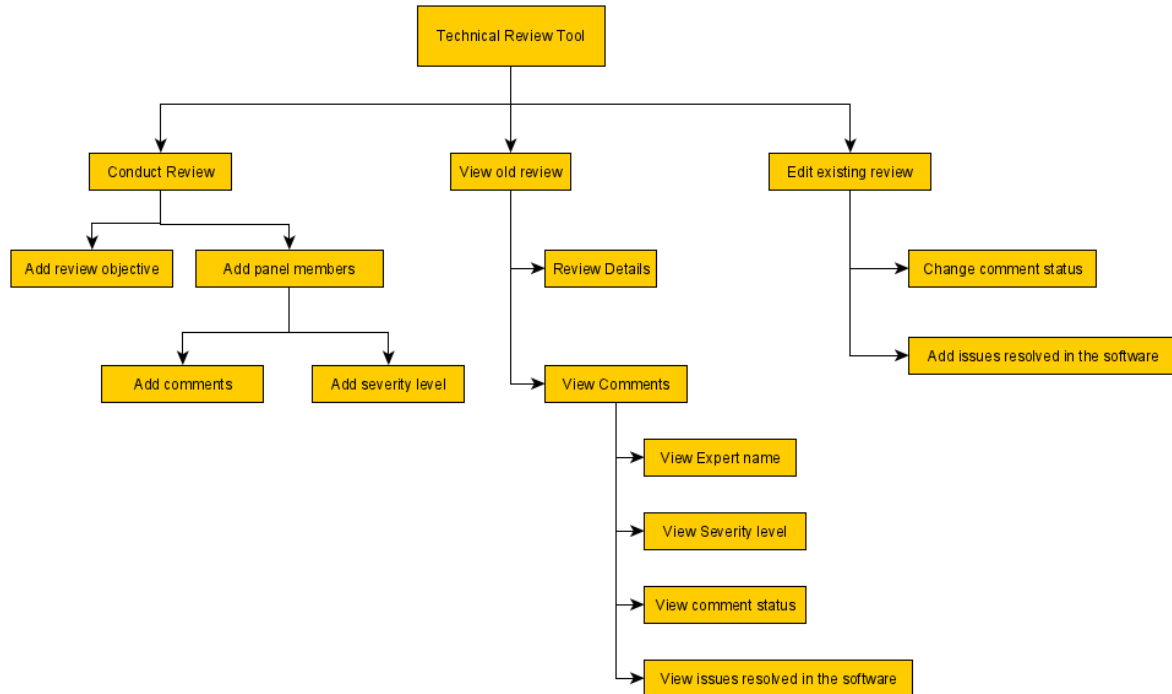


Fig 1

4.2 Architecture Design

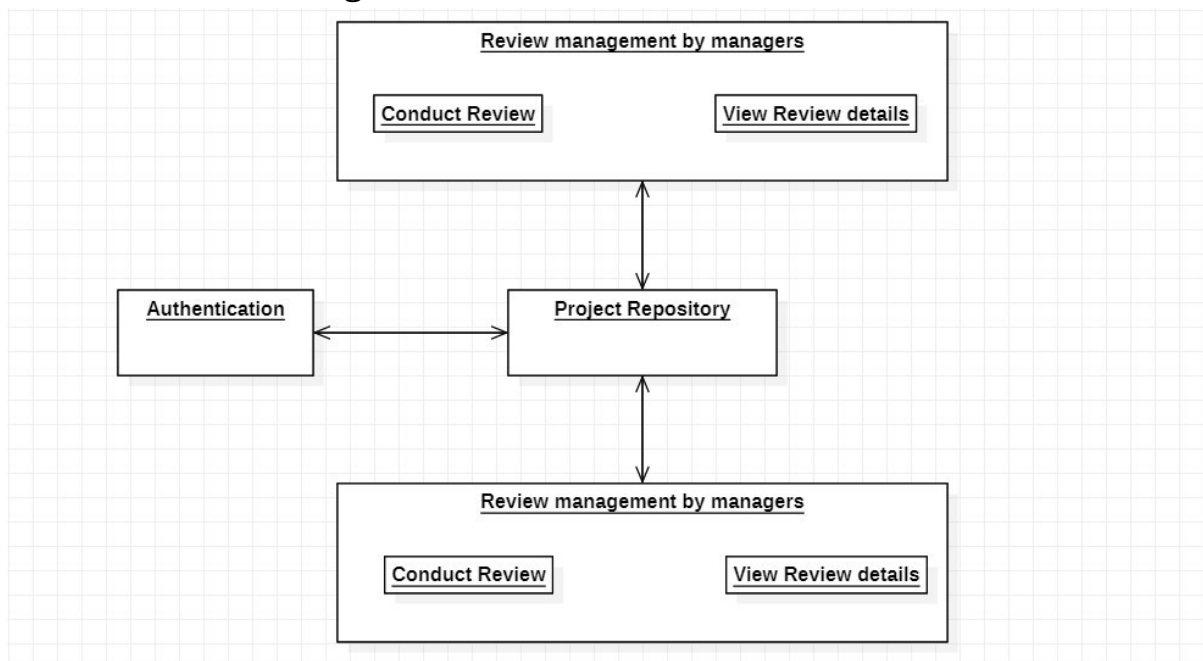


Fig 2

We have adopted the central repository model as all the subsystems will communicate directly to a centralized database.

- **Control Styles:** We are using the **Centralized control model** where one subsystem has the responsibility for control and start-stop of other sub-systems.

4.3 Use Case Diagram:

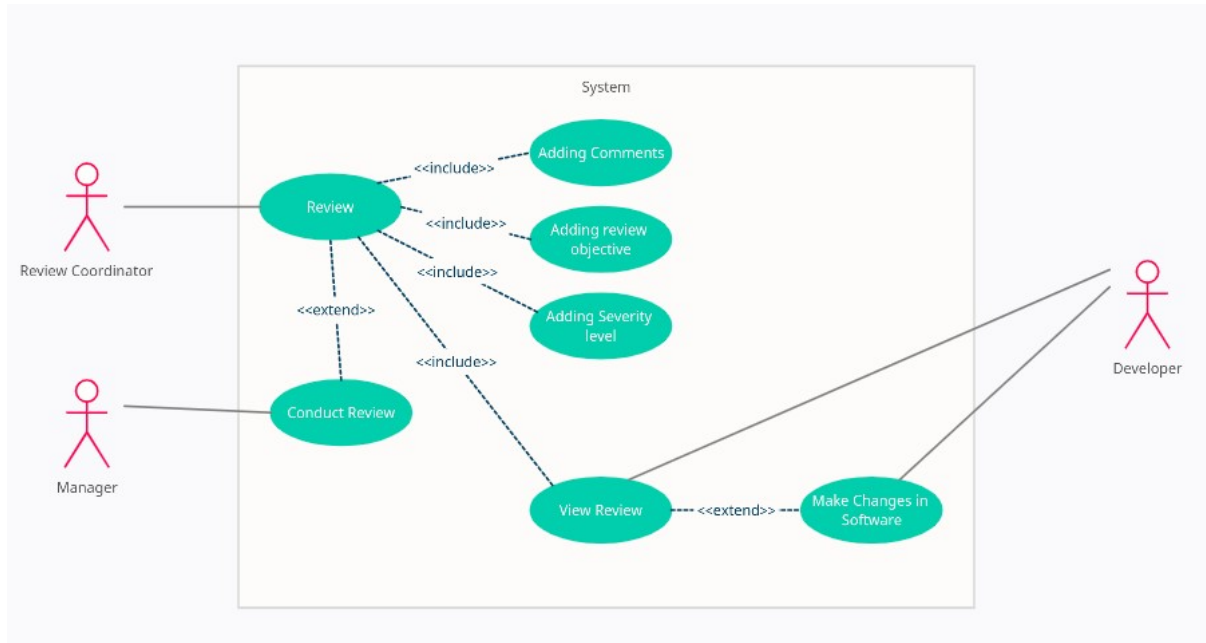


Fig 3

4.4 Database Model:

4.4.1 User Model:

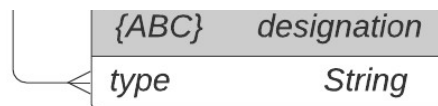


Fig 4

4.4.2 Review Model:

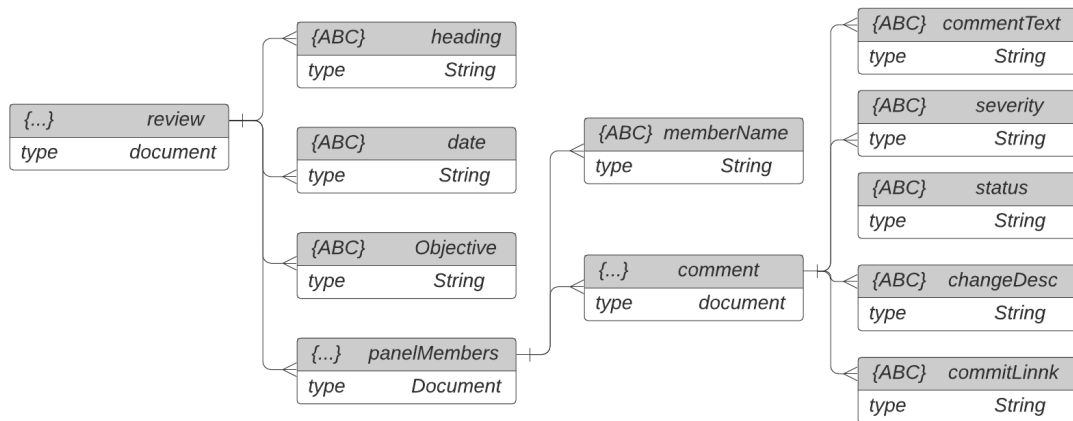


Fig 5

4.5 Data Flows

4.5.1 0 Level Dfd:

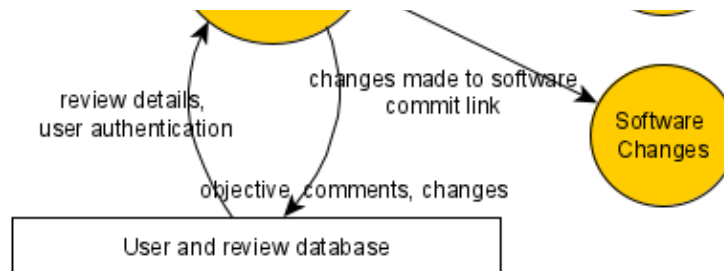


Fig 6

4.5.2 Higher level dfd:

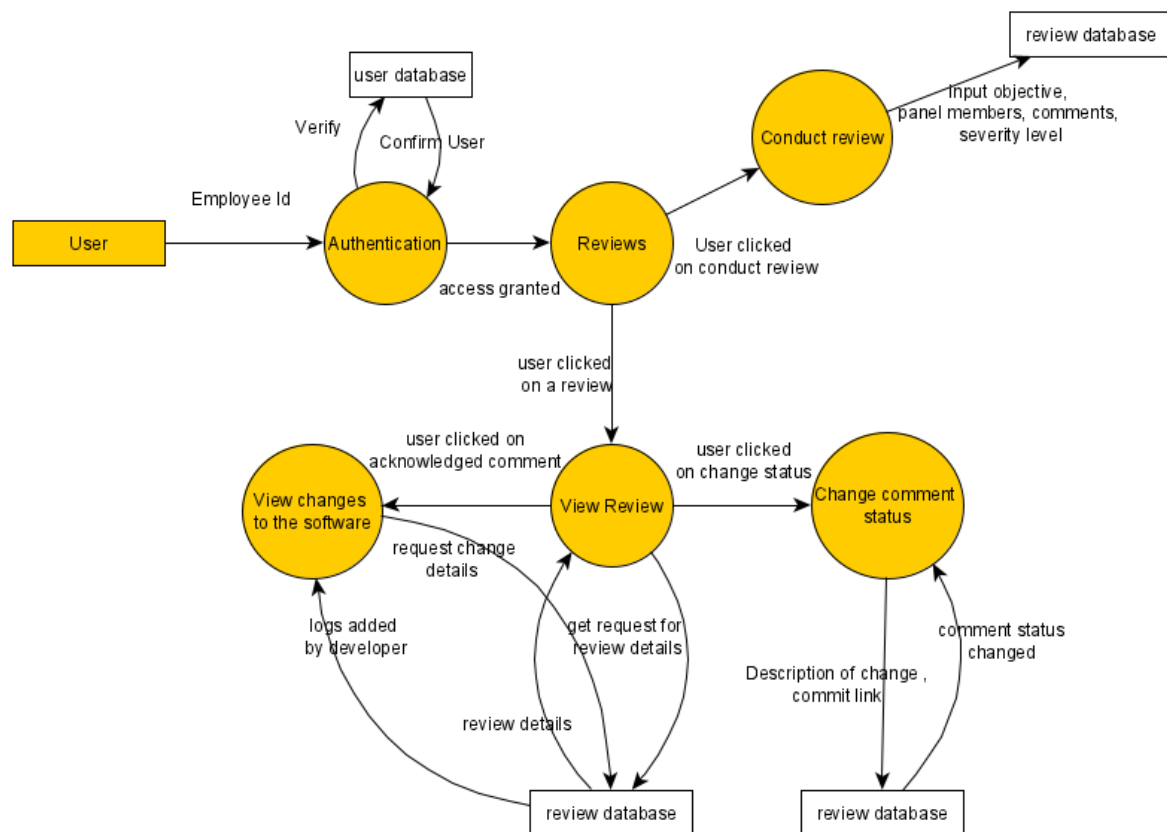


Fig 7

4.6 Sequence and Collaboration Diagrams

4.6.1 Authentication:

- Sequence Diagram

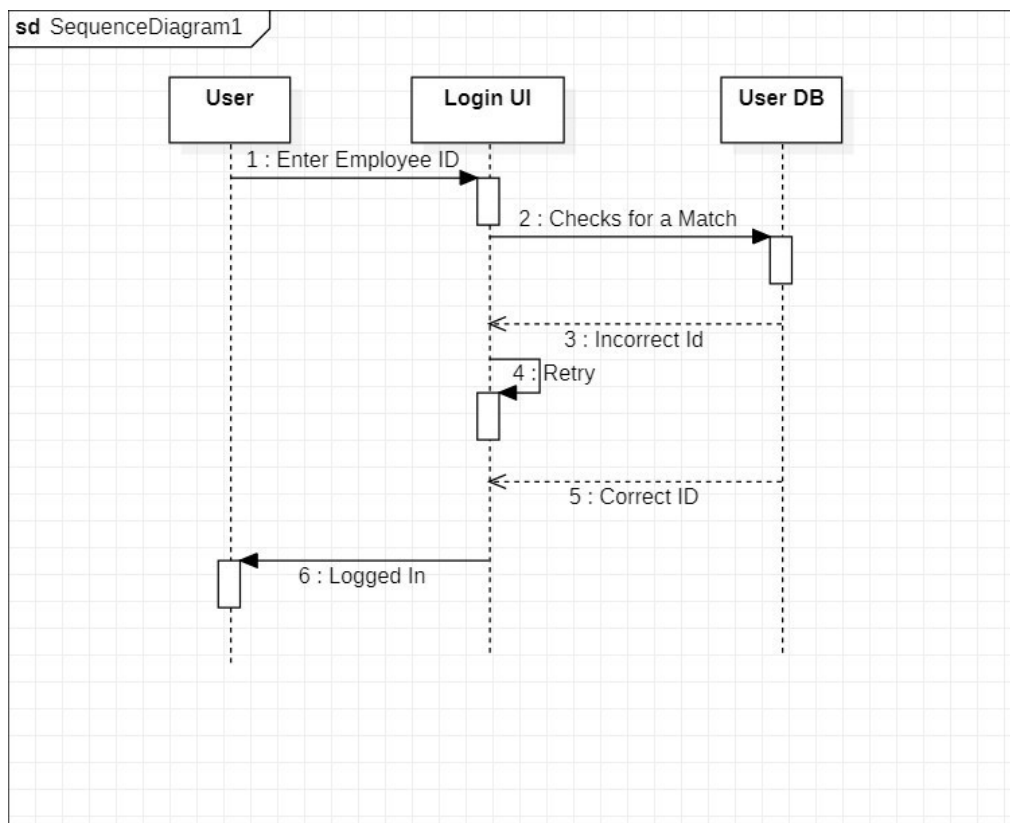


Fig 8

- **Collaboration Diagram:**

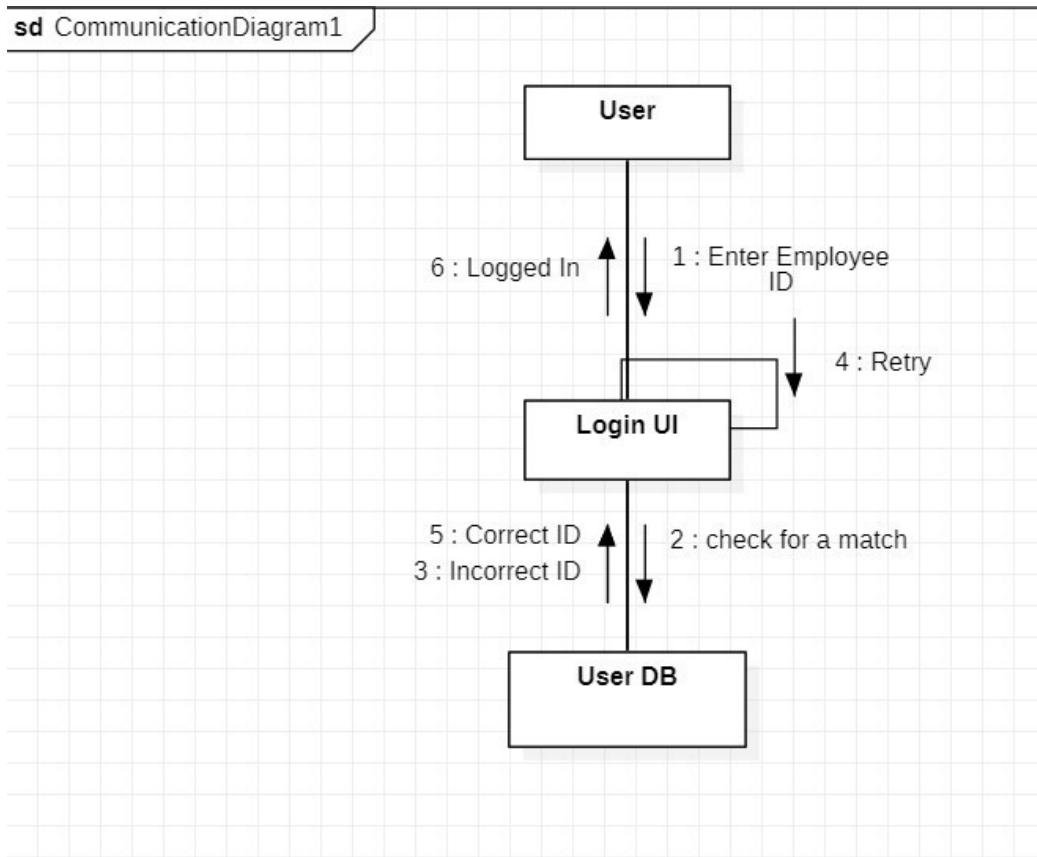


Fig 9

4.6.2 Conduct Review:

- Sequence Diagram:

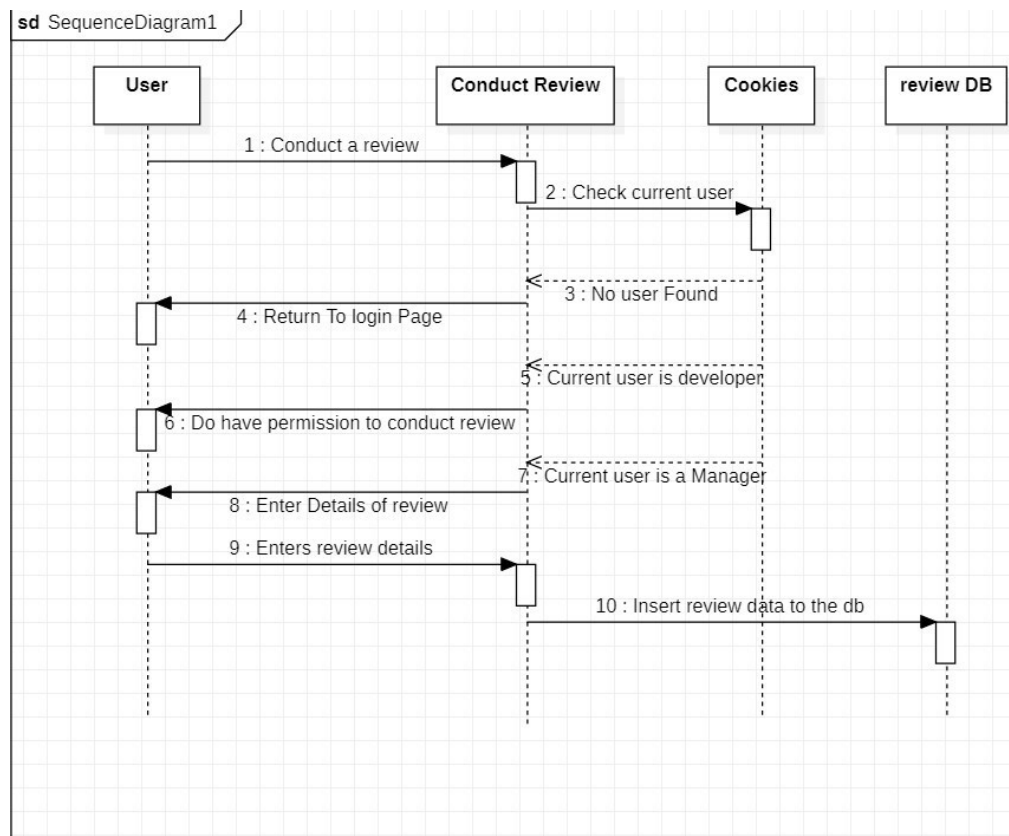


Fig 10

- **Collaboration Diagram:**

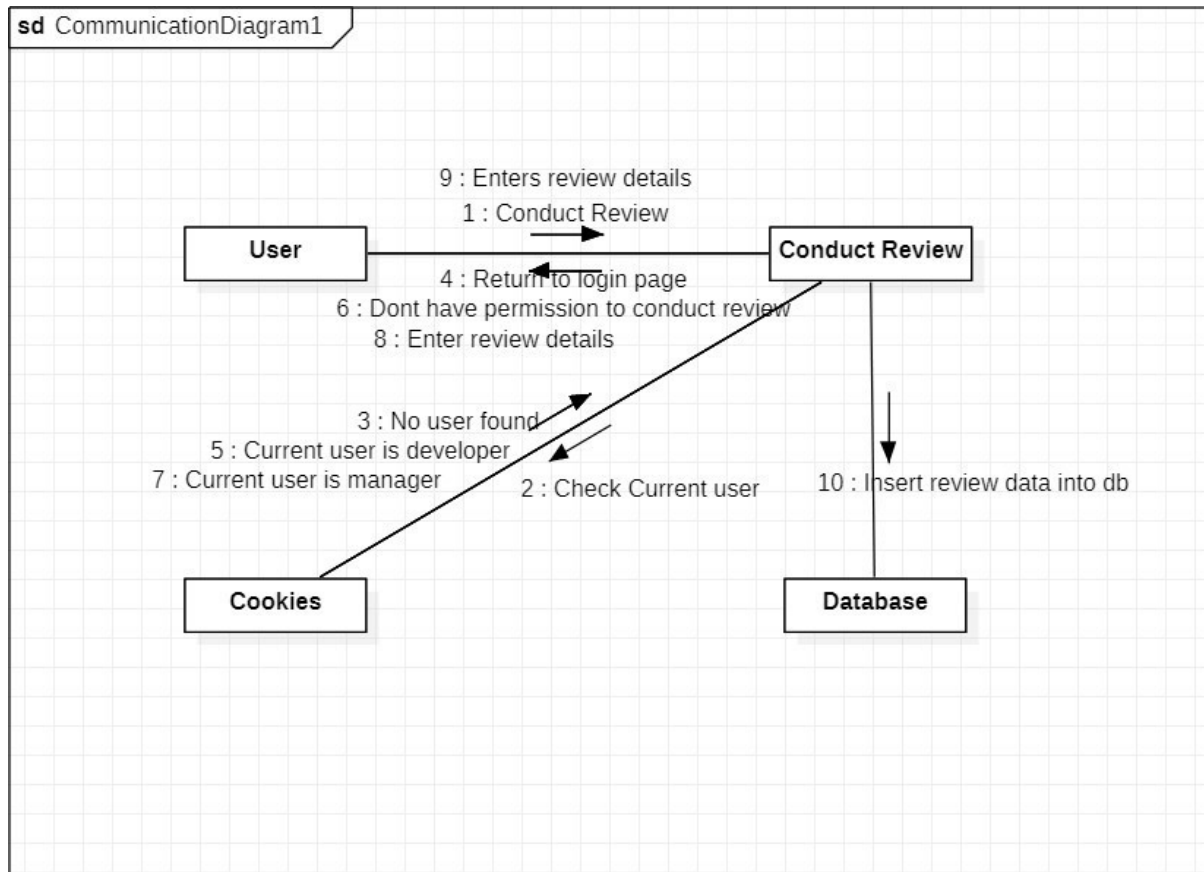


Fig 11

4.6.3 View Review:

- **Sequence Diagram:**

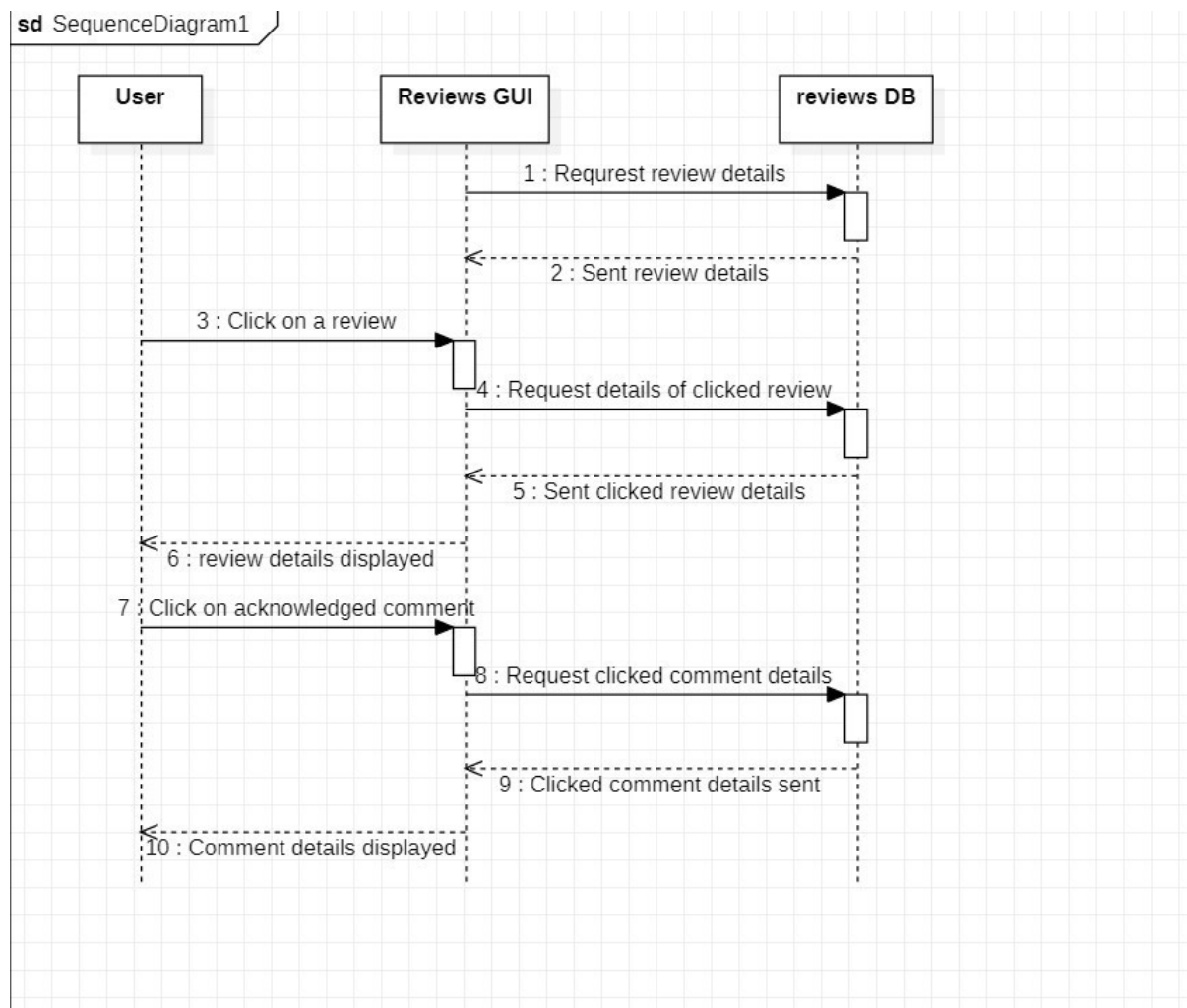


Fig 12

- **Collaboration Diagram:**

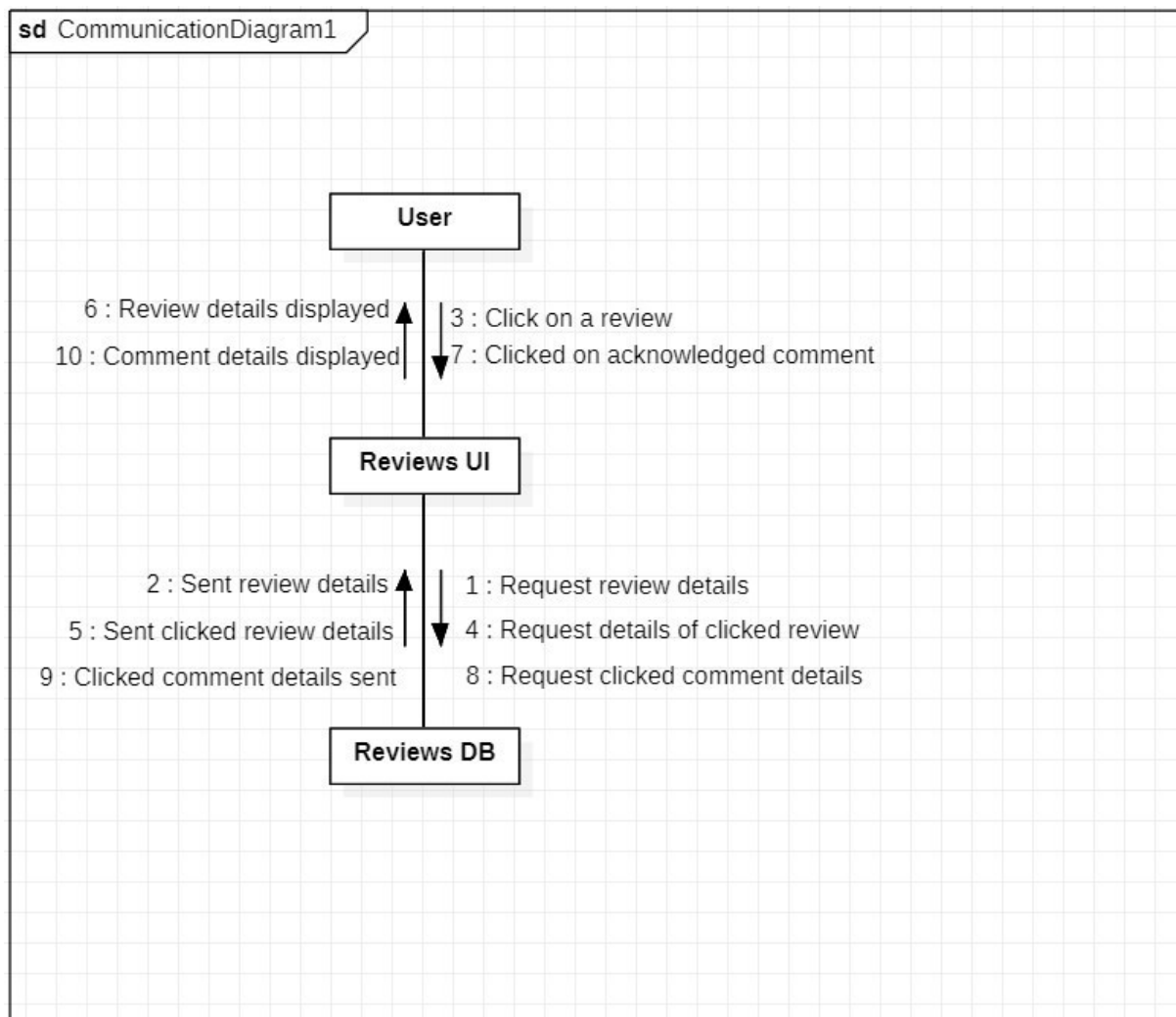


Fig 13

4.6.4 Change Comment Status:

- Sequence Diagram:

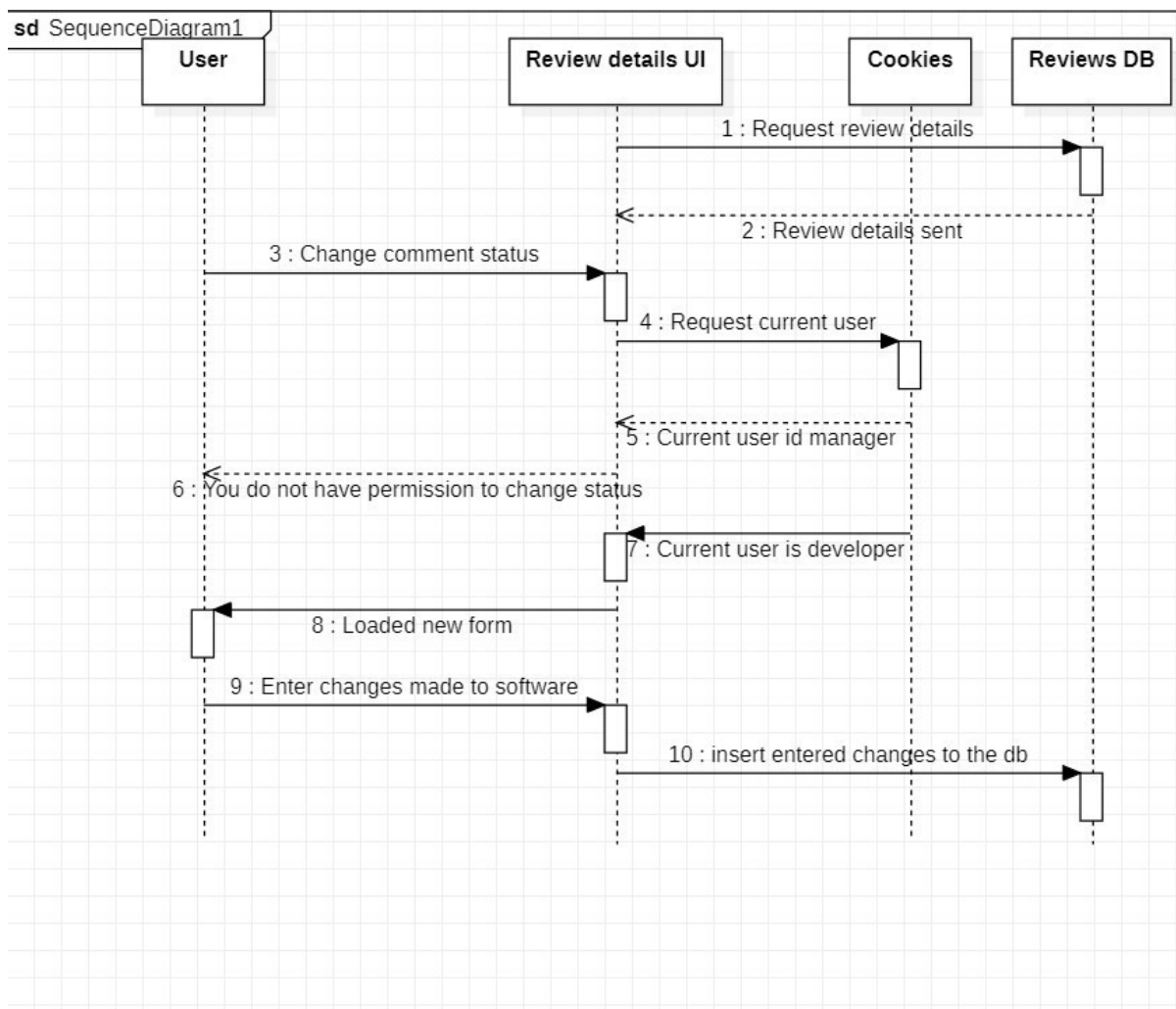


Fig 14

- **Collaboration Diagram:**

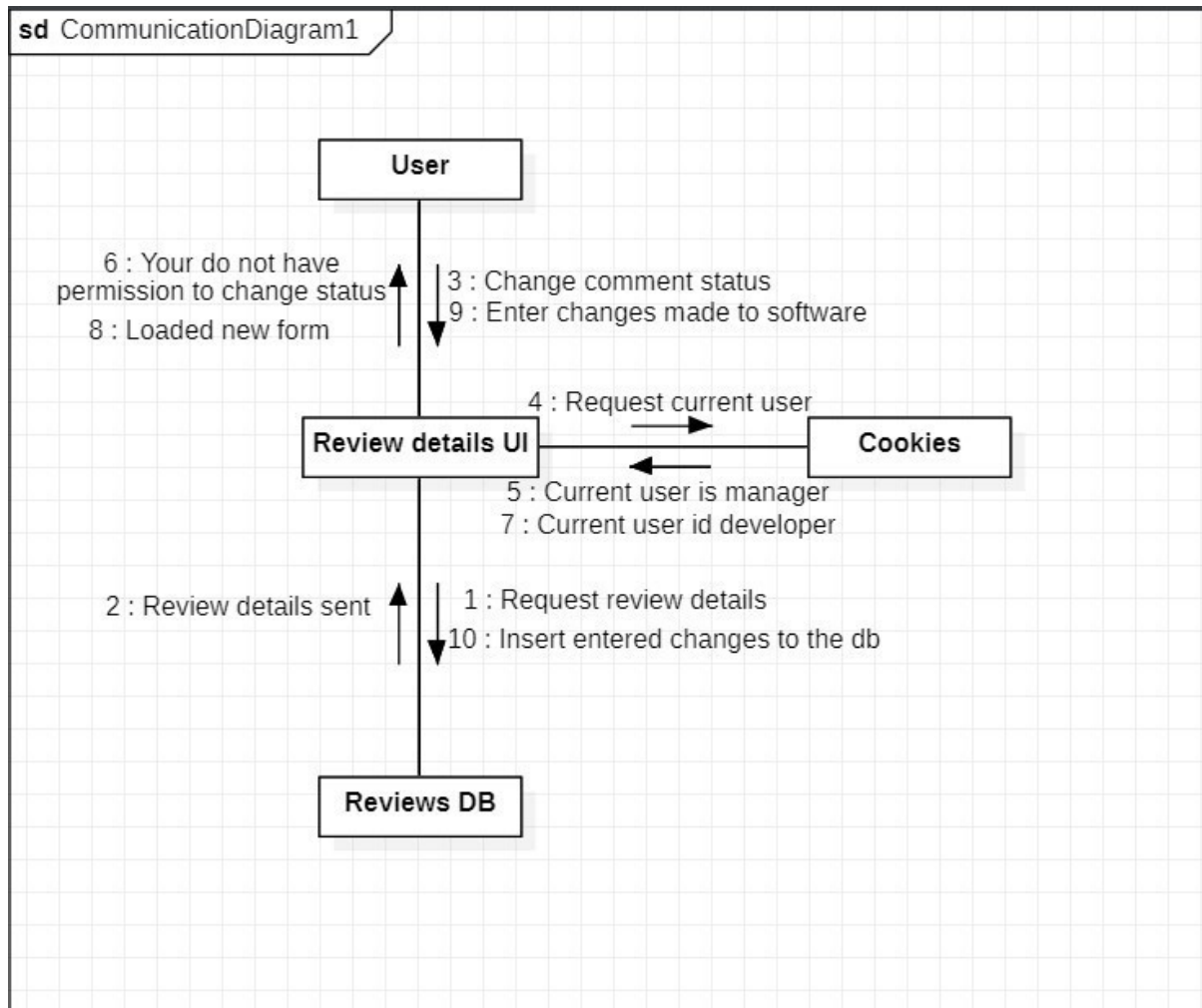


Fig 15

4.7 Swimlane Activity Diagrams:

4.7.1 Create Review:

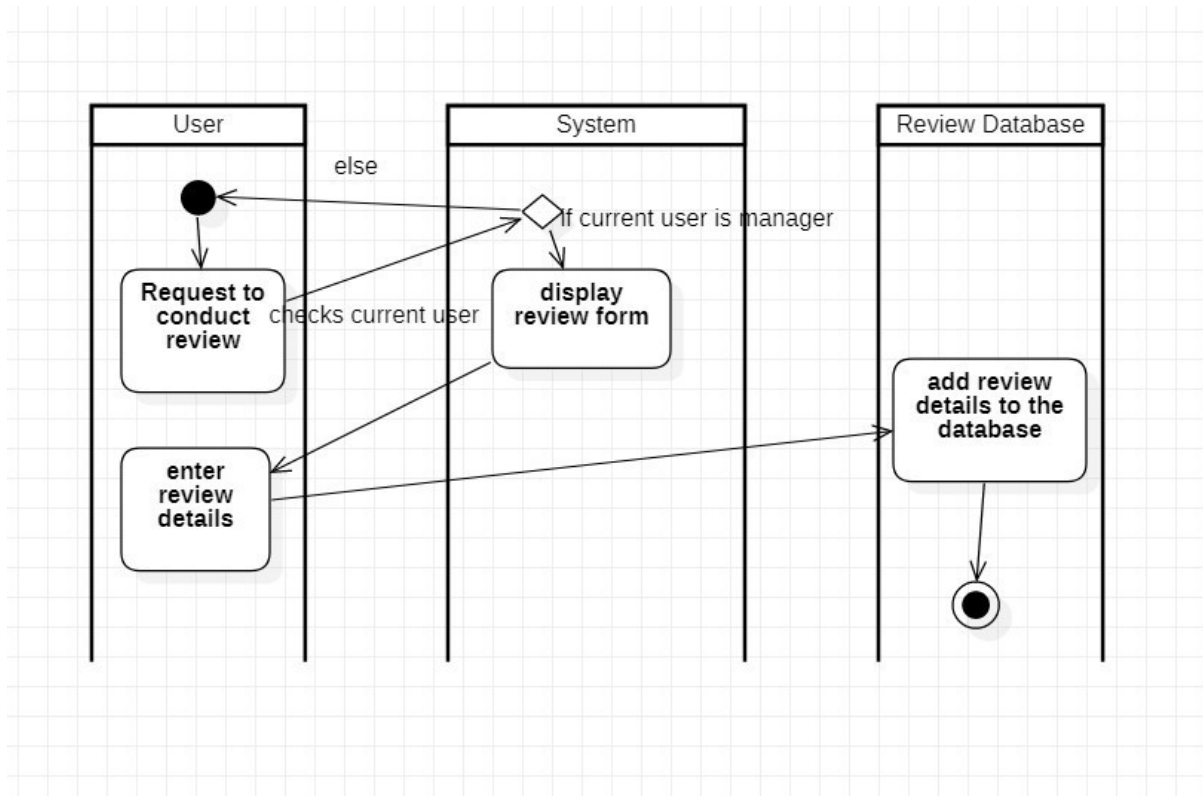


Fig 16

4.7.2 View Review:

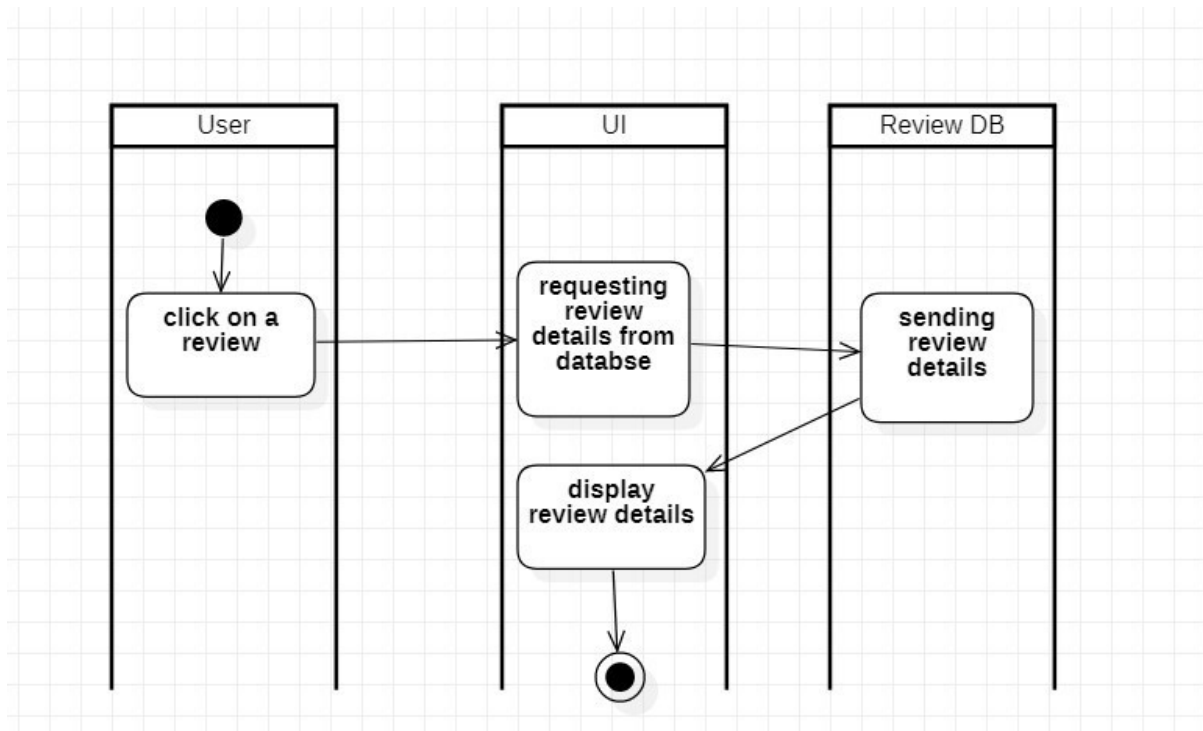


Fig 17

4.7.3 Change Status :

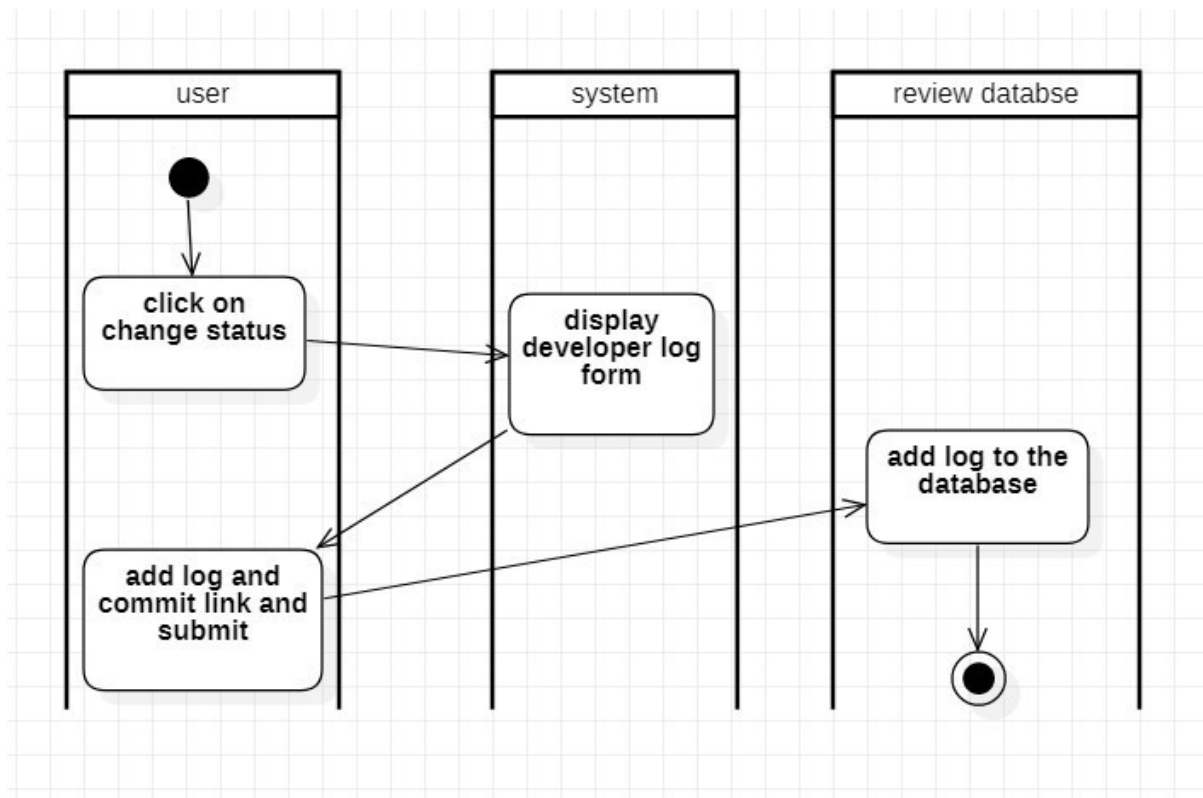


Fig 18

4.8 State Transition Diagram

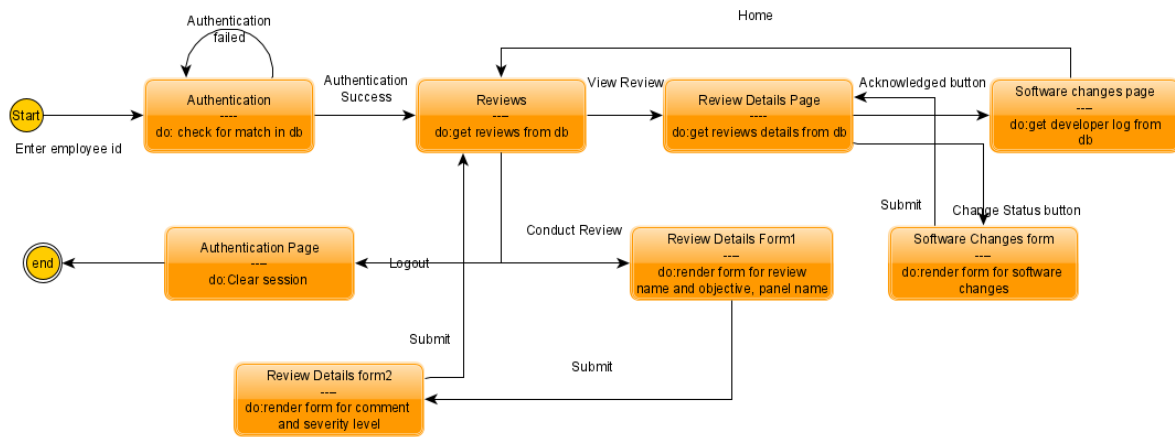


Fig 19

5. Schedule and Tasks:

5.1 Gantt Chart:

Task	1 Feb-22 Feb	22 Feb-22 Mar	22 Mar - 02 Apr	02 Apr - 12 Apr	12 Apr - 15 Apr	15 Apr - 20 Apr
Planning						
Requirement Analysis						
Database Design						
Code Generation						
Testing						
Documentation						

Fig 20

5.2 Activity Network:

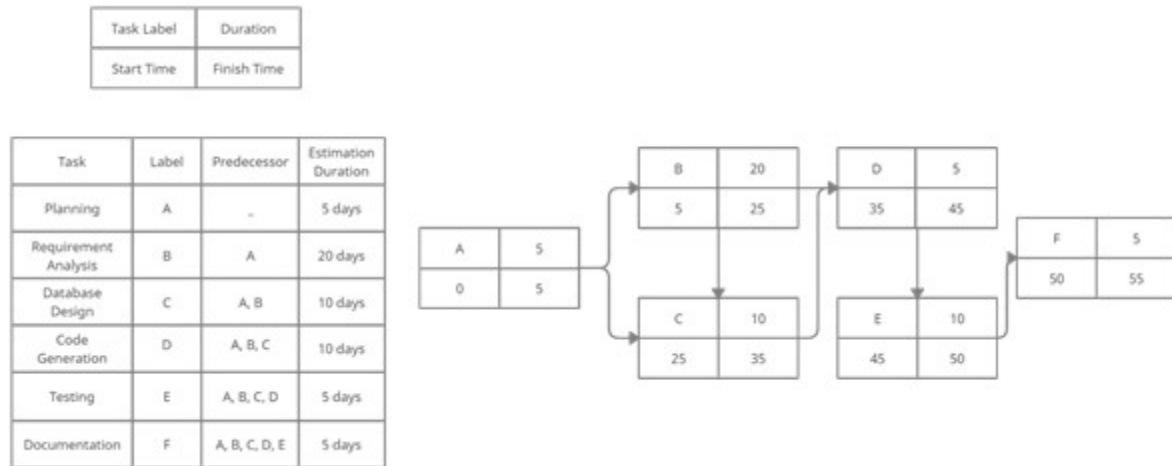


Fig 21

5.3 Timeline Chart:

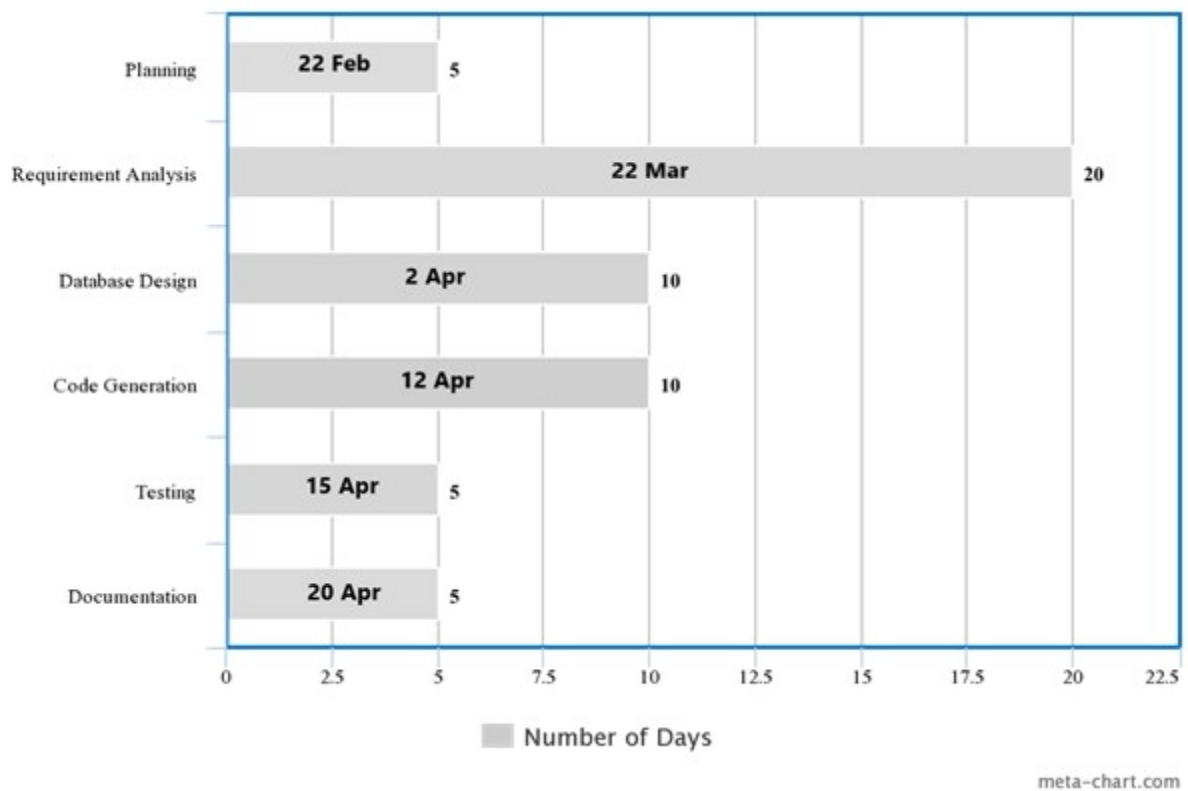


Fig 22

6. Project Demonstration:

6.1 Authentication Module:

This is the first page that verifies the user using a unique Employee ID. It throws an error in case of an incorrect Employee ID. If the user enters a valid Employee ID, it will be redirected to the next page containing a list of different reviews.

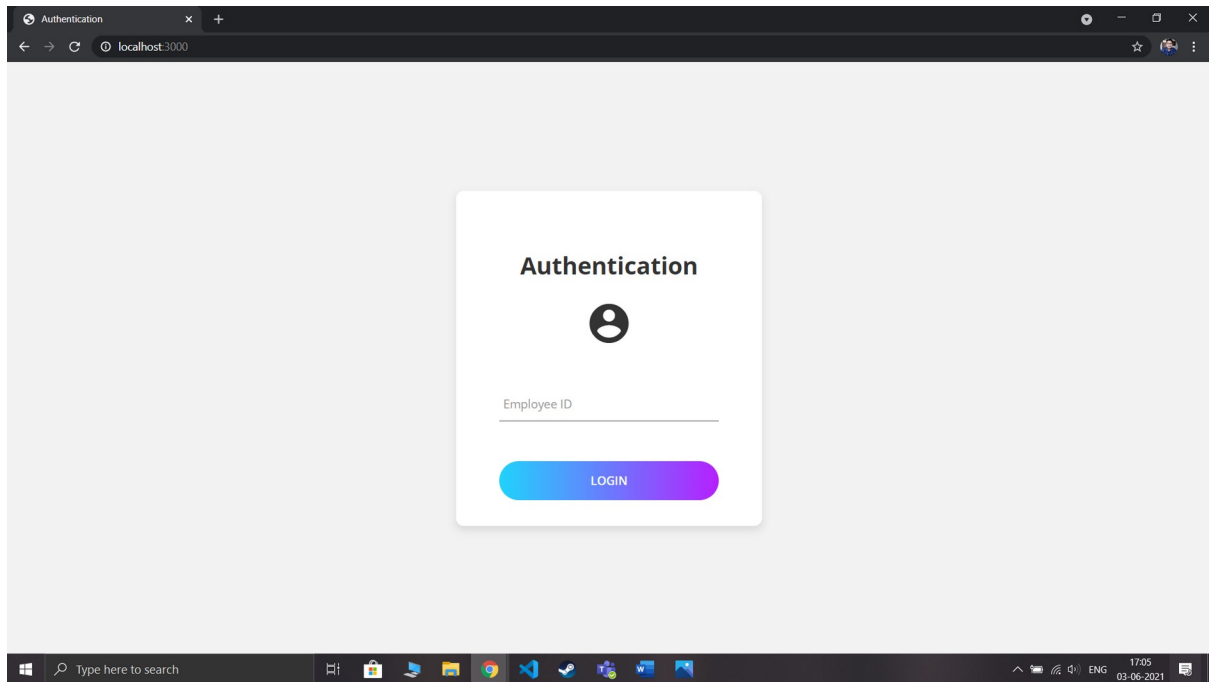


Fig 23

6.2 Conduct Review Module:

The user can click on the conduct review button visible on the home page which will lead to a form where the user needs to add the review objective and details of the panel members. On clicking next the user can add the comments given by the panel members and submit. The details of the review will be added to the database.

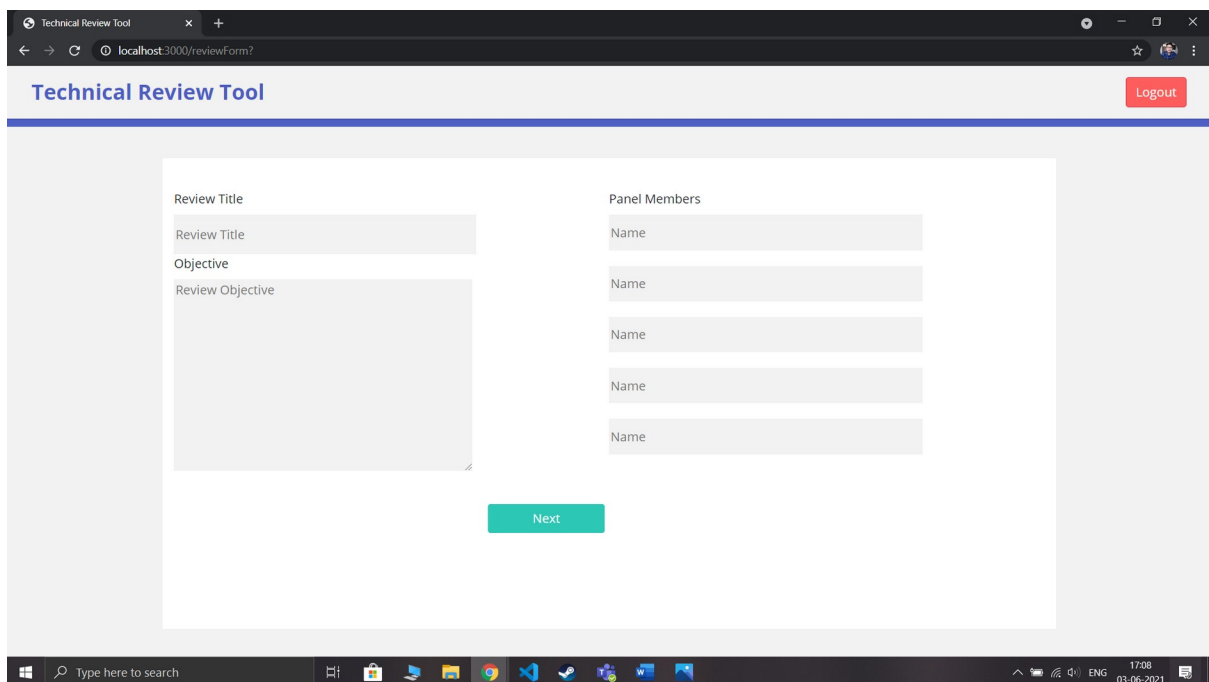


Fig 24

The screenshot shows a web browser window titled "Technical Review Tool" with the URL `localhost:3000/reviewForm/60b8bf51bcb574850eb22c9`. The page has a header with the title "Technical Review Tool" and a "Logout" button. The main content area displays the review details for a review titled "ads" with the objective "sdf". The date and time are shown as "3/6/2021, 5:05:02 pm". Below the objective, there are five sections for panel members, each with a "Comment" input field and a "Severity Level" dropdown menu. The panel members are labeled "Panel Member 1", "Panel Member 2", "Panel Member 3", "Panel Member 4", and "Panel Member 5". A green "Next" button is located at the bottom right of the panel member sections. The Windows taskbar is visible at the bottom of the screen.

Fig 25

6.3 View Review Details:

The user can click on the conduct review button visible on the home page which will lead to a form where the user needs to add the review objective and details of the panel members. On clicking next the user can add the comments given by the panel members and submit. The details of the review will be added to the database.

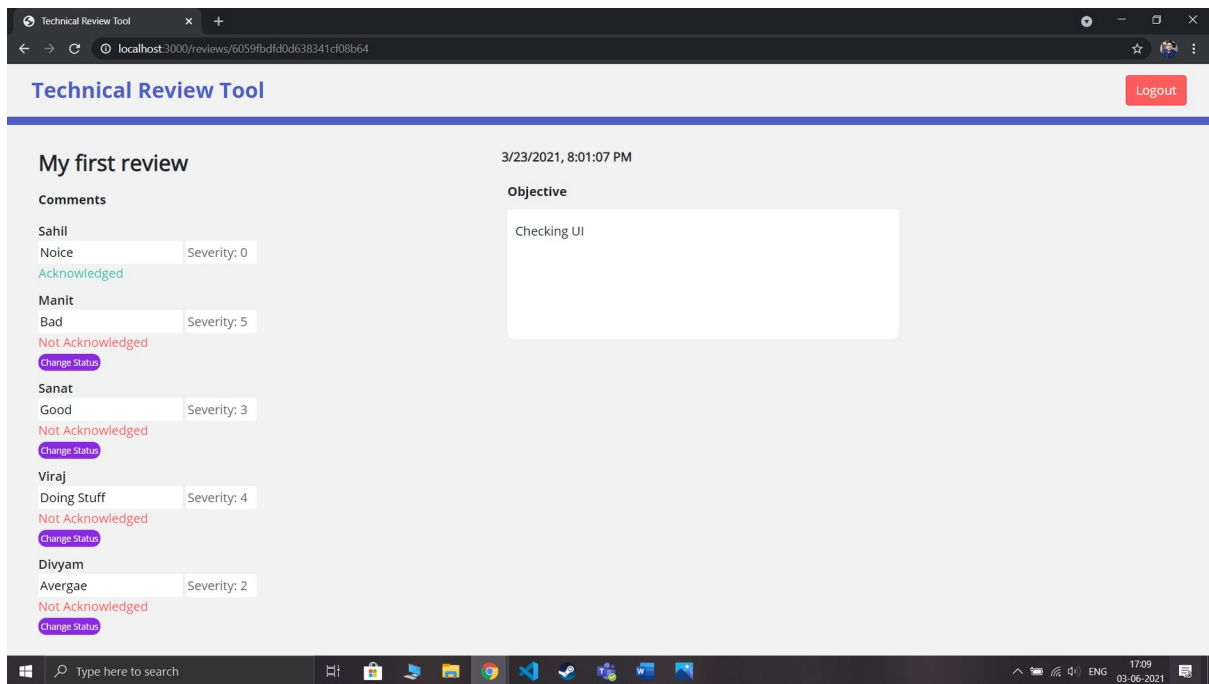


Fig 26

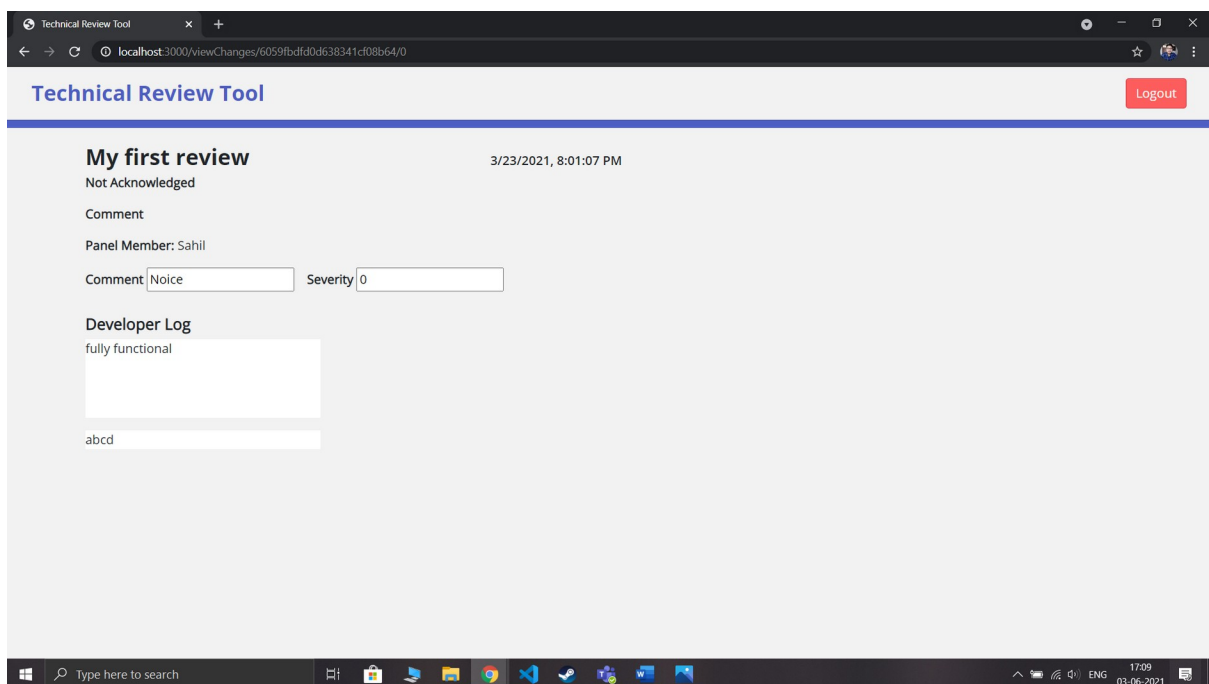


Fig 27

6.4 Change Comment Status:

The user can click on the change comment status button to view the form where a developer can add the changes made to the software and the commit link and the comment status will change and the logs will be inserted to the database.

The screenshot shows a web browser window with the title 'Technical Review Tool'. The address bar shows the URL 'localhost:3000/addChanges/6059bfdf0d638341cd08b64/1'. The page has a header with the title 'Technical Review Tool' and a 'Logout' button. The main content area is titled 'My first review' and shows a status of 'Not Acknowledged' with a timestamp of '3/23/2021, 8:01:07 PM'. Below this, there is a 'Comment' section with the text 'Panel Member: Manit'. The 'Comment' input field contains the text 'Bad' and the 'Severity' input field contains the text '5'. There is a 'Developer Log' section with a 'Description' input field. At the bottom of the form, there is a 'Commit Link' input field and an 'Update' button. The Windows taskbar is visible at the bottom of the screen.

Fig 28

7. Results and Discussion:

The entire codebase for the Project can be found on our github repository:

Link: <https://github.com/sahil-9898/Technical-Review-Tool>