TEST AUTOMATION (UCS662)

PROJECT REPORT

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Project Title: TIET Connect App

Submitted To

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CONTENTS

1. Introduction:

In an era marked by digital connectivity, social media platforms have become integral parts of our daily lives, facilitating communication, collaboration, and community building on a global scale. Recognizing the evolving landscape of social interaction and the need for platforms that prioritize both functionality and user experience, we introduce Tiet Connect. Tiet Connect emerges as a beacon of innovation in the realm of social media applications, offering a sophisticated blend of features tailored to meet the diverse needs and preferences of modern users. Leveraging the power of the MERN stack (MongoDB, Express.js, React.js, Node.js), Tiet Connect embodies a commitment to excellence in both technology and design.

With Tiet Connect, our primary objective is to cultivate meaningful connections among users while providing a seamless and intuitive platform for sharing experiences, ideas, and moments. By amalgamating essential functionalities found in established social media platforms with cutting-edge design principles and user-centric approaches, Tiet Connect aims to redefine the social media landscape.

This report delves into the core components of Tiet Connect, outlining its objectives, functionalities, and the meticulous attention to detail invested in its development. Through an exploration of its problem statement and specific requirements, we illuminate the strategic vision driving Tiet Connect forward as a frontrunner in the digital social sphere.

2. Problem Statement:

The Thapar Institute of Engineering and Technology (TIET) community lacks a centralized platform for social interaction and networking tailored to the specific needs of its students, faculty, and alumni. Current communication channels, including social media platforms, lack integration with TIET's academic and administrative resources, leading to fragmentation and inefficiencies in information dissemination and community engagement.

To address this challenge, there is a need for a comprehensive social media application designed exclusively for the TIET community. This application should provide a user-friendly interface for students, faculty, and alumni to connect, communicate, and collaborate seamlessly.

3. Specific Requirements:

a. Functional Requirements:

User Authentication: Users must be able to register, log in, and log out securely. This includes features such as password encryption, account verification, and session management.

Profile Management: Users should have the ability to create and edit their profiles, including adding profile pictures, updating personal information.

Posting Functionality: Users should be able to create, edit, and delete posts. Posts may include text, images, or other multimedia content. Additionally, users should have the option to like, comment on, and share posts.

Friend Management: Users should be able to search for other users, send friend requests, accept or reject friend requests, and manage their list of friends.

Photo Upload: Users should have the ability to upload photos to their profiles or as part of their posts. The application should support image storage, resizing, and display.

Dark Mode: The application provides users with the option to switch between light and dark modes to suit their preferences and reduce eye strain.

Scrolling: Smooth scrolling functionality is implemented throughout the application to enhance user experience, particularly when navigating through long lists of content.

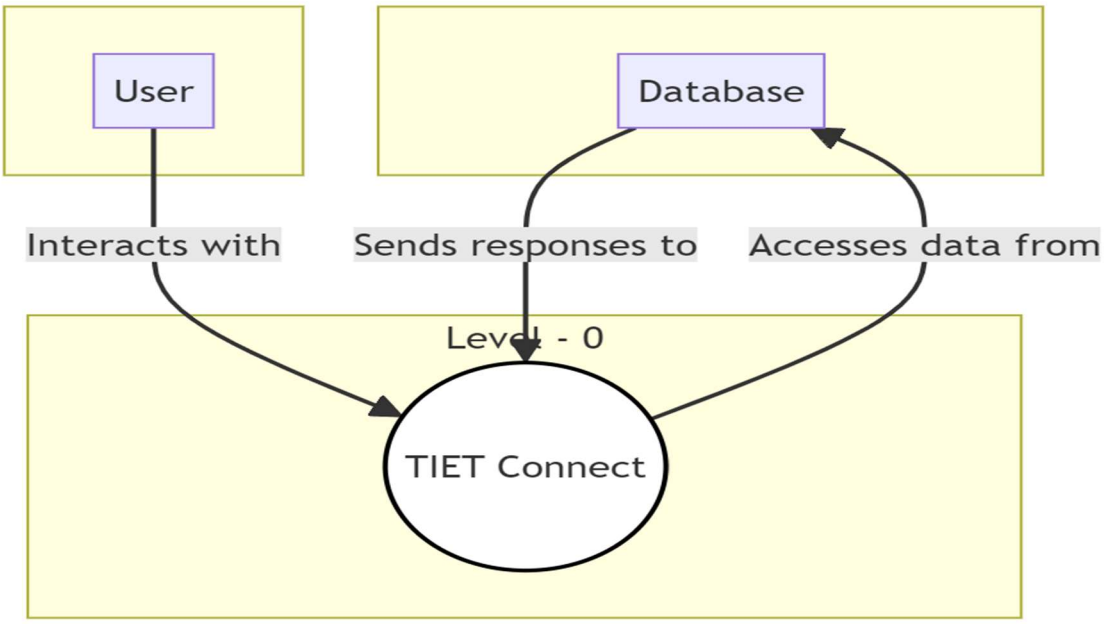
b. <u>Non-functional Requirements</u>:

- **Performance**: The application is responsive and performant, even under heavy load conditions. Page load times and server response times should be minimized to ensure a smooth user experience.
- **Scalability**: The architecture of the application is designed to scale horizontally to accommodate an increasing number of users and data.
- **Security**: Strong security measures are implemented to protect user data and privacy. This includes secure storage of passwords, encryption of sensitive information, and protection against common security threats such as cross-site scripting (XSS) and SQL injection.
- **Usability**: The user interface is intuitive and easy to navigate, with clear labeling and consistent design elements. User feedback should be incorporated to continually improve usability.
- **Accessibility:** The application is accessible to users with disabilities, adhering to web accessibility standards such as WCAG (Web Content Accessibility Guidelines).
- **Compatibility:** The application should be compatible with a wide range of devices and web browsers to ensure accessibility for all users.
- **Maintainability:** The codebase should be well-organized, documented, and modular to facilitate future updates, bug fixes, and feature enhancements.
- **Reliability:** The application should be reliable and available at all times, with minimal downtime for maintenance or upgrades. It should handle errors gracefully and provide appropriate error messages to users.

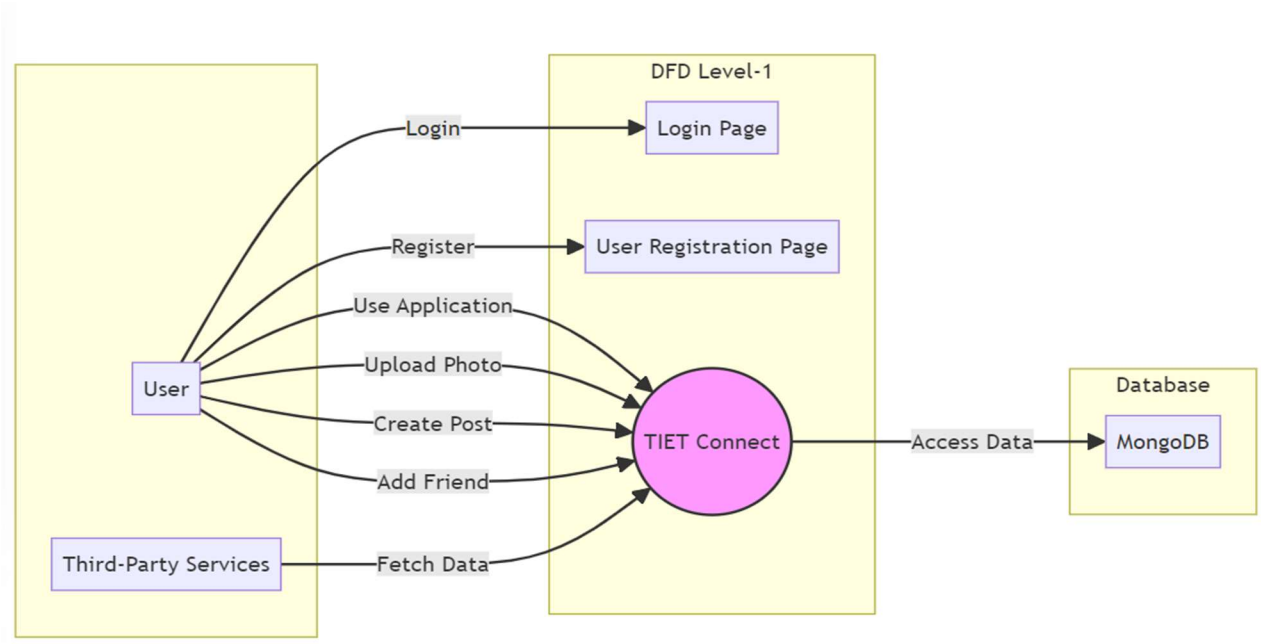
4. DIAGRAMS:

Context Level Diagram:

Level – 0:



Level – 1:



5. SYSTEM SPECIFICATIONS:

a. Hardware Specifications:

- Tiet Connect is designed to run efficiently on standard computing hardware, including desktops, laptops, tablets, and mobile devices.
- Specific hardware requirements are kept minimal to ensure accessibility across a wide range of devices and configurations.
- Processor: Intel Core i7 or equivalent.
- RAM: 16GB
- Storage: 512GB SSD.
- Graphics: Integrated graphics for basic applications; dedicated graphics for tasks like gaming, 3D modeling, or video editing.

b. Software Specifications:

- Operating System: Windows 11
- Browser: Google Chrome (Version 124.11)
- Security Software: Antivirus and anti-malware tools to protect against threats
- Database Software: MySQL, PostgreSQL, or similar for database management, if required.
- Backup Software: A solution for data backup and recovery, like cloud storage or external drives.

6. TOOLS USED:

a. Selenium:

- **Selenium WebDriver** is a powerful tool for automating web browser interactions. In our code, the WebDriver interface is utilized to automate Chrome browser interactions. Specifically, the ***Chrome-Driver*** is used to control the Chrome browser.

- **Apache Ant:** Apache Ant is a build automation tool commonly used in Selenium projects. It helps manage project dependencies, build processes, and project lifecycle.

b. TestNG:

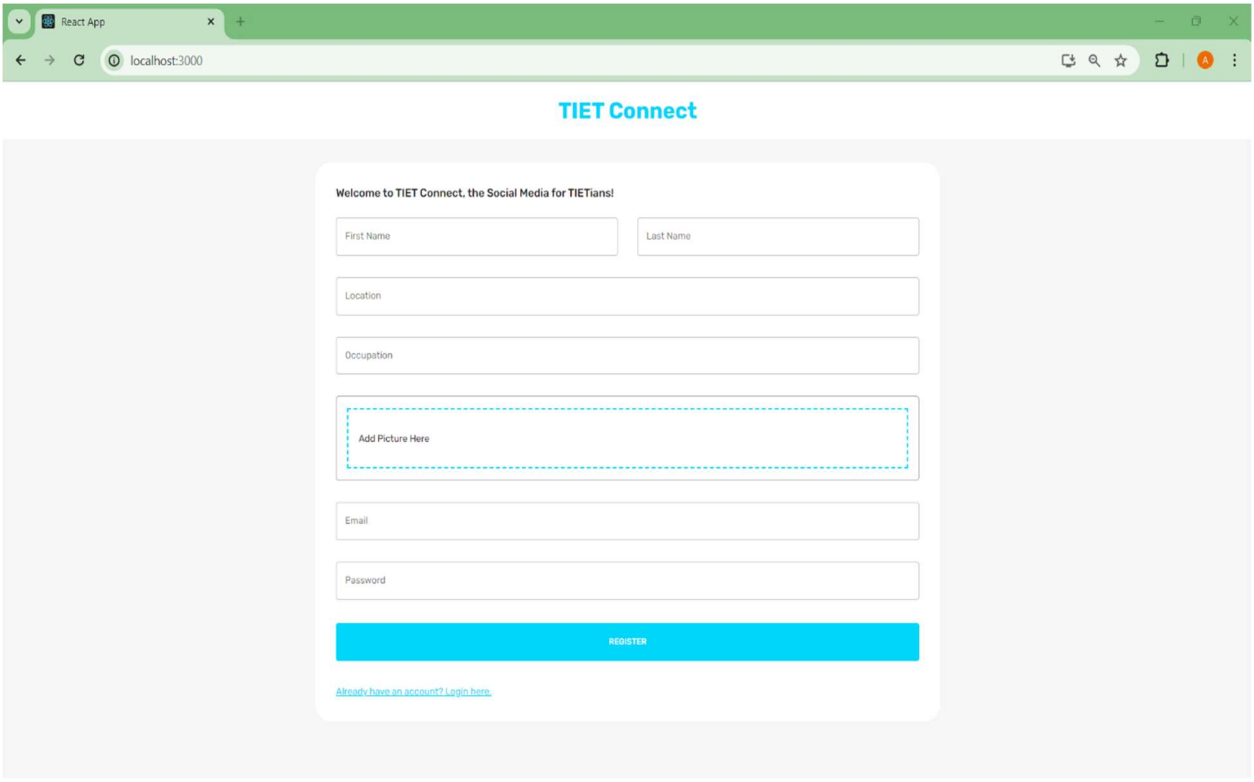
TestNG annotations are used to define test methods, setup and teardown procedures, and control the execution order of tests. Here are the TestNG annotations used in the code:

- **@BeforeTest**: This annotation is used to denote a method that should run before any test method belonging to the classes inside the <test> tag is run. In the code, it's used to set up the WebDriver instance before running tests.
- **@Test:** This annotation marks a method as a test method. In the code, it's used to define individual test cases, where each test method represents a specific test scenario.
- **@AfterTest:** This annotation is used to denote a method that should run after all the test methods belonging to the classes inside the <test> tag have run. In the code, it's used to perform cleanup actions such as quitting the WebDriver instance after all tests are executed.
- Additionally, **the priority attribute** is used with the @Test annotation to specify the order of execution of test methods.

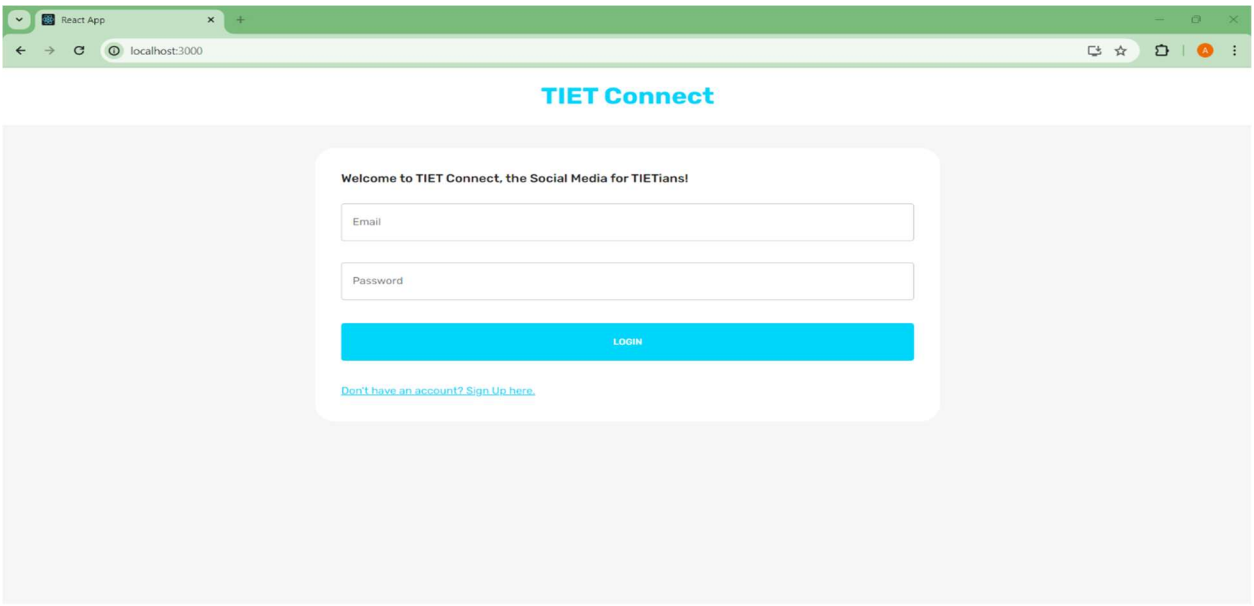
Chrome Browser: While not explicitly mentioned as a tool in the code, the Chrome browser itself is an essential component for running Selenium WebDriver tests. The code automates interactions with the Chrome browser to simulate user actions on web pages.

7. SAMPLE SCREENSHOTS:

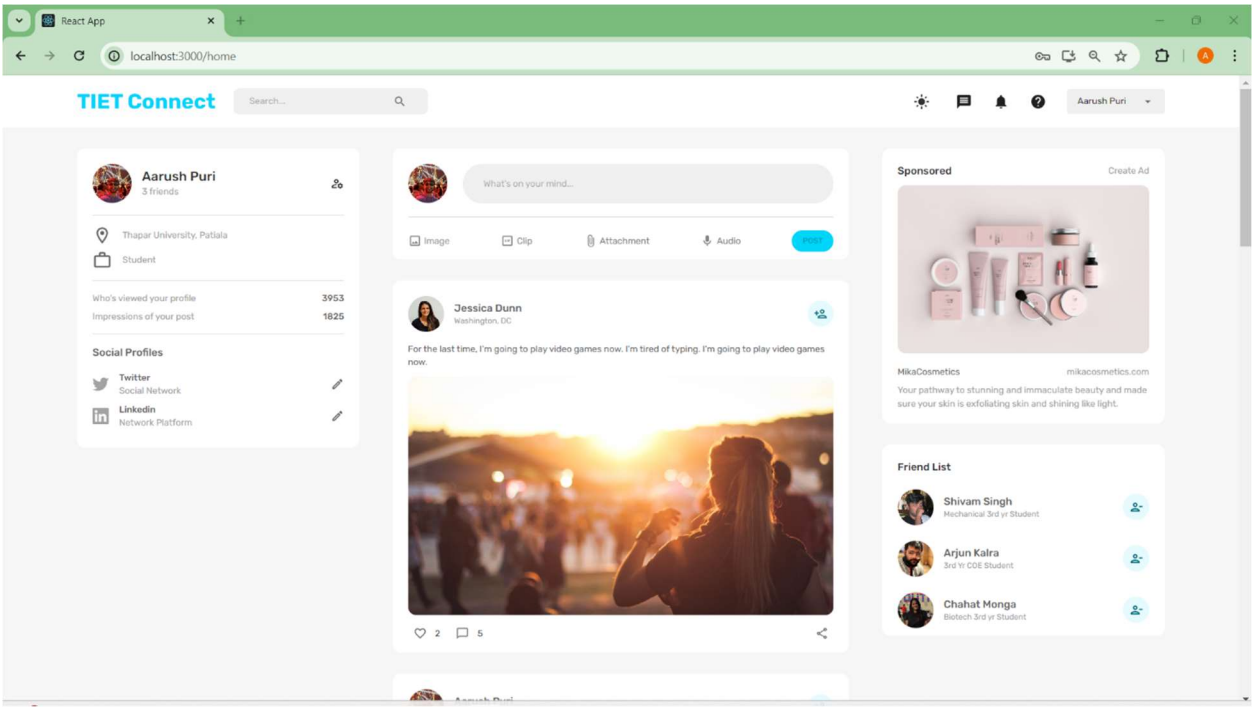
Register Page:



Login Page:



Home Page:



Profile Page:

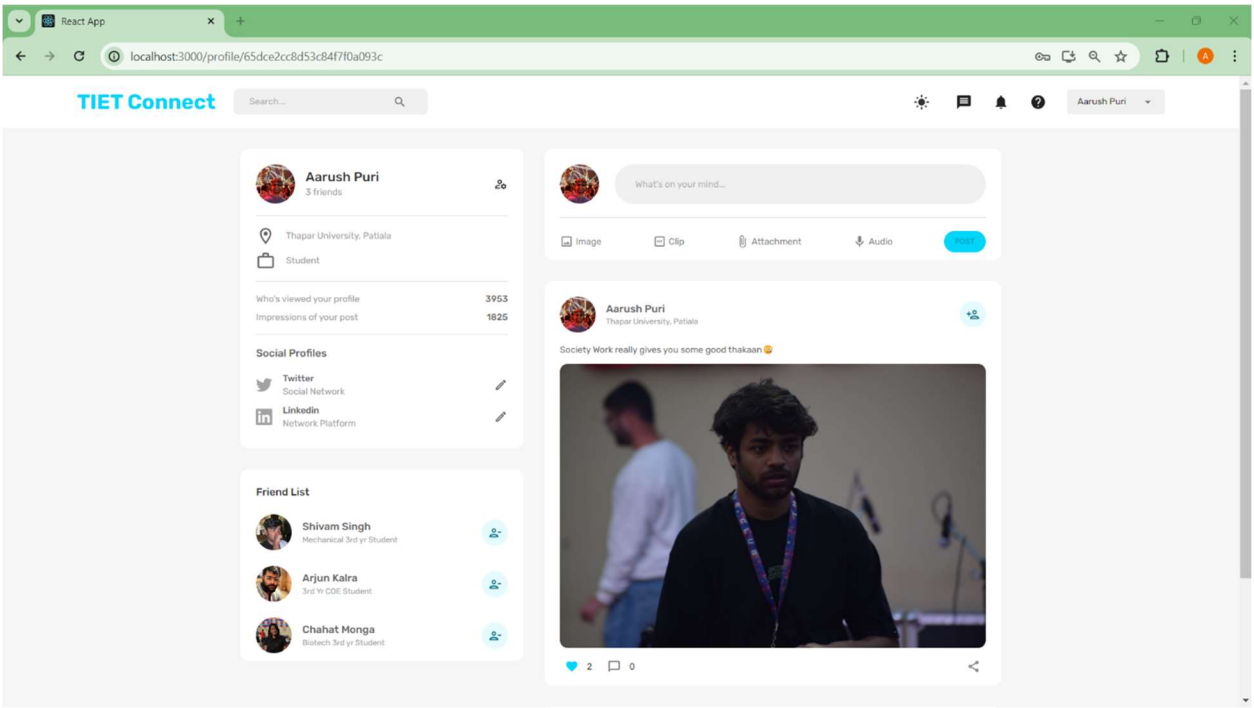
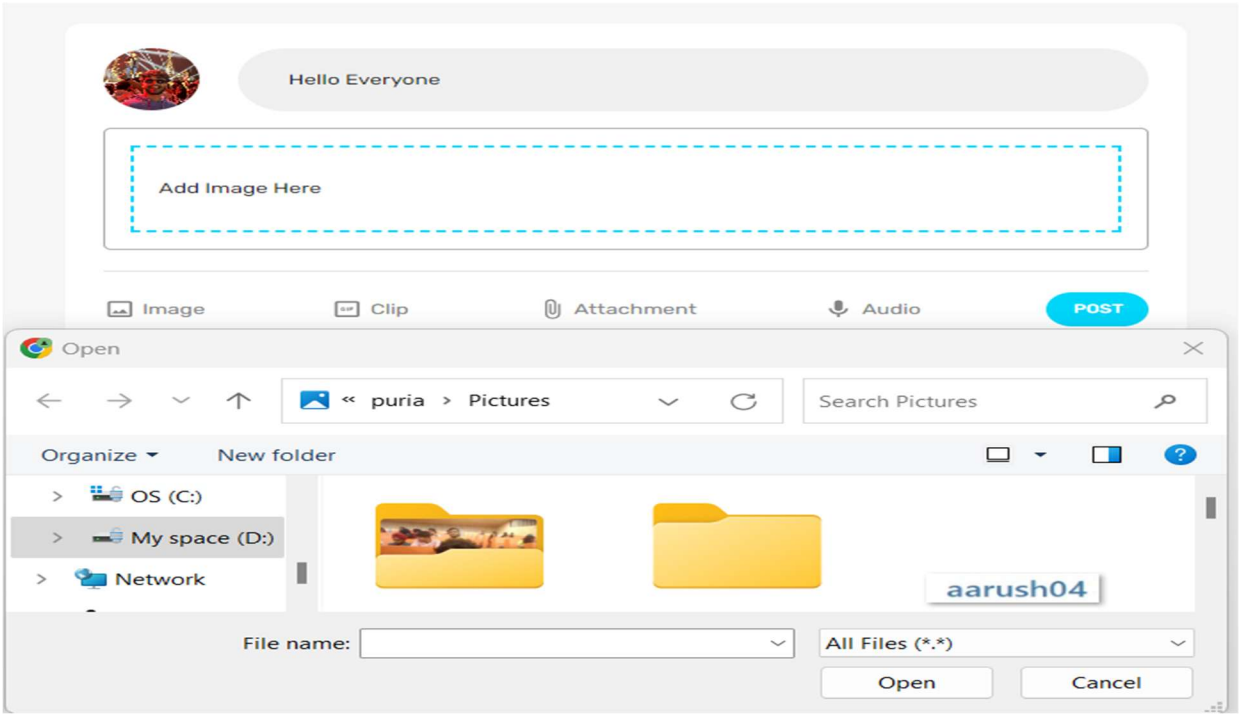
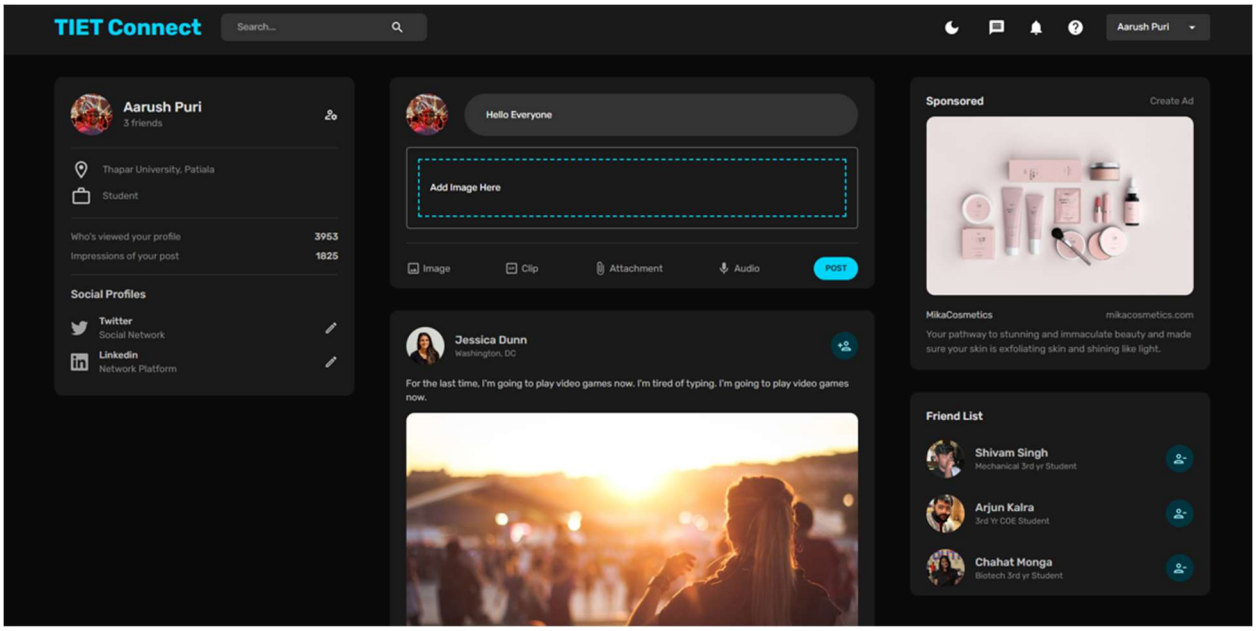


Image Upload Page:



Dark Mode:



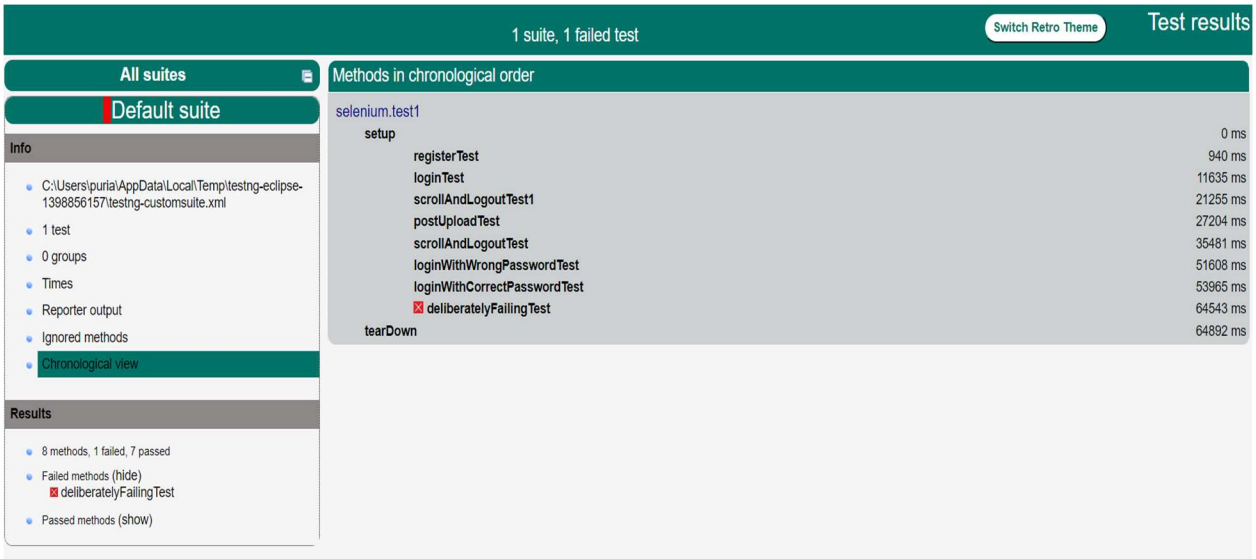
8. OUTPUT REPORTS:

a. **Emailable Report**:

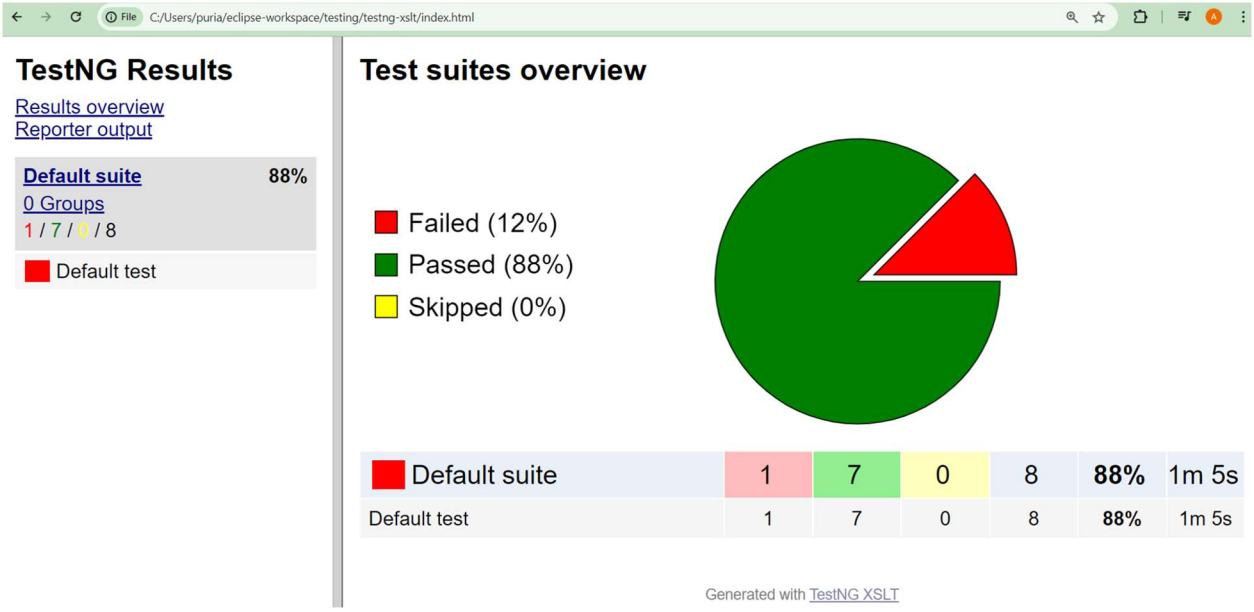
Test	# Passed	# Skipped	# Retried	# Failed	Time (ms)	Included Groups	Excluded Groups
Default suite							
Default test	7	0	0	1	65,078		

Class	Method	Start	Time (ms)
Default suite			
Default test — failed			
selenium.test1	deliberatelyFailingTest	1714075783738	347
Default test — passed			
selenium.test1	loginTest	1714075730830	9616
	loginWithCorrectPasswordTest	1714075773160	10574
	loginWithWrongPasswordTest	1714075770803	2354
	postUploadTest	1714075746399	8272
	registerTest	1714075720135	10691
	scrollAndLogoutTest	1714075754676	16124
	scrollAndLogoutTest1	1714075740450	5945

b. **Index Report**:



c. **XSLT Report**:



All methods in suite **Default suite** 1 7 0 8 **88%** 1m 5s

Group by class

All

Failed Passed Skipped Config

selenium.test1

Name	Started	Duration	Exception
setup()	01:38:39	925 ms	
registerTest()	01:38:40	10s	
loginTest()	01:38:50	9s	
scrollAndLogoutTest1()	01:39:00	5s	
postUploadTest()	01:39:06	8s	
scrollAndLogoutTest()	01:39:14	16s	
loginWithWrongPasswordTest()	01:39:30	2s	
loginWithCorrectPasswordTest()	01:39:33	10s	
deliberatelyFailingTest()	01:39:43	347 ms	java.lang.AssertionError: Deliberately failing test case
tearDown()	01:39:44	179 ms	

CONCLUSION:

In conclusion, the development of the "TIET Connect" project marks a significant milestone in enhancing social connectivity within the campus community of Thapar Institute of Engineering and Technology (TIET). By leveraging modern web technologies and frameworks such as the MERN stack (MongoDB, Express.js, React.js, Node.js), along with Selenium WebDriver for automated testing and Apache Ant for build automation, we have successfully created a feature-rich social media platform tailored to the needs of TIET students, faculty, and alumni. The project's key features include a user-friendly interface with login and registration functionalities, the ability to upload photos, create posts, and add friends, as well as convenient options such as dark mode and seamless scrolling. By incorporating third-party services and APIs, "TIET Connect" offers enhanced functionality and integration with external platforms, further enriching the user experience.