American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

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Section: E

Software Quality Assurance and Testing

OPEN STUDY ZONE

A Report submitted By

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Software Test Plan

for

< Open Study Zone >

Version 1.0 approved

Prepared by < Adil Ahmed Shamim >< Mohammad Towhidul Islam >< Md. Abdullah Shishir >< Soyed Md. Solaman Fajul >

< American International University Bangladesh >

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Revision History

Revision	Date	Updated by	Update Comments
0.1	24.01.25	Adil Ahmed Shamim	First Draft
0.2	26.01.25	Soyed Md. Solaman Fajul	Second Draft
0.3	29.01.25	Md. Abdullah Shishir	Third Draft
0.4	31.01.25	Mohammad Towhidul Islam	Fourth Draft
0.5	01.02.25	Adil Ahmed Shamim	Fifth Draft
0.6	02.02.25	Md. Abdullah Shishir	Sixth Draft

1. TEST PLAN IDENTIFIER:RS-MTP01.3

2. REFERENCES

- https://www.eskooly.com/
- Software Quality and Testing Course Slides

3. INTRODUCTION

Background to the Problem

Traditional student management systems sometimes suffer from a lack of automation, inefficiencies, and error-proneness. Platforms like eSkooly provide basic functions, but they lack sophisticated automation capabilities, strong security measures, and complex customization choices for managing chores like class scheduling, student data administration, and payment processing.

Solution to the Problem

- A safe and automated platform for handling many facets of student administration is provided by the Open Study Zone system.

- It offers effective tools for managing academic records, student data, fee payments, and messaging.

- The system's accessibility features and user-friendly design improve the user experience.

- It places a high priority on security, making sure that private student data is shielded from unwanted access.

- Advanced automation features minimize errors and inefficiencies by streamlining procedures including payment processing, class scheduling, and record keeping.

- It addresses customization, security, and functionality limitations to provide better institutional management than current options like eSkooly.

4. REQUEIREMNT SPECIFICATION

4.1System Features

1. Login

Functional Requirements

Users must enter a working username and password in order to log in. Three unsuccessful attempts to log in will result in the account being temporarily locked for 30 minutes.

Priority level: High

Precondition: User must have a registered account.

2. Admin

Functional Requirements

Administrators are able to manage payment procedures, approve or deny user accounts, and efficiently handle student data.

Priority level: High

Precondition: Admin must have privileged access.

3. Accounts

Functional Requirements

Students are able to generate fee receipts and view their payment history. Payment gateways are safe and used to manage transactions.

Priority level: High

Precondition: User must have a valid student ID.

4. Search

Functional Requirements

Users can search for course details, fee structure, and academic records.

Priority level: Medium

Precondition: User must be logged in.
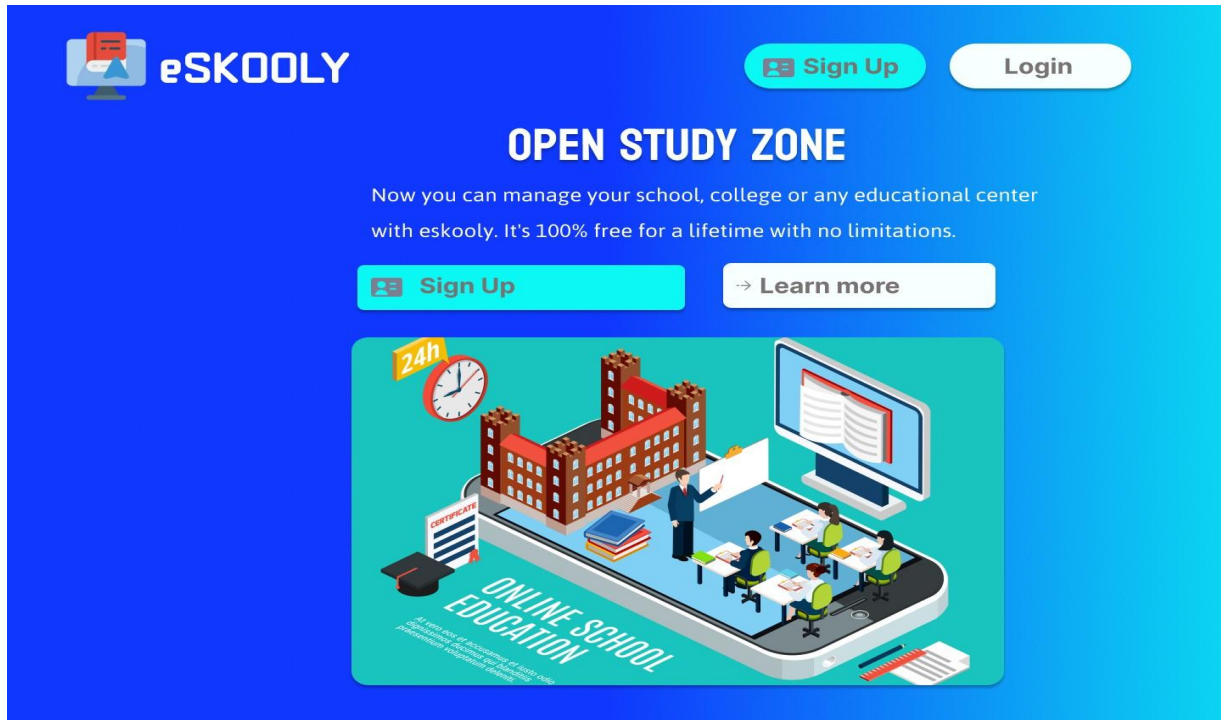
4.2. System Quality Attributes

To ensure the reliability, usability, and security of Open Study Zone, the following quality attributes are prioritized:

- Usability: Students and administrators will be able to efficiently finish their assignments in no more than five minutes thanks to the platform's intuitive and user-friendly design.
- Security: All transactions will be secure thanks to strong safeguards including multi-factor authentication (MFA) and powerful data encryption, which will protect user credentials.
- Scalability: The system will be able to accommodate large numbers of users at once without seeing a drop in responsiveness or performance.
- Reliability: The system will have automated backup procedures to guard against any possible data loss, with a 99.9% uptime goal.
- Maintainability: The platform will be designed to be easily updated, facilitating the smooth addition of new features and the prompt fixing of errors or problems.
- Accessibility: Because it is web-based, it will be available to everyone from any internet-connected device.

These combined attributes ensure that Open Study Zone provides a secure, efficient, scalable, and accessible solution tailored for effective student management.
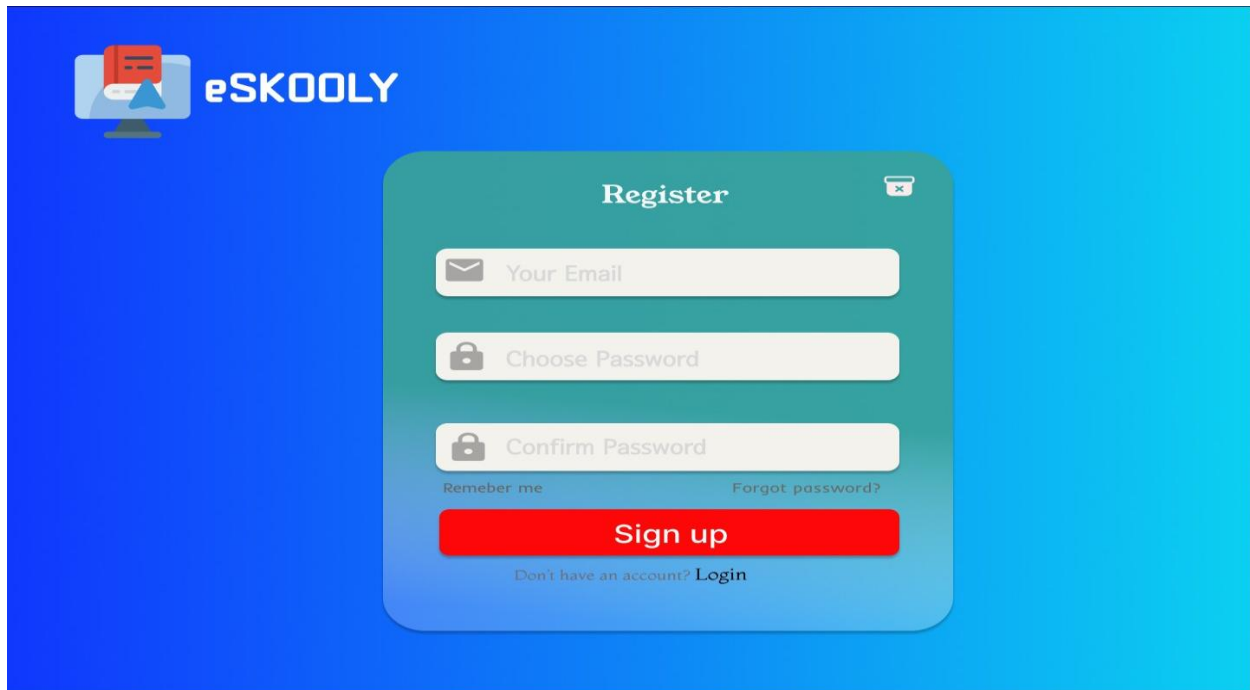
4.3 System Interface

Home Page:

Login:

Sign Up:

5. FEATURES NOT TO BE TESTED

Certain areas will not be tested as they fall outside the scope of this study:

- System performance during a major network failure

- Capabilities of third-party payment gateways (only their integration will be assessed)

- Compatibility with browsers other than Chrome and Firefox

These exclusions ensure that testing efforts remain focused on evaluating the core functionality of the system, avoiding unnecessary or redundant tests.

6. TESTING APPROACH

6.1 Testing Levels

The testing process is divided into four primary stages:

- **Unit Testing:** Developers evaluate individual modules to ensure that each feature functions as intended. This stage focuses on isolating and verifying the correctness of specific components.
- **Integration Testing:** The interaction and data flow between different system components are validated, ensuring that all integrated parts work cohesively.
- **System Testing:** The QA team conducts a comprehensive assessment of the entire system to confirm compliance with both functional and non-functional requirements.
- **Acceptance Testing:** End users perform tests on the system to verify that it meets business needs and aligns with real-world usability expectations.

This structured approach ensures early detection of defects, smooth integration of components, and overall system reliability before deployment.

6.2 Test Tools

To ensure a robust and efficient testing process, the following tools will be utilized:

- **Selenium**: Automates web-based applications to verify their behavior across browsers.

This tool will be used based on the nature of tests being performed, ensuring thorough coverage and accuracy.
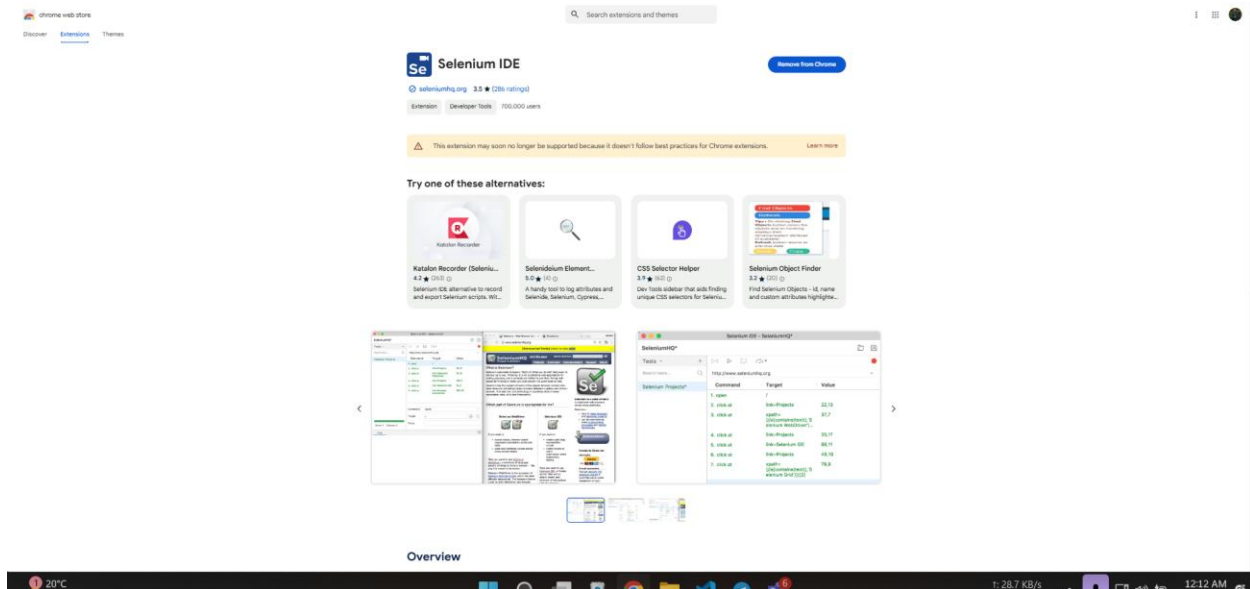
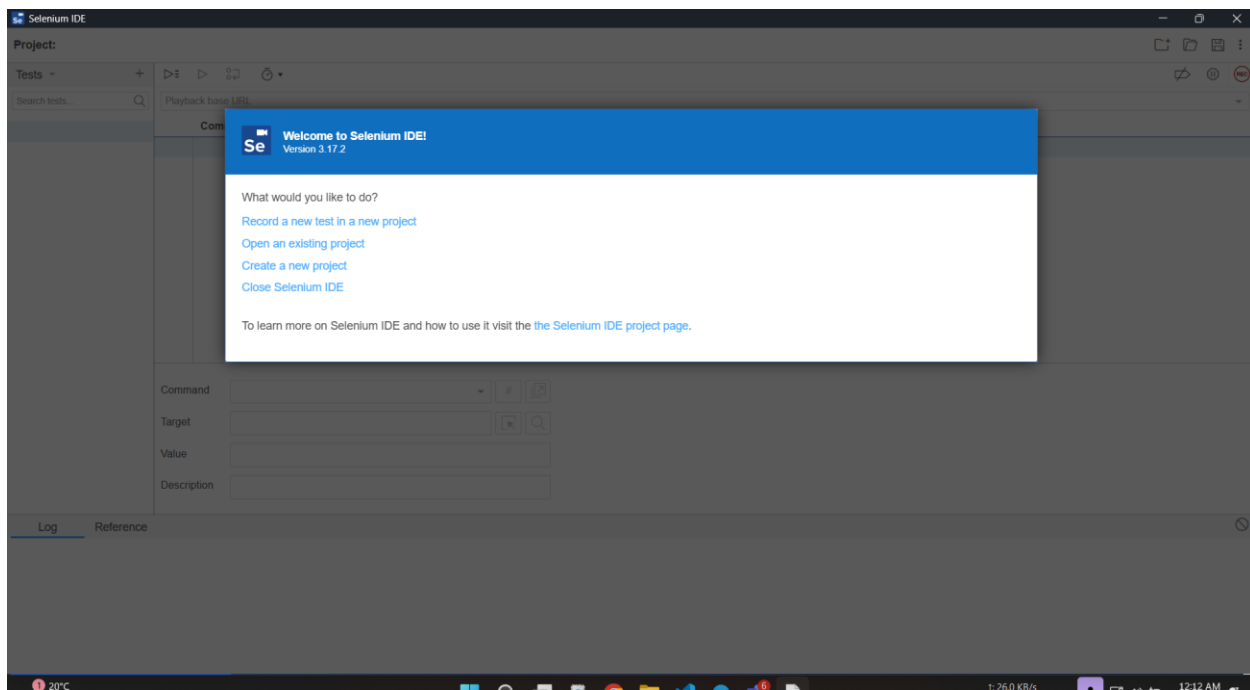Fig-1: Add Selenium IDE extension

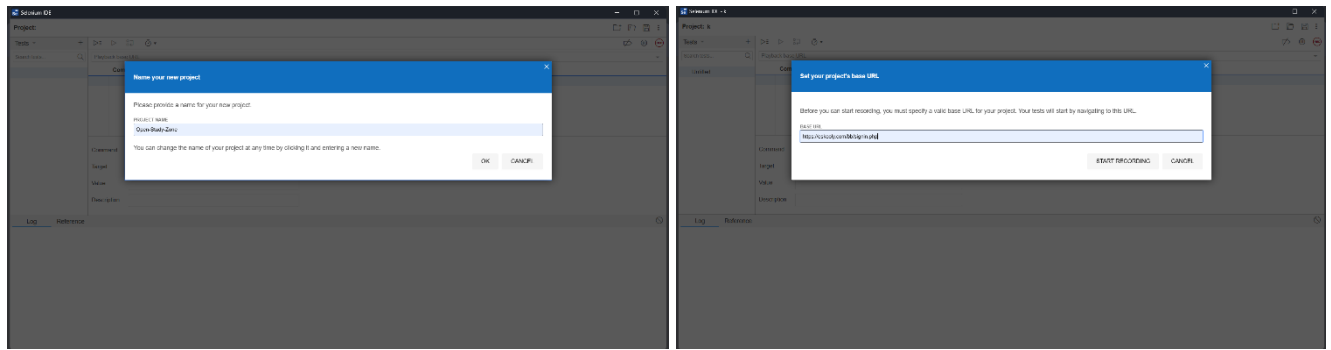Fig-2: Opening Selenium IDE extension
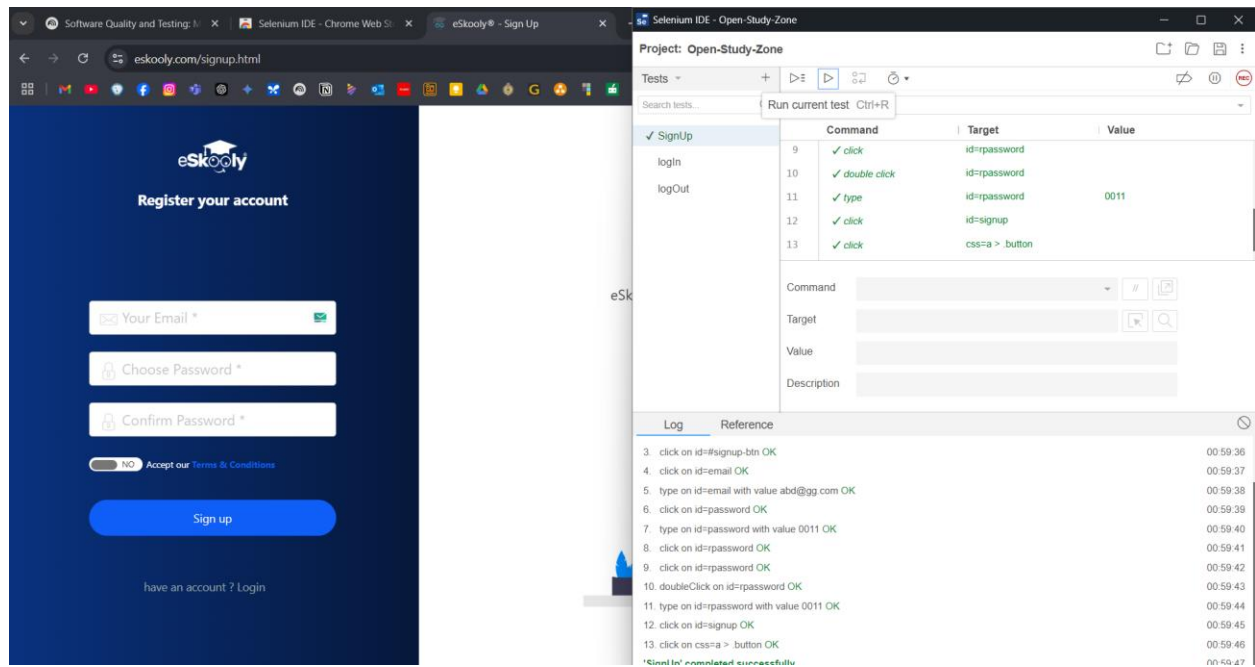
Fig-3,4: Giving new project name and test site URL
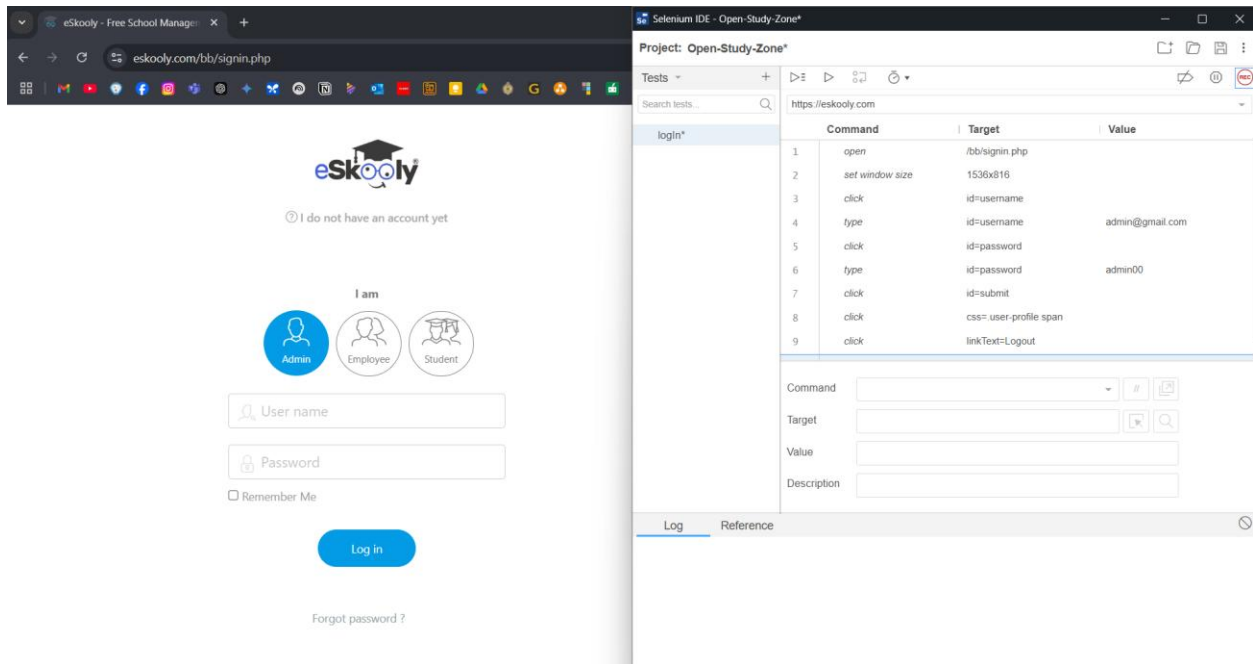

Fig-5: Starting Selenium IDE Recording for signup

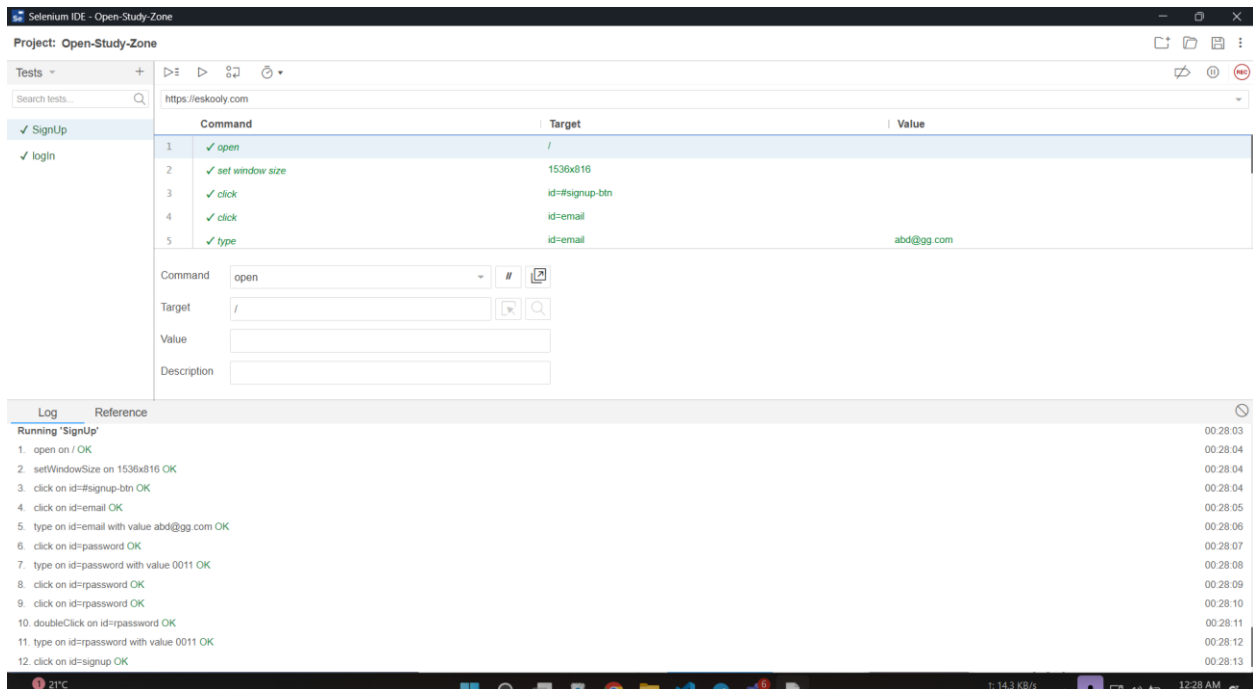Fig-6: Starting Selenium IDE Recording for LogIn

Fig-7: Testing Signup

Fig-8: Testing LogIn

Fig-9: Testing logout{failed}

6.3 Meetings

Meeting-1 :

Meeting-2:

Meeting-3:

Functionality failure	Medium	High	Regular testing and backups
Invalid inputs	High	High	Input validation mechanisms
Data loss	Medium	High	Security audits and encryption

14. APROVALS

Role	Approval Status
Project Sponsor	Pass
Development Manager	Pass
QA Manager	

7. TEST CASES/TEST ITEMS

Project Name: Open Study Zone			Test Designed by: Adil Ahmed		
Test Case ID: TC_01			Test Designed date:29/01/25		
Test Priority (Low, Medium, High): High			Test Executed by: Shishir		
Module Name: Login			Test Execution date:30/01/25		
Test Title: Verify login with valid credentials					
Description: Verify that users can log in using valid credentials.					
Precondition (If any): A valid username and password must exist in the database.					
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)	
1. Open login page. 2. Enter username. 3. Enter password. 4. Click login.	Username: admin@gmail.com Password: admin00	User successfully logs in.	As expected	Pass	
Post Condition: User is redirected to the dashboard.					

Project Name: Open Study Zone	Test Designed by: Touhid
Test Case ID: TC_02	Test Designed date: 31/01/25
Test Priority (Low, Medium, High): High	Test Executed by: Fajul
Module Name: Login	Test Execution date:01/02/25
Test Title: Verify Login with Incorrect Password	
Description: Verify that incorrect password results in an error.	

Precondition (If any): Valid username exists

Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Open login page. 2. Enter username. 3. Enter incorrect password. 4. Click login.	Username: test_user Password: WrongPass	Error message displayed	As expected,	Fail

Post Condition: User remains on the login page.

8. ITEM PASS/FAIL CRITERIA

A test case is deemed successful if it meets the functional, performance, and security standards while operating without any major defects. If these conditions are not fulfilled, the issue must be documented as a defect and the test case must undergo retesting. These criteria ensure that the software adheres to quality benchmarks and functions as intended. For a test case to be marked as "Pass," it must satisfy all specified requirements.

If a test case does not meet any of those criteria, it will be reported as "Fail." After the required fixes are made, failed cases need to be evaluated.

- No critical defects remaining.

- 100% test case execution.

- No more than 15 minor defects.

9. TEST DELIVERABLES

Documentation and validation of testing activities happen via the creation of objects known as test deliverables. Among them are:

- The test plan document describes the goals, methodology, and scope of the test.
- Scripts and test cases: comprehensive procedures for executing out tests.
- Test Reports: Condense the results, flaws, and execution of the tests.
- Defect Reports: Record and monitor issues that are found.
- Final assessment of test results prior to deployment is provided in the Test Summary Report.

10. STAFFING AND TRAINING NEEDS

Staffing Roles and Responsibilities:

Project manager:
- Manages every step of the testing procedure, controls risk mitigation, and makes sure it is in line with the project's objectives.
- Helps the development and testing teams coordinate.

Test manager:
- Manages the QA team and is in charge of creating test plans and tactics.
- Evaluates test results, makes that testing guidelines are followed, and updates stakeholders on developments.

Developers:
- Before integrating, test each component separately.
- Address any issues and flaws that the QA team has found.

QA/Test Engineers:
- Carry out acceptance, system, and integration testing.
- Create and run test cases, keep track of errors, and make sure the program satisfies quality requirements.

Stakeholders & End Users:
- Take part in acceptance testing to verify system requirements and usability.
- Give comments on the functioning and performance of the system.

Training Needs:

Training for Automated Testing Tools:
- QA engineers must be trained in Postman for API testing and Selenium for web automation testing.
- The integration of tests into the CI/CD pipeline should be taught to developers.

Training in Bug Tracking and Test Management:
- The testing team needs to be adept at managing test cases and tracking defects using JIRA or Trello.

Training in Security and Compliance:
- To avoid vulnerabilities like SQL injection and cross-site scripting (XSS), developers and QA teams should receive safe coding training.
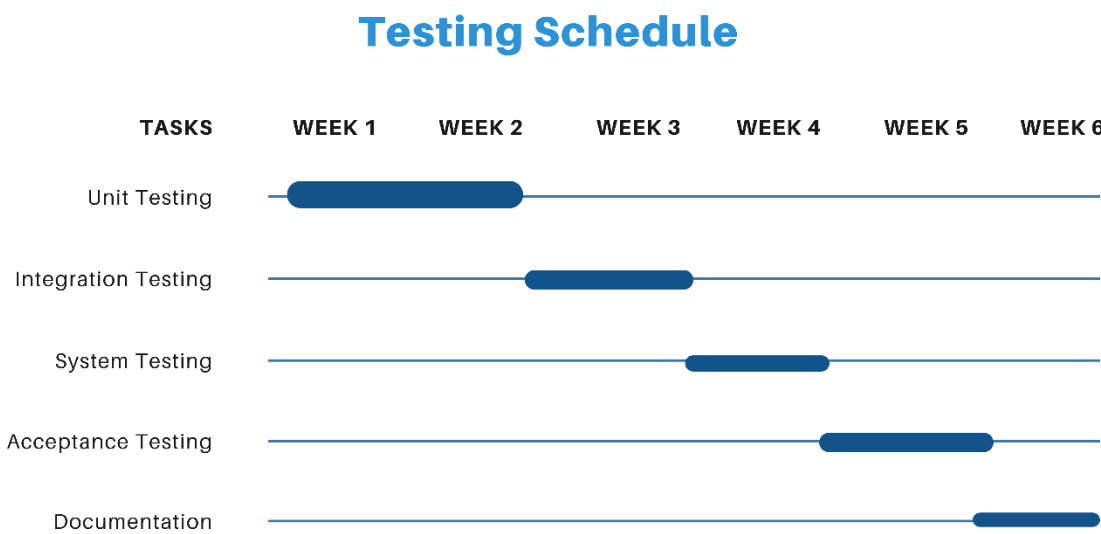
Instruction for Acceptance Testing Users:
- To guarantee efficient system use, end users (such as university employees and students) must be given thorough user manuals and practical training.

11. RESPONSIBILITIES

	Project Manager	Developers	QA Team	Test Engineers	Security Analysts	End Users
Unit Testing		×				
Integration Testing				×		
System Testing			×			
Acceptance Testing			×			×
Test Case Creation			×			
Bug Reporting & Tracking		×		×		
Test Plan Review	×					
Security & Compliance Testing					×	
Performance Testing			×			
Documentation & Reports	×		×			

12. TESTING SCHEDULE

Testing Schedule

TASKS	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
Unit Testing	██	██				
Integration Testing			██			
System Testing				██		
Acceptance Testing					██	
Documentation						██

13. PLANNING RISKS AND CONTINGENCIES

Risk	Probability	Impact	Mitigation Strategy
Functionality failure	Medium	High	Regular testing and backups
Invalid inputs	High	High	Input validation mechanisms
Data loss	Medium	High	Security audits and encryption

14. APROVALS

Role	Approval Status
Project Sponsor	Pass
Development Manager	Pass
QA Manager	Pass
End User	Pass