Project Report

Bus Ticket Price Calculator with Automated Testing

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Introduction

Software Quality Assurance (SQA) ensures that software systems operate correctly, reliably, and efficiently. Automated testing is an essential SQA practice because it allows defects to be detected early and improves confidence in software functionality.
This project demonstrates SQA principles through the development of a simple Bus Ticket Price Calculator integrated with Selenium automated testing and JUnit validation.

Project Objective

The main objectives of this project are:

- To develop a simple web-based bus ticket price calculator.
- To implement automated functional testing using Selenium WebDriver.
- To validate expected outputs using JUnit assertions.
- To demonstrate practical application of SQA automation techniques.

System Description

The system consists of:

- **User Interface (HTML page):**
  Allows users to enter age and travel distance, then calculates the ticket price.
- **Pricing Logic:**

  - Base price = distance × 0.5
  - Children under 12 receive a 50% discount.
  - Seniors aged 60 and above receive a 30% discount.

- **Automated Test:**
  Selenium automatically opens the web page, inputs test values, triggers calculation, and verifies the displayed result.

Testing Approach

Automated testing was implemented using:

- **Selenium WebDriver** for browser automation.
- **JUnit** for assertion and test validation.
- **Eclipse IDE** for execution and result visualization.

The automated test performs the following steps:

1. Launches the Chrome browser.
2. Opens the calculator web page.
3. Enters predefined test inputs (age and distance).
4. Executes the calculation.
5. Confirms that the displayed price is correct.

Results

The automated test executed successfully, and the JUnit result displayed a **green status**, confirming that:

- The application logic works correctly.
- Selenium automation runs without errors.
- Expected output matches the calculated result.

A screenshot of the successful test execution is included as evidence.

Conclusion

This project demonstrates the importance of automation in Software Quality Assurance. By combining a simple application with Selenium-based automated testing, the system ensures correctness, repeatability, and reliability of results.

The successful execution of automated tests confirms that the developed software meets its functional requirements and illustrates practical SQA implementation in a real-world scenario.