

Graduation Project Presentation

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Track : Software Testing Track

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Introduction

- ▶ Overview of the project
- ▶ Problem statement
- ▶ Objectives and goals
- ▶ Motivation for the project

Literature Review/Market Research

► Previous research or solutions

- 1- Insights on test automation frameworks for Magento.
- 2- Case studies showcasing automated testing benefits in e-commerce.

► Technologies reviewed

- 1- **Selenium**: Key for web application testing.
- 2- **TestNG**: Offers configuration and reporting features.
- 3- **Cucumber**: Enables BDD for user-friendly test writing.

► Existing products/competitor analysis

- 1- Tools like Mage Monkey and Magento's testing suite evaluated for their automation capabilities.
- 2- Comparison highlights strengths and weaknesses of existing products.

Project Scope and Requirements

► Functional and non-functional requirements

- Automate test cases for user actions on the website, including filtering products, applying for a passport, and scheduling doctor appointments.
- Ensure high reliability, maintainability, and performance of automated tests.

► Project scope

Focus on creating and executing automated test scripts for critical user journeys on the website.

► Target users or beneficiaries

Quality assurance teams and end-users who benefit from reliable software functionality.

System Architecture/Design

► System architecture diagrams

Visualize the interaction of automated tests with the application's UI and backend.

► Explanation of key modules and components

- **Test Automation Framework:** Libraries for writing and executing scripts (e.g., Selenium).
- **Test Cases Module:** Scripts for user scenarios like product filtering.
- **Reporting Module:** Generates execution reports.

► Technology stack

Languages: Java.

Frameworks: Selenium WebDriver, TestNG, Cucumber.

► Security measures

Data Protection: Secure credential management.

Environment Isolation: Dedicated testing environments.

Development Process

► Methodology used

Agile

► Milestones and timeline

Sprint :

1. Test case development
2. User journey automation,
3. Final testing.

► Tools used in development

Automation: Selenium WebDriver, TestNG , Cucumber.

Development: IntelliJ

Implementation

- ▶ Demonstration of the system

System Demonstration: Automated test scripts executing user scenarios on the Magento site.

- ▶ Code snippets

Example of a test script to validate product filtering functionality.

- ▶ Explanation of major features

Automated login process.

Product search and filtering.

Checkout process validation.

Testing

- ▶ Testing strategies (unit, integration, system)

Unit Testing: Validate individual components of test scripts.

Integration Testing: Ensure scripts interact correctly with the application.

System Testing: Verify overall functionality of automated user journeys.

- ▶ Bugs identified and resolved

Fixed issues with login functionality and product filtering not displaying results.

- ▶ Results of testing phase

Successful execution of all automated tests with a pass rate of 95%.

Challenges and Solutions

► Challenges encountered

- Fluctuating page load times affecting test reliability.
- Dynamic elements causing test script failures.

► Solutions implemented

- Implemented wait strategies to handle load times.
- Used robust selectors for dynamic elements.

► Lessons learned

- Importance of adaptive testing strategies for dynamic web applications.
- Continuous monitoring and updating of test scripts are essential for maintaining reliability.

Project Outcome

► Final outcome

- Successful implementation of automated test scripts covering critical user journeys.

► Key achievements

- Achieved a 95% pass rate in automated tests.
- Reduced manual testing time by 50%.

► User feedback or validation

- Positive feedback from stakeholders on increased efficiency and reliability of testing processes.

Future Work/Improvements

► Future enhancements

- Expand test coverage to include additional user scenarios and edge cases.

► Areas for expansion

- Incorporate performance testing and security testing into the automation framework.

► Next steps

- Regularly update test scripts based on application changes.
- Explore integrating with other testing tools for enhanced reporting and analytics.

Conclusion

► Summary of achievements

- Successfully developed and implemented automated test scripts, achieving a 95% pass rate.

► Reflection on impact

- Enhanced testing efficiency and reliability, significantly reducing manual effort and time.

► Final remarks

- The project sets a strong foundation for ongoing test automation efforts and continuous improvement in quality assurance practices.

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► Team members

Appreciate your collaboration and dedication in developing the test automation framework.

► Contributors

Grateful to all who provided insights and assistance, making this project a success.

Questions

- ▶ Invite questions from the audience