

# Azure migration costs calculator with embedded AI

## Software Test Plan

CS 4850 - Section 02 – Fall 2024

November 10, 2024

| Roles                | Name            | Major responsibilities   | Contact            |
|----------------------|-----------------|--|--------------------|
| Project owner        | Capstone        |  |                    |
| Team leader          | Kunal Shenoi    | Organize meetings, monitor progress, and submit deliverables. Develop and implement testing protocols.   | 678-779-4770       |
| Team members         | Graham Allen    | Developer - Developing back-end AI integration, implementing Azure/AWS API calls, and database connections. Assisting in front-end UI/UX development | 770-841-6718       |
|                      | Angel Hernandez | Developer - Designing and implementing a user-friendly interface, while assisting with backend and AI integration and development                    | 770-318-5359       |
|                      | Yvan Ngah       | Documentation - Creating, maintaining, and ensuring the accuracy of all technical documentation.   | 171haden@gmail.com |
| Advisor / Instructor | Sharon Perry    | Facilitate project progress; advise on project planning and management.  | 770-329-3895       |



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Team Leader, Test



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## Summary

The purpose of this test plan is to outline the strategies, resources, and timeline for testing the Azure Migration Cost Calculator. This application is designed to evaluate the cost-benefit of migrating on-premises infrastructure to Azure cloud services with the assistance of AI. Testing will ensure that the application meets functional requirements, integrates smoothly with Azure Pricing APIs, and provides accurate and reliable cost analysis through an interactive chatbot.

## Scope of Testing

### In Scope

- Security and Authentication: Testing the account creation, login, and password recovery functionalities.
- Cost Calculation Feature: Validating cost accuracy, response consistency, and Azure Pricing API calls.
- Session handling: Testing the
- LLM Analysis: Ensuring accurate interpretation of user-provided infrastructure details.
- Report Generation: Confirming reports are generated correctly and downloadable.
- Performance testing: Ensuring the system can handle unexpected and varying numbers concurrent of users.

### Out of Scope

- Third-party API Testing: We assume Azure will be reliable, so we will not test the Pricing API reliability and performance as part of this project.
- Browser Compatibility: Limited to major browsers; less popular or outdated browsers are out of scope.
- Hardware Compatibility: We were provided with what we assumed to be deployment-ready hardware which will be the same hardware the end user will be using.

## Testing Approaches

A mix of manual and automated testing approaches will be used, supported by CI/CD pipelines and frameworks. All critical user stories will be tested manually in the initial phase, followed by automated test scripts for final testing.

### Types of Testing

- Functional Testing: Verifying the core functionalities, including cost calculations, report generation, and authentication.
- Performance Testing: Evaluating application performance under varying loads and ensuring response times meet expectations.
- Security Testing: Checking for common vulnerabilities such as SQL injection, endpoint manipulation and authentication security.
- Usability Testing: Assessing the UI design for accessibility, clarity, and ease of use.

## Testing Schedule

| Testing Phase            | Planned Start Date | Planned End Date  |
|--------------------------|--------------------|-------------------|
| Test Plan Creation       | October 1, 2024    | October 7, 2024   |
| Functional Testing       | October 8, 2024    | October 21, 2024  |
| Integration Testing      | October 22, 2024   | October 30, 2024  |
| Performance Testing      | October 31, 2024   | November 7, 2024  |
| Security Testing         | November 8, 2024   | November 14, 2024 |
| Usability Testing        | November 15, 2024  | November 19, 2024 |
| Final Testing and Review | November 20, 2024  | November 23, 2024 |

## Scope of Testing

### Risks Associated with the Testing Process

- Dependency on Azure Pricing APIs: Unavailability or changes in Azure Pricing APIs could delay testing or affect the accuracy of cost calculations.
- Resource Constraints: Limited availability of testers, especially for specialized testing like security.
- Time Constraints: Adherence to a strict project timeline may impact the thoroughness of the testing.

We currently plan on prioritizing high-impact tests and deferring lower-priority tests where feasible to ensure the application at least reaches a deployment stage.