UGAthens Transit:

Testing Plan and Specifications

A Website that Integrates UGA and Athens Transit Data

By

Eleanor Madderra, Keerthana Ramesh, Isra Naweed, Anjali Devarapalli,

Ryan Majd, and Shreyan Bose

December 8, 2024

Table of Contents

INTRODUCTION

This document outlines the testing plan and specifications for the UGAthens Transit website, which integrates UGA and Athens public transit data. The testing procedure verifies the system's ability to meet project goals, such as consolidating route and stop data, live bus tracking, and account-based features like saving favorites. The results of this testing process will ensure that the final product meets user needs and project success criteria.

TERMINOLOGY

System	The database, backend, and frontend components that form the UGAthens Transit website.
User	Anyone accessing the frontend of the website, including UGA students, Athens residents, and visitors.
Route	A Looped path followed by a bus.
Stop	Locations where buses pick up or drop off passengers.
Authentication	The login and signup functionality ensuring secure access to personalized features.

ITEMS TESTED

- Ability for a user to register an account using a valid username and password.
  Test Case(s): 1.1.1, 1.1.2

- Ability for a user to login using a valid username and password.
  Test Case(s): 1.2.1

- Ability for a user to select a valid distance (e.g., 1km, 5km, etc.) from the dropdown menu.
  Test Cases(s): 1.3.1

ITEMS NOT TESTED

Data scraping functionality: The process of aggregating live transit data.

Advanced map functionalities: Interactions beyond basic live bus tracking (e.g., routing or route optimization).

Domain integration: Use of a custom domain name.

Cyber attacks: Generic attacks that may be made on the client and/or server side.

APPROACH

The testing process involves manual system testing to ensure the website adheres to user expectations and project requirements. Each test case is directly tied to a feature outlined in the Requirements Document. Tests include input validation, error handling, and functional verification for major features such as authentication and navigation.

Test cases will be executed in iterative cycles. Both old and new features will be tested to ensure new functionalities do not affect previously working features. Testing will focus on invalid and valid inputs to cover edge cases.

ITEM PASS/FAIL CRITERIA

Pass: A feature meets the requirements as specified, without major defects, and provides a seamless user experience.

Fail: A feature does not meet specified requirements, shows major defects, or causes significant user confusion. Incidents will be logged and revisited via Github Issues.

TEST DELIVERABLES

Test Plan: Document specifying the testing approach, pass/fail criteria, and test cases.

Test Specification: Detailed test cases with expected results.

Test Results: Documentation of actual results, including incidents and defect reports.

TESTING TASKS

- Analyze requirements for system features.
- Develop test cases for each feature.
- Execute test cases manually.
- Record incidents, defects, and changes.
- Generate test result reports.

TEST CASES

Test Case for Sign up	What We Are Testing For
email="test@example.com" password="StrongPass@123"	Account is created successfully, redirected to homepage, error message cleared.
email="invalid-email" password="StrongPass@123"	Error message: "Please enter a valid email address."
email="test@example.com" password="weakpass"	Error message: "Password must contain at least one uppercase letter, one lowercase letter, and one special character."
email="", password=""	Error message: "Please enter a valid email address."
Already registered email and password	Error message: "Failed to create an account. Please try again."
Test Case for Sign in	**What We Are Testing For**

email="test@example.com" password="ValidPass@123"	User is successfully signed in and redirected to the homepage.
email="test@example.com" password="WrongPass123"	Error message: "Something went wrong. Please check you email and password and try again."
email="notregistered@example.com" password="ValidPass@123"	Error message: "No account found with that email address."
email="", password=""	Error message: "Something went wrong. Please check your email and password and try again."

TESTING SPECIFICATIONS

Test Case ID	1.1.1
Title	User Registration Testing
Feature/Subfeature	Email Validation Testing
Purpose	To ensure that the email the user uses to make an account is a valid email address.
Initial Condition	User must currently be on the Sign Up page.
Test Data	Test Data will include invalid emails that don't have an email tag such as "@gmail.com" or "@outlook.com". An example of an invalid test case is test123. Test Data will also include valid email addresses.
Test Actions	1. Go to the main website. 2. Enter a value for email address in the Sign Up box.
Expected Result	If a valid email address has been inputted, then the home page should be displayed. If an invalid email address has been inputted, then an error message should appear beneath the Sign Up button that says "Please enter a valid email address." The user would not be signed up.

Test Case ID	1.1.2
Title	User Registration Testing
Feature/Subfeature	Password Specification Enforcement
Purpose	To ensure that the user adheres to the specified password requirements criteria.
Initial Condition	User must currently be on the Sign Up page.
Test Data	Test Data will include passwords that don't meet the password specification requirements, which are at least one uppercase letter, one lowercase letter, and one special character. Test Data will also include passwords that meet the password specification requirements.
Test Actions	1. Go to the main website. 2. Enter a password in the sign up box.
Expected Result	If a password that meets the password specifications has been inputted, then the home page should be displayed. If a password that doesn't meet the password specifications has been inputted, an error message should appear beneath the Sign Up button that says "Password must contain at least one uppercase letter, one lowercase letter, and one special character." The user would not be signed up.

Test Case ID	1.2.1
Title	User Authentication Testing
Feature/Subfeature	Invalid Credentials Handling
Purpose	To ensure that the user can only log in if they input the correct email address and password.
Initial Condition	User must currently be on the Login page.
Test Data	Test Data will include emails that haven't been registered yet and/or invalid passwords. Test data will also include a combination of correct, matching usernames and passwords.
Test Actions	1. Go to the main website. 2. Click on the link "Already have an account? Login" that's located

	underneath the Sign Up button. 3. Enter the user's username and password.
Expected Result	If the correct email address and password has been inputted, then the home page should be displayed. If not, an error message should appear beneath the Login button that says "Something went wrong. Please check your email and password and try again." The user is not logged in.

Test Case ID	1.2.2
Title	User Authentication Testing
Feature/Subfeature	Authentication Error W/O WiFi connection
Purpose	To verify that the app correctly handles authentication attempts without an active internet connection, ensuring appropriate error handling and user feedback.
Initial Condition	The user opens the app (unauthenticated) with no active WiFi or mobile data connection.
Test Data	Username: testuser@example.com Password: TestPassword123
Test Actions	1. Open the app in an environment with no internet connectivity. 2. Navigate to the login screen. 3. Enter the test credentials (testuser@example.com / TestPassword123). 4. Tap the "Login" button.
Expected Result	The website will show an error due to no internet access.

Test Case ID	1.3.1
Title	Distance Input Testing
Feature/Subfeature	Distance Selection Validation
Purpose	To verify that the distance selection feature functions as intended, allowing users to accurately choose a desired distance and ensuring that the input is correctly processed

Initial Condition	User must currently be on the Home page.
Test Data	Test Data will include several distances from the University of Georgia that are listed in the dropdown menu, including 1km, 5km, 15km, and 20km.
Test Actions	1. Go to the main website. 2. Login. 3. Click on the Select Distance dropdown button. 4. Select a distance.
Expected Result	The website will show all the available UGA and Athens transit bus routes within the user's specified distance.

Test Case ID	1.4.0
Title	Mobile Dimensions Testing
Feature/Subfeature	Responsive Design / Mobile Layout
Purpose	To verify that the app UI adapts correctly to various mobile device screen dimensions and resolutions, ensuring an optimal user experience across devices.
Initial Condition	The web-app is visited and accessible on the test devices.
Test Data	iPhone SE (375 x 667) iPhone 14 Pro Max (430 x 932) Samsung Galaxy S22 Ultra (360 x 800) Google Pixel 7 (412 x 915)
Test Actions	1. Open the app on each test device. 2. Navigate through key app screens, including: 3. Sign in 4. Login 5. Dashboard 6. About Us 7. Check layout elements (e.g., buttons, images, text fields) for proper alignment and scaling. 8. Test app orientation changes (portrait to landscape and vice versa).
Expected Result	The app UI should display properly on all test devices without clipping, overlapping, or layout issues.

	Elements should be accessible and functional across all screens. The app should adjust seamlessly when changing orientations, maintaining usability and proper layout.

TESTING RESULTS

Test Case ID	1.1.1
Test Results	**Test Passed** - An error message "Please enter a valid email address." appeared beneath the Sign Up button.

Test Case ID	1.1.2
Test Results	**Test Passed** - An error message "Password must contain at least one uppercase letter, one lowercase letter, and one special character." appeared beneath the Sign Up button.

Test Case ID	1.2.1
Test Results	**Test Passed** - An error message "Something went wrong. Please check your email and password and try again." appeared beneath the Sign Up button.

Test Case ID	1.2.2
Test Results	**Test Failed -** The app displayed an error message indicating an internet connectivity issue; however, it allowed the user to attempt further login attempts despite the lack of connectivity. The expected behavior was to block additional login attempts until internet access was restored.

Test Case ID	1.3.1
Test Results	**Test Passed** - The dropdown shows all the available UGA and Athens transit bus routes within the user's specified distance.

Test Case ID	1.4.0
Test Results	**Test Passed -** The app's UI displayed correctly across all tested mobile device dimensions and resolutions. No clipping, overlapping, or misalignment issues were observed. All elements were functional and accessible, and the app adjusted seamlessly when changing orientations (portrait to landscape and vice versa).