

Test Plan: H4 Test og sikkerhed

I. Introduction

A. Purpose of plan:

- The purpose of this test plan is to draw out the testing approach for the Blazor web application.

B. Scope:

- This test plan covers testing for user registration, user authentication, login functionality and compatibility between Windows and Linux operating systems.

C. Features to be tested:

- User registration
- User login
- User authentication
- 2FA (Two-factor authentication)
- Compatibility between Windows and Linux operating systems

II. Test Environment

A. Windows environment

To test the application for the Windows operating system, a few requirements are needed. These are listed as:

- The host should have operating system Windows 10 or later.
- Host machine should contain Visual Studio & .NET 8.
- Virtualization activated on host machine.
- SQL database and connection string
- Service in program.cs needs to take connection string for SQLdatabase
- Blazor Web Application is a native feature of the .NET Foundation, migration should work. In cases where it doesn't, the '*update-database*' command in the Package manager console should fix that issue.

B. Linux environment

To test the application for the Linux operating system a few requirements are needed:

- WSL should be installed on the host computer
- Ubuntu needs to be installed via. Visual Studio
- If the ubuntu application is already installed standalone via. The internet, this has to be deleted before progressing.

- .NET 8 on Linux/WSL
- SQLite database and connection string.
- Service in program.cs needs to take connection string for SQLite
- Migration
- If the migration was used in the Windows operating system, it needs to be updated from using 'max' to any given number of characters.

III. Test Cases

A. Compatibility test.

Objective:

- To make sure that the application are functioning on both Windows and Linux operating systems:

Steps:

- Test the application on Windows.
- Test the application on Linux

Expected results:

- The application should work exactly the same on both operating systems.

B. Two-factor authentication test

Objective:

- To make sure that the QR code works, and that the user can retrieve the authentication for its authenticator app.

Steps:

- Navigate to registration page
- Fill in username and password and press register
- Verify that QR code pops up
- Verify that the authenticator app has a new authentication

Expected results:

- The expectation is that when the user has registered and used the QR code, a two-factor authentication should be added to the user's authenticator app.

C. User registration test

Objective:

- To make sure the user can register a new user

Steps:

- Navigate to registration page
- Fill in username and password and press register
- Press the mock email verifier
- Add authenticator to preferred authenticator app

Expected results:

- The expected results are that the user can create a user.

D. User login test

Objective:

- To make sure the user can login

Steps:

- Navigate to login page
- Fill in username and password and press login
- Add authenticator code from authenticator app

Expected results:

- The expected results are that the user can create a login using code from the authenticator app.

E. User authentication for homepage test

Objective:

- To make sure the user can't see home page without being logged in.

Steps:

- Navigate to home page.

Expected results:

- The expected results are that the user will be prompted with the "You must be logged in to see the content"

F. User role authentication test for homepage

Objective:

- To make sure the user has the admin role to see the "You are admin" content of home page and "You are not admin" content if the user isn't admin.

Steps:

- Navigate to the personal user page
- Select role panel.
- Press 'Assign Admin role'
- Navigate to home page and confirm content
- Navigate to the personal user page
- Select role panel.
- Press 'Assign user role'
- Navigate to home page and confirm content

Expected results:

- The expected results are that the user can see the specific content for either user or admin role in the home page.

IV. Conclusion

A. Summary of Test Results

- The resulting test were all proven to be successful.
- There was an error where the first downloaded QR code library used for Windows didn't work in a Linux environment. Changing the QR code library proved to be successful.
- HTTPS certificate had to be downloaded when starting in windows environment
- WSL had to be repaired (updated) to work properly with Linux environment.
- Visual studio needed to be repaired to detect the newly updated WSL

B. Recommendations - Offer suggestions for improvements or optimizations.

- A mock for all the services could be used for implementing more unit test that can check for login, registration and two-factor authenticator. These services are required either as injections or as a mock. If provided, unit test could be created for these instances.