

Assignment 6: Requirement Engineering and UML Lab

Accessibility Simulator Web Application

Saad Abdullah

23pbwbs1055

A. Problem Statement

Modern websites often overlook how users with disabilities experience digital content. This Accessibility Simulator helps developers and designers preview their website as it would appear to users with visual, motor, or cognitive impairments.

B. Project Scope

In Scope (System WILL Do):

- Simulate different types of colour-blindness.
- Apply low-vision effects (blur, zoom, contrast loss).
- Simulate motor impairment using jitter cursor.
- Allow users to load a URL for testing the web app.
- Apply multiple simulations simultaneously.
- Provide real-time preview updates.
- Perform automated WCAG accessibility checks.

Out of Scope (System WILL NOT Do):

- Modify or fix accessibility issues in websites.
- Provide backend services(storage), logins, or user accounts.
- Store personal data or usage history.
- Evaluate website performance or analytics.

C. Stakeholders

- Frontend Developer – Tests UI accessibility during development.
- UI/UX Designer – Evaluates design accessibility.
- QA Tester – Tests user flows under impairment simulations.
- Student / Educator – Learns about accessibility challenges.

D. Functional Requirements (8–10)

1. Allow users to enable and disable colour-blindness filters.
2. Allow users to select specific colour-blind types.
3. Provide low-vision filters including blur, zoom, and contrast reduction.
4. Enable jitter cursor mode to simulate motor impairments.

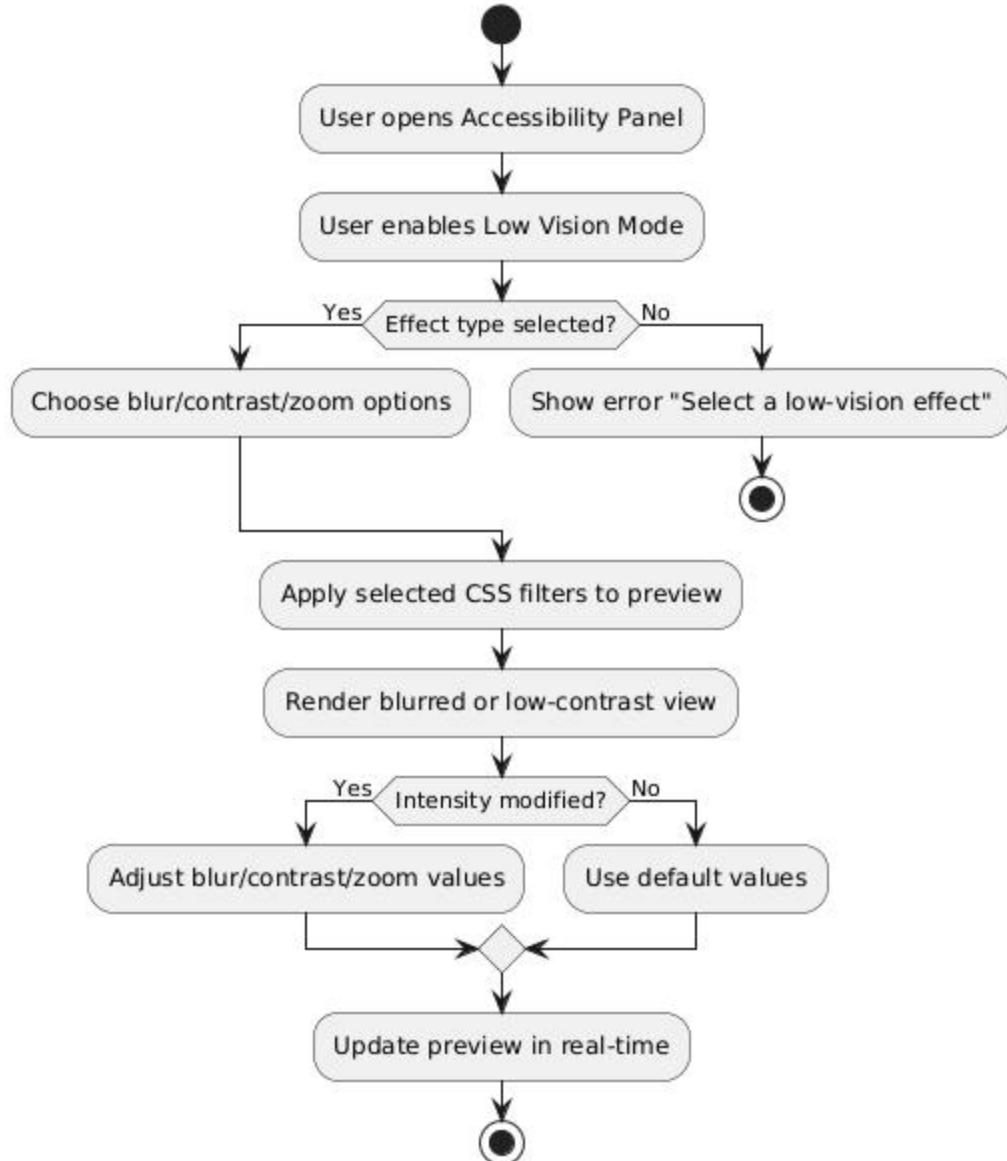
5. Allow users to enter URL for testing a website/app.
6. Combine multiple accessibility filters at once.
7. Adjust intensity of each filter.
8. Display real-time preview updates.
9. Reset all filters and return the preview to default mode.

E. Non-Functional Requirements

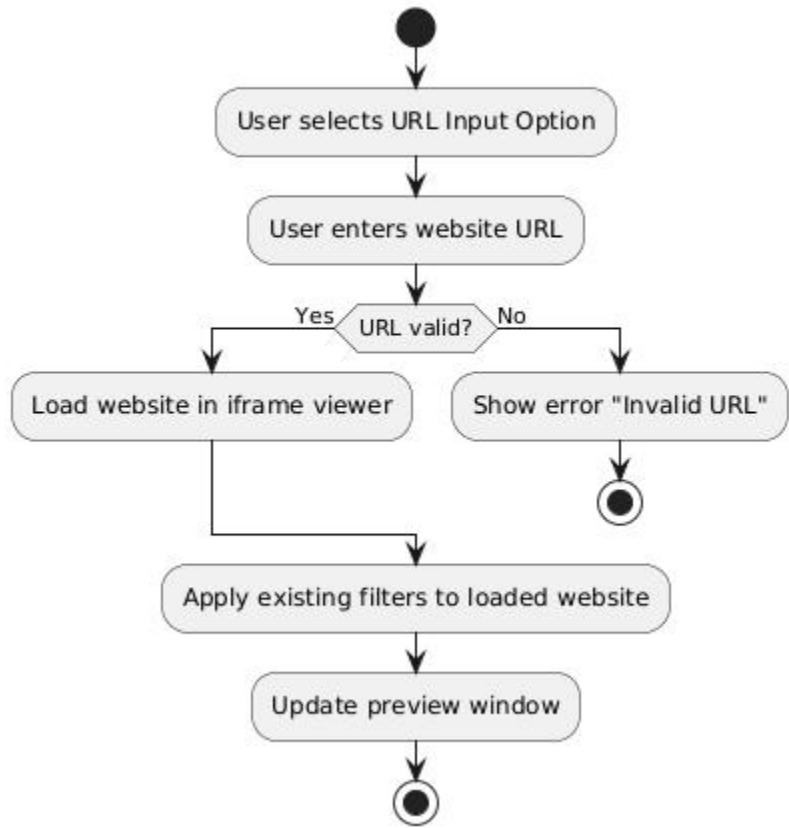
1. Provide UI updates with a response time under 100 ms.
2. Maintain compatibility with major browsers.
3. Ensure a user-friendly, clean, and intuitive interface.
4. Operate fully on the client side with no data storage.
5. Use modular component architecture for easy maintenance.

F. Activity Diagrams

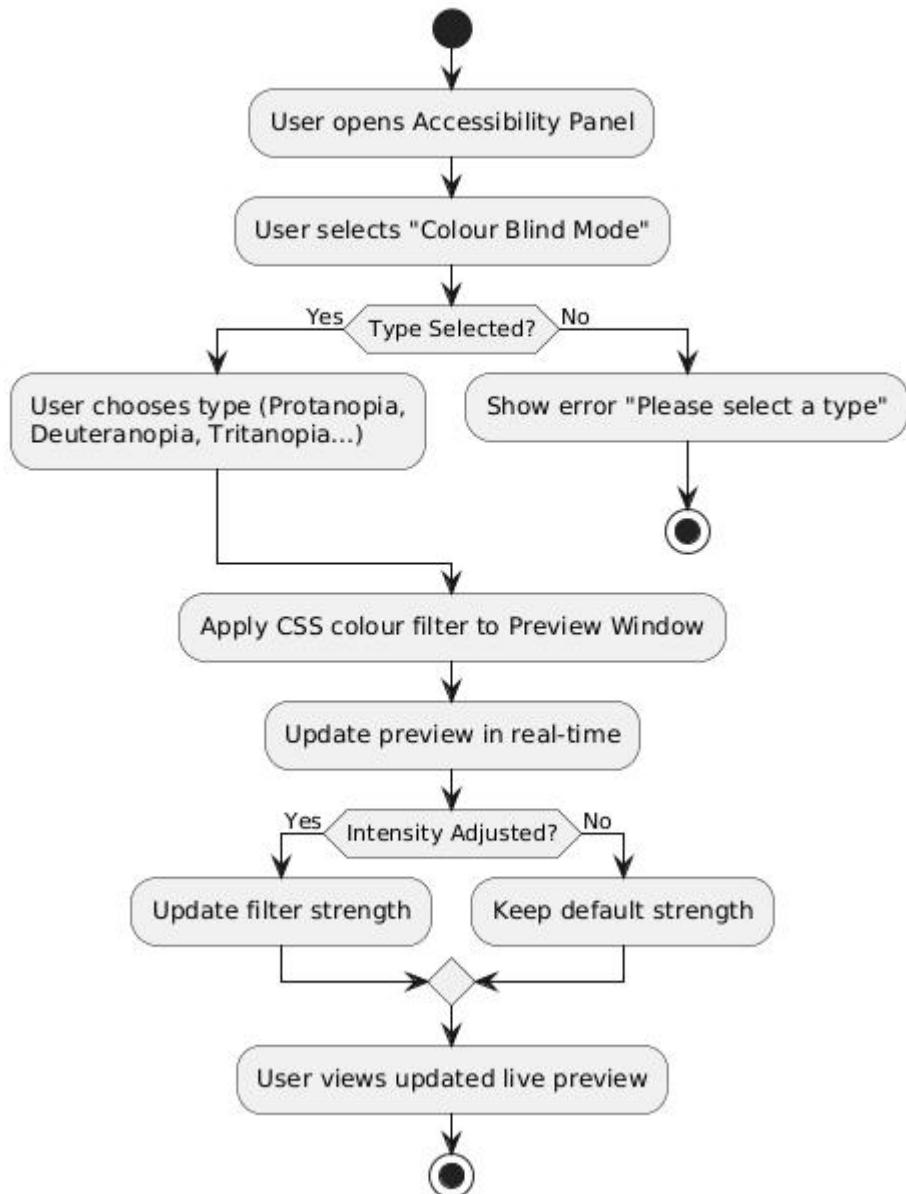
Activity Diagram - Apply Low Vision Filter



Activity Diagram - Load Website URL



Activity Diagram - Apply Colour Blind Filter



G: Use Case Diagram

