Project Proposal Form
Institute of Information Technology (IIT)
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Project Description (with in 200 words) :

Web applications are frequently updated with new designs, buttons and features. These updates can unintentionally break existing functions and manually checking everything each time is slow and error-prone.

This project introduces **StateEye**, an intelligent web-testing tool inspired by the FRAGGEN approach. StateEye automatically analyzes websites after updates to ensure everything still works properly. It explores the website like a real user, interacts with different sections and observes how each part responds. Instead of comparing entire pages, StateEye divides them into smaller sections and checks for meaningful changes more precisely.

A key advantage of StateEye is its ability to identify pages that look almost the same but differ slightly in data or structure. By recognizing these near-duplicate states, it avoids redundant testing and focuses only on meaningful differences, saving both time and effort.

StateEye also generates reusable test cases automatically from its exploration, allowing future updates to be verified quickly and consistently. It intelligently ignores minor layout or color changes while highlighting real functional issues.

To assist manual testers, StateEye includes a browser plugin that marks tested and untested areas and suggests the next steps, making testing faster, smarter and more reliable while helping developers maintain stable, high-quality websites with ease.

Framework: CRAWLJAX
Language: Java
Libraries: DOM, visual comparison, graph handling
Model: Graph-based model with fragment-level abstraction
Algorithm: Fragment-based state equivalence, test oracle generation
Evaluation Tools: Mutation analysis tools, custom datasets

Timeline:

Task	Week	September	October	November	December	January
Prerequisite knowledge	2					
Project Initialization	2					
Proposal Writing	1					
SRS Documentation	4					
Tool Design	3					
Tool Development	6					
Tool Testing	3					
Final Report Writing	2					

Supervisor's Name: Mridha Md. Nafis Fuad

Signature of the supervisor:_____

Date: 29th October, 2025

Proposal Presentation Feedback:

Midterm Presentation Feedback: