**Project Proposal**

**A web based testing tool for web application based on UI pattern inferring**

**Course: SE: 801: Software Project Lab #3**

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# Project Description

This project is about a user interface testing tool for web application based on identifiable User Interface (UI) patterns inferring.

In the context of Graphical User Interface (GUI) design, there are certain sets of patterns that can be applied in their development. These set of patterns are typically referred as UI patterns [1]. UI patterns represent commonly recurring solutions that solve common GUI design problems. For instance, one popular UI pattern is known as Login. Some other identifiable user interface patterns are Search UI pattern, Sort UI pattern, Menu UI pattern, Input UI pattern [2].

This application will explore a web application via reverse engineering, records information related to the interaction (interaction history, HTML pages and their URLs), analyzes the gathered information, and infers the UI patterns via a set of heuristics rules. After complemented with additional information, the model extracted will be used for generating test cases for that application [1, 3].

Main modules of this project are:

1. Website explorer which will generate an execution trace file.
2. A text parser which will analyze the previous trace file.
3. A pattern identifier which will identify the existent patterns in the web application and produce an XML file with the results [1].

## Motivation

## Web applications are getting more and more important and UI is one of the most important part of a web application. It is easier to test a web application through analyzing user interface patterns. So pattern based GUI testing is getting more popular day by day. I want to learn more about this new testing approach. So I have chosen this idea. Moreover, web application testing is time consuming and costly. As this tool will be a companion for automated testing, the cost of manual testing for web application will be reduced.

## Scope

## Dynamic web applications are out of scope. Only static websites will be tested by this tool.

## There are many types of UI patterns. Only 7 patterns will be covered in this project. They are: (1) Authentication, (2) Search, (3) Sort, (4) Master/Detail, (5) Form, (6) Data entry field, (7) Menu

## Project Timeline

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| **Title of Activity** | **Timeline**  1 unit time = 10 days  (Start date: August 1, End date: October 31) | | | | | | | | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| 1. Requirement analysis for UI pattern inferring |  |  |  |  |  |  |  |  |  |
| 1. Design of UI pattern inferring |  |  |  |  |  |  |  |  |  |
| 1. Development of UI pattern inferring |  |  |  |  |  |  |  |  |  |
| 1. Testing of UI pattern inferring |  |  |  |  |  |  |  |  |  |
| 1. Deployment for UI pattern inferring |  |  |  |  |  |  |  |  |  |
| 6. Final Documentation |  |  |  |  |  |  |  |  |  |

# References

1. Clara Sacramento, A. C. (2014). Web Application Model Generation through Reverse Engineering and UI Pattern Inferring. *9th International Conference on the Quality of Information and Communications Technology.* Guimarães, Portugal.
2. Faria, M. N. (2014). Inferring User Interface Patterns from Execution Traces of Web Applications. *International Conference on Computational Science and Its Applications.*
3. Marco Cunha, A. C. (2010). PETTool: A Pattern-Based GUI Testing Tool. *2nd International Conference on Software Technology and Engineering(ICSTE).*