

Introduction

Facts

- Nearly 50 percent of source code lines and development time can be attributed to the UI.
- Developing a UI is complex due to the complexity of the task and the complexity of the technology.

Problem

- Manual creation of user interfaces using generic frameworks is tedious and error prone.

Project Goals

- To provide an architecture that solves the problem (partially) of manual creation of UI using metadata.
- To identify sources of metadata in application frameworks and find ways to use it efficiently.

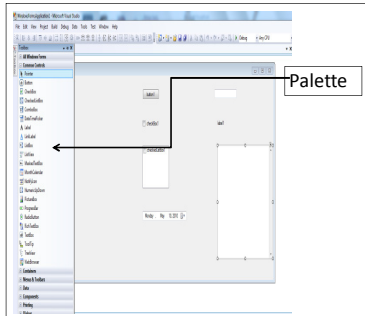


Figure 1: Commercial UI frameworks treating each component independently

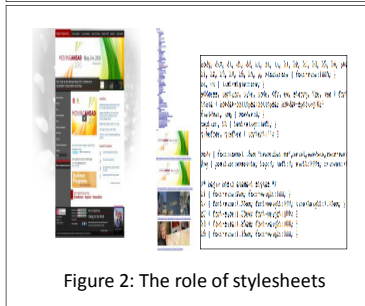


Figure 2: The role of stylesheets

Current Methods

- Commercial UI frameworks providing a palette by which one can drag and drop and adjust orientation of visual components (Figure 1).
- Role of stylesheets used widely to define the style and structure of web pages (Figure 2).

Software Analysis and Design

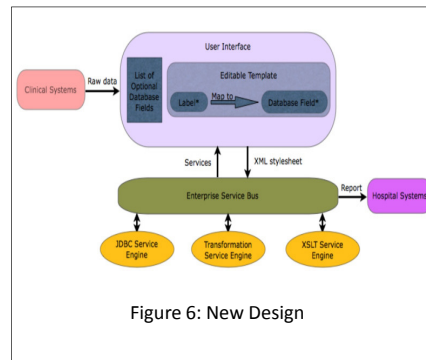


Figure 6: New Design

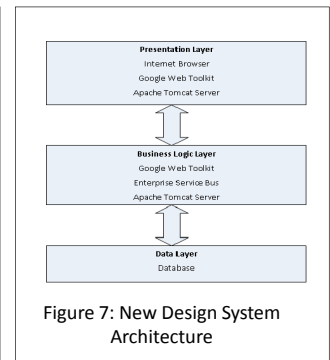


Figure 7: New Design System Architecture

Structural Metadata

- Is the relationships between the entities in the domain.
- Can be used to provide semantic checks (Figure 8).
- Can be used to provide user profiles (Figure 8).

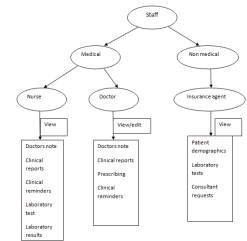
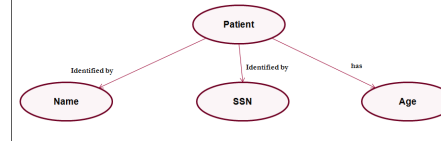


Figure 8: Structural Metadata

System Architecture

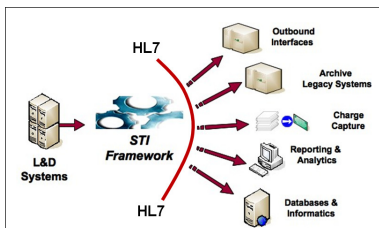


Figure 3: Previous framework

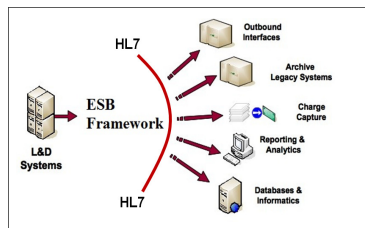


Figure 4: New framework

Behavioral Metadata

- Is the workflow knowledge.
- Can be used to dynamically generate UI (Figure 9).

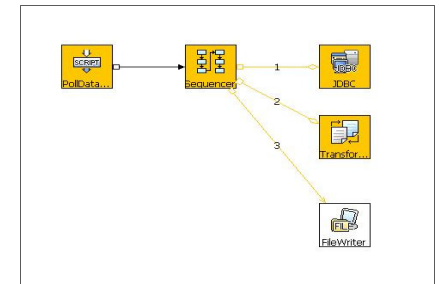


Figure 9: Behavioral Metadata

Previous framework (Figure 3)	New framework (Figure 4)
Tightly coupled	Loosely coupled
Users do not have capability to freely configure and customize reports.	Users have capability to freely configure and customize reports.
UI not that user friendly	UI user friendly

Future Work

- Implementation of the new design using structural and behavioral metadata.
- Implementation of more file formats such as .doc, .pdf.

Acknowledgements

A special thanks to Dr. Rajiv Ramnath, Dr. Jay Ramanathan, Dr. Igor I. Malkiman and Strategic Thinking Industries for initiating this project and their insightful help.

- ESB addressed the customization of the integration problem, and provided many other functionalities.
- ESB provided a generic UI that could not be used by the expected user base (Figure 5).

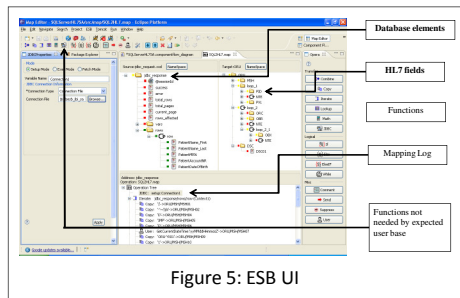


Figure 5: ESB UI