Software Design Description

Version 1.0
<<Annotated Version>>

October 25, 2017

Web Publishing System

Annie Adams
Bobbie Baker
Charles Charlie
Joan Teamleader

Submitted in partial fulfillment
Of the requirements of
CS 492 Senior Project
# Table of Contents

Table of Contents ................................................................. i
List of Figures ........................................................................ ii

1.0. Introduction ....................................................................... 1
  1.1. Purpose ........................................................................ 1
  1.2. Scope .......................................................................... 1
  1.3. Glossary ....................................................................... 1
  1.4. References ................................................................... 2
  1.5. Overview of Document ...................................................... 2

2.0. Deployment Diagram .......................................................... 4

3.0. Architectural Design .......................................................... 5

4.0. Data Structure Design ........................................................ 6
  4.1. On-Line Journal Database – Articles Table ......................... 6
    4.1.1. Article Table ......................................................... 6
    4.1.2. Author Table ......................................................... 6
    4.1.3. Category Table .................................................. 6
  4.2. Article Manager Database ................................................. 7
    4.2.1. Author Table ......................................................... 7
    4.2.2. Reviewer Table ..................................................... 7
    4.2.3. Active Article Table ............................................. 7
    4.2.4. Author Relationship Table ...................................... 7
    4.2.5. Reviewer Relationship Table .................................. 7
    4.2.6. Category Relationship Table ................................... 8

5.0. User Interface Design ........................................................ 9
  5.1 On-Line Journal User Interface ........................................... 9
  5.2 Article Manager User Interface .......................................... 10

6.0. Real-Time Design .............................................................. 11

7.0 Help System Design ........................................................... 12

8.0. Use Case Realizations ....................................................... 13
  8.1a Search Article – Author .................................................. 14
  8.1c Search Article – Keyword ............................................... 15
  8.2 Communicate ................................................................. 15
  8.3 Add Author .................................................................. 15
  8.4 Add Reviewer ................................................................. 16
  8.5a Update Person – Author .................................................. 16
  8.5b Update Person – Reviewer ............................................... 16
  8.6a Update Article Status – Delete Reviewer ............................ 17
  8.6b Update Article Status – Add/Delete Category ..................... 17
  8.7 Enter Communication ...................................................... 17
  8.8 Assign Reviewer .............................................................. 18
  8.9 Check Status .................................................................. 18
  8.10 Send Communication ...................................................... 18
  8.11 Publish Article ............................................................... 18
  8.12 Remove Article ............................................................. 18

Index ....................................................................................... 19
List of Figures

Figure 1 - Deployment Diagram........................................................................................................4
Figure 2 - Top-Level Architectural Diagram......................................................................................5
Figure 3 - On-Line Journal Architectural Design.................................................................Error! Bookmark not defined.
Figure 4 - Article Manager Architectural Design.................................................................Error! Bookmark not defined.
1.0. Introduction

1.1. Purpose

This document contains the complete design description of the Web Publishing System. This includes the architectural features of the system down through details of what operations each code module will perform and the database layout. It also shows how the use cases detailed in the SRS will be implemented in the system using this design.

The primary audiences of this document are the software developers.

1.2. Scope

There are two parts of this system. The On-Line Journal uses standard client-server architecture with a database on the server. The Article Manager is a repository architecture using a database. This system does not interface with any external system although the Editor will use email with attached files outside of the system. These files will be brought into the system or will be exported to files which will be attached to emails. <<Since we identified Domain (Analysis) classes in the SRS, we are utilizing them in the design.>>

1.3. Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Article</td>
<td>The document that is tracked by the system; it is a narrative that is planned to be posted to the public website.</td>
</tr>
<tr>
<td>Author</td>
<td>Person submitting an article to be reviewed. In case of multiple authors, this term refers to the principal author, with whom all communication is made.</td>
</tr>
<tr>
<td>Editor</td>
<td>Person who receives articles, sends articles for review, and makes final judgments for publications.</td>
</tr>
</tbody>
</table>
### Historical Society Database

The existing membership database (also HS database).

### Keyword

Word or phrase used in searching by keyword. Case is not significant.

### Member

A member of the Historical Society listed in the HS database.

### Reader

Anyone visiting the site to read articles.

### Review

A written recommendation about the appropriateness of an article for publication; may include suggestions for improvement.

### Reviewer

A person that examines an article and has the ability to recommend approval of the article for publication or to request that changes be made in the article.

### User

Reviewer or Author.

---

#### 1.4. References

- Vision and Scope Document -EC
- Revised SRS Document -EC

#### 1.5. Overview of Document

- Chapter 2 is a Deployment Diagram that shows the physical nodes on which the system resides. This allows a clear explanation of where each design entity will reside. No design unit may straddle two nodes but must have components on each, which collaborate to accomplish the service.

- Chapter 3 is the Architectural Design. This is the heart of the document. It specifies the design entities that collaborate to perform the functionality of the system. Each of these entities has an Abstract Specification and an Interface that expresses the services that it provides to the rest of the system. In turn each design entity is expanded into a set of lower-level design units that collaborate to perform its services.
• Chapter 3 is the basic Data Structure Design, which for this project is a relational database. While it is separated out here for emphasis, it is really the lowest level of the Architectural Design.

• Chapter 4 is on User Interface Design and discusses the methodology chosen, why it was chosen and why it is expected to be effective.

• Chapter 5 describes the structure of the Help System.

• Chapter 6 exhibits the Use Case Realizations. The implementation of each use case identified in the SRS is shown using the services provided by the design objects.

Since there are no real time considerations, that chapter has been removed from this document.
2.0. Deployment Diagram

A Reader accesses the On-Line Journal through the Internet using a Web browser (not part of this system although Web pages will run on it). The On-Line Journal resides on a dedicated Journal Server with a permanent Web connection. The Editor manages all of the article preparation work on his/her personal computer (the Article Manager Processor), communicating with the existing Historical Society Database on the Database Server when needed, and uploading completed articles to the Journal Server when they are ready. The Article Manager Processor contains a local file system and the Editor’s email system.
3.0. Architectural Design

Figure 2 - Top-Level Architectural Diagram

User represents any of Author, Reader, or Reviewer. The User Interfaces are covered in Chapter 4.

<< Please note that this top level design starts with the Domain Classes, which are subsystems in the design. Your design may not have such natural domain classes. In which case, your architectural design would look more like the design in Figure 3. Do not add domain classes unless there are natural ones for your project. >>
4.0. User Interface Design

4.1 On-Line Journal User Interface

The On-Line User interface will feature the logo of the Historical Society as background. There will be a welcoming message with instructions at the top, three large buttons in the middle, and a small button on the bottom right.

The text of the welcoming message and the instructions has not yet been approved by the Historical Society.

The three buttons will be labeled (from left to right) “Search by Author”, “Search by Category”, and “Search by Keyword”. The small button will be labeled “Email Editor”.

When either the Author or Category search is chosen, a pop-up window with a pull-down menu containing an alphabetical, non-repeating list of the appropriate names from the database will appear. When a name is chosen, the pop-up window will be replaced with another pop-up window containing the chosen name at top and all the article titles meeting that criterion.

As each title is selected, the Abstract will appear in the bottom of the form in a scrollable text box. There will be a button to “Select Article”. Once an article is selected, the Web page will invoke a link html tag to present the article to open or save.

As authors and categories will be added to the database only when an article referencing them is added, there can be no extra authors or categories. Therefore, no error messages are needed for this part of the page.
The “Email Editor” button will invoke a *mailto:* html tag. This tag will invoke the client email server with the *To:* slot of the email header filled in. Any error condition will result in a message from the utility software on the client machine.

### 4.2 Article Manager User Interface

This will be a standard Access form. It will contain a list of all services grouped by type. The types are “Update People”, “Update Article” and “Publish Article”.

The details of the various subsequent screens are functionally described in the rest of this document. The Editor has not expressed a desire for any interface beyond a strictly functional one.

As most of the choices are from pull-down menus, there are few opportunities for error messages. The help system can be invoked directly from each page by a small button the top right corner.
5.0. **Real-Time Design**

Real-time considerations are minimal in this project.

The Editor is the sole user of the Article Manager part of the system.

The On-Line Journal is designed for multiple users but the concurrent usage is handled client-side. That is, the Home Page will execute on the client (user’s) computer and will make requests of the On-Line Journal server. These requests are handled sequentially by the server with no transient data storage.
6.0 Help System Design

There is only a minimal Help System for this project.

The On-Line Journal will have a button to Email Editor for a user to report problems.

The Article Manager will have a Help choice that will contain the following information:

a. An overview of the Editor’s functionalities extracted from the SRS; and

b. A list of error messages and details on why they were generated.

In addition, the Help System will contain instructions on how the Editor can bypass the user interface and access the database directly.
7.0. Use Case Realizations

<< Can also be a Requirements Matrix >>

7.1a Search Article – Author

Xref: SRS 3.2.1

7.1b Search Article – Category

Xref: SRS 3.2.1
7.1c **Search Article – Keyword**

Xref: SRS 3.2.1

7.2 **Communicate**

Xref: SRS 3.2.2

7.3 **Add Author**

Xref: SRS 3.2.3
7.4 Add Reviewer

7.5a Update Person – Author

Xref: SRS 3.2.5

7.5b Update Person – Reviewer

Xref: SRS 3.2.5
**7.6a Update Article Status – Delete Reviewer**

Xref: SRS 3.2.6

<<There actually should be more of these realizations for Use Case 3.2.6>>

**7.6b Update Article Status – Add/Delete Category**

Xref: SRS 3.2.6

**7.7 Enter Communication**

In the above, when the article is retrieved, modify its information and then update the record in the table with this modified information.

Xref: SRS 3.2.7
7.8 Assign Reviewer

Use 8.6 above but make no changes.
Xref: SRS 3.2.9

7.9 Check Status

7.10 Send Communication

Xref: SRS 3.2.10
7.11 Publish Article

Xref: SRS 3.2.11

7.12 Remove Article

Xref: SRS 3.2.12
Index

Abstract, 2, 6, 7, 8, 9, 22, 23
Add, 20, 29, 30, 31
Article, 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 31, 33
Article Manager, 1, 4, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 26, 27
Author, 1, 2, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 28, 29, 30
Category, 6, 7, 9, 10, 11, 12, 21, 22, 23, 24, 28, 31
Database, 1, 2, 3, 4, 5, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23
Editor, 1, 4, 7, 8, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 26, 27
Field, 15, 16, 17, 19, 22, 23, 24
Form, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21
Historical Society, 2, 4, 13, 14, 15, 16, 20, 21
Reader, 2, 4, 5, 6, 7, 8, 9, 10, 11
Review, 1, 2, 18, 21, 24
Reviewer, 2, 5, 7, 13, 14, 15, 16, 17, 18, 20, 21, 23, 24, 30, 31, 32
Status, 18, 31, 32
update, 13, 14, 15, 16, 17, 18, 31
Update, 30, 31
User, 2, 3, 5, 6, 7, 8, 16, 17, 25, 26, 27
Web Publishing System, 1, 2