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Quản trị tài chính (Trường Đại học Kinh tế - Tài chính Thành phố Hồ Chí Minh)

SOFTWARE DESIGN DOCUMENT

for

The Project Team

Social Network Webiste

and

Group 7

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1. INTRODUCTION

THE ADVENT OF SOCIAL NETWORKS UPON IS INCEPTION WAS MERELY THOUGHT AS A TOOL FOR CONNECTINGOR RECONNECTING WITH FRIENDS, COLLEAGUES AND FAMILY MEMBERS. IT PROVIDED A WHOLE NEW PLATFORM OF COMMUNICATING WITH PEOPLE IN A TIMELY AND SUCCINCT MANNER. MYSPACE, FACEBOOKAND MICRO BLOGGING WEBSITES SUCH AS TWITTER TO NAME A FEW, EMBRACED A WIDE RANGE OFAUDIENCE IN A SHORT SPAN OF TIME. OVERTIME BUSINESSES AND PROJECT MANAGERS ALSO SAW THE POTENTIAL FOR THIS NEW PLATFORM AND GRADUALLY ACCEPTED AND INCORPORATED IT INTO THEIR ACTIVITIES.THIS PAPER ADVOCATES THE AFFIRMATIVE IMPACT OF SOCIAL NETWORKING TOOLS AND ITS UTILIZATION IN PROJECT MANAGEMENT PRACTICES, AND PROPOSES A RESEARCH APPROACH TO DEFEND THIS VIEW. EXISTINGRESEARCH THAT CONFIRMS TO THIS STANCE AS WELL AS DEVIATING VIEWS WILL BE DISCUSSED. THE PAPERCONCLUDES WITH CERTAIN ISSUES RELATED TO THE RESEARCH TOPIC, AND THE RESEARCH APPROACH CHOSEN.

1.1. PURPOSE

This software Requirement Specification (SRS) documents key specification, functional & nonfunctional requirements of social network service. Social networking sites tend to share some conventional features. Most often, individual users are encouraged to create profiles containing various information about themselves. Users can often upload pictures of themselves to their profiles, post blog entries for others to read, search for other users with similar interests, and compile and share lists of contacts. In addition, user profiles often have a section dedicated to comments from friends and other users. To protect user privacy, social networks usually have controls that allow users to choose who can view their profile, contact them, add them to their list of contact, and so on.

1.2. SCOPE

- **Purpose**
  The objective of this software is to completely automate the following processes.
  - The main objective of the project is to establish a network among the people residing ina specific community all the information can be easily accessed and shared among thepeople.
  - This system provides users to register their various types of profile like social, personal,professional.
  - This system provides users to send scrap messages, images, and music files to theirfriends. User can maintain the scrap book whatever scrap he has send to users.
  - The system provides users to upload the photos so that user can maintain own album.
  - This system provides user to join the communities according to their scenario.
  - This system provides the user to maintain their friend list and user can update their friend list.
  - This system provides user to send invitation to another friend to join the communityor group and can add to their friend list for future.
- **Benefits**
  - One of the many advantages is that you can connect with lost classmates, lost familymembers on social networking websites. Simply type in a name and you might see apicture of someone that you haven't seen in years.
  - Another advantage of social networking sites that's not to be overlooked is the careeradvantage. By posting information about yourself and your work history, you may justget some job offers. Not only that, but you can even make sales, if you

have a business.Some networking websites even allow you to buy advertising space on other people's sitepages, showing your work to many people at once.

- As if all of that weren't enough, social sites are just a fun way to kick back and relax. Youcan write on your web page or post pictures on your wall. You can even compete againstfriends in various games that are a lot of fun.
- Stay in touch with contacts, reach out to new people, and show the community you careabout company-to-client communication!

- **Objectives**
  - A goal or objective is a projected computation of affairs that a person or a system plansor intends to achieve a personal or organizational desired end-point in some sort ofassumed development. Many people endeavor to reach goals within a finite time by setting deadlines.
  - It is roughly similar to purpose of aim, the anticipated result which guides reaction, oran end, which is an object, either a physical object or an abstract object, that has intrinsic value.

1.3. Definitions, Acronyms and Abbreviations

All acronyms, abbreviations, and technical terms used in this document are arranged in alphabetical order.

BSDI	Berkeley Software Design, Inc. Operating System
CRUD	Create, Read, Update, Delete
HR	Human Resource(s)
SNW	Social Network Website
LDAP	Lightweight Directory Access Protocol

NTP	Network Time Protocol
RDMS	Relational Database Management System
SDD	Software Design Document
SMM	Software Maintenance Manual
SMTP	Simple Mail Transfer Protocol
SPMP	Software Project Management Plan (this document)
SQL	Structured Query Language
SRS	Software Requirements Specification
SSP	Software System Proposal
STD	System Test Document
STR	System Test Report
UM	User Manual
G7	Group7
WBS	Work Breakdown Schedule

Table 1.3.1 - Acronyms and Abbreviations

Baseline	A work product that has been formally reviewed and accepted by the involved parties, to be changed only through formal configuration management procedures.
Group	A collection of Users specialized into a particular division.
Milestone	A scheduled event used to measure progress.
Project Deliverable	A work product that is delivered to the project sponsor.
Protocol	A set of conventions that govern the interaction of processes, devices, and other components within a system.
Task	The smallest unit of work subject to accountability.
Software Requirements Specification	Documentation of the essential requirements (functions/features/uses, performance, design constraints, and attributes) of the software and its external interfaces.

Table 1.3.2 – Definitions

1.4. REFERENCES

Any sources used in the preparation for this document are sited. A reference to the specific bibliographic entry is noted at the location in the document where information from that specific source is used.

1.5. Overview of Contents of Document

This subsection briefly describes each of the remaining sections in the document as well as the contents of each appendix. The rest of the document is organized as follows:

The next section "Architectural Design" specifies which processes will be assigned to which processors, where the data will be stored, and how much communication is required between processors. It provides a road map into the software. It helps understand scope, concepts, logical organization of the software and interaction between each of the software components. The next section, "External Interface Design" provides insight into the look, feel and behavior of the portion of the system that is visible to the user. Section 4, "Database Design" provides the translation of the requirements model contained in the SRS into a relational database. The next section, "Internal Components Design" details the description for the design of the software. Included are the software processes, software interactions, and as applicable interaction and logic diagrams depiction the relationships of the modules and functions of the required by the project. This section provides sufficient detail about the software that would be difficult to uncover by reading the code. The next section "Component Identifier" specifies the naming rules to identify various components. Section "Performance Analysis" details any performance issues or constraints, and resolutions generated by the project team. Section on "Feasibility and Resources Estimates" summarizes computer resources required to build, operate and maintain the software. The next section "Software Requirements Tractability Matrix" relates the design components and the requirement elements by relating the paragraph numbers in the document to paragraph numbers in the SRS document. The final section "Approvals" contains the sign-off sheet that is used to indicate approval of and agreement to the design specifications contained in this document.

2. ARCHITECTURAL DESIGN

The following details specify which processes will be assigned to which processors, where the data will be stored, and how much communication is required between processors. Details provide insight to scope, concepts, logical organization of the software and interaction between each of the software components.

- **The scope of the software**
  - SNW is strictly responsible for providing a way to perform task management via user's web browser. Specifically, SNW provides the following functionality: user management, specific task management, process management, the ability to send email reminders, and error reporting.
- **The concepts used to develop the software**
  - SNW is written in ReactJS, an open-source, server-side scripting language.
  - Apache is the web server used to allow users access to SNW.
  - mySQL is the open-source relational database used to store the majority of SNW data.
  - openLDAP is the open-source Directory Access Protocol that will be used to store user information for authentication.
- **The logical software organization**
  - SNW is an open-source system for tracking tasks.

- **The business procedures contained in the software**
  - Upon installation, the Administrator(s) will create all processes unique to the implementation environment of Inc. SNW is designed to suite the general needs of many business environments, and for this reason no specific business procedures have been hard coded.
- **The interactions between each of the software components**

- The “login” module is responsible for making sure that only authenticated users are authenticated to SNW pages.
- The “logout” module is responsible for clearing all SNW cookies and variables, and logging the user out of the system.
- The “itms.css” file gives SNW a uniform Look and Feel using Cascading Style Sheets and the “header” and “footer” modules give SNW a standard top and bottom for each page.
- The “menu” module defines the structure of the navigation menu in SNW.
- The “myprefs” module allows SNW users to change basic email and user preferences.
- The “error_handler” module supplies SNW implementers with the option for custom error messages and corresponding codes.
- The “db_tools” module provides a standard library of database functions that work with just about any Relational Database on the market.
- The “ldap_tools” module provides functions for basic ldap manipulation.
- The modules: “report_mgt”, “user_mgt”, “task_mgt”, “task_type_mgt”, and all of their subordinate modules provide the main functionality of ITMS.
- The “header” and “footer” modules will include all of the ‘wrapper’ information for each page such as an auto-logout time.
- In section 5, the interactions between the various ITMS software components are described in detail.

2.1.1 Two-tier architecture.

Under this implementation, the SQL server will be installed on the same machine as the Apache web-server. All SQL queries will be sent to the localhost and therefore will not

require going over the network. Under this implementation, user posts to the database should be faster, thereby decreasing web server response time.

2.1.2 Three-tier architecture.

Under this implementation, the database will be stored on a separate machine other than the web server. All SQL queries will be directed to a machine name and logical port address. This schema may increase the latency of a CGI POST.

2.2.1 Presentation Layer.

This layer resides at the “edge” of the software system. It’s job is to capture external event requests and to perform some degree of editing of incoming data. It also is charged with presenting the event responses to the outside world (e.g. the screens and reports). This layer is usually allocated to the client machine or, in the case of a Web based application, to the Web server. Note: What is included in this general description of the presentation layer is the graphical user interface (GUI).

2.2.2 "Business" Logic Layer.

This layer contains the code, which executes and enforces the policy of the business. The business rules are contained in the “business” logic layer, hence the name. This software layer may be deployed on the client machines, on the server, or any machine on the network.

2.2.3 Data Management Layer.

This layer provides access to the stored data. It manages concurrent requests to read and write to the database. In the case where data is distributed throughout the system, this layer would handle the synchronization of these distributed data elements. In almost all cases, this software layer is defined by the data base management system used.

3 SYSTEM INTERFACE DESIGN

The requirements that have been imposed on SNW regarding the look and feel are clarified in the following subsections.

3.1 System Overview

SNW is intended to automate some of the HR aspects of office management. Functions such as task delegation and tracking compose a bulk of what makes SNW a useful system. SNW should be applicable to any dynamic office environment where employees are not involved in a routine structure, but where tasks and jobs are changing or where employees are meeting with different clients.

3.2 Application Overview

SNW is a dynamic web-based application with a database backend. Users can access SNW without having to install any additional software onto a standard operating system. This is advantageous because it can be accessed from any computer with access to the Internet and can be used and updated in a moments notice. SNW supports concurrent connections so that many users can be updating the database simultaneously and view the updates of each other almost instantly.

3.3 Window Navigation Diagram

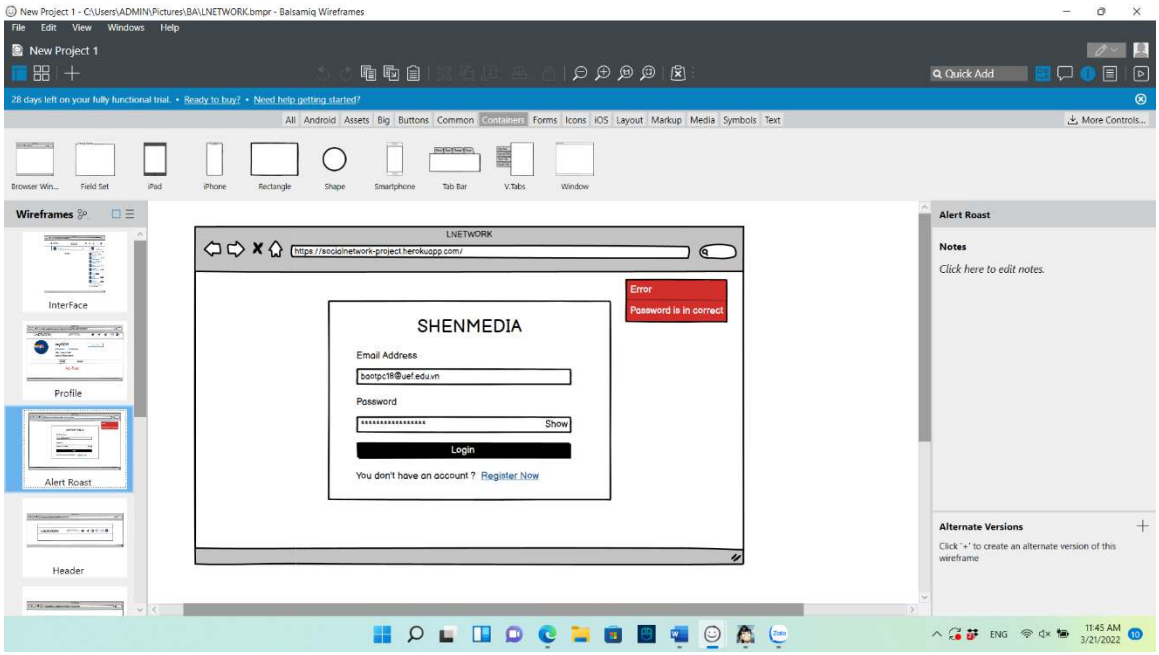
SNW is based on an intuitive Graphical User Interface (GUI) and can easily be navigated through a navigation menu that directs users to the different options that are offered through SNW. Based upon User privilege level, certain functionality may or may not be available to users; this prevents unauthorized users from making global changes to the structure of SNW. Only administrators of SNW have permission to make changes to the Users that can access SNW as well as manipulate the Tasking functions that the program is based upon.

3.4 Window Layout

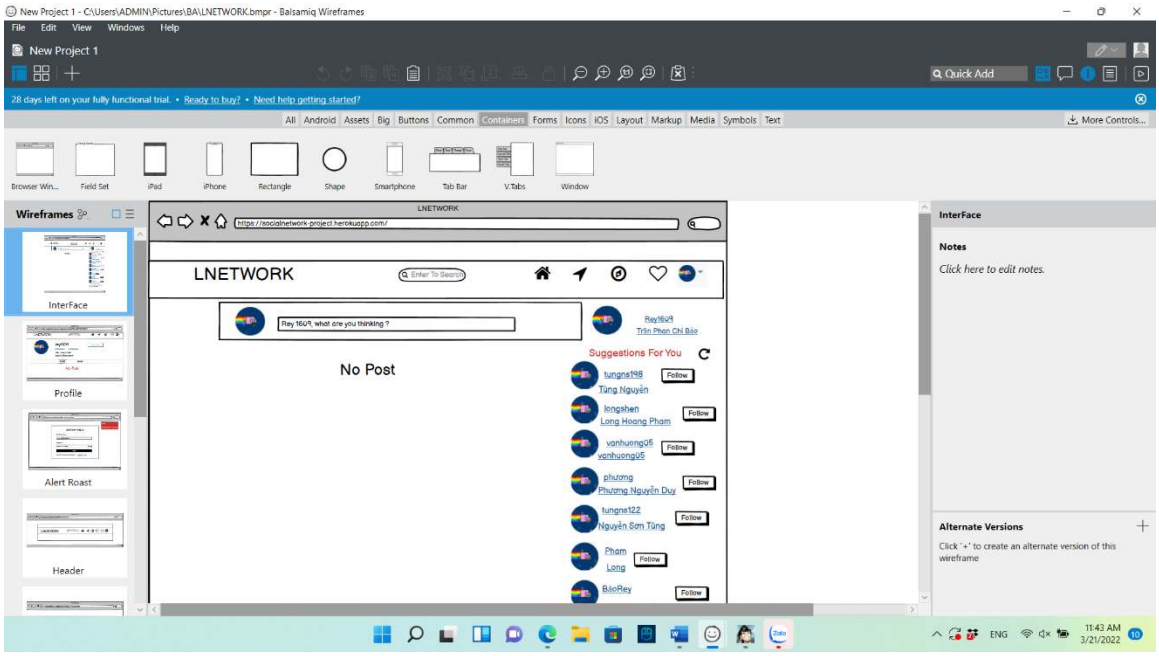
All windows are browser based and therefore are viewable in the same manner as normal web pages. Dependant on certain computer resolution settings, the scrolling features that are offered in web browsers or wheel mice may need to be incorporated in order to view the whole web page at any time. The look and feel of SNW is meant to reflect the Intranet

environment of the Project Sponsor Inc. The following graphics illustrate the look and feel of SNW:

The User Login Screen:



The Home Screen:



3.5 Window Specification

Windows must be organized in a manner as to allow the users of SNW to navigate quickly through the system so that updates or modifications can be done without having to click more than 5 times from the login screen to get to any option offered by SNW. Also screens should be organized in a manner to be optimally viewed at the resolution of 800x600 pixels.

3.6 Window Description

The navigation menu will be reachable regardless of where a User may be in SNW at any time. The menu will be on the left side of the screen and go across from top down. Submenus will appear as links under the main navigation categories so that a User can jump to submenus without having to click an additional amount of times to get to a certain place in the program. A global footer will also appear at all times in the browser which will display any additional notes such as public licensing information.

3.7 Window Mini-Specification

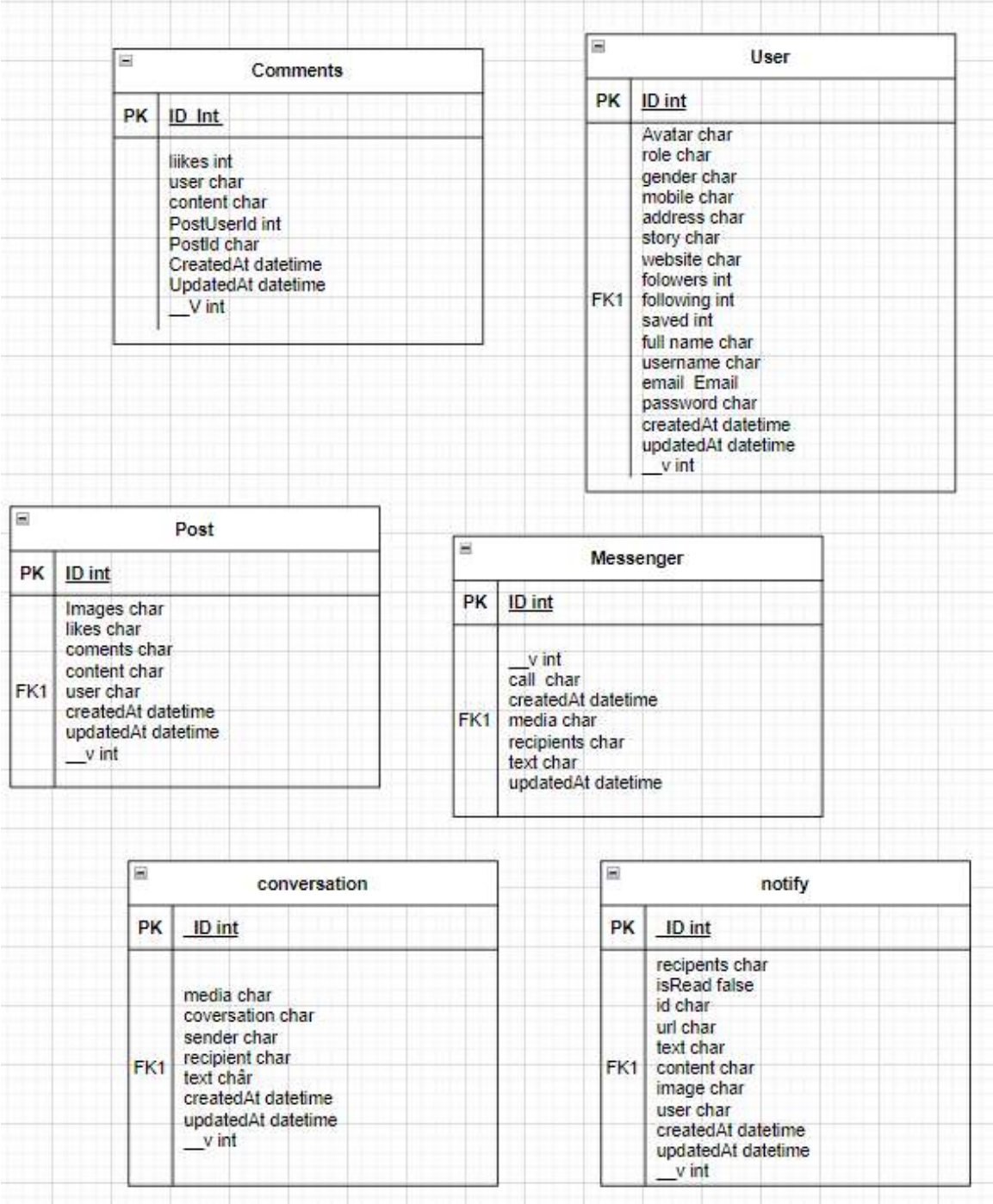
A link which will say SNW will be at the top left corner of the page which will bring users to the G7 web-page upon activation.

3.8 Field Specification

All screens should be organized to allow sufficient number of characters to be displayed in each input field. In pages that allow input of a large amount of data at once time, such as the “Create New User” section, the format should be easily viewable at the screen resolution 800x600 pixels.

4 DATABASE DESIGN

This section provides the translation of the informational model contained in the Software Requirements Specification (SRS) into a relational database. The relational database will be comprised of tables. Each table being a series of columns which represent individual data elements. The data records in the table form the rows. Each table has a primary key. Tables are related to each other by embedding the primary key from one table into another as a foreign key to implement the relationship. Foreign keys enable the relational database management system to enforce referential integrity. Referential integrity insures that no row in a" parent" table can be deleted if it is still referenced in a row of a "child" table.



5 INTERNAL COMPONENT DESIGN

This section provides the detailed description for the design of the software. Included are

software processes, software interactions, and as applicable interaction and logic diagrams depicting the relationships of modules and functions required by the project. The purpose of this section is to provide sufficient detail about the software that would be difficult to uncover by reading the code. This should be accomplished by identifying processes and illustrating processing dependencies, describing key algorithms and data structures within each process, and illustrating the message interaction between processes.

5.1 itms.css

5.1.1 Type

Logical Characteristics: Defines the general look and feel for every ITMS page

Physical Characteristics: CSS File (Cascading Style Sheet)

5.1.2 Purpose

To easily change the look and feel of SNW in one file.

5.1.3 Function

Uses Cascading Style Sheets to provide SNW a uniform look and feel.

5.1.4 Subordinates

5.1.5 Dependencies

5.1.6 Processing

All ITMS HTML code references this Cascading Style Sheet to provide SNW pages a uniform look and feel.

5.1.7 Data

5.2 header

5.2.1 Type

Logical Characteristics: Included on every SNW page to give SNW a standard header text and/or images. Ensures that a valid user is logged in through login

Physical Characteristics: PHP files (.php extension) header, menu, and login

5.2.2 Purpose

To give SNW a standard header, and to ensure the user is logged in and they are allowed to view the page.

5.2.3 Function

Gets user name and password, checks it against LDAP and mySQL. Ensures the user is allowed to view the requested data.

5.2.4 Subordinates

Every other ITMS module.

5.2.5 Dependencies

ldap_tools, db_tools.

5.2.6 Processing

Queries LDAP and the SQL database in order to retrieve characteristics about the user.

5.2.7 Data

User's name, password, groupID, userID, isAdmin, isLoggedIn

5.3 footer

5.3.1 Type

Logical Characteristics: File to be included on the bottom of every SNW page in order to have a standard message and/or look to the footer of ever SNW page.
Physical Characteristics: PHP file (.php extension)

5.3.2 Purpose

Provides licensing information related to SNW and anything else desired on the bottom of each SNW page.

5.3.3 Function

Shows the user applicable copyright and licencing info.

5.3.4 Subordinates

none

5.3.5 Dependencies

none

5.3.6 Processing

5.3.7 Data

5.4 db_tools

5.4.1 Type

Logical Characteristics: SMW file that defines the functions for communication with the Relational database.
Physical Characteristics: PHP file (.php extension)

5.4.2 Purpose

To provide a standard interface to any supported SQL database.

5.4.3 Function

Defines functions for connecting and disconnecting from the database, as well as modifying and retrieving data from the database.

5.4.4 Subordinates

5.4.5 Dependencies

5.4.6 Processing

Calls the equivalent function for the SQL database used.

5.4.7 Data

Database server info, username, password, and queries.

5.5 config

5.5.1 Type

Logical Characteristics: SNW file that defines variables for where the DB is, the DB username and password, where the document root is, and many other system wide variables.

Physical Characteristics: PHP file (.php extension)

5.5.2 Purpose

To provide a standard interface for all modules to extract the configurable options.

5.5.3 Function

Defines variables that a system administrator would possibly need to modify in order for SNW to run within a specific environment. If and when additional features are added to SNW which require new global variables, they should be included in config.php

5.5.4 Subordinates

5.5.5 Dependencies

5.5.6 Processing

Values are assigned to global variables

5.5.7 Data

5.6 error_handler

5.6.1 Type

Logical Characteristics: SNW file which handles and logs all possible error codes, conditions, and messages. Reports serious errors to the administrator via. syslog.
Physical Characteristics: PHP files (.php extension) error_codes, error_handler

5.6.2 Purpose

To report and track all customizable errors which occur while SNW is running

5.6.3 Function

Handles and logs all possible errors which occur while SNW runs

5.6.4 Subordinates

5.6.5 Dependencies

5.6.6 Processing

On error condition, appropriate action is taken.

5.6.7 Data

Error messages, codes, priority level.

5.7 reminder

5.7.1 Type

Logical Characteristics: SNW file run by cron to send out task reminders.

Physical Characteristics: PHP file (.php extension)

5.7.2 Purpose

To remind users of their pending tasks

5.7.3 Function

Gets all pending tasks from the database that have exceeded their lag time, then sends out email reminder to the user responsible for completing the task.

5.7.4 Subordinates

5.7.5 Dependencies

db_tools

5.7.6 Processing

Queries Database for all pending tasks that have exceeded their lag time, then sends out email reminder to the user responsible for completing the task.

5.7.7 Data

Pending tasks, lag time, user email, user preferences.

5.8 myprefs

5.8.1 Type

Logical Characteristics: SNW page for viewing/modifying the current user's preferences, such as email address(es) and email preferences (HTML or plain text), and weekly days and times to receive reminders.
Physical Characteristics: PHP file (.php extension)

5.8.2 Purpose

To track a user's preferred settings as related to email reminders.

5.8.3 Function

Provides the interface between the user's preferences and user_preference table in the database.

5.8.4 Subordinates

5.8.5 Dependencies

db_tools

5.8.6 Processing

If the user wants to change his/her email preferences, SNW will update the database to reflect these changes.

5.8.7 Data

HTML_email, digest/immediate reminders, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, 6a.m., 10a.m., 2p.m. 6p.m.

5.9 task_mgt

5.9.1 Type

Logical Characteristics: SNW Task Management Module, task_create creates a new task_type, such as order pager(generic), a task is a specific instance of a task-type, such as order new employee "Ryan" a pager.

Physical Characteristics: PHP files (.php extension), index, task_assign, task_assign2, task_create, task_edit, task_pending_edit.

5.9.2 Purpose

To handle all specific task management utilities, such as assign, or update a specific pending task, as well as create a new task type.

5.9.3 Function

Queries and updates the pending task table as necessary to manage pending tasks.

5.9.4 Subordinates

5.9.5 Dependencies

db_tools

5.9.6 Processing

Queries and updates the pending task table as necessary to manage pending tasks.

5.9.7 Data

User group, task info, and isAdmin.

5.10 process_mgt

5.10.1 Type

Logical Characteristics: SNW Process Management Module, process is a collection of tasks that must be performed many times, such as hiring an employee.

Physical Characteristics: PHP files (.php extension) process, process_assign, process_assign2, process_assign3, process_create, process_edit.

5.10.2 Purpose

To handle all process management utilities, such as assign a process, edit a process, and create a process.

5.10.3 Function

Queries and updates the process table and the pending_tasks table to manage processes.

5.10.4 Subordinates

5.10.5 Dependencies

db_tools

5.10.6 Processing

Queries and updates the process table and the pending_tasks table to manage processes.

5.10.7 Data

User group, process, info, and isAdmin.

5.11 user_mgt

5.11.1 Type

Logical Characteristics: SNW User Management Module, a user is any person who can assign or be assigned a task.

Physical Characteristics: PHP files (.php extension) user_mgt, user_edit, user_delete.

5.11.2 Purpose

To handle all user management utilities, such as add, edit, or delete a user.

5.11.3 Function

Queries and updates user and group tables as necessary to manage SNW users.

5.11.4 Subordinates

5.11.5 Dependencies

db_tools, ldap_tools

5.11.6 Processing

Queries and updates user and group tables as necessary to manage SNW users.

5.11.7 Data

IsAdmin, user info

5.12 group_mgt

5.12.1 Type

Logical Characteristics: SNW Group Management Module, a group is a collection of users, groups are used to determine who a user can assign a task to.

Physical Characteristics: PHP files (.php extension) group_mgt, group_delete.

5.12.2 Purpose

To handle all group management utilities, such as add, edit, or delete a group.

5.12.3 Function

Queries and updates user and group tables as necessary to manage SNW groups.

5.12.4 Subordinates

5.12.5 Dependencies

db_tools, ldap_tools

5.12.6 Processing

Queries and updates user and group tables as necessary to manage SNW users.

5.12.7 Data

IsAdmin, user info

5.13 help

5.13.1 Type

Logical Characteristics: SNW help page, contains help topics for all SNW pages and explains how to use SNW in general.

Physical Characteristics: PHP file (.php extension)

5.13.2 Purpose

To provide help on how to use SNW, accessible form each SNW page, or can give general and All SNW help topics.

5.13.3 Function

If a page variable exists, the user is taken to that section of the user manual/help system. If the user is admin then they can see help about installing, configuring, and management of SNW.

5.13.4 Subordinates

5.13.5 Dependencies

5.13.6 Processing

If a page variable exists, the user is taken to that section of the user manual/help system. If the user is admin then they can see help about installing, configuring, and management of SNW.

5.13.7 Data

IsAdmin, current page.

5.14 logout

5.14.1 Type

Logical Characteristics: Used to log the user out of SNW, cleans up all IT SNW cookies and variables.

Physical Characteristics: PHP file (.php extension)

5.14.2 Purpose

To completely log the user out of SNW so that the user must re-login to access ITMS, or to log user out of system after 10 minutes of inactivity.

5.14.3 Function

Cleans up all cookies and variables related to the SNW user.

5.14.4 Subordinates

5.14.5 Dependencies

5.14.6 Processing

Delete cookies, username, group, and all other variables.

5.14.7 Data

Cookie names, user vars.

5.15 ADD_USERS_TO_SNW

5.15.1 TYPE

Logical Characteristics: Used to add users to the SNW database which already exist in the LDAP directory which is specified in the config.php file.

Physical Characteristics: PHP file (.php extension)

5.15.2 Purpose

To save time and to avoid repetitive and error prone manual entry of user names which are already in the LDAP directory.

5.15.3 Function

Creates users in the SNW database.

5.15.4 Subordinates

5.15.5 Dependencies

5.15.6 Processing

Opens and reads usernames from the LDAP directory and inserts the usernames into the ITMS database.

5.15.7 Data

The LDAP directory server name and the root DN, the “bind as” from the config.php file.

6 PERFORMANCE ANALYSIS

Number of workstations supported depends on the Apache web server’s capacity for multiple TCP/IP connections. Simultaneous database access depends on MySQL User handling capabilities, however the software documentation suggests that multiple Users are supported in simultaneous queries.

Relative timing associated with I/O:

Results must appear within 5 seconds when Users are working within the Intranet

- Apache web server documentation denotes an expected response timeframe of 5 seconds for any CGI POST made to the web server through moderate local area network traffic.

Results must appear within 10 seconds when Users are working over the Internet

- Apache web server documentation also denotes an expected response timeframe of 10 seconds for any CGI POST made to the web server through moderate Internet traffic.

Querying attempts are dependent upon hardware and network traffic

- Even under extreme network traffic, all requests made to the Apache web server should be fulfilled within the required time specified by the Project Sponsor. ITMS is built with the assumption that the hosting web server has at least a 10Mbs Ethernet backbone to an Internet router.

Under normal circumstances the Apache web server should be able to handle a realistic number of concurrent connections and still fall within this time restraint.

7 FEASIBILITY AND RESOURCE ESTIMATES

This section should contain a summary of the computer resources required to build, operate and maintain the software. (See SRS Section 2.4)

Client:

IE 4+ or NS 4+

Cookies must be turned on, and JavaScript enabled

Connection to the internet/intranet (access to the Server described below)

Server:

Hard Drive Space: 200 MB

Ram: 64 MB

Operating System: BSDI 4.2

Domain name to be able to send SMTP based emails from

TCP/IP Network Connection:

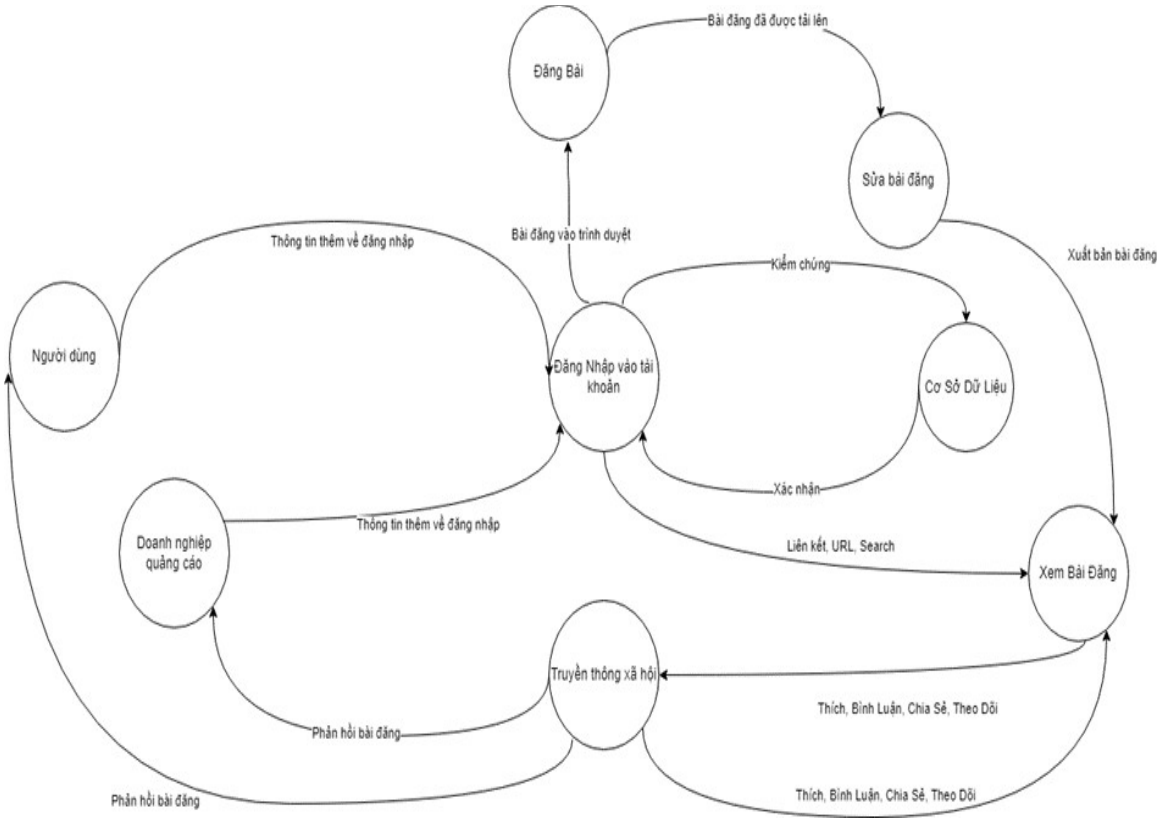
Supporting Software:

- PHP v.4
- MySQL
- LDAP
- SSL
- Web Server (recommend Apache)

8 SOFTWARE REQUIREMENTS TRACEABILITY MATRIX

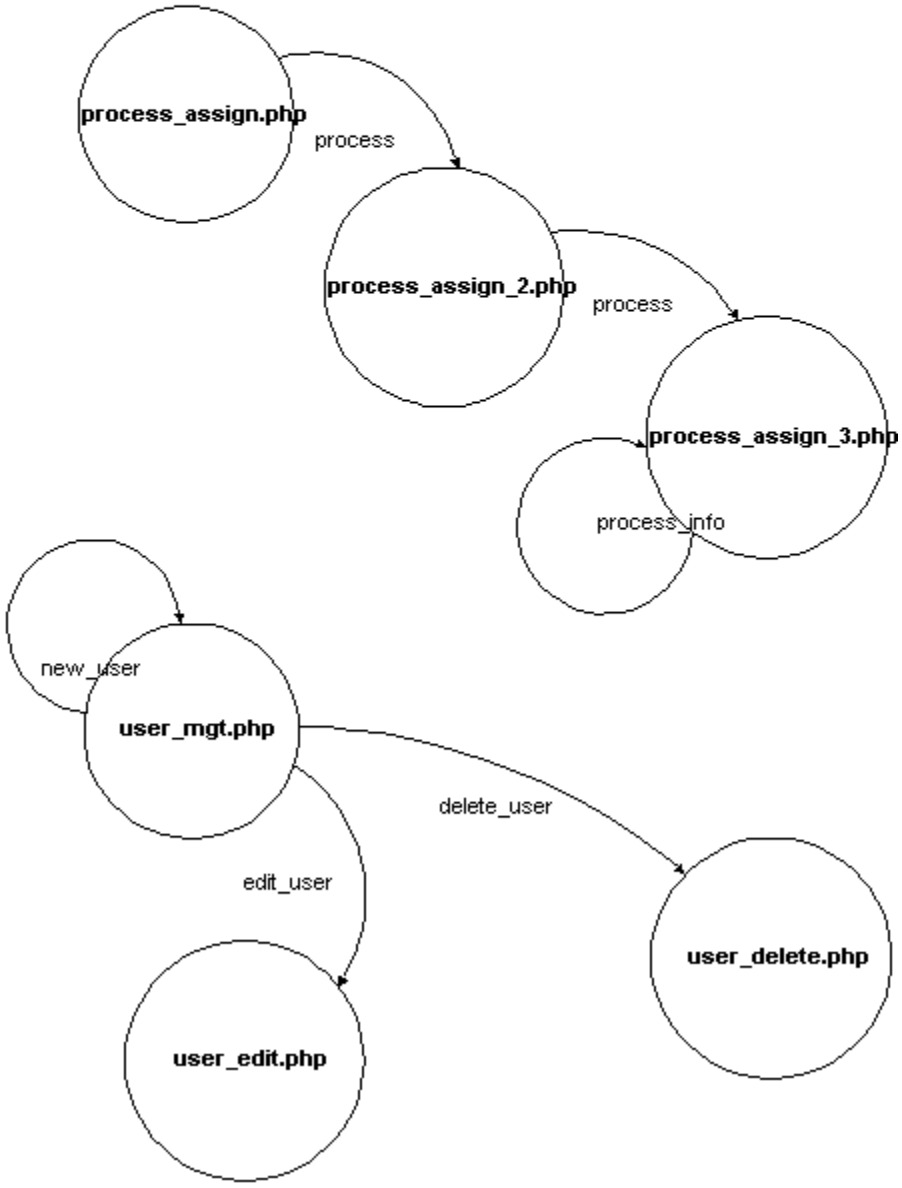
The matrix relates the design components and the requirement elements by relating the paragraph numbers in this document to paragraph numbers in the Software Requirements Specification Document. See Appendix A.

APPENDIX A: DATA FLOW DIAGRAM



APPENDIX C: CONTINUED

ITMS
Data Flow
Diagram



APPENDIX D: APPROVALS

Software Provider:
Organization Name: Group 7
Project Name (short title): SNW
Project Name (full title): Social Network Website

As a software provider for Inc., we agree to the scope and content of the requirements specified in the "Software Design Document" and agree that Group 7understands this document and will comply by its guidelines.

Provider_____
Pham Hoang Long

Provider_____
Nguyen Son Tung

Provider_____
Nguyen Duy Phuong

Provider_____
Nguyen Van Huong

Provider_____
Tran Phan Chi Bao

Project Sponsor:
Organization Name: Inc.
Contact Person's Name: Corie Hamer
Title: Web Design and System Programming Specialist
Email Address: corie@angushamer.com

I authorize the individuals mentioned above to act as a designated software provider for Inc. I have read the document entitled "Software Design Document", and agree that the requirements, as stated, provide all that is necessary for the development team to proceed with the design and implementation of the software system.

Contact_____
Corie Hamer