Software Requirements Specification Document

CSC 3463 | Team 2 | PNR PMS

Paul J. Hawron, Nestor Molina, Ryan Quiring

Table of Contents

Revision History

Name	Date	Reason for Changes	Version
PNR	11/25/2018	Initial Draft of Document	1.0
P	12/1/2018	Defeated Microsoft Word	1.1
PNR	12/5/2018	Second Draft of Document	1.2

1. Introduction Sections

1. **Purpose:**

   This document defines the operational requirements for PNR Policy Management System software. The goal of the SRS is to provide a functional tool for guiding the development of controls and data acquisition systems in a manner consistent with their operation within the PNR System. It establishes both general criteria and specific functional requirements for software and controls design in the PNR Policy Management System.

2. **Scope:**

   The PNR Policy Management System will provide an interface to view, manage, and submit policies by hierarchical classes of users. This is a system for Henderson State University (HSU) with many customizable features for use by all faculty, staff, students, and other persons needing to interface with the university's policies. The PNR System offers HSU enterprise-wide, centralized storage of operational policies.

3. **Definitions & Acronyms:**
   a. Policy: A plan of action used by an organization to give instructions from its senior management to those who make decisions to take actions and perform other duties on behalf of the organization's context.
   b. PNR PMS: This acronym stands for P.J., Nestor, and Ryan Policy Management System. PNR is the company name responsible for creation of this SRS.
   c. LDAP: This acronym stands for Lightweight Directory Access Protocol. This is a client/server protocol used to access and manage directory information.
4. **References:**
   a. https://waset.org/publications/12801/policy-management-framework-for-managing-enterprise-policies
      i. Policy Management Framework Document
   b. https://www.techopedia.com/definition/2439/lightweight-directory-access-protocol-ldap
      i. LDAP Explanation website
   c. Document CSC444-2001-SRS-01B
      i. SRS for a Graph Editor
   d. Document SPE-C-G0014
      i. SRS for the Gemini Telescopes Project
5. **Overview:**

   The remaining portions of the SRS will contain a more detailed outline of the system requirements involved in the PNR PMS. Section 2 will provide customers and potential users with a background for more specific details of the functions of the PNR PMS. Additionally, section 3 will provide developers with a robust understanding of the inner workings, specifications, and requirements of the system.

2. Overall Description

1. **Product Perspective:**

   Policy management software is commonly used within the educational world to maintain, present, and store policies in a form that is easy to read.

   The software described in this specification consists of an application for creating, viewing, editing, and printing policies. It also allows for quizzing of said policies. The application shall allow for the creation of general user classes by the administrator user(s), which will have permissions determined by the administrator. Also, the application shall permit customizability of the user dashboard for a more personalized experience.

2. **Product Functions:**
   a. Creating Policies
      i. The PNR PMS will allow for the creation of policies. These policies will have the ability to follow a template defined by the administrators. All of these policies will be stored in a standardized format on the existing HSU database. Policies may include text, supporting documents, and additional tags/categories to further distinguish them.
   b. Viewing Policies
      i. The PNR PMS will allow for the viewing of policies. These policies will be viewable in an aggregate displayed manner, as well as a searchable format. The policies will be searchable based on tags assigned to them, their categories, and the text contained within. These are all able to be printed.
   c. Editing Policies
      i. The PNR PMS will allow for the editing of existing policies by the administrator. The text within, categories, tags, and supporting documents may all be changed. These changes will be logged for future auditing.
   d. Suggesting Policies
      i. The PNR PMS will allow for the suggesting of policies by users. These suggestions will be sent to the administrator for review. All parties will receive notifications during this process when updates are made.
   e. Quizzing
      i. The PNR PMS will allow for the quizzing of policies. These quizzes will be created by the administrator and taken by other users. The administrator will then grade the quizzes, and grades will be returned to users along with notifications. All quiz grades will be stored for future perusal by the administrator.
   f. Personalization
      i. The PNR PMS will allow for the personalization of user dashboards. This includes changing colors, widget positions, and policy viewing.

3. **User Characteristics:**
    a. The PNR PMS users will consist of students, faculty, and staff of Henderson State University. Also, a user may be from an outside agency using a temporary account created by the administrator. There is a hierarchical class definition for different user permissions. These class categories may be created by administrators (e.g. student, faculty, staff, temporary, student senate, & faculty senate).
4. **Apportioning of Requirements:**
    a. Multi-Language Support
        i. The system shall implement multi-language support at a later date as the need is expressed by Henderson State University. *The languages to be supported would need to be provided by Henderson State University.*
    b. Database Management
        i. The existing HSU database shall be backed up on the PNR storage systems as the need is expressed by Henderson State University. *This service is offered by PNR as an additional service that may be implemented into the University database systems.*

3. Specific Requirements

1. **External Interface Requirements:**
   a. Communication Interfaces
      i. The user accounts database shall be in accordance with LDAP. *This will allow for user authentication*
   b. Hardware Interfaces
      i. The system shall run on any device capable of running a common, major web browser. *Common, major web browsers include Chrome, Firefox, Edge, Safari, and Opera.*
2. **Functional Requirements:**
   a. General Permissions
      i. View Active Policies
         1. The user shall be able to view all current policies within their user class. *Current policies are policies set to be active by the administrator. User classes are also set by the administrator. Viewable policies for temporary accounts will be decided by the administrator. Access to all policies is generally expected.*
         2. The user shall be able to view all previous versions of policies from the relevant policy's page. *Versions are updated by the administrator.*
         3. The user shall be able to view supporting documents from the relevant policy's page. *The administrator will be able to attach documents when implementing or updating policies*.
         4. The user shall be able to print policies and all supporting documents from the relevant policy's page.
      ii. Search Policies
         1. The user shall be able to search for current policies within their user class. *Current policies are policies set to be active by the administrator. User classes are also set by the administrator. Searchable policies for temporary accounts will be decided by the administrator. Access to all policies is generally expected.*
         2. The user shall be able to filter search results based on tags selected by the user. *The administrator will be able to associate tags to policies when implementing or managing policies.*
      iii. Personalized Dashboard
         1. The user shall be able to change the default color of their dashboard.
         2. The user shall be able to adjust which policies appear on their dashboard. *Policies may be selected by category tags that are set by the administrator*.
         3. The user shall be able to reposition widgets. *Widgets refer to components of the interface that link out to other functions of the system.*
      iv. Notifications
         1. The user shall be able to receive notifications.
         2. The administrator may send notifications manually.

3. The system shall send notifications whenever a policy is updated, implemented, or deleted.
4. The system shall send notifications whenever an update of a user's suggested policy occurs.
5. The system shall send notifications to relevant users whenever a quiz is made available by the administrator.
6. The user shall be able to select which method they receive notifications through. *Available notification methods will include email, in the PNR PMS app, SMS, and through the PNR PMS website.*

v. Authentication

1. The user shall be able to login to the PNR PMS. *Login will consist of a username password combination set by the administrator. The login will be the same from website to app. Login will adhere to LDAP.*
2. The user shall be able to log out of the PNR PMS.

vi. Taking Quizzes

1. The user shall be able to take a quiz. *Quizzes shall be assigned by the administrator.*
2. The user shall be able to see quiz results when graded by the administrator. *Quiz results will be shown on a question by question basis.*

b. Administrator Class

i. Implement Policies

1. The administrator shall be able to implement policies. *Implementing policies includes all below requirements and writing policies in a text editor. This should only be permitted when an update has already been approved through the voting process.*
2. The administrator shall assign a category to a policy during implementation. *Categories are words that define where a policy will be located when viewing/searching policies.*
3. The administrator shall be able to assign tags to policies during implementation. *Tags are words that serve to connect policies together through a relational database.*
4. The administrator shall be able to attach supporting documents during implementation.
5. The system shall notify relevant users whenever a policy is implemented. *Relevant users in this case are users who are in the category that the policy pertains to.*
6. The administrator shall be able to create a policy template for policy implementation. *This will allow for all policies and procedures to be maintained in a standard format.*
7. The administrator shall be able to import existing policy and procedure documents. *This is intended for use during system setup to migrate existing policies from the old system to the PNR PMS.*

ii. Update Policies

1. The administrator shall be able to update policies. *This should only be permitted when an update has already been approved through the voting process.*
2. The administrator shall be able to alter the category/categories of a policy during updating. *Categories are words that define where a policy will be located when viewing/searching policies.*
3. The administrator shall be able to alter the tag(s) during updating. *Tags are words that serve to connect policies together through a relational database.*
4. The administrator shall be able to add and remove supporting documents during updating.
5. The system shall notify relevant users whenever a policy is updated. *Relevant users in this case are users who are in the category that the policy pertains to.*
6. The system shall record all previous versions of the policy when updated.

iii. Manage Policies

1. The administrator shall be able to manage policies. *Managing policies refers to general housekeeping functionality relating to policies.*
2. The administrator shall be able to view all suggested policies.
3. The administrator shall be able to approve or deny suggested policies.
4. The system will notify a user when their suggested policy is approved or denied.
5. The administrator may toggle the activity status of a policy. *The activity status refers to whether the policy is active or inactive in the system.*

iv. Quizzes

1. The administrator shall be able to create quizzes. *Quizzes will be true/false, multiple choice, and/or short answer.*
2. The administrator shall be able to assign a time frame for quiz submission. *The time frame will consist of a date and time.*
3. The administrator shall be able to assign quizzes to different categories of users. *Categories are words that define where a policy/user will be located when viewing/searching policies.*
4. The administrator shall be able to view quiz analytics. *Quiz analytics will include individual user results on a question by question basis. Quiz analytics will also include overall results from entire categories of users on a question by question basis. Incomplete quizzes shall be flagged as such.*
5. The administrator shall be able to grade quiz answers. *The system shall automatically grade multiple choice and true/false questions, the administrator shall be able to grade short answer questions.*
6. The system shall notify users when their quizzes have been graded.
7. The administrator shall able to add comments to quiz answers for the user to see. *Comments will be viewable after grade submission.*

- v. Manage Accounts
    1. The administrator shall be able to create temporary user accounts. *Temporary user accounts will be configurable however the administrator sees fit. These accounts are expected to be used by external parties to evaluate the university.*
    2. The administrator shall be able to create user accounts. *User accounts will have at least an email, password, and a designated user class.*
    3. The administrator will be able to assign categories to user accounts. *Categories are words that define where a policy/user will be located when viewing/searching policies. These*
    4. The administrator shall be able to manage user accounts. *This includes emails, password, tags, active status, and any other information attached to the user.*
- vi. Viewing Policies
    1. The administrator shall be able to view all policies. *This includes all versions of all policies, policies for every user class, and inactive policies. All features from 3.2.1.1 should be available to the administrator as well.*
- vii. Reports
    1. The administrator shall be able to view report analytics. *Report analytics should include information such as how many policies exist in each category, historical quiz scores, number of views per policy page, and how many users are in a given category.*

c. User Class

- i. Suggestions
    1. The user shall be able to suggest new policies. *The suggested policies should consist of text with optional attached files. These will be sent as notifications to the governing body fielding suggestions from the submitting user category.*
    2. Users shall be able to vote on policies sent to them as notifications. *Votes may be either approve or deny.*
    3. Voting users shall be able to provide context as to why they voted a certain way.
    4. The system shall submit approved policies to the administrator for implementation. *Policies are approved when most votes have been tallied by the system, and the majority were affirmative. The notification to the administrator will include the user that wrote it, the time submitted, and the suggestion itself.*
    5. The user shall be able to suggest changes to existing policies. *This process will follow the same rules outlined by sections 3.2.c.i.2 through 3.2.c.i.4 inclusive.*

3. **Performance Requirements:**
    a. Reliability
        i. The system shall not have a down time that exceeds 5 minutes during peak times. *Peak times are between 6 am and 10 pm.*
        ii. The system shall not have a down time that exceeds 2 hours during non-peak times. *Non-peak times are between 10 pm and 6 am.*
    b. Accessibility
        i. The system shall be available through the internet. *This will allow for local offline access to the PNR PMS.*
4. **Logical Database Requirements:**
    a. SQL Server Requirements
        i. The system shall require an SQL Server Database. *The database will need to have an initial size of 1 Terabyte. This database will follow whatever existing backup plan the customer uses.*
5. **Software System Attributes:**
    a. Security & Privacy
        i. The system shall follow the general policy governing user login accounts on Henderson State University. *There are no specific security and privacy requirements attached to the PNR PMS.*
    b. Maintainability
        i. All code shall be fully documented. *Every method/function shall be commented with pre- and post-conditions. All program files shall include comments concerning authorship and date of last change.*
    c. Portability
        i. The system shall have a mobile application that is compatible with Android and iPhone devices. *All general & user class features will be available on the mobile application.*
        ii. The application shall be compatible with iOS 6 and up. *As new versions are released, the app will need to be updated in order to be compatible with newest iOS versions.*
        iii. The application shall be compatible with Android 4 and up. *As new versions are released, the app will need to be updated in order to be compatible with newest Android versions.*