Software Requirements Specification
Role-Based Internal Platform for Targeted Content Delivery

Version 1.0.0

Group 20
Jesus Calvo,
Justin Gip
Shane Guzman
Samuel Mekonnen

December 5, 2025
CS 3338-01 (94305)

Contents

Version Description

Version Description

Author	Date	Description	Version
Your Name	10/10/25	Initial SRS draft created from project proposal	0.1.0
Your Name	10/25/25	Updated functional and nonfunctional requirements for Snapshot 2	0.2.0
Team	12/5/25	Final SRS after design and testing feedback	1.0.0

1 Introduction

The **Role-Based Internal Platform for Targeted Content Delivery** (the Platform) is an internal web application that enables organizations to deliver announcements, training materials, and other content to employees based on their role, department, and other attributes. This Software Requirements Specification (SRS) defines the functional and nonfunctional requirements for the Platform.

1.1 Purpose

The purpose of this SRS is to:

- Provide a clear and shared understanding of what the Platform must do.

- Serve as the basis for design, implementation, and testing.

- Support project planning by scoping features into snapshots.

- This document is intended for developers implementing the system and to understand the platform.

1.2 Document Conventions

- Functional requirements are labeled as FR-*nn*, for example FR-01.

- Nonfunctional requirements are labeled as NFR-*nn*.

1.3 Intended Audience and Reading Suggestions

- Readers who only need a high level understanding of the project should focus on Sections 1 and 2.

- Developers should focus on Sections 3 (System Features) and 4 (External Interfaces).

- Testers should focus on Sections 3 and 5 to derive test cases.

1.4 Product Scope

The Platform offers:

- Centralized content management for internal communications and training.

- Role based and attribute based targeting so that users see content relevant to them.

- Tracking and reporting to demonstrate that required content has been delivered and acknowledged.

1.5 References

- Software Design Document (SDD) for Role-Based Internal Platform for Targeted Content Delivery.

2 Overall Description

2.1 Product Perspective

The Platform is a standalone internal web application. In a real organization it could integrate with existing systems such as single sign on (SSO) and HR databases, but for this platform those integrations may be simulated with dummy data.

2.2 Product Functions

At a high level, the Platform provides:

- User authentication and role based access control.

- Administration tools for creating, tagging, and scheduling content.

- Targeted content feeds for end users.

- Notifications for new or expiring content.

- Reporting on content views and acknowledgements.

2.3 User Classes and Characteristics

- **Employee** Any internal user who can view content targeted to them, mark items as read, and optionally provide feedback.

- **Manager** Can view employee content plus team level reports for their direct reports.

- **Content Administrator** Can create, edit, schedule, and retire content items; configure targeting rules; run reports.

- **System Administrator** Manages users, roles, and system level configuration.

2.4 Operating Environment

- Web application accessible via modern browsers (Chrome, Edge, Firefox).

- Back end server running on Linux or similar environment, packaged in Docker.

- Relational database such as PostgreSQL.

2.5 Design and Implementation Constraints

- Python for back end. React for front end.

- Docker container for demonstration.

2.6 Assumptions and Dependencies

- All users already exist in the system or can be created by a System Administrator.

- The organization maintains accurate role and department information for users.

3 System Features

Each system feature below contains a description and a set of functional requirements.

3.1 Feature 1: User Authentication and Authorization

3.1.1 Description

This feature provides secure login and logout for all users and enforces role based access control (RBAC) for all pages and actions.

3.1.2   Functional Requirements

- **FR-01** The system shall allow a user to log in using a unique email and password.

- **FR-02** The system shall validate user credentials against stored user records.

- **FR-03** The system shall prevent access to authenticated pages when the user is not logged in.

- **FR-04** The system shall assign one or more roles to each user.

- **FR-05** The system shall restrict access to administrative functions to users with appropriate roles.

3.2   Feature 2: Content Management

3.2.1   Description

Admins manage internal content such as announcements, training modules, and policy updates.

3.2.2   Functional Requirements

- **FR-06** The system shall allow a Content Administrator to create a content item with at least a title, body, and categories.

- **FR-07** The system shall allow a Content Administrator to specify a start date and end date for displaying a content item.

- **FR-08** The system shall allow a Content Administrator to mark a content item as mandatory.

- **FR-09** The system shall allow a Content Administrator to edit an existing content item before its end date.

- **FR-10** The system shall allow a Content Administrator to archive or retire a content item so it no longer appears in feeds.

3.3   Feature 3: Targeting Rules and Audiences

3.3.1   Description

Admins define targeting rules to control which users see each content item.

3.3.2   Functional Requirements

- **FR-11** The system shall allow a Content Administrator to define rules based on user attributes such as role, department, and location.

- **FR-12** The system shall allow a Content Administrator to combine multiple rule conditions using logical AND and OR.

- **FR-13** The system shall evaluate targeting rules at runtime to determine which users are in the audience for a content item.

- **FR-14** The system shall update targeting evaluations when user attributes change.

3.4   Feature 4: Targeted Content Feed

3.4.1   Description

Each user has a personalized feed displaying content items targeted to them.

3.4.2 Functional Requirements

- **FR-15** The system shall show each logged in user a feed of active content items targeted to that user.

- **FR-16** The system shall display mandatory content items with a visual indicator.

- **FR-17** The system shall allow the user to filter the feed by category and completion status.

- **FR-18** The system shall allow the user to search content items by title or keyword.

- **FR-19** The system shall not show content items that have passed their end date.

3.5 Feature 5: Acknowledgements and Completion Tracking

3.5.1 Description

The Platform tracks which users have opened or acknowledged content items.

3.5.2 Functional Requirements

- **FR-20** The system shall record when a user views a content item.

- **FR-21** For mandatory content, the system shall provide an explicit acknowledgement action that the user must click.

- **FR-22** The system shall store the timestamp when a user acknowledges a mandatory content item.

- **FR-23** The system shall prevent a user from acknowledging a content item on behalf of another user.

3.6 Feature 6: Reporting and Analytics

3.6.1 Description

Admins and managers need to see how content is performing and whether compliance targets are met.

3.6.2 Functional Requirements

- **FR-24** The system shall allow a Content Administrator to view, for each content item, the number of users targeted, the number of users who have viewed it, and the number who have acknowledged it.

- **FR-25** The system shall allow a Manager to view completion status for mandatory content for their direct reports.

- **FR-26** The system shall allow exporting report data to a CSV file.

3.7 Feature 7: Administration and Configuration

3.7.1 Description

System Administrators manage users, roles, and basic configuration settings.

3.7.2 Functional Requirements

- **FR-27** The system shall allow a System Administrator to create, update, deactivate, and reactivate user accounts.

- **FR-28** The system shall allow a System Administrator to assign roles to users.

- **FR-29** The system shall allow a System Administrator to reset a user password.

- **FR-30** The system shall log administrative changes for logging purposes.

4 External Interface Requirements

4.1 User Interfaces

- **Login Page** Email and password inputs, error messages for invalid credentials.

- **End User Dashboard** Personalized content feed, filters, search, and quick indicators for mandatory content.

- **Content Detail Page** Title, body, metadata, acknowledgement button for mandatory content.

- **Admin Console** Navigation for content list, content editor, targeting rules, and reporting.

4.2 Hardware Interfaces

No specific hardware interfaces are required beyond a standard workstation or laptop that can run a modern web browser.

4.3 Software Interfaces

- Relational database management system (PostgreSQL).

- Optional SMTP or email service for notifications.

4.4 Communications Interfaces

- HTTP or HTTPS between browsers and the web server.

- TCP/IP communication between the application server and the database.

5 Nonfunctional Requirements

5.1 Performance Requirements

- **NFR-01** The system shall display the user's content feed within 3 seconds for a user with fewer than 50 active content items.

- **NFR-02** The system shall support at least 50 concurrent logged in users in the course demo environment.

5.2 Security Requirements

- **NFR-03** All passwords shall be stored as salted hashes, not in plain text.

- **NFR-04** The system shall automatically log out users after 30 minutes of inactivity.

- **NFR-05** The system shall restrict access to administrative pages to users with appropriate roles.

5.3 Reliability and Availability

- **NFR-06** The system shall be able to recover from a restart without loss of persisted data.

- **NFR-07** The system shall handle unexpected errors gracefully, displaying a generic error message and logging details for developers.

5.4 Maintainability

- **NFR-08** The code base shall use clear naming conventions and be organized into logical modules.

- **NFR-09** Core business logic, including targeting evaluation and acknowledgement tracking, shall have automated unit tests.

5.5 Usability

- **NFR-10** The user interface shall be responsive for common screen sizes like laptops or large tablets.

- **NFR-11** Mandatory content items shall be clearly distinguishable from optional content.

5.6 Legal and Ethical Requirements

- **NFR-12** The Platform shall not expose sensitive user attributes in targeting rules or reports.

- **NFR-13** The Platform shall only collect data that is necessary to deliver and track content.

6 Appendix A: Glossary

- **Targeted Content** Content that is visible only to users who meet specified audience rules.

- **Mandatory Content** Content that certain users are required to read and acknowledge like privacy and polices.

- **RBAC** Role Based Access Control.

Glossary of Terms and Acronyms

Term	Definition
Targeted Content	Content that is visible only to users who meet specified audience rules.
Mandatory Content	Content that certain users are required to read and acknowledge.
RBAC	Role Based Access Control.

7 Appendix B: Mapping to Snapshots

For the workflow, features can be divided into snapshots as follows:

- **Snapshot 1** Basic project setup, user authentication (FR-01 to FR-05), minimal dashboard showing static content.

- **Snapshot 2** Content management and basic targeting (FR-06 to FR-14).

- **Snapshot 3** Targeted content feed, acknowledgements, and reporting (FR-15 to FR-26).

- **Snapshot 4** Administration, refinements, nonfunctional requirements, and stretch goals (FR-27 to FR-30, NFRs).