**1. Introduction**

**1.1 Purpose**

The purpose of this software design document is to fully describe the architecture of the Workflow Management System for Non-Crime Related Activity. This web-based system is designed for the Yorkshire and Humber Regional Organised Crime Unit (YHROCU) support department to manage non-crime related tasks. The system will enable the assignment, tracking, and reporting of both individual and collaborative tasks, ensuring timely notifications and robust audit trails. This document serves as a blueprint for developers, stakeholders, and future maintainers.

**1.2 Overview**

This document outlines the following key areas:

**Architectural Design:** The overall structure of the system using a 3-tier architecture.

**Software Design Requirements:** A detailed list of functional and non-functional requirements, including task management, notifications, and user access controls.

**Data Description:** A description of the data repositories used for managing staff, tasks, and task updates.

**System Architecture:** An in-depth look at the system layers and component decomposition, supported by diagrams.

**Conclusion:** A summary of the design and its alignment with the departmental objectives.

**2. Software Design Requirements**

The Workflow Management System must meet the following requirements:

**Task Assignment and Notification:**

Enable tasks to be assigned to one or more staff members.

Automatically email the assigned staff member(s) when a task is allocated.

**Task Update and Logging:**

Allow users to update task status, due dates, review dates, and input progress updates to a rolling log.

Prevent staff from deleting a task or any previous update entries to preserve the historical record.

**Access Control and Supervisory Functions:**

Provide supervisory access to view all tasks, with options to restrict visibility to only the assigned persons or to all users.

Allow a supervisor to close or delete a task as needed.

**Dashboard and Reporting:**

Offer a dashboard that categorizes and summarizes tasks, featuring filters such as status and due date.

Include an export function to generate reports in CSV or PDF formats.

**System Flexibility and Search:**

Design with built-in flexibility to allow the addition of new data fields to tasks to support future changes.

Implement a robust search function for efficient task retrieval.

**User Authentication:**

Implement user authentication using OpenAuth or a similar protocol to ensure compatibility with existing infrastructure and secure system access.

**3. Data Description**

The system will interact with the following data repositories to manage tasks and staff information:

**Staff.table:**

This table contains records of staff members, including names, email addresses, and unique identifiers. It supports task assignment and user authentication.

**Tasks.txt:**

Stores task details such as task ID, description, assigned staff, status, due dates, and review dates. Each line represents a unique task.

**TaskUpdates.txt:**

Maintains a log of all updates made to tasks, including progress updates and status changes, ensuring a complete audit trail.

4. System Architecture

4.1 Architectural Design

The Workflow Management System is built using a 3-tier architecture:

**Client Layer (Blue):**

Provides a web-based interface where users, supervisors and administrators interact with the system. This layer is responsible for displaying dashboards, task forms, project overviews, progress logs, search functions and more.

**Application Layer (Green):**

Contains the business logic for task management, including assignment, update processing, notifications, and access control. It acts as the intermediary between the client interface and the database.

**Database Layer (Red):**

Manages persistent storage of all data, including staff details, task records, and update logs. It ensures data integrity, security, and efficient retrieval.

Figure 1: 3-Tier Architecture System

(Illustration: Client Interface → Application Logic → Database Storage)

**4.2 Decomposition Description**

The system is decomposed into several key modules:

**User Interface Manager:**

Manages the web interface, including dashboards, task forms, and search functionality. It handles real-time user interactions and displays task data.

**Notification Module:**

Automates email notifications to staff upon task assignment, ensuring timely alerts.

**Task Manager:**

Oversees task creation, assignment, status updates, and log management. It enforces rules to prevent unauthorized deletion of tasks or updates.

**Access Control and Authentication Module:**

Implements user authentication (using OpenAuth or similar) and enforces role-based access controls, differentiating between staff and supervisory functions.

**Reporting and Export Module:**

Provides analytics through a dashboard and supports data export in CSV or PDF formats.

**Data Handler:**

Interfaces with the underlying data repositories (Staff.txt, Tasks.txt, TaskUpdates.txt) to perform secure read/write operations while ensuring consistency.

**Figure 2: Class Diagram:**

(Illustration: Depicts the interrelationships between the User Interface Manager, Notification Module, Task Manager, Authentication Module, Reporting Module, and Data Handler.)

**5. Conclusion**

This Software Design Document outlines the comprehensive design of the Workflow Management System for Non-Crime Related Activity tailored for the YHROCU support department. Leveraging a robust 3-tier architecture and modular design, the system addresses key requirements such as automated notifications, secure access, detailed logging, and flexible task management. This design provides a strong foundation for improving operational efficiency and is well-prepared to accommodate future enhancements and changes. Feedback and further modifications are welcome to ensure that the final implementation meets all departmental objectives.