Raise Organization

File Management System for Raise for Development and Humanitarian Aid (RDHA)

1. Organizational Requirements Analysis (RDHA)

In this phase, the current and future needs of RDHA organization are thoroughly understood:

- **Types of Files and Data:**

  - **Administrative Documents:** Contracts, invoices, financial reports, internal memos, policies, and procedures.
  - **Engineering/Technical Documents:** CAD drawings, technical specifications, project plans, 3D models (if RDHA operates in fields requiring them).
  - **Images and Videos:** Site photos, training videos, marketing materials.
  - **Databases:** Is there a need to store organized data in tables or records?
  - **Correspondence:** Important emails, communication logs.
  - **Project Files:** Project planning documents, timelines, progress reports.

- **Number of Users and Access Permissions:**

  - **Quantity:** Determine the approximate number of users who will interact with the system.
  - **Roles and Permissions:** Define different levels of access:

    a. **Administrator:** Full permissions to manage the system, users, and permissions.

    b. **Manager:** Permissions to view, modify, and approve documents in specific departments.

    c. **Employee:** Permissions to view, upload, and modify documents related to themselves or their team.

    d. **External User/Guest:** Limited viewing permissions for specific documents (e.g., partners or clients).

    e. **Granular Permissions:** Do some users need "read-only," "edit," "delete," "approve," or "publish" permissions at the file or folder level?

- **Specific Features Required:**

  a. **Electronic Signature:** To streamline the approval process for official documents and contracts, ensuring legal compliance.

  b. **Workflow Automation:** Automate document approval paths (e.g., leave requests, purchase requests, contract reviews) to ensure efficiency and accountability.

c. **Paper Document Archiving:** Is there a need to scan paper documents and convert them into searchable and storable digital formats? This includes Optical Character Recognition (OCR) technologies.

d. **Integration with Other Systems:**

- **Customer Relationship Management (CRM) Systems:** To link customer documents to their files in the CRM.

- **Enterprise Resource Planning (ERP) Systems:** To link invoices, purchase orders, and inventory records.

- **Human Resources (HR) Systems:** To manage employee files, employment contracts, and performance records.

- **Email:** To save important correspondence directly into the system.

2. System Core Architecture

A custom file management system for RDHA can be built using one of two main approaches, each depending on the organization's size, budget, complexity of requirements, and technical resources:

- **A. Off-the-Shelf Customizable Platforms:** These solutions provide a robust basic structure that can be adapted to meet specific needs, reducing initial development time and cost.

  - ❖ **Microsoft SharePoint:**

    - **Features:** A powerful platform for document management and collaboration, seamlessly integrated with the Office 365 suite (Word, Excel, PowerPoint, Outlook, Teams). It offers advanced features for version control, workflows, and information security.

    - **Suitability:** Ideal for organizations heavily using the Microsoft environment and needing an integrated solution for collaboration and content management.

  - ❖ **OpenKM or Alfresco (Open Source):**

    - **Features:** Open-source Enterprise Content Management (ECM) systems that provide comprehensive features for document management,

workflows, archiving, and search. They offer high flexibility in customization and integration.

- **Suitability:** Suitable for organizations that prefer open-source solutions for full code control, have complex customization requirements, or seek to reduce licensing costs.

❖ **Nextcloud (for Self-Hosted Storage Solutions):**

- **Features:** Provides a self-hosted cloud storage solution with file synchronization and sharing features, and collaborative features like co-editing documents (via integration with Collabora Online or OnlyOffice). It focuses on privacy and data control.

- **Suitability:** An excellent choice for organizations that want to host their data on their own servers to ensure maximum security and privacy, while maintaining the flexibility of cloud solutions.

- **B. Custom Development (From Scratch):** This option is preferred when RDHA's requirements are very unique and cannot be fully met by any off-the-shelf platform, or when there is a need for absolute control over every aspect of the system.

❖ **Programming Languages:**

- **Python (Django/Flask):** Django is a powerful and fast framework for developing complex web applications, while Flask is lighter and more flexible for smaller projects. Both provide strong tools for database interaction and authentication.

- **PHP (Laravel):** A popular and robust PHP framework, providing a structured architecture for developing large and complex web applications, with a large support community.

- **Node.js:** Allows building fast and scalable web applications using JavaScript on the server side, ideal for applications requiring real-time interaction.

❖ **Databases:**

- **MySQL or PostgreSQL (Relational Databases):** Ideal for storing structured data that requires complex relationships between tables, such as user information, file data, and permission logs. PostgreSQL is known for its advanced features and scalability.

- **MongoDB (NoSQL Database):** Suitable for storing unstructured or semi-structured data (such as file metadata, activity logs) whose structure may change over time, and offers high flexibility in horizontal scaling.

3. Proposed Core System Features

To ensure the efficiency and effectiveness of the file management system, it must include the following core features:

- **Intuitive User Interface:**

  - Clean and intuitive design for easy file upload, download, editing, and sharing.
  - Drag-and-Drop support for files.
  - Responsive Design to work seamlessly on various devices (desktop, tablets, smartphones).

- **Permissions Management:**

  - A precise system to define who can access any file or folder, and what actions they can perform (view, modify, delete, share).
  - Support for permissions at the individual user level, groups, and roles.
  - Hierarchical Permissions (Inherited Permissions) from parent to sub-folders.

- **File Indexing and Metadata:**

  - Categorize files based on multiple criteria (type, department, project, date, client).
  - Add Custom Metadata to each file (e.g., contract number, expiration date, responsible person).
  - Optical Character Recognition (OCR) for scanned documents to make their content searchable.

- **Advanced and Powerful Search:**

  - Ability to search by name, content (Full-Text Search), date, file type, metadata, and user who uploaded.
  - Support for Boolean Search using operators like "AND," "OR," "NOT."
  - Faceted Search to narrow down results based on specific categories.

- **Version History:**

  - Maintain a record of all changes made to a file, with the ability to restore any previous version.
  - Record who made the change and when, providing a complete audit trail.

- **Automated Workflow:**

  - ➢ Design custom workflows for approvals, reviews, or publishing.
  - ➢ Define Conditional Logic to route documents based on their content or metadata.
  - ➢ Automatic notifications via email or within the system to relevant users when action is required.

- **Email and Other Software Integration:**

  - ➢ Ability to save email attachments directly into the system.
  - ➢ Integration with productivity tools (such as Microsoft Office or Google Workspace) for collaborative document editing.
  - ➢ Application Programming Interfaces (APIs) to allow seamless integration with RDHA's current and future systems.

- **Reports and Dashboard:**

  - ➢ A dashboard providing a quick overview of file activity, storage usage, and active users.
  - ➢ Customizable reports on system usage, most accessed files, or workflow status.

4. Security and Backup

- **File Encryption:**

  - ➢ Encryption of Data at Rest on servers.
  - ➢ Encryption of Data in Transit using protocols like SSL/TLS.

- **Automated Backup:**

  - ➢ Schedule regular backups (daily, weekly) for all data.
  - ➢ Store backups in multiple geographical locations (Off-site Backup) to ensure disaster recovery.
  - ➢ Periodic testing of Disaster Recovery processes to ensure their effectiveness.

- **Deleted File Recovery:**

  - ➢ A "Recycle Bin" system to retain deleted files for a specified period before permanent deletion.
  - ➢ Data Retention Policies to define how long old versions and deleted files are kept.

- **Access Auditing and Activity Log:**

➢ Record all activities performed on files (who accessed, modified, deleted, shared, and when).
➢ Provide detailed audit logs for accountability and compliance.

- **Authentication and Authorization:**

  ➢ Support for Strong Authentication such as Multi-Factor Authentication (MFA).
  ➢ Integration with Active Directory or LDAP systems for user identity management.

5. Testing and Continuous Development

- **System Testing:**

  ✓ **Unit Testing:** Testing each component individually.
  ✓ **Integration Testing:** Ensuring that different components work together correctly.
  ✓ **User Acceptance Testing (UAT):** Involving end-users from RDHA to test the system and ensure it meets their operational needs.

- **User Training:**

  ✓ Provide comprehensive training courses for various user levels (administrators, managers, employees).
  ✓ Prepare training materials and user manuals.

- **Continuous Development and Updates:**

  ✓ The system is not a final product but an ongoing process. Regular updates, new feature additions, and performance improvements should be planned based on user feedback and changes in RDHA's requirements.
  ✓ System Monitoring to identify and address any potential issues.

Examples of Adaptable Ready-Made Systems

1. **If you want a Cloud-Based System:**

   ❖ **Microsoft SharePoint:** Ideal for organizations looking for an integrated solution for collaboration and document management within the Microsoft 365 environment. It offers easy access from anywhere, robust security features, and scalability.
   ❖ **Google Drive Enterprise:** Provides unlimited storage (in some plans), powerful search capabilities, and deep integration with Google Workspace apps (Docs, Sheets, Slides). Suitable for organizations that rely on the Google environment for collaboration.

2. **If you want an Open-Source System:**

   ✓ **Alfresco:** A powerful Enterprise Content Management (ECM) solution that can manage complex files and workflows, offering high flexibility in customization. Requires technical expertise for setup and maintenance.
   ✓ **Nextcloud:** An excellent choice for organizations that want to self-host their data to ensure privacy and full control. It offers a user-friendly interface, file sharing and synchronization features, and can be extended with various add-ons.

   3. **If you want a Custom-Developed System:** It can be programmed using **Python + Django** for an organized database, a flexible user interface, and scalability. This option allows full control over every detail of the system to perfectly match RDHA's unique requirements, but it requires a greater investment in time and resources for its development and maintenance.

Next Steps for System Implementation:

1. **Detailed Requirements Documentation:** Conduct workshops and brainstorming sessions with all relevant departments in RDHA to accurately gather and document functional and non-functional requirements.

2. **Platform or Development Team Selection:** Based on the documented requirements, a decision is made regarding using an off-the-shelf platform or custom development, and selecting the appropriate vendor or development team.

3. **Prototype Building:** Develop an initial version of the system containing core features to test the concept and gather early feedback from users.

4. **Comprehensive Development and Testing:** Build the full system with all required features implemented, and conduct rigorous testing to ensure quality, performance, and security.

5. **Deployment and Training:** Deploy the system to the production environment, train end-users on how to use it, and provide necessary technical support.

6. **Continuous Monitoring and Improvement:** Monitor system performance after deployment, collect user feedback, and implement regular improvements and updates to ensure its continued effectiveness.