

Supervision System

Business Requirments Document

|  |  |  |  |
| --- | --- | --- | --- |
| Prepared &  Maintained By | Name: Hussam Sweilem | Approved by | Name: |
| Job Title: PS Manager | Job Title: Project Manager |

**Confidentiality Statement**

This document contains proprietary and confidential information. All data and material enclosed are Subtech Co. sole property and not to be reproduced in any way without Supertech Co. written consent.

**Revision History**

|  |  |  |
| --- | --- | --- |
| Template Details | | |
| Title : Business Requirments Document | Issue No: 01 | Rev No: 1 |
| Document No: F-QP-08 | Issue date: 22/07/2025 | Rev date: 30/07/2025 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Document Revision History | | | | | |
| Revision | Description of Change | Author | Reviewed By | Approved By | Effective Date |
| 1.0 | Initial Version | Hussam Sweilem |  |  | 22/07/2025 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Document Approval

|  |  |  |  |
| --- | --- | --- | --- |
| Role | Name | Signature | Date |
|  |  |  |  |
|  |  |  |  |

**Table of Content**

Contents

[1 Introduction 5](#_Toc204773604)

[1.1 Purpose 5](#_Toc204773605)

[1.2 Project Overview 5](#_Toc204773606)

[1.3 Definitions, Acronyms, and Abbreviations 5](#_Toc204773607)

[1.4 References 5](#_Toc204773608)

[2 Supervision System Business Requirements 6](#_Toc204773609)

[2.1 Supervision System Business Requiments Overview 6](#_Toc204773610)

[3 Business Requirements Detailed/ Registration Entity (BR-01) 7](#_Toc204773611)

[3.1 Business Requirement Overview/Registration Entity 7](#_Toc204773612)

[3.1.1 Key Business Rules 7](#_Toc204773613)

[3.1.2 Business Benefits 7](#_Toc204773614)

[3.1.3 Assumptions 7](#_Toc204773615)

[3.1.4 Out of Scope (Phase 1) 8](#_Toc204773616)

[3.1.5 Business Requirements Table 8](#_Toc204773617)

[3.2 Functional Requirements Overview /Registration Entity 9](#_Toc204773618)

[3.2.1 Scope Of Work 9](#_Toc204773619)

[3.2.2 Stakeholders 9](#_Toc204773620)

[3.2.3 Functional Requirement Table 10](#_Toc204773621)

[3.3 Functional Requirements Specicfication (FRS) 12](#_Toc204773622)

[3.3.1 Functional Requirements Specification Table 12](#_Toc204773623)

[3.3.2 Registration Creation New Entity of Financial Institutions (FRS-001) 14](#_Toc204773624)

[3.3.3 Role-Based Access Control (RBAC)/ FRS-005 18](#_Toc204773625)

[3.3.4 Notification Management Workflow / FRS-010 19](#_Toc204773626)

[3.3.5 Additional and Optional Enhancements 20](#_Toc204773627)

[3.3.6 System Behaviors 20](#_Toc204773628)

[3.3.7 Security Requirements 20](#_Toc204773629)

[3.4 Registration Entity Development Requirment 21](#_Toc204773630)

[3.4.1 Backend Development Requirements: 21](#_Toc204773631)

[3.4.2 Frontend/UI Requirements: 22](#_Toc204773632)

[3.4.3 Develop UI/UX Wireframe Overview for FI Onboarding & Access Control App 22](#_Toc204773633)

[4 Architecture 26](#_Toc204773634)

[5 Appendinx A: Database Tables Design 27](#_Toc204773635)

[5.1 Registration 68](#_Toc204773636)

[5.2 Role 68](#_Toc204773637)

[5.3 Privilege 68](#_Toc204773638)

[5.4 Department 68](#_Toc204773639)

[5.5 Department's 68](#_Toc204773640)

[5.6 WorkingLocation 68](#_Toc204773641)

[5.7 Dashboard 68](#_Toc204773642)

[5.8 Permission 68](#_Toc204773643)

[5.9 Official Duty 68](#_Toc204773644)

[5.10 Jobs,Assignments 68](#_Toc204773645)

[5.11 Contract 68](#_Toc204773646)

[5.12 Admin Reports 68](#_Toc204773647)

[5.13 Audit Trail 68](#_Toc204773648)

[5.14 Admin Dashboard 68](#_Toc204773649)

# Introduction

This document provides information about the business requirements for regulators system including group of modules aim to complete the systems needs,

## Purpose

The purpose of the document is to explain the requirement and system functionalities. The audience of this document is system administrator, application support and developers that will be responsible for maintaining the system as per the requirements.

## Project Overview

The SubTech system aims to provide collect of data functionalities that aligh with FIs business and provide development features to support the business users.

Develop finance application capapble to do :

* Integrate with existing systems
* Able to match with the bank systems

## Definitions, Acronyms, and Abbreviations

|  |  |
| --- | --- |
| Term | Meaning |
| DB | Data base |
| BR | Business Requirement |
| ORS | Object Relation Ship |
| FR | Functional Requirement |
| ERD | Entity Relationship Diagram |
| FRS | Functional Requirements Specification |
| DR | Development Requirement |
| FS | Finance System |
| SQL | Database Language |

## References

While authoring this document, the below references were used:

* Supervision system Requirements Document
* Excel sheets for bank system

In addition to the above listed documents, several meetings, workshops and brainstorming sessions with business team.

# Supervision System Business Requirements

The scope of this document is cover the requirments and functions with detailed of specific system requirements which allow to the developers and system architecture to prepare the work in a proper way that were followed in the implantation and upgrade of the supervision system at bank sector.

The BRD will took into consideration:

* Describ the business requirments BR
* Describe the functional requirements FR
* Describe the specific requirement FRS
* Describe the system requirements matrix and the relationships and features dependcies.

## Supervision System Business Requiments Overview

|  |  |
| --- | --- |
| BR# | Description |
| BR-001 | Registration Entitiy |
| BR-002 | Data Upload |
| BR-003 | Data Validation |
| BR-004 | Data Submission |
| BR-005 | Risk Assessment |
| BR-006 | Onsite Inspection |
| BR-007 | Coorespondence Management |
| BR-008 | Calender and Notification |
| BR-009 | Template Library |
| BR-010 | Cycle Approval |
| BR-011 | Data Export |
| BR-012 | Data Security |
| BR-013 | Data Analysis |

# Business Requirements Detailed/ Registration Entity (BR-01)

**Registration Entity Business Objective**

To streamline and digitize the registration and onboarding of Financial Institutions (FIs), ensuring regulatory compliance, data integrity, role-based workflows, and real-time visibility for stakeholders including regulators, inspectors, and admin users.

## **Business Requirement Overview/Registration Entity**

**Module:** Financial Institutions (FIs) Registration  
**System:** FI Onboarding & Access Control

The Registration module will:

* Allow authorized users to create and submit registration forms.
* Capture core data: license information, institution profile, contacts, and documents.
* Support workflow actions: submission, review, approval, rejection, and rework.
* Provide transparency and traceability through audit logs and notifications.
* Enable secure access based on predefined roles (Maker, Checker, Regulator, Admin).

### ****Key Business Rules****

* Each FI registration must have one primary license.
* No two registrations can share the same license number.
* A minimum of one contact person is required per registration.
* Only Regulators or Admins can change a registration's final status.
* Documents must be submitted in acceptable formats (PDF, DOCX, JPG, PNG).
* Workflow steps are sequential and cannot be skipped without Admin intervention.

### ****Business Benefits****

* Streamlined FI onboarding process
* Reduced paper-based submissions
* Real-time visibility for regulatory bodies
* Improved audit readiness and reporting
* Centralized and secure data storage

### ****Assumptions****

* Users have valid credentials and assigned roles.
* All form fields will be mapped to a structured backend database.
* The system supports integration with a secure document storage platform.
* Time zone and date formatting are regionally aware (MENA compliance).

### ****Out of Scope (Phase 1)****

* API integration with external regulator databases
* Support for multi-language forms (to be considered in Phase 2)
* Mobile-native registration (will be responsive in Phase 2,3)

### ****Business Requirements Table****

| BR-ID | Requirement | Rationale / Benefit |
| --- | --- | --- |
| BR-01 | Allow Makers to create a new financial institution registration | To initiate onboarding by collecting required details |
| BR-02 | Capture all mandatory data fields and license details (number, type, issue date, expiry date) | To verify institution legitimacy and license validity |
| BR-03 | Support uploading of official documents (licenses, incorporation letters, etc.) | To maintain compliance with document-based verification |
| BR-04 | Enable assigning multiple contact persons per FI | To ensure effective communication and regulatory reach |
| BR-05 | Support workflow routing (Maker → Checker → Regulator) | To ensure a structured review and approval process |
| BR-06 | Allow regulators to approve, reject, or return a registration for rework | To maintain oversight and enforce compliance standards |
| BR-07 | Notify users at each workflow step (e.g., submitted, returned, approved) | To ensure timely actions and accountability |
| BR-08 | Generate a unique registration ID for every institution | To ensure traceability and data consistency |
| BR-09 | Prevent duplicate registrations (by license number or name) | To maintain a clean and accurate database |
| BR-10 | Track registration status (e.g., Draft, Under Review, Approved) | For transparency and user clarity |
| BR-11 | Reporting and monitoring support search and filtering by name, country, license number, or status | To assist in regulatory analysis and data retrieval |
| BR-12 | Enable audit trails for all activities performed during registration | To comply with data governance and accountability policies |
| BR-13 | Allow Admins to override and manage any registration status in special cases | To ensure flexibility in exceptional regulatory decisions |

## **Functional Requirements Overview /Registration Entity**

**Functional Requirements Objectives**

The purpose of this section is to define the functional requirements for the **Registration Entity**. It includes detailed descriptions of system features, user interactions, data elements, validation rules, and role-based access for registering Financial Institutions (FIs).

Detailed **Functional Requirement** for the **Registration Entity** in your **Financial Institution Onboarding & Access Control System**.To enable onboarding and registration of Financial Institutions (FIs) into the regulatory system by capturing license data, profile information, key contacts, and approval workflows.

### Scope Of Work

This module supports the digital registration of Financial Institutions including data entry, document submission, workflow-based approval, audit trail, and access control for regulatory authorities, inspectors, and administrators.

### Stakeholders

| **Role** | **Responsibility** |
| --- | --- |
| Regulators | Review and approve FI registration |
| Admins | Oversee system usage and override records |
| Makers | Initiate and submit FI registrations |
| Checkers | Validate data before sending to regulators |
| Inspectors | View-only access to approved FIs |

### Functional Requirement Table

| ID | Function | Description | BR Relation |
| --- | --- | --- | --- |
| FR-01 | Build Registration form | Allow authorized users (Makers) to initiate a new FI registration process. | BR-01  BR-02  BR-03  BR-08  BR-09 |
| FR-02 | Edit Registration | Makers and Checkers can edit draft or returned registration entries before final submission. | BR-01  BR-04  Br-09 |
| FR-03 | Submit for Review | Submit a complete registration for review by Checker or Regulator. Locks further editing. | BR-05  BR-06  BR-07  BR-08  BR-09 |
| FR-04 | Assign Regulator | Automatically or manually assign a regulator to an FI case for compliance review. | BR-05  BR-06 |
| FR-05 | Review & Approve | Regulator can approve or reject registration based on provided documents and info. | BR-05  BR-06  BR-07  BR-08  BR-09 |
| FR-06 | Upload Documents | Upload and attach licenses, incorporation certificates, or official letters.  Upload required documents (PDF, DOCX, JPG, PNG) | BR-03 |
| FR-07 | Manage Contacts | Add, update, or remove institution contact persons (name, role, email, phone). | BR-05  BR-06  BR-07  BR-09 |
| FR-08 | View Registration Details | Allow all assigned users to view registration data, status, and audit logs. | BR-07  BR-11  BR-13 |
| FR-09 | Track Status | Filter registrations by their current status (e.g., Draft, Under Review, Approved). | BR-10  BR-11  BR-13 |
| FR-10 | Audit Trail | Record all activities (who, what, when) for compliance and accountability. | BR-12  BR-13 |
| FR-11 | Notification Alerts | Notify users via email or system alerts at each workflow step (submit, approve, reject). | BR-07 |
| FR-12 | Duplicate Check | Warn users if a registration already exists with the same license number or name.  Mandatory document types must be uploaded (e.g., license copy)  Check if an FI with the same license number or name already exists | BR-08  BR-12  BR-13 |
| FR-13 | Database | Prepare and build DB schema | BR-01  BR-02 |

## Functional Requirements Specicfication (FRS)

### Functional Requirements Specification Table

| ID | Specicfication | Dvelopment Description | FR Relation |
| --- | --- | --- | --- |
| FRS-001 | Registration Creation | Allow authorized users (Maker role) to create a new FI registration.  Build Registration form for data entry containing of Database Schema definiftion and database fileds,  Institution name, license number, address, country, sector, license type, etc.  Saved as Draft with generated Registration ID | FR-01  FR-02  FR-03  FR-13 |
| FRS-002 | Acceptance Criteria | Develop validation tools for various data inputs and Develop function for check the required data, attachments, licenses, incorporation certificates, or official letters.attached documents type PDF,docx,excl,.. | FR-03  FR-04  FR-05  FR-08  FR-12  FR-13 |
| FRS-003 | Edit Registration  Contact Person Management  Upload Documents | Develop edit fuction allows for add, modify,delete,update, and enable edit tracking.  Allow dynamic addition of contact persons with role, email, and phone.  Capture license issue/expiry dates, document uploads, and institution profile.  Upload required documents (PDF, DOCX, JPG, PNG).  Mandatory document types must be uploaded (e.g., license copy) | FR-02  FR-03  FR-06  FR-12 |
| FRS-004 | Data Validation | Develop the validation process and acceptance criteria and define the required field and data inputs,attachments to Submit a complete registration for review by Checker or Regulator. Locks further editing.  Mandatory fields, license number uniqueness  Dates must be valid; past issue date, future expiry date if applicable  Mandatory document types must be uploaded (e.g., license copy)  Check if an FI with the same license number or name already exists | FR-03  FR-04  FR-05  FR-06  FR-12  FR-13 |
| FRS-005 | Access controlar and Roles bulk  User Role-Based Access | Develop user roles and permission by identify group or category, department,user role  Enforce user access control based on assigned roles.  Maker, Checker, Regulator, Admin, Inspector | FR-01  FR-02  FR-03  FR-04  FR-05  FR-07  FR-08 |
| FRS-006 | Review & Approve | Develop function for Regulator can approve or reject registration based on acceptance criteria and provided documents and info.  Allow all assigned users to view registration data, status, | FR-04  FR-05  FR-08  FR-10  FR-12 |
| FRS-007 | Workflow Management | Develop advance role allows for Add, update, or remove institution contact persons (name, role, email, phone).  Route registration through roles: Maker → Checker → Regulator.  Actions are role-restricted (see access control matrix) | FR-07  FR-08  FR-10  FR-12 |
| FRS-008 | Monitor& Track Status | Develop function for monitoring by Filter registrations by their current status and Display current status of registration and transition history as (e.g., Draft, Under Review, Approved).  Action type, user, timestamp, value change (if applicable).  Record and view all actions performed on a registration.  Status Type:  Draft, Submitted, Under Review, Approved, Rejected, Returned for Edit | FR-07  FR-09  FR-10  FR-12 |
| FRS-009 | Log and Administration | Develop log function data editor tracking for record all activities (who, what, when) for compliance and accountability, and audit logs. | FR-10  FR-13 |
| FRS-010 | Notification Alerts | Notify users via email or system alerts at each workflow step (submit, approve, reject).  Trigger system/email notifications at key events | FR-11 |
| FRS-011 | Reporting , Exports | Develop report modules and allow to export to the CSV,PDF,… | FR-09  FR-08 |
| FRS-012 | Audit & Duvplicate check | Check if an FI with the same license number or name already exists.  Record and view all actions performed on a registration. | FR-09  FR-10  FR-11  FR-12  FR-13 |
| FRS-013 | Build DBb schema and releationships | Build DB structure and DB schema to cover the required fileds and business requirement,  Build DB releationships.  Build Lookup tables for DB joining and relations.  configure DB for integration purposes | FR-13 |

**Functional Requirement Specification Detailed**

Develop a secure, scalable web-based (or mobile responsive-enabled) application that manages **user registration**, **role-based access**, and **controlled data access**, ensuring that only authorized users can view, edit, or manage datasets.

### Registration Creation ****New Entity of Financial Institutions (FRS-001)****

* Prepare database schema and DB strcture
* Register and onboard Financial Institutions with full license and regulatory details.
* Capture profile data: institution name, license type, registration number, contact information, and assigned jurisdiction.
* Document upload: licenses, compliance certificates, or legal documentation.
* Approval workflow for onboarding, including Maker-Checker validation.

#### Summary of Database Schema FI-Registration

| **Field Name** | **Type** | **Required** | **Notes** |
| --- | --- | --- | --- |
| This section for add a new institute and the information in blue for institute data entry | | | |
| Application\_ID | Unique | ✅ | Auto Generation |
| Institution Name | Text | ✅ | Unique |
| License Number | Text | ✅ | Unique |
| License Sector | List | ✅ | Select from master list(Bank,Exchange) |
| Financial Type, Domain | list | ✅ | Select domain(Islamic,Commericial) |
| License Issue Date | Date | ✅ | License Start date |
| License Expiry Date | Date | ✅ | Future date |
| Country | List | ✅ | From country list |
| Institute Foreign | check list | ✅ | Yes/No |
| institute Parent Country | List | If Yes ✅ | Select Head Quarter Country from list of country |
| Institute Parent name | Txt | If yes ✅ | Nmae of HQ |
| Institute Parenet License ID | Text | If yes ✅ |  |
| Number of Foreign Branch | number | If yes ✅ | Number of foreign branches outside the residenacy |
| institute Residency Country | List | ✅ | Select country |
| Number of Residenacy Branch | number | ✅ | Default value 1 |
| Institute Business Scale | Number (check list ) | Optional | Check list for scale range (1000-20000) |
| No of Employee | Number (check list ) | Optional | Check list for employee range (1-20), (21-50) |
| Institute Address | Text | ✅ | Free text |
| License Attachment | Attachment | ✅ | Attached License paper |
| Official Document Attachment | Attachment | ✅ | Attached financial documents |
| **Contact Persons** | | | |
| Contact Type | List | ✅ | Select from list (Primary,Authorized,Delegate,  Business Owner) |
| Job Title | Text |  |  |
| First Name | Text | ✅ |  |
| Mid Name | Text | ✅ |  |
| Last Name | Text | ✅ |  |
| Nationality | List | ✅ | Country List |
| Civil\_ID | Text | ✅ |  |
| Passport ID | Text | ✅ |  |
| Civil Attachment | Attachement | ✅ |  |
| Passport Attachment | Attachement | ✅ |  |
| Contact Phone | Number | ✅ |  |
| Business Phone | Number | Optional |  |
| Email | Text | ✅ |  |
| Created By | Text | ✅ | Auto fill by user login ID |
| Modify By | Text | ✅ | Auto fill by user Login ID |
| Application Status | List | ✅ | List of System workflow(Inprogress,Submitted,Draft,Saved) |
| Registration Date | Date | ✅ | System date |
| Registration-ID | Unique | ✅ | Auto Generate-System Trigger |
| Submitted To | Text,List |  | List of employee have a validation role |
| Date Of Submitted | Date |  | Submitted date by system |
| **System show Status and Track the actions** | | | |
| Application Track Status | List |  | Auto collect from System actions and show list of status(Approved,Return,Rejected,Final Submission) |
| Validation By | Text |  | Auto fill the Validator user ID from the List of employee have validation role |
| Validation date | Date |  | System Date |
| Validation Status | List |  | Accepted,Return,Rejected,Draft,Submitt for Approval |
| Approval Status | List |  | Accepted,Return,Rejected |
| Approved By | Text |  | Auto fill the approver user ID from the employee have Approver role |
| Approved Date | Date |  | System date |
| Audit Status | List |  | Accepted,Return,Rejected |
| Audit Date | Date |  | Audit System date |
| Audit By | Text |  | Auto fill auditor name from list of auditors |
| Final Status | List |  |  |

### ****Role-Based Access Control (****RBAC****)/ FRS-005****

* Fine-grained permission settings: control access to modules, datasets, and actions (view, edit, approve, delete).
* Assign users predefined roles based on their function:
  + **Maker:** Inputs or requests data or actions.
  + **Checker:** Reviews and approves submissions.
  + **Regulator:** Views data across institutions for monitoring and reporting.
  + **Inspector:** Audits and reviews operational data.
  + **Admin:** Manages system-wide settings, users, and configurations.

#### Role-Based Access Matrix

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Role | Create | Edit | Submit | Review | Approve | Reject | View |
| Maker | ✅ | ✅ | ✅ | ❌ | ❌ | ❌ | ✅ |
| Checker | ✅ | ✅ | ✅ | ✅ | ❌ | ❌ | ✅ |
| Regulator | ❌ | ❌ | ❌ | ✅ | ✅ | ✅ | ✅ |
| Admin | ✅ | ✅ | ✅ | ✅ | ✅ | ✅ | ✅ |
| Inspector (read-only) |  |  |  |  |  |  | ✅ |

#### Role-Based Access Definition

| **Role** | **Key Actions** |
| --- | --- |
| Maker | Create and submit new registration |
| Checker | Validate input, suggest corrections, forward to regulator |
| Regulator | Approve, reject, or return for edit |
| Admin | View, override, or manage all records |
| Inspector (read-only) | View approved registrations and documents only |

#### **User Management**

* User Activation & Deactivation: Enable/disable users based on institution status or compliance.
* Role Assignment: Admins assign roles during onboarding or update them later.
* Multi-level user access: Users can be assigned to one or multiple FIs with varying roles.
* Audit Trail: Full logging of user activity, login attempts, and access changes.

#### User Management Status Definition

| **State** | **Triggered By** | **Description** |
| --- | --- | --- |
| Draft | Maker | Editable entry not yet submitted |
| Submitted | Maker | Sent for review; editing disabled |
| Under Review | Checker/Regulator | Pending decision or clarification |
| Approved | Regulator | Registration completed successfully |
| Rejected | Regulator | Registration not accepted |
| Returned for Edit | Checker/Regulator | Sent back to Maker for correction |

### Notification Management Workflow / FRS-010

It is a T rigger system responsible to submit notification as a message or note through email or SMS and use the suitable technology to send notifications at key events

#### Notification Status Definition

| **Event** | **Triggered** | **Recipients** |
| --- | --- | --- |
| Registration Submitted | Maker | Regulator, Admin |
| Registration Approved | Regulator | Maker, Admin |
| Registration Rejected | Regulator | Maker |
| Returned for Edit | Checker or Regulator | Maker |
| New Assignment | System/Admin | Assigned Regulator |

#### Notification Event

Trigger system/email notifications at key events

| **Trigger** | **Recipient** | **Message Type** |
| --- | --- | --- |
| Submission | Regulator | Email + In-App |
| Approval | Maker | Email + In-App |
| Rejection | Maker | Email + In-App |
| Returned for Edit | Maker | Email + In-App |

### ****Additional and Optional Enhancements****

* Two-Factor Authentication (2FA) for secure access.
* **Automated Notifications** (email/SMS) for user status updates, approvals, or role changes.
* **Compliance Dashboard** showing user and institution statuses in real-time.
* **API Integrations** for syncing with national licensing or financial regulatory databases.

### **System Behaviors**

* **Auto-save** draft during form entry.
* **Unique ID** is generated on first save.
* **Disabled editing** post-submission unless returned.
* **Role-sensitive UI** shows/hides actions based on user type.
* **System logging** of all changes and transitions.

### **Security Requirements**

* Role-based access (RBAC)
* Secure file uploads (malware scanning optional)
* HTTPS-only access
* Audit log storage (tamper-proof)

## ****Registration Entity Development Requirment****

Prepare the proper tools,ssoftware and method To develop a secure, modular, and workflow-enabled registration component that allows the onboarding of Financial Institutions (FIs), ensuring data accuracy, role-based access, document verification, and regulatory compliance.

| **Develop Requirement ID** | **Description** |
| --- | --- |
| **DR-001** | Build a multi-step registration form for capturing FI profile, license details, and contact information. |
| **DR-002** | Implement dynamic contact fields to add multiple contact persons with validation (email, phone). |
| **DR-003** | Integrate file upload module for scanned licenses, certificates, and legal documents. |
| **DR-004** | Generate a unique FI Registration ID on initial form submission. |
| **DR-005** | Add client-side and server-side validation (e.g., duplicate license number check). |
| **DR-006** | Develop role-based access control (RBAC) to restrict actions based on user roles (Maker, Checker, Regulator, Admin). |
| **DR-007** | Create a workflow system to manage statuses: Draft → Submitted → Under Review → Approved/Rejected → Archived. |
| **DR-008** | Enable status transition logic with data locking on submission and role-restricted editing. |
| **DR-009** | Maintain audit logs for every state change, user interaction, and data update. |
| **DR-010** | Integrate a notification engine (email/in-app) to alert users at key workflow stages. |
| **DR-011** | Provide filtering and search functionality in the UI for regulators to locate registration records. |
| **DR-012** | Implement RESTful APIs (or GraphQL) for future integration with external systems. |

### **Backend Development Requirements:**

* **Database Model**:
  + Tables: registrations, contacts, documents, registration\_status\_log
  + Fields must be normalized and support indexing for fast lookup
* **Security**:
  + Enforce input sanitization and encryption of sensitive data
  + JWT or OAuth2-based authentication
* **Audit Logging**:
  + Use centralized audit service for tracking changes and user actions
* **APIs**:
  + Create endpoints for CRUD operations, status transitions, and file retrieval

### **Frontend/UI Requirements:**

* Responsive form wizard for data entry
* Drag-and-drop document upload UI
* Real-time field validation and duplicate detection
* Role-based visibility (e.g., Hide approval actions from Maker)
* Status indicator and workflow timeline view
* Pagination and advanced filters in list view

### ****Develop UI/UX Wireframe Overview for FI Onboarding & Access Control App****

1. Dashboard (Post Login)

**Users:** All roles  
**Purpose:** Quick overview and navigation

**Layout:**

* **Top Bar:** Logo | Institution Name | Notifications | User Profile
* **Side Menu:**
  + Dashboard
  + Financial Institutions
  + User Management
  + Role & Access Control
  + Activity Log
  + Settings
* **Main Area:**
  + Widgets:
    - Total Registered FIs
    - Pending Approvals
    - Active/Inactive Users
    - Role Breakdown
  + Quick links: [Onboard New FI], [Manage Users], [View Logs]

2. Onboarding Financial Institutions Page

**Users:** Admin, Maker

**Layout:**

* **Header:** “Register New Financial Institution”
* **Form Fields:**
  + Institution Name
  + License Type (dropdown)
  + License Number
  + Country & Region
  + Regulatory Body (dropdown)
  + Upload License (PDF/DOC)
* **Buttons:** [Save as Draft] [Submit for Approval]
* **Status Bar:** Draft | Under Review | Approved | Rejected

3. Role-Based Access Control Page

**Users:** Admin

**Layout:**

* **Table View:**
  + User Name | Email | Institution | Assigned Role(s) | Status | Actions
* **Actions Dropdown:**
  + Edit Roles
  + Revoke Access
  + View Access History
* **Tabs:** [View All Roles] | [Assign Role] | [Role Matrix]

4. User Management Page

**Users:** Admin, Regulator

**Layout:**

* **Search Bar + Filter:** By Institution, Role, Status
* **User Table:**
  + Name | Email | Institution | Role | Status (Active/Inactive) | Actions
* **Actions:**
  + Activate / Deactivate
  + Reset Password
  + Edit Details
* **Buttons:** [Add New User], [Export Users]

5. FI Profile Detail View

**Users:** All roles (permission-based)

**Layout:**

* **Header:** [FI Name] – [Status Badge]
* **Tabs:**
  + Overview (basic info)
  + License Details (documents, expiration)
  + Assigned Users
  + Activity History
* **Actions:** [Edit Profile], [Deactivate], [Assign User]

6. Activity Log Page

**Users:** Admin, Regulator

**Layout:**

* **Filters:** Date Range, User, Action Type, Institution
* **Table View:**
  + Date | User | Action | Target (FI/User) | Status | IP Address

7. Entity Fields & Input Controls

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field | Type | Control | Required? | Validation |
| Institution Name | Text | Textbox | ✅ | Unique name check |
| License Number | Text | Textbox | ✅ | Alphanumeric, unique |
| License Type | Dropdown | Select | ✅ | From pre-defined types |
| License Issue Date | Date | Date Picker | ✅ | Past date only |
| License Expiry Date | Date | Date Picker | ❌ | Future date |
| Country | Dropdown | Select | ✅ | From master list |
| Financial Sector | Dropdown | Select | ✅ | E.g., Banking, FinTech |
| Institution Address | Text | Text Area | ✅ | Max 500 chars |
| Contact List | Dynamic Fields | Add/Remove Rows | ✅ | At least one contact |
| Uploaded Documents | File Upload | Drag & Drop | ✅ | PDF, JPG, PNG, DOCX only |

# Architecture

# Appendinx A: Database Tables Design

|  |  |
| --- | --- |
| Table Name | AllowanceAttachment |
| Description | Contains references to the attachment associated with an allowance |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | AllowanceID |  | F | Y | Integer (10) |
| 3 | AttachmentID |  | F | Y | VARCHAR (40) |
| 4 | CreatedAt |  |  | Y | Datetime (23,3) |
| 5 | DeletedAt |  |  |  | Datetime (23,3) |

Foreign Keys (referring to)

| Name | Refering To | Mandatory | Columns | Referred Columns |
| --- | --- | --- | --- | --- |
| FK\_AllowanceAttachment  \_allowances | Allowances | Y | AllowanceID | ID |
| FK\_AllowanceAttachment  \_Attachment | Attachment | Y | AttachmentID | ID |

|  |  |
| --- | --- |
| Table Name | Attachment |
| Description | A master table that contains information about an upload attachment |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | VARCHAR (40) |
| 2 | Name |  |  | Y | NVARCHAR (200) |
| 3 | FileBytes |  |  | Y | VARBINARY (-1) |
| 4 | Extension |  |  | Y | NVARCHAR (30) |
| 5 | MIMEType |  |  | Y | NVARCHAR (30) |
| 6 | CreatedAt |  |  | Y | Datetime (23,3) |
| 7 | DeletedAt |  |  |  | Datetime (23,3) |

Foreign Keys (referred from)

| Name | Referred From | Mandatory | Columns | Referred Columns |
| --- | --- | --- | --- | --- |
| FK\_AllowanceAttachment\_Attachment | AllowanceAttachment | Y | AttachmentID | ID |

|  |  |
| --- | --- |
| Table Name | AuditTrail |
| Description | A tracking table for all add/update/delete action which were done through the attendance system. |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | AuditTrailTableID |  | F | Y | Integer (10) |
| 3 | AuditTrailTableFieldID |  |  |  | Integer (10) |
| 4 | OldValue |  |  |  | NVARCHAR (-1) |
| 5 | NewValue |  |  |  | NVARCHAR (-1) |
| 6 | ChangedBy |  | F | Y | Integer (10) |
| 7 | ChangeTime |  |  | Y | Datetime (23,3) |
| 8 | AuditTrailActionID |  | F | Y | Integer (10) |
| 9 | PrimaryKeyValue |  |  |  | NVARCHAR (50) |
| 10 | ClientIPAddress |  |  |  | NVARCHAR (50) |
| 11 | ChangedEmployeeID |  |  |  | Integer (10) |

Foreign Keys (referring to)

| Name | Refering To | Mandatory | Columns | Referred Columns |
| --- | --- | --- | --- | --- |
| FK\_AuditTrail\_AuditTrail | AuditTrailAction | Y | AuditTrailActionID | ID |
| FK\_AuditTrail\_User | User | Y | ChangedBy | ID |
| FK\_AuditTrail\_AuditTrailTable | AuditTrailTable | Y | AuditTrailTableID | ID |

|  |  |
| --- | --- |
| Table Name | AuditTrailAction |
| Description | A lookup table that contains the name of the actions tracked through audit trail process |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) |
| 2 | ActionNameArabic |  |  | Y | NVARCHAR (50) |
| 3 | ActionNameEnglish |  |  | Y | NVARCHAR (50) |

Foreign Keys (referred from)

| Name | Referred From | Mandatory | Columns | Referred Columns |
| --- | --- | --- | --- | --- |
| FK\_AuditTrail\_AuditTrail | AuditTrail | Y | AuditTrailActionID | ID |

|  |  |
| --- | --- |
| Table Name | AuditTrailField |
| Description | A lookup table that contains the name of the database fields to be tracked through audit trail process |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) |
| 2 | AuditTrailTableID |  | F | Y | Integer (10) |
| 3 | DBFieldName |  |  | Y | NVARCHAR (100) |
| 4 | EnglishName |  |  | Y | NVARCHAR (100) |
| 5 | ArabicName |  |  | Y | NVARCHAR (100) |

Foreign Keys (referring to)

| Name | Refering To | Mandatory | Columns | Referred Columns |
| --- | --- | --- | --- | --- |
| FK\_AuditTrailField\_AuditTrailTable | AuditTrailTable | Y | AuditTrailTableID | ID |

|  |  |
| --- | --- |
| Table Name | AuditTrailTable |
| Description | A lookup table that contains the name of the database table to be tracked through audit trail process |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) |
| 2 | DBName |  |  | Y | NVARCHAR (100) |
| 3 | NameEnglish |  |  | Y | NVARCHAR (100) |
| 4 | NameArabic |  |  | Y | NVARCHAR (100) |

Foreign Keys (referred from)

| Name | Referred From | Mandatory | Columns | Referred Columns |
| --- | --- | --- | --- | --- |
| FK\_AuditTrail\_AuditTrailTable | AuditTrail | Y | AuditTrailTableID | ID |
| FK\_AuditTrailField\_AuditTrailTable | AuditTrailField | Y | AuditTrailTableID | ID |

|  |  |
| --- | --- |
| Table Name | EmployeeJobTitle |
| Description | Contains information about an employee and their job title as it appears in portal |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | EmployeeNumber | P |  | Y | Integer (10) |
| 2 | FullName |  |  |  | NVARCHAR (-1) |
| 3 | DepartmentID |  |  |  | Integer (10) |
| 4 | UpdateDate |  |  |  | Datetime (23,3) |
| 5 | Status |  |  |  | NVARCHAR (50) |
| 6 | TerminationDate |  |  |  | Datetime (23,3) |
| 7 | JobName |  |  |  | NVARCHAR (-1) |
| 8 | JobID |  |  |  | Integer (10) |

|  |  |
| --- | --- |
| Table Name | ErrorLog |
| Description | Contains the details of erros happening in the application server |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ErrorLogID | P |  | Y | Integer (10) - AI - ID |
| 2 | Message |  |  |  | NVARCHAR (-1) |
| 3 | StackTrace |  |  |  | NVARCHAR (-1) |
| 4 | EmployeeID |  | F |  | Integer (10) |
| 5 | CreatedAt |  |  | Y | Datetime (23,3) |

Foreign Keys (referring to)

| Name | Refering To | Mandatory | Columns | Referred Columns |
| --- | --- | --- | --- | --- |
| FK\_ErrorLog\_Employees | Employees |  | EmployeeID | ID |

|  |  |
| --- | --- |
| Table Name | Privilege |
| Description | Contains the privileges that will be assigned to a role, in order to control what the user can access in the system |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) |
| 2 | Controller |  |  | Y | NVARCHAR (100) |
| 3 | Action |  |  | Y | NVARCHAR (100) |
| 4 | DisplayNameArabic |  |  | Y | NVARCHAR (100) |
| 5 | DisplayNameEnglish |  |  | Y | NVARCHAR (100) |
| 6 | DescriptionArabic |  |  |  | NVARCHAR (500) |
| 7 | DescriptionEnglish |  |  |  | NVARCHAR (500) |
| 8 | DeletedAt |  |  |  | Datetime (23,3) |

|  |  |
| --- | --- |
| Table Name | Registeration |
| Description | Contains information regarding the enrollment of an employee in the mobile registration process in order to enable or disable them from using the GeoAttendance mobile application |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | EmployeeID |  |  |  | Integer (10) |
| 3 | Code |  |  |  | Integer (10) |
| 4 | IsActive |  |  |  | BIT (1) |
| 5 | deviceId |  |  |  | NVARCHAR (100) |
| 6 | IsOtpSent |  |  |  | BIT (1) |
| 7 | NotificationToken |  |  |  | NVARCHAR (-1) |
| 8 | DeletedAt |  |  |  | Datetime (23,3) |
| 9 | OSName |  |  |  | NVARCHAR (100) |
| 10 | OSVersion |  |  |  | NVARCHAR (100) |
| 11 | AppVersion |  |  |  | NVARCHAR (100) |
| 12 | LastSeenDateTime |  |  |  | Datetime (23,3) |

|  |  |
| --- | --- |
| Table Name | Role |
| Description | Contains the roles that are created in the system, which will be assigned to an employee in order to control what they can access in the system |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | Description |  |  | Y | NTEXT (16) |
| 4 | IsVisible |  |  | Y | BIT (1) |
| 5 | IsDeleted |  |  | Y | BIT (1) |
| 6 | CreatedAt |  |  |  | Datetime (23,3) |
| 7 | UpdatedAt |  |  |  | Datetime (23,3) |
| 8 | DeletedAt |  |  |  | Datetime (23,3) |
| 9 | IsActive |  |  | Y | BIT (1) |

|  |  |
| --- | --- |
| Table Name | RolePrivilege |
| Description | Contains the information for each role and its associated privileges |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | GroupID |  |  | Y | Integer (10) |
| 3 | PrivilegeID |  |  | Y | Integer (10) |
| 4 | CreatedAt |  |  |  | Datetime (23,3) |
| 5 | UpdatedAt |  |  |  | Datetime (23,3) |

|  |  |
| --- | --- |
| Table Name | SignatureLocation |
| Description | Contains information regarding signatures which are done through the GeoAttendance mobile application |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | SignatureID |  |  | Y | Integer (10) |
| 3 | Latitude |  |  |  | FLOAT (53) |
| 4 | Longitude |  |  |  | FLOAT (53) |
| 5 | EmployeeNumber |  |  |  | Integer (10) |
| 6 | WorkingLocationID |  |  |  | Integer (10) |
| 7 | SignatureDateTime |  |  |  | Datetime (23,3) |
| 8 | Mode |  |  |  | Integer (10) |
| 9 | IsInsideWorkingLocation |  |  |  | BIT (1) |
| 10 | Description |  |  |  | NVARCHAR (-1) |
| 11 | X |  |  |  | FLOAT (53) |
| 12 | Y |  |  |  | FLOAT (53) |
| 13 | Type |  |  |  | NVARCHAR (50) |
| 14 | Accuracy |  |  |  | FLOAT (53) |
| 15 | Altitude |  |  |  | FLOAT (53) |
| 16 | AltitudeAccuracy |  |  |  | FLOAT (53) |
| 17 | IsAccepted |  |  |  | BIT (1) |

|  |  |
| --- | --- |
| Table Name | SignaturePhoto |
| Description | Contains the photo taken by an employee when signing in or signing out through the Geoattendance mobile application |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | SignatureID |  |  | Y | Integer (10) |
| 3 | EmployeeID |  |  | Y | Integer (10) |
| 4 | FileBytes |  |  | Y | VARBINARY (-1) |
| 5 | SignaturePhotoDateTime |  |  | Y | Datetime (23,3) |
| 6 | FileName |  |  | Y | NVARCHAR (50) |
| 7 | Extension |  |  | Y | NVARCHAR (30) |

|  |  |
| --- | --- |
| Table Name | SignatureReason |
| Description | A lookup table for the signature reasons that are displayed in the map dashboard |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) |
| 2 | ArabicName |  |  | Y | NVARCHAR (100) |
| 3 | EnglishName |  |  | Y | NVARCHAR (100) |
| 4 | DeletedAt |  |  |  | Datetime (23,3) |

|  |  |
| --- | --- |
| Table Name | User |
| Description | Contains information regarding the users allowed to use the attendance system |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | UserName |  |  | Y | NVARCHAR (100) |
| 3 | Password |  |  | Y | NVARCHAR (50) |
| 4 | EmployeeID |  |  | Y | Integer (10) |
| 5 | LastSeenAt |  |  |  | Datetime (23,3) |
| 6 | RoleID |  |  | Y | Integer (10) |
| 7 | CreatedAt |  |  |  | Datetime (23,3) |
| 8 | UpdatedAt |  |  |  | Datetime (23,3) |
| 9 | DeletedAt |  |  |  | Datetime (23,3) |
| 10 | IsDeleted |  |  | Y | BIT (1) |
| 11 | IsActive |  |  | Y | BIT (1) |

Foreign Keys (referred from)

| Name | Referred From | Mandatory | Columns | Referred Columns |
| --- | --- | --- | --- | --- |
| FK\_AuditTrail\_User | AuditTrail | Y | ChangedBy | ID |

|  |  |
| --- | --- |
| Table Name | WorkingTeamSignature |
| Description | Contains information regarding working teams signatures which are done through the GeoAttendance mobile application |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | EmployeeNumber |  |  | Y | Integer (10) |
| 3 | SignatureDateTime |  |  | Y | Datetime (23,3) |
| 4 | DeviceID |  |  |  | Integer (10) |
| 5 | Mode |  |  |  | Integer (10) |
| 6 | CreateAt |  |  | Y | Datetime (23,3) |
| 7 | UpdatedAt |  |  |  | Datetime (23,3) |
| 8 | DeletedAt |  |  |  | Datetime (23,3) |
| 9 | ParentSignatureId |  |  | Y | Integer (10) |

|  |  |
| --- | --- |
| Table Name | WorkingTimeInfo |
| Description | Contains information regarding the created work times in the system, the results in this table are dervied from worktimes table |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) |
| 2 | Name |  |  |  | NVARCHAR (500) |
| 3 | DutyStartTime |  |  |  | FLOAT (53) |
| 4 | DutyEndTime |  |  |  | FLOAT (53) |
| 5 | DutyEarlyStartTime |  |  |  | FLOAT (53) |
| 6 | DutyLateEndTime |  |  |  | FLOAT (53) |
| 7 | LateInMinutes |  |  |  | Integer (10) |
| 8 | EarlyOutMinutes |  |  |  | Integer (10) |
| 9 | WorkingDays |  |  |  | Integer (10) |
| 10 | IsRecurring |  |  |  | BIT (1) |
| 11 | RecurringDays |  |  |  | Integer (10) |
| 12 | RecurringStartDate |  |  |  | Date (10) |
| 13 | RecurringOffsetDays |  |  |  | Integer (10) |
| 14 | IsDutyEndNextDay |  |  |  | BIT (1) |
| 15 | IsNoVacation |  |  |  | BIT (1) |
| 16 | ParentWorkTimeID |  |  |  | Integer (10) |
| 17 | ParentFromDate |  |  |  | Date (10) |
| 18 | ParentToDate |  |  |  | Date (10) |

|  |  |
| --- | --- |
| Table Name | Allowance\_reasons |
| Description | A lookup table the contains the allowances reasons used when creating an allowance |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | Conflict\_With\_Permission |  |  | Y | BIT (1) |
| 4 | Contact\_ID |  |  | Y | Integer (10) |
| 5 | Created\_At |  |  | Y | Datetime (23,3) |
| 6 | Updated\_At |  |  | Y | Datetime (23,3) |
| 7 | Deleted\_At |  |  |  | Datetime (23,3) |
| 8 | Is\_leave |  |  |  | BIT (1) |

|  |  |
| --- | --- |
| Table Name | Allowance\_types |
| Description | A lookup table that contains the allowances types used when creating an allowance |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | name |  |  | Y | NVARCHAR (255) |
| 3 | Punch\_In |  |  | Y | BIT (1) |
| 4 | Punch\_Out |  |  | Y | BIT (1) |
| 5 | Created\_At |  |  |  | Datetime (23,3) |
| 6 | Updated\_At |  |  |  | Datetime (23,3) |
| 7 | Deleted\_At |  |  |  | NCHAR (10) |

|  |  |
| --- | --- |
| Table Name | Allowances |
| Description | Contains allowances that are assigned to an employee, the allowances are either manually created or imported from the portal. |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | Employee\_ID |  |  | Y | Integer (10) |
| 3 | Allowance\_Type\_ID |  |  | Y | Integer (10) |
| 4 | From\_Date |  |  | Y | Date (10) |
| 5 | To\_Date |  |  | Y | Date (10) |
| 6 | Notes |  |  |  | NTEXT (16) |
| 7 | Created\_At |  |  |  | Datetime (23,3) |
| 8 | Updated\_At |  |  |  | Datetime (23,3) |
| 9 | Deleted\_At |  |  |  | Datetime (23,3) |
| 10 | Late\_in |  |  | Y | Integer (10) |
| 11 | Late\_out |  |  | Y | Integer (10) |
| 12 | PAI\_ID |  |  |  | Integer (10) |
| 13 | Allowance\_Reason\_ID |  |  | Y | Integer (10) |

Foreign Keys (referred from)

| Name | Referred From | Mandatory | Columns | Referred Columns |
| --- | --- | --- | --- | --- |
| FK\_AllowanceAttachment\_allowances | AllowanceAttachment | Y | AllowanceID | ID |

|  |  |
| --- | --- |
| Table Name | Attend\_log |
| Description | Contains the daily result of employee attendance calculation and their attendance status during the day |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | Fingerprint\_ID |  |  | Y | Integer (10) |
| 3 | Date |  |  | Y | Date (10) |
| 4 | Punch\_In |  |  | Y | NVARCHAR (8) |
| 5 | Punch\_Out |  |  | Y | NVARCHAR (8) |
| 6 | Late\_In |  |  | Y | Integer (10) |
| 7 | Late\_Out |  |  | Y | Integer (10) |
| 8 | Overtime |  |  | Y | Integer (10) |
| 9 | Overtime\_In |  |  |  | NVARCHAR (8) |
| 10 | Overtime\_Out |  |  |  | NVARCHAR (8) |
| 11 | Status |  |  | Y | NVARCHAR (255) |
| 12 | Status\_Name |  |  | Y | NVARCHAR (255) |
| 13 | Leave\_ID |  |  | Y | Integer (10) |
| 14 | Perm\_ID |  |  | Y | Integer (10) |
| 15 | Duty\_ID |  |  | Y | Integer (10) |
| 16 | Allowance\_ID |  |  | Y | Integer (10) |
| 17 | Allowance\_Id2 |  |  | Y | Integer (10) |
| 18 | Shift\_Start |  |  | Y | NVARCHAR (8) |
| 19 | Shift\_End |  |  | Y | NVARCHAR (8) |
| 20 | Worktime\_ID |  |  | Y | Integer (10) |
| 21 | Is\_Weekend |  |  | Y | BIT (1) |
| 22 | Is\_Holiday |  |  | Y | BIT (1) |
| 23 | Saturday |  |  | Y | BIT (1) |
| 24 | Friday |  |  | Y | BIT (1) |
| 25 | Created\_At |  |  | Y | Date (10) |
| 26 | Updated\_At |  |  | Y | Date (10) |
| 27 | Shift\_Name |  |  |  | NVARCHAR (255) |
| 28 | Punch\_Out\_Date |  |  |  | Date (10) |
| 29 | Shift\_End\_Date |  |  |  | Date (10) |
| 30 | Is\_Nawbat |  |  | Y | BIT (1) |
| 31 | Badl\_Legan\_In |  |  | Y | NVARCHAR (8) |
| 32 | Badl\_Legan\_Out |  |  | Y | NVARCHAR (8) |
| 33 | Deleted\_At |  |  |  | Date (10) |

|  |  |
| --- | --- |
| Table Name | Attend\_log\_Queue |
| Description | Contains a queue of attendance actions done on an employee in order for the attendance calculation to run through them. |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | ID | P |  | Y | Integer (10) - AI - ID |
| 2 | Source |  |  | Y | NVARCHAR (255) |
| 3 | Emp\_Id |  |  | Y | Integer (10) |
| 4 | From\_Date |  |  | Y | Date (10) |
| 5 | From\_Date |  |  | Y | Date (10) |
| 6 | Created\_At |  |  | Y | Date (10) |

|  |  |
| --- | --- |
| Table Name | Contracts |
| Description | A lookup table that conatins the contracts defined in the system to be used when creating an employee |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id |  |  | Y | Integer (10) |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | Pai\_Code |  |  | Y | Integer (10) |
| 4 | PAI\_ID |  |  | Y | Integer (10) |
| 5 | Created\_At |  |  | Y | Datetime (23,3) |
| 6 | Updated\_At |  |  | Y | Datetime (23,3) |
| 7 | Deleted\_At |  |  |  | Datetime (23,3) |

|  |  |
| --- | --- |
| Table Name | Departments |
| Description | Contains the names of the departments defined in the system, the data is imported from the portal |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | Manager\_ID |  |  | Y | Integer (10) |
| 4 | Parent\_ID |  |  | Y | Integer (10) |
| 5 | Created\_At |  |  |  | Datetime (23,3) |
| 6 | Updated\_At |  |  |  | Datetime (23,3) |
| 7 | Deleted\_At |  |  |  | Datetime (23,3) |
| 8 | PAI\_ID |  |  | Y | Integer (10) |
| 9 | Full\_Path |  |  |  | CLOB (-1) |
| 10 | Manager\_Id2 |  |  | Y | Integer (10) |
| 11 | Manager\_Id3 |  |  | Y | Integer (10) |
| 12 | Manager\_Id4 |  |  | Y | Integer (10) |
| 13 | Manager\_Id5 |  |  | Y | Integer (10) |
| 14 | Manager\_Id6 |  |  | Y | Integer (10) |
| 15 | Manager\_Id7 |  |  | Y | Integer (10) |
| 16 | Manager\_Id8 |  |  | Y | Integer (10) |
| 17 | Manager\_Id9 |  |  | Y | Integer (10) |
| 18 | Manager\_Id10 |  |  | Y | Integer (10) |
| 19 | Manager\_Id11 |  |  |  | Integer (10) |
| 20 | Manager\_Id12 |  |  |  | Integer (10) |
| 21 | Manager\_Id13 |  |  |  | Integer (10) |
| 22 | Manager\_Id14 |  |  |  | Integer (10) |
| 23 | Manager\_Id15 |  |  |  | Integer (10) |
| 24 | Manager\_Id16 |  |  |  | Integer (10) |
| 25 | Manager\_Id17 |  |  |  | Integer (10) |
| 26 | Manager\_Id18 |  |  |  | Integer (10) |
| 27 | Manager\_Id19 |  |  |  | Integer (10) |
| 28 | Manager\_Id20 |  |  |  | Integer (10) |

|  |  |
| --- | --- |
| Table Name | Duties |
| Description | Contains the official duties that are assigned to an employee, the official duties are imported from the portal |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Employee\_ID |  |  | Y | Integer (10) |
| 3 | Duty\_Type\_ID |  |  | Y | Integer (10) |
| 4 | From\_Date |  |  | Y | Date (10) |
| 5 | To\_Date |  |  | Y | Date (10) |
| 6 | Notes |  |  |  | NTEXT (16) |
| 7 | Created\_At |  |  |  | Datetime (23,3) |
| 8 | Updated\_At |  |  |  | Datetime (23,3) |
| 9 | Deleted\_At |  |  |  | Datetime (23,3) |
| 10 | PAI\_ID |  |  | Y | BIGINT (19) |

|  |  |
| --- | --- |
| Table Name | Duty\_types |
| Description | A lookup table that contains the offical duty types used when creating an official duty |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | Description |  |  |  | NTEXT (16) |
| 4 | Must\_Punch |  |  | Y | BIT (1) |
| 5 | Created\_At |  |  |  | Datetime (23,3) |
| 6 | Updated\_At |  |  |  | Datetime (23,3) |
| 7 | Deleted\_At |  |  |  | Datetime (23,3) |

|  |  |
| --- | --- |
| Table Name | Employee\_worktimes |
| Description | Contains the worktimes assigned to an employee and the period of assignment |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Employee\_ID |  |  | Y | Integer (10) |
| 3 | Worktime\_ID |  |  | Y | Integer (10) |
| 4 | From\_Date |  |  | Y | Date (10) |
| 5 | To\_Date |  |  |  | Date (10) |
| 6 | Created\_At |  |  |  | Datetime (23,3) |
| 7 | Updated\_At |  |  |  | Datetime (23,3) |
| 8 | Deleted\_At |  |  |  | Datetime (23,3) |

|  |  |
| --- | --- |
| Table Name | Employees |
| Description | Contains the details of an employee |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | First\_Name\_Ar |  |  | Y | NVARCHAR (-1) |
| 3 | Second\_Name\_Ar |  |  | Y | NVARCHAR (255) |
| 4 | Third\_Name\_Ar |  |  | Y | NVARCHAR (255) |
| 5 | Fourth\_Name\_Ar |  |  | Y | NVARCHAR (255) |
| 6 | First\_Name\_En |  |  | Y | NVARCHAR (-1) |
| 7 | Second\_Name\_En |  |  | Y | NVARCHAR (255) |
| 8 | Third\_Name\_En |  |  | Y | NVARCHAR (255) |
| 9 | Fourth\_Name\_En |  |  | Y | NVARCHAR (255) |
| 10 | Gender |  |  |  | Integer (10) |
| 11 | Civil\_ID |  |  |  | VARCHAR (50) |
| 12 | Civil\_Expire\_Date |  |  |  | Date (10) |
| 13 | Country\_ID |  |  |  | NVARCHAR (250) |
| 14 | Birthdate |  |  |  | Date (10) |
| 15 | Region |  |  |  | NVARCHAR (250) |
| 16 | City |  |  |  | Integer (10) |
| 17 | Building\_Number |  |  |  | VARCHAR (50) |
| 18 | Street |  |  |  | TEXT (16) |
| 19 | Residency\_ID |  |  |  | VARCHAR (50) |
| 20 | Email |  |  |  | CLOB (-1) |
| 21 | Phone |  |  |  | VARCHAR (50) |
| 22 | Education\_Level\_ID |  |  |  | Integer (10) |
| 23 | Department\_ID |  |  | Y | Integer (10) |
| 24 | Marital\_Status\_ID |  |  | Y | Integer (10) |
| 25 | Fingerprint\_ID |  |  |  | Integer (10) |
| 26 | Bank\_ID |  |  | Y | Integer (10) |
| 27 | Bank\_Account |  |  |  | VARCHAR (50) |
| 28 | Children\_Count |  |  |  | Integer (10) |
| 29 | Passport\_Num |  |  |  | VARCHAR (50) |
| 30 | Passport\_Expire\_Date |  |  |  | Date (10) |
| 31 | Passport\_Type\_ID |  |  |  | Integer (10) |
| 32 | Passport\_Issue\_Date |  |  |  | Date (10) |
| 33 | First\_Enter\_Date |  |  |  | Date (10) |
| 34 | Job\_ID |  |  |  | Integer (10) |
| 35 | Job\_ID\_Contract |  |  |  | Integer (10) |
| 36 | End\_Date |  |  |  | Date (10) |
| 37 | Salary |  |  |  | MONEY (19,4) |
| 38 | Salary\_Contract |  |  |  | MONEY (19,4) |
| 39 | Overtime\_Policy\_ID |  |  |  | Integer (10) |
| 40 | Created\_At |  |  |  | Datetime (23,3) |
| 41 | Updated\_At |  |  |  | Datetime (23,3) |
| 42 | Deleted\_At |  |  |  | Datetime (23,3) |
| 43 | PAI\_ID |  |  |  | Integer (10) |
| 44 | Is\_Bawaba |  |  | Y | Integer (10) |
| 45 | Is\_Supervisor |  |  | Y | Integer (10) |
| 46 | Contract\_ID |  |  | Y | Integer (10) |
| 47 | Location\_ID |  |  | Y | Integer (10) |

Foreign Keys (referred from)

| Name | Referred From | Mandatory | Columns | Referred Columns |
| --- | --- | --- | --- | --- |
| FK\_ErrorLog\_employees | ErrorLog |  | EmployeeID | ID |

|  |  |
| --- | --- |
| Table Name | Jobs |
| Description | Contains job titles that are used when creating an employee |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  |  | NVARCHAR (255) |
| 3 | Created\_At |  |  |  | Datetime (23,3) |
| 4 | Updated\_At |  |  |  | Datetime (23,3) |
| 5 | Deleted\_At |  |  |  | Datetime (23,3) |
| 6 | PAI\_ID |  |  | Y | Integer (10) |

|  |  |
| --- | --- |
| Table Name | Leave\_types |
| Description | A lookup table that contains the leave types used when creating a leave |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | Credit\_Per\_Year |  |  | Y | Integer (10) |
| 4 | Is\_Paid |  |  |  | BIT (1) |
| 5 | Credit\_Transferable |  |  |  | BIT (1) |
| 6 | Max\_Connected\_Days |  |  |  | Integer (10) |
| 7 | Created\_At |  |  |  | Datetime (23,3) |
| 8 | Updated\_At |  |  |  | Datetime (23,3) |
| 9 | Deleted\_At |  |  |  | Datetime (23,3) |
| 10 | PAI\_ID |  |  | Y | Integer (10) |

|  |  |
| --- | --- |
| Table Name | Leaves |
| Description | Contains the leaves assigned to an employee during a period, the leaves are either created manually or imported from the portal |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Employee\_ID |  |  | Y | Integer (10) |
| 3 | From\_Date |  |  | Y | Date (10) |
| 4 | To\_Date |  |  | Y | Date (10) |
| 5 | Notes |  |  |  | NTEXT (16) |
| 6 | Leave\_Type\_ID |  |  | Y | Integer (10) |
| 7 | Created\_At |  |  |  | Datetime (23,3) |
| 8 | Updated\_At |  |  |  | Datetime (23,3) |
| 9 | Deleted\_At |  |  |  | Datetime (23,3) |
| 10 | PAI\_ID |  |  | Y | Integer (10) |

|  |  |
| --- | --- |
| Table Name | Permission\_types |
| Description | A lookup table that contains the permission types used when creating a permission |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | Times\_Per\_Month |  |  | Y | Integer (10) |
| 4 | Duration |  |  | Y | Integer (10) |
| 5 | Add\_2\_Late |  |  | Y | BIT (1) |
| 6 | Created\_At |  |  |  | Datetime (23,3) |
| 7 | Updated\_At |  |  |  | Datetime (23,3) |
| 8 | Deleted\_At |  |  |  | Datetime (23,3) |
| 9 | PAI\_ID |  |  |  | Integer (10) |

|  |  |
| --- | --- |
| Table Name | Permissions |
| Description | Contains the permissions assigned to an employee, these permissions are imported from the portal. |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Employee\_ID |  |  | Y | Integer (10) |
| 3 | Permission\_Type\_ID |  |  | Y | Integer (10) |
| 4 | Date |  |  | Y | Date (10) |
| 5 | Time\_From |  |  | Y | VARCHAR (8) |
| 6 | Time\_To |  |  | Y | VARCHAR (8) |
| 7 | Notes |  |  |  | TEXT (16) |
| 8 | Permission\_Time |  |  | Y | TINYINT (3) |
| 9 | Created\_At |  |  |  | Datetime (23,3) |
| 10 | Updated\_At |  |  |  | Datetime (23,3) |
| 11 | Deleted\_At |  |  |  | Datetime (23,3) |
| 12 | PAI\_ID |  |  | Y | BIGINT (19) |

|  |  |
| --- | --- |
| Table Name | Signatures |
| Description | Contains all employees sign in and sign out operations done across the fingerprint devices, GeoAttendance mobile or added manually through the attendance administration system |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Fingerprint\_Id |  |  | Y | Integer (10) |
| 3 | Date |  |  | Y | Date (10) |
| 4 | Time |  |  |  | CHAR (8) |
| 5 | Device\_Id |  |  |  | Integer (10) |
| 6 | Matching\_Type |  |  |  | Integer (10) |
| 7 | Result |  |  | Y | BIT (1) |
| 8 | Mode |  |  |  | Integer (10) |
| 9 | Created\_At |  |  |  | Datetime (23,3) |
| 10 | Updated\_At |  |  |  | Datetime (23,3) |
| 11 | Deleted\_At |  |  |  | Datetime (23,3) |
| 12 | PAI\_ID |  |  | Y | Integer (10) |
| 13 | Source |  |  | Y | Integer (10) |
| 14 | Source\_Id |  |  | Y | Integer (10) |

|  |  |
| --- | --- |
| Table Name | Terminal\_locations |
| Description | Contains the name of working locations in which a fingerprint device is installed |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | PAI\_ID |  |  | Y | Integer (10) |
| 4 | Created\_At |  |  | Y | Datetime (23,3) |
| 5 | Updated\_At |  |  | Y | Datetime (23,3) |
| 6 | Deleted\_At |  |  |  | Datetime (23,3) |

|  |  |
| --- | --- |
| Table Name | Terminals |
| Description | Contains information regarding the fingerprint devices which are used for signing in and signing out |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | Ip |  |  |  | NVARCHAR (255) |
| 4 | Created\_At |  |  |  | Datetime (23,3) |
| 5 | Updated\_At |  |  |  | Datetime (23,3) |
| 6 | Deleted\_At |  |  |  | Datetime (23,3) |
| 7 | Terminal\_ID |  |  | Y | Integer (10) |
| 8 | Type |  |  | Y | Integer (10) |
| 9 | Badl\_Legan |  |  | Y | BIT (1) |
| 10 | Location\_ID |  |  | Y | Integer (10) |

|  |  |
| --- | --- |
| Table Name | Vacations |
| Description | Contains information regarding the public holidays as defined by government of Kuwait |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | Day |  |  | Y | Integer (10) |
| 4 | Month |  |  | Y | Integer (10) |
| 5 | Year |  |  |  | Integer (10) |
| 6 | Is\_Annual |  |  | Y | BIT (1) |
| 7 | Created\_At |  |  |  | Datetime (23,3) |
| 8 | Updated\_At |  |  |  | Datetime (23,3) |
| 9 | Deleted\_At |  |  |  | Datetime (23,3) |
| 10 | Select\_By |  |  | Y | NVARCHAR (50) |
| 11 | Select\_Emps |  |  | Y | NVARCHAR (-1) |
| 12 | Select\_Dep |  |  | Y | Integer (10) |
| 13 | Select\_Job |  |  | Y | Integer (10) |
| 14 | Select\_Dawam |  |  | Y | Integer (10) |
| 15 | Like\_Satrday |  |  |  | BIT (1) |

|  |  |
| --- | --- |
| Table Name | Worktimes |
| Description | Contains information regarding the created work times in the system |

Columns

| No | Column Name | PK | FK | M | Data Type |
| --- | --- | --- | --- | --- | --- |
| 1 | Id | P |  | Y | Integer (10) - AI - ID |
| 2 | Name |  |  | Y | NVARCHAR (255) |
| 3 | Type |  |  |  | Integer (10) |
| 4 | Exception\_To |  |  | Y | Integer (10) |
| 5 | From\_Date |  |  |  | Date (10) |
| 6 | To\_Date |  |  |  | Date (10) |
| 7 | Sat |  |  |  | NTEXT (16) |
| 8 | Sun |  |  |  | NTEXT (16) |
| 9 | Mon |  |  |  | NTEXT (16) |
| 10 | Tues |  |  |  | NTEXT (16) |
| 11 | Wednes |  |  |  | NTEXT (16) |
| 12 | Thurs |  |  |  | NTEXT (16) |
| 13 | Fri |  |  |  | NTEXT (16) |
| 14 | Created\_At |  |  |  | Datetime (23,3) |
| 15 | Updated\_At |  |  |  | Datetime (23,3) |
| 16 | Deleted\_At |  |  |  | Datetime (23,3) |
| 17 | Recurrence\_Days |  |  | Y | Integer (10) |
| 18 | Nawba\_Start\_Date |  |  |  | Date (10) |
| 19 | No\_Vacations |  |  | Y | BIT (1) |

## Registration

## Role

## Privilege

## Department

## Department's

## WorkingLocation

## Dashboard

## Permission

## Official Duty

## Jobs,Assignments

## Contract

## Admin Reports

## Audit Trail

## Admin Dashboard