# Physical Data Design for Licensing Self-Certification Portal

## Introduction

This document provides a comprehensive description of the physical data structure and process design for the Licensing Self-Certification Portal (LSCP) Project. It serves as a blueprint for implementing the LSCP database, ensuring a robust and efficient data management system.

The document details the relationships between key business entities within the LSCP, including a diagrammatic representation and comprehensive descriptions of each entity, its attributes, and data types. It also explains data relationships, highlighting primary keys, foreign keys, and constraints.

## Objectives

The objectives of the LSCP are to:

1. Provide user-friendly and meaningful messages to users.
2. Store all electronic and paper submissions from applicants and authorized persons (AP)/registered structural engineers (RSE) for safety certificates and related applications.
3. Provide a Buildings Department (BD) departmental portal login for internal users, with User ID and password as an alternative.
4. Support the latest web browsers.
5. Comply with the standards of the Government System Architecture and government IT security policy.

## Physical Data Structure Specification

This section outlines the data model and its descriptions.

### Physical Data Structure

The Entity-Relationship Diagram (ERD) illustrates the relationships between entities.

(Diagram of the ERD would be inserted here if available)

There are 7 categories of entities in the data model design:

* (GCIS) Frontend - Application Forms submission
* (GCIS) Frontend - OTP login control
* Backend - Users
* Backend - Workflow of Application Forms submission

### (GCIS) Frontend - Application Forms Submission

(Diagram 3.1-1 would be inserted here if available)

### (GCIS) Frontend - OTP Login Control

(Diagram 3.1-2 would be inserted here if available)

### (BD) Backend - TBC

(Diagram 3.1-3 would be inserted here if available)

## Database Selection

Microsoft SQL Server 2019 is selected as the database management system (DBMS) for LSCP. All spatial and textual entities will be stored in this database.

## Data Entity Description

This section details the conversion rules, assumptions, physical data table names, corresponding system entities, and key details stored in the database.

### Conversion Rules and Assumptions

* **Data Types:** Data types are chosen based on the nature of the data and the capabilities of SQL Server 2019.
* **Naming Conventions:** Table and column names follow a consistent naming convention (e.g., PascalCase for table names, camelCase for column names in the backend, and snake\_case for column names in the frontend).
* **Relationships:** Relationships between tables are enforced using primary and foreign keys.
* **Constraints:** Constraints are used to ensure data integrity and validity.

### Table Mapping

#### LSCP Frontend

| Table ID | LSCP Name | LSCP Entity Description | Key Nature | Key Data Item | N/A | :------- | :----------------- | :-------------------------------------------------------------------------- | :--------- | :--------------------------- | N/A |---|---|---|---|---| N/A | T-S-01 | ApplicationCases | Table to store all the application number | PK | Id | N/A | | N/A | | N/A | ApplicationNo | N/A |---|---|---|---|---| N/A | T-S-02 | SchoolApp\_Infos | Table to store the latest update of the submitted application data as 1 row | PK | Id | N/A | | N/A | | N/A | ApplicationNo | N/A |---|---|---|---|---| N/A | T-S-03 | SchoolApp\_Submissions | Table to store the submission of each application | PK | Id | N/A | | N/A | | N/A | ApplicationNo | N/A | | N/A | | N/A | SubmissionId | N/A |---|---|---|---|---| N/A | T-S-04 | ApplicationFiles | Table to store all the path of applicant upload files | PK | Id | N/A | | N/A | | N/A | ApplicationNo | N/A | | N/A | | N/A | SubmissionId | N/A |---|---|---|---|---| N/A | T-S-05 | LSCPMasterTable | Table to store meta-data or parameter data for frontend | PK | Id | N/A | | N/A | | N/A | Code | N/A | | N/A | | N/A | Type + Code | N/A |---|---|---|---|---| N/A | T-S-06 | GenOtp | Table to store generated OTP code and the usage status | PK | Id | N/A | | N/A | | N/A | ApplicationNo + userId + Otp | N/A |---|---|---|---|---| N/A | T-S-07 | AdrBlk | Table to store addresses that import from BCIS | PK | ADR\_BLK\_ID | N/A |---|---|---|---|---| N/A | T-S-08 | SYS\_META\_DATA | Table to store meta data that import from BCIS | PK | SYS\_META\_DATA\_ID | N/A | | N/A | | N/A | REC\_TYPE | N/A | | N/A | | N/A | CODE | N/A |---|---|---|---|---| N/A | T-S-09 | Aprse | Table to store AP / RSE information that import from MWMS 2.0 | PK | Id | N/A | | N/A | | N/A | Name + RegistrationNumber | N/A |---|---|---|---|---|

#### LSCP Backend

| Table ID | LSCP Name | LSCP Entity Description | Key Nature | Key Data Item | N/A | :------- | :----------------- | :-------------------------------------------------------------------------- | :--------- | :----------------| N/A |---|---|---|---|---| N/A | T-S-01 | ApplicationCases | Table to store all the application number | PK | Id | N/A | | N/A | | N/A | ApplicationNo | N/A |---|---|---|---|---| N/A | T-S-02 | SchoolApp\_Infos | Table to store the latest update of the submitted application data as 1 row | PK | Id | N/A | | N/A | | N/A | ApplicationNo | N/A |---|---|---|---|---| N/A | T-S-03 | SchoolApp\_Submissions | Table to store the submission of each application | PK | Id | N/A | | N/A | | N/A | ApplicationNo | N/A | | N/A | | N/A | SubmissionId | N/A |---|---|---|---|---| N/A | T-S-04 | ApplicationFiles | Table to store all the path of applicant upload files | PK | Id | N/A | | N/A | | N/A | ApplicationNo | N/A | | N/A | | N/A | SubmissionId | N/A |---|---|---|---|---| N/A | T-S-05 | LSCPMasterTable | Table to store meta-data or parameter data for frontend | PK | Id | N/A | | N/A | | N/A | Code | N/A | | N/A | | N/A | Type + Code | N/A |---|---|---|---|---| N/A | T-S-06 | SYS\_META\_DATA | Table to store meta data that import from BCIS | PK | SYS\_META\_DATA\_ID | N/A | | N/A | | N/A | REC\_TYPE | N/A | | N/A | | N/A | CODE | N/A |---|---|---|---|---| N/A | T-S-07 | AdrBlkFileRef | Table to store address block file references | PK | adrBlkFileRefId | N/A | | N/A | | N/A | adrBlkId | N/A | | N/A | | N/A | sysFileRefId | N/A |---|---|---|---|---| N/A | T-S-08 | SysFileRef | Table to store system file references | PK | sysFileRefId | N/A |---|---|---|---|---| N/A | T-S-09 | User | Table to store user information | PK | \_id (MongoDB) | N/A |---|---|---|---|---| N/A | T-S-10 | Task | Table to store task information | PK | \_id (MongoDB) | N/A |---|---|---|---|---| N/A | T-S-11 | Case | Table to store case information | PK | \_id (MongoDB) | N/A |---|---|---|---|---| N/A | T-S-12 | Eminute | Table to store e-minute information | PK | \_id (MongoDB) | N/A |---|---|---|---|---| N/A | T-S-13 | OAuthToken | Table to store OAuth tokens | PK | \_id (MongoDB) | N/A |---|---|---|---|---| N/A | T-S-14 | Notification | Table to store notification information | PK | \_id (MongoDB) | N/A |---|---|---|---|---| N/A | T-S-15 | BsBlock | Table to store building survey block information | PK | \_id (MongoDB) | N/A |---|---|---|---|---|

### Data Dictionary (MongoDB)

This section provides a detailed description of each collection in the MongoDB database, including statistics and field analysis.

#### Database Statistics

* Database Size: 88.10 MB
* Collections: 12
* Total Documents: 1278983
* Total Data Size: 371.24 MB

#### Collections Overview

| Collection | Document Count | Size (MB) | N/A | :---------------- | :------------- | :-------- | N/A |---|---|---| N/A | tasks | 5523 | 0.99 | N/A |---|---|---| N/A | eminutes | 133 | 0.03 | N/A |---|---|---| N/A | submissions | 0 | 0.00 | N/A |---|---|---| N/A | applications | 381 | 0.36 | N/A |---|---|---| N/A | notifications | 1837 | 0.24 | N/A |---|---|---| N/A | bsblocks | 98397 | 6.40 | N/A |---|---|---| N/A | cases | 451 | 1.17 | N/A |---|---|---| N/A | oauthtokens | 3019 | 2.29 | N/A |---|---|---| N/A | sysfilerefs | 601808 | 204.70 | N/A |---|---|---| N/A | attachments | 370 | 0.13 | N/A |---|---|---| N/A | users | 116 | 0.04 | N/A |---|---|---| N/A | adrblkfilerefs | 566948 | 154.89 | N/A |---|---|---|

#### Collection: tasks

* Document Count: 5523
* Size: 0.99 MB
* Average Document Size: 0.18 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :----------- | :---------------- | :---------- | N/A |---|---|---| N/A | \_\_v | objectId, int | 1000 | N/A |---|---|---| N/A | \_id | objectId | 1000 | N/A |---|---|---| N/A | application | objectId | 998 | N/A |---|---|---| N/A | createdAt | date | 1000 | N/A |---|---|---| N/A | status | string | 1000 | N/A |---|---|---| N/A | submissionCase | objectId | 998 | N/A |---|---|---| N/A | taskType | string | 998 | N/A |---|---|---| N/A | team | string | 835 | N/A |---|---|---| N/A | user | string, objectId | 713 | N/A |---|---|---|

#### Collection: eminutes

* Document Count: 133
* Size: 0.03 MB
* Average Document Size: 0.24 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :------------- | :---------------- | :---------- | N/A |---|---|---| N/A | \_\_v | int | 133 | N/A |---|---|---| N/A | \_id | objectId | 133 | N/A |---|---|---| N/A | comment | string | 64 | N/A |---|---|---| N/A | content | string | 133 | N/A |---|---|---| N/A | createdAt | date | 133 | N/A |---|---|---| N/A | efolio | string | 100 | N/A |---|---|---| N/A | eminuteId | string | 133 | N/A |---|---|---| N/A | from | objectId, string | 133 | N/A |---|---|---| N/A | status | string | 133 | N/A |---|---|---| N/A | subject | string | 133 | N/A |---|---|---| N/A | submissionCase | objectId | 133 | N/A |---|---|---| N/A | sysFileRefId | string | 65 | N/A |---|---|---| N/A | to | objectId, string | 129 | N/A |---|---|---|

#### Collection: submissions

* Document Count: 0
* Size: 0.00 MB
* Average Document Size: 0.00 KB

##### Field Analysis

(No fields to analyze as the collection is empty)

#### Collection: applications

* Document Count: 381
* Size: 0.36 MB
* Average Document Size: 0.96 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :----------------------- | :------------------------ | :---------- | N/A |---|---|---| N/A | APP13 | object, array | 172 | N/A |---|---|---| N/A | AddressOfPremiseCN | string | 267 | N/A |---|---|---| N/A | AddressOfPremiseCNFloor | string | 147 | N/A |---|---|---| N/A | AddressOfPremiseCNUnit | string | 147 | N/A |---|---|---| N/A | AddressOfPremiseEN | string | 271 | N/A |---|---|---| N/A | AddressOfPremiseENFloor | string | 155 | N/A |---|---|---| N/A | AddressOfPremiseENUnit | string | 154 | N/A |---|---|---| N/A | AgeOfStudent | null, string | 328 | N/A |---|---|---| N/A | ApplicantAddress | string | 335 | N/A |---|---|---| N/A | ApplicantEmail | string | 289 | N/A |---|---|---| N/A | ApplicantFax | string | 21 | N/A |---|---|---| N/A | ApplicantMobile | string | 288 | N/A |---|---|---| N/A | ApplicantName | string | 189 | N/A |---|---|---| N/A | ApplicantNameCN | string | 28 | N/A |---|---|---| N/A | ApplicantNameEN | null, string | 148 | N/A |---|---|---| N/A | ApplicantTel | null, string | 307 | N/A |---|---|---| N/A | ApplicationNo | null, string | 381 | N/A |---|---|---| N/A | ApplicationType | string | 356 | N/A |---|---|---| N/A | Area | string | 28 | N/A |---|---|---| N/A | BlockID | string | 178 | N/A |---|---|---| N/A | ContactPerson | string | 95 | N/A |---|---|---| N/A | ContactPersonCN | string | 6 | N/A |---|---|---| N/A | ContactPersonEN | string | 6 | N/A |---|---|---| N/A | ContactPersonEmail | string | 6 | N/A |---|---|---| N/A | ContactPersonTel | string | 6 | N/A |---|---|---| N/A | DescriptionOfSchool | string, null | 329 | N/A |---|---|---| N/A | District | string | 33 | N/A |---|---|---| N/A | EstimatedNoOfStudent | int, null | 328 | N/A |---|---|---| N/A | FileReference | string | 35 | N/A |---|---|---| N/A | NameOfSchoolCN | string | 323 | N/A |---|---|---| N/A | NameOfSchoolEN | string | 350 | N/A |---|---|---| N/A | Region | string | 29 | N/A |---|---|---| N/A | RelatedPremise | string | 62 | N/A |---|---|---| N/A | RelatedPremises | array | 381 | N/A |---|---|---| N/A | SelfCertification | object, null | 65 | N/A |---|---|---| N/A | StructuralCalculation | object | 18 | N/A |---|---|---| N/A | SubmissionType | string | 187 | N/A |---|---|---| N/A | \_\_v | int | 381 | N/A |---|---|---| N/A | \_id | objectId | 381 | N/A |---|---|---| N/A | address | object | 69 | N/A |---|---|---| N/A | assignedBS | objectId, string, null | 364 | N/A |---|---|---| N/A | assignedGR | objectId, null | 64 | N/A |---|---|---| N/A | assignedSBS | string, null | 53 | N/A |---|---|---| N/A | createdAt | date | 381 | N/A |---|---|---| N/A | updatedAt | date | 194 | N/A |---|---|---|

#### Collection: notifications

* Document Count: 1837
* Size: 0.24 MB
* Average Document Size: 0.13 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :--------------- | :------- | :---------- | N/A |---|---|---| N/A | \_\_v | int | 1000 | N/A |---|---|---| N/A | \_id | objectId | 1000 | N/A |---|---|---| N/A | createdAt | date | 1000 | N/A |---|---|---| N/A | eminute | objectId | 58 | N/A |---|---|---| N/A | notificationType | string | 1000 | N/A |---|---|---| N/A | requireSendEmail | bool | 1000 | N/A |---|---|---| N/A | task | objectId | 942 | N/A |---|---|---| N/A | user | string | 991 | N/A |---|---|---|

#### Collection: bsblocks

* Document Count: 98397
* Size: 6.40 MB
* Average Document Size: 0.07 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :-------- | :----- | :---------- | N/A |---|---|---| N/A | \_\_v | int | 1000 | N/A |---|---|---| N/A | \_id | objectId | 1000 | N/A |---|---|---| N/A | bdgis | string | 1000 | N/A |---|---|---| N/A | blockId | string | 1000 | N/A |---|---|---|

#### Collection: cases

* Document Count: 451
* Size: 1.17 MB
* Average Document Size: 2.65 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :-------------------------- | :------------ | :---------- | N/A |---|---|---| N/A | ActualReplyDate | null, date | 39 | N/A |---|---|---| N/A | Area | string | 26 | N/A |---|---|---| N/A | AuditResult | string | 11 | N/A |---|---|---| N/A | CaseOfficer | string | 108 | N/A |---|---|---| N/A | Category | string | 384 | N/A |---|---|---| N/A | District | string | 37 | N/A |---|---|---| N/A | FileReference | string | 60 | N/A |---|---|---| N/A | LAFileReference | object | 17 | N/A |---|---|---| N/A | Nature | null, string | 382 | N/A |---|---|---| N/A | ObjectiontoLR | string | 12 | N/A |---|---|---| N/A | ReceivedDate | date, null | 375 | N/A |---|---|---| N/A | Referrer | object | 43 | N/A |---|---|---| N/A | Region | string | 32 | N/A |---|---|---| N/A | Remarks | string | 7 | N/A |---|---|---| N/A | Reminders | array | 55 | N/A |---|---|---| N/A | SubmissionType | string | 8 | N/A |---|---|---| N/A | SubstantialReplyDate | null, date | 42 | N/A |---|---|---| N/A | TargetReplyDate | date, null | 111 | N/A |---|---|---| N/A | ThreeTierReqt | string | 12 | N/A |---|---|---| N/A | ViaSCS | bool | 17 | N/A |---|---|---| N/A | \_\_v | int | 451 | N/A |---|---|---| N/A | \_id | objectId | 451 | N/A |---|---|---| N/A | application | objectId | 450 | N/A |---|---|---| N/A | assignedBS | objectId | 274 | N/A |---|---|---| N/A | assignedGR | objectId | 137 | N/A |---|---|---| N/A | building\_information | object | 14 | N/A |---|---|---| N/A | caseDescription | object | 9 | N/A |---|---|---| N/A | caseOfficerReceive | string | 172 | N/A |---|---|---| N/A | caseOfficerReply | string | 72 | N/A |---|---|---| N/A | createdAt | date | 451 | N/A |---|---|---| N/A | deck\_study | object | 451 | N/A |---|---|---| N/A | documentChecklist | object | 2 | N/A |---|---|---| N/A | dv | object | 197 | N/A |---|---|---| N/A | frc | object | 451 | N/A |---|---|---| N/A | misc | object | 451 | N/A |---|---|---| N/A | moe | object | 451 | N/A |---|---|---| N/A | seniorCaseOfficerReceive | string | 54 | N/A |---|---|---| N/A | seniorCaseOfficerReply | string | 41 | N/A |---|---|---| N/A | site\_inspection | object | 7 | N/A |---|---|---| N/A | structural\_ccc\_bs | object | 451 | N/A |---|---|---| N/A | structural\_schnlh | object | 152 | N/A |---|---|---| N/A | structural\_schnlhkinds | object | 301 | N/A |---|---|---| N/A | team | string | 374 | N/A |---|---|---| N/A | ubw | object | 451 | N/A |---|---|---| N/A | updatedAt | date | 16 | N/A |---|---|---|

#### Collection: oauthtokens

* Document Count: 3019
* Size: 2.29 MB
* Average Document Size: 0.78 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :-------------------- | :----- | :---------- | N/A |---|---|---| N/A | \_\_v | int | 1000 | N/A |---|---|---| N/A | \_id | objectId | 1000 | N/A |---|---|---| N/A | accessToken | string | 1000 | N/A |---|---|---| N/A | accessTokenExpiresAt | date | 1000 | N/A |---|---|---| N/A | client | object | 1000 | N/A |---|---|---| N/A | refreshToken | string | 1000 | N/A |---|---|---| N/A | refreshTokenExpiresAt | date | 1000 | N/A |---|---|---| N/A | user | objectId | 1000 | N/A |---|---|---|

#### Collection: sysfilerefs

* Document Count: 601808
* Size: 204.70 MB
* Average Document Size: 0.35 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :------------------ | :------------ | :---------- | N/A |---|---|---| N/A | \_\_v | int | 1000 | N/A |---|---|---| N/A | \_id | objectId | 1000 | N/A |---|---|---| N/A | createdDt | date | 1000 | N/A |---|---|---| N/A | createdName | null, string | 1000 | N/A |---|---|---| N/A | createdPost | null, string | 1000 | N/A |---|---|---| N/A | createdSection | null, string | 1000 | N/A |---|---|---| N/A | display | string | 1000 | N/A |---|---|---| N/A | dvExceed | null, string | 1000 | N/A |---|---|---| N/A | dvStatusDt | null, date | 1000 | N/A |---|---|---| N/A | frefPref | string, null | 1000 | N/A |---|---|---| N/A | frefSeq | null, string | 1000 | N/A |---|---|---| N/A | frefSuf | null, string | 1000 | N/A |---|---|---| N/A | frefYr | null, string | 1000 | N/A |---|---|---| N/A | lastModifiedDt | date | 1000 | N/A |---|---|---| N/A | lastModifiedName | null, string | 1000 | N/A |---|---|---| N/A | lastModifiedPost | null, string | 1000 | N/A |---|---|---| N/A | lastModifiedSection | null | 1000 | N/A |---|---|---| N/A | sysFileRefId | string | 1000 | N/A |---|---|---|

#### Collection: attachments

* Document Count: 370
* Size: 0.13 MB
* Average Document Size: 0.37 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :------------- | :-------------- | :---------- | N/A |---|---|---| N/A | \_\_v | int | 370 | N/A |---|---|---| N/A | \_id | objectId | 370 | N/A |---|---|---| N/A | application | objectId | 364 | N/A |---|---|---| N/A | createdAt | date | 370 | N/A |---|---|---| N/A | efolio | null, string | 351 | N/A |---|---|---| N/A | file | object, string | 247 | N/A |---|---|---| N/A | filePartNo | string | 216 | N/A |---|---|---| N/A | receivedDate | date | 352 | N/A |---|---|---| N/A | remarks | string | 216 | N/A |---|---|---| N/A | subType | string | 203 | N/A |---|---|---| N/A | submissionCase | objectId | 350 | N/A |---|---|---| N/A | sysFileRefId | string | 67 | N/A |---|---|---| N/A | type | string | 348 | N/A |---|---|---| N/A | updatedAt | date | 3 | N/A |---|---|---|

#### Collection: users

* Document Count: 116
* Size: 0.04 MB
* Average Document Size: 0.39 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :----------------- | :---- | :---------- | N/A |---|---|---| N/A | \_\_v | int | 116 | N/A |---|---|---| N/A | \_id | objectId | 116 | N/A |---|---|---| N/A | bdgis | string | 29 | N/A |---|---|---| N/A | begis | string | 1 | N/A |---|---|---| N/A | delegateTo | string | 8 | N/A |---|---|---| N/A | department | string | 116 | N/A |---|---|---| N/A | email | string | 109 | N/A |---|---|---| N/A | group | string | 17 | N/A |---|---|---| N/A | lastLoginAt | date | 41 | N/A |---|---|---| N/A | letterLongPosition | string | 11 | N/A |---|---|---| N/A | letterLongPositionCn | string | 12 | N/A |---|---|---| N/A | letterName | string | 76 | N/A |---|---|---| N/A | letterNameCn | string | 75 | N/A |---|---|---| N/A | letterPosition | string | 79 | N/A |---|---|---| N/A | letterPositionCn | string | 1 | N/A |---|---|---| N/A | lock | bool | 116 | N/A |---|---|---| N/A | luPostName | string | 78 | N/A |---|---|---| N/A | name | string | 80 | N/A |---|---|---| N/A | notificationEmail | string | 23 | N/A |---|---|---| N/A | osdpEmail | string | 62 | N/A |---|---|---| N/A | osdpLoginId | string | 102 | N/A |---|---|---| N/A | password | string | 108 | N/A |---|---|---| N/A | phoneNumber | string | 65 | N/A |---|---|---| N/A | position | string | 85 | N/A |---|---|---| N/A | role | string | 112 | N/A |---|---|---| N/A | team | string | 52 | N/A |---|---|---| N/A | userType | string | 116 | N/A |---|---|---|

#### Collection: adrblkfilerefs

* Document Count: 566948
* Size: 154.89 MB
* Average Document Size: 0.28 KB

##### Field Analysis

| Field | Types | Occurrences | N/A | :------------------ | :------------ | :---------- | N/A |---|---|---| N/A | \_\_v | int | 1000 | N/A |---|---|---| N/A | \_id | objectId | 1000 | N/A |---|---|---| N/A | adrBlkFileRefId | string | 1000 | N/A |---|---|---| N/A | adrBlkId | string | 1000 | N/A |---|---|---| N/A | createdDt | date | 1000 | N/A |---|---|---| N/A | createdName | null, string | 1000 | N/A |---|---|---| N/A | createdPost | string | 1000 | N/A |---|---|---| N/A | createdSection | null, string | 1000 | N/A |---|---|---| N/A | lastModifiedDt | date | 1000 | N/A |---|---|---| N/A | lastModifiedName | null, string | 1000 | N/A |---|---|---| N/A | lastModifiedPost | string | 1000 | N/A |---|---|---| N/A | lastModifiedSection | string, null | 1000 | N/A |---|---|---| N/A | sysFileRefId | string | 1000 | N/A |---|---|---|

## Code Snippets and Repository Structure

The provided code.txt file contains a merged representation of the entire codebase, including:

* File summaries
* Directory structure
* File contents

This information can be used to understand the application's architecture, data access patterns, and business logic.

### Models

The following Mongoose models are defined in the backend:

* AdrBlkFileRef.js: Represents the AdrBlkFileRef schema.
* Application.js: Represents the Application schema.
* Attachment.js: Represents the Attachment schema.
* BsBlock.js: Represents the BsBlock schema.
* Case.js: Represents the Case schema.
* Eminute.js: Represents the Eminute schema.
* Notification.js: Represents the Notification schema.
* OAuthToken.js: Represents the OAuthToken schema.
* Submission.js: Represents the Submission schema.
* SysFileRef.js: Represents the SysFileRef schema.
* Task.js: Represents the Task schema.
* User.js: Represents the User schema.

The following Sequelize models are defined in the nodejs-frontend:

* AdrBlk.js
* ApplicationCase.js
* ApplicationFile.js
* ApRse.js
* Attachment.js
* BackendUpdate.js
* GenOtp.js
* IamSmart.js
* LogEvents.js
* SchoolAppInfo.js
* SchoolAppSubmission.js
* ScsMasterTable.js
* Staff.js
* Sys\_Meta\_Data.js
* Test.js

### Routes

The backend defines the following routes:

* /applications: Handles application-related operations.
* /attachments: Handles attachment-related operations.
* /auth: Handles authentication and token generation.
* /cases: Handles case-related operations.
* /file-references: Handles file reference-related operations.
* /submissions: Handles submission-related operations.
* /tasks: Handles task-related operations.
* /users: Handles user-related operations.

### Scripts

The backend includes several scripts for data import and database setup:

* importAdrFileRef.js: Imports data from a CSV file into the AdrBlkFileRef collection.
* importBsBlock.js: Imports data from an Excel file into the BsBlock collection.
* importFileRef.js: Imports data from a CSV file into the SysFileRef collection.
* importUsers.js: Imports user data from an Excel file into the User collection.
* migrateGroupAndDepartment.js: Migrates data related to groups and departments in the User collection.
* setUpDb.js: Sets up the database connection.
* syncFrontendSubmissions.js: Synchronizes submissions from the frontend to the backend.

## Conclusion

This document provides a comprehensive overview of the physical data design for the LSCP. By following these guidelines, the development team can ensure a well-structured, efficient, and maintainable database system.