# DATABASE DESIGN – ORANGE LAW FIRM - By Grace Olabanji | LinkedIn

## Transforming Orange Law Firm: From Paper to Digital

### Paper Outline

1. Introduction
    - Overview
    - Current challenges with paper-based processes
    - Mission statement
    - Objectives
2. Designing the new data base system
    - The preliminary field list
    - Identified subjects
    - Final table characteristics
    - Establishing primary keys
    - Table relationships
    - Field specifications
    - Business rules
3. Enhancing data culture
4. Implementation strategy
5. Conclusion

# INTRODUCTION

## Overview

Orange Law Firm is a fictional organization whose legal processes are run on paper. Like your neighborhood law office, there is almost no structure from when a client brings a case to the firm to when it is settled. However, this is not a scalable approach and poses serious threats to data integrity and security.

In this case study, we will discuss how to design a database that enhances the data culture of Orange Law Firm.

## Current challenges with paper-based processes

1. Compromising data integrity and quality

2. Easy manipulation of data

3. Physical hazards could result in loss of information

4. No streamlined process for accountability

## Mission Statement

Creating a user-friendly database for Orange Law Firm that efficiently stores data, ensures data integrity, facilitates data analysis, enhances employee productivity, and improves client experience.

## Objectives of transitioning to a digital database

1. Digitalizing legal processes

2. Proper data storage to maintain integrity

3. Improving communication

4. Enhancing accessibility

5. Scalability

# DESIGNING THE NEW DATA BASE SYSTEM

## The Preliminary Field List

| | | | |
|---|---|---|---|
| Employee | Employee name<br>Employee phone number<br>Employee address<br>Employee job role | Client name<br>Client phone number<br>Client address | Client |
| Case | Case name<br>Case type<br>Case status<br>Case documents | Mandatory requirements<br>Documents<br>Tasks<br>Activity owner | Legal Activities |
| Invoices | Legal activities invoices<br>Total invoice<br>Date<br>Amount | Due date<br>Amount<br>Payment method | Payment |

## Identified subjects

- Employee
-Client
-Case
-Legal activities
-Invoicing
-Payment
-Documents
-Filing system
-Contact information
- Legal tasks

## Final table list

-Employee
-Client
-Case
-Legal Activities
-Invoice
-Payment

## Final Table Characteristics

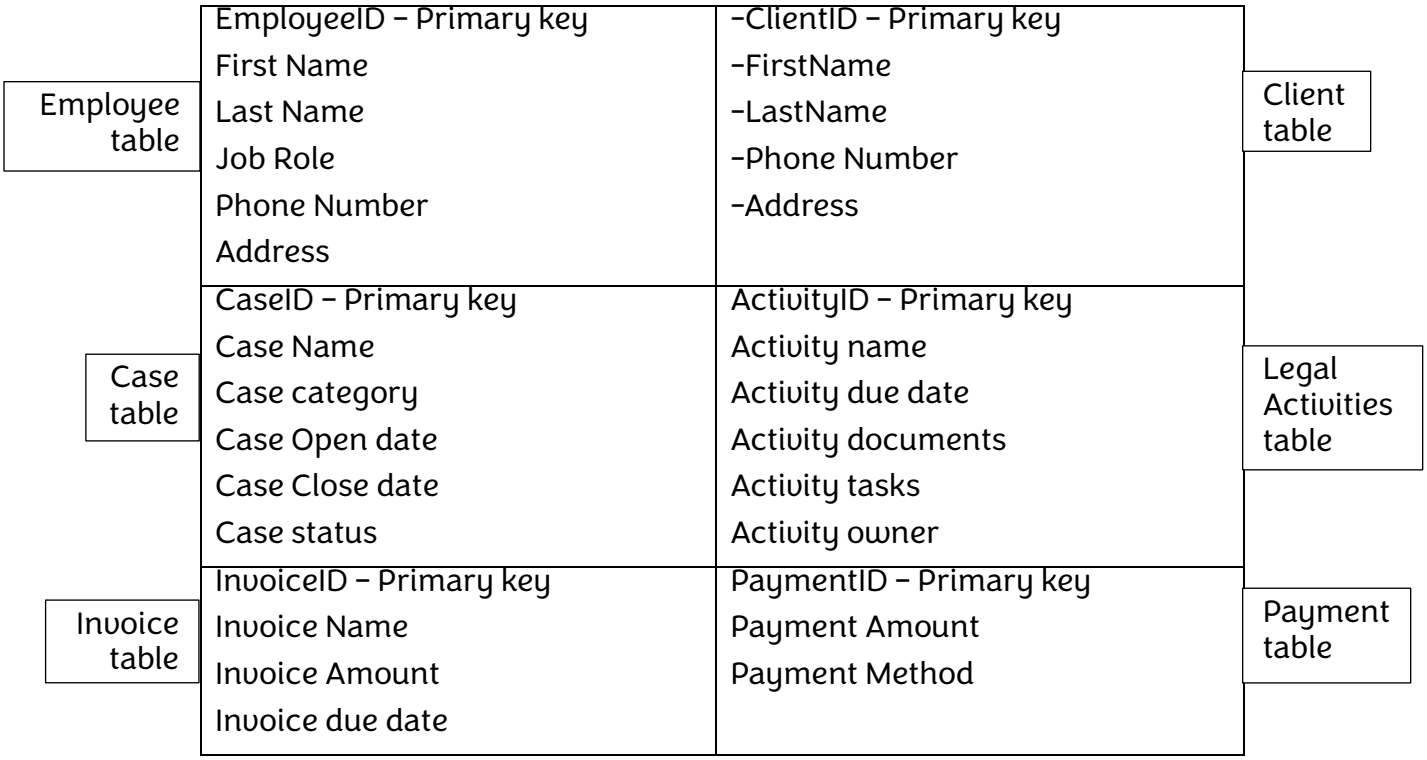
| | | | |
|---|---|---|---|
| Employee table | First Name<br>Last Name<br>Job Role<br>Phone Number<br>Address | FirstName<br>LastName<br>Phone Number<br>Address | Client table |
| Case table | Case Name<br>Case category<br>Case Open date<br>Case Close date<br>Case status | Activity name<br>Activity due date<br>Activity documents<br>Activity tasks<br>Activity owner | Legal Activities table |
| Invoice table | Invoice Name<br>Invoice Amount<br>Invoice due date | Payment Amount<br>Payment Method | Payment table |

## Establishing primary keys

Primary keys are unique identifiers established from candidate keys and help form relationships with other tables. Since this case study is fictional, we will create artificial candidate keys that satisfy the requirements.

- -EmployeeID – Candidate key
- -ClientID – Candidate key
- -CaseID – Candidate key
- -ActivityID- Candidate key
- -InvoiceID- Candidate key
- -PaymentID- Candidate key

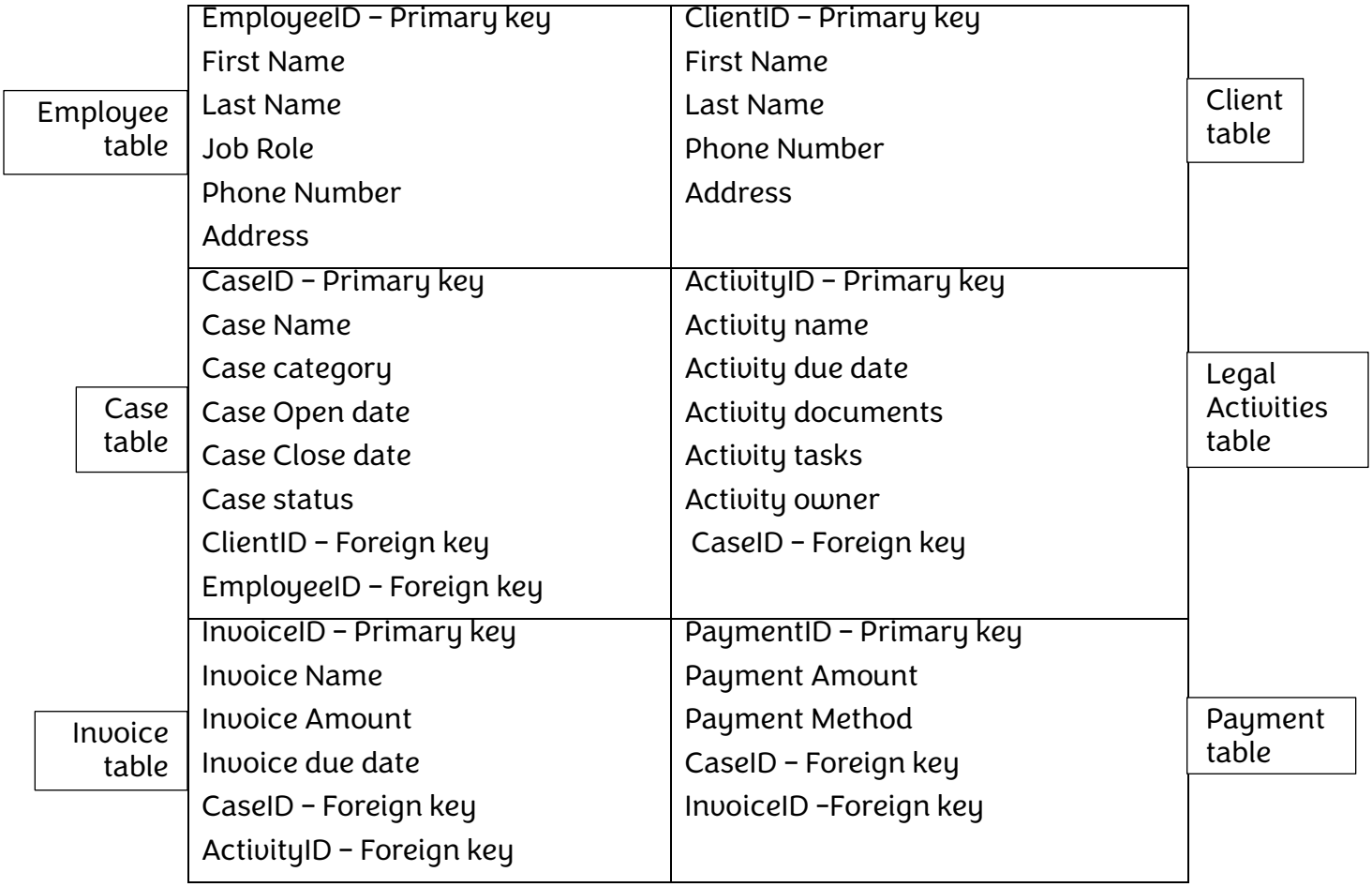
The IDs will be an autogenerated sequence of numbers that uniquely identifies each row in the table.




## Table Relationships

The data in our tables are associated with one another. To create multi-table views, maintain data integrity and reduce redundancy, we will establish relationships between the tables using primary and foreign keys.

- Client and Case – One to many relationships 1:M
- Case and Employee – One to many relationships 1:M
- Employee and Legal Activities – Many to many relationships M:N
- Client and Legal Activities – One to many relationships 1:M
- Case and Legal Activities – One to many relationships 1:M
- Invoice and Legal Activities – One to many relationships 1:M
- Invoice and Payment – One to many relationships 1:M




## Field Specifications

To ensure the validity, accuracy and consistency of data in the database, we will add specifications or constraints to how the data is collected.

**Employee Table**

| Field name | Specification type | Data type | Key type | Null support |
|---|---|---|---|---|
| EmployeeID | Unique | Numeric (10) | Primary | No |
| FirstName | None | String (20) | None | No |
| LastName | None | String (30) | None | No |
| Job Role | Generic | String (50) | None | No |
| Phone Number | Unique | Numeric (10) | None | No |
| Address | None | Varchar (100) | None | No |

Client table

| Field name | Specification type | Data type | Key type | Null support |
|---|---|---|---|---|
| ClientID | Unique | Numeric (10) | Primary | No |
| FirstName | None | String (20) | None | No |
| LastName | None | String (30) | None | No |
| Phone Number | Unique | Numeric (10) | None | No |
| Address | None | Varchar (100) | None | No |

Case Table

| Field name | Specification type | Data type | Key type | Null support |
|---|---|---|---|---|
| CaseID | Unique | Numeric (10) | Primary | No |
| CaseName | None | String (50) | None | No |
| Case category | Generic | String (50) | None | No |
| Case Open date | None | Date | None | No |
| Case Close date | None | Date | None | No |
| Case status | Generic | String (20) | None | No |
| ClientID | Unique | Numeric (10) | Foreign | No |
| EmployeeID | Unique | Numeric (10) | Foreign | No |

Legal Activities Table

| Field name | Specification type | Data type | Key type | Null support |
|---|---|---|---|---|
| ActivityID | Unique | Numeric (10) | Primary | No |
| Activity name | None | String (50) | None | No |
| Activity due date | None | Date | None | No |
| Activity documents | None | String (50) | None | No |
| Activity tasks | None | String (50) | None | No |
| Activity owner | None | String (20) | None | No |
| CaseID | Unique | Numeric (10) | Foreign | No |

### Invoice Table

| Field name | Specification type | Data type | Key type | Null support |
|---|---|---|---|---|
| InvoiceID | Unique | Numeric (10) | Primary | No |
| Invoice Name | None | String (50) | None | No |
| Invoice Amount | None | Currency | None | No |
| Invoice due date | None | Date | None | No |
| CaseID | Unique | Numeric (10) | Foreign | No |
| ActivityID | Unique | Numeric (10) | Foreign | No |

### Payment Table

| Field name | Specification type | Data type | Key type | Null support |
|---|---|---|---|---|
| PaymentID | Unique | Numeric (10) | Primary | No |
| Payment Amount | None | Currency | None | No |
| Payment Method | None | String (20) | None | No |
| CaseID | Unique | Numeric (10) | Foreign | No |
| InvoiceID | Unique | Numeric (10) | Foreign | No |

## Business Rules

Business rules are fundamental in cultivating healthy usage and perception of data. The following rules will apply to the database.

1. ClientID must be created before a case is opened.
2. The current date of a case entry or closure is automatically the case open and close dates.
3. Only case lawyers can update case status
4. Every legal activity created automatically creates an invoice
5. Checklist for legal activity documents and tasks
6. Invoice due date is generated as 2 weeks from creation date
7. ActivityID cannot be created without CaseID
8. Payment cannot be made without CaseID and InvoiceID

## ENHANCING DATA CULTURE

To ensure the integrity of this database, there will be employee training sessions focusing on the following key areas:

**1. How to Use the Database:**

Employees will learn the basic functions of the database, including how to navigate the user interface, perform searches, and input data. This foundational knowledge is essential for effective and accurate use of the database.

**2. How to Update Information:**

Training will cover the correct procedures for adding new entries and modifying existing data. Emphasis will be placed on maintaining data accuracy and consistency, ensuring that all updates follow established protocols to prevent errors and discrepancies.

**3. Information Retrieval:**

Employees will be taught how to efficiently retrieve information from the database. This includes using various search functions, applying filters, and running queries to find specific data. Effective retrieval skills are crucial for timely and accurate access to information.

**4. Analyzing Data:**

The training will include methods and tools for analyzing the data stored in the database. Employees will learn how to interpret data, identify trends, and generate reports. This analytical capability is important for making informed decisions based on the database content.

**5. Data Visualization:**

Employees will be trained to create visual representations of data, such as charts, graphs, and dashboards. Data visualization helps in communicating complex information clearly and effectively, making it easier to understand and use the data for strategic purposes.

By covering these areas, the training sessions aim to empower employees with the skills needed to maintain the database's integrity, ensuring that it remains a reliable and valuable resource for the organization.

## Data Governance

The following standards and policies will be put in place for the new database design.

1. No null entries in the database, data entries will be based on the description of each data type stated in the design.
2. A case cannot be opened or closed without client consent
3. A case cannot be closed with pending activities or payments
4. Access to information will be role-based and limited to case participants
5. Payment information is restricted to clients and administrators.

## Benefits of enhancing data culture

1. Processes are streamlined, and unnecessary tasks eliminated
2. Data is collected, stored and handled efficiently
3. Room for constant improvement in running the organization
4. Clients have a seamless and easy experience with the firm
5. Ability to make data driven decisions.

## IMPLEMENTATION STRATEGY

Designing and implementing the database to achieve our objectives requires a structured and comprehensive strategy. The following steps will guide the implementation.

- **Automation Integration:** Implement features like automated document generation, e-signatures, and notifications to streamline legal workflows.
- **User Acceptance Testing (UAT):** Develop a prototype and conduct UAT with key stakeholders to ensure the new processes meet their needs.
- **Backup Solutions:** Set up regular automated backups and define a disaster recovery plan.
- **Audit Trails:** Implement logging to track data changes and user activities for accountability and traceability.
- **Integrated Communication Tools:** Incorporate features that allow direct communication within the database interface, such as messaging and email notifications.
- **Multi-Device Support:** Ensure the database system is responsive and accessible from various devices, including desktops, tablets, and smartphones.
- **Modular Design:** Build the database with a modular architecture that allows for easy addition of new features and functionalities.
- **Cloud Infrastructure:** Utilize cloud services to provide scalable storage and processing power, allowing the database to grow with the company's needs.
- **Performance Monitoring:** Implement tools to monitor database performance and optimize as needed to handle increasing loads.
- **Regular Updates:** Plan for regular updates and maintenance to keep the system current and scalable.

## CONCLUSION

In alignment with the mission of Orange Law Firm to create a user-friendly database that efficiently stores data, maintains data integrity, facilitates data analysis, enhances employee productivity, and improves client experience, the proposed database design includes the following tables: Employee, Client, Case, Legal Activities, Invoices, and Payment.

- **Employee:** This table will manage employee information, ensuring accurate and up-to-date records that support efficient workflow and communication within the firm.
- **Client:** Storing client information in a structured manner will enhance the firm's ability to manage client interactions and improve the overall client experience.
- **Case:** By meticulously organizing case details, this table will facilitate better case management and analysis, helping legal teams to work more effectively.
- **Legal Activities:** Tracking all legal activities within this table will ensure comprehensive documentation and streamlined legal processes, aiding in maintaining data integrity and facilitating quick access to necessary information.
- **Invoices:** Proper management of invoices will improve financial oversight, ensure accurate billing, and contribute to the overall financial health of the firm.
- **Payment:** This table will track all payments, helping to maintain financial integrity and providing a clear picture of the firm's revenue stream.

Together, these tables form a robust and scalable database system designed to meet the firm's current needs while allowing for future growth. The implementation of this database will streamline operations, improve data management, and ultimately enhance both employee productivity and client satisfaction.

By investing in this comprehensive database system, Orange Law Firm is positioned to leverage technology to optimize its legal processes, uphold high standards of data integrity, and deliver superior service to its clients.