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Assignment:	Assignment #1 – Helping the Government (Part3 of 5)
Course Name:	Business Data Analysis

Date Assigned:	
Date Due:	11/29/2017
Rules:	1)Find your team! 2)Get ready to work! 3)Remember you are in competition with the other groups! 4)Every team member must participate
Grade: **(Instructor Use)**	

Table of Contents

1. System Usage Summary

The Database provided functions as the Saskatoon Regional Sentencing Database. The Database serves to highlight the Justice system used in the area of Saskatoon in sentencing prisoners for the purpose of upholding the law.

The official desktop computers, and official portable computers provided by the Government of Saskatoon, and employees with login details and passwords in the departments shown in the Entity Relationship Diagram (ERD) will all be able to access the information from the database.

1.1 Document Overview

The document is divided into 8 major chapters with subheadings under each complimenting the main chapters.

The first chapter, Summary of System Usage provides the details on the user types that will make use of the Saskatoon Regional Sentencing Database.

The second chapter, Objectives, highlights the purpose and benefits of the Saskatoon Regional Sentencing Database. It goes on to show any possible risks, if any, as well as constraints associated with the Database.

The third chapter, Database overview, provides insight into the requirements of the database.

The fourth chapter, Database Management System contains specifications of the supporting system being utilised for the creation of the database.

The fifth chapter, Assumptions, shows a list of assumptions made in developing the database. The types of data being collected, its use, and utilisation of the database. It also shows the systems and applications currently making use of the Database.

The sixth chapter, the Logical Hierarchy shows an overview of the Saskatoon Regional Sentencing Database, using just the table names, and shows the relationships that exist between them.

The seventh chapter, Schema, shows the distinct organizational units utilized within the Saskatoon Regional Sentencing Database.

The eight chapter, Database Design, serves to show the actual database design, connections, meaning of data and the physical layout. It also includes the logical and physical relationships of the entities in the ERD Diagram.

The ninth chapter, Notes and Recommendations, highlights concerns, observations and comments that could help enhance the readers understanding of the document and the operations of the database.

The final chapter, Appendix, will show the ERD diagram, contain lists of acronyms and terms, and show a list of all technical items listed in the document.

2. Objectives

The objective of the Saskatoon Regional Sentencing Database is to aid the government in administrating Justice in the region. The aim of the project is to aid the government by critically reviewing the existing database, development of a test plan, instructional documents that will allow the database to be easily understood by others, and an improved fully functional Entity Relationship Diagram to highlight the relationship between the entities.

3. Database Overview

The Saskatoon Regional Sentencing Database was created to fulfil the following needs and requirements:

3.1 Functional Requirements

The functional requirement of the system is to effectively serve as a Database Management System for the Government in the Region of Saskatoon.

3.2 Business Requirements

The information stored within the database will include information about the cases, the offenders past criminal record, the offence committed, contact and personal information, the representative from the Justice Department assigned to the case, the contact information of the representative as well as the emergency contact information, and the details of employment.

3.3 User Requirements

The Government employees in the Saskatoon Justice Department require a more accurate, fast and easy to use database that will allow for the efficient integration of data across departments, and the accurate storing of data for the offenders and cases in the region.

3.4 Maintenance, Backing Up and Evaluation

For the purpose of maintenance and ensuring the smooth running of the database, maintenance will be scheduled frequently to take full database back-ups, and also additional different and log back-ups for point-in-time recovery. This is due to the nature of the sensitive information contained in the database, and the importance of the integrity of the data.

4. Database Management System

4.1 Database Management System Used

The Database Management System used during the course of the project was Microsoft Access 2016. The 2016 model of the Microsoft database management system was the best option in implementing the database due to the ease of use and its flexible nature with other Microsoft Applications. The amount of data to be stored in the database was also considered when making the choice for the database management system to be used, and due to its size not being robust, deemed a good fit.

4.2 Database Management System Version

The version of the database management system is Microsoft Access 2016 is the version (16.0.4549.1000) 64-Bit.

4.3 Database Management System Edition

The edition of the database management system is Microsoft Access 2016 Enterprise Edition.

4.4 Required Add-Ons

The Microsoft Access 2016 is a closed system and so no add-ons can be used neither is any required.

5. Assumptions

The database, Saskatoon Regional Sentencing Database, created by the Province of Saskatchewan, contains 15 entities, also evident in the ERD, namely:

- DefenceLawyer
- Appeal
- CriminalCode
- Contact
- Case
- Offender
- Court_Fine
- Sentencing
- RecordHistory
- JP_Personal_Info
- Justice_of_the_Peace
- CorrectionalFacility
- JP_Emergency
- JP_Employment_Data
- JP_ContactInfo

5.1 Naming Convention

For good practice, the naming convention was changed to reflect a uniform naming system across the entire database. i.e.

- DefenceLawyer
- Appeal
- CriminalCode
- Contact
- Case
- Offender
- CourtFine
- Sentencing
- RecordHistory
- JPPersonalInfo
- JusticeOfThePeace
- CorrectionalFacility
- JPEmergency
- JPEmploymentData
- JPContactInfo

5.2 Data Types

The data types used for the entities in the database can be shown in the ERD below:

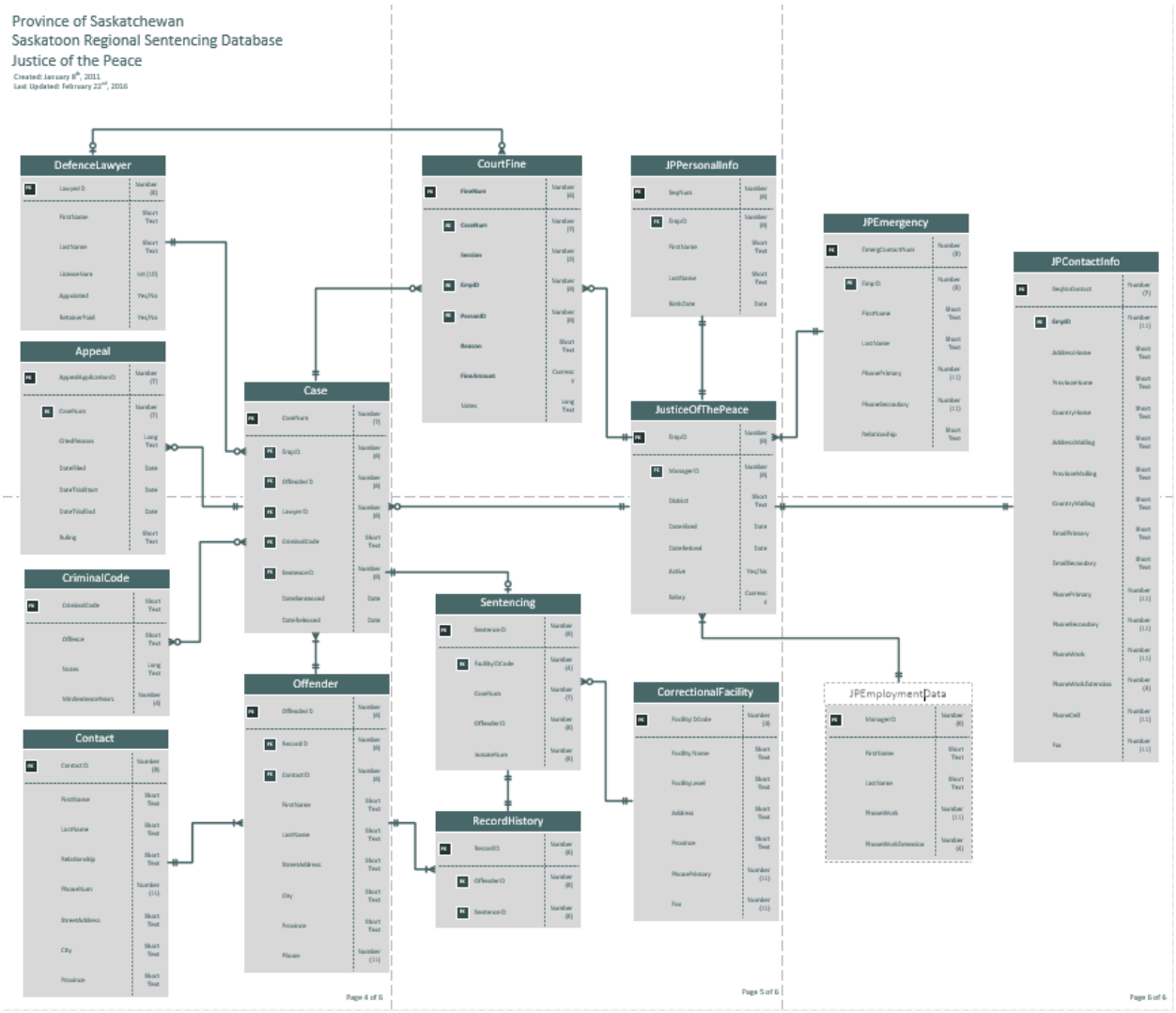

Figure 1. Diagram showing the Entity Relationship Diagram and the corresponding data types of all the Elements in the Database.

5.3 Use of the Database

The Database is to be used by the members of the Justice Department of the province of Saskatoon in the sentencing and application of the Law, and the management of personal information, cases and files of offenders, both new and old, in the Justice System.

The specific departments that will directly have access to and make use of the database include the Justice of the Peace, Lawyers, Courts within the province, and the police law enforcement

of the province. Within these, only employees and user personnel with appropriate login and password access will be able to access the database.

6. Logical Hierarchy

The logical hierarchy of the Saskatoon Regional Sentencing Database shows the relationships that exist between the different entities as logical groupings.

The hierarchy diagram is shown below;

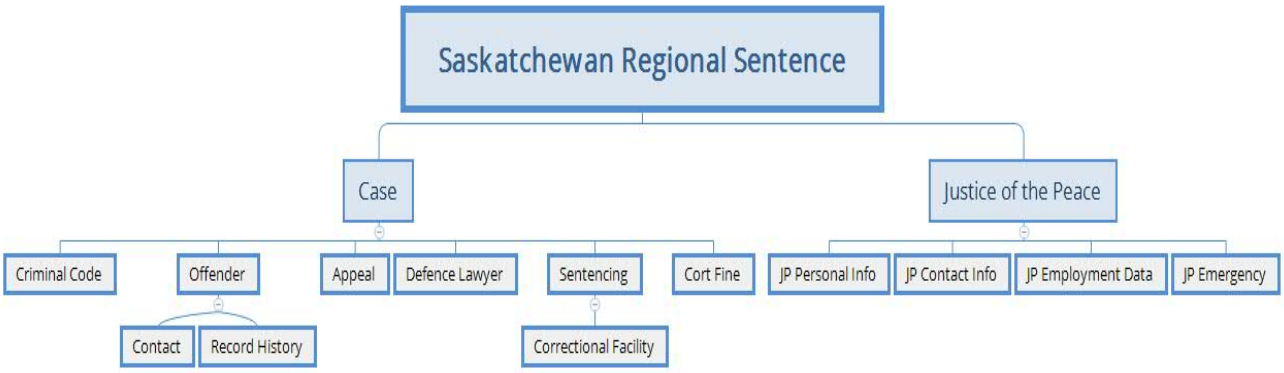

Figure 2. Diagram showing the Logical Hierarchy of the Entity's in the Saskatoon Regional Sentencing Database.

7. Schema

As highlighted in the previous section, the distinct organisational units utilised within the database include the Case and Justice of the Peace schemas.

Case Schema:

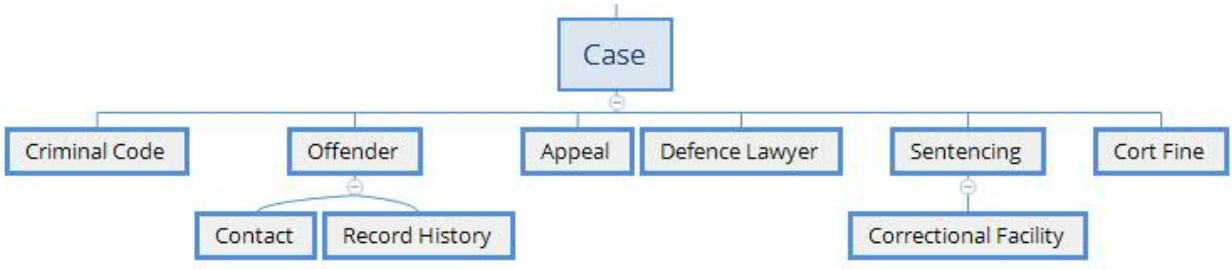

Figure 3. Diagram showing the Case schema.

The purpose of the case schema is to manage information about the criminal, previous criminal and offence records, personal information about the individual, and contact information.

A more detailed explanation of the schema is shown below;

- The case schema serves as the data store for an identifier for the type of criminal act committed by the offender.
- It serves as the data store for personal information about the individual that committed the offence and well as previously committed offenses i.e. Home address, Assault & Battery respectively.
- Case schema will have information about all the existing appeals filed on behalf of the offender as well as lawyers assigned to the cases of offenders.
- It will serve as a data store for all sentencing information on the offenders and the correctional facilities to which they have been assigned to.
- It will also show the history of court fines.
- The case schema will have a connection to the Justice of the Peace schema.

Justice of the Peace Schema:

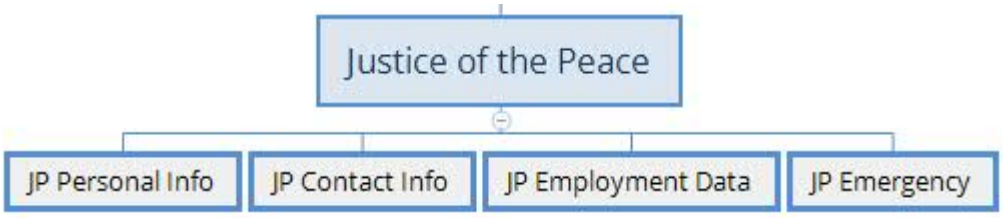

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Figure 4. Diagram showing the Justice of the Peace schema.

The purpose of the Justice Peace Schema is to store all data regarding the Justice of the Peace.

- The schema stores all data relating to personal information of the members of the Justice of the Peace.
- The schema includes information about the employment of the Justice of the Peace.
- The schema contains information about the emergency contact of the Justice of the Peace.
- The Justice of the Peace schema will have a connection to the Case schema.

8. Database Design

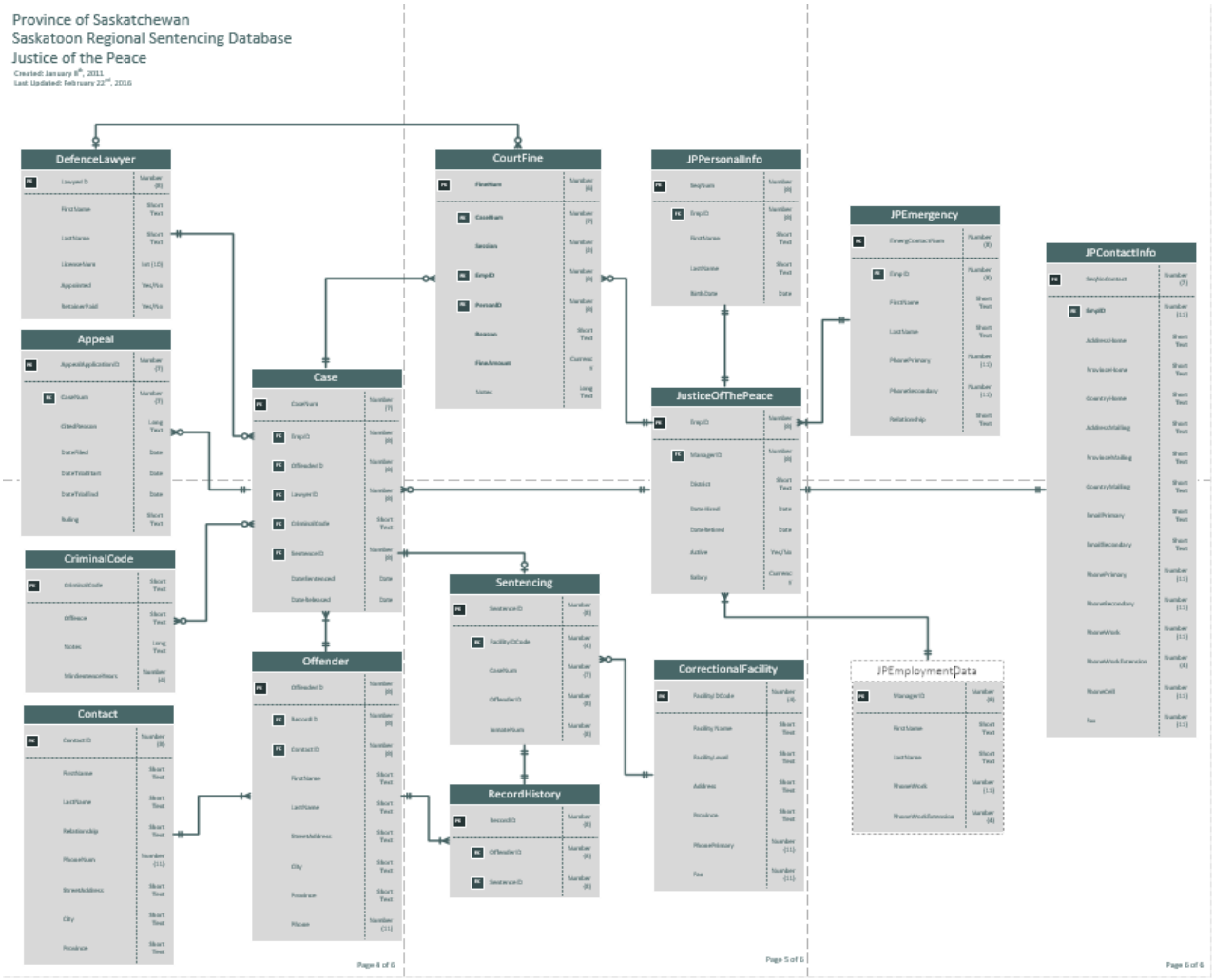

Figure 5. Diagram showing the Entity Relationship Diagram for the Saskatoon Regional Sentencing Database.

9. Notes and Recommendations

It is best practice to be able to restrict access to the entire database and provide users with unique passwords and login details. The reason for this being because the database contains extremely sensitive information that should not be accessible to just all employees in the Justice Department of Saskatoon.

Appendix

ERD

Entity Relationship Diagram. Shows relationships between entities represented in the diagram, with the corresponding data types of the elements within an entity. It also shows which elements function as the primary key or foreign key.

Primary Key

The primary key is a unique identifier in a relational database table or column, which allows for the unique identification of a record.

Foreign Key

A foreign key is a key used to link two tables together.

REFERENCES

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https://technet.microsoft.com/en-us/library/2008.08.database.aspx