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**SCHOOL OF ENGINEERING AND TECHNOLOGY**

**COURSEWORK FOR**

BSC (HONS) IN COMPUTER SCIENCE

BSC (HONS) INFORMATION TECHNOLOGY

BACHELOR OF SOFTWARE ENGINEERING (HONS)

BSC (HONS) INFORMATION SYSTEMS (DATA ANALYTICS)

BSC (HONS) INFORMATION TECHNOLOGY (COMPUTER NETWORKING AND SECURITY)

**YEAR 1;** ACADEMIC SESSION SEPTEMBER 2023

**SEG1201: DATABASE FUNDAMENTALS**

**Part 1 Due date: Week 9 Monday, 10am**

**SEG1201: DATABASE FUNDAMENTALS**  **final DEADLINE: 13 DECEMBER 2023, 10am**

**STUDENT NAMES:** Wayne Kan Kah Weng, Goh Ci Yun, Ryan Ng Xu Yang, Pu Xinyi, Lam Chee Hiew

**STUDENT IDS:** 21099403, 22017503, 22025670, 23026610, 22035455

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INSTRUCTIONS

* This final assessment contributes 50% to your final grade.
* This five-member group assignment (or minimum 3-member group) is primarily for Course Learning Outcome 2 - Implement a database design group project using appropriate tools such as Oracle SQL.

**IMPORTANT**

The University requires students to adhere to submission deadlines for any form of assessment. Penalties are applied in relation to unauthorized late submission of work.

**Academic Honesty Acknowledgement**

“We **Wayne Kan Kah Weng, Lam Chee Hiew, Ryan Ng Xu Yang, Pu Xinyi, Goh Ci Yun,** verify that this paper contains entirely our own work.  We have not consulted with any outside person or materials other than what was specified (an interviewee, for example) in the assignment or the syllabus requirements.  Further, we have not copied or inadvertently copied ideas, sentences, or paragraphs from another student.  We realize the penalties *(refer to page 16, 5.5, Appendix 2, page 44 of the student handbook diploma and undergraduate programme)* for any kind of copying or collaboration on any assignment.”

**Wayne  ......****..., .. ... ,** (Student signatures/Date)



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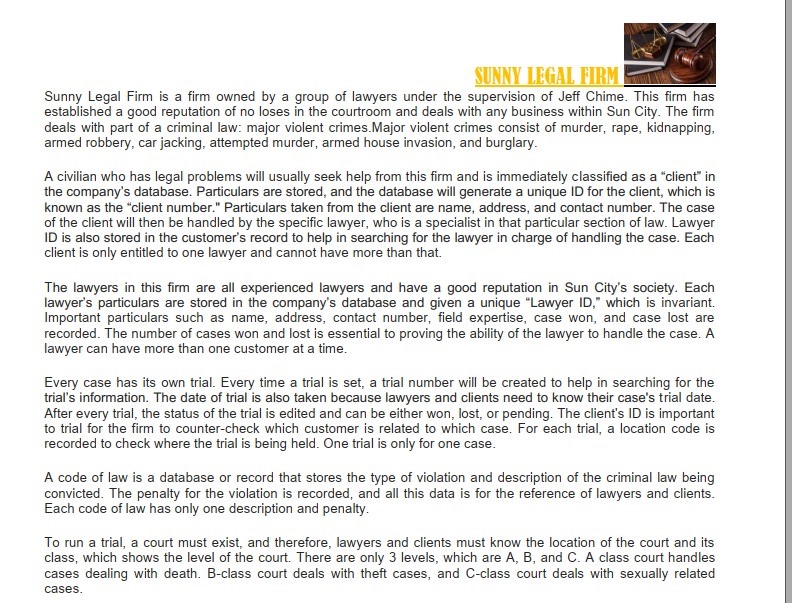
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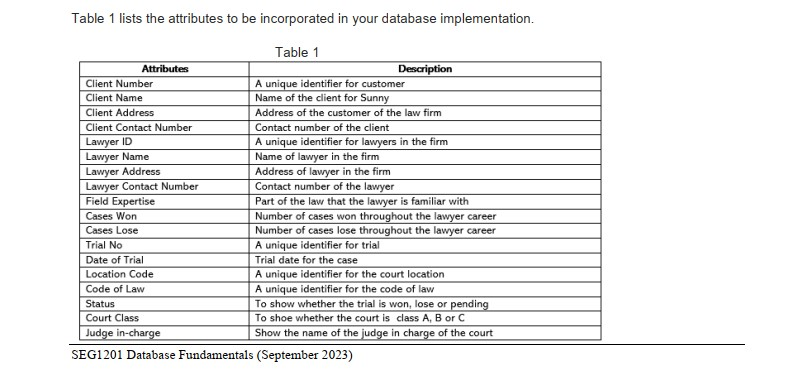
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# **General information:**

|  |  |  |  |
| --- | --- | --- | --- |
| No | Student ID | Name | Email address |
| 1 | 21099403 | Wayne Kan Kah Weng | 21099403@imail.sunway.edu.my |
| 2 | 22017503 | Goh Ci Yun | 22017503@imail.sunway.edu.my |
| 3 | 22025670 | Ryan Ng Xu Yang | 22025670@imail.sunway.edu.my |
| 4 | 23026610 | Pu Xinyi | 23026610@imail.sunway.edu.my |
| 5 | 22035455 | Lam Chee Hiew | 22035455@imail.sunway.edu.my |

# **Part 1: Enhance the chosen case scenario (10 marks)**





Paragraph: A civilian who has legal problems will usually seek help from this firm and is immediately classified as a “client” in the company's database. Particulars are stored, and the database will generate a unique ID for the client, which is known as the “client\_ID”. Particulars taken from the client are name, address, and contact number. The case of the client will then be handled by the specific lawyer, who is a specialist in that particular section of law. Lawyer ID is also stored in the customer's record to help in searching for the lawyer in charge of handling the case. Each client may be entitled to multiple lawyers if they are involved in several cases, but a single case can only be associated with one lawyer.

There will be judges for each trial that will decide how the trial will proceed. Every judge has a unique ID stored in the database. Their name, contact number, and address will be recorded in the database for effective communication. Their experience level demonstrates their expertise, while the assigned Trials ID keeps track of ongoing cases allocated to the judge, facilitating effective case management and allocation. Each judge may preside over multiple trials concurrently. A court clerk, identified by the unique "Clerk ID" generated by the database manages the intricate details of the proceedings with precision. The court clerk ensures that the date of the trial is recorded to facilitate a seamless and well-structured legal process. The court clerk has the capability to document either a single trial or multiple trials. Important details, such as the type of violation, description of the criminal law, and the penalty for the violation, are meticulously recorded.

Sunny Legal firm implemented a feedback system to receive feedback from their clients after each case to improve their service quality. Each client can give one feedback on their lawyer for per case. The database generates a unique ID for each feedback. Each feedback is linked to a unique ID of the client and the lawyer, encompassing ratings on communication, professionalism, and overall satisfaction. All these will be stored for every feedback ID in the database. This feedback is then able to be used for clients when choosing a lawyer. Clients are required to make payment after each closed case. Each payment will have a unique payment ID in the database. Every Payment ID functions as a distinct identification for payments made by payer. payer makes it easy to identify who made the payment. Date captures the date of payment, whereas Amount shows the total amount paid. The term "Payment Method" designates the manner of payment—cash, credit card, or other. Payment can be made by either the client or the opposing party in court, depending on the outcome of the trial.

Business rules:

Client:

1. Each client should have its own unique client ID for identification.
2. Client should include their name, address, and contact number.
3. A civilian becomes a “client” when they seek legal help from Sunway Legal Firm.
4. Each client is associated with one lawyer per case.
5. Each client should have its own unique feedback ID after their feedback is complete given.

Lawyer:

1. Each lawyer is assigned a unique "Lawyer ID" to identify each lawyer.
2. Lawyer particulars include name, address, contact number, year of services.
3. Each lawyer can handle multiple clients, but each client is entitled to only one lawyer.
4. Lawyers’ performance can be assessed based on feedback from clients to improve their service.
5. Lawyer’s unique ID is linked to the feedback unique ID.
6. Lawyers are associated with specific cases or trials.
7. Each Lawyer should have its own unique Lawyer Stats ID.

Trials

1. Each trial should have its own unique trial ID.
2. The “Trials” table should have foreign keys referencing both clients and lawyers, ensuring that a trial involves a valid client and assigned lawyer.
3. The trial date must be in the future or current date, preventing past dates for trial scheduling.
4. Each trial is associated with one client.
5. Each trial is associated with one law ID.
6. Each trial is handled by one lawyer.
7. After each trial, the status can be updated as won, lost, or pending.
8. Each trial is associated with one specified court.
9. Each trial must have at least one judge.

Case

1. Each case has its own unique ID
2. Each case has one lawyer.
3. Each case has one client.
4. Every case has its own trial.
5. Each case can have multiple trials.
6. Each case has one filed date.

Judge

1. Each judge should have its own unique judge ID.
2. Judge records must contain essential information such as name, address, contact number and experience level.
3. Each judge can preside over multiple trials.

Court

1. Each court has a unique identifier (Court ID) distinguishing it from other courts.
2. Courts need to have specific locations, including physical addresses, to facilitate legal proceedings.
3. Each court have different classes.
4. A-class court deals with death related cases.
5. B-class court deals with theft cases.
6. C-class court deals with sexually related cases.
7. Each court can run many trials at different times.
8. Each trial can only be run at one court.
9. Lawyers and clients must know the destination of the court and its class that will run their trial.

Code of Law

1. One individual can be convicted of various type of violations.
2. One individual will not receive any convictions.
3. A single individual can be associated with multiple codes of law.
4. Each code of law will have only one corresponding description and penalty.
5. Same penalty may be applied on many individuals.

Feedback

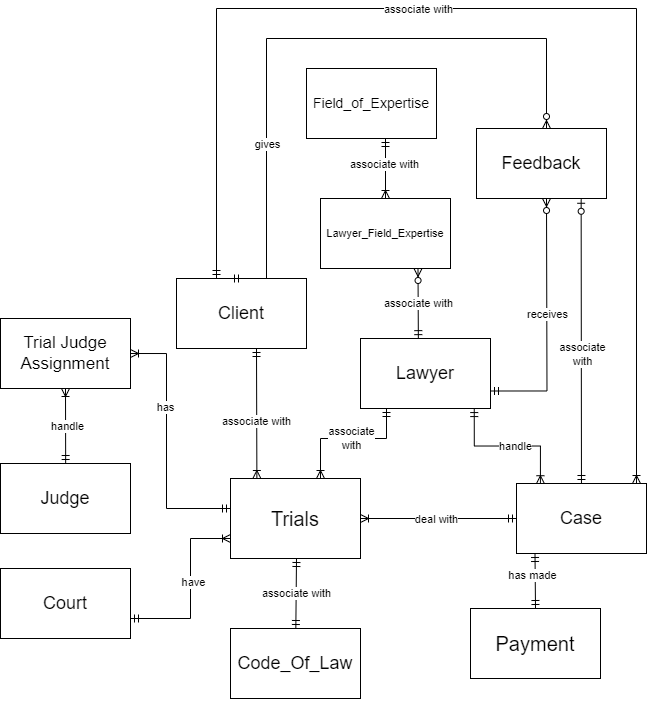
1. Each feedback has one unique ID.
2. Each feedback is given by one client.
3. One feedback is given for one closed case.
4. Some clients may not give feedback yet.
5. A lawyer can receive one feedback for one closed case.
6. Every case can have only one feedback.
7. Each feedback’s unique ID is assigned one rating on communication.
8. Each feedback’s unique ID is assigned one rating on professionalism.
9. Each feedback’s unique ID is assigned one rating on overall satisfaction.

Payment

1. Each payment has a unique ID.
2. Some cases may not have been paid yet.
3. Every payor can choose the payment method.
4. Every payment is made by only one payer.
5. Not all payments are paid by client.
6. Each payment can only associate with one case.
7. Each case can only have one payment.

# **Part 2: Design a database (25 marks)**

1. ERD diagram



## Relational Database Model

|  |  |
| --- | --- |
| ***Client***  *Client\_ID- primary key*  *Client\_Name*  *Client\_Address*  *Client\_Contact\_Number* | ***Lawyer***  *Lawyer\_ID- primary key*  *Lawyer\_Name*  *Lawyer\_Address*  *Lawyer\_Contact\_Number*  *Lawyer\_Email*  *Years\_Of\_Service* |
| ***Trials***  *Trial\_ID- primary key*  *Trial\_Date*  *Trial\_Status*  *Court\_ID*  *Case\_ID*  *Client\_ID*  *Lawyer\_ID*  *Law\_ID*  *FOREIGN KEY Court\_ID*  *REFERENCES TABLE Court*  *FOREIGN KEY Case\_ID*  *REFERENCES TABLE Case*  *FOREIGN KEY Client\_ID*  *REFERENCES TABLE Client*  *FOREIGN KEY Lawyer\_ID*  *REFERENCES TABLE Lawyer*  *FOREIGN KEY Law\_ID*  *REFERENCES TABLE Code of Law* | ***Case***  *Case\_ID-primary key*  *Client\_ID*  *Lawyer\_ID*  *Case\_Date*  *Closed\_Date*  *Case\_Status*  *Case\_Results*  *Payments\_ID*  *FOREIGN KEY Client\_ID*  *REFERENCES TABLE Client*  *FOREIGN KEY Lawyer\_ID*  *REFERENCES TABLE Lawyer*  *FOREIGN KEY Payments\_ID*  *REFERENCES TABLE PAYMENTS* |
| ***Judge***  *Judge\_ID-primary key*  *Judge\_Name*  *Judge\_Address*  *Judge\_Contact\_Number*  *Judge\_Email*  *Experience\_Level* | ***Code of Law***  *Law\_ID – primary key*  *Violation*  *Description*  *Penalty* |
| ***court***  *Court\_ID-primary key*  *class\_type*  *court\_location* | ***PAYMENTS***  *PAYMENTS\_ID – primary key*  *Payer*  *PAYMENTS\_status*  *PAYMENTS\_amount*  *PAYMENTS\_Date* |
| ***Feedback***  *Feedback\_ID-primary key*  *Feedback\_Date*  *Case\_ID*  *Client\_ID*  *Lawyer\_ID*  *Overall\_Satisfaction*  *FOREIGN KEY Case\_ID*  *REFERENCES TABLE Case*  *FOREIGN KEY Client\_ID*  *REFERENCES TABLE Client*  *FOREIGN KEY Lawyer\_ID*  *REFERENCES TABLE Lawyer* | ***Field of Expertise***  *Field\_ID-primary key*  *Field Name*  *Field Description* |
| ***Trial Judge Assigned***  *Judge\_ID-primary key*  *Trial\_ID-primary key*  *FOREIGN KEY Judge\_ID-primary key*  *REFERENCES TABLE Judge*  *FOREIGN KEY Trial\_ID-primary key*  *REFERENCES TABLE Trials* | ***Lawyer\_Field\_Expertise***  *Judge\_ID-primary key*  *Field\_ID-primary key*  *FOREIGN KEY Judge\_ID-primary key*  *REFERENCES TABLE Judge*  *FOREIGN KEY Field\_ID-primary key*  *REFERENCES TABLE Field of Expertise* |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Before Update** | **After Update** | | **Justification** |
| 1. |  |  | | There were too many relationships and entities at first and this result in a cluttered and disorganized database |
| 2. | ***Lawyer***  *Lawyer\_ID- primary key*  *Lawyer\_Name*  *Lawyer\_Address*  *Lawyer\_Contact\_Number* | ***Lawyer***  *Lawyer\_ID- primary key*  *Lawyer\_Name*  *Lawyer\_Address*  *Lawyer\_Contact\_Number*  *Lawyer\_Email*  *Years\_Of\_Service* | | Lawyer\_Email helps streamline communication between clients, colleagues, and law firms. At the same time. Years\_Of\_Service allows customers to quickly understand the professional level and tenure of lawyers in handling legal matters. |
| 3. | ***Payment***  *Payment\_ID – primary key*  *Case\_ID*  *Payer*  *Payment\_status*  *Payment\_amount*  *Payment\_Date*  *FOREIGN KEY Case\_ID*  *REFERENCES TABLE Case* | ***PAYMENTS***  *PAYMENTS\_ID – primary key*  *Payer*  *PAYMENTS\_status*  *PAYMENTS\_amount*  *PAYMENTS\_Date* | | Remove case id to prevent transitive dependency of attribute payer being dependent on whether case status is closed. |
| 4. | ***-*** | ***Field of Expertise***  *Field\_ID-primary key*  *Field Name*  *Field Description* | The new ‘Field of Expertise’ table defines different areas of specialization through unique Field\_ID. It includes details like the Field Name and a descriptive Field Description. | |
| 5. | ***-*** | ***Lawyer\_Field\_Expertise***  *Judge\_ID-primary*  *key*  *Field\_ID-primary key*  *FOREIGN KEY Judge\_ID-primary key*  *REFERENCES TABLE Judge*  *FOREIGN KEY Field\_ID-primary key*  *REFERENCES TABLE Field of Expertise* | The new “Lawyer\_Field\_Expertise” table enables a many-to-many relationship between lawyer and fields of expertise. | |
| 6. | ***Feedback***  *Feedback\_ID-primary key*  *Feedback\_Date*  *Case\_ID*  *Client\_ID*  *Lawyer\_ID*  *Communication\_Rating*  *Professionalism\_Rating*  *Satisfaction\_Rating*  *FOREIGN KEY Case\_ID*  *REFERENCES TABLE Case*  *FOREIGN KEY Client\_ID*  *REFERENCES TABLE Client*  *FOREIGN KEY Lawyer\_ID*  *REFERENCES TABLE Lawyer* | ***Feedback***  *Feedback\_ID-primary key*  *Feedback\_Date*  *Case\_ID*  *Client\_ID*  *Lawyer\_ID*  *Overall\_Satisfaction*  *FOREIGN KEY Case\_ID*  *REFERENCES TABLE Case*  *FOREIGN KEY Client\_ID*  *REFERENCES TABLE Client*  *FOREIGN KEY Lawyer\_ID*  *REFERENCES TABLE Lawyer* | Combining personal communication, professionalism, and satisfaction ratings into a single "overall satisfaction" attribute in your feedback form streamlines the feedback process, unifies ratings, simplifies analysis, and provides a complete view of customer satisfaction. | |
| 7. | Trials  Trial\_ID- primary key  Trial\_Date  Trial\_Status  Court\_ID  Case\_ID  Client\_ID  Lawyer\_ID  Judge\_ID  Law\_ID  FOREIGN KEY Court\_ID  REFERENCES TABLE Court  FOREIGN KEY Case\_ID  REFERENCES TABLE Case  FOREIGN KEY Client\_ID  REFERENCES TABLE Client  FOREIGN KEY Lawyer\_ID  REFERENCES TABLE Lawyer  FOREIGN KEY Judge\_ID  REFERENCES TABLE Judge  FOREIGN KEY Law\_ID  REFERENCES TABLE Code of Law | Trials  Trial\_ID-primary key  Trial\_Date  Trial\_Status  Court\_ID  Case\_ID  Client\_ID  Lawyer\_ID  Law\_ID  FOREIGN KEY Court\_ID  REFERENCES TABLE Court  FOREIGN KEY Case\_ID  REFERENCES TABLE Case  FOREIGN KEY Client\_ID  REFERENCES TABLE Client  FOREIGN KEY Lawyer\_ID  REFERENCES TABLE Lawyer  FOREIGN KEY Law\_ID  REFERENCES TABLE Code of Law | Judge\_ID is removed in trials table as the relationship of “Judge\_ID” entity and “Trials” table are not same as the ERD diagram as it will affect the accuracy of our database system. | |
| 8. | ***Case***  *Case\_ID-primary*  *key*  *Client\_ID*  *Lawyer\_ID*  *Case\_Date*  *FOREIGN KEY*  *Client\_ID*  *REFERENCES*  *TABLE Client*  *FOREIGN KEY*  *Lawyer\_ID*  *REFERENCES TABLE Lawyer* | ***Case***  *Case\_ID-primary key*  *Client\_ID*  *Lawyer\_ID*  *Case\_Date*  *Closed\_Date*  *Case\_Status*  *Case\_Results*  *Payments\_ID*  *FOREIGN KEY*  *Client\_ID*  *REFERENCES*  *TABLE Client*  *FOREIGN KEY*  *Lawyer\_ID*  *REFERENCES*  *TABLE Lawyer*  *FOREIGN KEY*  *Payments\_ID*  *REFERENCES*  *TABLE PAYMENTS* | Expanding the Case table to include Closed\_Date, Case\_Status, and Case\_Results provides essential details about case closure, status, and outcomes, facilitating better case management and analysis. Expanding the Case table to include Payments\_ID allows for direct association with the payment details linked to a specific case. By referencing the Payments table via this identifier, it enables efficient tracking and association of payments made or received that correspond to a particular case outcome. | |

# **Part 3: Implement a database (30 marks)**

## Attributes and their data types

|  |  |  |  |
| --- | --- | --- | --- |
| Table/attributes | Description | Data Type | Justification |
| ***CLIENT*** | Table name | **-** |  |
| *Client\_ID* | Client identification number | CHAR (5) | Fixed number of digits eg; 230211120 |
| *Client\_Name* | Client name | VARCHAR 2(30) | The name field value is a variable with different length |
| *Client\_Address* | Client address | VARCHAR2(100) | The address field value is a variable with different length |
| *Client\_Contact\_ Number* | Client contact number | CHAR (10) | Fixed number of digits |
| **LAWYER** | Table name | **-** |  |
| Lawyer\_ID | Unique identifier for each lawyer | CHAR (6) | Fixed number of characters eg; AX1201 |
| *Lawyer\_Name* | Lawyer name | VARCHAR 2(30) | The name field value is a variable with different length |
| *Lawyer\_Address* | Lawyer address | VARCHAR2(100) | Address field value is a variable with different length |
| *Lawyer\_Contact\_Number* | Lawyer contact number | CHAR (10) | Fixed number of digits |
| *Lawyer\_Email* | Lawyer Email | VARCHAR (40) | Email field value is a variable with different length |
| *Years\_Of\_Service* | How many years the lawyer has been in service | INTERVAL YEAR [(year\_precision)] TO MONTH | stores intervals using year and month. |
| **TRIALS** |  |  |  |
| Trial\_ID | Trial identification number | CHAR (8) | Fixed number of characters |
| Trial\_Date | Trial date | DATE | Ensure accurate data storage |
| Trial\_Status | Trial status | VARCHAR2 (10) | Stores variable-length of characters, eg; win / lose / pending |
| Court\_ID | Court identification number | NUMBER(3, 0) | Fixed number of numbers |
| Case\_ID | Case identification number | CHAR (7) | Fixed number of characters eg; CG42790 |
| Client\_ID | Client identification number | CHAR (5) | Fixed number of characters |
| Lawyer\_ID | Unique identifier for each lawyer | CHAR (6) | Fixed number of characters eg; AX1201 |
| Law\_ID | Law identification number | CHAR(5) | Fixed number of characters |
| **CASE** |  |  |  |
| Case\_ID | Case identification number | CHAR (7) | Fixed number of characters eg; CG42790 |
| Client\_ID | Client identification number | CHAR (5) | Fixed number of characters |
| Lawyer\_ID | Unique identifier for each lawyer | CHAR (6) | Fixed number of characters eg; AX1201 |
| Case\_Date | Date of case filed | DATE | Store date |
| Closed\_Date | Date of case closed | DATE | Store date |
| Case\_Status | Stores the status of the case whether closed or ongoing | VARCHAR (7) | Enable flexible storage of case-related details, eg; open / closed |
| Case\_Result | Case result | VARCHAR (78) | Stores variable-length of characters, eg; won / lost / pending |
| PAYMENTS\_ID | Payment’s unique ID | CHAR(3) | Fixed number of characters eg; A01 |
| **JUDGES** |  |  |  |
| Judge\_ID | Judge identification number | Number (6,0) | Fixed number of numbers |
| Judge\_ Name | Judge name | VARCHAR2 (30) | The name field value is a variable with different length |
| Judge\_ Address | Judge address | VARCHAR2 (40) | Address field value is a variable with different length |
| Judge\_Contact\_Number | Judge contact number | CHAR (10) | Fixed number of characters |
| Judge\_Email | Judge’s email | VARCHAR2 (40) | Email field is a variable with different length |
| Experience\_Level | Judge experience level | VARCHAR (20) | flexible storage solution for describing various levels of judge experience |
| **COURT** |  |  |  |
| Court\_ID | Court identification number | Number (3,0) | Fixed number of digits |
| class\_type | Court class type | CHAR (1) | Either A, B, or C |
| Court\_location | Court location | CHAR (5) | The address field value is a variable with different length |
| **CODE OF LAW** |  |  |  |
| Law\_ID | Law identification number | CHAR (5) | Fixed number of characters |
| Violation | Violation type | VARCHAR2 (50) | Fixed variable length |
| Description | Description of the Law | CLOB | Store large amount of character data |
| Penalty | Penalty | VARCHAR (50) | Fixed variable length |
| **JUDGE\_ASSIGNED** |  |  |  |
| Judge\_ID | Lawyer identification number | NUMBER (6) | Fixed number of characters eg; AX1201 |
| Trial\_ID | Trial identification number | CHAR (8) | Fixed number of characters |
| **FEEDBACK** |  |  |  |
| Feedback\_ID | Feedback identification number | CHAR (8) | Fixed number of characters e.g. “FB1000A” |
| Date | Date of the feedback given | DATE | Ensure accurate data storage |
| Case\_ID | Case identification number | CHAR (7) | Fixed number of characters eg; CG42790 |
| Client\_ID | Client identification number | CHAR (5) | Fixed number of characters |
| Lawyer\_ID | Unique identifier for each lawyer | CHAR (6) | Fixed number of characters eg; AX1201 |
| Overall\_Satisfaction | Feedback given in terms of overall satisfaction | Number (1) | Fixed number of digits |
| **PAYMENTS** |  |  |  |
| PAYMENTS\_ID | Payment identification number | CHAR (3) | Fixed number of characters eg; A01 |
| Payer | Who made the payment. (Client or Opposing) | VARCHAR(8) | Flexible storage of payer with different lengths |
| PAYMENTS\_stat | Status of the payment | VARCHAR (10) | Flexible storage of payment status with efficient memory usage |
| PAYMENTS\_amt | Payment amount | DECIMAL(7,2) | store double-precision floating-point numbers |
| PAYMENTS\_date | Date when payment was made | DATE | Ensure accurate data storage |
| **FIELD OF EXPERTISE** |  |  |  |
| Field\_ID | Unique identifier for each field of expertise | Number (2, 0) | Fixed number of digits |
| Field\_Name | Name of the Field Expertise | VARCHAR2(255) | Flexibility in storing various field names with differing lengths. e.g. "Criminal Law" |
| Field\_Description | Description of the Field | CLOB | Store large amount of character data |
| **LAWYER FIELD EXPERTISE** |  |  |  |
| Lawyer\_ID | Unique identifier for each lawyer | CHAR (6) | Fixed number of characters e.g. "AX1201" |
| Field\_ID | Unique identifier for each field of expertise | Number (2, 0) | Fixed number of digits |

## Database script listing

-- Dropping tables with correct syntax

DROP TABLE feedback CASCADE CONSTRAINTS;

DROP TABLE Clients CASCADE CONSTRAINTS;

DROP TABLE Lawyer CASCADE CONSTRAINTS;

DROP TABLE Trial CASCADE CONSTRAINTS;

DROP TABLE code\_of\_law CASCADE CONSTRAINTS;

DROP TABLE court CASCADE CONSTRAINTS;

DROP TABLE PAYMENTS CASCADE CONSTRAINTS;

DROP TABLE Case CASCADE CONSTRAINTS;

DROP TABLE judges CASCADE CONSTRAINTS;

DROP TABLE JUDGE\_ASSIGNED CASCADE CONSTRAINTS;

DROP TABLE FIELD\_OF\_EXPERTISE CASCADE CONSTRAINTS;

 DROP TABLE LAWYER\_FIELD\_EXPERTISE CASCADE CONSTRAINTS;

-- Creating tables with corrected constraints and relationships

CREATE TABLE Clients (

    Client\_ID CHAR(5) PRIMARY KEY,

    Client\_Name VARCHAR2(30),

     Client\_Address VARCHAR2(100),

     Client\_Contact\_Number CHAR(10)

 );

CREATE INDEX idx\_client\_contact\_number ON Clients(Client\_Contact\_Number);  

 INSERT INTO Clients VALUES ('A1001', 'Sam Wong', '4, Jalan Puchong,Bandar Bukit Puchong,47120 Puchong,Selangor.', '0122079999');

 INSERT INTO Clients VALUES ('A1002', 'Chong York Ching', '51,Jln 2/16,Bandar Baru Selayang,68100 Selayang,Selangor.', '0180704003');

 INSERT INTO Clients VALUES ('A1003', 'Leong Sok Peng', '13,Jalan 20/7,Paramount Garden,46300 Petaling Jaya,Selangor.','0131111208');

 INSERT INTO Clients VALUES ('A1004', 'Farhana Zikri', '11,Jalan P 2/18,Seksyen 2,Bandar Teknologi,43500 Kajang,Selangor.', '0190102345');

INSERT INTO Clients VALUES ('A1005', 'Yana Puteri', '20,Jalan Utara,55100 Wilayah Persekutuan,Kuala Lumpur.', '0175454301');

 INSERT INTO Clients VALUES ('A1006', 'Will Wong', '18,Jalan Rebana,Taman Jaya,41200 Klang,Selangor.', '0101112656');

 INSERT INTO Clients VALUES ('A1007', 'Chong York Ching', '3,Jalan SS7/19,Kelana Jaya,47301 Petaling Jaya,Selangor.', '0116066654');

 INSERT INTO Clients VALUES ('A1008', 'Cheong Chyi Bin', '51-52,Jalan Tun Abdul Aziz,Bandar Kajang,43000 Kajang,Selangor.', '0190187656');

 INSERT INTO Clients VALUES ('A1009', 'Wong Shi Qing', '20-1,Jalan PJU 8/5G,Bandar Damansara Perdana,47820 Petaling Jaya,Selangor.', '0178881716');

 INSERT INTO Clients VALUES ('A1010', 'Amir Ismail', '8,Jalan SS 6/1,Kelana Jaya,47301 Petaling Jaya,Selangor.', '0115980332');

 INSERT INTO Clients VALUES ('A1011', 'Chua Sui Lee', '19,Jalan Maju 2/1,Taman Lembah Maju,56100 Wilayah Perseutuan,Kuala Lumpur', '0101110789');

 INSERT INTO Clients VALUES ('A1012', 'Lewis Leong', '3-12A Jalan Pju 8/3, Damansara Perdana,47820 Petaling Jaya,Selangor.', '0150409832');

 INSERT INTO Clients VALUES ('A1013', 'Lam Xin Yee', '25,Jalan 51A/243,Seksyen 51A,46000 Petaling Jaya,Selangor.', '0178786101');

 INSERT INTO Clients VALUES ('A1014', 'Tan Zhi Huey', 'B-86,Jalan Othman Seksyen 1,46000 Petaling Jaya', '0102005002');

 INSERT INTO Clients VALUES ('A1015', 'Ismail Ali', '139,Jalan SS 19/6, 47500 Petaling Jaya,Selangor.', '0125450888');

 CREATE TABLE Lawyer (

    Lawyer\_ID CHAR(6) PRIMARY KEY,

    Lawyer\_Name VARCHAR2(30),

    Lawyer\_Address VARCHAR2(100),

     Lawyer\_Contact\_Number CHAR(10),

     Lawyer\_Email VARCHAR2(40),

     Years\_Of\_Service INTERVAL YEAR TO MONTH

 );

CREATE INDEX idx\_lawyer\_name ON Lawyer(Lawyer\_Name);

INSERT INTO Lawyer VALUES ('LA1201', 'Leong Ming', 'No. 23, Jalan PJS 7/19, Bandar Sunway, 46150 Subang Jaya, Selangor.', '0143221288', 'leongming1201@gmail.com',  INTERVAL '3-1' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1202', 'Chong Xuan Ni', '1179, Jln Subang Batu 3, 40000 Shah Alam, Selangor.', '0122623443', 'xuanni1202@gmail.com', INTERVAL '3-6' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1203', 'Lim Man Ting', 'No. 284, Jalan Batu Unjur 7, Bayu Perdana, 41200 Klang, Selangor.', '0122612212', 'manting1203@gmail.com', INTERVAL '2-9' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1204', 'John Chin', '35, Jalan Ss 17/1F, 47500 Subang Jaya, Selangor.', '0145670104', 'johnchin1204@gmail.com', INTERVAL '1-6' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1205', 'Carmen Lim', 'No. 44, Jln Segambut, Pusat Taman Segambut, 51200 Wilayah Persekutuan, Kuala Lumpur.', '0112214533', 'carmenlim1205@gmail.com', INTERVAL '1-8' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1206', 'Ali Fariz', 'No. 5, Jalan Gopeng, Jalan Pasar, 41400 Klang, Selangor.', '0122623493', 'alifariz1206@gmail.com', INTERVAL '3-6' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1207', 'Wong Man Khei', '127, Jalan Kristal L 7/L, Seksyen 7, 40000 Shah Alam, Selangor.', '0122210543', 'mankhei1207@gmail.com', INTERVAL '2-6' YEAR TO MONTH);   
   
 INSERT INTO Lawyer VALUES ('LA1208', 'Sam Chong', '16 Jalan Ss6/8, Ss6, 47301 Petaling Jaya,Selangor.', '0190081200', 'samchong1208@gmail.com', INTERVAL '2-3' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1209', 'Puteri Bunga', '11B,Jalan Tk 1/11A Taman Kinrara 47100 Puchong,Selangor.', '0196998650', 'puteribunga1209@gmail.com', INTERVAL '3-1' YEAR TO MONTH);

INSERT INTO Lawyer VALUES ('LA1210', 'Khadijah Amir', '25,Jalan Scott,50470 Wilayah Persekutuan,Kuala Lumpur.', '0190081700', 'khadijah1210@gmail.com', INTERVAL '2-9' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1211', 'George Lim', '25,Jalan SS14/2,431300 Petaling Jaya, Selangor', '0190012009', 'georgelim1211@gmail.com', INTERVAL '1-9' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1212', 'Loke Xin Yu', '11,Jalan Utah,Bukit Bintang,50470 Wilayah Persekutuan,Kuala Lumpur.', '0190050300', 'xinyu1212@gmail.com', INTERVAL '2-1' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1213', 'Lok Zai Mei', '19,Jalan Westside,Desa Park City,50120 Petaling Jaya,Selangor.', '0153112023', 'zaimei1213@gmail.com', INTERVAL '2-5' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1214', 'Siow Mei Xuan', '10,Jalan BPP 4/4a,Kota Damansara, 47301 Petaling Jaya,Selangor.', '0153112023', 'meixuan1214@gmail.com', INTERVAL '3-8' YEAR TO MONTH);

 INSERT INTO Lawyer VALUES ('LA1215', 'Yong Zi Ning', '12,Jalan KD12/1,Kota Damansara, 47301 Petaling Jaya,Selangor.', '0153112023', 'meixuan1214@gmail.com', INTERVAL '1-2' YEAR TO MONTH);

ALTER TABLE Lawyer ADD Service\_Period VARCHAR2(20);

 UPDATE Lawyer

SET Service\_Period = EXTRACT(YEAR FROM Years\_Of\_Service) || ' years ' || EXTRACT(MONTH FROM Years\_Of\_Service) || ' months';

 ALTER TABLE Lawyer DROP COLUMN Years\_Of\_Service;

ALTER TABLE Lawyer RENAME COLUMN Service\_Period TO Years\_Of\_Service;

--is sequence of commands first adding a new column (Service\_Period) to store the formatted service period data.

--Then, it populates this new column with the formatted information extracted from the original Years\_Of\_Service column. (x years y months)

-- Afterwards, removes the original column and renames the new column to maintain the structure while updating the representation of the service period.

CREATE TABLE judges (

    Judge\_ID NUMBER(6, 0) PRIMARY KEY,

    Judge\_Name VARCHAR2(30),

    Judge\_Address VARCHAR2(100),

     Judge\_Contact\_Number CHAR(10),

     Judge\_Email VARCHAR2(40) CHECK (REGEXP\_LIKE(Judge\_Email, '^[A-Za-z0-9.\_%+-]+@[A-Za-z0-9.-]+\.[A-Z|a-z]{2,}$')),

     Experience\_Level VARCHAR2(20) CHECK (Experience\_Level IN ('Junior', 'Senior'))

);

 CREATE INDEX idx\_judges\_name ON judges(Judge\_Name);

 INSERT INTO judges VALUES('230160', 'Jack Smith', '22, Jalan Meranti, Taman Bukit Perdana, 43000 Kajang, Selangor.', '0126541203', 'smith54@gmail.com', 'Senior');

 INSERT INTO judges VALUES('230161', 'W Johnson', '45, Jalan Delima, Bandar Baru Bangi, 43650 Bangi, Selangor.', '0165421507', '120johnson@gmail.com', 'Junior');

 INSERT INTO judges VALUES('230162', 'Williams Kim', '78, Jalan Anggerik, Kota Damansara, 47810 Petaling Jaya, Selangor.', '0115495200', 'williamskim@gmail.com', 'Senior');

INSERT INTO judges VALUES('230163', 'Careen Tan', '32, Jalan Seroja, Bukit Jelutong, 40150 Shah Alam, Selangor.', '0125548785', 'careenthye@gmail.com', 'Junior');

 INSERT INTO judges VALUES('230164', 'Lee Vanessa', '55, Jalan Cengal, Bandar Utama, 47800 Petaling Jaya, Selangor.', '0185462001', 'leevanessa98@gmail.com', 'Senior');

 INSERT INTO judges VALUES('230165', 'Isaac Miller', '88, Jalan Teratai, Subang Jaya, 47620 Subang Jaya, Selangor.', '0187658133', 'miller23hng@gmail.com', 'Junior');

 INSERT INTO judges VALUES('230166', 'Cheah Joyce', '12, Jalan Mawar, Puchong Jaya, 47100 Puchong, Selangor.', '0135421022', 'joycechy8@gmail.com', 'Senior');

 INSERT INTO judges VALUES('230167', 'Ooi Tyler', '67, Jalan Dahlia, Seri Kembangan, 43300 Seri Kembangan, Selangor.', '0111235451', 'tyler2543@gmail.com', 'Junior');

 INSERT INTO judges VALUES('230168', 'Ching Jeslyn', '98, Jalan Kenanga, Ampang, 68000 Ampang, Selangor.', '0178520035', 'jjeslyn@gmail.com', 'Senior');

 INSERT INTO judges VALUES('230169', 'Hong Melissa', '41, Jalan Angsana, Cyberjaya, 63000 Cyberjaya, Selangor.', '0126875124', 'melissaa111@gmail.com', 'Junior');

 INSERT INTO judges VALUES('230170', 'John Doe', '64, Jalan Bunga Raya, Putrajaya, 62000 Putrajaya.', '0127487681', 'johndoe@gmail.com', 'Senior');

 INSERT INTO judges VALUES('230171', 'Kim Jennie', '27, Jalan Melor, Klang, 41000 Klang, Selangor.', '0198745622', 'janesmith@gmail.com', 'Junior');

 INSERT INTO judges VALUES('230172', 'Michael Johnson', '76, Jalan Dahlia, Shah Alam, 40460 Shah Alam, Selangor.', '0100427893', 'michaeljohnson@gmail.com', 'Senior');

 INSERT INTO judges VALUES('230173', 'Tan Emily', '21, Jalan Cempaka, Kota Kemuning, 40460 Shah Alam, Selangor.', '0164867004', 'emilywilliams@gmail.com', 'Junior');

 INSERT INTO judges VALUES('230174', 'Robert Lee', '53, Jalan Baiduri, Sungai Buloh, 47000 Sungai Buloh, Selangor.', '0187610505', 'robertlee@gmail.com', 'Senior');

CREATE TABLE PAYMENTS (

     PAYMENTS\_ID CHAR(3) PRIMARY KEY,

     payer VARCHAR(8) CHECK (payer IN ('Client','Opposing')),

     PAYMENTS\_stat VARCHAR(10) CHECK (PAYMENTS\_stat IN ('Paid','Unpaid')),

     PAYMENTS\_amt DECIMAL(7,2) CHECK (PAYMENTS\_amt >= 0) NOT NULL,

     PAYMENTS\_date DATE

 );

 CREATE OR REPLACE TRIGGER trg\_payments\_date

 BEFORE INSERT OR UPDATE ON PAYMENTS

 FOR EACH ROW

 BEGIN

IF :new.PAYMENTS\_stat = 'Paid' AND :new.payer IS NULL THEN

         RAISE\_APPLICATION\_ERROR(-20005, 'Payments with status "Paid" must have a payer');

     END IF;

    IF :new.PAYMENTS\_date > SYSDATE THEN

         RAISE\_APPLICATION\_ERROR(-20004, 'Payments date cannot be in the future');

     END IF;

 END;

 /

INSERT INTO PAYMENTS VALUES('A01', 'Client', 'Paid', 14450, TO\_DATE('2023-06-01', 'YYYY-MM-DD'));

 INSERT INTO PAYMENTS VALUES('A02', 'Client', 'Paid', 15050, TO\_DATE('2023-06-02', 'YYYY-MM-DD'));

 INSERT INTO PAYMENTS VALUES('B03', 'Opposing', 'Unpaid', 20000, NULL);

 INSERT INTO PAYMENTS VALUES('B04', 'Client', 'Paid', 13400, TO\_DATE('2023-06-10', 'YYYY-MM-DD'));

 INSERT INTO PAYMENTS VALUES('C05', NULL, 'Unpaid', 14000, NULL);

 INSERT INTO PAYMENTS VALUES('D06', 'Opposing', 'Paid', 24000, TO\_DATE('2023-07-20', 'YYYY-MM-DD'));

 INSERT INTO PAYMENTS VALUES('C07', 'Opposing', 'Unpaid', 10890, NULL);

 INSERT INTO PAYMENTS VALUES('C08', 'Client', 'Paid', 16700, TO\_DATE('2023-08-01', 'YYYY-MM-DD'));

 INSERT INTO PAYMENTS VALUES('A09', 'Client', 'Paid', 13500, TO\_DATE('2023-08-14', 'YYYY-MM-DD'));

 INSERT INTO PAYMENTS VALUES('B10', NULL, 'Unpaid', 18900, NULL);

 INSERT INTO PAYMENTS VALUES('D11', 'Client', 'Unpaid', 6700, NULL);

 INSERT INTO PAYMENTS VALUES('A12', 'Client', 'Paid', 5400, TO\_DATE('2023-10-18', 'YYYY-MM-DD'));

 INSERT INTO PAYMENTS VALUES('D13', 'Opposing', 'Unpaid', 23450, NULL);

 INSERT INTO PAYMENTS VALUES('B14', 'Client', 'Unpaid', 9700, NULL);

INSERT INTO PAYMENTS VALUES('C15', 'Client', 'Paid', 12340, TO\_DATE('2023-10-23', 'YYYY-MM-DD'));

 INSERT INTO PAYMENTS VALUES('A16', 'Client', 'Unpaid', 13455, NULL);

INSERT INTO PAYMENTS VALUES('A17', 'Opposing', 'Paid', 15670, TO\_DATE('2023-10-27', 'YYYY-MM-DD'));

 INSERT INTO PAYMENTS VALUES('D18', NULL, 'Unpaid', 17890, NULL);

 INSERT INTO PAYMENTS VALUES('C19', 'Client', 'Unpaid', 27800, NULL);

 INSERT INTO PAYMENTS VALUES('B20', NULL, 'Unpaid', 5000, NULL);

CREATE TABLE Case (

     Case\_ID CHAR(7) PRIMARY KEY,

     Client\_ID CHAR(5),

     Lawyer\_ID CHAR(6),

     Case\_Date DATE,

     Closed\_Date DATE NULL,

     Case\_Status VARCHAR2(7) CONSTRAINT chk\_Case\_Status CHECK (Case\_Status IN ('Closed', 'Ongoing')),

     Case\_Results VARCHAR(8),

     PAYMENTS\_ID CHAR(3),

     CONSTRAINT fk\_Client FOREIGN KEY (Client\_ID) REFERENCES Clients(Client\_ID),

     CONSTRAINT fk\_Lawyer FOREIGN KEY (Lawyer\_ID) REFERENCES Lawyer(Lawyer\_ID),

     CONSTRAINT fk\_Payment FOREIGN KEY (PAYMENTS\_ID) REFERENCES PAYMENTS(PAYMENTS\_ID)

 );

 CREATE INDEX idx\_Client\_ID ON Case(Client\_ID);

 CREATE OR REPLACE TRIGGER trg\_case\_date

BEFORE INSERT OR UPDATE ON Case

 FOR EACH ROW

 BEGIN

     IF :new.Case\_Date > SYSDATE THEN

         RAISE\_APPLICATION\_ERROR(-20001, 'Case date cannot be in the future');

     END IF;

 END;

 /

INSERT INTO Case VALUES('CG42801', 'A1001', 'LA1201', DATE'2023-04-05', DATE'2023-06-06', 'Closed', 'Won', 'A01');

 INSERT INTO Case VALUES('CG42802', 'A1002', 'LA1202', DATE'2023-04-06', DATE'2023-06-07', 'Closed', 'Won', 'A02');

 INSERT INTO Case VALUES('CG42803', 'A1003', 'LA1203', DATE'2023-04-11', DATE'2023-06-12', 'Closed', 'Won', 'B03');

 INSERT INTO Case VALUES('CG42804', 'A1004', 'LA1204', DATE'2023-04-14', DATE'2023-06-15', 'Closed', 'Won', 'B04');

 INSERT INTO Case VALUES('CG42805', 'A1005', 'LA1205', DATE'2023-04-19', NULL, 'Ongoing', 'Pending', 'C05');

 INSERT INTO Case VALUES('CG42806', 'A1006', 'LA1206', DATE'2023-05-28', DATE'2023-07-29', 'Closed', 'Won', 'D06');

 INSERT INTO Case VALUES('CG42807', 'A1007', 'LA1207', DATE'2023-05-29', DATE'2023-07-30', 'Closed', 'Won', 'C07');

 INSERT INTO Case VALUES('CG42808', 'A1008', 'LA1208', DATE'2023-05-30', DATE'2023-07-31', 'Closed', 'Won', 'C08');

 INSERT INTO Case VALUES('CG42809', 'A1009', 'LA1209', DATE'2023-06-03', DATE'2023-08-04', 'Closed', 'Lost', 'A09');

 INSERT INTO Case VALUES('CG42810', 'A1010', 'LA1210', DATE'2023-06-16', NULL, 'Ongoing', 'Pending', 'B10');

 INSERT INTO Case VALUES('CG42811', 'A1011', 'LA1211', DATE'2023-06-17', DATE'2023-08-18', 'Closed', 'Lost', 'D11');

 INSERT INTO Case VALUES('CG42812', 'A1012', 'LA1208', DATE'2023-06-19', DATE'2023-08-20', 'Closed', 'Won', 'A12');

 INSERT INTO Case VALUES('CG42813', 'A1013', 'LA1214', DATE'2023-07-15', DATE'2023-10-16', 'Closed', 'Won', 'D13');

 INSERT INTO Case VALUES('CG42814', 'A1014', 'LA1205', DATE'2023-08-17', DATE'2023-10-18', 'Closed', 'Won', 'B14');

 INSERT INTO Case VALUES('CG42815', 'A1015', 'LA1212', DATE'2023-08-19', DATE'2023-10-20', 'Closed', 'Won', 'C15');

 INSERT INTO Case VALUES('CG42816', 'A1004', 'LA1204', DATE'2023-08-20', DATE'2023-10-21', 'Closed', 'Lost', 'A16');

 INSERT INTO Case VALUES('CG42817', 'A1006', 'LA1215', DATE'2023-08-25', DATE'2023-10-26', 'Closed', 'Won', 'A17');

 INSERT INTO Case VALUES('CG42818', 'A1006', 'LA1208', DATE'2023-09-06', NULL, 'Ongoing', 'Pending', 'D18');

 INSERT INTO Case VALUES('CG42819', 'A1009', 'LA1210', DATE'2023-09-10', DATE'2023-04-06', 'Closed', 'Won', 'C19');

INSERT INTO Case VALUES('CG42820', 'A1014', 'LA1213', DATE'2023-10-27', NULL, 'Ongoing', 'Pending', 'B20');

 CREATE TABLE court(

     Court\_ID NUMBER(3, 0) PRIMARY KEY,

    class\_type CHAR(1) CHECK (class\_type IN ('A', 'B', 'C')),

     court\_location CHAR(5)

 );

INSERT INTO court VALUES ('1','A','R1');

INSERT INTO court VALUES ('2','A','R2');

INSERT INTO court VALUES ('3','A','R3');

INSERT INTO court VALUES ('4','A','R4');

INSERT INTO court VALUES ('5','A','R5');

 INSERT INTO court VALUES ('6','B','R6');

 INSERT INTO court VALUES ('7','B','R7');

 INSERT INTO court VALUES ('8','B','R8');

 INSERT INTO court VALUES ('9','B','R9');

 INSERT INTO court VALUES ('10','B','R10');

 INSERT INTO court VALUES ('11','C','R11');

 INSERT INTO court VALUES ('12','C','R12');

 INSERT INTO court VALUES ('13','C','R13');

 INSERT INTO court VALUES ('14','C','R14');

 INSERT INTO court VALUES ('15','C','R15');

 CREATE TABLE feedback (

    feedback\_ID CHAR(8) PRIMARY KEY,

     feedback\_Date DATE,

     Case\_ID CHAR(7),

     Client\_ID CHAR(5),

     Lawyer\_ID CHAR(6),

  Overall\_Satisfaction NUMBER(1) CHECK (Overall\_Satisfaction BETWEEN 1 AND 5),

    FOREIGN KEY (Client\_ID) REFERENCES Clients(Client\_ID),

     FOREIGN KEY (Lawyer\_ID) REFERENCES Lawyer(Lawyer\_ID),

     FOREIGN KEY (Case\_ID) REFERENCES Case(Case\_ID)

 );

 INSERT INTO feedback VALUES ( 'FB1000A', DATE '2023-06-08','CG42801', 'A1001', 'LA1201',3);

 INSERT INTO feedback VALUES ( 'FB1001A', DATE '2023-06-09', 'CG42802', 'A1002', 'LA1202',5);

 INSERT INTO feedback VALUES ( 'FB1002A', DATE '2023-06-15', 'CG42803', 'A1003', 'LA1203',4);

 INSERT INTO feedback VALUES ( 'FB1003A', DATE '2023-06-20','CG42804', 'A1004', 'LA1204',3);

 INSERT INTO feedback VALUES ( 'FB1005A', DATE '2023-07-29', 'CG42806', 'A1006', 'LA1206',3);

INSERT INTO feedback VALUES ( 'FB1006A', DATE '2023-07-30', 'CG42807', 'A1007', 'LA1207',4);

INSERT INTO feedback VALUES ( 'FB1007A', DATE '2023-07-31', 'CG42808', 'A1008', 'LA1208',5);

INSERT INTO feedback VALUES ( 'FB1008A', DATE '2023-08-04', 'CG42809', 'A1009', 'LA1209',2);

INSERT INTO feedback VALUES ( 'FB1010A', DATE '2023-08-18', 'CG42811', 'A1011', 'LA1211',2);

INSERT INTO feedback VALUES ( 'FB1011A', DATE '2023-08-20', 'CG42812', 'A1012', 'LA1208',3);

INSERT INTO feedback VALUES ( 'FB1012A', DATE '2023-10-16', 'CG42813', 'A1013', 'LA1208',5);

INSERT INTO feedback VALUES ( 'FB1013A', DATE '2023-10-18', 'CG42814', 'A1014', 'LA1205',4);

INSERT INTO feedback VALUES ( 'FB1014A', DATE '2023-10-20', 'CG42815', 'A1015', 'LA1202',3);

INSERT INTO feedback VALUES ( 'FB1015A', DATE '2023-10-21', 'CG42816', 'A1004', 'LA1204',5);

INSERT INTO feedback VALUES ( 'FB1016A', DATE '2023-10-26', 'CG42817', 'A1006', 'LA1207',3);

INSERT INTO feedback VALUES ( 'FB1018A', DATE '2023-12-11', 'CG42819', 'A1009', 'LA1210',1);

CREATE TABLE code\_of\_law (

    Law\_ID CHAR(5) PRIMARY KEY,

    Violation VARCHAR2(50),

    Description CLOB,

    Penalty VARCHAR2(50)

);

INSERT INTO code\_of\_law VALUES ('01B', 'Murder','Committing murder with malicious intent','life imprisonment');

INSERT INTO code\_of\_law VALUES ('02C', 'Poisoning','Causing death through poisoning','life imprisonment');

INSERT INTO code\_of\_law VALUES ('03A', 'Manslaughter','Unintentional killing of another person','Fine and community service');

INSERT INTO code\_of\_law VALUES ('04B', 'Terrorism','Use of violence for political purposes','Death');

INSERT INTO code\_of\_law VALUES ('05A', 'Robbery', 'Committing robbery with violence or threat', 'Sentence to jail 30 years');

INSERT INTO code\_of\_law VALUES ('06C', 'Burglary', 'Illegal entry into a building with the intent to commit a crime', 'Sentence to jail 10 years');

INSERT INTO code\_of\_law VALUES ('07B', 'Embezzlement', 'Misappropriation of funds entrusted to one care', 'Sentence to jail 8 years');

INSERT INTO code\_of\_law VALUES ('08A', 'Shoplifting', 'Stealing goods from a store', 'Fine and community service');

INSERT INTO code\_of\_law VALUES ('09B', 'Car Theft', 'Stealing a motor vehicle', 'Sentence to jail 5 years');

INSERT INTO code\_of\_law VALUES ('10C', 'Identity Theft', 'Unauthorized use of someone else\''s identity', 'Sentence to jail 3 years');

INSERT INTO code\_of\_law VALUES ('11B', 'Grand Theft Auto', 'Theft of a motor vehicle with intent to permanently deprive the owner', 'Sentence to jail 5 years');

INSERT INTO code\_of\_law VALUES ('12A', 'Child Exploitation','Sexual exploitation of children','Death');

INSERT INTO code\_of\_law VALUES ('13C', 'Sexual Assault','Sexual assault or abuse, particularly against children','Death');

INSERT INTO code\_of\_law VALUES ('14A', 'Rape','Forced sexual intercourse without consent','Sentence to jail 2 years');

INSERT INTO code\_of\_law VALUES ('15C', 'Sexual Harassment','Unwanted sexual advances or comments','Fine and community service');

CREATE TABLE Trial (

    Trial\_ID CHAR(8) PRIMARY KEY,

    Trial\_Date DATE,

    Trial\_Status VARCHAR2(10),

    Court\_ID NUMBER(3, 0),

    Case\_ID CHAR(7),

    Client\_ID CHAR(5),

    Lawyer\_ID CHAR(6),

    Law\_ID CHAR(5),

    FOREIGN KEY (Court\_ID) REFERENCES court(Court\_ID),

    FOREIGN KEY (Case\_ID) REFERENCES Case(Case\_ID),

    FOREIGN KEY (Client\_ID) REFERENCES Clients(Client\_ID),

    FOREIGN KEY (Lawyer\_ID) REFERENCES Lawyer(Lawyer\_ID),

    FOREIGN KEY (Law\_ID) REFERENCES code\_of\_law(Law\_ID)

);

CREATE OR REPLACE TRIGGER trg\_trial\_date

BEFORE INSERT OR UPDATE ON Trial

FOR EACH ROW

BEGIN

    IF :new.Trial\_Date > SYSDATE THEN

        RAISE\_APPLICATION\_ERROR(-20003, 'Trial date cannot be in the future');

    END IF;

END;

/

INSERT INTO Trial VALUES ('TRI50010', DATE '2023-05-01', 'Win', '1', 'CG42801', 'A1001', 'LA1201', '01B');

INSERT INTO Trial VALUES ('TRI50011', DATE '2023-05-02', 'Win', '2', 'CG42802', 'A1002', 'LA1202', '07B');

INSERT INTO Trial VALUES ('TRI50012', DATE '2023-05-07', 'Win', '9', 'CG42803', 'A1003', 'LA1203','14A');

INSERT INTO Trial VALUES ('TRI50013', DATE '2023-05-10', 'Win', '6', 'CG42804', 'A1004', 'LA1204', '09B');

INSERT INTO Trial VALUES ('TRI50014', DATE '2023-05-15', 'Lost', '4', 'CG42805', 'A1005', 'LA1205','02C');

INSERT INTO Trial VALUES ('TRI50015', DATE '2023-05-15', 'Lost', '13', 'CG42805', 'A1005', 'LA1205','15C');

INSERT INTO Trial VALUES ('TRI50016', DATE '2023-07-15', 'Pending', '7', 'CG42805', 'A1005', 'LA1205','11B');

INSERT INTO Trial VALUES ('TRI50017', DATE '2023-06-20', 'Win', '6', 'CG42806', 'A1006', 'LA1206', '08A');

INSERT INTO Trial VALUES ('TRI50018', DATE '2023-06-21', 'Win', '3', 'CG42807', 'A1007', 'LA1207','03A');

INSERT INTO Trial VALUES ('TRI50019', DATE '2023-06-22', 'Win', '8', 'CG42808', 'A1008', 'LA1208', '09B');

INSERT INTO Trial VALUES ('TRI50020', DATE '2023-07-01', 'Lost', '11', 'CG42809', 'A1009', 'LA1209', '13C');

INSERT INTO Trial VALUES ('TRI50021', DATE '2023-07-14', 'Pending', '5', 'CG42810', 'A1010', 'LA1210','03A');

INSERT INTO Trial VALUES ('TRI50022', DATE '2023-07-16', 'Lost', '7', 'CG42811', 'A1011', 'LA1211', '05A');

INSERT INTO Trial VALUES ('TRI50023', DATE '2023-07-17', 'Win', '8', 'CG42812', 'A1012', 'LA1208', '08A');

INSERT INTO Trial VALUES ('TRI50024', DATE '2023-08-18', 'Lost', '10', 'CG42813', 'A1013', 'LA1214','05A');

INSERT INTO Trial VALUES ('TRI50025', DATE '2023-09-18', 'Win', '6', 'CG42813', 'A1013', 'LA1214', '08A');

INSERT INTO Trial VALUES ('TRI50026', DATE '2023-09-19', 'Win', '1', 'CG42814', 'A1014', 'LA1205', '04B');

INSERT INTO Trial VALUES ('TRI50027', DATE '2023-09-21', 'Win', '3', 'CG42815', 'A1015', 'LA1212','02C');

INSERT INTO Trial VALUES ('TRI50028', DATE '2023-09-23', 'Lost', '10', 'CG42816', 'A1004', 'LA1204','05A');

INSERT INTO Trial VALUES ('TRI50029', DATE '2023-09-27', 'Win', '14', 'CG42817', 'A1006', 'LA1215','12A');

INSERT INTO Trial VALUES ('TRI50030', DATE '2023-09-15', 'Lost', '2', 'CG42818', 'A1006', 'LA1208','03A');

INSERT INTO Trial VALUES ('TRI50031', DATE '2023-10-15', 'Lost', '1', 'CG42818', 'A1006', 'LA1208','03A');

INSERT INTO Trial VALUES ('TRI50032', DATE '2023-11-05', 'Lost', '1', 'CG42818', 'A1006', 'LA1208','03A');

INSERT INTO Trial VALUES ('TRI50033', DATE '2023-11-25', 'Lost', '4', 'CG42818', 'A1006', 'LA1208','03A');

INSERT INTO Trial VALUES ('TRI50034', DATE '2023-12-09', 'Pending', '3', 'CG42818', 'A1006', 'LA1208', '03A');

INSERT INTO Trial VALUES ('TRI50035', DATE '2023-10-12', 'Win', '7', 'CG42819', 'A1009', 'LA1210', '06C');

INSERT INTO Trial VALUES ('TRI50036', DATE '2023-11-12', 'Win', '9', 'CG42819', 'A1009', 'LA1210','10C');

INSERT INTO Trial VALUES ('TRI50037', DATE '2023-11-25', 'Pending', '15','CG42820','A1014','LA1213','15C');

CREATE TABLE JUDGE\_ASSIGNED (

    Judge\_ID NUMBER(6),

    Trial\_ID CHAR(8),

    PRIMARY KEY (Judge\_ID, Trial\_ID),

    FOREIGN KEY (Judge\_ID) REFERENCES judges(Judge\_ID),

    FOREIGN KEY (Trial\_ID) REFERENCES Trial(Trial\_ID)

);

INSERT INTO JUDGE\_ASSIGNED (Judge\_ID, Trial\_ID) VALUES ('230160', 'TRI50010');

INSERT INTO JUDGE\_ASSIGNED (Judge\_ID, Trial\_ID) VALUES ('230161', 'TRI50010');

INSERT INTO JUDGE\_ASSIGNED (Judge\_ID, Trial\_ID) VALUES ('230162', 'TRI50010');

INSERT INTO JUDGE\_ASSIGNED (Judge\_ID, Trial\_ID) VALUES ('230163', 'TRI50011');

INSERT INTO JUDGE\_ASSIGNED (Judge\_ID, Trial\_ID) VALUES ('230164', 'TRI50011');

INSERT INTO JUDGE\_ASSIGNED (Judge\_ID, Trial\_ID) VALUES ('230165', 'TRI50011');

INSERT INTO JUDGE\_ASSIGNED (Judge\_ID, Trial\_ID) VALUES ('230166', 'TRI50012');

INSERT INTO JUDGE\_ASSIGNED (Judge\_ID, Trial\_ID) VALUES ('230167', 'TRI50012');

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INSERT INTO JUDGE\_ASSIGNED (Judge\_ID, Trial\_ID) VALUES ('230166', 'TRI50037');

INSERT INTO JUDGE\_ASSIGNED (Judge\_ID, Trial\_ID) VALUES ('230167', 'TRI50037');

CREATE TABLE FIELD\_OF\_EXPERTISE (

    Field\_ID NUMBER(2, 0) PRIMARY KEY CHECK (Field\_ID > 0),

    Field\_Name VARCHAR2(255) NOT NULL,

    Field\_Description CLOB

);

INSERT INTO FIELD\_OF\_EXPERTISE VALUES (1, 'Criminal Law - Murder', 'Deals with offenses involving homicide.');

INSERT INTO FIELD\_OF\_EXPERTISE VALUES (2, 'Criminal Law - Rape', 'Deals with offenses involving sexual assault.');

INSERT INTO FIELD\_OF\_EXPERTISE VALUES (3, 'Criminal Law - Kidnapping', 'Deals with offenses involving unlawful abduction or detention of individuals.');

INSERT INTO FIELD\_OF\_EXPERTISE VALUES (4, 'Criminal Law - Armed Robbery', 'Deals with offenses involving theft with the use of weapons.');

INSERT INTO FIELD\_OF\_EXPERTISE VALUES (5, 'Criminal Law - Carjacking', 'Deals with offenses involving the theft of a vehicle by force.');

INSERT INTO FIELD\_OF\_EXPERTISE VALUES (6, 'Criminal Law - Attempted Murder', 'Deals with offenses involving the intentional attempt to cause another person/''s death.');

INSERT INTO FIELD\_OF\_EXPERTISE VALUES (7, 'Criminal Law - Armed House Invasion', 'Deals with offenses involving entering a residence with the use of weapons.');

INSERT INTO FIELD\_OF\_EXPERTISE VALUES (8, 'Criminal Law - Burglary', 'Deals with offenses involving unauthorized entry into a building with the intent to commit a crime.');

INSERT INTO FIELD\_OF\_EXPERTISE VALUES (9, 'Criminal Law - White-Collar Crime', 'Deals with non-violent, financially motivated crimes often committed by business professionals or government officials.');

INSERT INTO FIELD\_OF\_EXPERTISE VALUES (10, 'Criminal Law - Cybercrime', 'Deals with offenses related to computer networks, data, and information systems.');

CREATE TABLE LAWYER\_FIELD\_EXPERTISE (

    Lawyer\_ID CHAR(6),

    Field\_ID NUMBER(2, 0),

    PRIMARY KEY (Lawyer\_ID, Field\_ID),

    FOREIGN KEY (Lawyer\_ID) REFERENCES Lawyer(Lawyer\_ID),

    FOREIGN KEY (Field\_ID) REFERENCES FIELD\_OF\_EXPERTISE(Field\_ID)

);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1201', 1);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1202', 2);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1203', 3);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1204', 4);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1205', 5);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1206', 6);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1207', 7);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1208', 8);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1209', 9);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1210', 10);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1201', 2);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1208', 3);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1205', 4);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1202', 1);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1203', 2);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1204', 3);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1206', 4);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1207', 5);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1209', 6);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1210', 7);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1201', 8);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1202', 9);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1203', 4);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1211', 1);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1212', 6);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1213', 5);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1214', 4);

INSERT INTO LAWYER\_FIELD\_EXPERTISE (Lawyer\_ID, Field\_ID) VALUES ('LA1215', 1);

1. Code for specific views

|  |  |  |
| --- | --- | --- |
| Part 4 (Question) | Code | Justification |
| c | CREATE VIEW CaseAndPayment AS  SELECT c.Case\_ID, c.Case\_Date, c.Client\_ID, c.Case\_Status, c.Case\_Results, p.PAYMENTS\_ID, p.PAYMENTS\_amt, p.PAYMENTS\_stat  FROM Case c  RIGHT JOIN PAYMENTS p ON c.PAYMENTS\_ID = p.PAYMENTS\_ID | The "CaseAndPayment" view is designed to merge data from the "Case" and "PAYMENTS" tables through a RIGHT JOIN on the shared field "PAYMENTS\_ID." This view combines essential information, including case ID, date, client ID, status, and results from the "Case" table, along with payment ID, amount, and status from the "PAYMENTS" table, ensuring a comprehensive representation of cases and their associated payments. |
| d | CREATE VIEW LawyerSatisfaction AS  SELECT Lawyer.Lawyer\_ID, Lawyer.Lawyer\_Name, feedback.Overall\_Satisfaction  FROM Lawyer  INNER JOIN feedback ON Lawyer.Lawyer\_ID = feedback.Lawyer\_ID; | The "LawyerSatisfaction" view is created to consolidate crucial data, combining lawyer details from the "Lawyer" table with overall satisfaction feedback from the "feedback" table through an INNER JOIN on the common "Lawyer\_ID." This streamlined view provides a concise and accessible summary of lawyer performance and satisfaction, facilitating efficient decision-making and analysis within the legal context. |
| e | CREATE VIEW Lawyer\_Stats AS  SELECT  l.Lawyer\_ID,  l.Lawyer\_Name,  l.Years\_Of\_Service,  COUNT(CASE WHEN ca.Case\_Results = 'Won' THEN ca.Case\_ID END) AS Cases\_Won,  COUNT(ca.Case\_ID) AS Total\_Cases  FROM  Lawyer l  LEFT JOIN  Case ca ON l.Lawyer\_ID = ca.Lawyer\_ID  GROUP BY  l.Lawyer\_ID, l.Lawyer\_Name, l.Years\_Of\_Service; | The 'Lawyer\_Stats' view shows essential details of lawyers, encompassing information such as the count of cases won ('Cases\_Won') and the total number of cases handled ('Total\_Cases'). This consolidation allows for a comprehensive overview of individual lawyers' performance metrics within the legal practice. |

**Part 4: Query a database (each sub-part carries 5 marks; max of 25 marks)**

|  |  |
| --- | --- |
| No | Query Description |
| a) | The scenario fetches the distinct client IDs and client names who have created a case within the specified date range ('2023-05-01' to '2023-06-01') and have a case result of 'Won'. The MONTHS\_BETWEEN function is used to ensure that the case creation dates fall within 2023-05-01 to 2023-06-01. |
|  | |
| b) | A request has been made by an employee at Sunny Legal Firm for a report containing details of a client case. The primary focus of this report is on the case with the identifier “CG42808”, Client\_ID and the assigned lawyer ‘LA1208’. The report should be sorted based on the case results, with a preference for cases marked as ‘won.’ |
|  | |
| c) | A request has been made by an employee at Sunny Legal Firm for a report containing details of a client. The targeted case’s result is lost, and the payment’s status is unpaid. The employee could only remember that the client stays in Selangor. The focus is on retrieving the client’s contact number. The report should be sorted based on the case’s result as lost, payment’s status as unpaid, and the word Selangor in the client’s address. |
|  | |
| d) | Sunway Legal Firm is keen on identifying highly satisfactory lawyers based on client feedback to reward and acknowledge their exemplary performance. To accomplish this, the firm wants to filter lawyers who have received outstanding overall satisfaction ratings of 4 or more from clients. |
|  | |
| **e)** | Provide a list of exceptional lawyers who have achieved the highest number of cases won. Include their years of service and the total number of customers they have represented (both won and lost). |
| Inserting image... | |

# **Part 5: Teamwork and Presentation (10 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| No | ID | Name | Questions to present |
| a) | 22017503 | Goh Ci Yun | Run batch script,explain table.(client table- court table,alternate keys are expected to be identified) |
| b) | 22035455 | Lam Chee Hiew | Continue explain the table(code\_of\_law – lawyer\_field\_expertise) |
| c) | 22025670 | Ryan Ng Xu Yang | Run specified view table code and explain |
| d) | 23026610 | Pu Xinyi | Run Part 4 SQL Codes for scenario a and b, and explain |
| e) | 21099403 | Wayne Kan Kah Weng | Run Part 4 SQL Codes for scenario c, d, and e, and explain |

## 