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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 AUGUST 2022

### SEG1201: DATABASE FUNDAMENTALS

Due date: Week 14 Monday 28 Nov 2022

STUDENT NAMES: Ashwin Vigneswaran Elena Khoo Sze Kay Soh Xian Jin

STUDENT IDS: 21009527 21012570 20004321

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## INSTRUCTIONS

- This final assessment contributes 50% to your final grade.
- This three-member group assignment 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 **Ashwin Vigneswaran, Elena Khoo Sze Kay, & Soh Xian Jin**, verify that this paper contains our own work entirely. 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 pages 16, 5.5, Appendix 2, page 44 of the student handbook diploma and undergraduate program*) for any kind of copying or collaboration on any assignment."

Ashwin Vigneswaran, Elena Khoo Sze Kay, & Soh Xian Jin, 22/10/2022 (Student signatures/Date)

**Part 5: Teamwork and Presentation (20 marks)**

[https://www.youtube.com/watch?v=m6oM61KIfJg&ab\\_channel=XianJinSoh](https://www.youtube.com/watch?v=m6oM61KIfJg&ab_channel=XianJinSoh)

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

Main Task:

a) Choose one scenario from the three scenarios in Appendix 1. b) You are expected to enhance the scenario by including at least 2 entities and 2 relationships. In not more than 200 words, write your own scenario to complement the originally chosen scenario. The paragraphs must be added to the original scenario, hence known as the enhanced scenario.

What to submit:

- a) The enhanced scenario
- b) Business rules – these establish the constraints needed in the SQL script in Part 3. You may refer to the Data Modelling workbook (Section 3.6 case study) for some examples of business rules.

Important notes:

You can proceed to Part 2 of the assignment only if the enhanced scenario is approved.

### **Scenario 3: SUNNY Legal Firm**

Sunny Legal Firm is a firm owned by a group of lawyers under the supervision of Jie Chan. This firm has established a good reputation of no losses in the courtroom and deals with any business within the city of Kuala Lumpur. The firm deals with part of a criminal law; major violent crimes.

Major violent crimes consist of murder, rape, kidnapping, armed robbery, carjacking, attempted murder, armed house invasion, and burglary.

A civilian who has law problems will usually seek help from this firm and immediately be classified as "client" in the company's database, particulars are stored, and the database will generate a unique ID of the client which is known as "Client Number". Details 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 of that section of law. Lawyer ID is also stored in the customer's record to help in searching the lawyer in charge of handling the case. Each client is only entitled to one lawyer and cannot have any more than that.

Lawyers in this firm are all experienced lawyers with a good reputation in Kuala Lumpur's society. Each lawyer's details are stored in the company's database and given a unique "Lawyer ID" which is invariant. Important particulars such as name, address, contact number, field expertise, case won, and case loss are recorded. Numbers of cases won and lost is essential to prove the ability of the lawyer to handle the case. A lawyer can have more than one customer at a time.

Every case has its own trial. Every time a trial is set, trial no will be created to help in searching trial's information. Date of trial is also taken because lawyers and clients need to know their case trial date. After every trial, status of the trial is edited and only can be either won, lost or pending. Client's ID is important to trial for the firm to counter check which customer is related to which case. For each trial, location code is recorded to check where the trial is being held. One trial is only for one case.

Every country has its own set of laws. In code of law, it is a database or record being stored the type of violation and description about the criminal law being convicted. Penalties of the violation are recorded, and all this data is for lawyers and clients' references. Each code of law is only for one description and penalty.

To run a trial, a court must exist and therefore, lawyers and clients must know the location of the court and its class which shows the level of the court. There are only 3 levels which are A, B and C. A class court handles cases dealing with death. B class court deals with theft cases and C class deals with sexual related case

## **Enhanced Case Scenario**

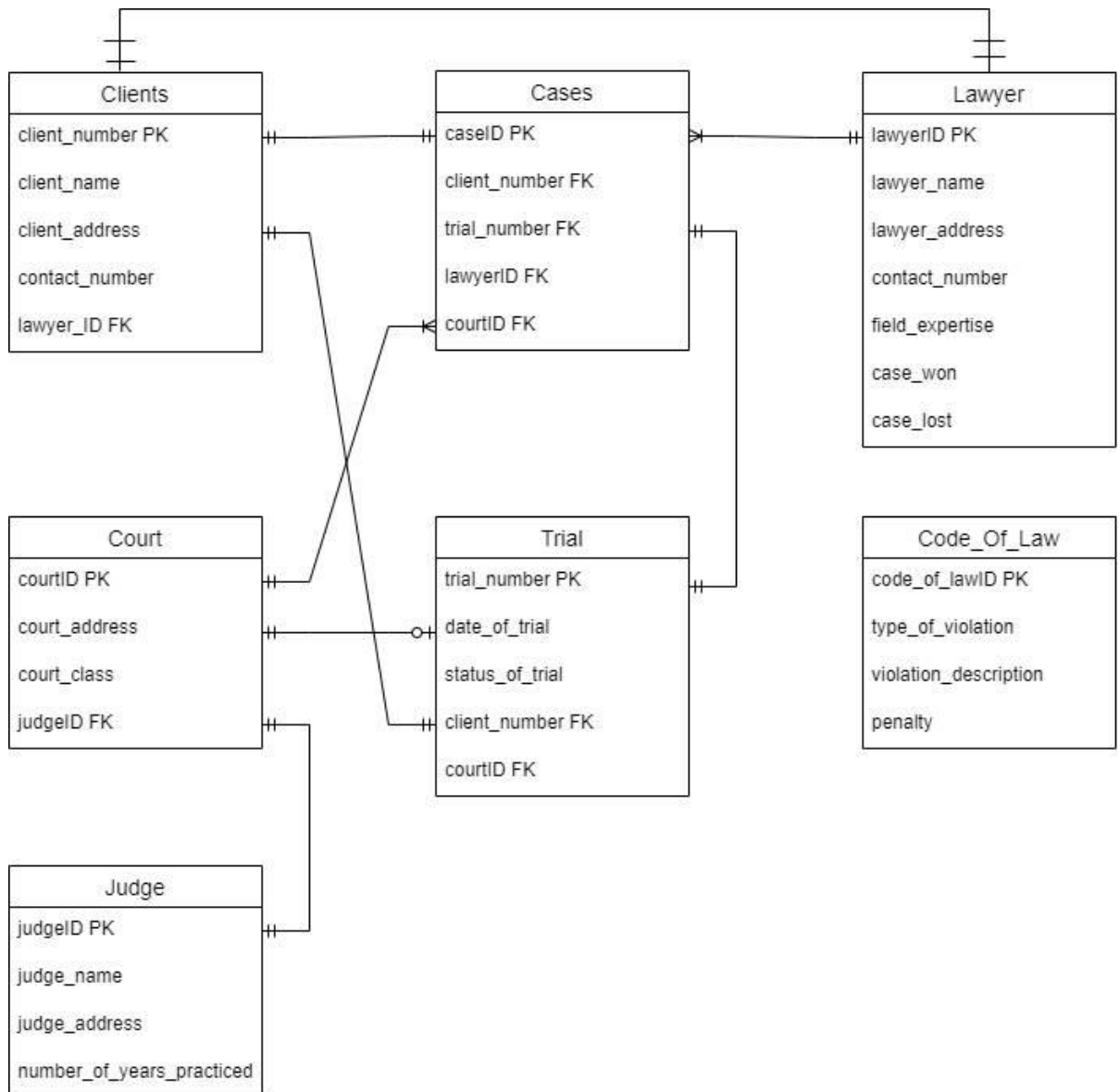
In SUNNY Legal Firm, all judges are recorded for the company's reference, this is so the company can keep track of which judge is tied to each court. Each judge is given a unique "JudgeID". The judge's name, address, and the number of years practiced are also recorded. Each judge is assigned to a court at a time but a court can have many judges.

Furthermore, this firm keeps track of each case in detail for general reference, hence a case table is created. In this case, the table includes "CaseID" which is the primary key, ClientID, Trial Number, LawyerID, and CourtID to show the registered information about the whole case. This is to showcase which case is tied to which client and lawyer, which court it is being held at, and the trial number. A lawyer may handle multiple cases but a client can only have one case at a time. A court can hold many cases and each case is assigned to only one court.

## **Business Rules (based on the enhanced scenario)**

1. Each judge is assigned to a court (1 to 1).
2. A court can have many judges (1 to M).
3. A court may have a trial. (1 to 1 Optional)
4. Each trial is under one case. (1 to 1)
5. Each case can only have one trial. (1 to 1)
6. A lawyer may handle multiple cases (1 to M).
7. A client can only have one case at a time (1 to 1).
8. A court can hold many or no cases. (1 to M Optional).
9. Each case is assigned to only one court (1 to 1).

**Part 2: Design a Database (20 marks)**



### **Part 3: Implement a Database (20 marks)**

All the records are stored in a database. SUNNY Legal Firm does this using 'Oracle Apex', a platform used to code and develop secure and scalable apps like a database. The firm does this because databases store essential and crucial information about the business, including clients, judges, lawyers, and more details that they can keep track of. Furthermore, databases help the company keep track of its relationships and provide them with a space to store the abundant data they have. In order to create the database, they wrote an SQL (Structured Query Language) script to create tables and insert their data:

**CLEAR** SCREEN;

**ALTER SESSION SET NLS\_DATE\_FORMAT** = 'DD-MON-YYYY';

**DROP TABLE** lawyer;

**DROP TABLE** clients;

**DROP TABLE** judge;

**DROP TABLE** court;

**DROP TABLE** trial;

**DROP TABLE** code\_of\_law;

**DROP TABLE** cases;

**CREATE TABLE** lawyer(  
    lawyerID **CHAR**(5) **PRIMARY KEY**,  
    lawyer\_name **VARCHAR2**(20),  
    lawyer\_address **VARCHAR2**(30),  
    contact\_number **NUMBER**(11),

```
field_expertise VARCHAR2(20) CONSTRAINT check_field_expertise
CHECK(field_expertise IN ('MURDER','RAPE','KIDNAPPING','ARMED
ROBBERY', 'CARJACKING','ATTEMPTED MURDER','ARMED HOUSE
INVASION','BURGLARY')),

case_won NUMBER(3),

case_lost NUMBER(3)

);
```

```
CREATE TABLE clients(

client_number CHAR(5) PRIMARY KEY,

client_name VARCHAR2(20),

client_address VARCHAR2(30),

contact_number NUMBER(11),

lawyerID CONSTRAINT fk_lawID1 REFERENCES lawyer(lawyerID)

);
```

```
CREATE TABLE judge(

judgeID CHAR(5) PRIMARY KEY,

judge_name VARCHAR2(20),

judge_address VARCHAR2(50),

number_of_years_practiced NUMBER(2)

);
```

```
CREATE TABLE court(  
    courtID CHAR(5) PRIMARY KEY,  
    court_address VARCHAR2(50),  
    court_class CHAR(1) CONSTRAINT check_court_class1 CHECK(court_class  
IN ('A','B','C')),  
    judgeID CONSTRAINT fk_judgeID1 REFERENCES judge(judgeID)  
);
```

```
CREATE TABLE trial(  
    trial_number CHAR(5) PRIMARY KEY,  
    date_of_trial DATE,  
    status_of_trial VARCHAR(7) CONSTRAINT check_status_of_trial  
CHECK(status_of_trial IN ('WON','LOST','PENDING')),  
    client_number CONSTRAINT fk_client_number1 REFERENCES  
clients(client_number),  
    courtID CONSTRAINT fk_courtID1 REFERENCES court(courtID)  
);
```

```
CREATE TABLE code_of_law(  
    code_of_lawID CHAR(5) PRIMARY KEY,  
    type_of_violation VARCHAR2(20) CONSTRAINT check_type_of_violation  
CHECK(type_of_violation IN ('MURDER','RAPE','KIDNAPPING','ARMED  
ROBBERY','CARJACKING','ATTEMPTED MURDER','ARMED HOUSE  
INVASION','BURGLARY')),
```



```
violation_description VARCHAR2(150),  
  
penalty VARCHAR2(150)  
  
);
```

```
CREATE TABLE cases(  
  
    caseID CHAR(7) PRIMARY KEY,  
  
    client_number CONSTRAINT fk_client_number3 REFERENCES  
clients(client_number),  
  
    trial_number CONSTRAINT fk_trial_number1 REFERENCES trial(trial_number),  
  
    lawyerID CONSTRAINT fk_lawID3 REFERENCES lawyer(lawyerID),  
  
    courtID CONSTRAINT fk_courtID2 REFERENCES court(courtID),  
  
    court_class CHAR(1) CONSTRAINT check_court_class2 CHECK(court_class  
IN ('A','B','C'))  
  
);
```

```
INSERT INTO lawyer VALUES ('L0001', 'DWAYNE CHAN', 'PETALING JAYA',  
0123456789, 'MURDER', 24, 0);
```

```
INSERT INTO lawyer VALUES ('L0002', 'DOWNEY HO', 'CHERAS', 0124448888,  
'CARJACKING', 11, 0);
```

```
INSERT INTO lawyer VALUES ('L0003', 'SCARLET LEE', 'PUTRAJAYA',  
0162957723, 'BURGLARY', 13, 0);
```

```
INSERT INTO lawyer VALUES ('L0004', 'DHINESH VHARMA', 'IPOH',  
0178906340, 'RAPE', 113, 0);
```

```
INSERT INTO lawyer VALUES ('L0005', 'AZRI REDUAN', 'MELAKA', 0106314945,
```

'MURDER', 89, 0);

**INSERT INTO** lawyer **VALUES** ('L0006', 'XIAO JUN', 'SUBANG JAYA',  
0123153423, 'ATTEMPTED MURDER', 33, 0);

**INSERT INTO** lawyer **VALUES** ('L0007', 'DHIREN RAJ', 'SHAH ALAM',  
01542361994, 'KIDNAPPING', 6, 0);

**INSERT INTO** lawyer **VALUES** ('L0008', 'MOHAMMED IRFAN', 'PETALING JAYA',  
0163458832, 'ARMED HOUSE INVASION', 45, 0);

**INSERT INTO** lawyer **VALUES** ('L0009', 'LEE CHONG WEI', 'KUALA LUMPUR',  
0195562387, 'ARMED ROBBERY', 22, 0);

**INSERT INTO** lawyer **VALUES** ('L0010', 'LEONARDO DICAPRIO', 'GEORGE  
TOWN', 0175346690, 'ATTEMPTED MURDER', 82, 0);

**INSERT INTO** clients **VALUES** ('C0001', 'SAMUEL TAN', 'JOHOR BAHRU',  
0165827496, 'L0006');

**INSERT INTO** clients **VALUES** ('C0002', 'JANSON QUAN', 'KUANTAN',  
0178508854, 'L0002');

**INSERT INTO** clients **VALUES** ('C0003', 'DHARSHAAN VIGNESH', 'KUCHING',  
0148571123, 'L0007');

**INSERT INTO** clients **VALUES** ('C0004', 'NORA SHAFFIQ', 'KUALA LUMPUR',  
01284088623, 'L0001');

**INSERT INTO** clients **VALUES** ('C0005', 'JOLENE CHOW', 'MELAKA',  
0158176655, 'L0010');

**INSERT INTO** clients **VALUES** ('C0006', 'VICKNESH SEGAR', 'PUTRAJAYA',  
0197582201, 'L0004');

**INSERT INTO** clients **VALUES** ('C0007', 'JANICE WONG', 'KUALA LUMPUR',  
0157639872, 'L0003');

**INSERT INTO** clients **VALUES** ('C0008', 'GEEDHA RAJ', 'SHAH ALAM',  
0198725461, 'L0005');

**INSERT INTO** clients **VALUES** ('C0009', 'ANEESYA SHAFIQ', 'KEDAH',  
0187652398, 'L0008');

**INSERT INTO** clients **VALUES** ('C0010', 'XIAN JIN', 'PUTRAJAYA', 0115871239,  
'L0009');

**INSERT INTO** judge **VALUES** ('J0001', 'AHMED SABRI', 'IPOH', 16);

**INSERT INTO** judge **VALUES** ('J0002', 'JANET SEOW', 'PETALING JAYA', 8);

**INSERT INTO** judge **VALUES** ('J0003', 'MOHAMMED ALI', 'SHAH ALAM', 21);

**INSERT INTO** judge **VALUES** ('J0004', 'VARUN KAUSHAL', 'KUALA LUMPUR',  
26);

**INSERT INTO** judge **VALUES** ('J0005', 'DIPTI IBRAHIM', 'IPOH', 20);

**INSERT INTO** judge **VALUES** ('J0006', 'SHUFEN HONG', 'KUALA LUMPUR', 32);

**INSERT INTO** court **VALUES** ('CRT01', 'KUALA LUMPUR', 'A', 'J0004');

**INSERT INTO** court **VALUES** ('CRT02', 'SHAH ALAM', 'C', 'J0003');

**INSERT INTO** court **VALUES** ('CRT03', 'PETALING JAYA', 'A', 'J0002');

**INSERT INTO** court **VALUES** ('CRT04', 'SUBANG JAYA', 'B', 'J0005');

**INSERT INTO** court **VALUES** ('CRT05', 'GEORGE TOWN', 'C', 'J0006');

**INSERT INTO** court **VALUES** ('CRT06', 'IPOH', 'B', 'J0001');

**INSERT INTO** trial **VALUES** ('TRI01', '20-MAY-2022', 'WON', 'C0001', 'CRT01');

**INSERT INTO** trial **VALUES** ('TRI02', '05-JUN-2022', 'PENDING', 'C0002',  
'CRT04');

**INSERT INTO** trial **VALUES** ('TRI03', '15-JUN-2022', 'WON', 'C0003', 'CRT04');

**INSERT INTO** trial **VALUES** ('TRI04', '20-AUG-2022', 'WON', 'C0004', 'CRT03');

**INSERT INTO** trial **VALUES** ('TRI05', '23-AUG-2022', 'PENDING', 'C0005',  
'CRT01');

**INSERT INTO** trial **VALUES** ('TRI06', '30-AUG-2022', 'PENDING', 'C0006',  
'CRT02');

**INSERT INTO** trial **VALUES** ('TRI07', '03-SEP-2022', 'WON', 'C0007', 'CRT04');

**INSERT INTO** trial **VALUES** ('TRI08', '08-OCT-2022', 'PENDING', 'C0008',  
'CRT03');

**INSERT INTO** trial **VALUES** ('TRI09', '28-NOV-2022', 'WON', 'C0009', 'CRT06');

**INSERT INTO** trial **VALUES** ('TRI10', '30-DEC-2022', 'WON', 'C0010', 'CRT06');

**INSERT INTO** code\_of\_law **VALUES** ('COD01', 'MURDER', 'UNLAWFUL KILLING  
OF ANOTHER HUMAN WITHOUT JUSTIFICATION', 'DEATH');

**INSERT INTO** code\_of\_law **VALUES** ('COD02', 'RAPE', 'THE PENETRATION TO  
THE HUMAN BODY BY A SEX ORGAN OF ANOTHER PERSON WITHOUT  
CONSENT', '20 YEARS IN PRISON WITH WHIPPING');

**INSERT INTO** code\_of\_law **VALUES** ('COD03', 'KIDNAPPING', 'UNLAWFUL  
TAKING OF THE VICTIM OR NEFARIOUS MOTIVE LIKE OBTAINING RANSOM',  
'DEATH OR IMPRISONMENT FOR LIFE');

**INSERT INTO** code\_of\_law **VALUES** ('COD04', 'ARMED ROBBERY', 'WHOEVER  
BY FORCE WITH WEAPONS TRY TO STEAL FROM A PERSON',  
'IMPRISONMENT FOR 10 YEARS ALSO LIABLE TO A FINE');

**INSERT INTO** code\_of\_law **VALUES** ('COD05', 'CARJACKING', 'AN INTENT TO CAUSE DEATH OR SERIOUS BODY INJURY THROUGH STEALING A VEHICLE', '14 YEARS IN PRISON AND LIABLE TO A FINE AND WHIPPING');

**INSERT INTO** code\_of\_law **VALUES** ('COD06', 'ATTEMPTED MURDER', 'AN INTENT TO KILL A PERSON AND TOOK A DIRECT STEP TO DO SO', 'IMPRISONMENT THAT CAN EXTEND TO 20 YEARS IF VICTIM IS HURT');

**INSERT INTO** code\_of\_law **VALUES** ('COD07', 'ARMED HOUSE INVASION', 'ENTERING A PROPERTY WITH INTENT TO STEAL FROM AND HARM VICTIMS WITH WEAPONS', '14 YEARS IN PRISON AND LIABLE TO A FINE AND WHIPPING');

**INSERT INTO** code\_of\_law **VALUES** ('COD08', 'BURGLARY', 'ILLEGALLY ENTERING A PROPERTY IN ORDER TO STEAL PROPERTY FROM IT', 'IMPRISONMENT FOR A TERM THAT CAN EXTEND TO 7 YEARS WITH OR WITHOUT A FINE');

**INSERT INTO** cases **VALUES** ('CASE001', 'C0001', 'TRI01', 'L0006', 'CRT01', 'A');

**INSERT INTO** cases **VALUES** ('CASE002', 'C0002', 'TRI02', 'L0002', 'CRT04', 'B');

**INSERT INTO** cases **VALUES** ('CASE003', 'C0003', 'TRI03', 'L0007', 'CRT04', 'B');

**INSERT INTO** cases **VALUES** ('CASE004', 'C0004', 'TRI04', 'L0001', 'CRT03', 'A');

**INSERT INTO** cases **VALUES** ('CASE005', 'C0005', 'TRI05', 'L0010', 'CRT01', 'A');

**INSERT INTO** cases **VALUES** ('CASE006', 'C0006', 'TRI06', 'L0004', 'CRT02', 'C');

**INSERT INTO** cases **VALUES** ('CASE007', 'C0007', 'TRI07', 'L0003', 'CRT04', 'B');

**INSERT INTO** cases **VALUES** ('CASE008', 'C0008', 'TRI08', 'L0005', 'CRT03', 'A');

**INSERT INTO** cases **VALUES** ('CASE009', 'C0009', 'TRI09', 'L0008', 'CRT06', 'B');

**INSERT INTO** cases **VALUES** ('CASE010', 'C0010', 'TRI10', 'L0009', 'CRT06', 'B');

LAWYER							+ ▼
LAWYERID	LAWYER_NAME	LAWYER_ADDRESS	CONTACT_NUMBER	FIELD_EXPERTISE	CASE_WON	CASE_LOST	
L0001	DWAYNE CHAN	PETALING JAYA	123456789	MURDER	24	0	
L0002	DOWNEY HO	CHERAS	124448888	CARJACKING	11	0	
L0003	SCARLET LEE	PUTRAJAYA	162957723	BURGLARY	13	0	
L0004	DHINESH VHARMA	IPOH	178906340	RAPE	113	0	
L0005	AZRI REDUAN	MELAKA	106314945	MURDER	89	0	
L0006	XIAO JUN	SUBANG JAYA	123153423	ATTEMPTED MURDER	33	0	
L0007	DHIREN RAJ	SHAH ALAM	1542361994	KIDNAPPING	6	0	
L0008	MOHAMMED IRFAN	PETALING JAYA	163458832	ARMED HOUSE INVASION	45	0	
L0009	LEE CHONG WEI	KUALA LUMPUR	195562387	ARMED ROBBERY	22	0	
L0010	LEONARDO DICAPRIO	GEORGE TOWN	175346690	ATTEMPTED MURDER	82	0	

CLIENTS					+ ▼
CLIENT_NUMBER	CLIENT_NAME	CLIENT_ADDRESS	CONTACT_NUMBER	LAWYERID	
C0001	SAMUEL TAN	JOHOR BAHRU	165827496	L0006	
C0002	JANSON QUAN	KUANTAN	178508854	L0002	
C0003	DHARSHAAN VIGNESH	KUCHING	148571123	L0007	
C0004	NORA SHAFFIQ	KUALA LUMPUR	1284088623	L0001	
C0005	JOLENE CHOW	MELAKA	158176655	L0010	
C0006	VICKNESH SEGAR	PUTRAJAYA	197582201	L0004	
C0007	JANICE WONG	KUALA LUMPUR	157639872	L0003	
C0008	GEEDHA RAJ	SHAH ALAM	198725461	L0005	
C0009	ANEESYA SHAFIQ	KEDAH	187652398	L0008	
C0010	XIAN JIN	PUTRAJAYA	115871239	L0009	

COURT				+ ▼
Get Rows	Insert Row	Load Data		
COURTID	COURT_ADDRESS	COURT_CLASS	JUDGEID	
CRT01	KUALA LUMPUR	A	J0004	
CRT02	SHAH ALAM	C	J0003	
CRT03	PETALING JAYA	A	J0002	
CRT04	SUBANG JAYA	B	J0005	
CRT05	GEORGE TOWN	C	J0006	
CRT06	IPOH	B	J0001	

JUDGE				+ ▾
Count Rows   Insert Row   Load Data				
JUDGEID	JUDGE_NAME	JUDGE_ADDRESS	NUMBER_OF_YEARS_PRACTICED	
J0001	AHMED SABRI	IPOH	16	
J0002	JANET SEOW	PETALING JAYA	8	
J0003	MOHAMMED ALI	SHAH ALAM	21	
J0004	VARUN KAUSHAL	KUALA LUMPUR	26	
J0005	DIPTI IBRAHIM	IPOH	20	
J0006	SHUFEN HONG	KUALA LUMPUR	32	

TRIAL					+ ▾
TRIAL_NUMBER	DATE_OF_TRIAL	STATUS_OF_TRIAL	CLIENT_NUMBER	COURTID	
TRI01	05/20/2022	WON	C0001	CRT01	
TRI02	06/05/2022	PENDING	C0002	CRT04	
TRI03	06/15/2022	WON	C0003	CRT04	
TRI04	08/20/2022	WON	C0004	CRT03	
TRI05	08/23/2022	PENDING	C0005	CRT01	
TRI06	08/30/2022	PENDING	C0006	CRT02	
TRI07	09/03/2022	WON	C0007	CRT04	
TRI08	10/08/2022	PENDING	C0008	CRT03	
TRI09	11/28/2022	WON	C0009	CRT06	
TRI10	12/30/2022	WON	C0010	CRT06	

CODE_OF_LAW				+ ▾
CODE_OF_LAWID	TYPE_OF_VIOLATION	VIOLATION_DESCRIPTION	PENALTY	
COD01	MURDER	UNLAWFUL KILLING OF ANOTHER HUMAN WITHOUT JUSTIFICATION	DEATH	
COD02	RAPE	THE PENETRATION TO THE HUMAN BODY BY A SEX ORGAN OF ANOTHER PERSON WITHOUT CONSENT	20 YEARS IN PRISON WITH WHIPPING	
COD03	KIDNAPPING	UNLAWFUL TAKING OF THE VICTIM OR NEFARIOUS MOTIVE LIKE OBTAINING RANSOM	DEATH OR IMPRISONMENT FOR LIFE	
COD04	ARMED ROBBERY	WHOEVER BY FORCE WITH WEAPONS TRY TO STEAL FROM A PERSON	IMPRISONMENT FOR 10 YEARS ALSO LIABLE TO A FINE	
COD05	CARJACKING	AN INTENT TO CAUSE DEATH OR SERIOUS BODY INJURY THROUGH STEALING A VEHICLE	14 YEARS IN PRISON AND LIABLE TO A FINE AND WHIPPING	
COD06	ATTEMPTED MURDER	AN INTENT TO KILL A PERSON AND TOOK A DIRECT STEP TO DO SO	IMPRISONMENT THAT CAN EXTEND TO 20 YEARS IF VICTIM IS HURT	
COD07	ARMED HOUSE INVASION	ENTERING A PROPERTY WITH INTENT TO STEAL FROM AND HARM VICTIMS WITH WEAPONS	14 YEARS IN PRISON AND LIABLE TO A FINE AND WHIPPING	
COD08	BURGLARY	ILLEGALLY ENTERING A PROPERTY IN ORDER TO STEAL PROPERTY FROM IT	IMPRISONMENT FOR A TERM THAT CAN EXTEND TO 7 YEARS WITH OR WITHOUT A FINE	

CASES						+ ▾
CASEID	CLIENT_NUMBER	TRIAL_NUMBER	LAWYERID	COURTID	COURT_CLASS	
CASE001	C0001	TRI01	L0006	CRT01	A	
CASE002	C0002	TRI02	L0002	CRT04	B	
CASE003	C0003	TRI03	L0007	CRT04	B	
CASE004	C0004	TRI04	L0001	CRT03	A	
CASE005	C0005	TRI05	L0010	CRT01	A	
CASE006	C0006	TRI06	L0004	CRT02	C	
CASE007	C0007	TRI07	L0003	CRT04	B	
CASE008	C0008	TRI08	L0005	CRT03	A	
CASE009	C0009	TRI09	L0008	CRT06	B	
CASE010	C0010	TRI10	L0009	CRT06	B	



#### Part 4: Query a database (20 marks)

SUNNY Legal Firm would like to check whether the tables they created and the data they inserted link together properly. They decide to come up with queries to test this and create SQL (Structured Query Language) commands to tackle the queries. These commands will be able to prove that the tables and data are correct. Not to mention, the firm will be able to create views and store procedures in the database by using SQL. Additionally, it makes retrieving and inserting data way more efficient.

**Q1)** The company would like to search its database for clients that are from either Kuala Lumpur or Putrajaya. Along with that, those specific clients have to be tied to a lawyer whose name they forgot. However, they remember that the lawyer's name starts with a 'D'.

*Display the records of clients with the address from 'KUALA LUMPUR' and 'PUTRAJAYA', along with LAWYER\_NAME starting with 'D', and sort the records in ascending order.*

```
SELECT *  
FROM CLIENTS, LAWYER  
WHERE LAWYER.LAWYERID = CLIENTS.LAWYERID  
AND CLIENT_ADDRESS IN ('KUALA LUMPUR', 'PUTRAJAYA')  
AND LAWYER_NAME LIKE 'D%'  
ORDER BY CLIENT_NAME ASC;
```

Results											
Explain Describe Saved SQL History											
CLIENT_NUMBER	CLIENT_NAME	CLIENT_ADDRESS	CONTACT_NUMBER	LAWYERID	LAWYERID	LAWYER_NAME	LAWYER_ADDRESS	CONTACT_NUMBER	FIELD_EXPERTISE	CASE_WON	CASE_LOST
C0004	NORA SHAFFIQ	KUALA LUMPUR	1284088623	L0001	L0001	DWAYNE CHAN	PETALING JAYA	123456789	MURDER	24	0
C0006	VICKNESH SEGAR	PUTRAJAYA	197582201	L0004	L0004	DHINESH VHARMA	IPOH	178906340	RAPE	113	0

2 rows returned in 0.02 seconds [Download](#)

**Q2)** The company would like to find the appropriate lawyers that have between 30 to 100 cases won and deal with class 'A' in courts. Class 'A' deals with murder and death cases, so the lawyers retrieved must be specialized in murder or attempted murder.

*List the LAWYER\_NAME and LAWYER ID whose cases won is more than '30' and less than '100' in which they have dealt with cases tied to COURT\_CLASS 'A'.*

```
SELECT LAWYER_NAME, LAWYER.LAWYERID
FROM LAWYER, CASES
WHERE LAWYER.LAWYERID = CASES.LAWYERID
AND CASE_WON BETWEEN 30 AND 100
AND COURT_CLASS = 'A';
```

Results

Explain

Describe

Saved SQL

History

LAWYER_NAME	LAWYERID
XIAO JUN	L0006
LEONARDO DICAPRIO	L0010
AZRI REDUAN	L0005

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**Q3)** SUNNY Legal Firm would like the records of each case consisting of case IDs, the clients' names, lawyers' names, trial numbers, and dates of trials in which the date is in the month of August and the first letters in the names are capitalized for format purposes.

*For each case, list the CASEID, CLIENT\_NAME, LAWYER\_NAME, TRIAL\_NUMBER, and DATE\_OF\_TRIAL in September. Make sure that the initial letters of CLIENT\_NAME and LAWYER\_NAME are capitalized.*

```
SELECT CASEID, INITCAP(CLIENTS.CLIENT_NAME) AS "Clients Names",  
INITCAP(LAWYER.LAWYER_NAME) AS "Lawyer Names",  
TRIAL.TRIAL_NUMBER, DATE_OF_TRIAL  
  
FROM CASES, CLIENTS, LAWYER, TRIAL  
  
WHERE CLIENTS.CLIENT_NUMBER = CASES.CLIENT_NUMBER  
  
AND LAWYER.LAWYERID = CASES.LAWYERID  
  
AND TRIAL.TRIAL_NUMBER = CASES.TRIAL_NUMBER  
  
AND TO_CHAR(DATE_OF_TRIAL, 'MON') = 'AUG'  
  
GROUP BY CASEID, CLIENTS.CLIENT_NAME, LAWYER.LAWYER_NAME,  
TRIAL.TRIAL_NUMBER, DATE_OF_TRIAL;
```

Results	Explain	Describe	Saved SQL	History
CASEID	Clients Names	Lawyer Names	TRIAL_NUMBER	DATE_OF_TRIAL
CASE004	Nora Shaffiq	Dwayne Chan	TRID4	20-AUG-2022
CASE005	Jolene Chow	Leonardo Dicaprio	TRID5	23-AUG-2022
CASE006	Vicknesh Segar	Dhinesh Vharma	TRID6	30-AUG-2022
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**Q4)** The firm would like to find out about the experience of their judges based on the number of years of practice. The judges which have 20 years of practice or more are 'experienced'. However, judges with less than 20 years of practice are labeled as 'inexperienced'.

*List the JUDGE\_NAME and JUDGE ID of each judge, together with one of the following text values, as appropriate, "Experienced" or "Inexperienced". If the judge has more than or has 20 years of practice, they are experienced else inexperienced. Sort by JUDGE ID.*

```
SELECT DISTINCT JUDGE_NAME, JUDGEID, 'EXPERIENCED'
FROM JUDGE
WHERE NUMBER_OF_YEARS_PRACTICED >= 20
UNION
SELECT DISTINCT JUDGE_NAME, JUDGEID, 'INEXPERIENCED'
FROM JUDGE
WHERE NUMBER_OF_YEARS_PRACTICED < 20
ORDER BY JUDGEID;
```

Results Explain Describe Saved SQL History			
JUDGE_NAME		JUDGEID	'EXPERIENCED'
AHMED SABRI		J0001	INEXPERIENCED
JANET SEOW		J0002	INEXPERIENCED
MOHAMMED ALI		J0003	EXPERIENCED
VARUN KAUSHAL		J0004	EXPERIENCED
DIPTI IBRAHIM		J0005	EXPERIENCED
SHUFEN HONG		J0006	EXPERIENCED

**Q5)** The company would like to produce a report to show every court that was used for each trial in order of court ID. Regardless of whether a trial has occurred in a court or not, they still want to display the record(s) to see which court(s) has had a trial and which court(s) have not.

*Use outer join to produce a report for courts that displays all the court activity in trials, sorted by COURT ID.*

```
SELECT c.COURTID, c.COURT_ADDRESS, t.TRIAL_NUMBER
FROM COURT c
LEFT OUTER JOIN TRIAL t ON c.COURTID = t.COURTID
ORDER BY c.COURTID;
```

Results Explain Describe Saved SQL History			
COURTID		COURT_ADDRESS	TRIAL_NUMBER
CRT01		KUALA LUMPUR	TR101
CRT01		KUALA LUMPUR	TR105
CRT02		SHAH ALAM	TR106
CRT03		PETALING JAYA	TR104
CRT03		PETALING JAYA	TR108
CRT04		SUBANG JAYA	TR102
CRT04		SUBANG JAYA	TR107
CRT04		SUBANG JAYA	TR103
CRT05		GEORGE TOWN	-
CRT06		IPOH	TR109

**Q6)** SUNNY Legal Firm would like to list both the records of lawyers with the maximum cases won and minimum cases won which are specialized in the field of murder and the records of lawyers with the maximum cases won and minimum cases won which are specialized in the field of attempted murder. Also having their IDs and names capitalized for format purposes. They want to find the lawyers that are the most capable and least capable in the two fields.

*Display the LAWYER ID, LAWYER\_NAME, FIELD\_EXPERTISE, maximum CASE\_WON, and minimum CASE\_WON. The field expertise must fall under murder or attempted murder. Order by LAWYER ID and make sure LAWYER\_NAME is capitalized.*

```
SELECT LAWYERID, UPPER(LAWYER_NAME), FIELD_EXPERTISE,  
MAX(CASE_WON) AS "Most and Least Cases Won"  
  
FROM LAWYER  
  
WHERE FIELD_EXPERTISE IN ('ATTEMPTED MURDER', 'MURDER')  
  
GROUP BY LAWYERID, LAWYER_NAME, FIELD_EXPERTISE, CASE_WON  
  
UNION  
  
SELECT LAWYERID, UPPER(LAWYER_NAME), FIELD_EXPERTISE,  
MIN(CASE_WON) AS "Most and Least Cases Won"  
  
FROM LAWYER  
  
WHERE FIELD_EXPERTISE IN ('ATTEMPTED MURDER', 'MURDER')  
  
GROUP BY LAWYERID, LAWYER_NAME, FIELD_EXPERTISE, CASE_WON  
  
ORDER BY LAWYERID;
```

Results			
Explain Describe Saved SQL History			
LAWYERID	LAWYER_NAME	FIELD_EXPERTISE	Most and Least Cases Won
L0001	DWAYNE CHAN	MURDER	24
L0005	AZRI REDUAN	MURDER	89
L0006	XIAO JUN	ATTEMPTED MURDER	33
L0010	LEONARDO DICAPRIO	ATTEMPTED MURDER	82

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