CRIMINAL COURT OF LAW DATABASE MANAGEMENT SYSTEM

Group- 32
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- **About the project**

  The project aims to develop a barebones database management system for a criminal court of law. All legal cases that come under the court's jurisdiction are recorded in the database. Information about the case, the prosecutor, the defender and the victim is also documented. Once a case is registered, an adjudicator/judge is assigned to the case. The prosecutor and the defendant are allowed to choose their advocates (attorneys). Court hearings will be scheduled until and up to when the judge gives their final verdict, and the case is closed. Both parties would be allowed to bring in witnesses to strengthen their stance. Information about the witnesses - their associated case, the summoning officer, witness protection etc. would be recorded for future use.
  The case at any time can be "opened" or "closed" and the verdict at any time may be "pending" or in favour of either party. When the case is closed, and a party is found guilty, they are sentenced to punishments based on the severity of their crimes and the other party is freed of charges.
  Information about the punishment(s) (forfeiture and community service, imprisonment or death-sentence) and the officials responsible for administering them is documented for record-keeping purposes.

- **Purpose of the project**
  This project is aimed to create such a database management system for the criminal court of law that would enable easy accessibility of information to several parties. Such a database would help ease the organization of information and make the whole process more transparent. It would help the court officials make better and informed decisions regarding judges' allotment and record the

associated advocates in every case. It would increase the overall efficiency of the system and will help keep track and schedule hearings systematically.
A database like this would also help record and monitor each hearing's outcome and keep updating necessary and relevant details regarding the accused, the victim, and the witnesses. Even the police can utilize this database to check the criminal history of individuals they investigate. They would have easy access to the details of their past offenses (if any). Moreover, third parties like embassy officials and prospective employers can also use this database to do a background check of their Visa or Job applicants; this helps them verify their information.

- **<u>Potential stakeholders and how they are going to use the database project</u>**

  For our database we have identified the following stakeholders

1. ***Judges:*** As stated above, our database revolves around recording details about criminal court cases. Thus judges of their respective courts would be stakeholders as such a database would help them look at the required case details. They shall be able to look at the details of the cases they have been assigned; they shall be able to look at the cases' status (i.e. whether or not the case is ongoing). They shall also be able to look up the scheduled hearing dates of all their upcoming cases. Moreover, they shall be able to look at all the pertinent data regarding the cases they have previously passed judgment on.

2. ***Advocates (attorneys):*** The database shall be useful to both parties' advocates (the accused and the victim). They shall be able to look up all the necessary details regarding their clients' cases. They, too, can keep track of the case's status and look up the scheduled court dates. They will be able to view the required details of all the witnesses (if any) they have appointed and monitor their protection details. Not only so, but advocates shall also be able to access the details of previous cases similar to their clients to gain better insight into their cases.

3. ***Witnesses:*** Witnesses shall be able to access the database and look up the verdict's status of their respective cases. They shall also be able to view the details of their protection status (if any) and will be able to access information regarding the lawyer they were brought in by.

4. ***Court Record Keepers:*** The record keepers at the courts are the ones who shall be building and maintaining the database. They shall be able to record all the necessary details regarding all the cases that will be contested in the court. They will be able to enter the details of the judges, the accused, the victim, the lawyers, the witnesses of each respective case. They shall also be able to update each ongoing case's status and the court hearing dates as directed to them.

5. ***Defendants:*** They shall be able to look up all the details of their ongoing case(s). They shall be able to keep track of the status of the verdict. They shall also be able to look up the details of their lawyer (government-appointed or otherwise).

6. ***Police:*** The police can use the database to look up the criminal history of individuals as and when needed. They will be able to see the number of cases filed against the person and shall be able to see the details as to the kind of crime they committed. They shall also be able to see the number of years an individual has served in prison.

7. ***Embassy Personnel:*** Personnel from any foreign embassy shall be interested in such a database as it comes in handy when doing background checks for Visa applications. The officials shall be able to look up the criminal history of the applicants. This way, they shall be able to verify the information provided by the applicants in their forms.

8. ***Victims/ Victims' Kin:*** Victims or their kin shall be able to see details regarding the cases that they have filed. They shall be able to keep track of their case's verdict's status and shall be able to look up the scheduled court hearing dates. They shall also be able to access the details of their lawyer (government-appointed or otherwise).

9. ***Potential Recruiters:*** Potential recruiters shall be able to look up the criminal history of an individual they are considering hiring. Recruiters often run a background check to see whether or not the candidates have a clean background. This also helps them verify the information the candidates have presented to them pertaining to their past misdeeds.

10. ***Prison Officials / Executors / Probation Officers:*** Prison officials, executors, and probation officers shall be able to look up details regarding the convict's sentence

that they are in charge of. They shall be able to access the judge's instructions regarding the convict's ruling and take appropriate actions accordingly.

- **List of entities identified**

We identified the following entities for our database-

1. ***Criminal cases:*** all criminal cases that are brought forth to the court for trial and come under its jurisdiction.
2. ***Judges:*** adjudicators who have been involved or are presently involved with case(s) in the said court.
3. ***Advocates (attorneys):*** all advocates who are to be assigned to a court case by the court or are hired personally by the defendant and/or prosecutor party.
4. ***Accused:*** the person/party who is charged of a crime and is yet to be convicted
5. ***Hearings:*** Hearings that have taken place for a particular case.
6. ***Witnesses:*** The persons who are called upon by the court in order to give testimony for or against the accused.
7. ***Convicts:***.Individuals found to be guilty of a crime by the court of law.
8. ***Imprisoned:*** all the convicts who are sentenced by the court to be put in prison
9. ***Penalized to death:*** This includes all the convicts who have been given the death sentence as a punishment of their crime.
10. ***Restituted:*** The convicts who have been forfeited/fined and sentenced do community service for a specified period of time as an act of repentance of their crime

- **Relationship(s) between different entities.**

We identified the following relationships between the entities-

ENTITY 1	**ENTITY 2**	**RELATIONSHIP**
cases	judge	Judge is responsible for the adjudication and resolution of the associated case. **(adjudicate)**
cases	advocate	Advocate for a particular case. **(represent)**
cases	witness	Witnesses summoned to provide their testimony for a case. **(testify)**
cases	accused	Defenders and prosecutor parties associated with a case. **(accused_of)**
cases	convict	Accused found guilty after a court trial and penalised by the judge. **(convicted in)**
witnesses	advocate	Witnesses called by advocates to strengthen their client's stance. **(summon)**
accused	convict	Accused who fail to prove their innocence are convicts. **(specialisation: convict→ accused)**
convicts	imprisoned	Convicts sentenced to imprisonment. **(specialisation : imprisoned → convict)**
convicts	penalised_to_death	Convicts condemned to a death sentence. **(specialisation: penalised_to_death → convict)**
convicts	restituted	Convicts sentenced to restitution (forfeiture and community service). **(specialisation: restituted→ convict)**
cases	hearings	Hearings that have taken place for a particular case. **(Identifying relationship: schedule)**

- **List of attributes associated with each entity.**

1. ***Cases****:*
    a. *Case_ID* - unique case ID(primary key)
    b. *Filing_Date* - Date of filing the case
    c. *Trial_Type*- Type of Trial
    d. *Case_Status*- Status of Case (ongoing / closed)
    e. *Closing_Date*- Date of closure of case

2. ***Judges**:*
    a. *Judge_ID* - Unique ID assigned to each Judge (primary key)
    b. *Judge_Name* - Name of Judge
    c. *Judge_Age* - Age of the Judge
    d. *Pending_Cases* - Cases that are pending
    e. *Total_Cases_Adjudicated* - Total number of cases adjudicated
    f. *Service_Term* -Years of service

3. ***Advocates**:*
    a. *Lawyer_ID* - Unique ID assigned to each Lawyer (primary key)
    b. *Lawyer_Name* - Name of Lawyer
    c. *Lawyer_Age* - Age of Lawyer
    d. *Lawyer_Contact* - Contact details of Lawyer
    e. *Total_Cases* - Total number of cases fought
    f. *Number_Of_Cases_Won* - Number of cases won
    g. *Pending_Cases* - Number of pending cases
    h. *Years_Practiced*- Number of years of active service

4. ***Hearings***
    a. *Case_ID* - unique case ID(primary key)
    b. *Hearing_ID* - Unique ID assigned to each hearing (primary key)
    c. *Hearing_Date* - Date of scheduled hearing

5. ***Adjudicate***
    a. *Case_ID* - unique case ID(primary key)
    b. Judge_ID - Unique ID assigned to each Judge
    c. Verdict_Delivered - Status of verdict (delivered or not)

6. ***Accused:***
    a. *Accused_ID* - Unique ID assigned to each of the accused (primary key)
    b. *Accused_Name* - Name of the accused
    c. *Accused_Age* - Age of the Accused
    d. *Accused_Contact* - Contact details of the accused
    e. *Accused_Gender* - Gender of the accused

7. ***Represent***
    a. *Case_ID* - unique case ID(primary key)

b. *Lawyer_ID* - Unique ID assigned to each Lawyer (primary key)
c. *Lawyer_Type* - defender or prosecutor
d. *Case_Status* - Status of case (ongoing or closed)

8. ***Accused Of***
    a. *Case_ID* - unique case ID(primary key)
    b. *Accused_ID* - Unique ID assigned to each of the accused
    c. *Crime* - nature of crime which individual has been accused of
    d. *Proven_Guilty* - Whether or not the accused has been proven guilty by court.
9. ***Witnesses****:*
    a. *Witness_ID* - Unique ID assigned to each witness (primary key)
    b. *Witness_Name* - Name of the witness
    c. *Witness_Age* - Age of the witness
    d. *Witness_Contact* - Contact details of the witness
    e. *Witness_Protection* - Protection offered to witness (if any)
10. ***Summon:***
    a. *Lawyer_ID* - Unique ID assigned to each Lawyer (primary key)
    b. *Witness_ID* - Unique ID assigned to each witness (primary key)
11. ***Testify:***
    a. *Case_ID* - unique case ID(primary key)
    b. *Witness_ID* - Unique ID assigned to each witness (primary key)
    c. *Recent_Date_Of_Appearence* - Most recent date of appearance in court
    d. *No_Of_Mandatory_Hearings* - Number of hearing mandatory for witness to attend

12. ***Convicts****:*
    a. *Accused_ID* - Unique ID assigned to each of the accused (primary key)
    b. *Case_ID* - Unique ID assigned to each case (primary key)
    c. *Convict_Name* - Name of convict
    d. *Convict_Age* - Age of convict
    e. *Conviction_Date* - Date of conviction
    f. *Form_Of_Punishment* - Form of the punishment doled out
    g. *Person_Of_Contact* - Person of contact for the convict
    h. *No_of_Cases_Convicted_In* - Number of cases in which individual has been convicted in

13. ***Imprisoned**:*
    a. *Accused_ID* - Unique ID assigned to each of the accused (primary key)
    b. *Case_ID* - Unique ID assigned to each case (primary key)
    c. *Prison_Name* - Name of the prison in which convict is held
    d. *Imprisonment_Type* - Type of imprisonment (life, solitary confinement etc.)
    e. *Imprisonment_Duration* - Duration of imprisonment
    f. *Prison_Type* - Type of prison (Private facility or otherwise)
    g. *Prison_City* - City in which prison is located
    h. *Prison_State* - State in which prison is located
    i. *Arresting_Officer* - Name of the arresting officer
    j. *Start_Date* - Start date of imprisonment
    k. *End_Date* - End date of imprisonment

14. ***Restituted**:*
    a. *Accused_ID* - Unique ID assigned to each of the accused (primary key)
    b. *Case_ID* - Unique ID assigned to each case (primary key)
    c. *Forfeiture* - Forfeiture of Restitution
    d. *Probation_Officer* - Name of probation officer assigned
    e. *Mandatory_Service_Hours* - Number of hours of service mandated by court
    f. *Start_Date* - Start date of restitution
    g. *End_Date* - End date of restitution

15. ***Penalised to death:***
    a. *Accused_ID* - Unique ID assigned to each of the accused (primary key)
    b. *Case_ID* - Unique ID assigned to each case (primary key)
    c. *Location_of_Execution* - Location at which person shall be executed
    d. *Executioner_Name* - Name of executioner assigned
    e. *Date_of_Execution* - Date on which individual is to be executed

- **<u>Stakeholder's Queries</u>**
    1. ***Judges***
        a. What is the number of cases that have been assigned?
        b. How many cases are pending?
        c. What are the hearing dates for the pending cases?

d. What are the details of cases that have been adjudicated?
e. What are details of the upcoming trial?
f. What is the total number of cases that have been adjudicated?

2. ***Advocates***
    a. What are the details of the client? (Name , age, etc.)
    b. Does the client have any criminal history?
    c. What is the status of the verdict?
    d. When is the next hearing?
    e. What is the number of witnesses that have been summoned?
    f. What are the details of the witness? (Name , age, etc.)
    g. Details regarding witness protection.
    h. What is the verdict of previous cases similar to that of the client?
    i. Number of cases won.
3. ***Witnesses***
    a. What is the status of the verdict?
    b. What is the number of mandatory hearings?
    c. What was the most recent date of appearance in court for testimony?
    d. Contact details of the summoning lawyer.
    e. Details regarding witness protection (if any)
4. ***Defendant***
    a. What is the status of the verdict?
    b. When is the next hearing scheduled?
    c. Details regarding private attorney / public defender.
5. ***Police***
    a. Does the person of interest have any criminal history?
    b. What was the nature of the crime?
    c. What are the charges levied against the individual?
    d. How many cases has the person been involved in?
    e. What is the number of cases that have been filed against the individual?
    f. Has the person of interest ever served time in prison/ had probation? If yes, what was the duration?
6. ***Embassy Personnel***
    a. Does the person of interest have any criminal history?
    b. What was the nature of the crime committed?
    c. Have any travel restrictions been imposed upon the individual?
7. ***Victim/ Victim's Kin***

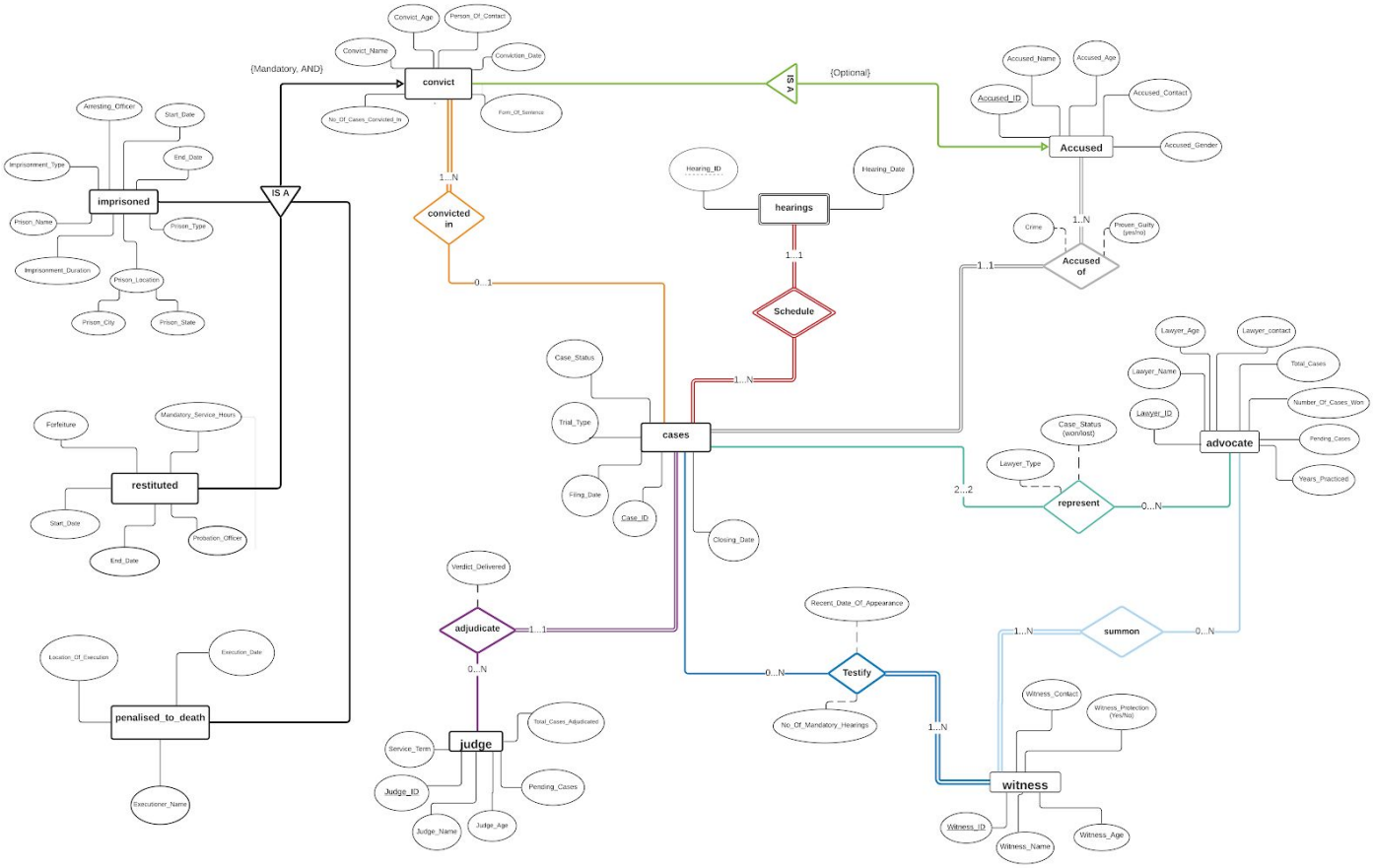
a. What is the status of the verdict?
b. When is the next hearing scheduled?
c. What is the sentence if the accused is found guilty?

8. ***Potential Recruiters***
    a. Does the person of interest have any criminal record?
    b. What was the nature of the crime?
    c. Have any travel restrictions been imposed upon the individual?
    d. Has the individual been debarred from certain activities and/or institutions?
9. ***Prison Officials/ Executors/Probation Officers***
    a. What are the details of the convict? (Name, age,etc.)
    b. What is the nature of his/ her sentence?
    c. What is the date on which the sentence begins?
    d. What is the end date of the sentence (if any)?

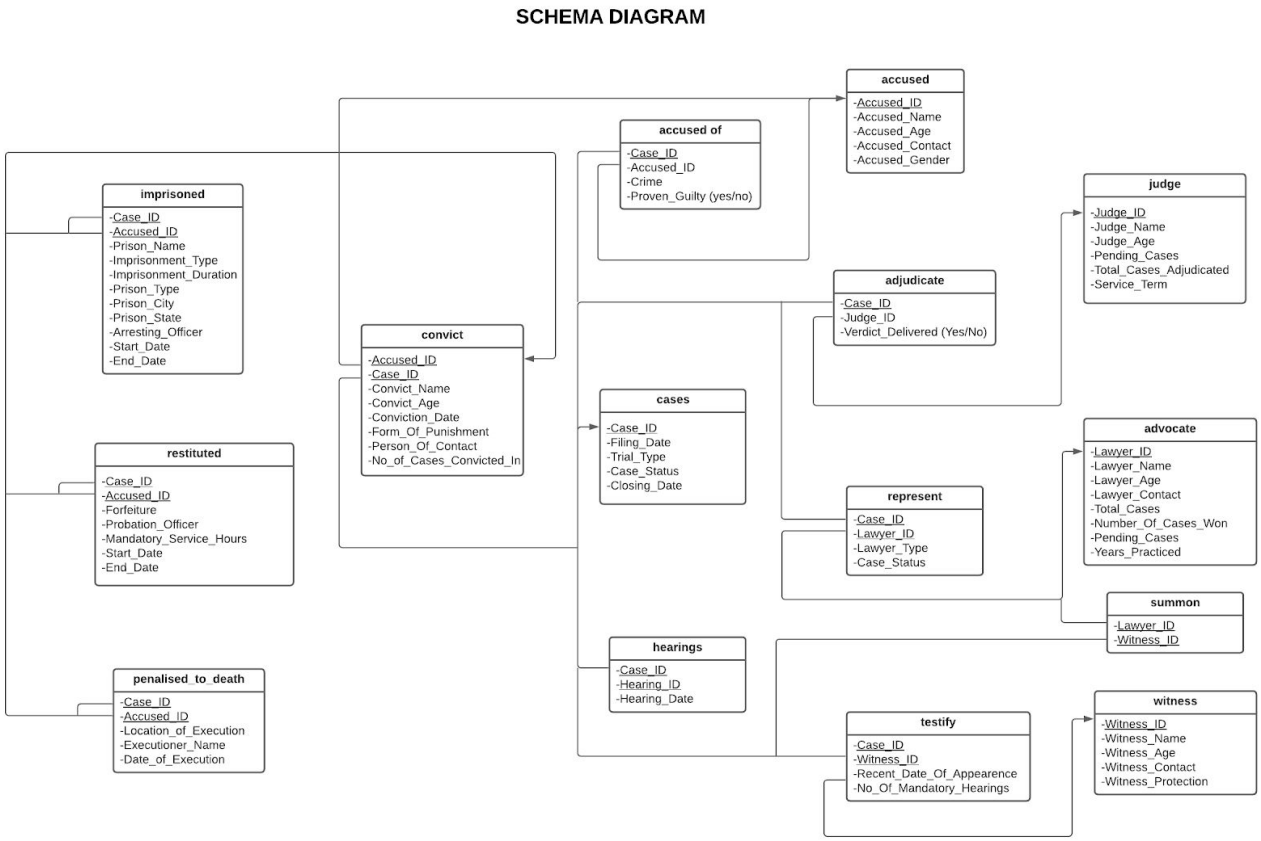
- **<u>Assumptions</u>**
    1. There is only a single “accused” per case, i.e., if an individual has multiple charges levied against them, each instance will be treated as a different and unique case.
    2. There are two lawyers per case - for the accused (private attorney or public defender) and a prosecutor.
    3. A case is assigned one judge only (panel of judges not considered).

- **<u>Entity Relationship Diagram (ER Diagram)</u>**
  The ER diagram shows the relationship between the entities (as listed above) in our database. It gives a clear picture of the tables and its attributes that will form our database. Primary keys, multiplicities, and the type of relationships between the case, judges, lawyers, convicts, etc. are represented in the diagram.

ER DIAGRAM



- **Schema Diagram**



- **Integrity constraints and Ranges**

1. ***cases - Strong Entity***
    - Case_ID ➜ VARCHAR(20)
        - ➢ **Primary Key** - Not NULL and is Unique
    - Case_Status ➜ VARCHAR(20)
        - ➢ Not NULL
        - ➢ CHECK constraint - can take only two values ‘Pending’ and ‘Disposed’

- Trial_Type → VARCHAR(20)
  - ➢ Not NULL
  - ➢ CHECK constraint - can take only two values - ‘Adult’ and ‘Juvenile’
- Filing_Date → DATE
  - ➢ Not NULL
  - ➢ CHECK constraint - Filing_Date < Closing_Date
- Closing_Date → DATE

2. ***hearings - Weak entity***
   - Case_ID → VARCHAR(20)
     - ➢ Primary Key - Not NULL
     - ➢ Foreign key that references column Case_ID in cases table
     - ➢ Forms Identifying relationship
   - Hearing_ID → INT
     - ➢ Primary Key - Not NULL
     - ➢ Unsigned
   - Hearing_Date → DATE
     - ➢ Not NULL
     - ➢ CHECK Constraint - Hearing_Date >= cases.Filing_Date

3. ***accused - Strong Entity***
   - Accused_ID → VARCHAR(20)
     - ➢ Primary Key - Not NULL and is Unique
   - Accused_Name → VARCHAR(60)
     - ➢ Not NULL
   - Accused_Age → INT
     - ➢ Unsigned
     - ➢ CHECK constraint - 15 to 65 years of age
   - Accused_Contact → VARCHAR(10)
   - Accused_Gender → CHAR(1)
     - ➢ Not NULL
     - ➢ CHECK constraint - can have any of the following values ‘M’-male, ‘F’-female, ’O’-other.

4. ***accused_of - Relationship table for tables accused and cases***
   - Accused_ID → VARCHAR(20)
     - ➢ Primary Key - Not NULL
     - ➢ Foreign key referenced to the accused table

- Case_ID ➜ VARCHAR(20)
    - ➢ Foreign key referenced to the cases table
    - ➢ Not NULL
- Crime ➜ VARCHAR(40)
    - ➢ Not NULL
- Proven_Guilty - VARCHAR(3)
    - ➢ Not NULL
    - ➢ CHECK Constraint - can one of take three values - “YES” , “NO” or “PENDING”

5. ***advocate - Strong Entity***
    - Lawyer_ID ➜ VARCHAR(20)
        - ➢ Primary Key - Not NULL and is Unique
    - Lawyer_Name ➜ VARCHAR(60)
        - ➢ Not NULL
    - Lawyer_Age ➜ INT
        - ➢ Unsigned
        - ➢ Not NULL
        - ➢ CHECK constraint - Years_Practised < Lawyer_Age - 25
    - Lawyer_Contact ➜ VARCHAR(10)
        - ➢ Not NULL
    - Total_Cases ➜ INT
        - ➢ Default - 0
        - ➢ Not NULL and unsigned
    - No_Of_Cases_Won ➜ INT
        - ➢ Default - 0
        - ➢ Not NULL and unsigned
        - ➢ CHECK constraint - No_Of_Cases_Won < Total_Cases
    - Pending_Cases ➜ INT
        - ➢ Default - 0
        - ➢ Not NULL and unsigned
    - Years_Practised ➜ INT
        - ➢ Default - 0
        - ➢ Not NULL and unsigned

6. ***represent - Relationship table for tables advocate and cases***
    - Case_ID ➜ VARCHAR(20)
        - ➢ Foreign key referenced to cases table

    - ➢ Primary Key - Not NULL
- Lawyer_ID ➔ VARCHAR(20)
    - ➢ Foreign key reference to advocate table
    - ➢ Primary Key - Not NULL
- Lawyer_Type ➔ VARCHAR(30)
    - ➢ Not NULL
    - ➢ CHECK Constraint - One of the three values - ‘PROSECUTOR’ , ‘PRIVATE ATTORNEY’ , ‘PUBLIC DEFENDER’
- Case_Status ➔ VARCHAR(45)
    - ➢ Not NULL
    - ➢ CHECK Constraint - One of the three values - ‘WON’, ‘LOST’ and ‘ONGOING’

7. ***judge - Strong Entity***
    - Judge_ID ➔ VARCHAR(20)
        - ➢ Primary Key - Not NULL and unique
    - Judge_Name ➔ VARCHAR(60)
        - ➢ Not NULL
    - Judge_Age ➔ INT
        - ➢ Unsigned
        - ➢ CHECK Constraint - Judge_age >= 35 and Judge_age <=65
    - Service_Term ➔ INT
        - ➢ Not NULL
        - ➢ Unsigned
        - ➢ Default - 0
        - ➢ CHECK constraint - Service_Term <(Judge_Age - 35)
    - Pending_Cases ➔ INT
        - ➢ Not NULL
        - ➢ Unsigned
        - ➢ Default - 0
    - Total_Cases_Adjudicated ➔ INT
        - ➢ Not NULL
        - ➢ Unsigned
        - ➢ Default - 0

8. ***adjudicate- relationship table between tables judge and case***
    - Case_ID ➔ VARCHAR(20)
        - ➢ Foreign key referenced to cases table

    - ➢ Primary Key - Not NULL and unique
- Judge_ID → VARCHAR(20)
    - ➢ Foreign key reference to judge table
    - ➢ Not NULL
- Verdict_Delivered → CHAR(3)
    - ➢ Not NULL
    - ➢ CHECK constraint - it can take one of two value - “YES” or “NO”

9. ***witness - Strong Entity***
    - Witness_ID → VARCHAR(20)
        - ➢ Primary Key - Not NULL and unique
    - Witness_Name → VARCHAR(60)
        - ➢ Not NULL
    - Witness_Age → INT
        - ➢ CHECK Constraint Witness_age > = 18
        - ➢ unsigned
    - Witness_Contact → VARCHAR(10)
        - ➢ Not NULL
    - Witness_protection → CHAR(3)
        - ➢ CHECK Constraint that the value is either ‘YES’ or ‘NO’
        - ➢ Not NULL

10. ***summon - relationship table between the tables witness and lawyer***
    - *Wi*tness_ID → VARCHAR(20)
        - ➢ Primary key - Not NULL
        - ➢ Foreign key that references the witness table
    - Lawyer_ID → VARCHAR(20)
        - ➢ Primary key - Not NULL
        - ➢ Foreign key that references the advocate table

11. ***testify - relationship table between the tables witness and cases***
    - Case_ID → VARCHAR(20)
        - ➢ Primary key - Not NULL
        - ➢ Foreign key that references the cases table
    - Witness_ID → VARCHAR(20)
        - ➢ Primary key - Not NULL
        - ➢ Foreign key that references the witness table
    - Recent_Date_Of_Appearance → DATE

    - ➢ Not NULL
- No_Of_Mandatory_Hearings → INT
    - ➢ Not NULL
    - ➢ Unsigned
    - ➢ Default - 1

12. ***convict - Strong Entity , Specialisation with accused table***
    - Accused_id → VARCHAR(20)
        - ➢ Primary Key - Not NULL
        - ➢ It is the same as Accused_id and has been Inherited from Accused using specialization relationship
    - Case_ID → VARCHAR(20)
        - ➢ Primary Key - Not NULL
          Foreign key that references the cases table
    - Convict_Name → VARCHAR(60)
        - ➢ Not NULL
    - Convict_Age → INT
        - ➢ Unsigned int
        - ➢ CHECK Constraint Witness_age > = 18
        - ➢ Not NULL
    - Person_of_Contact → VARCHAR(20)
    - No_Of_Cases_Convicted_In → INT
        - ➢ Not NULL
        - ➢ Unsigned
        - ➢ Default - 0
    - Conviction_Date → DATE
        - ➢ Not NULL
    - Form_Of_Punishment → VARCHAR(100)
        - ➢ Not NULL
        - ➢ CHECK constraints - It will have one of the three values 'Death', 'Imprisonment', 'Restitution'.

13. ***imprisoned - Strong Entity , specialisation with convict table***
    - Case_ID → VARCHAR(20)
        - ➢ Primary Key - Not NULL
        - ➢ Foreign key that reference cases table.
    - Accused_ID → VARCHAR(20)
        - ➢ Primary Key - Not NULL

    - ➢ It is the same as Accused_id and has been Inherited from Accused using specialization relationship
    - ➢ Not NULL
- Impriosonment_Duration → INT
    - ➢ Not NULL
    - ➢ Default - 0
    - ➢ unsigned
- Start_Date → DATE
    - ➢ Not NULL
- End_Date → DATE
    - ➢ Not NULL
    - ➢ CHECK constraint - End_Date - Start_Date = Impriosonment_duration
- Imprisonment_type → VARCHAR(30)
    - ➢ Not NULL
- Prison_name → VARCHAR(30)
    - ➢ Not NULL
- Prison_city → VARCHAR(15)
- Prison_state → VARCHAR(15)
- Prison_type → VARCHAR(20)
- Arresting_Officer → VARCHAR(60)

14. ***restituted - Strong Entity , specialisation with convict table***

- Case_ID → VARCHAR(20)
    - ➢ Primary Key - Not NULL
    - ➢ Foreign key that reference cases table.
- Accused_ID → VARCHAR(20)
    - ➢ Primary Key - Not NULL
    - ➢ It is the same as Accused_id and has been Inherited from Accused using specialization relationship
    - ➢ Not NULL
- Forfeiture → INT
    - ➢ Not NULL
    - ➢ Default - 0
    - ➢ Unsigned
- Start_date → DATE \
    - ➢ Not NULL

- End_date ➔ DATE
  - ➢ Not NULL
- Mandatory_service_hours ➔ INT
  - ➢ Not NULL
  - ➢ Default - 0
  - ➢ Unsigned
- Probation_officer ➔ VARCHAR(60)
  - ➢ Not NULL

15. ***death_penalty - Strong Entity , specialisation with convict table***
    - Case_ID ➔ VARCHAR(20)
      - ➢ Primary Key - Not NULL
      - ➢ Foreign key that reference cases table.
    - Accused_ID ➔ VARCHAR(20)
      - ➢ Primary Key - Not NULL
      - ➢ It is the same as Accused_id and has been Inherited from Accused using specialization relationship
      - ➢ Not NULL
    - Location_of_execution ➔ VARCHAR(25)
      - ➢ Not NULL
    - Executioner_NAME ➔ VARCHAR(60)
      - ➢ Not NULL
    - Execution_Date ➔ DATE
      - ➢ Not NULL

Following are some of the check constraints implemented by us in our database system -

- ALTER TABLE cases
  ADD CONSTRAINT CHK_status CHECK (Case_Status IN ('Pending', 'Disposed'));

- ALTER TABLE cases
  ADD CONSTRAINT CHK_trial_type CHECK (Trial_Type IN ('Adult', 'Juvenile'));

- ALTER TABLE accused
  ADD CONSTRAINT CHK_accused_age CHECK (Accused_Age>=14 and Accused_Age<=60);

- ALTER TABLE accused

ADD CONSTRAINT CHK_accused_gender CHECK (Accused_Gender IN('O', 'F', 'M'));

- ALTER TABLE accused_of
  ADD CONSTRAINT CHK_guilty CHECK (Proven_Guilty IN('YES', 'NO', 'PENDING'));

- ALTER TABLE judge
  ADD CONSTRAINT CHK_judge_age CHECK (Judge_Age>=35 and Judge_Age<=65);

- ALTER TABLE judge
  ADD CONSTRAINT CHK_pending_cases CHECK (Pending_Cases<=5);

- ALTER TABLE advocate
  ADD CONSTRAINT CHK_cases CHECK (NO_Of_Cases_Won < Total_Cases);

- ALTER TABLE advocate
  ADD CONSTRAINT CHK_Advocate_Age CHECK (Years_Practised < Lawyer_Age - 25);

- ALTER TABLE judge
  ADD CONSTRAINT CHK_Judge_Term CHECK (Service_term < Judge_Age - 35);

- ALTER TABLE cases
  ADD CONSTRAINT CHK_date_case CHECK (Filing_Date < Closing_Date);

- ALTER TABLE represent
  ADD CONSTRAINT CHK_represent CHECK (Case_Status IN ('WON', 'LOST', 'ONGOING'));

- ALTER TABLE represent
  ADD CONSTRAINT CHK_TYPE_lawyer CHECK (Lawyer_Type IN ('PROSECUTOR', 'PRIVATE ATTORNEY', 'PUBLIC DEFENDER'));

- ALTER TABLE witness
  ADD CONSTRAINT CHK_witness CHECK (Witness_Age > 18);

- ALTER TABLE witness

ADD CONSTRAINT CHK_protection CHECK (Witness_Protection IN('YES', 'NO'));

- ALTER TABLE convict
  ADD CONSTRAINT CHK_form CHECK (Form_Of_Punishment IN('Death', 'Imprisonment', 'Restitution'));

- **Roles**

1. *Ideation:* Meetakshi, Suyashi, Eeshan, Kheya
2. *Analysing stakeholders and their roles:* Eeshan, Kheya, Meetakshi, Suyashi
3. *Ideating entities and their respective relationships:* Eeshan, Kheya, Meetakshi, Suyashi
4. *Creating the ER diagram:* Eeshan, Kheya, Meetakshi, Suyashi
5. *Formalising the database schema:* Meetakshi, Kheya
6. *Formalising constraints and dependencies:* Suyashi, Eeshan
7. *Database creation:* Suyashi, Meetakshi, Eeshan
8. *Documentation:* Kheya, Meetakshi, Suyashi, Eeshan
9. *Proposing possible queries for stakeholders:* Kheya