



DATABASE MANAGEMENT SYSTEM (IT214)

Title: Advanced Crime Examination (ACE)

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OBJECTIVE:

Design and implement a comprehensive database system for a crime investigation agency to effectively maintain records of various cases, personnel, and criminal histories. This database will be accessible to personnel across different units and branch offices nationwide. It will facilitate efficient retrieval, updating, and tracking of case information, including case details, suspects, evidence, and status updates. Additionally, the database will contain crucial criminal records essential for investigative purposes, aiding in suspect identification and historical case referencing.

USE CASES:

1. MODIFY PERSONAL DETAILS:

- Agency officers can update and modify their personal information within the database. This includes details such as contact information, credentials, etc. ensuring accurate and up-to-date records.

2. ACCESSING CASE INTEL:

- When an officer is assigned to a case, they can access comprehensive information stored in the database related to that specific case. This includes the details of collected evidence, witness statements, suspect profiles, and any other relevant data necessary for the investigation process.

3. VIEWING CRIMINAL PROFILES:

- Officers have the ability to view detailed profiles of known criminals stored within the database. These profiles contain critical information such as criminal history, personal details, and associated cases, which helps officers in their investigative efforts and decision-making processes.

4. REFERENCING CASE HISTORY:

- During the course of an ongoing investigation, officers may find it beneficial to refer to similar cases from the past, to gain insights and improve their approach. The database provides access to case history for this purpose.

5. ACCESING INVENTORY:

- Officers can view the available equipment in inventory within the database and request for the same to the assigned personnel.

6. RESOURCE ALLOCATION:

- The Director General can use the database to monitor resource allocation across different branches and units. This includes personnel, equipment, budget allocations, and other resources required for effective crime investigation operations.

7. PERFORMANCE MEASUREMENT AND EFFICIENCY ANALYSIS:

- The Director General can assess the performance and efficiency of various branches and units through case clearance rates, response time, resource utilization efficiency, and overall productivity. By identifying trends and areas for improvement, the Director General can implement strategies to enhance operational effectiveness and achieve organizational goals.

DATABASE DESCRIPTION:

Advanced Crime Examination (ACE) is a government crime investigation agency which is spread across the country with its multiple branch offices and varied units within each one of them. Each branch has a 'Branch Head' which manages the operations of that branch.

These branches have multiple units functioning under it. Some of these units include Homicide Unit, Anti-Human Trafficking Unit and Narcotics Unit. These units also have a 'Unit Coordinator' which supervises the officers working under that unit.

The information of all the people working at ACE is stored in the database. All of them are uniquely identified by their IDs. The personal information of the people along with his/her designation, the branch and unit under which he/she is working, appointment date, etc.

There are various roles of the personnel like investigating officer, IT Expert, forensic officer, digital forensic expert, sketch artist, photographer, explosive expert, etc. There are also ranks associated with a particular role. For example, for an investigating officer, there are ranks like Asst. Investigating Officer, Sr. Investigating Officer, Investigating Intern etc.

When a new case is reported to ACE, the associated unit of nearest branch takes appropriate actions. The initial details associated with it like victim description, crime location and time of reporting is carefully collected. Also, some more information like evidences obtained, people who are suspected to have committed the crime, reporting date, etc. are collected. An officer is appointed as a lead officer to the case. The appointment of other officers depends on the type of the case.

The lead investigator carries out his/her investigation by referring to all the recorded details of the case. He/she analyses the suspects list and makes notes about them. He/she also closely examines the statements given by the witnesses. He/she may also refer to similar cases which happened in the past by accessing the case history maintained in the ACE database.

During the course of the investigation, other officers may be appointed based on various reasons. The officers can also use the equipment available in inventory by following some standard procedure. There may be some instances wherein a person is arrested based on some evidence. The details of such person, including the reason of the arrest are maintained in the arrest records.

When the case concludes, the information of the person found guilty is stored in the database. Also, the verdict which is given by the court and the end date is recorded. Such cases are marked as closed. However, there are cases whose verdict is not yet obtained. Those are marked as pending.

In conclusion, the database system designed for Advanced Crime Examination (ACE) serves as a comprehensive tool for the effective management of crime investigation operations. By centralizing information on personnel, cases, units, and criminal records, the database facilitates seamless collaboration and coordination among branch offices and units spread across the country.

TENTATIVE QUERIES:

- 1) Determine the case that took the longest time to solve.
- 2) Determine the number of officers per branch.
- 3) List branches allocated to specific states.
- 4) Calculate the total number of open cases in a given branch, for a given state.
- 5) Calculate the average case resolution time for each branch.
- 6) Get the information of interns for a given department.
- 7) Determine the total budget allocated to a specific branch.
- 8) Show all the cases that were solved with the involvement of every department.
- 9) List suspects associated with multiple cases.
- 10) Provide all details about the specified person.
- 11) List ACPs per branch.
- 12) Get the officer with the highest number of solved cases.
- 13) Determine the case clearance rate for each branch.
- 14) List branch-wise officer with highest experience.