

Department of Computer Science
Illinois Institute of Technology

Final Project
Database Application – Court
Dr. Nazli Goharian

Michael J. Sepcot
Vladimir Gutkovsky
Nicu Ilea

Database Schemas:

Case (<u>caseNumber</u> , category, aSSN, jury, fee) FD: caseNumber → category, aSSN, jury, fee	ck: <u>caseNumber</u>
CategoryName (<u>category</u>) FD: category is PK	ck: <u>category</u>
StatusName (<u>status</u>) FD: status is PK	ck: <u>status</u>
CaseStatus (<u>caseNumber</u> , <u>status</u> , statDate) FD: caseNumber, status → statDate	ck: <u>caseNumber, status</u>
CaseInvolvement (<u>caseNumber</u> , <u>ssn</u> , <u>involvement</u>) FD: caseNumber, ssn, involvement is PK	ck: <u>caseNumber, ssn, involvement</u>
DefendentAttorney (<u>caseNumber</u> , <u>aSSN</u> , <u>ssn</u>) FD: caseNumber, aSSN, ssn is PK	ck: <u>caseNumber, aSSN, ssn</u>
Attorney (<u>aSSN</u> , aFname, aLname, aPhone) FD: aSSN → aFname, aLname, aPhone	ck: <u>aSSN</u>
PDinfo (<u>ssn</u> , fname, lname, address, phone) FD: ssn → fname, lname, address, aPhone	ck: <u>ssn</u>
PDemployment (<u>ssn</u> , companyName, position) FD: ssn → companyName, position	ck: <u>ssn</u>
Employees (<u>empSSN</u> , empFname, empLname, empAddress, empPhone, jobTitle) FD: empSSN → empFname, empLname, empAddress, empPhone, jobTitle	ck: <u>empSSN</u>
Job (<u>jobTitle</u> , description, minSalary, maxSalary) FD: jobTitle → description, minSalary, maxSalary	ck: <u>jobTitle</u>
HandledCases (<u>empSSN</u> , <u>caseNumber</u>) FD: empSSN, caseNumber is PK	ck: <u>empSSN, caseNumber</u>

Loss-Less Proof:

Case \leftrightarrow CategoryName

Case \cap CategoryName \rightarrow CategoryName as we have **PK: category is FK in Case**

Case \leftrightarrow CaseStatus

Case \cap CaseStatus \rightarrow Case as we have **FD: caseNumber \rightarrow category, aSSN, jury, fee**

Case \leftrightarrow CaseInvolvement

Case \cap CaseInvolvement \rightarrow Case as we have **FD: caseNumber \rightarrow category, aSSN, jury, fee**

Case \leftrightarrow DefendantAttorney

Case \cap DefendantAttorney \rightarrow Case as we have **FD: caseNumber \rightarrow category, aSSN, jury, fee**

Case \leftrightarrow Attorney

Case \cap Attorney \rightarrow Attorney as we have **FD: aSSN \rightarrow aFname, aLname, aPhone**

StatusName \leftrightarrow CaseStatus

StatusName \cap CaseStatus \rightarrow StatusName as we have **PK: status is FK in CaseStatus**

Attorney \leftrightarrow DefendantAttorney

Attorney \cap DefendantAttorney \rightarrow Attorney as we have

FD: aSSN \rightarrow aFname, aLname, aPhone

PDinfo \leftrightarrow CaseInvolvement

PDinfo \cap CaseInvolvement \rightarrow PDinfo as we have **FD: ssn \rightarrow fname, lname, address, phone**

PDinfo \leftrightarrow DefendantAttorney

PDinfo \cap DefendantAttorney \rightarrow PDinfo as we have **FD: ssn \rightarrow fname, lname, address, phone**

PDinfo \leftrightarrow PDEmployment

PDinfo \cap PDEmployment \rightarrow PDinfo as we have **FD: ssn \rightarrow fname, lname, address, phone**

PDEmployment \leftrightarrow CaseInvolvement

PDEmployment \cap CaseInvolvement \rightarrow PDEmployment as we have

FD: ssn \rightarrow companyName, position

PDEmployment \leftrightarrow DefendantAttorney

PDEmployment \cap DefendantAttorney \rightarrow PDEmployment as we have

FD: ssn \rightarrow companyName, position

Employees \leftrightarrow HandledCases

Employees \cap HandledCases \rightarrow Employees as we have

FD: empSSN \rightarrow empFname, empLname, empAddress, empPhone, jobTitle

Job \leftrightarrow Employees

Job \cap Employees \rightarrow Job as we have **FD: jobTitle \rightarrow description, minSalary, maxSalary**

Test Document:

Requirement	Test Path	Expected Results	Generated Results	Success (Y/N)
Given a persons SSN Find all the cases that the person has been a Plaintiff or Defendant.	Run Query1.sql With user input: SSN = 666000007	Cases: 333333 for Noise Violation on Sept 4, 2002 666666 for Murder on March 4, 2003	CASENUMBER STATDATE CATEGORY ----- 333333 04-SEP-02 Noise Violation 666666 04-MAR-03 Murder	Y
Show all cases that have been opened for more than one year.	Run Query2.sql	Cases: 111111, 555555, 666666, 777777	CASENUMBER ----- 111111 555555 666666 777777	Y
Show which attorney has handled the most number of cases.	Run Query3.sql	Attorney(s): 555000006, 555000009, 555000011	ASSN ----- 555000006 555000009 555000011	Y
Show which attorney has handled the least number of cases.	Run Query4.sql	Attorney: 555000007	ASSN ----- 555000007	Y
Given a category and number of years Find all the cases that fit user criteria.	Run Query5.sql With user input: Category = Shoplifting Number of Years = 2	Cases: 222222, 444444, 777777	CASENUMBER ----- 222222 444444 777777	Y
Given a case number Find all case statuses and the dates of each status.	Run Query6.sql With user input: Case Number = 666666	New – March 4, 2003 Open – June 7, 2003 Pending – January 19, 2004	STATUS STATDATE ----- New 04-MAR-03 Opened 07-JUN-03 Pending 19-JAN-04	Y

Requirement	Test Path	Expected Results	Generated Results	Success (Y/N)
<p>Insert Trigger: If someone is a Plaintiff for a 3rd time, show personal information and cases where person was a Plaintiff.</p>	<p>Run PDProcedure.sql And PDTrigger.sql to load insert Trigger Insert CaseInvolvement: Case Number = 000000, SSN = 666000009, Involvement = P</p>	<p>The records for Michelle Fishborne will be displayed. Case 222222 and 444444 will be displayed as she was a Plaintiff in each case.</p>	<p>SQL> INSERT INTO CaseInvolvement VALUES('000000', '666000009', 'P'); Michelle Fishborne 222222 04-JUN-02 Michelle Fishborne 444444 04-OCT-02 1 row created.</p>	<p>Y</p>
<p>Insert Trigger: Insert someone who is a Defendant to show Trigger only activates the Procedure call for Plaintiff Insertions.</p>	<p>Run PDProcedure.sql And PDTrigger.sql to load insert Trigger Insert CaseInvolvement: Case Number = 111111, SSN = 666000009, Involvement = D</p>	<p>A single row should be created with no data displayed about the history of the Defendant.</p>	<p>SQL> INSERT INTO CaseInvolvement VALUES('111111', '666000009', 'D'); 1 row created.</p>	<p>Y</p>