Joshua Haupt

[Email address]

Abstract

[Draw your reader in with an engaging abstract. It is typically a short summary of the document.   
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Project 2

CS 434

**DBMS: MySQL / MariaDB on Linux**

**Database Schema:**

Charles, please look into adding constraints

PoliceDepartment(

PrecinctNumber: INT(incr),

Jurisdiction: VARCHAR(35)

)

PoliceOfficer(

DateGraduated: DATE,

BadgeNumber: INT,

Name: VARCHAR(50)

)

CrimeReport(

ReportNumber: INT(incr),

DateFiled: DATE,

Description: VARCHAR(250),

)

StatusUpdate(

ReportNumber: INT(incr),

RevisionNumber: INT(incr),

Status: VARCHAR(1),

Date: DATE

)

CriminalIncident(

IncidentNumber: INT(incr),

TimeOccurred: INT,

DateOccurred: DATE,

Address: VARCHAR(50)

)

Statute(

CodeDesignation: VARCHAR(12),

ElementOfCrime: VARCHAR

)

**Relations:**

Relation 1: Statute(Code Designation, Elements of Crime)

Code Designation → Elements of Crime

Relation 2: Criminal Incident(Incident Number, Time, Date, Address)

Incident Number → Time, Date, Address

Relation 3: Defined By[**Statute -** **Criminal Incident**] (Code Designation, Incident Number)

Incident Number → Code Designation

Relation 4: Crime Report(Report Number, Date Filed, Jurisdiction)

Report Number → Date Filed, Description

Relation 5: Reported Through[**Criminal Incident -** **Crime Report**] (Incident Number, Report Number)

Incident Number → Report Number

Report Number → Incident Number

Relation 6: Status Update(Report Number, Revision Number, Date, Status)

Report Number, Revision Number → Date, Status

Report Number, Date → Revision Number, Status

Relation 7: Given A[**Crime Report** - **Status Update**] (Report Number)

None

Relation 8: Police Officer(Badge Number, Name, Graduation Date)

Badge Number, Graduation Date → Name

Relation 9: Filed By[**Crime Report -** **Police Officer**] (Graduation Date, Badge Number, Report Number)

Graduation Date, Badge Number → Report Number

Relation 10: Police Department(Precinct Number, Jurisdiction)

Precinct Number → Jurisdiction

Relation 11: Member Of[**Police Officer** - **Police Department**] (Precinct Number, Graduation Date, Badge Number)

Graduation Date, Badge Number → Precinct Number

**An Overview of the Schema**

We were unable to find any non-BCNF relations in our schema. Thus, the current layout of our data and the relations described therein should, at least superficially, avoid producing redundancies in our database. This is in part due to the rather succinct nature of the data set we’re using, but it would be remiss to ignore the role research into the real world played in abetting this characteristic. We paid attention to how the data interacts in real life, and it seems to have paid off. Tables should contain only exactly what they need to describe their intended relations and should join with others in a very straightforward manner. That said, two of our six entities—and, by extension, the relationships they have with others—are weak. It’s unusual. It also necessitates duplicating attributes. In effect, we end up relying on duplicating some data to ensure that we can properly link it to other data. This is probably inescapable, but given such a small amount of variety in the data set, avoiding any data duplication at all would have been preferable.

Since criminal incidents and crime reports are at the figurative (and literal) center of the diagrams, we clearly expect that most of this databases queries will revolve around patterns in crime reporting with regard to the actual criminal incidents, their status updates, the police who respond to incidents and conduct reports, and so on. Curious users may want to look at less intuitive patterns, such as for which law violations a particular police department makes more frequent arrests, or which officers are more (or less) likely to make frequent updates to crime reports for particular crimes. This data could be used to answer more interesting questions, such as, “What crimes does the North Hollywood Area department not take very seriously?” or, “Does Officer Jared Lyndon slack off when it comes to investigating vandalism incidents?”