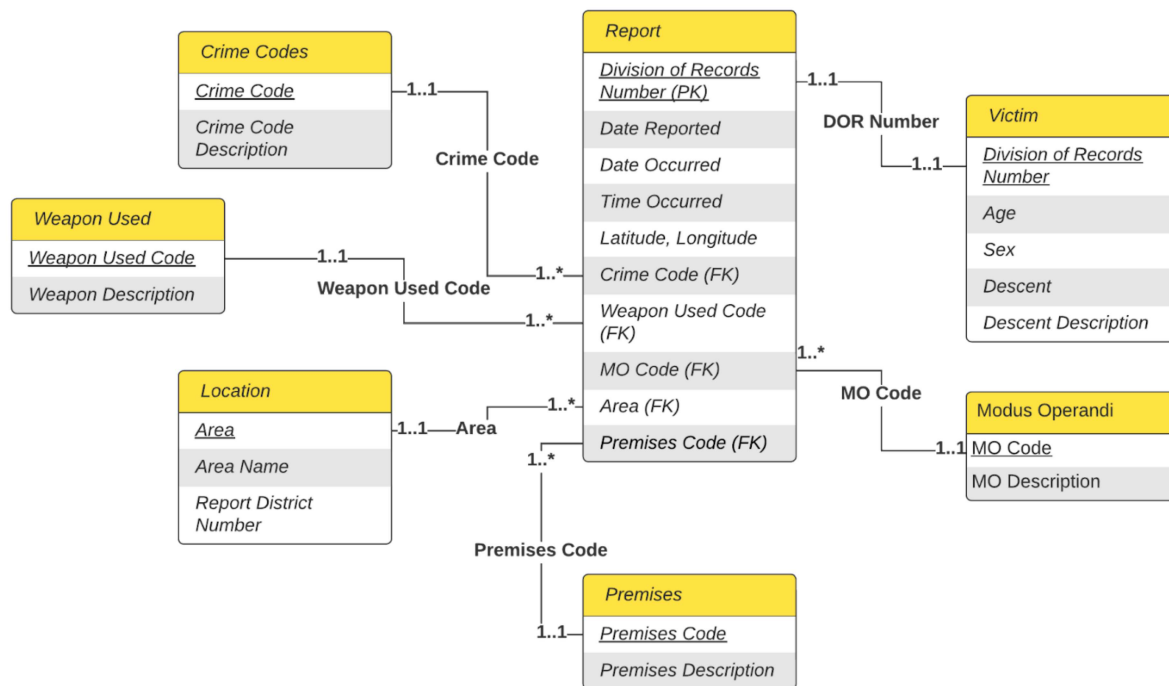


UML Diagram



We assume that all entities except for Victim and Report can correspond with 1 to many reports, and each report corresponds 1 to one with each of them. This is because each of them represents an attribute of the crime that occurred, so there is one for each crime, but there can be many crimes with that attribute. For the victim entity, there is a 1 to 1 relationship both ways because they are linked using the Division of Records number, which means that each victim will correspond to a unique record since the Division of Records number is the primary key.

UML Description and 3NF Justification

1. Report Table
 - a. Primary Key: Division of Records Number
 - b. Dependencies:
 - i. Date Reported, Date Occurred, Time Occurred, (Latitude, Longitude), Crime Code, Weapon Used Code, Area, Premises Code
2. Crime Codes Table:
 - a. Primary Key: Crime Code
 - b. Dependencies:

- i. Crime Code description
- 3. Weapon Used Table:
 - a. Primary Key: Weapon Used Code
 - b. Dependencies:
 - i. Weapon Description
- 4. Location Table:
 - a. Primary Key: Area
 - b. Dependencies:
 - i. Area Name, Report District
- 5. Premises Table:
 - a. Primary Key: Premises Code
 - b. Dependencies:
 - i. Premises Description
- 6. Victim Table:
 - a. Primary Key: Division of Records Number
 - b. Dependencies:
 - i. Premises Description
- 7. Modus Operandi Table:
 - a. Primary Key: MO Code
 - b. Dependencies:
 - i. MO Code description

Each table has a clear primary key and all non-key attributes depend on the primary key of its table. All attributes in the Report Table depend on the Division of Records Number. All attributes in the Crime Codes Table depend on the Crime Code, and so on. Therefore, we can conclude that our EM diagram and current design meet the requirements of 3rd Normal Form (3NF).

Relational Schema

Table - Report(Division of Records Number: INT [PK], Date Reported: DATE , Date Occurred: DATE, Time Occurred: TIME, Latitude, Longitude: REAL, Crime Code: REAL [FK to Crime Codes.Crime Code], Weapon Used Code: REAL [FK to Weapon Used.Weapon Used Code], MO Code: REAL [FK to Modus Operandi.MO Code], Area: INT [FK to Location.Area], Premises Code: INT [FK to Premises.Premises Code])

Table - Victim(Division of Record Number: INT [PK], Age: INT, Sex: VARCHAR, Descent: VARCHAR , Descent Description: VARCHAR)

Table - Premises(Premises Code: INT [PK], Premises Description: VARCHAR)

Table - Location(Area: INT [PK], Area Name: VARCHAR , Report District Number: INT)

Table - Weapon Used(Weapon Used Code: REAL [PK], Weapon Description: VARCHAR)

Table - Modus Operandi(MO CODE: REAL [PK], MO Description: VARCHAR)

Table - Crime Codes(Crime Code: REAL [PK], Crime Code Description: VARCHAR)