-- Renita Kurian - PES1UG20CS331

-- Forensic Database Project

-- CREATE DATABASE FORENSICS\_331

USE FORENSICS\_331;

-- Case Data

CREATE TABLE CASES(CaseID varchar(255) NOT NULL UNIQUE, TypeOfCase varchar(255),NameOfCase varchar(255), LeadingOfficer varchar(255), AsstOfficer varchar(255), TimeOfReport datetime NOT NULL, Loc varchar(255), statusOfCase varchar(255), PRIMARY KEY(CaseID));

-- Criminal Data

CREATE TABLE CRIMINAL(CID varchar(255) NOT NULL UNIQUE, CName varchar(255) NOT NULL, Alias varchar(255), Age int, NoOfCases int, DominantHand varchar(255), CurrentStatus varchar(255), DNAID varchar(50), FingerprintID varchar(50), nationality varchar(255), PRIMARY KEY(CID));

-- Criminal Case

CREATE TABLE CriminalCase(CriminalID varchar(255), CrimeID varchar(255), FOREIGN KEY(CriminalID) REFERENCES CRIMINAL(CID), FOREIGN KEY(CrimeID) REFERENCES CASES(CaseID));

-- Ballistics Data

CREATE TABLE BALLISTICS(CaseID varchar(255), B\_ID varchar(255) NOT NULL UNIQUE,Model varchar(255), Manufacturer varchar(255), Year int, typeOfGun varchar(255), gauge float, caliber int, CountryOfOrigin varchar(255),PRIMARY KEY(B\_ID), FOREIGN KEY(CaseID) REFERENCES CASES(CaseID) );

-- Drugs Data

CREATE TABLE DRUGS(CaseID varchar(255), NDC\_No varchar(255) NOT NULL UNIQUE, dname varchar(255), color varchar(255), class varchar(255), narcotic varchar(255), PRIMARY KEY(NDC\_No), FOREIGN KEY(CaseID) REFERENCES CASES(CaseID));

-- Paint Data

CREATE TABLE PAINT(CaseID varchar(255), PID varchar(255) NOT NULL UNIQUE, Color varchar(255) NOT NULL, Solvent varchar(255), Binder varchar(255), Pigments varchar(255), Additive varchar(255), PRIMARY KEY(PID), FOREIGN KEY(CaseID) REFERENCES CASES(CaseID));

-- Automobile Data

CREATE TABLE AUTOMOBILE(CaseID varchar(255), AID varchar(255), model varchar(255), Year int, Manufacturer varchar(255), typeOfVehicle varchar(255), PRIMARY KEY(AID), FOREIGN KEY(CaseID) REFERENCES CASES(CaseID));

-- INSERT QUERIES

INSERT INTO `automobile` (`CaseID`, `AID`, `model`, `Year`, `Manufacturer`, `typeOfVehicle`) VALUES

('T22', 'IR32', 'Model S', 2019, 'Tesla', 'Sedan'),

('T22', 'TWQ123', 'Model X', 2018, 'Tesla', 'Sedan');

INSERT INTO `ballistics` (`CaseID`, `B\_ID`, `Model`, `Manufacturer`, `Year`, `typeOfGun`, `gauge`, `caliber`, `CountryOfOrigin`) VALUES

('M981', 'H39', 'Automag II', 'AMT', 1970, 'Handgun', 410, 9, 'USA'),

('M981', 'H9', 'Glock 21', 'Glock', 1970, 'Handgun', -1, 10, 'Austria'),

('M46', 'S123PW', 'Glock 20', 'Glock', 1980, 'Pistol', 9, -1, 'Austria'),

('M981', 'SH09', 'Benneli M1', 'Benneli Armi', 1986, 'Shotgun', 20, -1, 'Italy'),

('M981', 'SH23', 'Benneli M3', 'Benneli Armi', 1989, 'Shotgun', 20, -1, 'Italy');

INSERT INTO `cases` (`CaseID`, `TypeOfCase`, `NameOfCase`, `LeadingOfficer`, `AsstOfficer`, `TimeOfReport`, `Loc`, `statusOfCase`) VALUES

('KSFHG12', 'Murder', 'Polten Murder', 'Jake Peralta', 'Amy Santiago', '2022-11-25 08:48:01', 'Brooklyn', 'ongoing'),

('M46', 'Murder', 'Tuomi Murder', 'Ray Holt', 'Charles Boyle', '2022-11-20 13:49:08', 'Milwaukee', 'Archived'),

('M53', 'Murder', 'Ann Heally Murder', 'Amy Santiago', 'Gina Linetti', '2022-11-20 13:51:28', 'Washington', 'Ongoing'),

('M981', 'Murder', 'Capo Murder', 'Jake Peralta', 'Amy Santiago', '2022-11-20 14:16:28', 'Chicago', 'Ongoing'),

('QT09P1', 'Theft', 'Greenlane 15 Robbery', 'Michaela Stone', 'Jared Vasquez', '2022-11-20 17:48:20', 'Brooklyn', 'Ongoing'),

('T22', 'Theft', 'Private Jet Theft', 'Jake Peralta', 'Charles Boyle', '2022-11-20 13:54:59', 'New York', 'Archived');

INSERT INTO `criminal` (`CID`, `CName`, `Alias`, `Age`, `NoOfCases`, `DominantHand`, `CurrentStatus`, `DNAID`, `FingerprintID`, `nationality`) VALUES

('ZK53', 'Jeffrey Dahmer', 'Milwaukee Cannibal', 25, 17, 'Left', 'Dead', 'OERNO123JG', 'ZWGKGJ123DFOG', 'American');

INSERT INTO `criminalbackup` (`ID`, `CriminalName`, `Alias`, `NoOfCases`, `dominantHand`, `Nationality`) VALUES

(NULL, 'Luke Wrenner', 'Sticky Fingers', 2, 'Right', 'American'),

(NULL, 'Anna Sorokin', 'Anna Delvey', 6, 'Unknown', 'German'),

('RX12', 'Ted Bundy', 'Lady Killer', 50, 'Left', 'American'),

('213FD', 'Joe Palmer', 'None', 1, 'Unknown', 'Russian');

INSERT INTO `drugs` (`CaseID`, `NDC\_No`, `dname`, `color`, `class`, `narcotic`) VALUES

('T22', '6745103120', 'Lexapro', 'blue', 'analgesic', 'yes'),

('M53', '6745718120', 'Ketamine', 'white', 'inhalants', 'yes'),

('M981', '6998813120', 'Heroin', 'white', 'opioid', 'no'),

('QT09P1', '8861238761', 'Axypenetril', 'Pink', 'Hallucinogins', 'no'),

('QT09P1', '97234698', 'Nescipixinol', 'Green', 'Inhalants', 'no');

INSERT INTO `paint` (`CaseID`, `PID`, `Color`, `Solvent`, `Binder`, `Pigments`, `Additive`) VALUES

('M53', 'B349', 'Black', 'Benzene', 'Linseed Oil', 'Chromium', 'Penetrol'),

('QT09P1', 'QW11', 'White', 'Toluene', 'Linseed Oil', 'Cadmium', 'Penetrol'),

('T22', 'R041', 'Red', 'Benzene', 'Linseed Oil', 'Cadmium', 'Penetrol'),

('M53', 'R09', 'Yellow', 'Toluene', 'Linseed Oil', 'Casein', 'Fleotrol');

-- JOIN QUERIES

-- To get all car associated with case

select NameOfCase, model, Manufacturer from (AUTOMOBILE JOIN CASES ON AUTOMOBILE.CaseID=CASES.CaseID);

-- To get criminal and name

select CName, NameOfCase from (CriminalCase JOIN Criminal ON CriminalCase.CriminalID=Criminal.CID) JOIN CASES ON CASES.CaseID=CriminalCase.CrimeID;

-- To get criminal and types of crimes

select DISTINCT CName, TypeOfCase from (CriminalCase JOIN Criminal ON CriminalCase.CriminalID=Criminal.CID) JOIN CASES ON CASES.CaseID=CriminalCase.CrimeID;

-- To get criminal and investigating officers

select DISTINCT CName, LeadingOfficer from (CASES JOIN (CRIMINALCASE JOIN CRIMINAL ON CRIMINALCASE.CriminalID=CRIMINAL.CID) ON Cases.CaseID=CriminalCase.CrimeID)

UNION

select DISTINCT CName, AsstOfficer from (CASES JOIN (CRIMINALCASE JOIN CRIMINAL ON CRIMINALCASE.CriminalID=CRIMINAL.CID) ON Cases.CaseID=CriminalCase.CrimeID)

-- AGGREGATE QUERIES

-- to get number of drug instances associated with a case

select NameOfCase, count(\*) from (DRUGS NATURAL JOIN CASES) group by CaseID;

-- to get no of colors grouped by solvent

select Solvent, count(\*) from Paint group by Solvent;

-- No. of narcotic vs not narcotic Drugs

select narcotic, count(\*) from DRUGS group by narcotic;

-- Cases grouped by location

select Loc, count(\*) from CASES group by Loc;

-- SET OPERATIONS

-- narcotic drugs that are blue

select dname from DRUGS where narcotic="yes"

INTERSECT

select dname from DRUGS where color="blue";

-- Handgun manufactured in year 1970

select model, Manufacturer, gauge, caliber from BALLISTICS where Year=1970

INTERSECT

select model, Manufacturer, gauge, caliber from BALLISTICS where typeOfGun="Handgun";

-- Cases lead by Jake and assisted by Amy

select NameOfCase from CASES where LeadingOfficer="Jake Peralta"

INTERSECT

select NameOfCase from CASES where AsstOfficer="Amy Santiago";

-- Cars manufactured by Volkswagon or Hyundai

select model from AUTOMOBILE where Manufacturer="Audi"

UNION

select model from AUTOMOBILE where Manufacturer="Dodge"

-- FUNCTIONS

-- Function to find no of cases lead by an officer

DELIMITER $$

CREATE FUNCTION number\_of\_cases\_lead(officer varchar(255))

RETURNS int

DETERMINISTIC

BEGIN

DECLARE case\_count int;

SELECT count(CaseID) into case\_count

FROM CASES

WHERE LeadingOfficer = officer;

RETURN case\_count;

END; $$

DELIMITER ;

--Command to use function

select LeadingOfficer, number\_of\_cases(LeadingOfficer) from CASES;

-- Function to find no of criminals of a particular status

DELIMITER $$

CREATE FUNCTION number\_of\_criminals(stat varchar(255))

RETURNS int

DETERMINISTIC

BEGIN

DECLARE c int;

SELECT count(CID) into c

FROM Criminal

WHERE CurrentStatus = stat;

RETURN c;

END; $$

DELIMITER ;

-- TRIGGERS

-- Before deleting case record delete crime-case and delete case access

DELIMITER $$

CREATE TRIGGER delCase

BEFORE DELETE

ON CASES FOR EACH ROW

BEGIN

delete from CriminalCase where CrimeID = old.CaseID;

delete from DRUGS where CaseID = old.CaseID;

delete from BALLISTICS where CaseID = old.CaseID;

delete from PAINT where CaseID = old.CaseID;

delete from AUTOMOBILE where CaseID = old.CaseID;

END $$

DELIMITER ;

-- Before deleting criminal record delete case criminal record and also backup criminal info

DELIMITER $$

CREATE TRIGGER delCriminal

BEFORE DELETE

ON CRIMINAL FOR EACH ROW

BEGIN

DECLARE id, criminalname, a, d, n varchar(255);

DECLARE ncases int;

DECLARE c1 CURSOR FOR SELECT CID, CName, Alias, NoOfCases, DominantHand, nationality from CRIMINAL where CID = old.CID;

open c1;

fetch c1 into id, criminalname, a, ncases, d, n;

insert into criminalBackup values(id, criminalName, a, ncases, d, n);

close c1;

delete from CriminalCase where CriminalID = old.CID;

END $$

DELIMITER ;