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-- =====
-- INST 327 Final - Montgomery County Crime Rates
-- ESG - Group 5
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-- =====

-- Create a fresh database
DROP DATABASE IF EXISTS `mococrime`;
CREATE DATABASE IF NOT EXISTS `mococrime`;
USE `mococrime`;

-- Create Places table
CREATE TABLE IF NOT EXISTS `Places` (
    `Place_ID` INT NOT NULL,
    `Place_Description` VARCHAR(80) NOT NULL,
    PRIMARY KEY (`Place_ID`)
);

-- Insert sample records into Places
INSERT INTO `Places` (`Place_ID`, `Place_Description`) VALUES
(1, 'Mall'),
(2, 'Park'),
(3, 'Market'),
(4, 'Plaza'),
(5, 'Suburban Neighborhood'),
(6, 'Urban Neighborhood'),
(7, 'Rural Area'),
(8, 'Government Building'),
(9, 'Bank'),
(10, 'Cinema'),
(11, 'School Zone'),
(12, 'Highway'),
(13, 'Hospital Area'),
(14, 'Industrial Area'),
(15, 'Downtown');

-- Create Police_District table
CREATE TABLE IF NOT EXISTS `Police_District` (
    `District_ID` INT NOT NULL,
    `Police_District_Number` INT NOT NULL,
    `Police_District_Name` VARCHAR(45) NOT NULL,
    PRIMARY KEY (`District_ID`)
);

-- Insert sample records into Police_District
INSERT INTO `Police_District` (`District_ID`, `Police_District_Number`,
`Police_District_Name`) VALUES
(1, 1, 'Rockville'),
(2, 2, 'Wheaton'),
(3, 3, 'Bethesda'),
(4, 4, 'Silver Spring'),
(5, 5, 'Germantown'),
(6, 6, 'Gaithersburg'),
(7, 7, 'Olney'),
(8, 8, 'Damascus'),
(9, 9, 'Clarksburg'),
(10, 10, 'Potomac'),
(11, 11, 'Chevy Chase'),

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(12, 12, 'Burtonsville'),
(13, 13, 'Aspen Hill'),
(14, 14, 'Kensington'),
(15, 15, 'Takoma Park');
```

```
-- Create Locations table
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```
CREATE TABLE IF NOT EXISTS `Locations` (
  `Location_ID` INT NOT NULL,
  `Block_Address` VARCHAR(20) NOT NULL,
  `Street_Prefix` VARCHAR(3) NULL,
  `Street_Name` VARCHAR(45) NOT NULL,
  `City` VARCHAR(45) NOT NULL,
  `State` VARCHAR(2) NOT NULL,
  `Zip_Code` VARCHAR(10) NOT NULL,
  `Latitude` DECIMAL NOT NULL,
  `Longitude` DECIMAL NOT NULL,
  `Place_ID` INT NOT NULL,
  `District_ID` INT NOT NULL,
  PRIMARY KEY (`Location_ID`),
  CONSTRAINT `fk_Locations_1`
    FOREIGN KEY (`Place_ID`)
      REFERENCES `Places` (`Place_ID`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION,
  CONSTRAINT `fk_Locations_2`
    FOREIGN KEY (`District_ID`)
      REFERENCES `Police_District` (`District_ID`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION
);
```

```
-- Insert sample records into Locations
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```
INSERT INTO `Locations` (`Location_ID`, `Block_Address`, `Street_Name`, `City`,
`State`, `Zip_Code`, `Latitude`, `Longitude`, `Place_ID`, `District_ID`) VALUES
(1, '100 Main St', '', 'Rockville', 'MD', '20850', 39.0837, -77.1528, 1, 1),
(2, '200 Oak St', '', 'Wheaton', 'MD', '20902', 39.0368, -77.0502, 2, 2),
(3, '300 Elm St', '', 'Bethesda', 'MD', '20814', 38.9847, -77.0947, 3, 3),
(4, '400 Pine St', '', 'Silver Spring', 'MD', '20910', 38.9907, -77.0261, 4, 4),
(5, '500 Maple St', '', 'Germantown', 'MD', '20874', 39.1732, -77.2717, 5, 5),
(6, '600 Cedar St', '', 'Gaithersburg', 'MD', '20877', 39.1434, -77.2014, 6, 6),
(7, '700 Spruce St', '', 'Olney', 'MD', '20832', 39.1534, -77.0648, 7, 7),
(8, '800 Hickory St', '', 'Damascus', 'MD', '20872', 39.2882, -77.2016, 8, 8),
(9, '900 Aspen St', '', 'Clarksburg', 'MD', '20871', 39.2384, -77.2792, 9, 9),
(10, '1000 View St', '', 'Potomac', 'MD', '20854', 39.018, -77.2086, 10, 10),
(11, '1100 Church St', '', 'Chevy Chase', 'MD', '20815', 38.965, -77.0755, 11, 11),
(12, '1200 Broad St', '', 'Burtonsville', 'MD', '20866', 39.1066, -76.9294, 12,
12),
(13, '1300 Grove St', '', 'Aspen Hill', 'MD', '20906', 39.084, -77.0901, 13, 13),
(14, '1400 Hill St', '', 'Kensington', 'MD', '20895', 39.0257, -77.0793, 14, 14),
(15, '1500 Lake St', '', 'Takoma Park', 'MD', '20912', 38.9834, -77.003, 15, 15),
(16, '1600 Park Ave', '', 'Rockville', 'MD', '20850', 39.0907, -77.1628, 1, 1),
(17, '1700 Oak Lane', '', 'Wheaton', 'MD', '20902', 39.0408, -77.0552, 2, 2),
(18, '1800 Maple Dr', '', 'Bethesda', 'MD', '20814', 38.9897, -77.0997, 3, 3),
(19, '1900 Pine Road', '', 'Silver Spring', 'MD', '20910', 38.9957, -77.0211, 4,
4),
(20, '2000 Cedar Blvd', '', 'Germantown', 'MD', '20874', 39.1782, -77.2767, 5, 5),
(21, '2100 Spruce Way', '', 'Gaithersburg', 'MD', '20877', 39.1484, -77.2064, 6,
6),
(22, '2200 Hickory St', '', 'Olney', 'MD', '20832', 39.1584, -77.0698, 7, 7),
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(23, '2300 Aspen Circle', '', 'Damascus', 'MD', '20872', 39.2932, -77.2066, 8, 8),
(24, '2400 View Place', '', 'Clarksburg', 'MD', '20871', 39.2434, -77.2842, 9, 9),
(25, '2500 Church Rd', '', 'Potomac', 'MD', '20854', 39.023, -77.2136, 10, 10),
(26, '2600 Broad Way', '', 'Chevy Chase', 'MD', '20815', 38.970, -77.0805, 11, 11),
(27, '2700 Grove Ave', '', 'Burtonsville', 'MD', '20866', 39.1116, -76.9344, 12,
12),
(28, '2800 Hill Street', '', 'Aspen Hill', 'MD', '20906', 39.089, -77.0951, 13,
13),
(29, '2900 Lake Lane', '', 'Kensington', 'MD', '20895', 39.0307, -77.0843, 14, 14),
(30, '3000 Main Street', '', 'Takoma Park', 'MD', '20912', 38.9884, -76.9980, 15,
15);
```

```
-- Create Police_Table
CREATE TABLE IF NOT EXISTS `Police_Table` (
  `Agency_ID` INT NOT NULL,
  `Agency` VARCHAR(255) NOT NULL,
  `Sector` VARCHAR(255) NOT NULL,
  `Beat` VARCHAR(255) NOT NULL,
  `PRA` VARCHAR(255) NOT NULL,
  PRIMARY KEY (`Agency_ID`)
);
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```
-- Insert sample records into Police_Table
INSERT INTO `Police_Table` (`Agency_ID`, `Agency`, `Sector`, `Beat`, `PRA`) VALUES
(1, 'Montgomery County Police Department', 'North', '1A', 'PRA1'),
(2, 'Montgomery County Police Department', 'East', '2B', 'PRA2'),
(3, 'Montgomery County Police Department', 'West', '3C', 'PRA3'),
(4, 'Montgomery County Police Department', 'South', '4D', 'PRA4'),
(5, 'Montgomery County Police Department', 'Central', '5E', 'PRA5'),
(6, 'Montgomery County Police Department', 'NorthEast', '6F', 'PRA6'),
(7, 'Montgomery County Police Department', 'SouthWest', '7G', 'PRA7'),
(8, 'Montgomery County Police Department', 'NorthWest', '8H', 'PRA8'),
(9, 'Montgomery County Police Department', 'SouthEast', '9I', 'PRA9'),
(10, 'Montgomery County Police Department', 'CentralWest', '10J', 'PRA10'),
(11, 'Montgomery County Police Department', 'CentralEast', '11K', 'PRA11'),
(12, 'Montgomery County Police Department', 'OuterNorth', '12L', 'PRA12'),
(13, 'Montgomery County Police Department', 'OuterSouth', '13M', 'PRA13'),
(14, 'Montgomery County Police Department', 'InnerWest', '14N', 'PRA14'),
(15, 'Montgomery County Police Department', 'InnerEast', '15O', 'PRA15');
```

```
-- Create Crime_Details table
CREATE TABLE IF NOT EXISTS `Crime_Details` (
  `Crime_ID` INT NOT NULL,
  `Crime_Name_1` VARCHAR(255) NOT NULL,
  PRIMARY KEY (`Crime_ID`)
);
```

```
-- Insert sample records into Crime_Details
INSERT INTO `Crime_Details` (`Crime_ID`, `Crime_Name_1`) VALUES
(1, 'Theft'),
(2, 'Burglary'),
(3, 'Robbery'),
(4, 'Assault'),
(5, 'Vandalism'),
(6, 'Public Intoxication'),
(7, 'Fraud'),
(8, 'Sexual Assault'),
(9, 'Theft'),
(10, 'Burglary'),
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(11, 'Robbery'),
(12, 'Assault'),
(13, 'Vandalism'),
(14, 'Public Intoxication'),
(15, 'Fraud');

-- Create Incidents table
CREATE TABLE IF NOT EXISTS `Incidents` (
  `Incident_ID` INT NOT NULL,
  `Dispatch_Date_Time` DATETIME NOT NULL,
  `Location_ID` INT NOT NULL,
  `Agency_ID` INT NOT NULL,
  `Victims` INT NOT NULL,
  PRIMARY KEY (`Incident_ID`),
  CONSTRAINT `fk_Incidents_1`
    FOREIGN KEY (`Location_ID`)
      REFERENCES `Locations` (`Location_ID`)
      ON DELETE NO ACTION
      ON UPDATE NO ACTION,
  CONSTRAINT `fk_Incidents_2`
    FOREIGN KEY (`Agency_ID`)
      REFERENCES `Police_Table` (`Agency_ID`)
      ON DELETE NO ACTION
      ON UPDATE NO ACTION
);

-- Insert sample records into Incidents
INSERT INTO `Incidents` (`Incident_ID`, `Dispatch_Date_Time`, `Location_ID`,
`Agency_ID`, `Victims`) VALUES
(1, '2024-03-01 08:00:00', 1, 1, 2),
(2, '2024-03-02 09:00:00', 2, 2, 1),
(3, '2024-03-03 10:00:00', 3, 3, 0),
(4, '2024-03-04 11:00:00', 4, 1, 1),
(5, '2024-03-05 12:00:00', 5, 2, 3),
(6, '2024-03-06 13:00:00', 6, 3, 4),
(7, '2024-03-07 14:00:00', 7, 1, 2),
(8, '2024-03-08 15:00:00', 8, 2, 1),
(9, '2024-03-09 16:00:00', 9, 3, 0),
(10, '2024-03-10 17:00:00', 10, 1, 3),
(11, '2024-03-11 18:00:00', 11, 2, 5),
(12, '2024-03-12 19:00:00', 12, 3, 1),
(13, '2024-03-13 20:00:00', 13, 1, 2),
(14, '2024-03-14 21:00:00', 14, 2, 0),
(15, '2024-03-15 22:00:00', 15, 3, 3);

-- Create Crime_Link table to link Crime_Details to Incidents
CREATE TABLE IF NOT EXISTS `Crime_Link` (
  Crime_ID INT NOT NULL,
  Incident_ID INT NOT NULL,
  FOREIGN KEY (Crime_ID) REFERENCES `Crime_Details` (Crime_ID),
  FOREIGN KEY (Incident_ID) REFERENCES `Incidents` (Incident_ID)
);

-- Populate Crime_Link
INSERT INTO Crime_Link (Crime_ID, Incident_ID)
VALUES
(1, 1),
(2, 2),
(3, 3),

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```
(4, 4),
(5, 5),
(6, 6),
(7, 7),
(8, 8),
(9, 9),
(10, 10),
(11, 11),
(12, 12),
(13, 13),
(14, 14),
(15, 15);
```

```
-- Duplicate sample records for Incidents table to have a total of 30 records
INSERT INTO `Incidents` (`Incident_ID`, `Dispatch_Date_Time`, `Location_ID`,
`Agency_ID`, `Victims`)
SELECT Incident_ID + 15, Dispatch_Date_Time, Location_ID, Agency_ID, Victims FROM
`Incidents`;
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-- Views --
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```
-- View 1: Requirement A, B, C
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```
CREATE OR REPLACE VIEW View_1 AS
SELECT l.Location_ID, l.Block_Address, l.City, l.State, p.Place_Description,
pd.Police_District_Name
FROM Locations l
JOIN Places p ON l.Place_ID = p.Place_ID
JOIN Police_District pd ON l.District_ID = pd.District_ID
WHERE l.State = 'MD'
GROUP BY l.Location_ID;
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-- change spe
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```
-- View 2: Requirement A, B, D
```

```
CREATE OR REPLACE VIEW View_2 AS
SELECT l.Location_ID, l.Block_Address, l.City, l.State, p.Place_Description,
pd.Police_District_Name, cd.Crime_Name_1
FROM Locations l
JOIN Places p ON l.Place_ID = p.Place_ID
JOIN Police_District pd ON l.District_ID = pd.District_ID
JOIN Crime_Details cd ON cd.Crime_ID = cd.Crime_ID -- Updated join condition here
WHERE pd.Police_District_Name = 'Rockville'
AND cd.Crime_Name_1 = 'Burglary'
ORDER BY cd.Crime_Name_1;
```

```
-- View 3: Requirement A, C, E
```

```
CREATE OR REPLACE VIEW View_3 AS
SELECT l.Location_ID, l.Block_Address, l.City, l.State, p.Place_Description,
COUNT(DISTINCT i.Incident_ID) AS Incident_Count, COUNT(DISTINCT cl.Crime_ID) AS
Crime_Count
FROM Locations l
JOIN Incidents i ON i.Location_ID = l.Location_ID
JOIN Places p ON l.Place_ID = p.Place_ID
LEFT JOIN Crime_Link cl ON i.Incident_ID = cl.Incident_ID
LEFT JOIN Crime_Details cd ON cl.Crime_ID = cd.Crime_ID
GROUP BY l.Location_ID;
```

```
-- View 4: Requirement A, D, E
```

```

CREATE OR REPLACE VIEW View_4 AS
SELECT i.Incident_ID, i.Dispatch_Date_Time, l.Block_Address, pt.Agency
FROM Incidents i
JOIN Locations l ON i.Location_ID = l.Location_ID
JOIN Police_Table pt ON i.Agency_ID = pt.Agency_ID
WHERE pt.Sector = 'North';

-- View 5: Requirement A, B, C, D, E
CREATE OR REPLACE VIEW View_5 AS
SELECT l.Location_ID, l.Block_Address, l.City, l.State, p.Place_Description,
pd.Police_District_Name,
COUNT(DISTINCT i.Incident_ID) AS Incident_Count,
COUNT(DISTINCT cl.Crime_ID) AS Crime_Count
FROM Incidents i
JOIN Locations l ON i.Location_ID = l.Location_ID
JOIN Places p ON l.Place_ID = p.Place_ID
JOIN Police_District pd ON l.District_ID = pd.District_ID
LEFT JOIN Crime_Link cl ON i.Incident_ID = cl.Incident_ID
LEFT JOIN Crime_Details cd ON cl.Crime_ID = cd.Crime_ID
WHERE pd.Police_District_Name = 'Silver Spring'
GROUP BY
    l.Location_ID,
    l.Block_Address,
    l.City,
    l.State,
    p.Place_Description,
    pd.Police_District_Name
HAVING COUNT(DISTINCT cl.Crime_ID) = (
    SELECT MAX(Crime_Count) FROM (
        SELECT
            pd.Police_District_Name,
            COUNT(DISTINCT cl.Crime_ID) AS Crime_Count
        FROM Incidents i
        JOIN Locations l ON i.Location_ID = l.Location_ID
        JOIN Places p ON l.Place_ID = p.Place_ID
        JOIN Police_District pd ON l.District_ID = pd.District_ID
        LEFT JOIN Crime_Link cl ON i.Incident_ID = cl.Incident_ID
        WHERE pd.Police_District_Name = 'Silver Spring'
        GROUP BY pd.Police_District_Name
    ) AS Subquery
    WHERE Subquery.Police_District_Name = pd.Police_District_Name
);

```