

PostgreSQL

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-----step_1-----
CREATE DATABASE project_5;

-----step_2-----
CREATE TABLE los_angeles_crime_reports (
    division_record text,
    date_rptd timestamp with time zone,
    date_occur timestamp with time zone,
    time_occur text,
    area_code smallint,
    area_name text,
    sub_area_code integer,
    part smallint,
    crime_code smallint,
    crime_code_description text,
    mo_codes text,
    victim_age smallint,
    victim_sex text,
    victim_descent text,
    premis_code smallint,
    premis_description text,
    weapon_code smallint,
    weapon_description text,
    case_status text,
    case_status_description text,
    crime_code_1 smallint,
    crime_code_2 smallint,
    crime_code_3 smallint,
    crime_code_4 smallint,
    location text,
    cross_street text,
    latitude numeric(9,5),
    longitude numeric(9,5)
);

-----step_3-----
SET TIME ZONE 'US/Pacific';

-----step_4-----
COPY los_angeles_crime_reports FROM
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/cleaned.csv'
WITH (FORMAT CSV, HEADER);

-----step_5-----
SELECT *
FROM los_angeles_crime_reports
WHERE (crime_code_description ILIKE 'rape%'
OR crime_code_description ILIKE 'sex%'
OR crime_code_description ILIKE 'penis%')
AND victim_sex = 'M'
AND victim_age > 5 AND victim_age < 30 AND victim_descent = 'W'
;

-----step_6-----
SELECT *
FROM los_angeles_crime_reports
WHERE crime_code_description ILIKE 'vehicle%' OR crime_code_description ILIKE 'bike%'
;

-----step_7-----
COPY
(
    SELECT crime_code_description
    FROM los_angeles_crime_reports
    GROUP BY crime_code_description
) TO
'C:/Users/Jalil Ahamd/Desktop/project_5/crime_description_explaination.csv'
WITH (FORMAT CSV, HEADER);

-----step_8-----
CREATE TABLE los_angeles_crime_reports_backup AS
(SELECT * FROM los_angeles_crime_reports);

-----step_9-----
SELECT date_part('year', date_occur)
FROM los_angeles_crime_reports
ORDER BY date_part('year', date_occur) ASC;

-----step_10-----
ALTER TABLE los_angeles_crime_reports ADD COLUMN year_occur text;
ALTER TABLE los_angeles_crime_reports ADD COLUMN month_occur text;
ALTER TABLE los_angeles_crime_reports ADD COLUMN day_occur text;
ALTER TABLE los_angeles_crime_reports ADD COLUMN week_occur text;
ALTER TABLE los_angeles_crime_reports ADD COLUMN quarter_occur text;

-----step_11-----
UPDATE los_angeles_crime_reports
SET year_occur = date_part('year', date_occur)
;
UPDATE los_angeles_crime_reports
SET month_occur = date_part('month', date_occur)
;
UPDATE los_angeles_crime_reports
SET quarter_occur = date_part('quarter', date_occur)
;
UPDATE los_angeles_crime_reports
SET day_occur = date_part('day', date_occur)
;
UPDATE los_angeles_crime_reports
SET week_occur = date_part('week', date_occur)
;
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-----step_12-----
SELECT crime_code_description, victim_age, victim_sex, victim_descent, premis_description, date_occur,
time_occur, year_occur, month_occur, day_occur, week_occur, quarter_occur
FROM los_angeles_crime_reports
;

-----step_13-----
SELECT crime_code_description, victim_age, victim_sex, victim_descent, premis_description, date_occur,
time_occur
FROM los_angeles_crime_reports
WHERE (crime_code_description ILIKE '%sex%'
OR crime_code_description ILIKE 'rape%') AND
victim_sex = 'M' AND victim_age < 26 AND victim_age > 10
ORDER BY victim_age, victim_descent;

-----step_14-----
SELECT DISTINCT division_record FROM los_angeles_crime_reports
;

-----step_15-----
ALTER TABLE los_angeles_crime_reports ADD CONSTRAINT division_key PRIMARY KEY (division_record)
;
ALTER TABLE los_angeles_crime_reports_backup ADD CONSTRAINT division_backup_key PRIMARY KEY (division_record)
;

-----step_16-----
CREATE INDEX crime_idx ON los_angeles_crime_reports (crime_code_description);

-----step_17-----
UPDATE los_angeles_crime_reports o
SET victim_descent = b.victim_descent
FROM los_angeles_crime_reports_backup b
WHERE o.division_record = b.division_record
;

-----step_18-----
UPDATE los_angeles_crime_reports
SET victim_descent =
CASE
    WHEN victim_descent = 'A' THEN 'Other Asian'
    WHEN victim_descent = 'B' THEN 'Black'
    WHEN victim_descent = 'C' THEN 'Chinese'
    WHEN victim_descent = 'D' THEN 'Cambodian'
    WHEN victim_descent = 'F' THEN 'Filipino'
    WHEN victim_descent = 'G' THEN 'Guamanian'
    WHEN victim_descent = 'H' THEN 'Hispanic'
    WHEN victim_descent = 'I' THEN 'America Indian'
    WHEN victim_descent = 'J' THEN 'Japanese'
    WHEN victim_descent = 'K' THEN 'Korean'
    WHEN victim_descent = 'L' THEN 'Laotian'
    WHEN victim_descent = 'O' THEN 'Other'
    WHEN victim_descent = 'P' THEN 'Pacific'
    WHEN victim_descent = 'S' THEN 'Samoan'
    WHEN victim_descent = 'U' THEN 'Hawaiian'
    WHEN victim_descent = 'V' THEN 'Vietnamese'
    WHEN victim_descent = 'W' THEN 'White'
    WHEN victim_descent = 'X' THEN 'Unknown'
    WHEN victim_descent = 'Z' THEN 'Asian Indian'
    ELSE 'Unknown'
END;

-----step_19-----
SELECT * FROM los_angeles_crime_reports
WHERE victim_descent NOT IN ('Other Asian', 'Black', 'Chinese', 'Cambodian', 'Filipino', 'Guamanian',
                             'Hispanic', 'American Indian', 'Japanese', 'Korean', 'Laotian', 'Other',
                             'Pacific', 'Samoan', 'Hawaiian', 'Vietnamese', 'White', 'Unknown',
                             'Asian Indian');

-----step_20-----
SELECT victim_sex, count(*)
FROM los_angeles_crime_reports
GROUP BY victim_sex;

-----step_21-----
UPDATE los_angeles_crime_reports
SET victim_sex =
CASE
    WHEN victim_sex NOT IN ('M', 'F', 'H') THEN 'X'
    ELSE 'X'
END;

-----step_22-----
CREATE EXTENSION postgis;

-----step_23-----
SELECT crime_code_description, victim_age, victim_sex, victim_descent, premis_description
FROM los_angeles_crime_reports
WHERE crime_code_description ~* 'sex|rape' AND crime_code_description !~* 'offender registrant'
AND victim_sex ~ 'M' AND victim_descent !~* '(black|india|unknown)'
AND victim_age < 26 AND victim_age > 15
;

-----step_24-----
SELECT * FROM los_angeles_crime_reports
LIMIT 3;

-----step_25-----
ALTER TABLE los_angeles_crime_reports ADD COLUMN geog_point geography(POINT, 4326);

-----step_26-----
UPDATE los_angeles_crime_reports

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SET geog_point =
    ST_SetSRID
    (
        ST_MakePoint(longitude, latitude)::geography, 4326
    );

-----step_27-----
CREATE INDEX crime_location_idx ON los_angeles_crime_reports USING GIST(geog_point);

-----step_28-----
COPY
(
    SELECT crime_code_description, count(*)
    FROM los_angeles_crime_reports
    GROUP BY crime_code_description
    ORDER BY count(*) DESC
    LIMIT 20
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/top_20_crimes.csv'
WITH (FORMAT CSV, HEADER);

-----step_29-----
COPY
(
    SELECT year_occur, count(*)
    FROM los_angeles_crime_reports
    GROUP BY year_occur
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/year_crime_data.csv'
WITH (FORMAT CSV, HEADER);

-----step_30-----
COPY
(
    SELECT date_occur::date, count(*)
    FROM los_angeles_crime_reports
    GROUP BY date_occur
    ORDER BY date_occur
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/daily_crime_data.csv'
WITH (FORMAT CSV, HEADER);

-----step_31-----
SELECT year_occur, month_occur,
       to_date(CONCAT(year_occur, '/', month_occur), 'YYYY/MM') AS year_month
FROM los_angeles_crime_reports;

-----step_32-----
SELECT to_date(CONCAT(year_occur, '/', month_occur), 'YYYY/MM') AS year_month, count(*)
FROM los_angeles_crime_reports
GROUP BY year_month
ORDER BY year_month;

-----step_33-----
COPY
(
    SELECT to_date(CONCAT(year_occur, '/', month_occur), 'YYYY/MM') AS year_month, count(*)
    FROM los_angeles_crime_reports
    GROUP BY year_month
    ORDER BY year_month
    LIMIT 50
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/monthly_crime_data.csv'
WITH (FORMAT CSV, HEADER);

-----step_34-----
COPY
(
    SELECT to_date(CONCAT(year_occur, '/', quarter_occur), 'YYYY/MM') AS year_month, count(*)
    FROM los_angeles_crime_reports
    GROUP BY year_month
    ORDER BY year_month
    LIMIT 50
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/quarterly_crime_data.csv'
WITH (FORMAT CSV, HEADER);

-----step_35-----
COPY
(
    SELECT

    (SELECT count(*) FROM los_angeles_crime_reports WHERE
    crime_code_description ~* 'stolen|burglary|Vandalism|theft|robbery|shoplift|pickpocket|snatching')
    AS theft,

    (SELECT count(*) FROM los_angeles_crime_reports
    WHERE crime_code_description ~* 'assault|intimate|weapon|firearms|fired|arson|battery|lynching
    |manslaughter'
    AND crime_code_description !~* 'sex|sexual')
    AS assault,

    (SELECT count(*) FROM los_angeles_crime_reports WHERE
    crime_code_description ~* 'trespassing|threats|letters|violation|document|contempt|failure|peace
    |arrest|riot')
    AS legal,

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(SELECT count(*) FROM los_angeles_crime_reports
WHERE crime_code_description ~* 'rape|sex|sexual|oral|pimping|indecent|trafficking|firefight
|bigamy|imprisonment|extortion')
AS body
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_by_type.csv'
WITH (FORMAT CSV, HEADER)
;

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-----step_36-----
COPY
(
SELECT area_name, count(*)
FROM los_angeles_crime_reports
GROUP BY area_name
ORDER BY count(*) DESC
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_by_area.csv'
WITH (FORMAT CSV, HEADER);

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-----step_37-----
COPY
(
SELECT premis_description, count(*)
FROM los_angeles_crime_reports
GROUP BY premis_description
ORDER BY count(*) DESC
LIMIT 25
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_by_premis.csv'
WITH (FORMAT CSV, HEADER);

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-----step_38-----
COPY
(
SELECT victim_sex, count(*)
FROM los_angeles_crime_reports
WHERE victim_sex !~* 'x'
GROUP BY victim_sex
ORDER BY count(*) DESC
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_by_victim_sex.csv'
WITH (FORMAT CSV, HEADER);

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-----step_39-----
COPY
(
SELECT victim_age, count(*)
FROM los_angeles_crime_reports
WHERE victim_age > 0
GROUP BY victim_age
ORDER BY victim_age ASC
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_by_victim_age.csv'
WITH (FORMAT CSV, HEADER);

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-----step_40-----
COPY
(
SELECT case_status_description, count(*)
FROM los_angeles_crime_reports
GROUP BY case_status_description
ORDER BY count(*) DESC
LIMIT 5
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_by_case_status.csv'
WITH (FORMAT CSV, HEADER);

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-----step_41-----
COPY
(
SELECT date_occur, time_occur, crime_code_description, victim_sex, victim_age, victim_descent,
premis_description, longitude, latitude
FROM los_angeles_crime_reports
WHERE victim_age > 0 AND victim_sex !~* 'x' AND victim_descent !~* 'unknown'
AND (longitude BETWEEN -117.630 AND -118.997
OR latitude BETWEEN 33.707 AND 34.841)
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/location_wise_data.csv'
WITH (FORMAT CSV, HEADER);

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-----step_42-----
COPY
(
SELECT victim_descent, count(*)
FROM los_angeles_crime_reports
WHERE victim_descent !~* 'unknown'
GROUP BY victim_descent
ORDER BY count(*) DESC
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_by_victim_descent.csv'
WITH (FORMAT CSV, HEADER);

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-----step_43-----

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COPY
(
SELECT victim_descent, crime_code_description, count(*)
FROM los_angeles_crime_reports
WHERE victim_descent !~* 'Unknown'
GROUP BY victim_descent, crime_code_description
ORDER BY victim_descent, count(*) DESC
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_by_victim_descent_description.csv'
WITH (FORMAT CSV, HEADER);

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-----step_44-----
COPY
(
SELECT victim_descent, victim_sex, count(*)
FROM los_angeles_crime_reports
WHERE victim_descent !~* 'unknown' AND victim_sex !~* 'x' AND victim_age > 0
      AND victim_sex ~* 'f'
GROUP BY victim_descent, victim_sex
ORDER BY count(*) DESC
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/victim_descent_sex_female.csv'
WITH (FORMAT CSV, HEADER);

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-----step_45-----
COPY
(
SELECT victim_descent, victim_sex, count(*)
FROM los_angeles_crime_reports
WHERE victim_descent !~* 'unknown' AND victim_sex !~* 'x' AND victim_age > 0
      AND victim_sex ~* 'M'
GROUP BY victim_descent, victim_sex
ORDER BY count(*) DESC
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/victim_descent_sex_male.csv'
WITH (FORMAT CSV, HEADER);

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-----step_46-----
COPY
(
SELECT victim_descent, victim_sex, count(*)
FROM los_angeles_crime_reports
WHERE victim_descent !~* 'unknown' AND victim_sex !~* 'x' AND victim_age > 0
      AND victim_sex ~* 'h'
GROUP BY victim_descent, victim_sex
ORDER BY count(*) DESC
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/victim_descent_sex_homo.csv'
WITH (FORMAT CSV, HEADER);

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-----step_47-----
COPY
(
SELECT victim_sex, victim_age, count(*)
FROM los_angeles_crime_reports
WHERE victim_sex !~* 'unknown' AND victim_sex !~* 'x' AND victim_age > 0
      AND victim_sex ~* 'H'
GROUP BY victim_sex, victim_age
ORDER BY victim_age
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/victim_sex_age_homo.csv'
WITH (FORMAT CSV, HEADER);

```

```

-----step_48-----
COPY
(
SELECT victim_sex, victim_age, count(*)
FROM los_angeles_crime_reports
WHERE victim_sex !~* 'unknown' AND victim_sex !~* 'x' AND victim_age > 0
      AND victim_sex ~* 'f'
GROUP BY victim_sex, victim_age
ORDER BY victim_age
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/victim_sex_age_female.csv'
WITH (FORMAT CSV, HEADER);

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-----step_49-----
COPY
(
SELECT victim_sex, victim_age, count(*)
FROM los_angeles_crime_reports
WHERE victim_sex !~* 'unknown' AND victim_sex !~* 'x' AND victim_age > 0
      AND victim_sex ~* 'm'
GROUP BY victim_sex, victim_age
ORDER BY victim_age
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/victim_sex_age_male.csv'
WITH (FORMAT CSV, HEADER);

```

```

-----step_50-----
COPY
(
SELECT victim_descent, case_status_description, count(*)
FROM los_angeles_crime_reports
WHERE victim_descent !~* 'unknown' AND case_status_description !~* 'unk'

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        AND case_status_description ~* 'invest cont'
GROUP BY victim_descent, case_status_description
ORDER BY count(*) DESC
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/victim_descent_case_invest_cont.csv'
WITH (FORMAT CSV, HEADER);

```

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-----step_51-----
COPY
(
SELECT *
FROM los_angeles_crime_reports
WHERE victim_age > 0 AND victim_sex !~* 'x' AND victim_descent !~* 'unknown'
      AND (longitude BETWEEN -117.630 AND -118.997
           OR latitude BETWEEN 33.707 AND 34.841)
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/all_crime_data.csv'
WITH (FORMAT CSV, HEADER);

```

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-----step_52-----
COPY
(
SELECT victim_descent, victim_sex, victim_age, crime_code_description, longitude, latitude
FROM los_angeles_crime_reports
WHERE victim_age > 0 AND victim_sex !~* 'x' AND victim_descent !~* 'unknown'
      AND crime_code_description ~* 'stolen|burglary|Vandalism|theft|robbery|shoplift|pickpocket|snatching'
      AND (longitude BETWEEN -117.630 AND -118.997
           OR latitude BETWEEN 33.707 AND 34.841)
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_data_theft.csv'
WITH (FORMAT CSV, HEADER);

```

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-----step_53-----
COPY
(
SELECT victim_descent, victim_sex, victim_age, crime_code_description, longitude, latitude
FROM los_angeles_crime_reports
WHERE victim_age > 0 AND victim_sex !~* 'x' AND victim_descent !~* 'unknown'
      AND crime_code_description ~* 'assault|intimate|weapon|firearms|fired|arson|battery|lynching
|manslaughter' AND crime_code_description !~* 'sex|sexual'
      AND (longitude BETWEEN -117.630 AND -118.997
           OR latitude BETWEEN 33.707 AND 34.841)
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_data_assault.csv'
WITH (FORMAT CSV, HEADER);

```

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-----step_54-----
COPY
(
SELECT victim_descent, victim_sex, victim_age, crime_code_description, longitude, latitude
FROM los_angeles_crime_reports
WHERE victim_age > 0 AND victim_sex !~* 'x' AND victim_descent !~* 'unknown'
      AND crime_code_description ~* 'trespassing|threats|letters|violation|document|contempt|failure|peace
|arrest|riot'
      AND (longitude BETWEEN -117.630 AND -118.997
           OR latitude BETWEEN 33.707 AND 34.841)
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_data_legal.csv'
WITH (FORMAT CSV, HEADER);

```

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-----step_55-----
COPY
(
SELECT victim_descent, victim_sex, victim_age, crime_code_description, longitude, latitude
FROM los_angeles_crime_reports
WHERE victim_age > 0 AND victim_sex !~* 'x' AND victim_descent !~* 'unknown'
      AND crime_code_description ~* 'rape|sex|sexual|oral|pimping|indecent|trafficking|firefight
|bigamy|imprisonment|extortion'
      AND (longitude BETWEEN -117.630 AND -118.997
           OR latitude BETWEEN 33.707 AND 34.841)
)
TO
'C:/Users/Jalil Ahamd/Desktop/project_5/csv_files/crime_data_body.csv'
WITH (FORMAT CSV, HEADER);

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-----Explanations-----
step_1: Created a database named project_5.
step_2: Created Table named " los_angeles_crime_reports" in project_5 database with columns and required data types.
step_3: Set timezone to US pacific because Los Angeles lies in Pacific time zone.
step_4: Loaded the Table with the data from cleaned.csv. With specifying formats.
step_5: Performed query to find a crime related to sex.
step_6: Searching for crime related to vehicle or bike using WHERE clause
step_7: Exported the column "crime_code_description" to csv file
step_8: Created a backup table
step_9: Extracted year from date_occur column
step_10: Added new columns to the table with name and data types.
step_11: Updated all the new columns
step_12: Querying for those columns
step_13: Simple query with WHERE clause with AND, OR operators and case insensitive ILIKE
step_14: Finding if division_record is unique, to make it a primary column
step_15: Added a primary column
step_16: Created index
step_17: Updated the column from the backup table
step_18: Updated the victim_descent column using CASE
step_19: Looking for any unknown
step_20: Finding number of columns
step_21: Updated the victim column

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step_22: Created postgis extension for geography data.
step_23: Querying data for sex crime
step_24: Looking for all the columns
step_25: Added new column of data type geography
step_26: Updated the column with ST_MakePoint and existing longitude, latitude column
step_27: Created index on new column
step_28: Exported the crime data by crime_code_description into csv file
step_29: Exported the crime data by year into csv file
Step_30: Casted date_occur into data type and then exported it
Step_31: Concatenated year and month
Step_32: Counted the year and month data
Step_33: Exported the year and month data into csv file
Step_34: Exported the year and quarter data into csv file
Step_35: Used subqueries to export crime data by type
step_36: Export of crime by area
step_37: Exporting crime by premis
step_38: Crime by victim_sex
step_39: Crime by victim_age
step_40: Exporting crime by case_status_description
step_41: Exporting crime data by location
Step_42: Data by victim_descent
Step_43: Data by victim_descent and crime_code_description
Step_44: Exporting count of crime data by victim_descent and victim_sex with female
Step_45: Exporting count of crime data by victim_descent and victim_sex with male
Step_46: Exporting count of crime data by victim_descent and victim_sex with homo
Step_47: Data by victim_sex with homo
Step_48: Data by victim_sex with female
Step_49: Data by victim_sex with male
Step_50: Crime data by invest_cont
Step_51: Exporting all the data removing any unknown and limiting coordinated to la county
Step_52: Data by theft
Step_53: Data by assault
Step_54: Data related to legal cases
Step_55: Data by body crime
