1. List the total number of reported crimes between 2018 and 2022.

select

Year(c.reported\_crime\_date) as years,

count(\*) as [Reported Crime]

from Chicago.crime as c

where year(c.reported\_crime\_date) between 2018 and 2022

group by Year(c.reported\_crime\_date)

order by Year(c.reported\_crime\_date)

A screenshot of a data

Description automatically generated

1. List the total number of homicides, batteries and assaults reported between 2018 and 2022.

select

crime\_type,

count(\*) as [Numnber of Crime]

from Chicago.crime

where crime\_type in ('homicide', 'battery', 'assault')

group by crime\_type

A screenshot of a computer

Description automatically generated

1. Which are the most common crimes reported and what percentage amount are they from the total amount of reported crimes?

with percentages

as (

select

crime\_type,

count(\*) as number

from chicago.crime

group by crime\_type

)

select

crime\_type,

round(cast(number as float) \* 100 /(select sum(number) from percentages),2) as [Percentage]

from percentages

A screenshot of a computer

Description automatically generated

1. What are the top ten communities that had the MOST number of crimes reported? Include the current population, density, and order by the number of reported crimes.

select top 10

n.community\_name,

n.population as [population],

n.density,

count(c. crime\_type) as [Number of Crimes]

from chicago.crime c

join chicago.community n

on c.community\_id = n.community\_id

group by n.community\_name, n.population, n.density

order by [Number of Crimes] desc

A screenshot of a computer

Description automatically generated

1. What are the top communities that had the LEAST number of crimes reported? Include the current population, density, and order by the number of reported crimes.

select TOP 1

n.community\_name,

n.population as [population],

n.density,

count(c. crime\_type) as [Number of Crimes]

from chicago.crime c

join chicago.community n

on c.community\_id = n.community\_id

group by n.community\_name, n.population, n.density

order by [Number of Crimes] ASC

A screenshot of a computer

Description automatically generated

1. What month had the most crimes reported and what was the average and median temperature high in the last five years?

with subquery as

(select

w.weather\_date,

c.crime\_type,

temp\_high,

PERCENTILE\_DISC(0.5) within group (order by temp\_high) over (partition by (month(w.weather\_date))) as mediantemp

from chicago.crime c

join chicago.weather w

on c.reported\_crime\_date = w.weather\_date

group by w.weather\_date,c.crime\_type, w.temp\_high

)

select top 1

MONTH(weather\_date) AS Mon,

COUNT(crime\_type) OVER (PARTITION BY MONTH(weather\_date)) AS crimenum,

AVG(temp\_high) OVER (PARTITION BY MONTH(weather\_date)) AS averagehigh,

AVG(mediantemp) OVER (PARTITION BY MONTH(weather\_date)) AS mediantemp

from subquery

group by Month(weather\_date), temp\_high, mediantemp, crime\_type

order by crimenum desc

A screenshot of a computer

Description automatically generated

1. What month had the most homicides reported and what was the average and median temperature high in the last five years?

with subquery as (

select

w.weather\_date,

c.crime\_type as homicide,

w.temp\_high

from chicago.crime c

join chicago.weather w

on c.reported\_crime\_date = w.weather\_date

where c.crime\_type = 'homicide'

)

select top 1

MONTH(weather\_date) as Mon,

count(homicide) over (partition by (MONTH(weather\_date))) as homicount,

AVG(temp\_high) OVER (PARTITION BY MONTH(weather\_date)) AS averagehigh,

PERCENTILE\_DISC(0.5) within group (order by temp\_high) over (partition by (month(weather\_date))) as mediantemp

from subquery

group by MONTH(weather\_date), temp\_high, homicide

order by homicount desc

A screenshot of a computer

Description automatically generated

1. List the most violent year and the number of arrests with percentage. Order by the number of crimes in descending order. Determine the most violent year by the number of reported Homicides, Assaults and Battery for that year.

select

Year(reported\_crime\_date) as Years,

count(crime\_type) as[Violentnum],

sum(cast(arrest as float)) as arrest,

round(sum(cast(arrest as float)) \* 100/ count(crime\_type),2) as percentages

from

chicago.crime

where crime\_type in ('homicide', 'assault', 'battery')

group by Year(reported\_crime\_date)

A white background with black numbers

Description automatically generated

1. List the day of the week, year, average precipitation, average high temperature and the highest number of reported crimes for days with and without precipitation.

select

day(c.reported\_crime\_date) as daayofmonth,

DATEPART(WEEKDAY, c.reported\_crime\_date) as weekdays,

DATEPART(DAYOFYEAR, c.reported\_crime\_date) as [Day of Year],

AVG(w.precipitation) as avgprecip,

avg(w.temp\_high) as avgtemp,

count(c.crime\_type) as [reportednum]

from chicago.crime c

join chicago.weather w

on c.reported\_crime\_date = w.weather\_date

group by reported\_crime\_date

order by reportednum

A screenshot of a computer

Description automatically generated

1. List the days with the most reported crimes when there is zero precipitation and the day when precipitation is greater than 5. Including the day of the week, high temperature, amount and precipitation and the total number of reported crimes for that day.

select

DATEPART(WEEKDAY, c.reported\_crime\_date) as [Day of Week],

w.temp\_high,

count(temp\_high) as [Crime Amount],

sum(cast(w.precipitation as float)) as Precipitation

from chicago.crime c

join chicago.weather w

on c.reported\_crime\_date = w.weather\_date

group by DATEPART(WEEKDAY, c.reported\_crime\_date), temp\_high

having sum(cast(w.precipitation as float)) <>0 and sum(cast(w.precipitation as float)) > 5

A screenshot of a table

Description automatically generated

1. List the most consecutive days where a homicide occurred between 2018-2022 and the timeframe.

WITH homicidedate as (

select

c.reported\_crime\_date,

ROW\_NUMBER() over (order by c.reported\_crime\_date) as rownumber

from chicago.crime c

where c.crime\_type = 'homicide'

),

consecutive\_date as (

select

reported\_crime\_date,

DATEADD(day, -ROW\_NUMBER() over (order by reported\_crime\_date), reported\_crime\_date) as grp

from homicidedate

)

select TOP 1

MIN(reported\_crime\_date) as [start\_date],

MAX(reported\_crime\_date) as end\_date,

DATEDIFF(day, MIN(reported\_crime\_date), MAX(reported\_crime\_date)) + 1 as consecutive

from consecutive\_date

group by grp

order by consecutive desc

A date and date written on a white background

Description automatically generated

1. What are the top 10 most common locations for reported crimes and the number of reported crime ( add percentage) depending on the temperature?

with subquery as (

select

cast(location\_description as nvarchar(max)) as location,

count(crime\_type) as reportedcrime,

rank() over (order by count(\*) desc) as rank

--count(crime\_type) \*100/ sum(cast(count(crime\_type) as float)) as Percentages

from chicago.crime

group by cast(location\_description as nvarchar(max))

)

select top 10

location,

round(reportedcrime \* 100 / sum(cast(reportedcrime as float)) over (), 3) as Percentages

from subquery

group by location ,reportedcrime

order by Percentages desc

A screenshot of a data

Description automatically generated

1. Calculate the year-over-year growth in the number of reported crimes.

with subquery as (

select

Year(c.reported\_crime\_date) as [Year],

cast(count(\*) as float) as crimeamount

from chicago.crime c

group by Year(c.reported\_crime\_date)

)

select

[Year],

crimeamount,

LAG(crimeamount) over (order by [Year]) as prev\_year\_crimes,

round((crimeamount-LAG(crimeamount) over (order by [Year])) \*100/ NULLIF(LAG(crimeamount) over (order by [Year]),0),2) as YoYgrowth

from subquery

A screenshot of a computer

Description automatically generated

1. Calculate the year over year growth in the number of reported domestic violence crimes.

with subquery as (

select

Year(c.reported\_crime\_date) as [Year],

sum(cast(c.domestic as int)) as violence

from chicago.crime c

group by Year(c.reported\_crime\_date)

)

select

Year,

violence,

LAG(violence) over (order by Year) as pre\_year\_domes,

(violence - LAG(violence) over (order by Year)) \* 100/ LAG(violence) over (order by Year) as YoYGrowth

from

subquery

A screenshot of a computer

Description automatically generated

1. List the number of crimes reported and seasonal growth for each astronomical season and what was the average temperature for each season in 2022? Use a conditional statement to display either a Gain/Loss for the season and the season over season growth.

with subquery as(

select

c.reported\_crime\_date,

case

when Month( c.reported\_crime\_date) in (12,1,2) Then 'Winter'

when Month( c.reported\_crime\_date) in (3,4,5) Then 'Spring'

when Month( c.reported\_crime\_date) in (6,7,8) Then 'Summer'

else 'Fall'

end as Season,

c.crime\_type,

w.average

from chicago.crime c

join chicago.weather w

on c.reported\_crime\_date = w.weather\_date

),

subquery\_2 as (

select

Year(reported\_crime\_date) as [Year],

Season,

count(crime\_type) as crimenumber,

avg(average) as averagetemp

from subquery

--where Year(reported\_crime\_date) = 2020

group by Season, Year(reported\_crime\_date)

)

select

Year,

Season,

LAG(crimenumber) over (order by Season) as pre\_crime\_count,

(crimenumber - LAG(crimenumber) over (order by Season)) \*100/ LAG(crimenumber) over (order by Season) as SoSgrowth,

averagetemp

from subquery\_2

WHERE Year = 2022

A screenshot of a computer

Description automatically generated