**Farm Yield Optimization Analysis**

1. Productivity & Performance

• Identify the top 3 most productive plots based on average yield per harvest. Show the

plot\_name, crop\_type, and average\_yield\_kg.

Answer:

select p.plot\_name, p.crop\_type, round(avg(yield\_kg),2) as average\_yield\_kg

from plots p

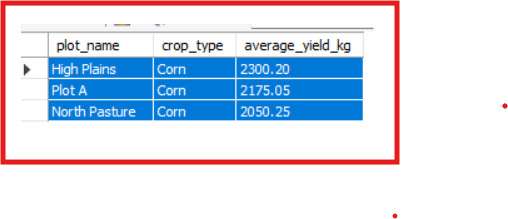
join yields y

on p.plot\_id=y.plot\_id

group by p.plot\_name, p.crop\_type

order by average\_yield\_kg desc

limit 3;



• Calculate the total water consumption for each plot and rank them from highest to

lowest. Show plot\_name and total\_water\_liters.\*/

Answer:

select p.plot\_name, sum(il.water\_amount\_liters) as total\_water\_liters

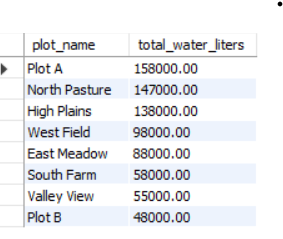
from plots p

join irrigation\_logs il

on p.plot\_id=il.plot\_id

group by p.plot\_name

order by total\_water\_liters desc;



/\*2. Yield & Environmental Analysis

• Determine the average yield for each crop type under different weather conditions. The

output should have crop\_type, weather\_condition, and average\_yield\_kg.

• Find the highest-yielding plot for each soil type. Show the soil\_type, plot\_name, and

highest\_yield\_kg. \*/

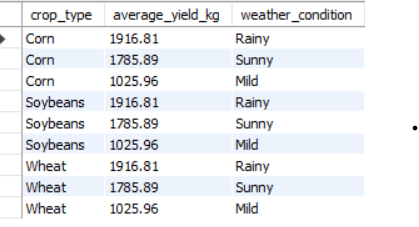
select p.crop\_type, round(avg(y.yield\_kg),2) as average\_yield\_kg, y.weather\_condition

from plots p

join yields y

group by p.crop\_type, y.weather\_condition

order by p.crop\_type, average\_yield\_kg desc;



select p.plot\_name, p.soil\_type , sum(y.yield\_kg) as highest\_yield\_kg

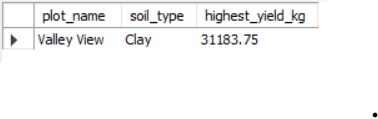
from plots p

join yields y

group by p.plot\_name, p.soil\_type

order by p.soil\_type, highest\_yield\_kg desc

limit 1;



/\*3. Farmer & Resource Management

• Identify the farmer who manages the plots with the lowest average water

consumption. Show the first\_name, last\_name, and their plots'

average\_water\_liters\_per\_plot.

• Calculate the number of harvests per month for the last 12 months. Show the month

and the number of harvests. \*/

select f.first\_name, f.last\_name, p.plot\_name, round(AVG(il.water\_amount\_liters),2) AS average\_water\_liters\_per\_plot

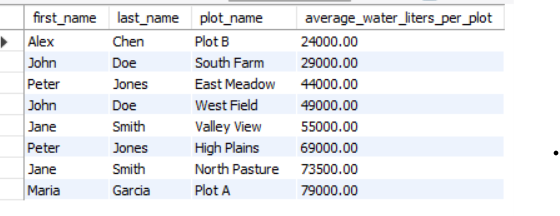
from plots p

join farmers f on f.farmer\_id= p.farmer\_id

join irrigation\_logs il on il.plot\_id= p.plot\_id

GROUP BY f.first\_name, f.last\_name, p.plot\_name

ORDER BY average\_water\_liters\_per\_plot ASC;



select

year(harvest\_date) as year,

month(harvest\_date) as month,

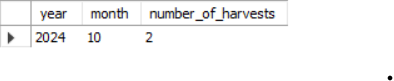
count(yield\_id) as number\_of\_harvests

from yields

where harvest\_date>= DATE\_SUB(CURDATE(), INTERVAL 12 MONTH)

group by year,month

order by number\_of\_harvests;



/\*4. Advanced Analysis (Bonus)

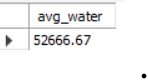
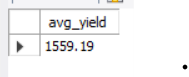
• Find plots that have a below-average yield for their specific crop type but an above

average water consumption compared to all other plots with the same crop. List the

plot\_name, crop\_type, yield\_kg, and water\_amount\_liters. \*/

select round(avg(yield\_kg),2) from yields;

select round(AVG(water\_amount\_liters),2) from irrigation\_logs;



SELECT

p.plot\_name,

p.crop\_type,

ROUND(AVG(y.yield\_kg), 2) AS yield\_avg,

ROUND(AVG(il.water\_amount\_liters), 2) AS water\_avg

FROM plots p

JOIN yields y ON p.plot\_id = y.plot\_id

JOIN irrigation\_logs il ON p.plot\_id = il.plot\_id

GROUP BY p.plot\_name, p.crop\_type

HAVING AVG(y.yield\_kg) < 1559.19

AND AVG(il.water\_amount\_liters) > 52666.67

ORDER BY yield\_avg, water\_avg;

