

**DEFORESTATION TREND FROM 1990 TO 2016**

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| SQL PROJECT |  |

SQL Project Coding

**CREATION:**  
DROP VIEW IF EXISTS forestations;

CREATE VIEW forestations AS

SELECT f.country\_code AS fcode,

f.country\_name AS fname,

f.forest\_area\_sqkm,

f.year AS fyear,

l.country\_code AS lcode,

l.country\_name AS lname,

l.total\_area\_sq\_mi,

l.total\_area\_km,

f.forest\_area\_sqkm/NULLIF (l.total\_area\_km,0) AS percentage,

l.year AS lyear,

r.country\_name AS rname,

r.country\_code AS rcode,

r.region,

r.income\_group

FROM forest\_area f

JOIN land\_area l

ON f.country\_code = l.country\_code AND f.year = l.year

JOIN regions r

ON l.country\_code = r.country\_code;

SELECT ROUND (percentage\*100)AS forest\_percentage

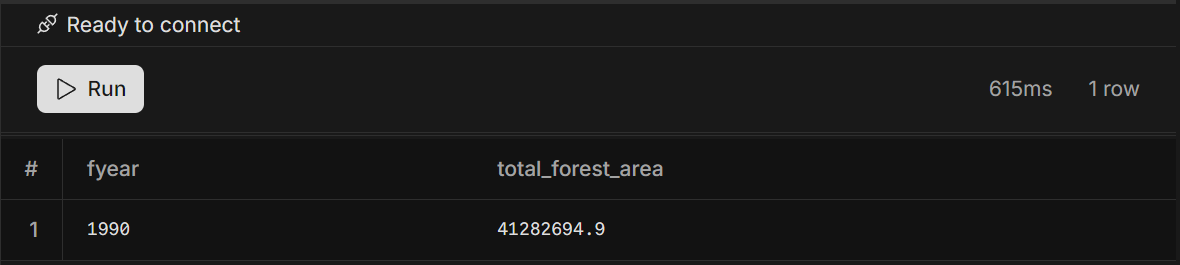
FROM forestations

PART #1 GLOBAL SITIUATION  
**a.**  
SELECT fyear, SUM(forest\_area\_sqkm) AS total\_forest\_area

FROM forestations

WHERE fyear='1990' AND fname='World'

GROUP BY fyear;



**B.**

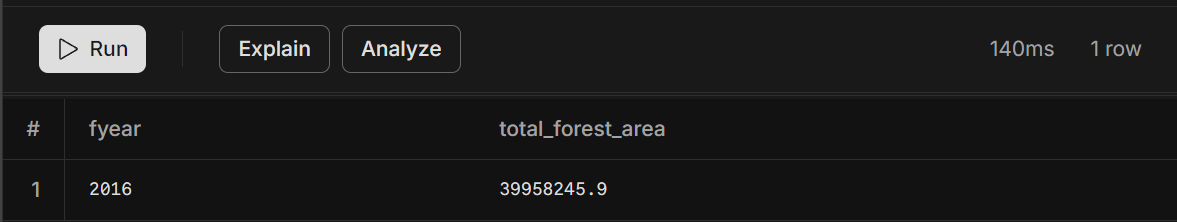
SELECT fyear,

SUM(forest\_area\_sqkm) AS total\_forest\_area

FROM forestations

WHERE fyear='2016' AND fname='World'

GROUP BY fyear;



**C.**

SELECT

(SELECT forest\_area\_sqkm

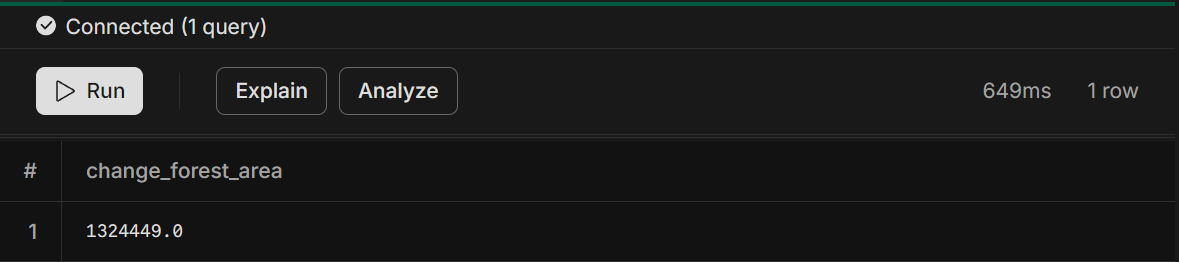
FROM forestations

WHERE fyear = 1990 AND fname='World') -

(SELECT forest\_area\_sqkm

FROM forestations

WHERE fyear = 2016 AND fname='World') AS Change\_forest\_area



**d.**

WITH forest\_area\_1990 AS (

SELECT SUM (forest\_area\_sqkm) AS forest\_area\_1990

FROM forestations

WHERE fyear = 1990

AND fname = 'World'

),

forest\_area\_2016 AS (

SELECT SUM(forest\_area\_sqkm) AS forest\_area\_2016

FROM forestations

WHERE fyear = 2016

AND fname = 'World'

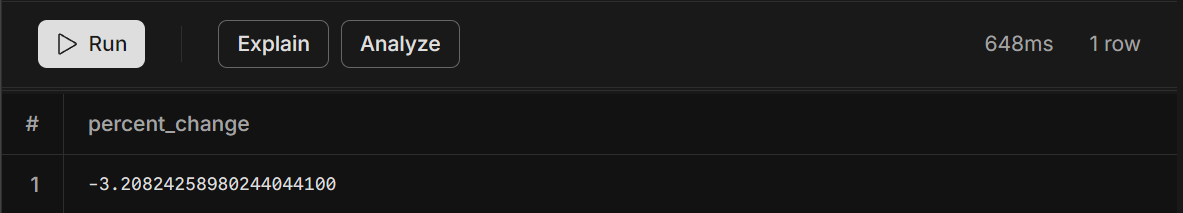
)

SELECT

((f2016.forest\_area\_2016 - f1990.forest\_area\_1990) / f1990.forest\_area\_1990) \* 100 AS percent\_change

FROM

forest\_area\_1990 f1990,

forest\_area\_2016 f2016;  


**e.**  
WITH forest\_area\_1990 AS (

SELECT SUM (forest\_area\_sqkm) AS forest\_area\_1990

FROM forestations

WHERE fyear = 1990

AND fname = 'World'

),

forest\_area\_2016 AS (

SELECT SUM(forest\_area\_sqkm) AS forest\_area\_2016

FROM forestations

WHERE fyear = 2016

AND fname = 'World'

),

loss\_change\_2016\_1990 AS (

SELECT (f1990.forest\_area\_1990 - f2016.forest\_area\_2016) AS loss\_change

FROM

forest\_area\_1990 f1990,

forest\_area\_2016 f2016)

SELECT f.fname,

f.total\_area\_km,

cte.loss\_change,

ABS(f.total\_area\_km - cte.loss\_change) AS difference

FROM forestations f,

loss\_change\_2016\_1990 cte

WHERE fyear = 2016

ORDER BY difference ASC

LIMIT 5;

# PART#2 Regional Outlook

DROP TABLE IF EXISTS region\_forest\_percentages;

CREATE TABLE region\_forest\_percentages (

region VARCHAR(512),

percent\_forest\_area\_1990 DECIMAL(5,2),

percent\_forest\_area\_2016 DECIMAL(5,2)

);

INSERT INTO region\_forest\_percentages (region, percent\_forest\_area\_1990, percent\_forest\_area\_2016)

WITH region\_forest\_area AS (

SELECT r.region,

f.year,

SUM(f.forest\_area\_sqkm) AS total\_forest\_area,

SUM(l.total\_area\_sq\_mi \* 2.59) AS total\_land\_area

FROM regions r

INNER JOIN forest\_area f

ON r.country\_code = f.country\_code

INNER JOIN land\_area l

ON r.country\_code = l.country\_code AND f.year = l.year

GROUP BY r.region, f.year

)

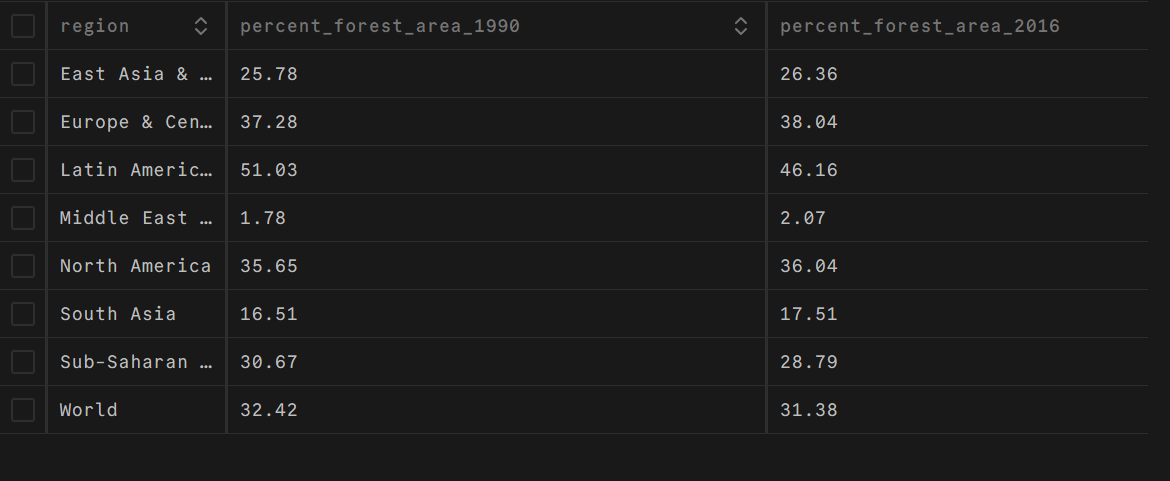
SELECT region,

SUM(CASE WHEN year = 1990 THEN total\_forest\_area / total\_land\_area ELSE 0 END) \* 100 AS percent\_forest\_area\_1990,

SUM(CASE WHEN year = 2016 THEN total\_forest\_area / total\_land\_area ELSE 0 END) \* 100 AS percent\_forest\_area\_2016

FROM region\_forest\_area

GROUP BY region;



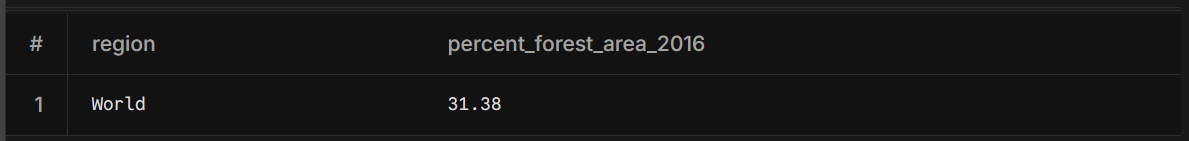
**a.**

SELECT region, percent\_forest\_area\_2016

FROM region\_forest\_percentages

WHERE region='World'

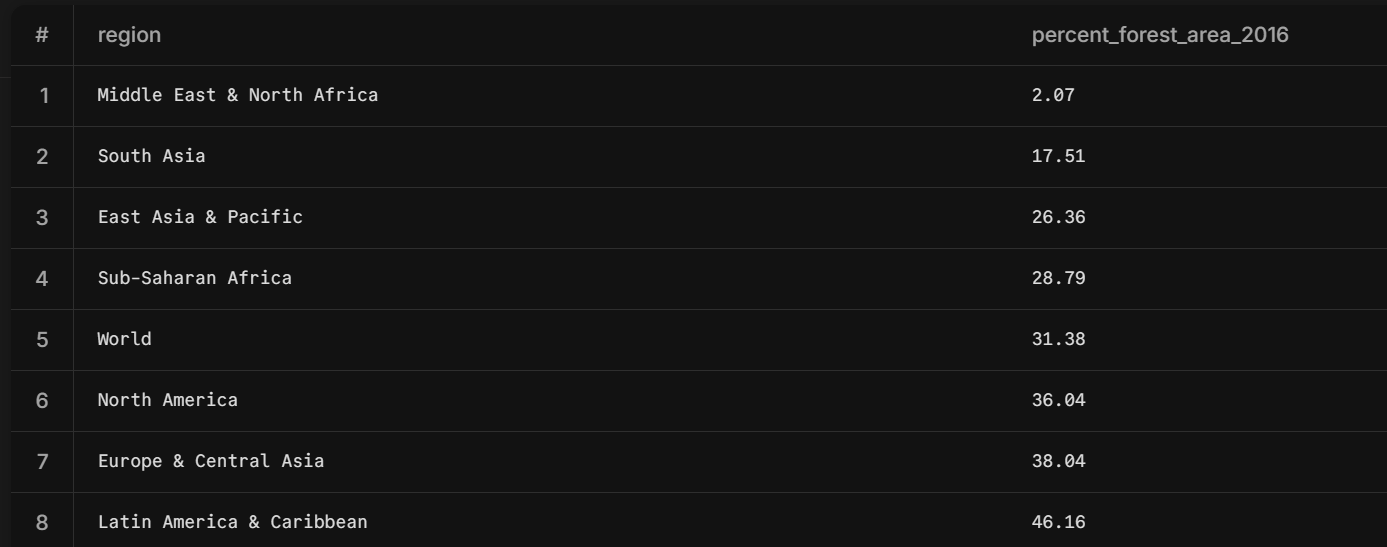
ORDER BY 2;



SELECT region, percent\_forest\_area\_2016

FROM region\_forest\_percentages

ORDER BY 2 ASC;

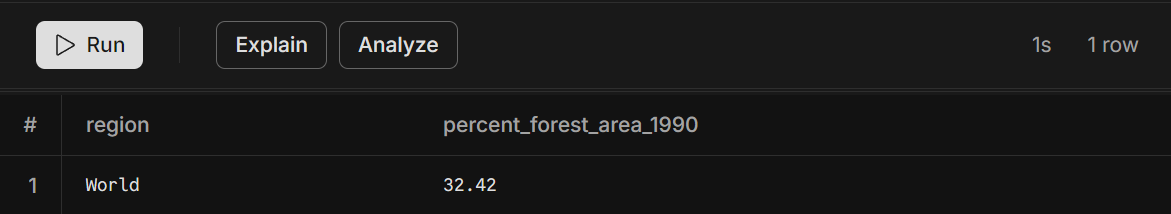


**b.**

SELECT region, percent\_forest\_area\_1990

FROM region\_forest\_percentages

WHERE region='World'



SELECT region, percent\_forest\_area\_1990

FROM region\_forest\_percentages

ORDER BY 2 ASC;



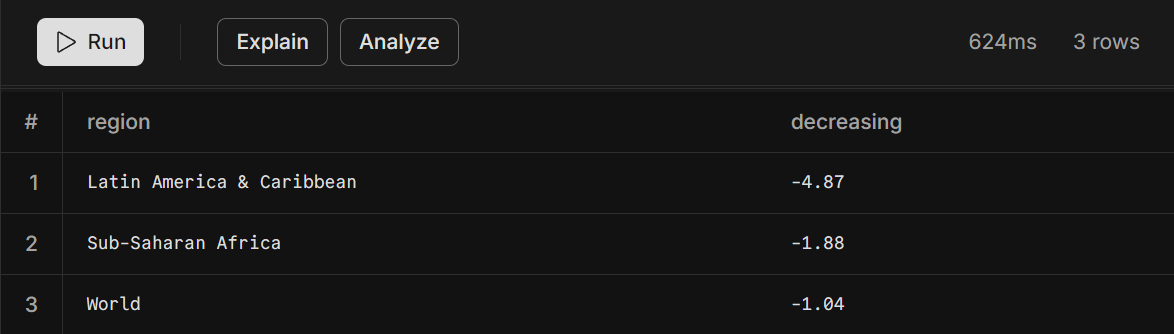
**c.**

SELECT region, (percent\_forest\_area\_2016 - percent\_forest\_area\_1990) AS decreasing

FROM region\_forest\_percentages

WHERE (percent\_forest\_area\_2016 - percent\_forest\_area\_1990) < 0

ORDER BY 2;



# Part#3 Country-Level Detail

**a.**

WITH forest\_area\_country AS (

SELECT fname,

SUM(CASE WHEN fyear = 1990 THEN forest\_area\_sqkm ELSE 0 END) AS forest\_area\_1990,

SUM(CASE WHEN fyear = 2016 THEN forest\_area\_sqkm ELSE 0 END) AS forest\_area\_2016

FROM forestations f

GROUP BY fname

)

SELECT f.fname,

f.forest\_area\_1990,

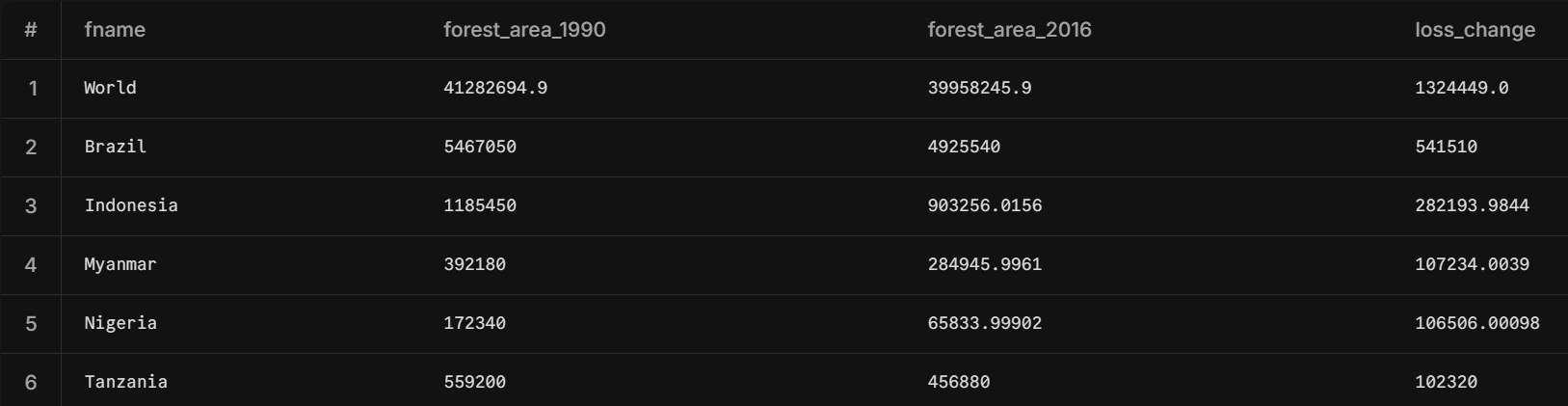
f.forest\_area\_2016,

f.forest\_area\_1990 - f.forest\_area\_2016 AS loss\_change

FROM forest\_area\_country f

ORDER BY loss\_change DESC

LIMIT 6;



**b.**

WITH forest\_area\_by\_country AS (

SELECT fname,

SUM(CASE WHEN fyear = 1990 THEN forest\_area\_sqkm ELSE 0 END) AS forest\_area\_1990,

SUM(CASE WHEN fyear = 2016 THEN forest\_area\_sqkm ELSE 0 END) AS forest\_area\_2016

FROM forestations f

GROUP BY fname

)

SELECT fr.fname,

fr.forest\_area\_1990,

fr.forest\_area\_2016,

ROUND(((fr.forest\_area\_2016 - fr.forest\_area\_1990) / fr.forest\_area\_1990) \* 100, 2) AS percent\_change

FROM forest\_area\_by\_country fr

WHERE fr.forest\_area\_1990 > 0

ORDER BY percent\_change ASC

LIMIT 5;  


**c.**

WITH compare\_percent AS(

SELECT percentage AS us\_forestation\_percentage

FROM forestations

WHERE fname = 'United States' AND fyear = 2016

)

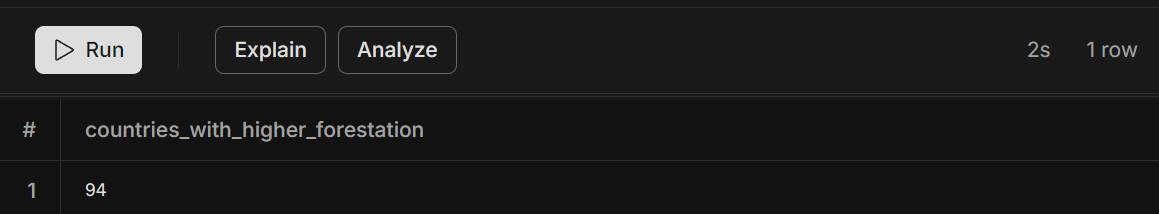
SELECT COUNT(\*) AS countries\_with\_higher\_forestation

FROM forestations

WHERE fyear = 2016 AND

percentage > (SELECT us\_forestation\_percentage

FROM compare\_percent);



**Our insights**

**The correlation between income classification and the level of desertification in countries**

SELECT r.country\_name,

r.income\_group

FROM Regions r

WHERE r.country\_name = 'Brazil' OR r.country\_name = 'Indonesia' OR r.country\_name = 'Myanmar' OR r.country\_name = 'Nigeria' OR r.country\_name = 'Tanzania'

GROUP BY r.country\_name, r.income\_group

ORDER BY r.country\_name;

