Forestation VIEW

```
DROP VIEW IF EXISTS forestation;

CREATE VIEW forestation AS
        (SELECT f.country_code, f.country_name, f.year, f.forest_area_sqkm AS forest_area,
        r.region, r.income_group, l.total_area_sq_mi*2.59 AS total_area,
        f.forest_area_sqkm/(l.total_area_sq_mi*2.59) AS percentage_forest
        FROM forest_area f
        JOIN land_area l ON f.country_code = l.country_code AND f.country_name =
l.country_name
        JOIN regions r ON l.country_code = r.country_code);
```

Global situation

What was the total forest area (in sq km) of the world in 1990?

```
SELECT country_name, year, forest_area
FROM forestation
WHERE country_name = 'World' AND year = 1990
GROUP BY 1, 2, 3;
```

What was the total forest area (in sq km) of the world in 2016?

```
SELECT country_name, year, forest_area
FROM forestation
WHERE country_name = 'World' AND year = 2016
GROUP BY 1, 2, 3;
```

What was the change (in sq km) in the forest area of the world from 1990 to 2016?

```
SELECT area_1990.forest_area-area_2016.forest_area AS world_sqkm_loss
FROM
(SELECT country_name, year, forest_area
        FROM forestation
WHERE year = 1990 AND region = 'World'
GROUP BY 1, 2, 3) AS area_1990
JOIN
        (SELECT country_name, year, forest_area
        FROM forestation
```

```
        WHERE year = 2016 AND region = 'World'
        GROUP BY 1, 2, 3) AS area_2016
ON
        area_1990.country_name = area_2016.country_name;
```

What was the percent change in forest area of the world between 1990 and 2016?

```
SELECT ((area_1990.forest_area-area_2016.forest_area)/area_1990.forest_area)*100 AS
world_percentage_loss
FROM
        (SELECT country_name, year, forest_area
        FROM forestation
        WHERE year = 1990 AND region = 'World'
        GROUP BY 1, 2, 3) AS area_1990
JOIN
        (SELECT country_name, year, forest_area
        FROM forestation
        WHERE year = 2016 AND region = 'World'
        GROUP BY 1, 2, 3) AS area_2016
ON
        area_1990.country_name = area_2016.country_name;
```

If you compare the amount of forest area lost between 1990 and 2016, to which country's total area in 2016 is it closest to?

```
SELECT DISTINCT country_name, total_area
FROM forestation
WHERE total_area BETWEEN 1270000.00 AND 1380000.00
ORDER BY 2;
```

Regional_forestation VIEW

```
DROP VIEW IF EXISTS forestation;

CREATE VIEW regional_forestation AS(
        SELECT region, year, SUM(forest_area) AS sum_forest_area, SUM(total_area) AS
sum_total_area, (SUM(forest_area)/SUM(total_area))*100 AS        percentage_forest
        FROM forestation
        GROUP BY 1,2);
```

Regional outlook

What was the percent forest of the entire world in 2016? Which region had the HIGHEST percent forest in 2016, and which had the LOWEST, to 2 decimal places?

```
SELECT region, year, percentage_forest
FROM regional_forestation
WHERE year = 2016
GROUP BY 1, 2, 3
ORDER BY 3 DESC;
```

What was the percent forest of the entire world in 1990? Which region had the HIGHEST percent forest in 1990, and which had the LOWEST, to 2 decimal places?

```
SELECT region, year, percentage_forest
FROM regional_forestation
WHERE year = 1990
GROUP BY 1, 2, 3
ORDER BY 3 DESC;
```

Based on the table you created, which regions of the world DECREASED in forest area from 1990 to 2016?

```
WITH
region_1990 AS(
        SELECT region, year, percentage_forest
        FROM regional_forestation
        WHERE year = 1990
        GROUP BY 1, 2, 3),
region_2016 AS (
        SELECT region, year, percentage_forest
        FROM regional_forestation
        WHERE year = 2016
        GROUP BY 1, 2, 3)

SELECT region_1990.region, region_1990.percentage_forest AS forest_area_1990,
region_2016.percentage_forest AS forest_area_2016
FROM region_1990
JOIN region_2016
```

```
ON region_1990.region = region_2016.region
WHERE region_1990.percentage_forest > region_2016.percentage_forest;
```

Country-level detail

Which 5 countries saw the largest amount decrease (add DESC for increase) in forest area from 1990 to 2016? What was the difference in forest area for each?

```
WITH
region_1990 AS (
        SELECT DISTINCT country_name, region, year, forest_area AS forest_area_1990
        FROM forestation
        WHERE country_name != 'World'  AND year = 1990 AND forest_area IS NOT NULL
GROUP BY 1, 2, 3, 4),
region_2016 AS (
        SELECT DISTINCT country_name, region, year, forest_area AS forest_area_2016
        FROM forestation
        WHERE country_name != 'World'  AND year = 2016 AND forest_area IS NOT NULL
GROUP BY 1, 2, 3, 4)

SELECT
region_1990.country_name,
region_1990.region,
region_1990.forest_area_1990,
region_2016.forest_area_2016,
region_2016.forest_area_2016-region_1990.forest_area_1990 AS forest_area_decrease
FROM region_1990
JOIN region_2016
ON region_1990.country_name = region_2016.country_name AND region_1990.region =
region_2016.region
ORDER BY 5
LIMIT 5;
```

Which 5 countries saw the largest percent decrease (add DESC for increase) in forest area from 1990 to 2016? What was the percent change to 2 decimal places for each?

```
WITH
region_1990 AS (
        SELECT DISTINCT country_name, region, year, forest_area AS forest_area_1990
```

```
        FROM forestation
        WHERE country_name != 'World'  AND year = 1990 AND forest_area IS NOT NULL
GROUP BY 1, 2, 3, 4),
region_2016 AS (
        SELECT DISTINCT country_name, region, year, forest_area AS forest_area_2016
        FROM forestation
        WHERE country_name != 'World'  AND year = 2016 AND forest_area IS NOT NULL
GROUP BY 1, 2, 3, 4)

SELECT
region_1990.country_name,
region_1990.region,
region_1990.forest_area_1990,
region_2016.forest_area_2016,
((region_2016.forest_area_2016-region_1990.forest_area_1990)/region_1990.forest_area_199
0)*100 AS forest_percent_decrease
FROM region_1990
JOIN region_2016
ON region_1990.country_name = region_2016.country_name AND region_1990.region =
region_2016.region
ORDER BY 5
LIMIT 5;
```

If countries were grouped by percent forestation in quartiles, which group had the most countries in it in 2016?

```
WITH
countries AS(
        SELECT country_name, year, AVG(percentage_forest)*100 AS avg_percentage_forest
        FROM forestation
        WHERE country_name != 'World' AND year=2016 AND forest_area IS NOT NULL AND
total_area IS NOT NULL
        GROUP BY 1, 2),
quartiles AS(
        SELECT countries.country_name, countries.year, countries.avg_percentage_forest,
        CASE
                WHEN countries.avg_percentage_forest >= 75 THEN 4
                WHEN countries.avg_percentage_forest < 75 AND
        countries.avg_percentage_forest >= 50 THEN 3
                WHEN countries.avg_percentage_forest < 50 AND
        countries.avg_percentage_forest >=25 THEN 2
                ELSE 1
        END AS percentile
        FROM countries)
```

```
SELECT quartiles.percentile, COUNT(quartiles.percentile)
FROM quartiles
GROUP BY 1
ORDER BY 2 DESC;
```

List all of the countries that were in the 4th quartile (percent forest > 75%) in 2016

```
WITH
countries AS(
        SELECT country_name, region, year, AVG(percentage_forest)*100 AS
avg_percentage_forest
        FROM forestation
        WHERE country_name != 'World' AND year=2016 AND forest_area IS NOT NULL AND
total_area IS NOT NULL
        GROUP BY 1, 2, 3),
quartiles AS(
        SELECT countries.country_name, countries.region, countries.year,
countries.avg_percentage_forest,
        CASE
                WHEN countries.avg_percentage_forest >= 75 THEN 4
                WHEN countries.avg_percentage_forest < 75 AND
        countries.avg_percentage_forest >= 50 THEN 3
                WHEN countries.avg_percentage_forest < 50 AND
        countries.avg_percentage_forest >=25 THEN 2
                ELSE 1
        END AS percentile
        FROM countries)

SELECT country_name, region, avg_percentage_forest, percentile
FROM quartiles
WHERE quartiles.percentile = 4
ORDER BY 3 DESC;
```

How many countries had a percent forestation higher than the United States in 2016?

```
WITH
countries AS(
        SELECT country_name, region, year, AVG(percentage_forest)*100 AS
avg_percentage_forest
        FROM forestation
```

```
	WHERE country_name != 'World' AND year=2016 AND forest_area IS NOT NULL AND
total_area IS NOT NULL
	GROUP BY 1, 2, 3),
quartiles AS(
	SELECT countries.country_name, countries.region, countries.year,
countries.avg_percentage_forest,
	CASE
		WHEN countries.avg_percentage_forest >= 75 THEN 4
		WHEN countries.avg_percentage_forest < 75 AND
	countries.avg_percentage_forest >= 50 THEN 3
		WHEN countries.avg_percentage_forest < 50 AND
	countries.avg_percentage_forest >=25 THEN 2
		ELSE 1
	END AS percentile
	FROM countries)

SELECT COUNT(*) AS "Countries with more forestation than the United States"
FROM countries
WHERE avg_percentage_forest > (
	SELECT countries.avg_percentage_forest
	FROM countries
	WHERE countries.country_name = 'United States')
```