Create View

```
CREATE VIEW forestation
AS
SELECT f.country_code AS code, f.country_name as name, f.year as year, f.forest_area_sqkm,
l.total_area_sq_mi*2.59 AS total_area_sqkm, (f.forest_area_sqkm/(total_area_sq_mi*
2.59))*100 as percent_forest, r.region as region, r.income_group as income_group
FROM forest_area f
JOIN land_area l
ON l.country_code=f.country_code AND l.year=f.year
LEFT JOIN regions r
ON r.country_code=l.country_code
ORDER BY l.country_name, l.year
```

1. Global Situation

-change since 1990

```
 SELECT year,
       new,
       LEAD(new) OVER (ORDER BY year) AS lead,
       LEAD(new) OVER (ORDER BY year) - new AS change,
       (LEAD(new) OVER (ORDER BY year) - new)/new *100  AS percent_change
FROM (
SELECT year,
       SUM(forest_area_sqkm) AS new
  FROM forestation
  WHERE YEAR IN (1990, 2016)
  AND name = 'World'
  AND forest_area_sqkm IS NOT NULL
 GROUP BY 1
) sub
```

–find country size of forest area lost

```
SELECT name, total_area_sqkm
FROm forestation
WHERE year = '2016'
AND total_area_sqkm > 324449
ORDER BY total_area_sqkm
LIMIT 1;
```

2. REGIONAL OUTLOOK

- **Table 2**

```
WITH t1 as (SELECT region, avg(percent_forest) avg_1990
        FROM forestation
        WHERE year = '1990'
        GROUP BY region),

t2 AS (SELECT region, avg(percent_forest) avg_2016
        FROM forestation
        WHERE year = '2016'
        GROUP BY region)
SELECT DISTINCT t1.region, t1.avg_1990, t2.avg_2016
FROM t1
JOIN t2
ON t1.region=t2.region
ORDER BY avg_2016 DESC
```

3. Country-Level Detail

A. Success stories

–Countries by forest area

```
WITH t1 as (SELECT name, sum(forest_area_sqkm) AS forest_1990
        FROM forestation
        WHERE year = '1990'
        GROUP BY name),

t2 AS (SELECT name, sum(forest_area_sqkm) AS forest_2016
        FROM forestation
        WHERE year = '2016'
        GROUP BY name)
SELECT DISTINCT t1.name, t1.forest_1990, t2.forest_2016, (t2.forest_2016-t1.forest_1990) AS
difference
FROM t1
JOIN t2
ON t1.name=t2.name
WHERE t1.forest_1990 IS NOT NULL
AND t2.forest_2016 IS NOT NULL
ORDER BY difference DESC
LIMIT 2;
```

- **Countries by % forest area**

```
WITH t1 as (SELECT name, avg(percent_forest) AS forest_1990
        FROM forestation
        WHERE year = '1990'
        GROUP BY name),

t2 AS (SELECT name, avg(percent_forest) AS forest_2016
        FROM forestation
        WHERE year = '2016'
        GROUP BY name)
SELECT DISTINCT t1.name, t1.forest_1990, t2.forest_2016, (t2.forest_2016-t1.forest_1990) AS
difference
FROM t1
JOIN t2
ON t1.name=t2.name
WHERE t1.forest_1990 IS NOT NULL
AND t2.forest_2016 IS NOT NULL
ORDER BY difference DESC
LIMIT 1;
```

B. Largest Concerns

-Forest area decrease

```
WITH t1 as (SELECT name, sum(forest_area_sqkm) AS forest_1990
        FROM forestation
        WHERE year = '1990'
        GROUP BY name),

t2 AS (SELECT name, sum(forest_area_sqkm) AS forest_2016
        FROM forestation
        WHERE year = '2016'
        GROUP BY name)
SELECT DISTINCT t1.name, f.region,(t2.forest_2016-t1.forest_1990) AS difference
FROM t1
JOIN t2
ON t1.name=t2.name
JOIN forestation f
ON f.name=t1.name
WHERE region != 'World'
ORDER BY difference ASC
LIMIT 5;
```

-Percent decrease

```
WITH t1 as (SELECT name, avg(percent_forest) AS forest_1990
        FROM forestation
        WHERE year = '1990'
```

```
        GROUP BY name),

t2 AS (SELECT name, avg(percent_forest) AS forest_2016
        FROM forestation
        WHERE year = '2016'
        GROUP BY name)
SELECT DISTINCT t1.name, f.region, ((t2.forest_2016-t1.forest_1990)/t1.forest_1990)*100 AS
percent_difference
FROM t1
JOIN t2
ON t1.name=t2.name
JOIN forestation f
ON f.name=t1.name
ORDER BY percent_difference ASC
LIMIT 5;
```

C. Quartiles

```
WITH t1 AS(SELECT name, year, percent_forest
    FROM forestation
    WHERE year='2016' AND percent_forest IS NOT NULL),

t2 AS (SELECT name, percent_forest,
    NTILE(4) OVER (ORDER BY percent_forest) AS quartile
    FROM t1)
```

-Fourth quartile (highest percentages)

```
SELECT quartile, COUNT(name)
FROM t2
GROUP BY quartile
ORDER BY quartile

WITH t1 AS(SELECT name, year, percent_forest
    FROM forestation
    WHERE year='2016' AND percent_forest IS NOT NULL),

t2 AS (SELECT name, percent_forest,
    NTILE(4) OVER (ORDER BY percent_forest) AS quartile
    FROM t1)

SELECT DISTINCT(t2.name), f.region, t2.percent_forest
FROM t2
RIGHT JOIN forestation f
ON f.name=t2.name
WHERE quartile='4'
```

```
ORDER BY percent_forest DESC
```