# APPENDIX

## Forestation View:

DROP VIEW IF EXISTS forestation;

```
CREATE VIEW forestation
AS
  (SELECT fa.country_code
          AS
             fa_country_code,
          fa.country_name
          AS
             fa_country_name,
          fa.year
          AS
             fa_year,
          fa.forest_area_sqkm,
          la.country_code
          AS
             la_country_code,
          la.country_name
          AS
             la_country_name,
          la.year
          AS
             la_year,
          la.total_area_sq_mi,
          ( la.total_area_sq_mi * 2.59 )
          AS
             la_total_area_sq_km,
          r.country_name
          AS
             r_country_name,
          r.country_code
          AS
             r_country_code,
          r.region,
          r.income_group,
          ( Sum(fa.forest_area_sqkm) / Sum(la.total_area_sq_mi *
2.59) ) * 100
          AS
          percent_forest
   FROM   forest_area AS fa
          JOIN land_area AS la
```

```
            ON fa.country_code = la.country_code
               AND fa.year = la.year
          JOIN regions AS r
            ON fa.country_code = r.country_code
   GROUP  BY 1,
             2,
             3,
             4,
             5,
             6,
             7,
             8,
             9,
             10,
             11,
             12,
             13)
```

## GLOBAL SITUATION

### 1.a)

```
SELECT Sum(forest_area_sqkm)
FROM   forestation
WHERE  region = 'World'
       AND fa_year = 1990
```

### 1.b)

```
SELECT Sum(forest_area_sqkm)
FROM   forestation
WHERE  region = 'World'
       AND fa_year = 2016
```

### 1.c)

```
SELECT Sum(forest_area_sqkm) - (SELECT Sum(forest_area_sqkm)
                                FROM   forestation
                                WHERE  region = 'World'
                                       AND fa_year = 2016) AS
total_change
FROM   forestation
WHERE  region = 'World'
       AND fa_year = 1990
```

## 1.d)

```
WITH t1
     AS (SELECT Sum(forest_area_sqkm) - (SELECT Sum(forest_area_sqkm)
                                         FROM   forestation
                                         WHERE  region = 'World'
                                                AND fa_year = 2016)
AS
                total_diff
         FROM   forestation
         WHERE  region = 'World'
                AND fa_year = 1990)
SELECT total_diff / (SELECT Sum(forest_area_sqkm)
                     FROM   forestation
                     WHERE  region = 'World'
                            AND fa_year = 1990) * 100 AS perc_diff
FROM   t1
```

## 1.e)

```
SELECT la_country_name     AS country,
       la_total_area_sq_km AS total_area_sqkm
FROM   forestation
WHERE  la_year = 2016
       AND la_total_area_sq_km <= 1324449
GROUP  BY la_country_name,
          total_area_sqkm
ORDER  BY total_area_sqkm DESC
LIMIT  1
```

## REGIONAL OUTLOOK

### 2.A)

```
SELECT Round(( ( SUM(fa.forest_area_sqkm) / SUM(la.total_area_sq_mi *
2.59) ) *
               100 )
                    ::
                    NUMERIC, 2) AS percent,
       r.region
FROM   land_area AS la
       join regions AS r
         ON r.country_name = la.country_name
       join forest_area AS fa
         ON fa.year = la.year
            AND fa.country_code = la.country_code
WHERE  la.year = 2016
       AND fa.year = 2016
GROUP  BY 2
ORDER  BY 1 DESC
```

### 2.B)

```
SELECT Round(( ( SUM(fa.forest_area_sqkm) / SUM(la.total_area_sq_mi *
2.59) ) *
               100 )
                    ::
                    NUMERIC, 2) AS percent,
       r.region
FROM   land_area AS la
       join regions AS r
         ON r.country_name = la.country_name
       join forest_area AS fa
         ON fa.year = la.year
            AND fa.country_code = la.country_code
WHERE  la.year = 1990
       AND fa.year = 1990
GROUP  BY 2
ORDER  BY 1 DESC
```

## COUNTRY-LEVEL DETAIL

### 3.A)

```
WITH t1
     AS (SELECT forest_area_sqkm,
                fa_country_name AS country
         FROM   forestation
         WHERE  fa_year = 1990
                AND forest_area_sqkm IS NOT NULL
         ORDER  BY 1 DESC),
     t2
     AS (SELECT forest_area_sqkm,
                fa_country_name AS country
         FROM   forestation
         WHERE  fa_year = 2016
                AND forest_area_sqkm IS NOT NULL
         ORDER  BY 1 DESC)
SELECT t1.country,
       Round(( t1.forest_area_sqkm - t2.forest_area_sqkm ) ::
NUMERIC, 2) AS
       difference_sqkm
FROM   t1
       join t2
         ON t1.country = t2.country
```

**3.B)**

```
SELECT f1.percent_forest
AS
       f1_percent,
       f1.fa_country_name
AS
       f1_country,
       f1.region
AS
       f1_region,
       f2.percent_forest
AS
       f2_percent,
       f2.fa_country_name
AS
       f2_country,
       f2.region
AS
       f2_region,
       Round(( ( ( f1.percent_forest -
             f2.percent_forest ) / f1.percent_forest ) * 100 ) ::
NUMERIC, 2) AS
       percent_diff
FROM   forestation f1
       join forestation f2
         ON f1.fa_country_name = f2.fa_country_name
            AND f1.percent_forest > f2.percent_forest
WHERE  f1.fa_year = 1990
       AND f2.fa_year = 2016
GROUP  BY 1,
          2,
          3,
          4,
          5,
          6
ORDER  BY percent_diff DESC
```

**3.C)**

```
WITH t1
     AS (SELECT fa_country_name,
                percent_forest
         FROM   forestation
         WHERE  la_year = 2016
                AND fa_year = 2016),
     t2
     AS (SELECT *,
                CASE
                  WHEN percent_forest > 0
                       AND percent_forest <= 25 THEN 'first_quartile'
                  WHEN percent_forest > 25
                       AND percent_forest <= 50 THEN
'second_quartile'
                  WHEN percent_forest > 50
                       AND percent_forest <= 75 THEN 'third_quartile'
                  ELSE 'fourth_quartile'
                END AS quartiles
         FROM   t1
         WHERE  percent_forest IS NOT NULL
         ORDER  BY 3)
SELECT DISTINCT Count(*),
                quartiles
FROM   t2
GROUP  BY 2
```

## 3.D)

```
WITH t1
     AS (SELECT fa_country_name,
                region,
                percent_forest
         FROM   forestation
         WHERE  la_year = 2016
                AND fa_year = 2016),
     t2
     AS (SELECT *,
                CASE
                  WHEN percent_forest > 0
                       AND percent_forest <= 25 THEN 'first_quartile'
                  WHEN percent_forest > 25
                       AND percent_forest <= 50 THEN 'second_quartile'
                  WHEN percent_forest > 50
                       AND percent_forest <= 75 THEN 'third_quartile'
                  ELSE 'fourth_quartile'
                END AS quartiles
         FROM   t1
         WHERE  percent_forest IS NOT NULL
         ORDER  BY 3)
SELECT DISTINCT Count(*),
                fa_country_name,
                percent_forest,
                region,
                quartiles
FROM   t2
GROUP  BY 2,
          3,
          4,
          5
ORDER  BY 3 DESC
```

### 3.E)

```
WITH t1
     AS (SELECT fa_country_name,
                region,
                percent_forest
         FROM   forestation
         WHERE  la_year = 2016
                AND fa_year = 2016),
     t2
     AS (SELECT *,
                CASE
                  WHEN percent_forest > 0
                       AND percent_forest <= 25 THEN 'first_quartile'
                  WHEN percent_forest > 25
                       AND percent_forest <= 50 THEN 'second_quartile'
                  WHEN percent_forest > 50
                       AND percent_forest <= 75 THEN 'third_quartile'
                  ELSE 'fourth_quartile'
                END AS quartiles
         FROM   t1
         WHERE  percent_forest IS NOT NULL
         ORDER  BY 3)
SELECT DISTINCT Count(*)
FROM   t2
WHERE  percent_forest > 33.93
```