SQL Exercise Pack: International Debt Statistics

Dataset Structure

This exercise pack is based on the International Debt Statistics dataset loaded into SQL Server with the schema:

Table: InternationalDebt
Columns:
- Country (nvarchar)
- Indicator (nvarchar)
- Year (int)
- Value (float)

1. Subquery: Countries with debt above global average

```
SELECT Country, SUM(Value) AS TotalDebt
FROM InternationalDebt
WHERE Indicator = 'External debt stocks, total (DOD, current US$)'
GROUP BY Country
HAVING SUM(Value) > (
    SELECT AVG(Total) FROM (
        SELECT SUM(Value) AS Total
        FROM InternationalDebt
        WHERE Indicator = 'External debt stocks, total (DOD, current US$)'
        GROUP BY Country
    ) AS country_totals
)
ORDER BY TotalDebt DESC;
```

2. JOIN: Join with Indicator Info (assume separate table)

```
-- Assuming a table IndicatorDetails(Indicator, Description)
SELECT id.Country, id.Indicator, d.Description, id.Year, id.Value
FROM InternationalDebt id
JOIN IndicatorDetails d ON id.Indicator = d.Indicator
WHERE id.Year = 2020;
```

3. CTE: Top 3 debt countries per year

```
WITH RankedDebt AS (
```

```
  SELECT Country, Year, SUM(Value) AS TotalDebt,
         RANK() OVER (PARTITION BY Year ORDER BY SUM(Value) DESC) AS rnk
  FROM InternationalDebt
  WHERE Indicator = 'External debt stocks, total (DOD, current US$)'
  GROUP BY Country, Year
)
SELECT * FROM RankedDebt WHERE rnk <= 3;
```

4. Derived Table: Total yearly global debt

```
SELECT y.Year, y.GlobalDebt
FROM (
  SELECT Year, SUM(Value) AS GlobalDebt
  FROM InternationalDebt
  WHERE Indicator = 'External debt stocks, total (DOD, current US$)'
  GROUP BY Year
) y
ORDER BY y.Year;
```

5. View: Create a view for yearly country debt

```
CREATE VIEW CountryYearlyDebt AS
SELECT Country, Year, SUM(Value) AS TotalDebt
FROM InternationalDebt
WHERE Indicator = 'External debt stocks, total (DOD, current US$)'
GROUP BY Country, Year;
```

6. Window Function: Year-over-Year change per country

```
SELECT Country, Year, Value,
       LAG(Value) OVER (PARTITION BY Country ORDER BY Year) AS PrevYearValue,
       (Value - LAG(Value) OVER (PARTITION BY Country ORDER BY Year)) AS Change
FROM InternationalDebt
WHERE Indicator = 'External debt stocks, total (DOD, current US$)';
```

7. Date Function: Filter latest year available

```
SELECT * FROM InternationalDebt
WHERE Year = (SELECT MAX(Year) FROM InternationalDebt);
```

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8. Aggregate: Average debt per year

```
SELECT Year, AVG(Value) AS AvgDebt
FROM InternationalDebt
WHERE Indicator = 'External debt stocks, total (DOD, current US$)'
GROUP BY Year
ORDER BY Year;
```

9. Subquery in SELECT: Country share of total

```
SELECT Country,
       SUM(Value) AS CountryDebt,
       (SUM(Value) * 100.0) / (SELECT SUM(Value)
        FROM InternationalDebt
        WHERE Indicator = 'External debt stocks, total (DOD, current US$)') AS DebtShare
FROM InternationalDebt
WHERE Indicator = 'External debt stocks, total (DOD, current US$)'
GROUP BY Country
ORDER BY DebtShare DESC;
```

10. Multi-CTE Analysis: Trend and Ranking

```
WITH YearlyTotals AS (
  SELECT Year, SUM(Value) AS GlobalDebt
  FROM InternationalDebt
  WHERE Indicator = 'External debt stocks, total (DOD, current US$)'
  GROUP BY Year
),
Ranked AS (
  SELECT Year, GlobalDebt,
         RANK() OVER (ORDER BY GlobalDebt DESC) AS RankByDebt
  FROM YearlyTotals
)
SELECT * FROM Ranked;
```