I need to completely refactor the backend for the Trends & ICP Analysis module. We are querying a database with over 17 million rows, so we must be extremely careful with memory and performance.

Core Requirement: Do not use AI to count or calculate data. Use the database engine.

Please implement two specific API endpoints that run the following optimized SQL queries directly against the GalaxyMaster database. Do not fetch all rows; run these exact queries:

Endpoint 1: /api/analysis/snapshot (For Trend/Overlap) Use this exact SQL query to get the cross-sell overlap:

SQL
SELECT
    COUNT(*) as Total_Customers,
    SUM(CASE WHEN GL_LTV > 0 THEN 1 ELSE 0 END) as GL_Buyers,
    SUM(CASE WHEN TSI_LTV > 0 THEN 1 ELSE 0 END) as TSI_Buyers,
    SUM(CASE WHEN SY_LTV > 0 THEN 1 ELSE 0 END) as SY_Buyers,
    SUM(CASE WHEN MD_LTV > 0 THEN 1 ELSE 0 END) as MD_Buyers,
    SUM(CASE WHEN GL_LTV > 0 AND TSI_LTV > 0 THEN 1 ELSE 0 END) as
GL_and_TSI_Overlap,
    SUM(CASE WHEN GL_LTV > 0 AND MD_LTV > 0 THEN 1 ELSE 0 END) as
GL_and_MD_Overlap,
    SUM(CASE WHEN SY_LTV > 0 AND GL_LTV > 0 THEN 1 ELSE 0 END) as
SY_and_GL_Overlap
FROM GalaxyMaster.dbo.galaxy_individual;
Endpoint 2: /api/analysis/icp (For Segments) Use this exact SQL query to identify top segments (limited to top 50 to save memory):

SQL
SELECT TOP 50
    ISNULL(gender, 'Unknown') AS Gender,
    CASE
        WHEN ddob IS NULL THEN 'Unknown'
        WHEN DATEDIFF(year, ddob, GETDATE()) < 30 THEN 'Under 30'
        WHEN DATEDIFF(year, ddob, GETDATE()) BETWEEN 30 AND 39 THEN '30-39'
        WHEN DATEDIFF(year, ddob, GETDATE()) BETWEEN 40 AND 49 THEN '40-49'
        WHEN DATEDIFF(year, ddob, GETDATE()) BETWEEN 50 AND 59 THEN '50-59'
        WHEN DATEDIFF(year, ddob, GETDATE()) BETWEEN 60 AND 69 THEN '60-69'
        WHEN DATEDIFF(year, ddob, GETDATE()) >= 70 THEN '70+'
        ELSE 'Unknown'
    END AS AgeGroup,
    ISNULL(prefecture, 'Unknown') AS Location,
    COUNT(*) AS CustomerCount,

```sql
  AVG(
    ISNULL(CAST(GL_LTV AS MONEY), 0) +
    ISNULL(CAST(TSI_LTV AS MONEY), 0) +
    ISNULL(CAST(SY_LTV AS MONEY), 0) +
    ISNULL(CAST(MD_LTV AS MONEY), 0)
  ) AS Avg_Total_LTV,
  SUM(CASE WHEN Mobile = 1 THEN 1 ELSE 0 END) AS Has_Mobile,
  SUM(CASE WHEN Email = 1 THEN 1 ELSE 0 END) AS Has_Email
FROM GalaxyMaster.dbo.galaxy_individual
WHERE ddob IS NOT NULL
GROUP BY
  gender,
  prefecture,
  CASE
    WHEN ddob IS NULL THEN 'Unknown'
    WHEN DATEDIFF(year, ddob, GETDATE()) < 30 THEN 'Under 30'
    WHEN DATEDIFF(year, ddob, GETDATE()) BETWEEN 30 AND 39 THEN '30-39'
    WHEN DATEDIFF(year, ddob, GETDATE()) BETWEEN 40 AND 49 THEN '40-49'
    WHEN DATEDIFF(year, ddob, GETDATE()) BETWEEN 50 AND 59 THEN '50-59'
    WHEN DATEDIFF(year, ddob, GETDATE()) BETWEEN 60 AND 69 THEN '60-69'
    WHEN DATEDIFF(year, ddob, GETDATE()) >= 70 THEN '70+'
    ELSE 'Unknown'
  END
ORDER BY Avg_Total_LTV DESC;
```

Return the results of these queries as JSON.