Project Title
Employee Engagement Survey YoY (2023 vs 2024)

Project Overview
To compare 2023 and 2024 to highlight changes, trends, improvements or declines

Tools used
SQL (SQL Server in SSMS)

Dataset
Need to **append** 2023 & 2024 first as YoY analysis relies on:

- A continuous timeline (2023, 2024 etc)
- Consistent column structure (same fields)
- Aggregated measures (totals, averages) across all time periods

Create a new unique key column in Power Query for both Appended Tables

1. DataYear-EmployeeID
2. DataYear-QuestionID

Append Table is one source of truth

1. Append_ED (EmployeeData_2023 + EmployeeData_2024)
2. Append_SR (SurveyResponse_2023 + SurveyResponse_2024)
3. Append_SQMS (SurveyQuestion_MarketScore_2023 + SurveyQuestion_MarketScore_2024)
4. MetricMapping
5. CategoryMapping
6. QuestionMapping

Business Questions:
2023 - establishing engagement baseline:

1. What is the overall engagement score?
2. Which divisions/departments are most and least engaged?
3. What are the strongest and weakest themes?
4. How do we compare to market benchmarks?

2024 - measuring change and driving action

1. Are employees more engaged this year?
2. Which divisions/departments improved or declined?
3. What themes need focused attention this year?
4. Have the lowest-performing engagement areas from last year shown improvement this year?
5. How do we compare to market benchmarks this year?

```
/*
Are employees more engaged this year?
SQL concepts used: FROM, INNER JOIN, SELECT, CAST(), AVG(), GROUP BY, UNION ALL, multiple CTEs,
LAG()
*/
WITH CombinedData AS (
	SELECT
		ed.DataYear,
		CAST(AVG(CAST(sr.LikertScore AS DECIMAL(10,2))) / 5 * 100 AS DECIMAL(3,0)) AS
		EngagementScore
	FROM
		EAC_EES2023.dbo.EmployeeData_2023 AS ed
	INNER JOIN
		EAC_EES2023.dbo.SurveyResponse_2023 AS sr
	ON
		ed.EmployeeID = sr.EmployeeID
	GROUP BY
		ed.DataYear
	UNION ALL
	SELECT
		ed.DataYear,
		CAST(AVG(CAST(sr.LikertScore AS DECIMAL(10,2))) / 5 * 100 AS DECIMAL(3,0)) AS
		EngagementScore
	FROM
		EAC_EES2023.dbo.EmployeeData_2024 AS ed
	INNER JOIN
		EAC_EES2023.dbo.SurveyResponse_2024 AS sr
	ON
		ed.EmployeeID = sr.EmployeeID
	GROUP BY
		ed.DataYear),

YoYCalculation AS (
	SELECT
		DataYear,
		EngagementScore AS CurrentEngagement,
		LAG(EngagementScore) OVER(ORDER BY DataYear) AS PreviousEngagement
	FROM
		CombinedData)

SELECT
	DataYear,
	CurrentEngagement,
	PreviousEngagement,
	CurrentEngagement - PreviousEngagement AS YoYDifference
FROM
	YoYCalculation;


2023	77	NULL	NULL
2024	80	77	3

There is a 3% increase compared to the previous year
```

```sql
/*
Which divisions/departments improved or declined?
SQL concepts used: FROM, INNER JOIN, WHERE, SELECT, CAST(), AVG(), GROUP BY, UNION ALL, CTE,
CASE logic, SELF JOIN, ORDER BY
*/
WITH CombinedData AS (
	SELECT
		ed.DataYear,
		CAST(AVG(CAST(sr.LikertScore AS DECIMAL(10,2))) / 5 * 100 AS DECIMAL(3,0)) AS
		EngagementScore,
		ed.DivisionName
	FROM
		EAC_EES2023.dbo.EmployeeData_2023 AS ed
	INNER JOIN
		EAC_EES2023.dbo.SurveyResponse_2023 AS sr
	ON
		ed.EmployeeID = sr.EmployeeID
	GROUP BY
		ed.DataYear,
		ed.DivisionName
	UNION ALL
	SELECT
		ed.DataYear,
		CAST(AVG(CAST(sr.LikertScore AS DECIMAL(10,2))) / 5 * 100 AS DECIMAL(3,0)) AS
		EngagementScore,
		ed.DivisionName
	FROM
		EAC_EES2024.dbo.EmployeeData_2024 AS ed
	INNER JOIN
		EAC_EES2024.dbo.SurveyResponse_2024 AS sr
	ON
		ed.EmployeeID = sr.EmployeeID
	GROUP BY
		ed.DataYear,
		ed.DivisionName)
SELECT
	d2023.DivisionName,
	d2023.EngagementScore AS EngagementScore2023,
	d2024.EngagementScore AS EngagementScore2024,
	d2024.EngagementScore - d2023.EngagementScore AS YoYChange,
	CASE
		WHEN d2024.EngagementScore - d2023.EngagementScore > 1 THEN 'Improved'
		WHEN d2024.EngagementScore - d2023.EngagementScore < 1 THEN 'Declined'
		ELSE 'No Change'
	END AS Status
FROM
	CombinedData AS d2023
INNER JOIN
	CombinedData AS d2024
ON
	d2023.DivisionName = d2024.DivisionName
WHERE
	d2023.DataYear = 2023 AND d2024.DataYear = 2024
ORDER BY
	YoYChange DESC;
```

Product & Technology	78	87	9	Improved	
Marketing & Communications	77	81	4	Improved	
Business Operations & Services	77	79	2	Improved	
Finance & Legal	78	77	-1	Declined	
Strategy & Planning	79	78	-1	Declined	
People & Culture	82	80	-2	Declined	

3 departments improved in engagement:
Product & Technology showed the highest improvement (+9 points), followed by Marketing & Communications (+4) and Business Operations & Services (+2)

3 departments declined slightly:
Finance & Legal, Strategy & Planning, and People & Culture each saw a small drop (−1 to −2 points) compared to the previous year

This analysis highlights areas of growing employee sentiment, as well as departments that may benefit from targeted interventions to maintain or boost engagement levels

```sql
/*
What themes need focused attention this year?
SQL concepts used: FROM, INNER JOIN, WHERE, SELECT, CAST(), AVG(), GROUP BY, UNION ALL, CTE,
CASE logic, SELF JOIN, ORDER BY
*/
WITH CombinedData AS (
	SELECT
		ed.DataYear,
		ROUND(AVG(CAST(sr.LikertScore AS FLOAT)), 2) AS AverageScore,
		sqms.Theme
	FROM EAC_EES2023.dbo.EmployeeData_2023 AS ed
	INNER JOIN EAC_EES2023.dbo.SurveyResponse_2023 AS sr
	ON ed.EmployeeID = sr.EmployeeID
	INNER JOIN EAC_EES2023.dbo.SurveyQuestion_MarketScore_2023 AS sqms
	ON sqms.QuestionID = sr.QuestionID
	GROUP BY
		ed.DataYear,
		sqms.Theme
	UNION ALL
	SELECT
		ed.DataYear,
		ROUND(AVG(CAST(sr.LikertScore AS FLOAT)), 2) AS AverageScore,
		sqms.Theme
	FROM EAC_EES2024.dbo.EmployeeData_2024 AS ed
	INNER JOIN EAC_EES2024.dbo.SurveyResponse_2024 AS sr
	ON ed.EmployeeID = sr.EmployeeID
	INNER JOIN EAC_EES2024.dbo.SurveyQuestion_MarketScore_2024 AS sqms
	ON sqms.QuestionID = sr.QuestionID
	GROUP BY
		ed.DataYear,
		sqms.Theme)

SELECT
	d2023.Theme,
	d2023.AverageScore AS AverageScore2023,
	d2024.AverageScore AS AverageScore2024,
	ROUND((d2024.AverageScore - d2023.AverageScore), 2) AS YoYChange,
	CASE
		WHEN d2024.AverageScore > d2023.AverageScore THEN 'Improved'
		WHEN d2024.AverageScore < d2023.AverageScore THEN 'Declined'
		ELSE 'No Change'
	END AS Status
FROM
	CombinedData AS d2023
INNER JOIN
	CombinedData AS d2024
ON
	d2023.Theme = d2024.Theme
WHERE
	d2023.DataYear = 2023 AND d2024.DataYear = 2024
ORDER BY
	YoYChange DESC;
```

Agile Work Culture	3.6	3.86	0.26	Improved
People-First Culture	3.49	3.72	0.23	Improved
Engagement	3.75	3.98	0.23	Improved
Employer Branding	3.48	3.71	0.23	Improved
Employee Involvement		3.65	3.87	0.22	Improved
Recognition	3.7	3.9	0.2	Improved
Communication	3.78	3.98	0.2	Improved
Learning & Development		3.96	4.15	0.19	Improved
Empowerment	3.78	3.95	0.17	Improved
Workload Balance	3.83	3.99	0.16	Improved
Work Environment	3.76	3.92	0.16	Improved
Feedback Culture	3.73	3.89	0.16	Improved
Work-Life Balance	3.94	4.09	0.15	Improved
Employee Well-Being	3.8	3.93	0.13	Improved
Positive Work Culture	3.8	3.92	0.12	Improved
Collaboration	4.02	4.14	0.12	Improved
Learning Culture	3.68	3.79	0.11	Improved
Organizational Alignment		4.13	4.22	0.09	Improved
Continuous Improvement		4.13	4.22	0.09	Improved
Purpose & Contribution		4.1	4.19	0.09	Improved
Enablement & Support		3.97	4.06	0.09	Improved
Role Clarity	4.09	4.17	0.08	Improved
Discretionary Effort	4.12	4.18	0.06	Improved
Accountability	4.13	4.19	0.06	Improved
Organizational Commitment		4.12	4.17	0.05	Improved
Employer Advocacy	4	4.05	0.05	Improved

All themes showed YoY improvement

Notably improved themes include:

1. Agile Work Culture (+0.26)
2. People-First Culture (+0.23)
3. Employer Branding (+0.23)

```sql
/*
Have the lowest-performing engagement areas from last year shown improvement this year?
SQL concepts used: FROM, INNER JOIN, CAST(), AVG(), ROUND(), SELECT, UNION ALL, multiple CTEs,
WHERE, CASE logic, SELF JOIN
*/
WITH CombinedData AS (
	SELECT
		ed.DataYear,
		sqms.Theme,
		ROUND(AVG(CAST(sr.LikertScore AS FLOAT)), 2) AS AverageScore
	FROM EAC_EES2023.dbo.EmployeeData_2023 AS ed
	INNER JOIN EAC_EES2023.dbo.SurveyResponse_2023 AS sr
	ON ed.EmployeeID = sr.EmployeeID
	INNER JOIN EAC_EES2023.dbo.SurveyQuestion_MarketScore_2023 AS sqms
	ON sqms.QuestionID = sr.QuestionID
	GROUP BY
		ed.DataYear,
		sqms.Theme
	UNION ALL
	SELECT
		ed.DataYear,
		sqms.Theme,
		ROUND(AVG(CAST(sr.LikertScore AS FLOAT)), 2) AS AverageScore
	FROM EAC_EES2024.dbo.EmployeeData_2024 AS ed
	INNER JOIN EAC_EES2024.dbo.SurveyResponse_2024 AS sr
	ON ed.EmployeeID = sr.EmployeeID
	INNER JOIN EAC_EES2024.dbo.SurveyQuestion_MarketScore_2024 AS sqms
	ON sqms.QuestionID = sr.QuestionID
	GROUP BY
		ed.DataYear,
		sqms.Theme),

FilteredTheme AS (
	SELECT
		*
	FROM
		CombinedData
	WHERE
		Theme IN (	'Employer Branding',
				'People-First Culture',
				'Agile Work Culture',
				'Recognition',
				'Work Environment',
				'Employee Well-Being',
				'Collaboration',
				'Accountability'))

SELECT
	f2023.Theme,
	f2023.AverageScore AS AverageScore2023,
	f2024.AverageScore AS AverageScore2024,
	ROUND((f2024.AverageScore - f2023.AverageScore), 2) AS YoYChange,
	CASE
		WHEN f2024.AverageScore > f2023.AverageScore THEN 'Improved'
		WHEN f2024.AverageScore < f2023.AverageScore THEN 'Declined'
```

```
            ELSE 'No Change'
        END AS Status
FROM
        FilteredTheme AS f2023
INNER JOIN
        FilteredTheme AS f2024
ON
        f2023.Theme = f2024.Theme
WHERE
        f2023.DataYear = 2023 AND f2024.DataYear = 2024
ORDER BY
        CASE f2023.Theme
                WHEN 'Employer Branding' THEN 1
                WHEN 'People-First Culture' THEN 2
                WHEN 'Agile Work Culture' THEN 3
                WHEN 'Recognition' THEN 4
                WHEN 'Work Environment' THEN 5
                WHEN 'Employee Well-Being' THEN 6
                WHEN 'Collaboration' THEN 7
                WHEN 'Accountability' THEN 8
        ELSE 9
        END;
```

All 8 themes identified as lowest-performing in 2023 have shown measurable improvement in 2024

Notably improved themes include:

4. Agile Work Culture (+0.26)
5. People-First Culture (+0.23)
6. Employer Branding (+0.23)

These themes were previously among the bottom in 2023, signaling positive impact from targeted interventions

```
/*
How do we compare to market benchmarks this year?
SQL concepts used: FROM, INNER JOIN, SELECT, CAST(), AVG(), ROUND(), GROUP BY, ORDER BY,
multiple CTEs, CASE logic
*/
WITH CombinedData AS (
	SELECT
		sqms.Metric,
		ROUND(AVG(CAST(sr.LikertScore AS FLOAT)), 2) AS AverageScore,
		ROUND(AVG(CAST(sqms.MarketScore AS FLOAT)), 2) AS MarketScore,
		mm.MetricOrder
	FROM
		SurveyQuestion_MarketScore_2024 AS sqms
	INNER JOIN
		EAC_EES2023.dbo.MetricMapping AS mm
	ON
		sqms.Metric = mm.Metric
	INNER JOIN
		SurveyResponse_2024 AS sr
	ON
		sqms.QuestionID = sr.QuestionID
	GROUP BY
		sqms.Metric,
		mm.MetricOrder)

SELECT
	Metric,
	AverageScore,
	MarketScore,
	AverageScore - MarketScore AS ScoreDifference,
	CASE
		WHEN AverageScore > MarketScore THEN 'Above market'
		WHEN AverageScore < MarketScore THEN 'Below market'
		ELSE 'Same as market'
	END AS MarketComparison
FROM
	CombinedData
ORDER BY
	MetricOrder;
```

Core	3.91	3.51	0.4	Above market
Self	4.06	3.62	0.44	Above market
Group	4.2	3.79	0.41	Above market

The company's efforts in culture, enablement, and alignment are yielding better-than-market engagement outcomes