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In [48]: import pandas as pd
df=pd.read_csv("10kdata.csv")
import matplotlib.pyplot as plt
import seaborn as sns
```

PRINTING THE ORIGINAL DATA FROM 10 - K SHEETS OF DIFFERENT COMPANY AT DIFFERENT YEARS

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In [49]: df
```

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Out[49]:
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	S.No	Company	Year	Total Revenue	Net Income	Total Assets	Total Liabilities	Cash Flow From Operating Activities
0	1	MICROSOFT	2025	281724	101832	619003	275524	136162
1	2	MICROSOFT	2024	245122	88136	512163	243686	118548
2	3	MICROSOFT	2023	211915	72361	411976	205753	87582
3	4	TESLA	2025	94827	3855	137806	54941	14747
4	5	TESLA	2024	97690	7153	122070	48390	14923
5	6	TESLA	2023	96773	14974	106618	43009	13256
6	7	APPLE	2025	416161	112010	359241	285508	111482
7	8	APPLE	2024	391035	93736	364980	308030	118254
8	9	APPLE	2023	383285	96995	352583	290437	110543

```
In [50]: df = df.sort_values(['Company', 'Year'])

df['Revenue Growth (%)'] = df.groupby('Company')['Total Revenue'].pct_change() *
df['Net Income Growth (%)'] = df.groupby('Company')['Net Income'].pct_change() *
df['Asset Growth (%)'] = df.groupby('Company')['Total Assets'].pct_change() * 10
df['Liabilities Growth (%)'] = df.groupby('Company')['Total Liabilities'].pct_ch
df['Cash Flow Growth (%)'] = df.groupby('Company')['Cash Flow From Operating Act
df
```

Out[50]:

	S.No	Company	Year	Total Revenue	Net Income	Total Assets	Total Liabilities	Cash Flow From Operating Activities	Revenue Growth (%)
8	9	APPLE	2023	383285	96995	352583	290437	110543	NaN
7	8	APPLE	2024	391035	93736	364980	308030	118254	2.021994
6	7	APPLE	2025	416161	112010	359241	285508	111482	6.425512
2	3	MICROSOFT	2023	211915	72361	411976	205753	87582	NaN
1	2	MICROSOFT	2024	245122	88136	512163	243686	118548	15.669962
0	1	MICROSOFT	2025	281724	101832	619003	275524	136162	14.932156
5	6	TESLA	2023	96773	14974	106618	43009	13256	NaN
4	5	TESLA	2024	97690	7153	122070	48390	14923	0.947578
3	4	TESLA	2025	94827	3855	137806	54941	14747	-2.930699



df.to_csv("trendsdata.csv")

```
In [51]: summary = df.groupby('Company').agg(
    {"Revenue Growth (%)": "mean",
     "Net Income Growth (%)": "mean",
     "Asset Growth (%)": "mean",
     "Liabilities Growth (%)": "mean",
     "Cash Flow Growth (%)": "mean"}).reset_index()
```

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In [52]: print(summary.to_string(index=False))
```

Company	Revenue Growth (%)	Net Income Growth (%)	Asset Growth (%)	Liabilities Growth (%)	Cash Flow Growth (%)
APPLE	4.223753	8.067605	0.971818	-0.627101	0.624455
MICROSOFT	15.301059	18.670019	22.589598	15.750679	25.107348
TESLA	-0.991560	-49.168531	13.691913	13.024628	5.698025

```
In [53]: summary.to_csv("summary_trends_data.csv")
```

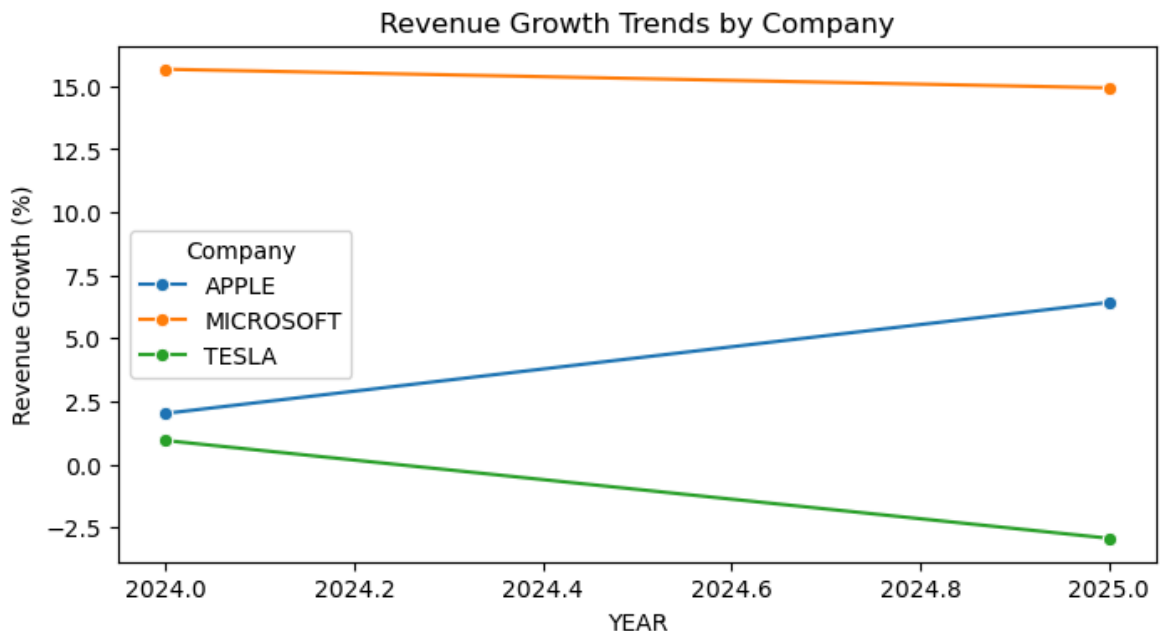
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In [54]: summary_stats = df.groupby('Company').agg({
    'Total Revenue': ['mean', 'std'],
    'Net Income': ['mean', 'std'],
    'Total Assets': ['mean', 'std'],
    'Total Liabilities': ['mean', 'std'],
    'Cash Flow From Operating Activities': ['mean', 'std']
})
print(summary_stats.to_string(index=False))
```

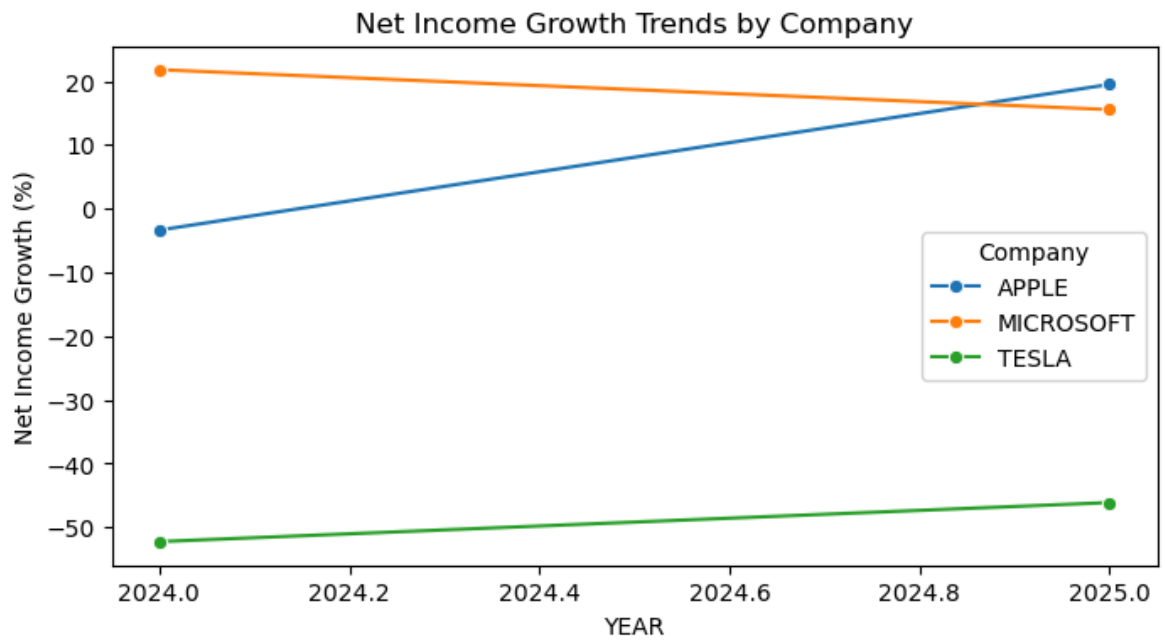
Total Revenue		Net Income		Total Assets	
Total Liabilities		Cash Flow From Operating Activities			
mean	std	mean	std	mean	std
mean	std		mean	std	
396827.000000	17186.282088	100913.666667	9746.883109	358934.666667	6204.174589
294658.333333	11839.546543			113426.333333	4207.161078
246253.666667	34918.256290	87443.000000	14747.716671	514380.666667	103531.315148
241654.333333	34929.842003			114097.333333	24593.910330
96430.000000	1461.994870	8660.666667	5710.764777	122164.666667	15594.215509
48780.000000	5975.552778			14308.666667	915.873536

```
In [55]: print(df.columns.tolist())
```

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['S.No', 'Company', 'Year', 'Total Revenue', 'Net Income', 'Total Assets', 'Total Liabilities', 'Cash Flow From Operating Activities', 'Revenue Growth (%)', 'Net Income Growth (%)', 'Asset Growth (%)', 'Liabilities Growth (%)', 'Cash Flow Growth (%)']
```

```
In [56]: plt.figure(figsize=(8, 4))
sns.lineplot(data=df, x='Year', y='Revenue Growth (%)', hue='Company', marker='o')
plt.title('Revenue Growth Trends by Company')
plt.xlabel('YEAR')
plt.ylabel('Revenue Growth (%)')
plt.legend(title='Company')
plt.show()
# Plotting net income growth for each company
plt.figure(figsize=(8, 4))
sns.lineplot(data=df, x='Year', y='Net Income Growth (%)', hue='Company', marker='o')
plt.title('Net Income Growth Trends by Company')
plt.xlabel('YEAR')
plt.ylabel('Net Income Growth (%)')
plt.legend (title='Company')
plt.show()
```





In []: