PROJECT: BUILDING FINANCIAL REPORTS

Help your hedge fund manager!

You have two datasets at your disposal: `Balance_Sheet.xlsx` and `Income_Statement.xlsx`. Both these datasets have three columns in common:

- `"Company"`: The company's ticker name.
- `"comp_type"` The type of industry the company in question belongs to. It is either `"tech"` for companies in the technology industry, `"fmcg"` for companies in the fast-moving consumer goods industry, and `"real_est"` for companies in the real estate industry.
- `"Year"`: The year the company's information is from.

The rest of the columns in the datasets contain information from the financial statement of the `"Company"` in question. Note that the columns in `Balance_Sheet.xlsx` only contain financial information from the balance sheet. Similarly, the columns in `Income_Statement.xlsx` only contain financial information from the income statement. The columns are named accordingly. For instance, the column `"Total Liab"` from `Balance_Sheet.xlsx` is the total liability.

```
import numpy as np
import pandas as pd
import seaborn as sns

balance_sheet = pd.read_excel("data/Balance_Sheet.xlsx")
income_statement = pd.read_excel("data/Income_Statement.xlsx")

df_ratios = pd.merge(income_statement, balance_sheet, on = ["Year", "company",
"comp_type"])

df_ratios["profitability_ratio"] = (df_ratios["Total Revenue"] - df_ratios["Cost Of
Goods Sold"])/df_ratios["Total Revenue"]

df_ratios["leverage_ratio"] = df_ratios["Total Liab"]/df_ratios["Total Stockholder
Equity"]
print(df_ratios.pivot_table(index="comp_type", values="profitability_ratio"))
lowest_profitability = "fmcg"

print(df_ratios.pivot_table(index="comp_type", values="leverage_ratio"))
highest_leverage = "real_est"

import numpy as np
import pandas as pd
import seaborn as sns

# Read in the files
balance_sheet = pd.read_excel("data/Balance_Sheet.xlsx")
income_statement = pd.read_excel("data/Income_Statement.xlsx")

# Merge both the dataframes and call it df_ratios
df_ratios = pd.merge(income_statement, balance_sheet, on = ["Year", "company",
"comp_type"])

# You only need to compute one profitability ratio, but since there is a choice, we
are providing the code to compute both the gross margin ratio and the operating
margin ratio

# Compute gross margin ratio
df_ratios["profitability_ratio"] = (df_ratios["Total Revenue"] - df_ratios["Cost Of
Goods Sold"])/df_ratios["Total Revenue"]
```

```
# Compute debt-to-equity ratio
df_ratios["leverage_ratio"] = df_ratios["Total Liab"]/df_ratios["Total Stockholder
Equity"]

# Compute equity multiplier ratio, but commenting it out
# df_ratios["leverage_ratio"] = df_ratios["Total Assets"]/df_ratios["Total
Stockholder Equity"]

# Using pivot table to see the "comp_type" with the lowest average profitability
ratio
print(df_ratios.pivot_table(index="comp_type", values="profitability_ratio"))
lowest_profitability = "fmcg"

# Using pivot table to see the "comp_type" with the highest average leverage ratio
print(df_ratios.pivot_table(index="comp_type", values="leverage_ratio"))
highest_leverage = "real_est"

# Plot the leverage ratio on x-axis and profitability on y axis to see if real
estate companies with higher leverage ratio have  higher profitability
df_real_est = df_ratios.loc[df_ratios["comp_type"]=="real_est"]
plot = sns.regplot(data=df_real_est, x="leverage_ratio", y="profitability_ratio")
relationship = "positive"
```

```
           profitability_ratio
comp_type
fmcg                  0.514396
real_est              0.534848
tech                  0.572062
           leverage_ratio
comp_type
fmcg             2.997896
real_est         5.692041
tech             1.777448
           profitability_ratio
comp_type
fmcg                  0.514396
real_est              0.534848
tech                  0.572062
           leverage_ratio
comp_type
```