Financial Forensics End-term Project

Dalal Street

Total Marks 25

The goal of this project is to assess your capability in understanding financial statements/ratios of companies and judge their future performance. You are provided with several metrics of all the companies listed in BSE covering aspects of their Balance Sheet, P&L Statement, Cash Flow Statement and other financial ratios, along with the market price of each of the stock at timestep T1 and T2. You are given a budget of INR 10,00,000.

Problem Statement:

- Analyze the data given for all the companies and create a portfolio within the given budget of INR 10,00,000 as of time-period T1.

Input and Constraints

- You have been provided with several metrics of all the companies listed in BSE covering aspects of their Balance Sheet, P&L Statement, Cash Flow Statement and other financial ratios, along with the market price of each of the stock at time-period T1 and T2.
- Your total portfolio cost should be less than the allotted budget of INR 10,00,000.

Evaluation

There will be two parts of evaluation:

- Your portfolio will be evaluated as of time-period T3, and a score will be given based on the profit/loss your portfolio made.
  Details of the score computation is covered in the section *score calculation*.
- Your team will be required to make a presentation with your final portfolio, outlining a detailed analysis that you did.

Score Calculation:

a) Your submitted portfolio will be evaluated based on the following approach:
   - The profit/loss for each of your stocks in the portfolio is computed as of time-period T3
   - Individual profits/losses are added to arrive at the portfolio performance
   - For example:

Company Name	Units	Price as of T1 (Buy Price)	Price as of T3 (Sell Price)	Profit/Loss
ABC	2	100	150	100
PQR	10	80	60	-200

XYZ	5	1000	1200	1000

For the above table we compute:

- Portfolio Cost (PC): 6000
- Final Portfolio Value (FPV): 6900
- $Portfolio\ Delta\ (PD)\ =\ FPV\ -\ PC$
  - PD = 6900 – 6000 = 900
- $Portfolio\ Gain/Loss\ Percentage\ (PGP)\ =\ \frac{PD*100}{PC}$
  - PGP = 900 * 100/6000 = 15%

- A "*Base Score*" of 70 will be set and your Portfolio Performance Score from your submission will be evaluated using the below formula:
  - $Portfolio\ Performance\ Score\ (PPS)\ =\ Base\ Score\ +\ Portfolio\ Gain/Loss\ Percentage$
  - For the above table, the Portfolio performance score will be, PPS = 70+15 = 85

- *Portfolio Performance Score will be capped at 100 and ceiled at 0.*
- This score will be same for everyone in the group.

b) Based on your team's presentation a *Presentation Score* is given between 0-100. You will be evaluated on the grounds of novelty, rigor, ability to connect different data points in your final presentation.

c) A calibration score is obtained from your group to account for the difference in efforts put in by the team members and to measure the effectiveness of collaboration in completion of the project. This is to ensure that no one free rides on anyone's effort and to promote team collaboration. Calibration score effectively captures what percentage of marks should be given to an individual from the overall team's score. It's a list of values having a size equal to the group size and summing to 100. Each value in it will correspond to a students' share in the final score. An example is shown below:

Student-ID	**Score_Share**
Student 1	40%
Student 2	30%
Student 3	30%

d) Based on the above Portfolio Performance Score, Presentation Score and the Calibration Score three components will be derived capturing the group's absolute performance (A), an individual's contribution in the respective group (B) and the group's collaboration with respect to other groups (C). An individual's final score is computed as follows:

- Group's absolute performance (A)= 0.5 * *Portfolio Performance Score + 0.5* Presentation Score*. This score is same for everyone in the group.
- Individual's contribution in the respective group (B) = Min-Max scaling will be done on the submitted score_shares of the students with Min being 0 and Max

being 25. This score is different for everyone in the group. If everyone in the group has an equal share, then everyone in the group will get a score of 25.

- Group's collaboration with respect to other groups (C) – Standard deviation (SD) of the group's score_share is computed and is compared against the same of every other group. A reverse Min-Max scaling will be done to map the lowest SD to 25 and the highest to 0. This is done to promote the teams to collaborate more, the team that does the highest collaboration will be rewarded. This score is same for everyone in the group.
- An individual's Final score is computed as follows:

Final Score = 0.5* A + A*(B + C)/100

Refer the attached excel workbook for a worked-out example of the score computation.

- Also, incase if there is/are any individual(s) whose score_share is less than 5% as per the calibration score, then the individual(s) will get a *Final Score* of 0 and none of the above calculations will be applicable. And those individual's score_share will be equally distributed amongst others in the group and the scores will be computed accordingly.

Submission Format:

- We expect a single zip file, with the naming convention as <team_id>.zip containing two csv files from every team with the following information:
  - File Name: <team_id>_score_share.csv

Student-ID	Score_Share
Student 1 Roll No	Student 1's share
Student 2 Roll No	(student share information)
Student 3 Roll No	-do-

  - File Name: <team_id>_portfolio.csv

BSE Code	NSE Code	Company Name	Units
123		ABC	2
456		PQR	4
789		XYZ	6
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***		**	**

For instance, if your team is provided with a team id of *team_03* then, your submission will be *team_03.zip*. The zip file will contain *team_03_score_share.csv* and *team_03_portfolio.csv*

Important Dates:

- Problem Statement Overview: 16th Feb 2025
- Team and Team Leader Nomination: 23rd Feb 2025
- Project Start: 24th Feb 2025
- Submission Deadline: Before 24th March 2025
- Final Presentation: 29th/30th March 2025

Other Instructions:

- Students can form their own team of size 4 and communicate the same to us (please send an email parthasarathy@study.iitm.ac.in.
- Each team should nominate a team leader who will be responsible for making the final submissions.
- For the <team_name>*score*_share.csv file, we request the team leader to consult with the entire team and get their approval via an email before making the final submission. In case if the score share is challenged by any of the team members, and if the team leader fails to submit an email proof of the team members consent on the score distribution, then **the team will be disqualified and everyone from the team will be awarded no marks for the project**.
- In case your portfolio cost is over INR 10,00,000, the costliest stock(s) will be removed from your portfolio till the total portfolio cost is less than the budget while running the evaluation.
- After teams have been formed incase if the team members decide to expel a team member due to inactivity the same should be done before 2nd March 2025. No changes will be entertained post that.