**Case Study 1**

Scope:

Calculate the optimised amount of money to invest across the available investments present in the provided portfolio package.

Context:

Maximising return on £90,000 to be invested across a multiple business sectors and mutual funds.

* No requirement to buy shares from either mutual fund.
* Optimised result thus excludes investment in fund Z.
* Majority of shares in Share C.
* Food Sector maxed out on allowed share %.
* Max allowed in fund E allotted.

Requirements:

£90k investment capital, capital invested in shares in a given sector cannot be more than 50% of total invested shares, shares with the larger return of a sector are equal to or less than 80% total shares in that sector, amount in manufacturing company B equal to or less than 10% of whole share amount, Amount in the mutual funds equal to or less than 25% of the amount invested in the manufacturing sector.

1. Investment Account (G) = £90,000
2. Manufacturing Sector (Share A + Share B) <= 50% G
3. Share C == 0.8(Share C + Share D), Share B == 0.8(Share B + Share A)
4. Share B <= 10% G
5. Fund E + Fund Z <= 0.25(Share A + Share B)

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Method:

The method used to calculate the expected maximised return on investments made was Linear Programming implemented through Excel Solver.

Calculations:

Kaggle Datasets:

[Bike store sales in Europe | Kaggle](https://www.kaggle.com/code/sadiqshah/bike-store-sales-in-europe)

[Video Game Sales | Kaggle](https://www.kaggle.com/datasets/gregorut/videogamesales)

[🎮 EDA - VIDEO GAME SALES | Kaggle](https://www.kaggle.com/code/upadorprofzs/eda-video-game-sales)

[CTR In Advertisement | Kaggle](https://www.kaggle.com/datasets/arashnic/ctr-in-advertisement?resource=download)

[Clickthrough rate (CTR) | Kaggle](https://www.kaggle.com/datasets/shibumohapatra/clickthrough-rate-ctr)