# Overview

This code calculates the XIRR (eXternal Internal Rate of Return) for a given set of stock transactions and provides a detailed cash flow analysis. The XIRR calculation takes into account the transaction type (buy, sell, dividend payout, etc.), quantity, and amount for each transaction. The code also calculates the closing price of the stock on the last date of the calculation period using the NSE code API.

# Important Note

I have created 2 codes for XIRR

1. XIRR with last\_date\_filter : Works fine and good accuracy
2. XIRR with start\_date and Last\_date filter : Cant trust its accuracy

# XIRR code Logic:

**Function 1: get\_last\_date\_market\_price**

* Purpose: Retrieves the closing price of a stock on a given date using the NSE code API.
* Input Parameters:
  + symbol: The NSE code of the stock.
  + last\_date: The date for which the closing price is required (in the format "dd-mm-yyyy").
* Return Value: The closing price of the stock on the given date, or None if no data is available.

**Function 2: xirr\_cal**

* Purpose: Calculates the XIRR for a given set of stock transactions and provides a detailed cash flow analysis.
* Input Parameters:
  + stock\_df: A pandas DataFrame containing the stock transactions data, with columns for "NSE Code", "Portfolio\_Name", "Strategy\_ID", "Date", "Trans. Type", "Quantity", and "Amount".
  + last\_date: The last date of the calculation period (in the format "dd-mm-yyyy").
* Return Values:
  + xirr\_result\_df: A pandas DataFrame containing the XIRR result for each unique combination of Portfolio\_Name, Strategy\_ID, and NSE Code.
  + detailed\_cash\_flows\_df: A pandas DataFrame containing the detailed cash flow analysis for each stock, including the stock name, date, cash flow, transaction type, and quantity left.

**Function 3: Start Date Filter**

* The start\_date parameter is used to filter the transactions to only include those that occur on or after the specified date.
* The opening balance is calculated based on the transactions prior to the start date.
* The XIRR calculation only includes transactions that occur between the start date and the last date.

**Main Code**

1. Read data from a CSV file named "Share\_Trading\_Full.csv", skipping the first row.
2. Initialize empty DataFrames to store the XIRR results and detailed cash flow analysis.
3. Define the last date for the XIRR calculation.
4. Calculate the XIRR for each unique combination of Portfolio\_Name, Strategy\_ID, and NSE Code using the xirr\_cal function.
5. Append the XIRR results and detailed cash flow analysis to the respective DataFrames.
6. Print or use the resulting DataFrames as needed.

**Logic**

1. Filter the data for XIRR calculation based on the NSE code, portfolio name, and strategy name.
2. For each transaction, calculate the cash flow based on the transaction type (buy, sell, dividend payout, etc.).
3. Calculate the quantity left after each transaction.
4. If there are any quantity left at the end of the final date, calculate the closing price of the stock on that date using the NSE code API and add it to the cash flow.
5. Sort the cash flows based on the dates.
6. Calculate the XIRR using the sorted cash flows.
7. Provide a detailed cash flow analysis for each stock, including the stock name, date, cash flow, transaction type, and quantity left.

**Process**:

1. Initializes variables for tracking cumulative quantity, cash flows, dates, etc.

2. Iterates through each transaction in the input dataframe.

3. Processes transactions up to the specified last date: - Buy: Adds to cumulative quantity, records negative cash flow. - Sell: Subtracts from cumulative quantity, records positive cash flow. - Dividend Payout: Records positive cash flow. - Other transactions (Bonus, Split, Merger, etc.): Updates cumulative quantity.

4. If there are remaining shares at the last date: - Fetches the market price for the last date. - Adds the value of remaining shares as a positive cash flow.

5. Sorts all cash flows by date.

6. Calculates XIRR using the pyxirr library.

7. Returns XIRR result and detailed cash flow information.

**Notes** -

The script assumes a specific format for the input CSV file. -

XIRR calculation depends on the availability of market price data from the NSE API. -

Transactions after the specified last date are ignored in the calculation. -

The script handles cases where no buy transactions exist or when market price data is unavailable.