Q1. What is the distinction between a numpy array and a pandas data frame? Is there a way to convert between the two if there is?

🡪Numpy Ndarray provides a lot of convenient and optimized methods for performing several mathematical operations on vectors.

Pandas Dataframe is an in-memory 2-dimensional tabular representation of data. In simpler words, it can be seen as a spreadsheet having rows and columns.

Conversion : Dataframe=pandas.DataFrame(array)

Q2. What can go wrong when an user enters in a stock-ticker symbol, and how do you handle it?

🡪 When a user enters a stock ticker symbol, several issues can arise, and handling them appropriately is crucial. Here are some potential problems and suggested ways to handle them:

1. Invalid or nonexistent symbol: The user may enter an invalid or nonexistent stock ticker symbol. To handle this, you can implement validation by checking if the symbol exists in a stock database or by making an API call to a reputable financial data provider. Provide informative feedback to the user indicating that the entered symbol is invalid or not found.

2. Multiple matches: Sometimes, a stock symbol may have multiple matches. For example, there could be different companies with similar names or multiple classes of shares for a single company. In such cases, you can present the user with a list of matching options and ask for further clarification or provide additional details to help the user select the correct symbol.

3. Case sensitivity: Stock ticker symbols are often case insensitive, but users may inadvertently enter them with incorrect casing. To handle this, you can normalize the input by converting it to uppercase or lowercase before processing, ensuring consistency in matching and lookup operations.

4. Delimiter handling: Users may include unnecessary delimiters or spaces in the stock symbol. Strip out any extraneous characters, such as spaces or punctuation, from the user input before using it to avoid errors or mismatches.

5. Data retrieval errors: When fetching stock data using the provided symbol, issues can arise, such as network errors, server downtime, or incomplete data. Handle such errors gracefully by providing clear error messages to the user, offering options to retry or displaying alternative data sources if available.

6. Data accuracy and reliability: Stock data can be subject to delays or inaccuracies. Inform users about the potential for delayed or unreliable data, and consider displaying appropriate disclaimers or sourcing data from reliable providers to minimize any potential issues.

7. Security considerations: Validate user input to prevent malicious code injection or unauthorized access to sensitive information. Implement input sanitization techniques, such as input validation and parameterized queries, to mitigate security risks.

Q3. Identify some of the plotting techniques that are used to produce a stock-market chart.

🡪 Bar chart, Line Chart are used for plotting.

Q4. Why is it essential to print a legend on a stock market chart?

🡪 Legend will help comparison between different stocks, so will be essential on a stock market chart

Q5. What is the best way to limit the length of a pandas data frame to less than a year?

🡪We can use start and end parameters for that. In start we write the date from where we are starting and at the end we write the end date. SO within this span we can restrict the duration. Also we can use the parameters like periods for how much times we need the duration and we can also use the frequency parameter.

Q6. What is the definition of a 180-day moving average?

🡪 The 180-day moving average is represented as a line on charts and represents the average price over the past 180 days. The moving average can give traders a sense regarding whether the trend is up or down, while also identifying potential support or resistance areas.