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?

***Ans***:

The main distinction between a NumPy array and a Pandas DataFrame is that a NumPy array is a homogeneous data structure that can contain only one data type, while a Pandas DataFrame is a heterogeneous data structure that can contain multiple data types.

In terms of conversion between NumPy arrays and Pandas DataFrames, there are several ways to achieve this. You can convert a NumPy array to a Pandas DataFrame using the pd.DataFrame() function, or you can convert a Pandas DataFrame to a NumPy array using the df.to\_numpy() method.

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

***Ans***:

Several things can go wrong when a user enters a stock ticker symbol, such as:

1.Invalid symbol: The user might enter a stock ticker symbol that does not exist or is not recognized by the system. This can result in errors or unexpected behaviour.

2.Misspelling: The user might misspell the stock ticker symbol, which can result in the wrong stock being selected or errors.

3.Case sensitivity: Stock ticker symbols are usually case insensitive, but some systems may treat them as case sensitive. This can result in errors if the user enters the symbol in the wrong case.

4.Outdated symbol: Stock ticker symbols can change over time due to mergers, acquisitions, or other events. If the user enters an outdated symbol, it may not be recognized by the system.

To handle these issues, you can implement some measures in your program, such as:

1.Validating the symbol: Check if the symbol entered by the user exists in the system or is recognized by the API that you are using to fetch stock data.

2.Providing autocomplete: You can provide a list of suggested stock symbols based on what the user has typed so far. This can help prevent misspellings and other errors.

3.Ignoring case: Make sure that the system treats stock ticker symbols as case insensitive, so that users can enter them in any case.

4.Handling outdated symbols: Check if the symbol entered by the user is up to date. If it is outdated, you can provide a suggestion for the new symbol or provide some information about the change.

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

***Ans***:

There are several plotting techniques that are commonly used to produce stock market charts. Some of these techniques include:

1.Line chart: A line chart is a basic type of chart that displays stock prices over time as a series of connected points. Line charts are useful for showing overall trends in stock prices and identifying patterns such as support and resistance levels.

2.Candlestick chart: A candlestick chart is a type of chart that displays the opening, closing, high, and low prices of a stock for a given period. The body of each candle represents the opening and closing prices, while the wick represents the high and low prices. Candlestick charts are useful for showing price movements and identifying patterns such as bullish or bearish trends.

3. Bar chart: A bar chart is like a candlestick chart, but it displays only the high and low prices of a stock for a given period of time. Bar charts are useful for showing price movements and identifying patterns such as breakouts and reversals.

4. Area chart: An area chart is like a line chart, but it fills the area between the line and the x-axis. Area charts are useful for showing overall trends in stock prices and identifying patterns such as support and resistance levels.

5. Volume chart: A volume chart displays the trading volume for a stock over a given period. Volume charts are useful for showing the level of interest in a stock and identifying patterns such as spikes in trading activity.

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

***Ans***:

Printing a legend on a stock market chart is essential because it helps the user to understand the data that is being displayed. A legend is a key that explains the symbols and colours used in the chart, and it provides a quick reference guide to help the user interpret the data.

In a stock market chart, the legend can provide information on what the different lines, bars, or other elements of the chart represent. For example, it may indicate that a red line represents the stock price, while a blue line represents the moving average. The legend can also indicate the time frame of the chart and the units of measurement.

Without a legend, it can be difficult for the user to understand the data that is being displayed. They may have to spend more time interpreting the chart or trying to figure out what the different elements represent, which can be frustrating and time-consuming. A clear and concise legend can make the chart more accessible and user-friendly, and it can help the user to make more informed decisions based on the data presented.

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

***Ans***: To limit the length of a Pandas DataFrame to less than a year, you can use the loc method to select rows that fall within the desired time range.

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

***Ans***:

A 180-day moving average is a financial indicator that calculates the average price of a security over the previous 180 trading days. The moving average is calculated by adding up the prices for the past 180 trading days and dividing by 180. The result is a single value that represents the average price of the security over the past 180 days.

Q7. Did the chapter's final example use "indirect" importing? If so, how exactly do you do it?

***Ans***:

Indirect importing is a technique where a module imports another module indirectly through a third module. This can be useful to simplify the structure of your program and avoid circular dependencies.