**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?**

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

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

**Q4. Why is it essential to print a legend 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?**

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

**Q7. Did the chapter&#39;s final example use &quot;indirect&quot; importing? If so, how exactly do you do it?**

**SOLUTIONS**

*1. The main difference between a NumPy array and a Pandas data frame is that a NumPy array is a multidimensional homogeneous array, while a Pandas data frame is a two-dimensional heterogeneous table with labeled axes. NumPy arrays are suitable for numerical computations, while Pandas data frames are more suitable for handling structured data. It is possible to convert between the two using the Pandas* ***DataFrame()*** *and NumPy* ***array()*** *functions.*

*2. There are several things that can go wrong when a user enters a stock-ticker symbol, such as entering an invalid symbol or misspelling the symbol. To handle this, one can use error-handling techniques such as try-except blocks to catch errors and prompt the user to enter a valid ticker symbol. One can also use external libraries or APIs to validate the ticker symbol and retrieve information on the stock.*

*3. Some of the plotting techniques used to produce a stock-market chart include line charts, bar charts, candlestick charts, and area charts. Line charts are often used to show the trend of a stock over time, while bar charts are useful for comparing the performance of multiple stocks. Candlestick charts show the opening and closing prices of a stock and the high and low prices for a particular day, while area charts can be used to show the cumulative performance of a stock over a period of time.*

*4. It is essential to print a legend on a stock market chart because it provides a key for interpreting the data. A legend typically includes labels for the different lines or areas on the chart, along with a description of what each line or area represents. This makes it easier for viewers to understand the data and draw conclusions about the performance of the stock.*

*5. One way to limit the length of a Pandas data frame to less than a year is to filter the data frame based on the date range using the* ***loc*** *method. For example, if the data frame has a* ***Date*** *column, one can filter for a date range less than a year using the following code:* ***df.loc[df['Date'] >= '2022-02-15' - pd.DateOffset(years=1)]****.*

*6. The 180-day moving average is a technical indicator that is used to smooth out fluctuations in a stock's price and identify trends. It is calculated by taking the average of a stock's closing prices over the last 180 trading days. The moving average is then plotted on a chart along with the stock's actual price, and it can be used to identify when the stock is trading above or below its long-term trend.*

*7. It is unclear which chapter's final example is being referred to, but indirect importing refers to importing a module or function using an alias or nickname. For example, one can use* ***import numpy as np*** *to import the NumPy module with the alias "np". This makes it easier to reference the module or function in the code, and it can also help avoid naming conflicts with other modules or functions.*