**FSDS MAY BATCH 2022(Python Assignment -25)**

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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:

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| **COMPARISON PARAMETER** | **PANDAS** | **NUMPY** |
| 1) Developed By | Pandas was developed by Wes McKinney | NumPy was developed by Travis Oliphant. |
| 2) Year Of Release | Pandas was released in the year – 2008. | NumPy was released in the year – 2005. |
| 3) Primary Objective to Use | Pandas is mostly used for data analysis tasks in Python. | NumPy is mostly used for working with Numerical values as it makes it easy to apply mathematical functions. |
| 4) Data Compatibility | Pandas library works well for numeric, alphabets, and heterogeneous types of data simultaneously. | Numpy library works better with only numerical data, has efficient storage, and fastly performs mathematical operations on array-based and array-based matrix-based numeric values. |
| 5) Performance | If the number of rows of the dataset is more than five hundred thousand (500K), then the performance of Pandas is better than NumPy. | NumPy can be said to be faster in performance than Pandas, up to fifty thousand (50K) rows and less of the dataset.  (The performance between fifty thousand rows to five hundred thousand rows mostly depends on the type of operation Pandas, and NumPy are going to have to perform.) |
| 6) Tools | DataFrames and Series are the most powerful tools for Pandas. | NumPy provides n-dimensional arrays, Data Type (dtype), etc. as objects |
| 7) Indexing | The indexing of pandas series is significantly slower than the indexing of NumPy arrays. | The indexing of NumPy arrays is much faster than the indexing of Pandas arrays. |
| 8) Usage or Application in Organisations | Pandas is being used in a lot of popular organizations like Trivago, Kaidee, Abeja Inc., and many more. | Instacart, SendGrid, Walmart, Tokopedia, and many more organizations make use of NumPy. |
| 9) Industrial Coverage | Pandas have a higher industry application compared to NumPy as mentioned in 73 company stacks and 46 developer stacks. | NumPy has a lower industry application compared to Pandas as mentioned in 62 company stacks and 32 developer stacks. |

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

Ans: Ticker Symbol is the use of letters to represent shares that are traded on the stock market, and it is mainly a combination of two or three alphabets that is unique and easy for investors to identify and buy/sell that particular stock with the help of this symbol on the stock exchange. To use a ticker symbol, you will typically need to enter it into a financial platform or stock exchange's search function or use it in a trading order. Ticker symbols are typically displayed alongside a company's name and stock price on financial news websites, stock ticker boards, and other financial platforms.

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

Ans: There are many types of charts that are used for technical analysis. However, the four types that are most common are—line chart, bar chart, point and figure chart and candlestick chart.

**1)Line charts:**A line chart is the figure that, perhaps, automatically comes to mind when you think of a chart. The line chart has the stock price or trading volume information on the vertical or y-axis and the corresponding time period on the horizontal or x-axis). Trading volumes refer to the number of stocks of a company that were bought and sold in the market on a particular day. The closing stock price is commonly used for the construction of a line chart.

Once the two axes have been labelled, preparation of a line chart is a two-step process. In the first step, you take a particular date and plot the closing stock price as on that date on the graph. For this, you’ll put a dot on the chart in such a way that it is above the concerned date and alongside the corresponding stock price.

2) **Bar charts**: A bar chart is similar to a line chart. However, it is much more informative. Instead of a dot, each marking on a bar chart is in the shape of a vertical line with two horizontal lines protruding out of it, on either side. The top end of each vertical line signifies the highest price the stock traded at during a day while the bottom point signifies the lowest price at which it traded at during a day.

3) **Candlestick charts:** Candlestick charts give the same information as bar charts. They only offer it in a better way. Like a bar chart is made up of different vertical lines, a candlestick chart is made up of rectangular blocks with lines coming out of it on both sides. The line at the upper end signifies the day’s highest trading price. The line at the lower end signifies the day’s lowest trading price. The day’s trading can be shown in Intraday charts. As for the block itself (called the body), the upper and the lower ends signify the day’s opening and closing price. The one that is higher of the two, is at the top, while the other one is at the bottom of the body.

4) **Point and figure charts**: A point and figure chart bears no resemblance with the other three kinds of charts discussed above. It was used extensively before the introduction of computers to stock analysis. These days, however, it is used by a very limited number of people. This is chiefly because it is complex to understand and provides limited information. A point and figure chart essentially displays the volatility in a stock’s price over a chosen period of time. On the vertical axis, it displays the number of times stock prices rose or fell to a particular extent. On the horizontal axis, it marks time intervals. Markings on the chart are exclusively in the form of X’s and O’s. X’s represent the number of times the stock rose by the specified limit, while O’s represent the number of times it fell by it. The specified amount used is called box size. It is directly related to the difference between markings on the y-axis.

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

Ans: Each plot of a Stock chart has a legend, its items representing the series on the plot. In addition, the legend displays information about the points that are currently hovered over or, if none are hovered over, about the last points shown on the plot.

The text of a legend item includes the name of a series and, depending on the series type, the value or values of the current or last point.

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

Ans: There are two main ways to reduce DataFrame memory size in Pandas without necessarily compromising the information contained within the DataFrame:

* Use smaller numeric types.
* Convert object columns to categorical columns.

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

Ans: The 180-day moving average is represented as a line on charts and represents the average price over the past 180 days (or 30 weeks). The moving average can give traders a sense regarding whether the trend is up or down, while also identifying potential support or resistance areas.

Q7: Did the chapter’s final example use &”indirect”” importing”? If so, how exactly do you do it?

Ans: **Indirect  Exporting/Importing:** In Indirect Exporting/Importing, a firm deals with the customer/supplier with the help of middlemen. They do not directly deal with the customers/suppliers. With the help of middlemen, most of the formalities and work are done, such as export houses or purchasing businesses or offices of overseas customers, or wholesale importers in the case of import operations.

**Advantages of Importing and Exporting:**

**1. Easiest and Simplest:** Exporting and Importing is the easiest way to enter into the international market as compared to any other modes of entry. Here, there is no need to set up and manage any business unit abroad, which makes the process easier.

**2. Less Investment:** Less investment is required in the case of exporting/importing as it is not mandatory for the enterprise to set up a business unit in the country they are dealing with.

**3. Less Risky:** If there is no investment or very less investment required in exporting/importing in the foreign country, the firm is free from many risks involved in foreign investment.

**4. Availability of Resources:** As the resources are unevenly scattered around the globe, it is very important for every country to export/import goods around the globe, as no nation can be 100% self-sufficient.

**5. Better Control:**Exporting/Importing can provide better control over the trade, as there is very less involvement in the foreign country. Everything is controlled by the home country and there is no need to set up a unit in the foreign country.