

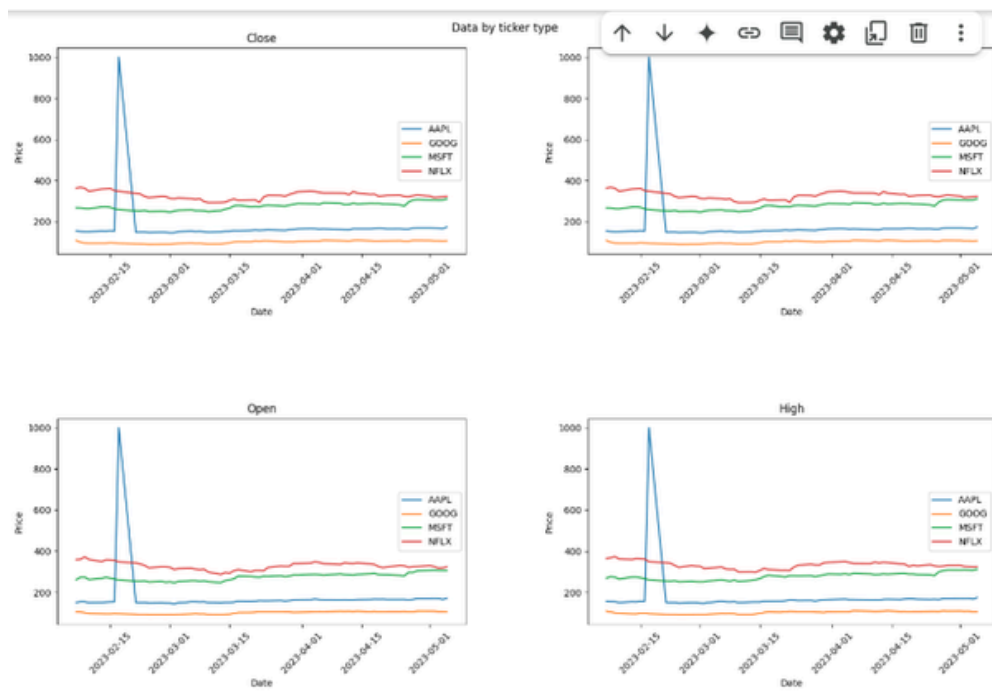
EXPERIMENT - 2

AIM: To implement programs for visualizing time series data.

PROCEDURE AND CODE:

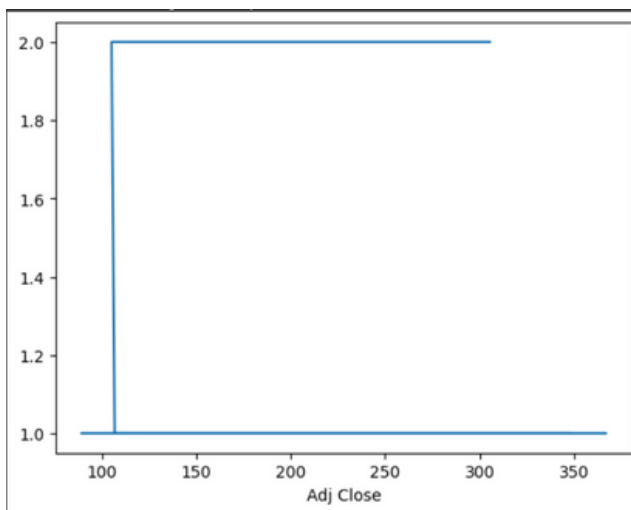
Steps 1: Visualizing the stocks prices over time

```
fig, axs = plt.subplots(3, 2, figsize=(15, 16))
fig.suptitle('Data by ticker type')
cols = ['Close', 'Adj Close', 'Open', 'High', 'Low', 'Volume']
for i, col in enumerate(cols):
    row = i // 2
    col = i % 2
    for ticker, data in df.groupby('Ticker'):
        axs[row, col].plot(data['Date'], data[col[i]], label=ticker)
        axs[row, col].set_title(cols[i])
        axs[row, col].set_xlabel('Date')
        axs[row, col].set_ylabel('Price')
        axs[row, col].legend(loc='right')
        axs[row, col].tick_params(axis='x', rotation=45)
plt.tight_layout()
plt.subplots_adjust(wspace=0.3, hspace=0.8)
plt.show()
```

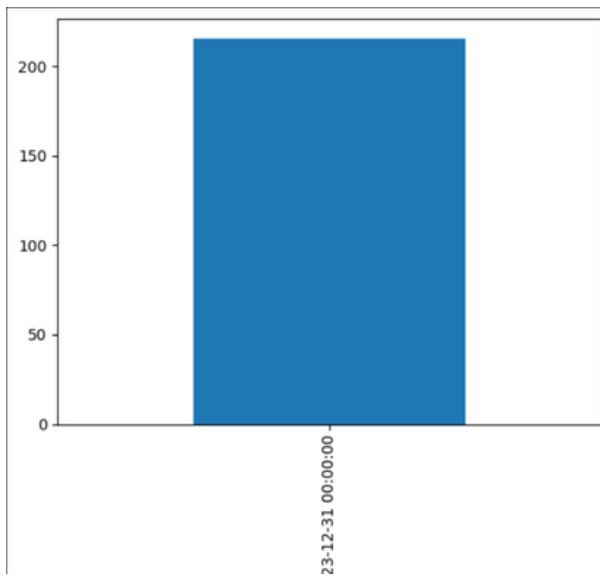


Step 2: Visualizing through line plot.

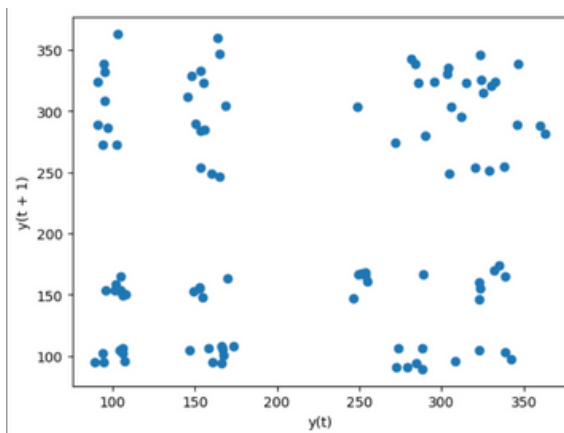
```
df['Adj Close'].value_counts().sort_values().plot.line()
```



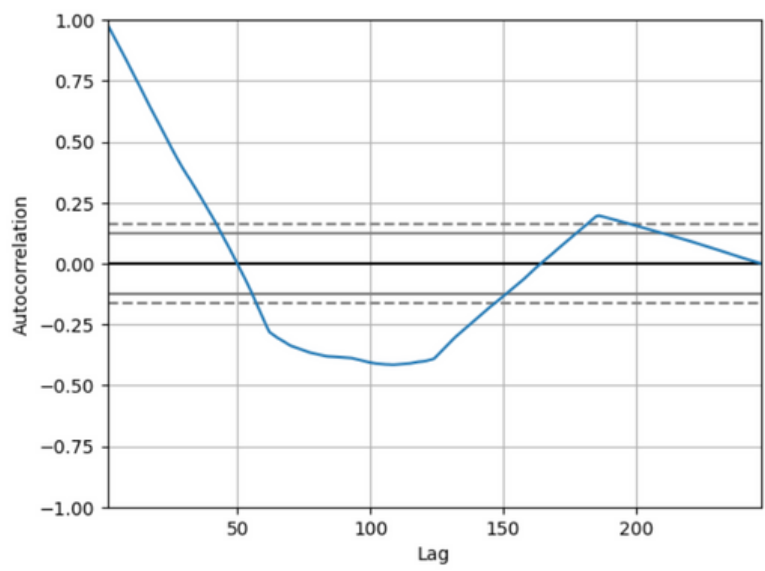
Steps 3: Visualizing using bar plot
`df['Close'].resample('Y').mean().plot.bar()`



Steps 6: Visualizing using lag_plot
`from pandas.plotting import lag_plot`
`lag_plot(df['Close'].sample(100))`



Steps 7: Visualizing using autocorrelation_plot.



Result: The program to implement a program for visualizing time series data is successfully implemented.