In [1]:
```
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
from scipy import stats
```

In [2]:
```
# Load the Excel file
excel_file = pd.ExcelFile('D:\Derivatives Trading\Mini Hang Seng.xlsx')
```

In [3]:
```
# Get the sheet you want to read
sheet_name = 'For Python' # Replace with the name of the sheet you want to read
df = excel_file.parse(sheet_name)
```

In [4]:
```
# Output data information
print(df.head())
```

```
        Date   PnL Index  Hang Seng  HSI VIX
0 2023-12-12  100.000000   16374.50    23.90
1 2023-12-13   99.959994   16228.75    22.84
2 2023-12-14  100.597928   16403.19    22.36
3 2023-12-15  101.180204   16792.19    22.49
4 2023-12-18  101.080163   16629.23    22.81
```

In [5]:
```
#******Plotting setup*****#
# Generate some data
Date = df["Date"]
Date
y1 =df["PnL Index"]
y1
y2 = df["Hang Seng"]
y2
```

Out[5]:
```
0     16374.50
1     16228.75
2     16403.19
3     16792.19
4     16629.23
5     16505.00
6     16597.90
7     16625.56
8     16334.55
9     16624.84
10    17044.28
Name: Hang Seng, dtype: float64
```

In [6]:
```
# Get the maximum PnL value
max_pnl = df['PnL Index'].max()
max_pnl_date = df.loc[df['PnL Index']==max_pnl, 'Date'].values[0]
```

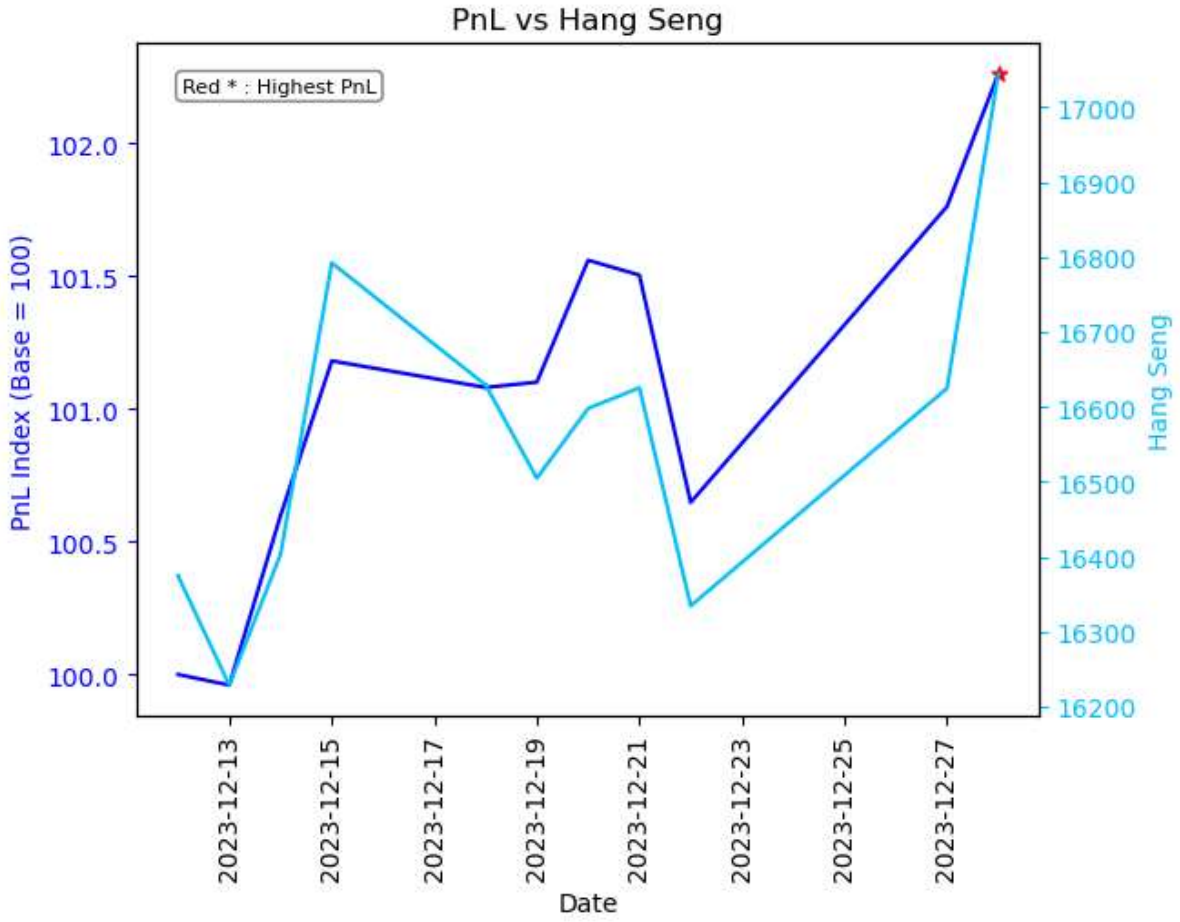
In [7]:
```
# Create the plot and set the first y-axis (left)
fig, ax1 = plt.subplots()
plt.xticks(rotation=90)
ax1.plot(Date, y1, 'b-')
ax1.scatter(max_pnl_date, max_pnl, color='red', marker='*')
ax1.set_xlabel('Date')
ax1.set_ylabel('PnL Index (Base = 100)', color='b')
ax1.tick_params('y', colors='b')

# Set the second y-axis (right)
ax2 = ax1.twinx()
ax2.plot(Date, y2, color='deepskyblue', marker=',')
ax2.set_ylabel('Hang Seng', color='deepskyblue')
```

```
ax2.tick_params('y', colors='deepskyblue')

# Add message box
msg = "Red * : Highest PnL"
props = dict(boxstyle='round', facecolor='white', alpha=0.5)
ax1.text(0.05, 0.95, msg, transform=ax1.transAxes, fontsize=8,
        verticalalignment='top', bbox=props)

# Show the plot
plt.title('PnL vs Hang Seng')
plt.show()
```



In [8]:
```
#Pnl vs HK's Hang Seng VIX
y3 = df["HSI VIX"]
y3
```

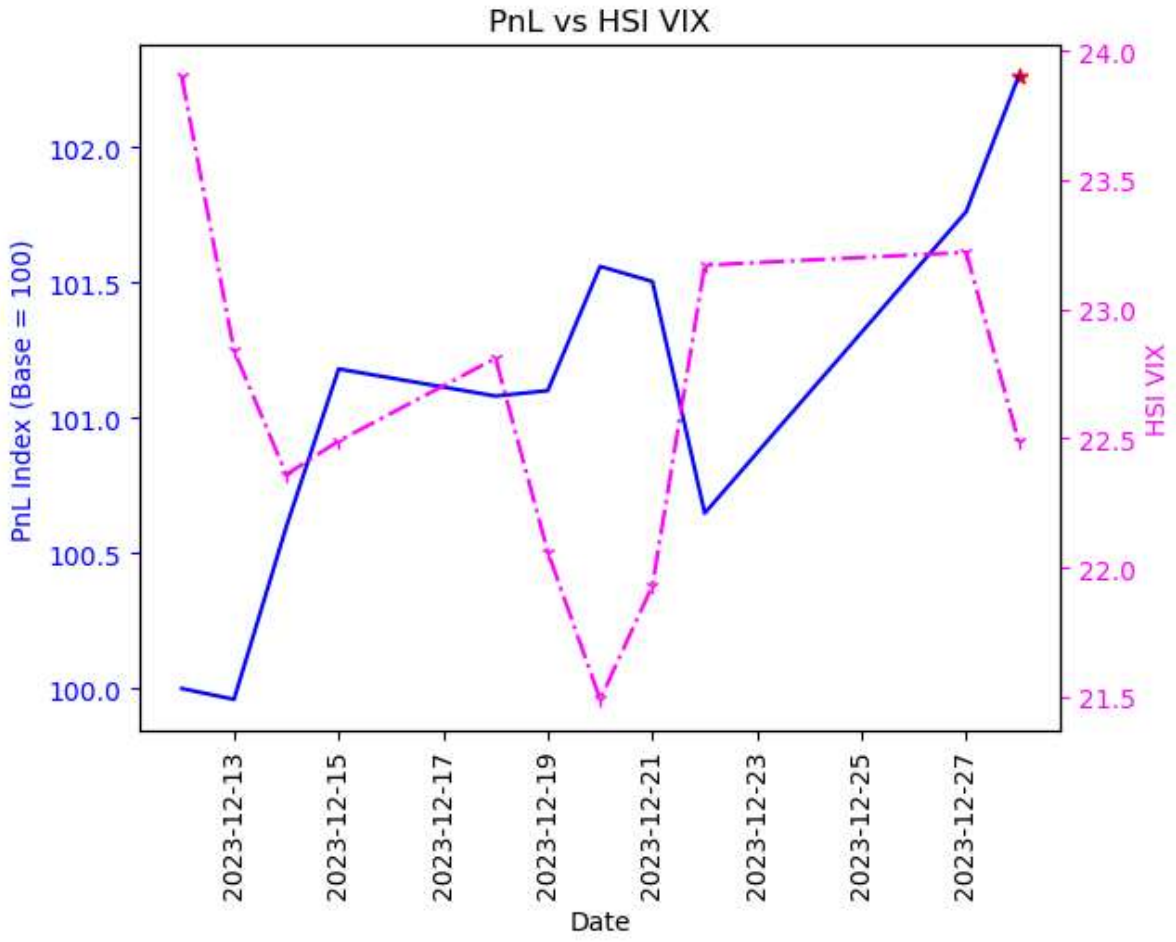
Out[8]:
```
0     23.90
1     22.84
2     22.36
3     22.49
4     22.81
5     22.06
6     21.49
7     21.93
8     23.17
9     23.22
10    22.49
Name: HSI VIX, dtype: float64
```

In [9]:
```
# Create the plot and set the first y-axis (left)
fig, ax1 = plt.subplots()
plt.xticks(rotation=90)
ax1.plot(Date, y1, 'b-')
ax1.scatter(max_pnl_date, max_pnl, color='red', marker='*')
```

```
ax1.set_xlabel('Date')
ax1.set_ylabel('PnL Index (Base = 100)', color='b')
ax1.tick_params('y', colors='b')

# Set the second y-axis (right)
ax3 = ax1.twinx()
ax3.plot(Date, y3, 'fuchsia', marker='1', linestyle='-.')
ax3.set_ylabel('HSI VIX', color='fuchsia')
ax3.tick_params('y', colors='fuchsia')


# Show the plot
plt.title('PnL vs HSI VIX')
plt.show()
```



In [ ]:

In [ ]: