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import pandas as pd
import matplotlib.pyplot as plt
import math

# Load data from CSV file
df = pd.read_csv('data1.csv')

# Convert timestamp to datetime if not already done
try:
    df['time'] = pd.to_datetime(df['time'], infer_datetime_format=True, errors='coerce', unit='s')
    # Drop rows with invalid timestamps
    df = df.dropna(subset=['time'])
except Exception as e:
    print(f"Error converting timestamp to datetime: {e}")

# Define the date range
start_date = pd.to_datetime('2020-01-01')
end_date = pd.to_datetime('2024-06-29')

# Filter the dataframe to only include the specified date range
df_filtered = df[(df['time'] >= start_date) & (df['time'] <= end_date)].reset_index(drop=True)

# Function to check if a candle is green
def is_green(candle):
    return candle['close'] > candle['open']

# Function to find all sixth candles after 5 consecutive green candles
def find_sixth_candles(df):
    count_green = 0
    count_red = 0
    sixth_candle_indices = []
    green_candles = 0
    red_candles = 0

    for i in range(len(df) - 5): # Loop through the filtered dataset
        if all(is_green(df.iloc[j]) for j in range(i, i+5)): # Check for 5 consecutive green candles
            sixth_candle_index = i + 5 # 0-based index
            sixth_candle_indices.append(sixth_candle_index)
            if is_green(df.iloc[sixth_candle_index]):
                green_candles += 1
            else:
                red_candles += 1

    return green_candles, red_candles, len(sixth_candle_indices), sixth_candle_indices

# Call the function to find all sixth candles after 5 green candles

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count_green, count_red, total_sixth_candles, sixth_candle_indices =  
find_sixth_candles(df_filtered)
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green_percentage=format(count_green/total_sixth_candles*100,".1f")  
red_percentage=format(count_red/total_sixth_candles*100,".1f")
```

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# Plotting sixth candles after 5 greens
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plt.figure(figsize=(14, 7))
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plt.plot(df_filtered['time'], df_filtered['close'], label='Close Price', color='black')
```

```
for index in sixth_candle_indices:
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    color = 'green' if is_green(df_filtered.iloc[index]) else 'red'
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```
    plt.scatter(df_filtered['time'].iloc[index],
```

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                df_filtered['close'].iloc[index],
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                color=color, label='6th Candle', marker='^', zorder=5)
```

```
plt.title('Sixth Candle After 5 Consecutive Green Candles (Within Specified Date Range)')
```

```
plt.xlabel('Date')
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```
plt.ylabel('Close Price')
```

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# Display box with counts of sixth candles
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plt.figtext(0.15, 0.75,
```

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            f'Green 6th Candles: {count_green}\nRed 6th Candles: {count_red}
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```
            \nTotal 6th Candles: {total_sixth_candles}
```

```
            \nPercentage of green: {green_percentage}%
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```
            \nPercentage of red: {red_percentage}%",
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            bbox=dict(facecolor='yellow', alpha=0.5))
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plt.grid(True)
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plt.show()
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