Proyecto Final Día 2

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

Haz doble clic (o ingresa) para editar

```
df_prices = pd.read_csv('stocks_daily_prices-230525-093933.csv')
df_prices
```

	Date	AAPL	JPM	PG	UAL
0	1/2/2008	5.949703	29.448614	47.058838	29.915234
1	1/3/2008	5.952452	29.246094	47.058838	29.690800
2	1/4/2008	5.498071	28.582682	46.870098	31.000002
3	1/7/2008	5.424478	28.868999	47.175980	29.180000
4	1/8/2008	5.229351	27.723747	47.299629	24.389999
...	...	...	...	...	...
3637	6/13/2022	131.880005	115.989998	138.149994	37.020000
3638	6/14/2022	132.759995	114.059998	133.839996	36.990002
3639	6/15/2022	135.429993	115.410004	132.509995	37.889999
3640	6/16/2022	130.059998	113.430000	133.320007	34.779999
3641	6/17/2022	131.559998	113.029999	132.360001	36.279999

3642 rows × 5 columns

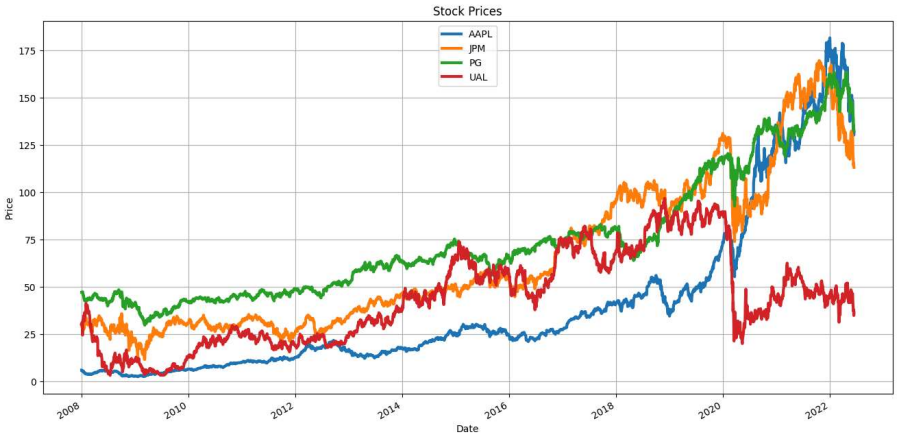
```
df_returns = pd.read_csv('stocks_daily_returns-230525-093933.csv')
df_returns
```

	Date	AAPL	JPM	PG	UAL
0	1/2/2008	0.000000	0.000000	0.000000	0.000000
1	1/3/2008	0.046203	-0.687708	0.000000	-0.750233
2	1/4/2008	-7.633517	-2.268378	-0.401072	4.409454
3	1/7/2008	-1.338518	1.001718	0.652615	-5.870973
4	1/8/2008	-3.597157	-3.967066	0.262103	-16.415356
...	...	...	...	...	...
3637	6/13/2022	-3.828484	-2.977838	-2.677001	-10.058308
3638	6/14/2022	0.667265	-1.663937	-3.119796	-0.081034
3639	6/15/2022	2.011147	1.183593	-0.993725	2.433084
3640	6/16/2022	-3.965145	-1.715625	0.611284	-8.207972
3641	6/17/2022	1.153314	-0.352642	-0.720077	4.312824

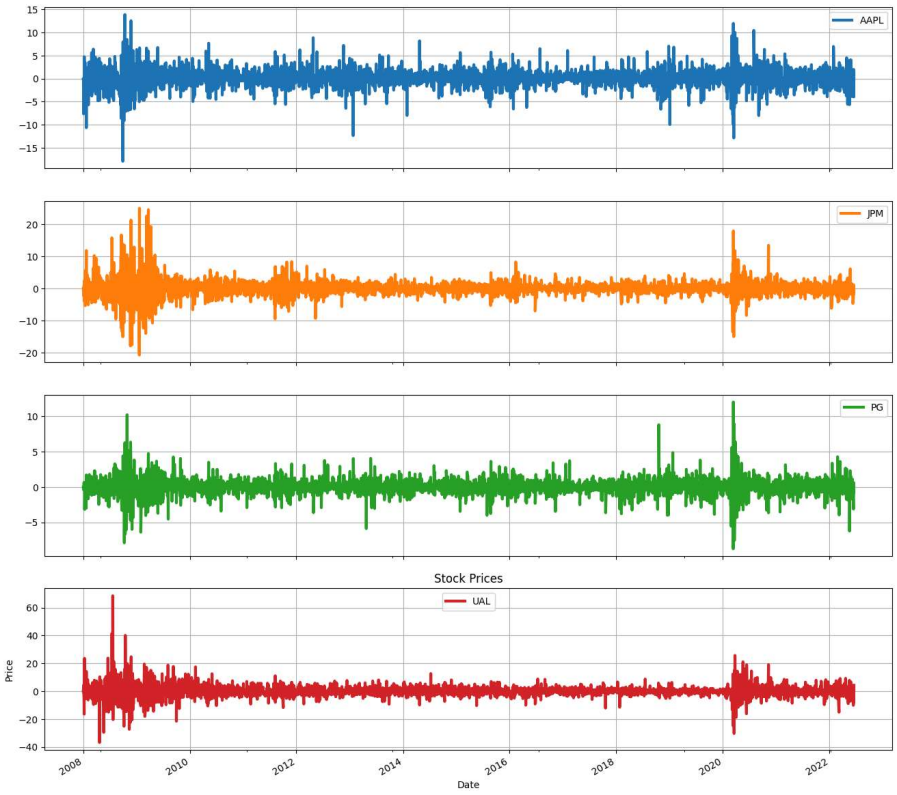
3642 rows × 5 columns

```
df_prices['Date'] = pd.to_datetime(df_prices['Date'])
df_returns['Date'] = pd.to_datetime(df_returns['Date'])
```

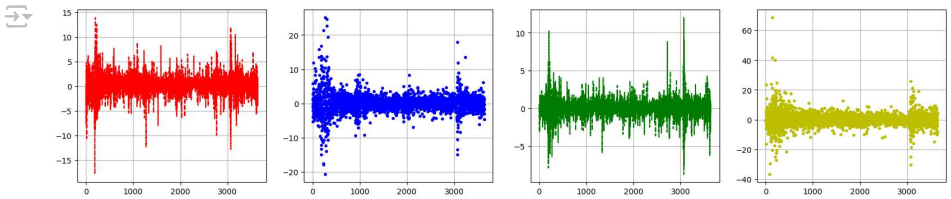
```
df_prices.plot(x='Date', y=['AAPL','JPM','PG','UAL'], linewidth=3, figsize=(16,8))
plt.ylabel('Price')
plt.title('Stock Prices')
plt.legend(loc = 'upper center')
plt.grid();
```



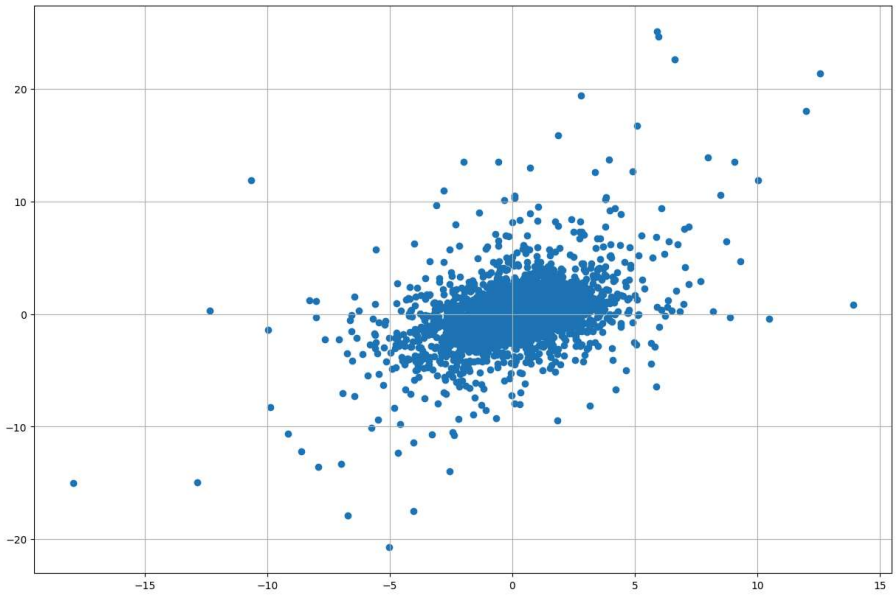

```
df_returns.plot(x='Date', y=['AAPL','JPM','PG','UAL'], subplots=True, grid=True, linewidth=3, figsize=(16,16))
plt.ylabel('Price')
plt.title('Stock Prices')
plt.legend(loc = 'upper center');
```


AAPL
JPM
PG
Stock Prices
UAL
Price
Date
2008
2010
2012
2014
2016
2018
2020
2022

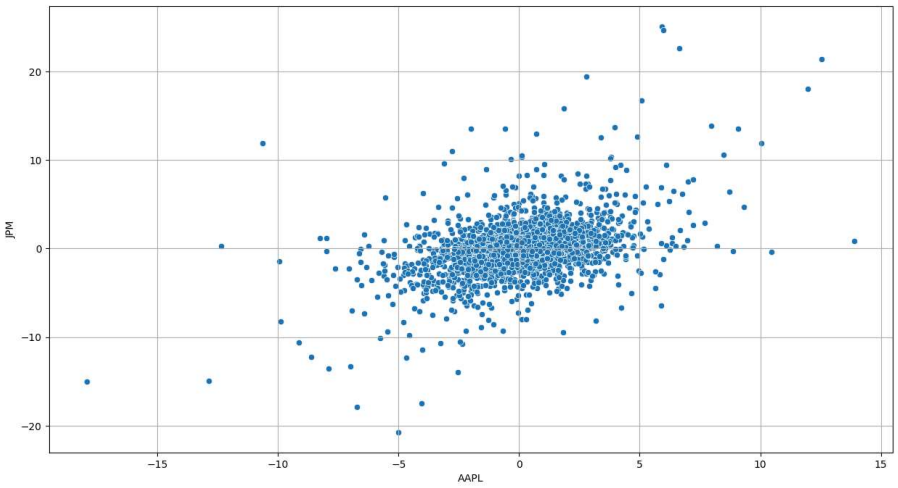
```
plt.figure(figsize=(20, 4))

plt.subplot(1, 4, 1)
plt.plot(df_returns['AAPL'], 'r--')
plt.grid();

plt.subplot(1, 4, 2)
plt.plot(df_returns['JPM'], 'b.')
plt.grid();

plt.subplot(1, 4, 3)
plt.plot(df_returns['PG'], 'g--')
plt.grid();

plt.subplot(1, 4, 4)
plt.plot(df_returns['UAL'], 'y.')
plt.grid();
```



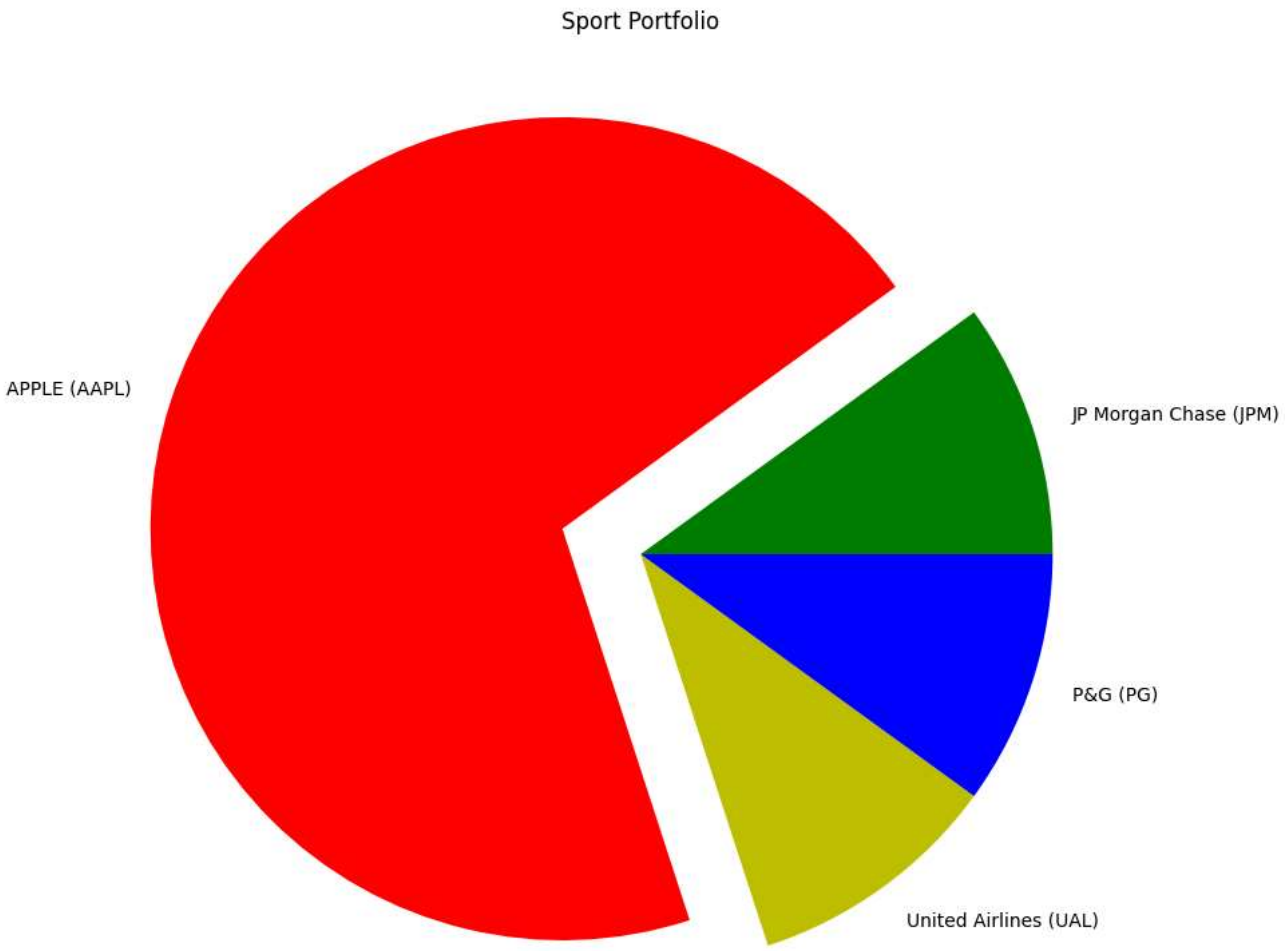
```
X = df_returns['AAPL']
Y = df_returns['JPM']
plt.figure(figsize=(15,10))
plt.scatter(X, Y)
plt.grid();
```




```
1 plt.figure(figsize=(15,8))
2 sns.scatterplot(x='AAPL', y='JPM', data=df_returns)
3 plt.grid();
```

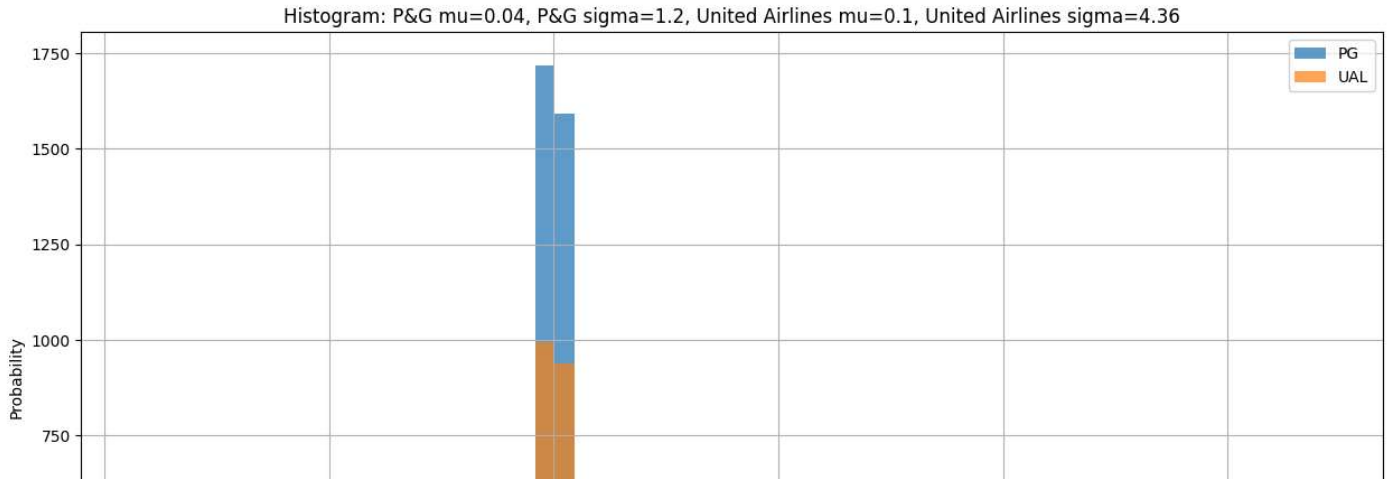



```
values = [10, 70, 10, 10]
colors = ['g', 'r', 'y', 'b']
explode = [0, 0.2, 0, 0]
labels = ['JP Morgan Chase (JPM)', 'APPLE (AAPL)', 'United Airlines (UAL)', 'P&G (PG)']

plt.figure(figsize=(10, 10))
plt.pie(values, colors=colors, labels=labels, explode=explode)
plt.title('Sport Portfolio')
plt.show();
```




```
plt.figure(figsize=(20,15));

mu_UAL = round(df_returns['UAL'].mean(), 2)
sigma_UAL = round(df_returns['UAL'].std(), 2)

mu_PG = round(df_returns['PG'].mean(), 2)
sigma_PG = round(df_returns['PG'].std(), 2)

df_returns[['PG', 'UAL']].plot.hist(bins=60, alpha=0.7, figsize=(15,8))
plt.grid();
plt.ylabel('Probability');

plt.title(f'Histogram: P&G mu={mu_PG}, P&G sigma={sigma_PG}, United Airlines mu={mu_UAL}, United Airlines sigma={sigma_UAL}');
plt.show();
```

```
<Figure size 2000x1500 with 0 Axes>
```




```
1 plt.figure(figsize=(12,10))
2 cm = df_returns.corr()
3 sns.heatmap(cm, annot=True);
```