Innovative Assignment

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Section/Batch: **C/C3**

Subject: **PSC**

Course Code: **2CS404**

➢ StockX is a portfolio comparison platform.

➢ You can add stock to two different portfolios and StockX will provide the fundamental as well as technical indicators between those two portfolio with recommendations.

➢ StockX project includes API Calls, Django Python WebDev Framework, HTML, CSS and Library rich Python to implement it.

➢ StockX use Twelve Data API(Free version) Calls to fetch data of stocks.

➢ Based on the past data, StockX provide Price graph, Moving Averages Graph and Prediction of the future portfolio price based on ML Model LSTM.

➢ Here is the code and its explanation:

➢ The project includes following libraries:

numpy, pandas, matplotlib, keras, tensorflow, scikit-learn

and also the Django framework.

The installation process is same for each library:

```
pip install library_name
```

StockX folder > Starting StockX:

Run this command in the terminal :

```
python manage.py runserver
```

```
PS C:\My Drive\Sem 4\PSC\Innovetive Project\StockX> python manage.py runserver
Watching for file changes with StatReloader
Performing system checks...

System check identified no issues (0 silenced).
May 09, 2023 - 12:55:02
Django version 4.1.7, using settings 'StockX.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
```
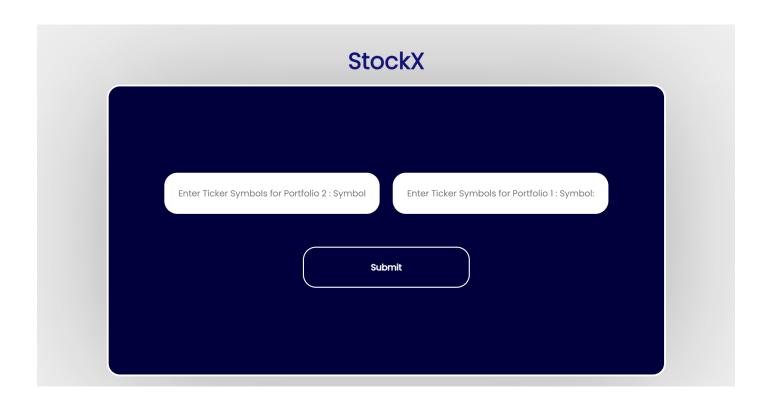
Portfolio Page:

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>StockX</title>

    <style>

        @import url('https://fonts.googleapis.com/css2?family=Poppins&display=swap');

        *
        {
            box-sizing: border-box;
            margin: 0;
            padding: 0;
            font-family: 'Poppins', sans-serif;
        }

        body
        {
            height: 100vh;
            background-color: rgb(240, 240, 240);
            display: flex;
```

```css
        flex-direction: column;
        justify-content: center;
        align-items: center;
}

.logo
{
        padding: 10px;
        color: rgb(0, 0, 126);
        font-size: 30px;
        filter: drop-shadow(0 0 100px rgb(255, 255, 255));
}

form
{
        height: 80%;
        width: 80%;
        display: flex;
        flex-direction: column;
        justify-content: center;
        align-items: center;
        background-color: rgb(0, 0, 60);
        border: 3px solid rgb(255, 255, 255);
        border-radius: 20px;
        filter: drop-shadow(0 0 100px rgba(100, 100, 100, 0.5));
}

.input-fields
{
        display: grid;
        grid-template-columns: 1fr 1fr;
        width: 80%;
        gap: 20px;
        margin-bottom: 50px;
}

.input
{
        padding: 20px;
        border-radius: 20px;
        border: 2px solid rgb(255, 255, 255);
}

.button
{
        padding: 20px;
        border: 2px solid rgb(255, 255, 255);
        border-radius: 20px;
        background-color: rgb(0, 0, 60);
        color: white;
        width: 30%;
}
```

```
        .button:hover
        {
            background-color: rgb(0, 12, 81);
            cursor: pointer;
        }

    </style>


</head>
<body>

    <div class="logo"><h3>StockX</h3></div>


    <form action="data" method="get">
        <!-- {% csrf_token %} -->
        <div class="input-fields">
            <input type="text" name="stock1" id="stock1" class="input" placeholder="Enter
Ticker Symbols for Portfolio 2 : Symbol:Exchange-Name">
            <input type="text" name="stock2" id="stock2" class="input" placeholder="Enter
Ticker Symbols for Portfolio 1 : Symbol:Exchange-Name">
        </div>

        <button type="submit" class="button"><b>Submit</b></button>
    </form>

</body>
</html>
```

➢ Here you can enter your stocks(stock ticker symbols) into two different portfolio to get comparison between them.

StockX

Enter Ticker Symbols for Portfolio 2 : Symbol

Enter Ticker Symbols for Portfolio 1 : Symbol:

Submit

StockX

INFY,AAPL

AAPL

Submit

Getting Analysis after Submitting:

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
```

```html
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>StockX</title>

    <style>

        @import url('https://fonts.googleapis.com/css2?family=Poppins&display=swap');
        @import
url('https://fonts.googleapis.com/css2?family=Montserrat:wght@200&display=swap');

        *
        {
            box-sizing: border-box;
            margin: 0;
            padding: 0;
            font-family: 'Poppins', sans-serif;
        }

        .line
        {
            height: auto;
            display: grid;
            grid-template-columns: 1fr 1fr 1fr;
            padding: 10px 5px 10px 5px;
            gap: 10px;
            background-color: rgb(250, 250, 250);
            margin: 5px;
            border-bottom: 2px solid rgb(50, 50, 50,0.1);
        }

        .title
        {
            background-color: rgb(230, 230, 230);
            padding: 10px;
            color: rgb(50, 50, 50);
            border-top-right-radius: 20px;
            border-bottom-right-radius: 20px;
            border: 2px solid rgb(49, 49, 49,0.5);
            display: flex;
            align-items: center;
            justify-content: center;
            font-weight: 900;
            font-family: 'Montserrat', sans-serif;
        }

        .span
        {
            width: auto;
            padding: 10px 10px 10px 20px;
            border-radius: 10px;
            background-color: rgb(0, 0, 100);
            color: white;
        }
```

```css
.logo
{
    padding: 10px;
    color: rgb(0, 0, 126);
    font-size: 30px;
    text-align: center;
    filter: drop-shadow(0 0 100px rgb(255, 255, 255));
}

.red
{
    width: auto;
    padding: 10px 10px 10px 20px;
    border-radius: 10px;
    background-color: rgb(0, 0, 100);
    color: white;
    border: 2px solid rgb(255, 0, 0);
}

.green
{
    width: auto;
    padding: 10px 10px 10px 20px;
    border-radius: 10px;
    background-color: rgb(0, 0, 100);
    color: white;
    border: 2px solid rgb(0, 255, 0);
}

.white
{
    width: auto;
    padding: 10px 10px 10px 20px;
    border-radius: 10px;
    background-color: rgb(0, 0, 100);
    color: white;
    border: 2px solid rgb(255, 255, 255);
}

img
{
    width: 90%;
}

.title-name
{
    padding: 20px;
    font-weight: 600;
    justify-content: center;
    align-items: center;
    text-align: center;
```

```html
                background-color: rgb(0,0,100);
                color: white;
                font-size: 25px;
                margin: 20px;
            }

    </style>

</head>
<body>

    <div class="logo"><h3>StockX</h3></div>

    <div class="line">

        <div class="title">Stocks</div>

        <span class="span">
            {% for i in cd.name.0 %}
                {{i}}
            {% endfor %}
        </span>

        <span class="span">
        {% for i in cd.name.1 %}
            {{i}}
        {% endfor %}
        </span>
    </div>


    <p class="title-name">Economical Details</p>

    <div class="line">
        <div class="title">Market Capitalization</div>
        <span class={{  cd.market_capitalization0 }}>{{ cd.market_capitalization.0
}}</span>
        <span class={{  cd.market_capitalization1 }}>{{ cd.market_capitalization.1
}}</span>
    </div>



    <div class="line">
        <div class="title">Enterprise Value</div>
        <span class={{  cd.enterprise_value0 }}>{{ cd.enterprise_value.0 }}</span>
        <span class={{  cd.enterprise_value1 }}>{{ cd.enterprise_value.1 }}</span>
    </div>


    <div class="line">
```

```html
        <div class="title">Trailing PE</div>
        <span class={{ cd.trailing_pe0 }}>{{ cd.trailing_pe.0 }}</span>
        <span class={{ cd.trailing_pe1 }}>{{ cd.trailing_pe.1 }}</span>
    </div>


    <div class="line">
        <div class="title">Forward PE</div>
        <span class={{ cd.forward_pe0 }}>{{ cd.forward_pe.0 }}</span>
        <span class={{ cd.forward_pe1 }}>{{ cd.forward_pe.1 }}</span>
    </div>


    <div class="line">
        <div class="title">Profit Margin</div>
        <span class={{ cd.profit_margin0 }}>{{ cd.profit_margin.0 }}</span>
        <span class={{ cd.profit_margin1 }}>{{ cd.profit_margin.1 }}</span>
    </div>


    <div class="line">
        <div class="title">Revenue Per Share (ttm)</div>
        <span class={{ cd.revenue_per_share_ttm0 }}>{{ cd.revenue_per_share_ttm.0
}}</span>
        <span class={{ cd.revenue_per_share_ttm1 }}>{{ cd.revenue_per_share_ttm.1
}}</span>
    </div>


    <div class="line">
        <div class="title">Quarterly Revenue Growth</div>
        <span class={{ cd.quarterly_revenue_growth0 }}>{{ cd.quarterly_revenue_growth.0
}}</span>
        <span class={{ cd.quarterly_revenue_growth1 }}>{{ cd.quarterly_revenue_growth.1
}}</span>
    </div>


    <div class="line">
        <div class="title">Ebitda</div>
        <span class={{ cd.ebitda0 }}>{{ cd.ebitda.0 }}</span>
        <span class={{ cd.ebitda1 }}>{{ cd.ebitda.1 }}</span>
    </div>


    <div class="line">
```

```html
        <div class="title">Total Cash per Share MRQ</div>
        <span class={{ cd.total_cash_per_share_mrq0 }}>{{ cd.total_cash_per_share_mrq.0
}}</span>
        <span class={{ cd.total_cash_per_share_mrq1 }}>{{ cd.total_cash_per_share_mrq.1
}}</span>
    </div>



    <div class="line">
        <div class="title">Total Debt To Equity MRQ</div>
        <span class={{ cd.total_debt_to_equity_mrq0 }}>{{ cd.total_debt_to_equity_mrq.0
}}</span>
        <span class={{ cd.total_debt_to_equity_mrq1 }}>{{ cd.total_debt_to_equity_mrq.1
}}</span>
    </div>



    <div class="line">
        <div class="title">Short Ratio</div>
        <span class={{ cd.short_ratio0 }}>{{ cd.short_ratio.0 }}</span>
        <span class={{ cd.short_ratio1 }}>{{ cd.short_ratio.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Percent Held By Insiders</div>
        <span class={{ cd.percent_held_by_insiders0 }}>{{ cd.percent_held_by_insiders.0
}}</span>
        <span class={{ cd.percent_held_by_insiders1 }}>{{ cd.percent_held_by_insiders.1
}}</span>
    </div>



    <div class="line">
        <div class="title">Percent Held By Institutions</div>
        <span class={{ cd.percent_held_by_institutions0 }}>{{
cd.percent_held_by_institutions.0 }}</span>
        <span class={{ cd.percent_held_by_institutions1 }}>{{
cd.percent_held_by_institutions.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Fifty Two Week Change</div>
        <span class={{ cd.fifty_two_week_change0 }}>{{ cd.fifty_two_week_change.0
}}</span>
```

```
        <span class={{ cd.fifty_two_week_change1 }}>{{ cd.fifty_two_week_change.1
}}</span>
    </div>



    <div class="line">
        <div class="title">Day50 MA</div>
        <span class={{ cd.day_50_ma0 }}>{{ cd.day_50_ma.0 }}</span>
        <span class={{ cd.day_50_ma1 }}>{{ cd.day_50_ma.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Day200 MA</div>
        <span class={{ cd.day_200_ma0 }}>{{ cd.day_200_ma.0 }}</span>
        <span class={{ cd.day_200_ma1 }}>{{ cd.day_200_ma.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Trailing Annual Dividend Rate</div>
        <span class={{ cd.trailing_annual_dividend_rate0 }}>{{
cd.trailing_annual_dividend_rate.0 }}</span>
        <span class={{ cd.trailing_annual_dividend_rate1 }}>{{
cd.trailing_annual_dividend_rate.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Forward Annual Dividend Rate</div>
        <span class={{ cd.forward_annual_dividend_rate0 }}>{{
cd.forward_annual_dividend_rate.0 }}</span>
        <span class={{ cd.forward_annual_dividend_rate1 }}>{{
cd.forward_annual_dividend_rate.1 }}</span>
    </div>



    <div class="line">
        <div class="title">5year Average Dividend Yield</div>
        <span class={{ cd.5_year_average_dividend_yield0 }}>{{
cd.5_year_average_dividend_yield.0 }}</span>
        <span class={{ cd.5_year_average_dividend_yield1 }}>{{
cd.5_year_average_dividend_yield.1 }}</span>
    </div>
```

```html
<div class="line">
    <div class="title">Payout Ratio</div>
    <span class={{ cd.payout_ratio0 }}>{{ cd.payout_ratio.0 }}</span>
    <span class={{ cd.payout_ratio1 }}>{{ cd.payout_ratio.1 }}</span>
</div>

<p class="title-name">Price History</p>

<div class="line">
    <div class="title">Open</div>
    <span class={{ cd.open0 }}>{{ cd.open.0 }}</span>
    <span class={{ cd.open1 }}>{{ cd.open.1 }}</span>
</div>



<div class="line">
    <div class="title">High</div>
    <span class={{ cd.high0 }}>{{ cd.high.0 }}</span>
    <span class={{ cd.high1 }}>{{ cd.high.1 }}</span>
</div>



<div class="line">
    <div class="title">Low</div>
    <span class={{ cd.low0 }}>{{ cd.low.0 }}</span>
    <span class={{ cd.low1 }}>{{ cd.low.1 }}</span>
</div>



<div class="line">
    <div class="title">Close</div>
    <span class={{ cd.close0 }}>{{ cd.close.0 }}</span>
    <span class={{ cd.close1 }}>{{ cd.close.1 }}</span>
</div>



<div class="line">
    <div class="title">Volume</div>
    <span class={{ cd.volume0 }}>{{ cd.volume.0 }}</span>
    <span class={{ cd.volume1 }}>{{ cd.volume.1 }}</span>
</div>



<div class="line">
    <div class="title">Previous Close</div>
    <span class={{ cd.previous_close0 }}>{{ cd.previous_close.0 }}</span>
    <span class={{ cd.previous_close1 }}>{{ cd.previous_close.1 }}</span>
```

```
    </div>


    <div class="line">
        <div class="title">Change</div>
        <span class={{ cd.change0 }}>{{ cd.change.0 }}</span>
        <span class={{ cd.change1 }}>{{ cd.change.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Percent Change</div>
        <span class={{ cd.percent_change0 }}>{{ cd.percent_change.0 }}</span>
        <span class={{ cd.percent_change1 }}>{{ cd.percent_change.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Fifty Two Week High Change Percent</div>
        <span class={{ cd.fifty_two_week_high_change_percent0 }}>{{
cd.fifty_two_week_high_change_percent.0 }}</span>
        <span class={{ cd.fifty_two_week_high_change_percent1 }}>{{
cd.fifty_two_week_high_change_percent.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Fifty Two Week Low Change Percent</div>
        <span class={{ cd.fifty_two_week_low_change_percent0 }}>{{
cd.fifty_two_week_low_change_percent.0 }}</span>
        <span class={{ cd.fifty_two_week_low_change_percent1 }}>{{
cd.fifty_two_week_low_change_percent.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Price</div>
        <span class={{ cd.price0 }}>{{ cd.price.0 }}</span>
        <span class={{ cd.price1 }}>{{ cd.price.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Sector</div>
        <span class={{ cd.sector0 }}>{{ cd.sector.0 }}</span>
        <span class={{ cd.sector1 }}>{{ cd.sector.1 }}</span>
```

```html
        </div>


    <div class="line">
        <div class="title">Amount</div>
        <span class={{  cd.amount0 }}>{{ cd.amount.0 }}</span>
        <span class={{  cd.amount1 }}>{{ cd.amount.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Gross Profit</div>
        <span class={{  cd.gross_profit0 }}>{{ cd.gross_profit.0 }}</span>
        <span class={{  cd.gross_profit1 }}>{{ cd.gross_profit.1 }}</span>
    </div>



    <p class="title-name">Assets and Liabilities</p>



    <div class="line">
        <div class="title">Total Current Assets</div>
        <span class={{  cd.total_current_assets0 }}>{{ cd.total_current_assets.0 }}</span>
        <span class={{  cd.total_current_assets1 }}>{{ cd.total_current_assets.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Total Non Current Assets</div>
        <span class={{  cd.total_non_current_assets0 }}>{{ cd.total_non_current_assets.0
}}</span>
        <span class={{  cd.total_non_current_assets1 }}>{{ cd.total_non_current_assets.1
}}</span>
    </div>



    <div class="line">
        <div class="title">Total Assets</div>
        <span class={{  cd.total_assets0 }}>{{ cd.total_assets.0 }}</span>
        <span class={{  cd.total_assets1 }}>{{ cd.total_assets.1 }}</span>
    </div>



    <div class="line">
        <div class="title">Total Current Liabilities</div>
```

```html
        <span class={{ cd.total_current_liabilities0 }}>{{ cd.total_current_liabilities.0
}}</span>
        <span class={{ cd.total_current_liabilities1 }}>{{ cd.total_current_liabilities.1
}}</span>
    </div>


    <div class="line">
        <div class="title">Total Non Current Liabilities</div>
        <span class={{ cd.total_non_current_liabilities0 }}>{{
cd.total_non_current_liabilities.0 }}</span>
        <span class={{ cd.total_non_current_liabilities1 }}>{{
cd.total_non_current_liabilities.1 }}</span>
    </div>


    <div class="line">
        <div class="title">Total Liabilities</div>
        <span class={{ cd.total_liabilities0 }}>{{ cd.total_liabilities.0 }}</span>
        <span class={{ cd.total_liabilities1 }}>{{ cd.total_liabilities.1 }}</span>
    </div>


    <div class="line">
        <div class="title">Total Shareholders Equity</div>
        <span class={{ cd.total_shareholders_equity0 }}>{{ cd.total_shareholders_equity.0
}}</span>
        <span class={{ cd.total_shareholders_equity1 }}>{{ cd.total_shareholders_equity.1
}}</span>
    </div>


    <div class="line">
        <div class="title">End Cash Position</div>
        <span class={{ cd.end_cash_position0 }}>{{ cd.end_cash_position.0 }}</span>
        <span class={{ cd.end_cash_position1 }}>{{ cd.end_cash_position.1 }}</span>
    </div>


    <div class="line">
        <div class="title">Income Tax Paid</div>
        <span class={{ cd.income_tax_paid0 }}>{{ cd.income_tax_paid.0 }}</span>
        <span class={{ cd.income_tax_paid1 }}>{{ cd.income_tax_paid.1 }}</span>
    </div>
```

```html
<div class="line">
    <div class="title">Interest Paid</div>
    <span class={{ cd.interest_paid0 }}>{{ cd.interest_paid.0 }}</span>
    <span class={{ cd.interest_paid1 }}>{{ cd.interest_paid.1 }}</span>
</div>



<div class="line">
    <div class="title">Free Cash Flow</div>
    <span class={{ cd.free_cash_flow0 }}>{{ cd.free_cash_flow.0 }}</span>
    <span class={{ cd.free_cash_flow1 }}>{{ cd.free_cash_flow.1 }}</span>
</div>



<div class="line">
    <div class="title">Current Quarter</div>
    <span class={{ cd.current_quarter0 }}>{{ cd.current_quarter.0 }}</span>
    <span class={{ cd.current_quarter1 }}>{{ cd.current_quarter.1 }}</span>
</div>



<div class="line">
    <div class="title">Next Quarter</div>
    <span class={{ cd.next_quarter0 }}>{{ cd.next_quarter.0 }}</span>
    <span class={{ cd.next_quarter1 }}>{{ cd.next_quarter.1 }}</span>
</div>



<div class="line">
    <div class="title">Current Year</div>
    <span class={{ cd.current_year0 }}>{{ cd.current_year.0 }}</span>
    <span class={{ cd.current_year1 }}>{{ cd.current_year.1 }}</span>
</div>



<div class="line">
    <div class="title">Next Year</div>
    <span class={{ cd.next_year0 }}>{{ cd.next_year.0 }}</span>
    <span class={{ cd.next_year1 }}>{{ cd.next_year.1 }}</span>
</div>



<div class="line">
    <div class="title">Next 5years PA</div>
    <span class={{ cd.next_5_years_pa0 }}>{{ cd.next_5_years_pa.0 }}</span>
    <span class={{ cd.next_5_years_pa1 }}>{{ cd.next_5_years_pa.1 }}</span>
```

```
    </div>


<div class="line">
    <div class="title">Past 5years PA</div>
    <span class={{ cd.past_5_years_pa0 }}>{{ cd.past_5_years_pa.0 }}</span>
    <span class={{ cd.past_5_years_pa1 }}>{{ cd.past_5_years_pa.1 }}</span>
</div>


<p class="title-name">Recommendation</p>


<div class="line">
    <div class="title">Strong Buy</div>
    <span class={{ cd.strong_buy0 }}>{{ cd.strong_buy.0 }}</span>
    <span class={{ cd.strong_buy1 }}>{{ cd.strong_buy.1 }}</span>
</div>



<div class="line">
    <div class="title">Buy</div>
    <span class={{ cd.buy0 }}>{{ cd.buy.0 }}</span>
    <span class={{ cd.buy1 }}>{{ cd.buy.1 }}</span>
</div>



<div class="line">
    <div class="title">Hold</div>
    <span class={{ cd.hold0 }}>{{ cd.hold.0 }}</span>
    <span class={{ cd.hold1 }}>{{ cd.hold.1 }}</span>
</div>



<div class="line">
    <div class="title">Sell</div>
    <span class={{ cd.sell0 }}>{{ cd.sell.0 }}</span>
    <span class={{ cd.sell1 }}>{{ cd.sell.1 }}</span>
</div>



<div class="line">
    <div class="title">Strong Sell</div>
    <span class={{ cd.strong_sell0 }}>{{ cd.strong_sell.0 }}</span>
    <span class={{ cd.strong_sell1 }}>{{ cd.strong_sell.1 }}</span>
</div>
```

```html
<div class="line">
    <div class="title">Rating</div>
    <span class={{  cd.rating0 }}>{{ cd.rating.0 }}</span>
    <span class={{  cd.rating1 }}>{{ cd.rating.1 }}</span>
</div>



<div class="line">
    <div class="title">Median</div>
    <span class={{  cd.median0 }}>{{ cd.median.0 }}</span>
    <span class={{  cd.median1 }}>{{ cd.median.1 }}</span>
</div>



<div class="line">
    <div class="title">Average</div>
    <span class={{  cd.average0 }}>{{ cd.average.0 }}</span>
    <span class={{  cd.average1 }}>{{ cd.average.1 }}</span>
</div>



<div class="line">
    <div class="title">Current</div>
    <span class={{  cd.current0 }}>{{ cd.current.0 }}</span>
    <span class={{  cd.current1 }}>{{ cd.current.1 }}</span>
</div>



<div class="line">
    <div class="title">Linearregslope</div>
    <span class={{  cd.linearregslope0 }}>{{ cd.linearregslope.0 }}</span>
    <span class={{  cd.linearregslope1 }}>{{ cd.linearregslope.1 }}</span>
</div>

<p class="title-name">Price Graphs</p>

{% comment %} <img src="\images\hey.png" alt=""> {% endcomment %}

    <img src="\images\Portfolio1price.png" alt="">
    <img src="\images\Portfolio2price.png" alt="">

    <p class="title-name">Moving Averages Graph</p>

    <img src="\images\Portfolio1mavg.png" alt="">
    <img src="\images\Portfolio2mavg.png" alt="">
```

```
        <p class="title-name">Prediction</p>

        <img src="\images\Portfolio1predict.png" alt="">
        <img src="\images\Portfolio2predict.png"alt="">
</body>
</html>
```

➢ A full page comparison output is given as pdf with this
  readme.

⬕ The Backend Processing:

➢ In views.py file of StockX application we are fetching the
  data from Twelve Data API Calls and converting that
  response into JSON and then accessing it and creating a
  context dictionary.

➢ Created different get functions to get different types of data.

Ex:

```python
def get_quote(symbol,stock_data):

    data = requests.get(f"https://api.twelvedata.com/quote?symbol={symbol}&
    apikey=cfced1457b864e19a12ae43cde26b8fd").json()

    val = data
    stock_data["open"] = val["open"]
    stock_data["high"] = val["high"]
    stock_data["low"] = val["low"]
    stock_data["close"] = val["close"]
    stock_data["volume"] = val["volume"]
    stock_data["previous_close"] = val["previous_close"]
    stock_data["change"] = val["change"]
    stock_data["percent_change"] = val["percent_change"]

    val = data["fifty_two_week"]
    stock_data["fifty_two_week_high_change_percent"] = val["high_change_percent"]
    stock_data["fifty_two_week_low_change_percent"] = val["low_change_percent"]
```

➢ By calling these functions we are creating a context

dictionary which we can pass to html template to get render

on website.

```python
for stock in all_stocks_list:

    curr_dict = all_stocks[stock]

    get_stats(stock,curr_dict)
    get_quote(stock,curr_dict)
    get_current_price(stock,curr_dict)
    get_last_closed(stock,curr_dict)
    get_profile(stock,curr_dict)
    get_dividends(stock,curr_dict)
    get_income_statement(stock,curr_dict)
    get_balance_sheet(stock,curr_dict)
    get_cash_flow(stock,curr_dict)
    get_growth_estimate(stock,curr_dict)
    get_recommendation(stock,curr_dict)
    get_targets(stock,curr_dict)
    get_current_linearregslope(stock,curr_dict)
```

```
return render(request, 'data.html', {"cd" : context_data})
```

Note:

We are using free version of API therefore we have limited access to data and hence we can't call more than 8 API Calls per minutes and therefore we have collected the all the demo data beforehand and displaying the output but once we get full access to the API we have to just uncomment the commented code and it will work like real app.

- A function to add each stock data to their corresponding portfolio.

```python
def addTo_context(stock_dict,context_data,index):

    for field in stock_dict:

        if field=='name' or field=='sector':
            context_data[field][index].append(stock_dict[field])
        elif stock_dict[field]==None:
            stock_dict[field]=0
        else:
            context_data[field][index]+=float(stock_dict[field])
```

A function to add border colour to know high low value for each parameter.

```python
def addColor(context_data):

    color = {}

    for field in context_data:

        color0 = field+"0"
        color1 = field+"1"

        if field=='name' or field=='sector':
            color[color0] = "white"
            color[color1] = "white"
        else:

            val0 =  context_data[field][0]
            val1 =  context_data[field][1]

            if val0 == val1:
                color[color0] = "white"
                color[color1] = "white"
            elif val0 > val1:
                color[color0] = "green"
                color[color1] = "red"
            else:
                color[color0] = "red"
                color[color1] = "green"

    for key in color:
        context_data[key] = color[key]
```

Function to calculate mean of the mathematical indicator for multiple stocks in a portfolio.

```python
def finding_mean(context_data,div0,div1):

    # print(div0,div1)

    for field in context_data:
        # print(field)
        if field=='Stock1' or field=='Stock2'or field=='name' or field=='sector':
            continue
        else:
            # print(context_data[field][0],context_data[field][1])
            context_data[field][0]=round(context_data[field][0]/div0,5)
            context_data[field][1]=round(context_data[field][1]/div1,5)
```

We have implemented the LSTM stock prediction ML model to get prediction of portfolio price based on the predicted stock price of the stocks it contains.

```python
model = Sequential()

model.add(LSTM(units=50, activation='relu', return_sequences=True, input_shape = (x_train.shape[1],1)))
model.add(Dropout(0.2))


model.add(LSTM(units=60, activation='relu', return_sequences=True))
model.add(Dropout(0.3))


model.add(LSTM(units=80, activation='relu', return_sequences=True))
model.add(Dropout(0.4))


model.add(LSTM(units=120, activation='relu'))
model.add(Dropout(0.5))


model.add(Dense(units = 1))
```

```
model.summary()
```

```
Model: "sequential_1"
_____
 Layer (type)                Output Shape              Param #
=================================================================
 lstm_1 (LSTM)               (None, 100, 50)           10400

 dropout (Dropout)           (None, 100, 50)           0

 lstm_2 (LSTM)               (None, 100, 60)           26640

 dropout_1 (Dropout)         (None, 100, 60)           0

 lstm_3 (LSTM)               (None, 100, 80)           45120

 dropout_2 (Dropout)         (None, 100, 80)           0

 lstm_4 (LSTM)               (None, 120)               96480

 dropout_3 (Dropout)         (None, 120)               0

 dense (Dense)               (None, 1)                 121

=================================================================
Total params: 178,761
Trainable params: 178,761
Non-trainable params: 0
_____
```