Profit Forecasting Tool (Regression-Based Model)

Category: Finance & Analytics

Tools: Python (Regression), Financial Analysis, GitHub Pages

Project Context – Equity Research on Waaree Renewable Technologies

As part of an in-depth equity research analysis on **Waaree Renewable Technologies Ltd.**, I analyzed the company's historical financial performance, revenue drivers, cost structure, and profitability trends to assess its growth potential and financial sustainability. While evaluating operating leverage and margin behavior, I observed a strong relationship between revenue growth and profit generation.

To quantify this relationship and support forward-looking analysis, I built a **regression-based profit forecasting tool** that estimates expected profitability for Waaree Renewables under different revenue scenarios, enabling data-driven forecasting and scenario analysis.

Key Highlights:

- Modeled revenue–profit relationship using regression analysis
- Evaluated model fit using statistical measures (R^2)
- Built an interactive tool allowing users to input expected revenue and estimate profits
- Deployed the model as a live web application using GitHub Pages

Click On The Below Link To Calculate Profit For Waaree

https://priyam709.github.io/Profit-Calculator-Using-Regression/

Model Implementation & Analytical Approach

To support the equity research analysis, I implemented the profit forecasting model using Python by structuring historical financial data, performing regression analysis to quantify the revenue–profit relationship, and validating model reliability using statistical metrics such as R^2. The model enables user-driven revenue inputs to generate profit estimates, translating analytical outputs into an intuitive and decision-oriented forecasting tool.

Dataset For Regression

	Year	Sales	EBITDA	Net Profit	Total Assets	Equity	Current Assets	Current Liabilities	Sales_SMA_3Y	NetProfit_SMA_3Y	EBITDA_SMA_3Y
0	2014-03-01	0	0	0	10	10	9	0	NaN	NaN	NaN
1	2015-03-31	0	0	0	10	10	10	0	NaN	NaN	NaN
2	2016-03-31	0	0	0	10	10	10	0	0.000000	0.000000	0.000000
3	2017-03-31	0	0	0	10	10	10	0	0.000000	0.000000	0.000000
4	2018-03-31	1	1	0	12	10	9	2	0.333333	0.000000	0.333333
5	2019-03-31	5	3	0	48	11	13	1	2.000000	0.000000	1.333333
6	2020-03-31	2	3	0	68	31	33	1	2.666667	0.000000	2.333333
7	2021-03-31	8	7	2	83	33	48	13	5.000000	0.666667	4.333333
8	2022-03-31	154	27	20	132	52	128	80	54.666667	7.333333	12.333333
9	2023-03-31	342	81	59	254	112	165	143	168.000000	27.000000	38.333333
10	2024-03-31	876	211	145	715	248	549	427	457.333333	74.666667	106.333333
11	2025-03-31	1597	322	229	1121	457	818	637	938.333333	144.333333	204.666667

```python
import pandas as pd
from sklearn.linear_model import LinearRegression

df = pd.read_excel('/Users/priyamc/Downloads/stats_data_waaree.xlsx')

X = df[['Sales']]
y = df['Net Profit']

model = LinearRegression()
model.fit(X, y)

print("Slope:", model.coef_[0])
print("Intercept:", model.intercept_)
```

```
Slope: 0.14831361574998758
Intercept: 1.023654748857254
```

```python
import pandas as pd
from sklearn.linear_model import LinearRegression
from sklearn.metrics import r2_score

df = pd.read_excel('/Users/priyamc/Downloads/stats_data_waaree.xlsx')

X = df[['Sales']]
y = df['Net Profit']

model = LinearRegression()
model.fit(X, y)

r_sq = model.score(X, y)

y_pred = model.predict(X)
r_sq_metric = r2_score(y, y_pred)

print(f"R-squared: {r_sq:.4f}")
print(f"Accuracy:  {r_sq*100:.2f}%")
```

```
R-squared: 0.9941
Accuracy:  99.41%
```

```python
def predict_profit(revenue_amount):
    # The formula: Profit = Slope * Revenue + Intercept
    prediction = (model.coef_[0] * revenue_amount) + model.intercept_
    return prediction

print("\n--- FORECAST CALCULATOR ---")
user_input = float(input("Enter a Revenue amount to forecast profit: "))
result = predict_profit(user_input)

print(f"For Revenue {user_input}, the expected Profit is: {result:.2f}")
```

```
--- FORECAST CALCULATOR ---
Enter a Revenue amount to forecast profit:  1000000
For Revenue 1000000.0, the expected Profit is: 148314.64
```

Expected Output in the Profit Calculator would look something like this: