Nifty-250 Stock Analyzer — User Guide

Welcome! This guide shows you how to use the Streamlit app to download data, score stocks using the Weinstein-style framework, and explore the results in an interactive dashboard. No coding required.

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1) What the app does

- **Downloads & updates price data** for a list of Yahoo Finance tickers (e.g., `SBIN.NS`).
- **Calculates confidence scores** for each stock across multiple signals:
- **SMA trend** (30-week trend & price position)
- **Market context** (benchmark vs. 30-week trend)
- **Breakout quality** (near 52-week high, day's close in upper range, volume surge)
- **Relative Strength (RS)** vs. benchmark
- **Risk & Liquidity** (traded value and practical stop distance)
- **Volatility** (weekly ATR%)
- **Combines scores** into a single **Final Confidence** (you control the weights).
- **Visualizes** results via a sortable table, scatterplots, histograms, and per-stock charts.

Note: This tool helps with research. It does **not** provide financial advice.

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2) What you need

- **Internet connection** (for downloading market data).
- **Python 3.10+** installed.
- These packages: `streamlit`, `pandas`, `plotly`, `yfinance`, `pyyaml`, `openpyxl`.

Install once

```
pip install streamlit pandas plotly yfinance pyyaml openpyxl
```

Start the app

From your project folder:

```
streamlit run streamlit_app.py
```

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3) Folder setup

Recommended structure:

```
/your-project/
  streamlit_app.py
```

```
analysis_config.yaml        # optional advanced settings
nifty250_csv/               # where CSVs are stored (auto-created)
analysis_out/               # where results are saved (auto-created)
```

- You can change folders from the **left sidebar** anytime.

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4) The interface at a glance

The app has **three tabs**:

1. 📥**Data Download** – Pull or refresh stock data from Yahoo Finance.
2. 🧮**Scores** – Run the analysis and see ranked results.
3. 📊**Dashboard** – Explore and filter with interactive charts.

The **left sidebar** lets you:

- Set **Data folder** and **Output folder**.
- Choose how many names to show in **Top-N**.
- Adjust **Overall Weights** to emphasize/de-emphasize signals.

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5) Tab 1 — Data Download

Use this tab to create or update your local CSV files.

Steps

1. **Provide tickers** (choose one):
2. **Upload** an Excel file (`.xlsx/.xls`) with one column of tickers (e.g., `SBIN.NS`, `INDIGO.NS`).
3. Or **type a file path** to your Excel (e.g., `symbols.xlsx`).
4. **Choose Period & Interval:**
5. Period: `6mo`, `1y`, `2y`, `5y`, or `max`.
6. Interval: `1d` (daily) or `1wk` (weekly). *(Daily is recommended; weekly charts are built inside the app.)*
7. **Options:**
8. **Also download ^NSEI as benchmark** – Recommended. The app saves it as `benchmark_nifty50.csv` and uses it for market/RS scores.
9. **Force overwrite existing CSVs** – Turn this on if you want to refresh all files.
10. Click 📥**Download / Update**.

What happens behind the scenes

- The app downloads each ticker and writes one CSV per stock to the **Data folder**.
- It also fixes a common header issue (removes stray rows labeled `Price`) automatically.
- A progress bar shows status; a log table lists each ticker's result.

Tip: Keep the same Data folder for consistency; you can re-download any time.

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6) Tab 2 — Scores

This is where the app calculates all signals and combines them into a **Final Confidence** score.

Steps

1. (Optional) Adjust **Overall Weights** in the left sidebar:
2. **SMA, Market, Breakout, RS, Risk, Volatility**. Weights are normalized automatically.
3. Click **Run Analysis**.
4. Review the outputs:
5. **Top Ranked** table (sorted by Final Confidence).
6. **Universe size** and detected **Benchmark**.
7. **Download buttons** for:
    - `app_full_scores.csv` – all stocks with all columns
    - `app_topN_overall.csv` – the top names only

What the main scores mean

- **SMA confidence** – How strongly the stock is above and trending up vs. the 30-week average.
- **Market confidence** – Same idea, but for the **benchmark** (context matters).
- **Breakout confidence** – Mix of proximity to prior 52-week high, where it closed in the day's range, and volume surge vs. recent average.
- **RS confidence** – Stock's relative performance vs. the benchmark, with emphasis on recent improvement and closeness to RS highs.
- **Risk confidence** – Higher for more liquid stocks and for tighter, more practical stop distances.
- **Volatility confidence** – Higher for steadier names (lower weekly ATR%).
- **Final confidence** – Your weighted blend of the above.

Helper columns you may also see (for diagnosis):

- `near_high_score`, `vol_surge_score`, `rs_growth_score`, `rs_high_score`, `position_score`, `trend_score`, `liquidity_score`, `stop_score`, `atr_pct`, etc.

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7) Tab 3 — Dashboard

Explore results visually and drill down.

Filters

- Sliders for **minimum** scores (Final, RS, Breakout, SMA, Market, Risk, Volatility).
- A **search box** to filter tickers by text.

Charts & tables

- **Scatter:** RS confidence (x) vs Breakout confidence (y); **size** = Liquidity; **color** = SMA.
- **Histograms:** Distributions of key scores.
- **Table:** A live, filterable view of the current selection.

Stock detail

- Choose a ticker to see:
- **Weekly Price + SMA30** candlestick chart.
- **Relative Strength** line vs benchmark.
- A compact list of the stock's **scores**.

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8) Customizing the model (optional)

Advanced users can edit `analysis_config.yaml` to adjust thresholds (e.g., what counts as a "good" margin above SMA, how 52-week highs are measured, ATR lookback, etc.). If the file is missing, defaults are used.

Tip: For most users, adjusting **Overall Weights** in the sidebar is enough.

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9) Saving & sharing

- The app writes results to your **Output folder** as CSV files.
- Use the **Download** buttons on the Scores tab to grab them instantly.

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10) Troubleshooting

"No CSVs found in '…'"\ Go to **Data Download** and fetch data, or point the sidebar's **Data folder** to the directory where your CSVs are stored.

"No benchmark detected"\ Turn on "Also download ^NSEI as benchmark" in **Data Download**, or place a benchmark CSV in the Data folder (name containing `nsei`, `nifty50`, or starting with `benchmark_`).

Downloads show 'empty' or 'error'

- Check that ticker symbols are valid on Yahoo Finance (e.g., use `.NS` suffix for NSE).
- Ensure the internet connection is active; try again if Yahoo throttles temporarily.

Rows look odd (extra header rows)\ The app already cleans files where a `Price` header appears; re-download or re-run if needed.

Charts look short or choppy\ Increase **Period** in Data Download (e.g., `2y` or `5y`) to get more history.

Why does it say "W-FRI" weekly?\ Weekly bars are aligned to **Friday** closes to match common technical practice.

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11) FAQs

Do I need to code?\ No. Everything is point-and-click in Streamlit.

How often should I refresh data?\ Weekly is common for this methodology. Daily updates are fine too.

What is a "good" Final Confidence?\ There's no absolute rule; use it to **rank** candidates. Combine with your judgment.

Can I change how much each signal matters?\ Yes—use the **Overall Weights** sliders. The app normalizes them automatically.

Is my data private?\ All files are local to your computer. The app downloads public market data only.

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12) Glossary (plain English)

- **SMA30 (30-week simple moving average):** The average weekly price over \~7 months. A rising SMA30 with price above it is a classic uptrend signal.
- **Breakout:** Price moving to or beyond prior highs, ideally with strong volume and a strong close.
- **RS (Relative Strength):** How the stock performs vs. the benchmark index. Rising RS is preferred.
- **ATR (Average True Range):** A volatility measure. Lower ATR% → steadier price behavior.
- **Liquidity:** How much value trades daily (price × shares). Higher is easier to trade.
- **Stop distance:** % between current price and a logical support area (e.g., swing low or SMA). Smaller is generally preferable (tighter risk).
- **Confidence score:** A 0–100 scale measuring how well the stock fits a specific criterion.

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13) Good practice & safety

- Use the tool to **narrow your list**, not as an auto-pilot.
- Confirm entries with your broker/exchange data.
- Manage risk; consider position sizing and stop-loss rules.
- Nothing in this app is investment advice.

You're all set!

Start on 📥**Data Download**, then run 🧮**Scores**, and finally explore the 📊**Dashboard**. If you'd like this guide as a PDF or need a quick video walk-through, just ask and I'll add it.