

Sector Relative Strength Analysis Dashboard

Overview

A comprehensive Python-based financial analysis tool that provides interactive visualization and analysis of US market sector performance relative to the S&P 500. This project offers institutional-grade sector rotation analysis through an intuitive web dashboard, making it perfect for investment professionals, analysts, and finance enthusiasts.

Key Features

Advanced Analytics Engine

- **Multi-timeframe Analysis:** Supports 1, 5, 10, 20, 60, 120, and 252-day performance periods
- **Relative Strength Calculation:** Measures sector performance against S&P 500 benchmark (SPY)
- **Dynamic Rankings:** Real-time identification of outperforming and underperforming sectors
- **Comprehensive Coverage:** Tracks all 11 major US sector ETFs

Sector Coverage

The dashboard monitors these key market sectors:

- **Technology (XLK) | Healthcare (XLV) | Financials (XLF)**
- **Consumer Discretionary (XLY) | Communication Services (XLC)**
- **Industrials (XLI) | Consumer Staples (XLP) | Energy (XLE)**
- **Utilities (XLU) | Real Estate (XLRE) | Materials (XLB)**

Interactive Visualizations

- **Relative Strength Charts:** Track sector momentum vs benchmark over time
- **Performance Heatmaps:** Color-coded visualization of sector performance across multiple timeframes
- **Normalized Price Comparisons:** Side-by-side sector performance analysis
- **Real-time Data Integration:** Live market data through Yahoo Finance API

Professional Dashboard Interface

- **Streamlit-powered Web App:** Clean, responsive interface accessible via browser
- **Customizable Time Periods:** 3 months to 5 years of historical analysis
- **Interactive Controls:** Sector selection, period filtering, and real-time data refresh
- **Performance Tables:** Detailed metrics with top/bottom performers identification

Technical Architecture

Core Components

1. **DataFetcher Class:** Handles market data retrieval and preprocessing
2. **RelativeStrengthAnalyzer Class:** Performs calculations and sector ranking analysis
3. **Visualizer Class:** Creates interactive charts and visual representations
4. **Streamlit Dashboard:** Provides the web-based user interface

Technology Stack

- **Data Processing:** pandas, numpy
- **Market Data:** yfinance API
- **Visualization:** Plotly (interactive charts)
- **Web Interface:** Streamlit framework
- **Development:** Python 3.8+

Quick Start Guide

Installation

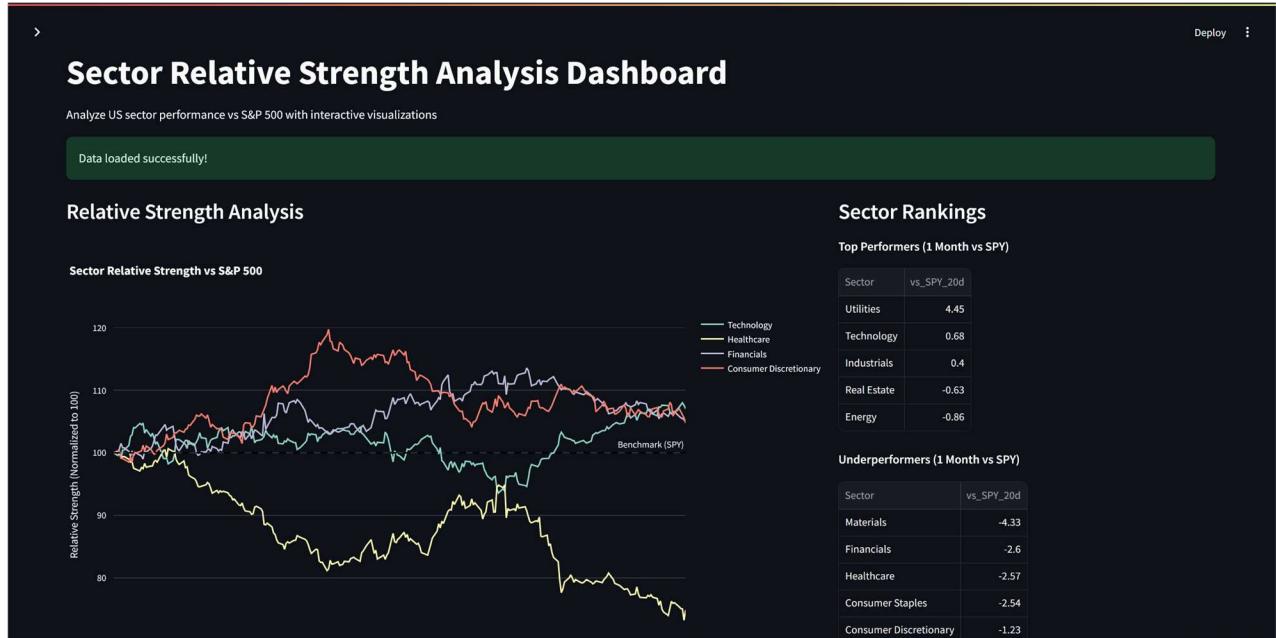
```
# Clone or download the project files  
https://github.com/gehlotmanthan/RSdashboard/blob/main/Sector%20Relative%20Strength%20Analysis%20Project.py
```

Launch Dashboard

```
streamlit run Sector-Relative-Strength-Analysis-Project.py
```

Access Interface

Open your browser to <http://localhost:8501>



Use Cases & Applications

- **Portfolio Management:** Identify sector rotation opportunities
- **Risk Assessment:** Monitor sector concentration and diversification
- **Market Analysis:** Track sector leadership and momentum shifts
- **Investment Research:** Compare sector performance across different market cycles
- **Educational Tool:** Learn sector analysis and relative strength concepts

Professional Value

This tool bridges the gap between institutional-grade sector analysis and accessible financial technology. It provides the same analytical capabilities used by professional fund managers and research analysts, packaged in an intuitive interface that requires no coding knowledge to operate.

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