Saudi Stock Market Trading Signals App

A Comprehensive Python Application for Tadawul Analysis and Signal Generation

# Overview

This project is a robust Python application designed for analyzing the Saudi stock market (Tadawul), generating buy/sell signals using technical indicators, and offering a real-time, interactive web dashboard.

* Real-time & historical DATA ANALYSIS for prominent Saudi stocks
* Comprehensive TECHNICAL INDICATORS for actionable trading signals
* Interactive WEB DASHBOARD for monitoring and strategy evaluation
* PORTFOLIO MANAGEMENT & ALERTS for seamless trading workflows
* **EDUCATIONAL FOCUS**: All analyses and signals are for learning purposes only

# Features

## 📊 Real-time Data Analysis

* Supports key stocks: Aramco, Al Rajhi Bank, SABIC, and more
* Handles market hours and trading days
* Automatic data validation and cleaning

## 🎯 Technical Analysis & Signal Generation

* RSI (Relative Strength Index): Detects overbought/oversold conditions
* MACD: Trend and momentum crossovers
* Bollinger Bands: Volatility-based support/resistance
* Moving Averages: Golden/death cross strategies
* Stochastic Oscillator & Williams %R: Confirm momentum
* ATR (Average True Range): Measures volatility
* Multi-indicator confirmation and confidence scoring

## 🔙 Backtesting Framework

* Test strategies on historical data
* Performance metrics (Sharpe ratio, drawdown, win rate)
* Multi-symbol support
* In-depth trade analysis

## 💻 Interactive Web Dashboard

* Live monitoring of trading signals
* Interactive charts with technical overlays
* Market hours status, customizable indicators
* Mobile responsive design

## 💼 Portfolio Management

* Track positions, cash, profit/loss, and transaction history
* Integrated performance metrics

## 🔔 Alert System

* Email notifications for signals
* Console alerts
* Customizable alert logic

# Quick Start

* Clone or download the project folder
* Install requirements with pip install -r requirements.txt
* Configure the .env file and config.py for your needs
* Run tests (python test\_app.py)
* Generate signals (python run\_signals.py)
* Launch dashboard (python run\_dashboard.py, then open http://localhost:8501)

# Project Structure

Saudi Stock Market App/

├── src/

│ ├── data/

│ ├── analysis/

│ ├── signals/

│ ├── backtesting/

│ ├── dashboard/

│ ├── utils/

│ └── main.py

├── .github/

├── .vscode/

├── requirements.txt

├── run\_signals.py

├── run\_dashboard.py

├── test\_app.py

├── setup.py

├── .env.example

└── README.md

# Supported Saudi Stocks

2222 — Saudi Aramco (Energy)

1120 — Al Rajhi Bank (Banking)

2030 — SABIC (Petrochemicals)

4030 — Riyad Bank (Banking)

1210 — The Saudi National Bank (Banking)

2020 — SABIC Agri-Nutrients (Chemicals)

1180 — Al Rajhi Takaful (Insurance)

2380 — Petrochemical Industries Co (Petrochemicals)

# Technical Indicators Overview

* RSI: Overbought 30 (14 periods)
* MACD: Crossovers (12/26/9)
* Bollinger Bands: 20-period, 2 std dev
* Moving Averages: Golden/death cross (SMA, EMA)

# Configuration & Environment

* Customize indicator parameters in config.py
* Set up API keys and alerts in the .env file

# Saudi Market Information

* Trading Hours: 10:00 AM – 3:00 PM (UTC+3)
* Trading Days: Sunday to Thursday
* Currency: SAR
* Market: Tadawul
* Index: TASI

# Backtesting & Usage

* Evaluate strategies with the backtesting module
* Access results and analytics via web dashboard
* See code examples for generating signals and managing portfolios

# Development & Contribution

* Follow project structure for adding new features
* Adhere to coding standards in .github/copilot-instructions.md
* Submit tests and documentation with pull requests

# Dependencies

* Core: pandas, numpy, yfinance, streamlit, plotly
* Optional: ta-lib, python-dotenv, pytest

# Disclaimers

* Educational Purpose Only: Not financial advice
* Risk Warning: Trading stocks involves risk
* Research Required: Always do your own research
* Data Disclaimer: Market data from Yahoo Finance, accuracy not guaranteed

# Support & Common Issues

* Check dependencies and Python version (3.8+)
* Review logs and test outputs for diagnostics
* Address common issues (import errors, TA-Lib)

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Happy Trading! 📈🇸🇦

Remember: This is for educational purposes only. Always do your own research and invest responsibly.