

Predicting Cryptocurrencies Exchange Rates Based on Cryptocurrencies News Sentiment Analysis

Maciej Pawlikowski, Hubert Ruczyński,
Bartosz Siński, Adrian Stańdo

Business goals

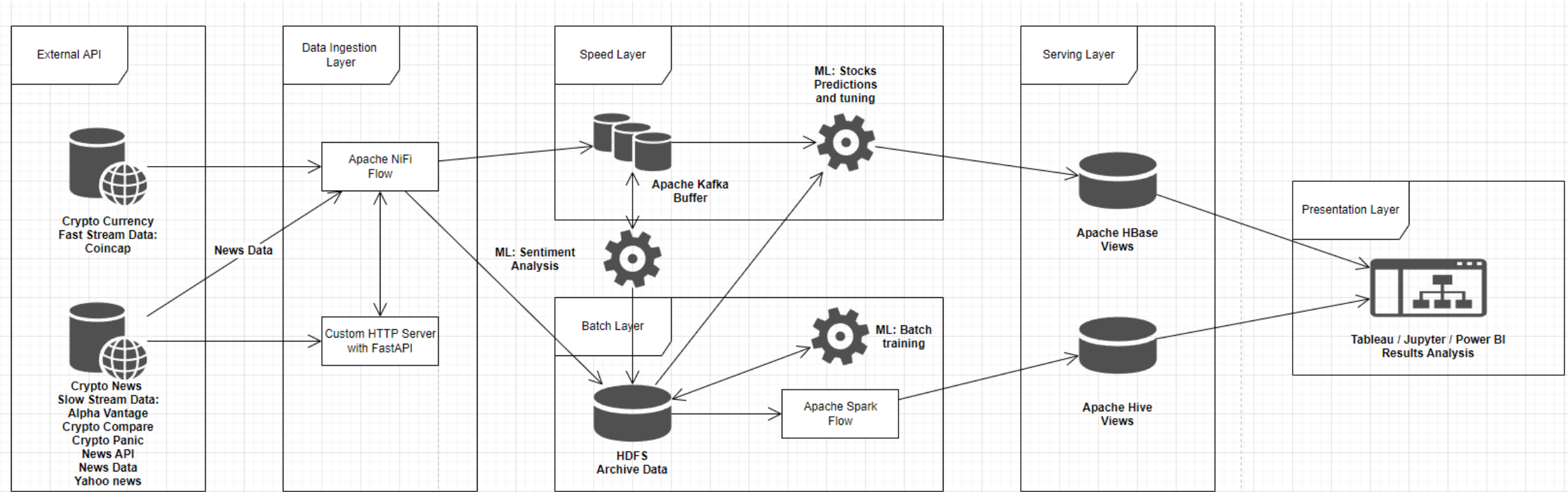
The goal of this project is to create a system which enables its users to investigate the influence of the latest news articles on exchange rates of cryptocurrencies. Our tool will scrap current exchange rates, and recent news regarding cryptocurrencies in order to perform a sentiment analysis of those messages. Extracted features will be provided into the time-series predictive model that will present estimated exchange rates of selected cryptocurrencies, based on archival data, the most recent trends, and sentiment.

The end users will be able to track current exchange rates, our prediction, and the latest news concerning selected cryptocurrency. This information might help them make the best decision about when to exchange their money. As a result, they may save a lot of money or even find a way to influence main news sources to publish articles that would have positive impact on selected exchange rates.

Data

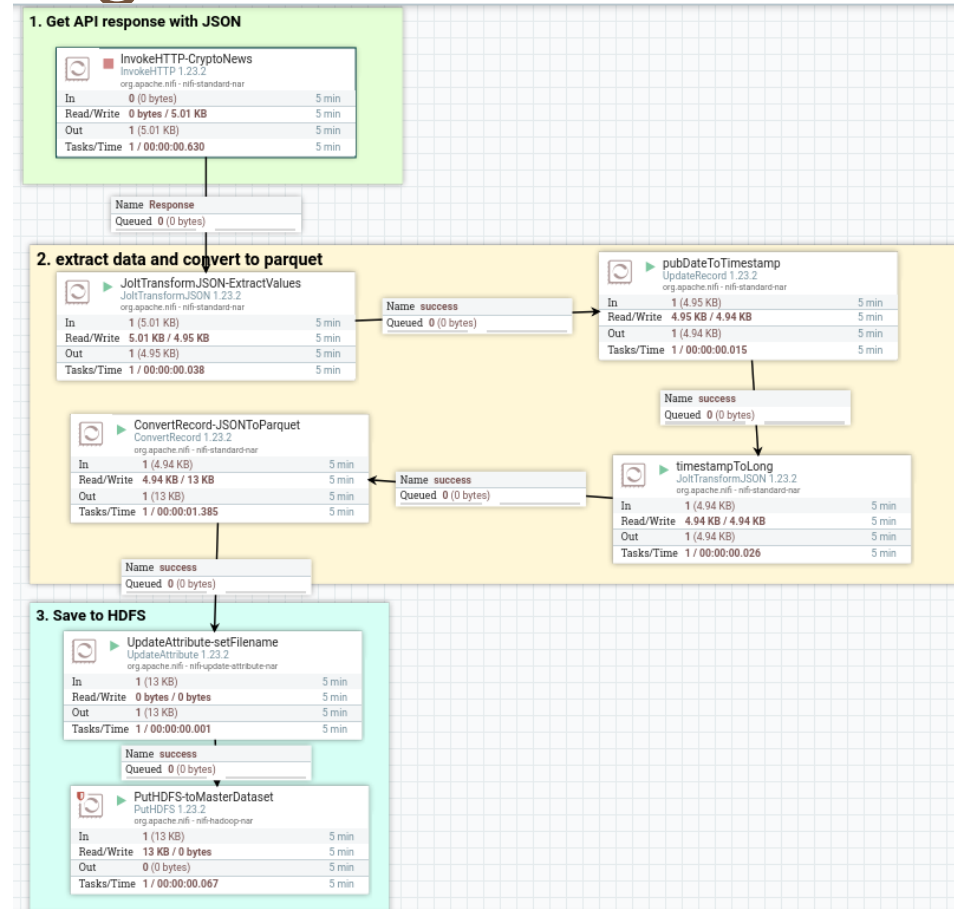
Name	Category	Inflow	Features	Data collection	Format	Limitations
Coincap	Cryptocurrency rates	every 10 sec	<ul style="list-style-type: none"> currencySymbol symbol rateUSD timestamp 	One week during christmas break	JSON	200/minute
Alpha vantage			<ul style="list-style-type: none"> content timestamp 			5/minute 100/day
Crypto compare	News data	Every hour	<ul style="list-style-type: none"> body content timestamp 			2500/minute 250 000/lifetime
CryptoPanic			<ul style="list-style-type: none"> timestamp crypto content_partial content 			5/sec 200 latest posts
NewsData			<ul style="list-style-type: none"> content timestamp 			200 credits/day 10 articles/credit
NewsAPI			<ul style="list-style-type: none"> content Timestamp 			100/day articles with 24h delay that are no older than one month
Yahoo news			<ul style="list-style-type: none"> timestamp content currency (code) 			-

Architecture



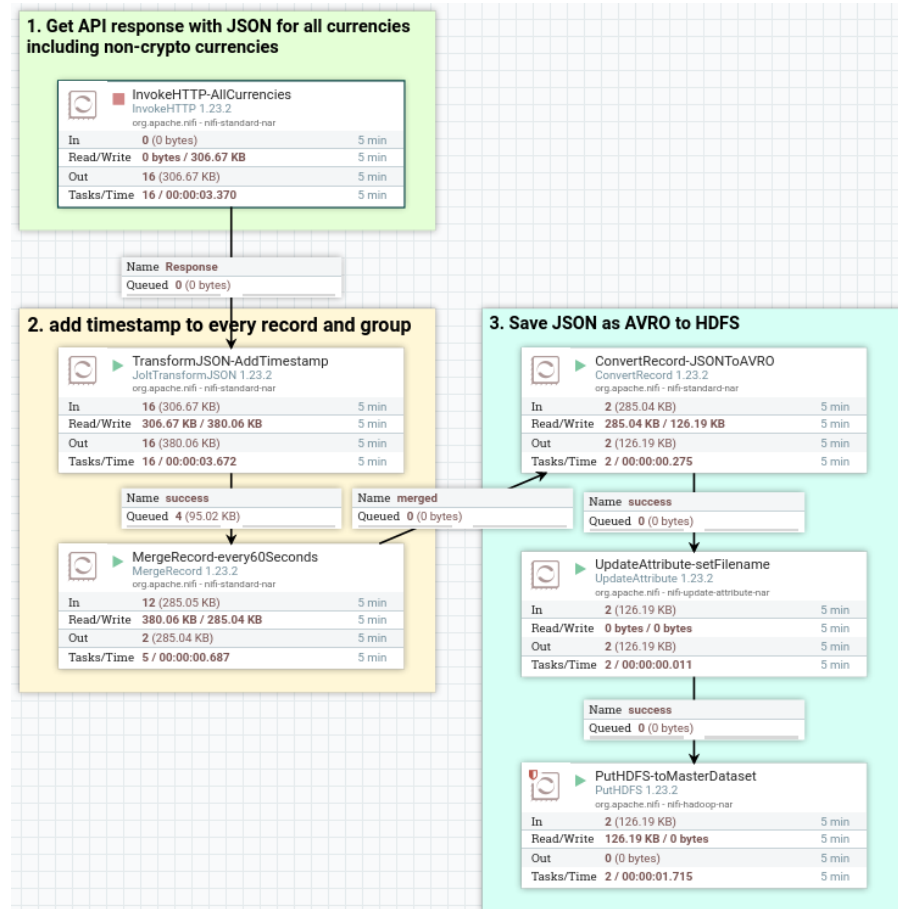
Data flow

Currency exchange



Data flow

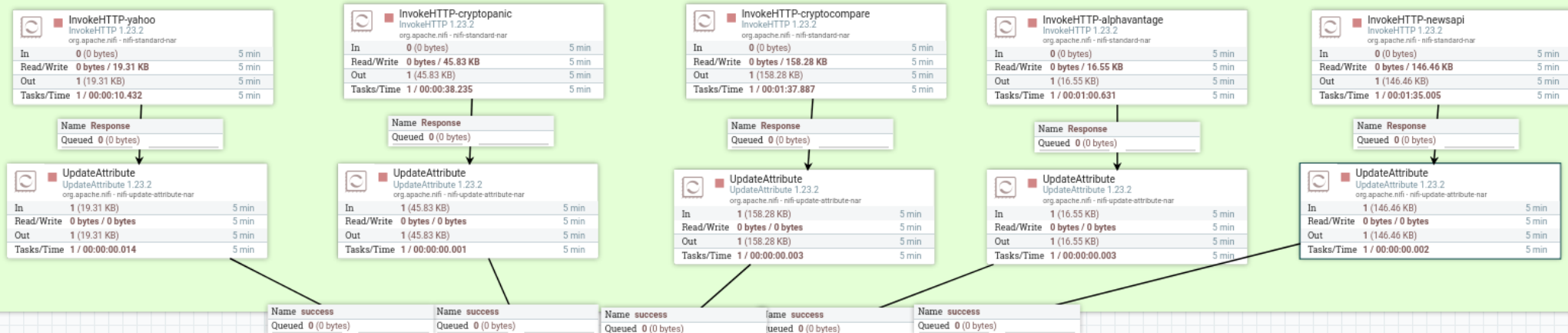
News Data



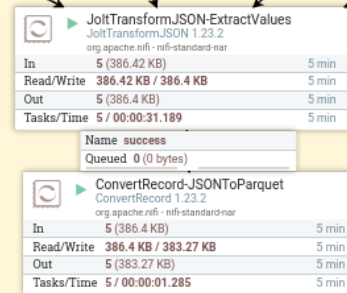
Data flow

Scrapped articles

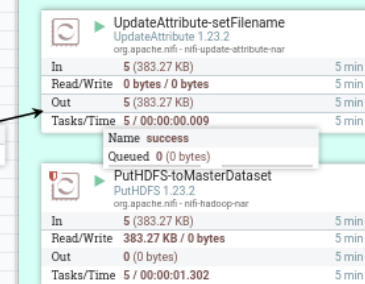
1. Get API response with scrapped news



2. extract data and convert to parquet



3. Save to HDFS



Data storage



ML

Sentiment analysis

Forecasting



Result presentation



Other tools

