**indium**
Make Technology Work



# Predictive Data Analytics & Data Visualization in the FinTech Industry

## Business

Predictive Analytics & Data Visualization

## Domain

FinTech, Investment Banking

## Tools

Python, R, MySQL, Tableau, Qlikview

## Key Highlights

- Automated collection of robust, diverse and comprehensive data for each stock

- More than 98% accuracy on predicting the effect of releases on stock performance

## CLIENT

The client, a FinTech company needed an analytics development partner for creating a solution that would take publicly available information about companies, analyze the past performance and project the future growth potential.

## OVERVIEW

Institutional Investors need to constantly value and comprehensively track the array of stocks on their watchlist on an immediate basis- an impossibility without the proper crawling, automation and analytics infrastructure. Indium Software's solution gathered every piece of available public information (ranging from stock exchange releases, press releases, 3rd party investment sources, domain specific sources, news sources etc.), analyzed companys' past performance across different metrics and projected the future growth potential using highly sophisticated algorithms and advanced predictive analytics.

## PREDICTIVE ANALYTICS FOR INSTITUTIONAL INVESTORS

A disruptive technology solution for deeper insights into performance of prospective companies.

Data analytics is becoming a buzzword changing the way businesses leverage data for growth, and this is no less so for institutional investors as well. A Financier Worldwide report shows that institutional investors are increasingly looking for curated risk management and performance data, and what is available currently lacks in metrics or analysis.

A Deloitte survey shows that 90 per cent of the 400 institutional investors surveyed view data analytics as key to competitive advantage and 47 per cent view investment in data and analytics as their strategic priority.

## STATUS QUO

The client, a FinTech company needed an analytics development partner for creating a solution that would take publicly available information about companies, analyze the past performance and project the future growth potential. Indium Software with more than two decades of experience in working on cutting edge technologies and the FinTech space was found to be ideally suited and commissioned with the task.

A team of three, realizing the key role data analytics can play in helping institutional investors assess potential companies for investment, started a FinTech venture to develop a technology solution for corporate data analytics.

The solution was expected to analyze core company data to project potential growth in the coming few quarters, considering various internal and external factors influencing this, and thereby giving investors the insights needed to assess the suitability of the venture for investment. This is a disruptive process as earlier auditors would personally examine the profit and loss statements and use their intuition to arrive at the decision, which was prone to human error.

## BUSINESS CHALLENGE

While it is relatively easy to cull this information for listed companies, smaller ventures and unlisted companies do not have enough data in the public domain, especially revenue details, making this culling difficult.

What little data that is available is in multiple formats in the public domain, including tables, PDFs, plain text, and CSV, which increases the burden of getting easy to archive and analyze financial information.

## SOLUTION

Indium Software developed a three-pronged approach to meet the requirement as well as overcome the challenges of insufficient and unstructured data. Its solution included Reusable Data Extraction, Flexible Data Architecture and Data Analytics capabilities.

Through daily scrapping, its tool extracts structured data easily accessible in the public domain. Where this is not possible, it used Power Law modelling technique – a statistical model where the functional relationship between two quantities is established such that a relative change in one quantity results in a proportional relative change in the other quantity: in other words, one quantity varies as a power of another.

While this data is stored in MySQL, the unstructured data is cleaned before storing. Then this data is analyzed and presented in charts created using Tableau and QlikView for easily understanding the performance trends.

# THE SCRAPING PROCESS

While data scraping is a simple process of extracting the data from the web and other publicly available resources, it becomes complex when one wants to get value from it. It required:

- Careful selection of data sources.
- Writing customized code as per the data formats.
- Meticulous cleaning of the data.
- Transformation of unstructured to structured data.
- And finally, storage in a database in an optimally query-able format.

This whole sequence becomes a multi-step project, informally known as data harvesting.

Indium Software processed data in some complex formats such as PDFs, unstructured plain text and table within tables. It also scheduled the routines so that the automaton wakes up every day and looks for updated data from multiple sources. There was logic embedded to trigger any errors and exceptions that was forwarded to the managers when data couldn't be extracted because of reasons such as irregular update at the source, change in format or system downtime issues. Now the system runs like clockwork extracting data in less than 10 minutes for 100+ sources without any manual intervention. The right ingredients are ready for the Sous Chef to cook.

# THE TRANSFORMATION & ENGINEERING PROCESS

Simple scraping of data is not enough for full-fledged analysis as additional information needs to be trimmed and appended wherever there is a lack of information. Indium Software transformed parts of data and created new fields as part of the analytics process and stored it in a secure cloud infrastructure. This provided a solid data foundation for visualizing the trends of the past revenue and predicting the future revenue potential. With the visualization product as the final goal, Indium Software,

- Optimized the fields in the databases to only the mandatory ones for speed and efficiency.
- Optimized the derived field calculations.
- Coded to perform the calculations during the non-peak hours.

# THE DATA VISUALIZATION PROCESS

Indium Software created a product that would help retail investors, institutional investors and equity managers unearth insights about the companies' health and revenue. These insights are more than simple P&L info and other stock charts indicators. These insights compare actual vs projected revenue of companies aiding in informed decisions to investors.

# BUSINESS IMPACT

As a pilot, Indium Software's solution had demonstrated successfully the revenue and growth potential of four companies for the coming quarter. This will be used by the FinTech venture to showcase its product to external investors and FinTech experts. They would assist the client in forging a bigger vision for the product and expanding the product to multiple stock groups. The client will go full steam with the development of the solution targeting different audience of Retailers, Mutual fund house, Equity advisors, Institutional investors etc.

- The techniques implemented by Indium Software helped the client in building an automated robust data collection routine.
- Despite scraping from multiple data sources, the data was standardized. Unstructured data was cleaned for removing inconsistencies, unwanted noise resulting in organized SQL table storage.
- Using statistical techniques such as Power Law and Levenshtein Distance, data was crunched in such a way that more than 98% accuracy on prediction was achieved during the analysis.
- The product is built in a scalable mode on Big Data technology as the calculations on time, storage was planned beforehand considering the vision of the client.

## ABOUT INDIUM

Indium is a Digital Engineering Services leader and Full Spectrum Integrator that helps customers embrace and navigate the Cloud-native world with Certainty. With deep expertise across Applications, Data & Analytics, AI, DevOps, Security and Digital Assurance we "Make technology work" and accelerate business value, while adding scale and velocity to customer's digital journey on AWS.

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