How Web Scraping is Transforming the World with its Applications

Guess what's common between an entrepreneur envisaging a new start-up, CEO of a Fortune 500 company, an equity analyst, a marketer, and a journalist?

Well, they all derive their strategies and insights from data!

Data is the new differentiator.

It is the core of market research and business strategies.

Whether you want to start a new project or churn out a new strategy for an existing business, you need to invariably access and analyze a vast amount of data. This is where web scraping comes in.

You might want to argue that web scraping could be useful for a particular industry or two. How can it be so relevant for different industries?

No worries!

We have put together a comprehensive list of applications of web scraping in different industries.

However, before we take a plunge into it, let's just quickly understand a bit about web scraping.

What is Web Scraping?

Let's say, data is vital for your e-commerce company. You are able to see the data on your competitor's website.

The question is how will you download it in a usable format?

Most people would be able to only copy and paste it manually. However, it is not feasible to do it for large websites with hundreds of pages.

This is where web scraping comes into play.

Web scraping is a process of automating the extraction of data in an efficient and fast way. With the help of web scraping, you can extract data from any website, no matter how large is the data, on your computer.

Moreover, websites may have data that you cannot copy and paste. Web scraping can help you extract any kind of data that you want.

That's not enough. Let's say, you copy and paste some data but how to convert or save it in a format of your choice?

Web scraping takes care of that too. When you extract web data with the help of a web scraping too, you would be able to save the data in a format such as CSV. You would then be able to retrieve, analyze and use the data the way you want.

So web scraping simplifies the process of extracting data, speeds it up by automating it and creates easy access to the scrapped data by providing it in a CSV format.

In simple terms, web scraping saves you the trouble of manually downloading or copying any data and automates the whole process.

Here is the List of Web Scraping Applications :

Web Scraping Applications in Retail and Manufacturing :

PC: Wikipedia

There are numerous applications of web scraping under this segment which can be sub-divided into different categories as follows:

Competitor Price Monitoring

- In this era of e-commerce, price plays a key role. You need to keep track of competitor pricing strategies.

- However, manually trying to keep track of prices is not a viable option. Moreover, prices keep changing every now and then. Therefore, it becomes virtually impossible to keep track of prices in a manual way.

- This is where web scraping comes in. It automates the process of extracting prices of your competitors and keeps you updated about the new pricing strategies deployed by your competitors. Web scraping is able to do it in no time and as many times as you want.

Monitoring MAP Compliance

- Manufacturers would need to keep an eye on retailers as to whether they comply with the minimum price or not.

- However, it is not possible to visit every website and check for the same. Web scraping comes to their rescue here.

- With the help of web scraping, manufacturers can easily and effectively monitor MAP compliance. They can do it without having to spend an enormous amount of time as web scraping can produce this data in a lightening quick fashion.

Fetching Images and Product Descriptions

- It would be an ordeal to manually fetch images and product descriptions from different manufacturers.

- Web scraping can make this quite easy. It automates the entire process and provides the images and product descriptions in no time.

Monitoring Consumer Sentiment

- It is necessary to track and analyze consumer sentiment. It is done by reviewing consumer feedback and reviews of different businesses.

- However, getting all the reviews from different websites in a manual way is not feasible.

- Therefore, web scraping is leveraged to make it stunningly easy. With web scraping, you can get all the reviews on a spreadsheet and even compare different reviews based on keywords.

Web Scraping Applications in Equity and Financial Research

PC: Flickr

This is vast field and applications of web scraping are just mind-boggling. Take a look:

Aggregated News Articles

- In the field of finance and insurance, news is the big source of insights. However, it is not possible to read every newspaper and every article manually.

- Hence, web scraping is used for extracting the valuable inputs from different news stories, headlines etc. for converting them into actionable investment insights.

Market Data Aggregation

- While a lot of market data is available on the Internet but it is scattered across tens of thousands of websites.

- You can search and scan the search results but it is too time-consuming and tedious.

- Web scraping is used to scrape the data from different websites and glean actionable intelligence from these sites in terms of equity research.

Extracting Financial Statement

- Analysts need financial statements in order to determine the health of a company and advise their clients regarding whether to invest or not to invest in it.

- However, getting financial statements from several companies for numerous years is not possible in a manual fashion.

- Web scraping tools are used to extract financial statements from different sites and for different time periods for further analysis and make investment decisions based on the same.

Insurance

- There is a growing trend to study alternative data in order to determine the risks etc. on the part of insurance companies to devise their products and policies.

- But it is not possible for them to leverage this data by manually copying or storing it.

- Therefore, insurance companies capitalize on web scraping to scrape alternative data and arrive at their decisions regarding insurance products and policies.

Web Scraping Applications in Data Science

PC: Wikipedia

Real-Time Analytics

- Real-Time analytics simply means that data is analyzed right after data becomes available. It is different from batch-style analytics because batch-style analytics may take hours or delay to process data and produce insights.

- Compared to that, real-time analytics can produce insights without any delay.

- Financial institutions use real-time analytics for credit scoring in order to make decisions regarding whether to extend credit or discontinue it.

- Customer relationship management (CRM) is a notable example of how real-time analytics is made use of in optimizing customer satisfaction and enhancing business results.

- Real-time analytics is also used at Points of Sale in order to detect any kind of fraud. In retail outlets, real-time analytics comes into play while dealing with individual customers in terms of incentives etc.

- As each of the examples indicates, real-time analytics depends on processing large quantities of data. Real-time analytics also works in a hassle-free manner if and only if large quantities of data can be processed quite quickly.

- This is where web scraping comes in handy. Real-time analytics would not be possible if data could not be accessed, extracted and analyzed quickly.

Predictive Analysis

- Predictive analysis is a process of analyzing existing data in order to work out patterns and predict future outcomes or trends. Predictive analysis cannot accurately forecast the future but it is all about forecasting what the probabilities are.

- Apart from other fields, predictive analysis has its application in the world of business. Predictive analysis is used in order to study and understand customer behavior, products and various other things to work out the risks and opportunities.

- However, as it is evident, it is a kind of analysis that takes place on the basis of vast amount of existing data.

- This is why web scraping has grown in significance because it can extract and make available vast amounts of data which can later be used in predictive analysis. In other words, web scraping is paramount for predictive analysis.

Natural Language Processing

- Natural language processing is a process of enabling machines to interpret the natural languages used by humans unlike the computer languages such as Python etc.

- Sentiment analysis is a notable use case of natural language processing. Data scientists use comments on social media to process and assess how a particular brand is performing.

- As it is implied, machines will need to have access to large quantities of data for any application of NLP to work.

- Web scraping is one of the few efficient ways to scrape and make the data related to such social media comments or anything else available in a usable format. Therefore, with the growing significance of NLP, web scraping has also become increasingly important.

Machine Learning Training Models

- [Machine learning](#) basically implies that we provide data to machines for them to learn and improve on their own without having to use any explicit programming.

- Web is the ideal source of such data. By training machine learning models, we can get them to carry out different tasks like classification, clustering, attribution etc.

- However, machine learning models can be trained only if quality data is made available. Web scraping serves to extract and make such data available for machine learning training models.

Web Scraping Applications in Risk Management

PC: pixabay

- In business, there are several risks involved when you hire people or deal with new clients. One cannot ignore the risk and carry on without any risk management strategies.

- Therefore, businesses have a practice of running background checks on new employees or clients or customers. However, it could be a time-consuming and tedious exercise considering the fact that it means checking several different sources of data like press and news articles, sanctions lists, corporate registers, legal databases, disqualified directors list, insolvency registers, financial registers and a lot many others.

- It is not possible for any individual to get the background checks done manually. Therefore, web scraping tools are leveraged to quickly extract the data from the aforementioned sources and process it in order to complete the background checks.

Web Scraping Applications in Product, Marketing and Sales

PC: Flickr

Data-driven Marketing

- Data is essential for any marketing and sales endeavour. There is nothing new about it. However, access to data is something that distinguishes two marketers at times. Web scraping can make the data available to formulate the strategies.

Content Marketing

- When it comes to content marketing, web scraping is used for collating data from different sites such as Twitter, Tech Crunch etc. This data, then, can be used for creating engaging content. Engaging content, as you know, is the key to business growth and web traffic.

Lead Generation

- As far as [lead generation](#) is concerned, many companies have to spend a lot of money on getting outbound leads. This could burn a hole in your budget. Instead, web scraping is now harnessed to scrape data directly from different sources and generate leads.

- In this way, quality leads can be generated at a low cost and the budget can be used on other important things.

Competitive Analysis

- When it comes to competitive analysis, it is hard to fetch all the data you need from different websites to put together a decent comparison and understanding of your competitors.

- Carrying it out manually is not just time-consuming but also inefficient because you may or may not be able to fetch data accurately. In this dynamic competitive world, speed and accuracy are everything.

- Instead, web scraping has now transformed this space and provided a more efficient alternative by quickly fetching data and facilitating competitive analysis. In this way, web scraping is used to automate the data extraction and competitive analysis.

SEO Monitoring

- Well, search engines tell us a lot about how the world of business moves. How content moves up and down in rankings is also a key to how one can thrive in this Internet age.

- One can study the way content works on the Internet and derive insights and strategies.

- However, manually it cannot be done. Therefore, there is a growing use of web scraping tools to scrape the data regarding what goes on behind the scenes in search engines. Web scraping can power your understanding of content in terms of SEO and provide actionable intelligence with respect to SEO.

Reputation Monitoring

- It is vital to understand how customers feel about you and your brand. You can have a vague idea about it but providing an account based on data can be difficult.

- However, web scraping tools have become so sophisticated that they are now able to extract customer reviews and other inputs from websites in no time and facilitate brand or reputation monitoring quite easily. Several companies use web scraping to understand their customers' views and serve them better.

Other Industries which are Using Web Scraping

It's hard to list everything that can leverage web scraping because its applications are now being explored for almost every known human transaction. Whether it's charity or journalism, web scraping

can contribute in a substantial way. Here're a few other industries or domains where web scraping has found its applications.

News and Reputation Monitoring

- In order to keep track of the information regarding individuals, products or company, news scraping is quite useful.

- Web scraping is integral to the process because it allows quick and efficient extraction of data in the form of news from different sources.

- Such data can then be processed in order to glean insights as required. As a result, it also makes it possible to keep track of the brand and reputation of a company.

Academic

- Academic world depends a lot on data. Academic work revolves largely around one or the other kind of information.

- Whether it's a teaching assignment or a research project, academics have to get hold of data and then process it in order to arrive at the necessary insights.

- Web scraping has now made it extremely easier for them to extract and process the data they need.

Data Journalism

- As the name indicates, it is a kind of journalism that uses data to bolster the news stories.

- The use of infographics or graphs is a typical example of how data is woven into these stories.

- The reason why data matters to them a lot is because data provides credibility to the arguments and claims made in the stories.

- It is also useful as it enables readers to understand complex topics in a visual way.

- Web scraping comes in handy here because it makes the data available in the first place and enables the journalist to create the impact through the creative use of the data.

Non-Profit

Even in the case of non-profit organizations, they need data in order to define their mission and further their work. Web scraping tools easily extract the data they need in order to work out their goals and outcomes so that they can forge ahead in their noble projects.

Employment

- Have you noticed how Job Boards are full of data related to job posts? Have you ever wondered where the data comes from?

- Job Board use crawlers to crawl different websites and scrape the information regarding new job postings. Job Boards collect information such as job postings, company profiles, job descriptions, and employee profiles.

- This enables them to provide information regarding job postings and connect job seekers with employers. Web scraping makes it all possible!

Search engine for classified sites

- There are websites that serve as a search engine for classified ads of vehicles. Visitors can search the site for specific make and model of vehicles.

- However, it is not possible to manually fetch such data. Web scraping tools are leveraged to crawl and extract the technical specifications of different vehicles.

- The data is used then on the website for visitors to search and access.

Conclusion :

As the Internet has grown astronomically and businesses have become increasingly dependent on data, it is now a compulsion to have access to the latest data on every given subject.

Data has become the basis of all decision-making processes whether it's a business or a non-profit organization. Therefore, web scraping has found its applications in every endeavour of note in contemporary times.

It is also becoming increasingly clear that those who will make creative and advanced use of web scraping tool will race ahead of others and gain a competitive advantage.

So leverage web scraping and boost your prospects in your chosen area of endeavour!