

Data Analytics in Auditing and Consulting – Part II

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Part I of this article discussed HeinfeldMeech’s use of IDEA and IDEA Script to perform data analytics. Along with IDEA, the firm has recently been exploring the use of Python programming to enhance our data analytics procedures.

Python is an advanced programming language at the forefront of modern data analytics and machine learning. Although not specifically made for the purpose of auditing, Python offers a variety of more advanced techniques for automation and analysis. In the automation side, Python has been utilized by the firm to create programs that are greatly reducing the time it takes to perform certain tasks on both the auditing and consulting side. For auditing, a Python program has been made that translates the account code in the general ledger to a more usable form. This coded account is then uploaded to the firm’s report writer to prepare the financial statements to be issued. This Python program allows the auditor to customize how the general ledger is coded and does so in minutes. These customizations are saved for that client and can be reused in subsequent years for a fast and efficient transition to the report writer.

On the analysis side, a program has been built for the consulting division of the firm to perform checks on the accuracy of a client’s Annual Financial Report (AFR) based on their complete general ledger. This program takes the AFR and applies rules on each value input by the client. It then combs through the client’s general ledger and pulls out every transaction that fits the given rule, summarizing it and comparing it to the value on the AFR.

This program allows a quick and easy method to check the accuracy of the client's AFR, giving a comprehensive review of mismatched values and totals.

Another asset of Python is the ability to perform Machine Learning techniques on large financial datasets. Machine Learning is a concept in big data that uses Artificial Intelligence to learn data and perform descriptive, prescriptive and predictive analytics through advanced methods. These methods are currently being developed by the firm to give our client's access to the most expert analytics available in modern day data investigation.

The Machine Learning concepts being currently prepared are Clustering and Text Mining. Clustering relates properties of a client's dataset to each other and "clusters" each row of data into common groups. The program then pulls out data points that do not relate to any common groups, revealing them as data anomalies to be investigated. Text Mining analyzes long-text data like descriptions or memos. This is done by breaking down each word in the data and assigning values of commonality to that word and the order of those words compared to the rest of the data. The program then finds the data points that have the most unique long text entry compared to the rest of the dataset, allowing an auditor to investigate an entry that would otherwise have been overlooked by normal methods. These Machine Learning methods are not only incredibly thorough, but allow the auditor to obtain a full view of an otherwise large financial dataset.

Along with other Python programs, IDEA Software and IDEAScript Macros, the use of data analytics is quickly becoming an immensely powerful tool in providing modern auditing and consulting services. It's important to not only adjust but innovate and thrive in an environment where data analytics plays an important part in the technologically advanced world of today. In this sense, HeinfeldMeech continues to seek out and expand all forms of data analytics for our clients in order to provide an audit like no other.

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