**Problem**

The Mouse Catchers Inc. is handling high number of customers. It operates in a geographic area that covers 40,000 kilometers. As a result, its market it’s wide and it needs to collect data regarding the customers. It operates services aimed at eradicating mice. It also focuses on the eradication of other vermin’s form the property. The current operations of the organization has been expensive. The organization is focused on improving its operations. In its operations, the organization is focusing ion identifying customer signals a, making sure that such data is sued in decision making process. In the process, data is only going to be used through proper analyses. Through at a analytics, it will be important to identify customer needs as well as respond to such needs on time.

**Data analytics**

Data analytics is the science of drawing insights from raw information sources. Many of the techniques and processes of data analytics have been automated into mechanical processes and [algorithms](https://www.investopedia.com/terms/a/algorithm.asp) that work over raw data for human consumption. Data analytics techniques can reveal trends and metrics that would otherwise be lost in the mass of information. This information can then be used to optimize processes to increase the overall efficiency of a business or system.

Data analytics is a broad term that encompasses many diverse types of data analysis. Essentially any type of information can be subjected to data analytics techniques to get insight that can be used to improve things. For example, manufacturing companies often record the runtime, downtime, and work queue for various machines and then analyze the data to better plan the workloads so that the machines operate closer to peak capacity.

Of course, data analytics can do much more than point out bottlenecks in production. Gaming companies use data analytics to set rewards schedules for players that keep the majority of players active in the game. Content companies use many of the same data analytics to keep you clicking, watching, or re-organizing content to get another view or another click.

As we mentioned above, data analytics is important because it helps a business optimize its performance. Implementing it into the business model means companies can help reduce costs by identifying more efficient ways of doing business and by storing large amounts of data. A company can also use data analytics to make better business decisions and help analyze customer trends and satisfaction, which can lead to new (and better) products and services.

Big data refers to data that would typically be too expensive to store, manage, and analyze using traditional (relational and/or monolithic) database systems. Usually, such systems are cost-inefficient because of their inflexibility for storing unstructured data (such as images, text, and video), accommodating “high-velocity” (real-time) data, or scaling to support very large (petabyte-scale) data volumes. Customers often call the organization or come to the site when they feel that the traps are not working. Such data may be collected from biug data analytics.

For this reason, the past few years has seen the mainstream adoption of new approaches to managing and processing big data, including Apache Hadoop and NoSQL database systems. However, those options often prove to be complex to deploy, manage, and use in an on-premises situation. Whereas in the past most customer data could be categorized as well-structured (such as bank) transactions, today, the massive “exhaust” that organizations produce daily in the form of unstructured online customer interaction data dwarfs that which was produced only a few years ago. The recent emergence of the “Internet of Things,” the term describing the global network of billions of interconnected devices and sensors, has caused an explosion in the volume of data in the form of text, video, images, and even audio. Finally, in some regulated industries, access to data that would otherwise be archived is now often needed for compliance reasons.

The ability to consistently get business value from data is now a trait of successful organizations across every industry, and of every size. In some industries (such as Retail, Advertising, and Financial Services, with more constantly joining the list), it’s even a matter of survival. Data analytics only returns more value when you have access to more data, so organizations across multiple industries have found big data to be a rich resource for uncovering profound business insights. And, because machine-learning models get more efficient as they are “trained” with more data, machine learning and big data are highly complementary.

Although many enterprises have yet to reach petabyte scale with respect to data volumes, it is possible that data has one of the other two defining characteristics of big data. And, if there is any single guarantee, it’s that your data will grow over time--probably, exponentially. In that sense, all “big data” starts as “small data.”

Cloud computing offers access to data storage, processing, and analytics on a more scalable, flexible, cost-effective, and even secure basis than can be achieved with an on-premises deployment. These characteristics are essential for customers when data volumes are growing exponentially--to make storage and processing resources available as needed, as well as to get value from that data. Furthermore, for those organizations that are just embarking on the journey toward doing big data analytics and machine learning, and that want to avoid the potential complexities of on-premises big data systems, the cloud offers a way to experiment with managed services (such as Google BigQuery and Google Cloud ML Engine) in a pay-as-you-go manner.

Data analytics components

[**Machine Learning**](https://www.sas.com/en_us/insights/analytics/machine-learning.html)**.** Machine learning, a specific subset of AI that trains a machine how to learn, makes it possible to quickly and automatically produce models that can analyze bigger, more complex data and deliver faster, more accurate results – even on a very large scale. And by building precise models, an organization has a better chance of identifying profitable opportunities – or avoiding unknown risks.

[**Data management**](https://www.sas.com/en_us/insights/data-management/data-management.html)**.**

 Data needs to be high quality and well-governed before it can be reliably analyzed. With data constantly flowing in and out of an organization, it's important to establish repeatable processes to build and maintain standards for data quality. Once data is reliable, organizations should establish a master data management program that gets the entire enterprise on the same page.

[**Data mining**](https://www.sas.com/en_us/insights/analytics/data-mining.html)**.**

Data mining technology helps you examine large amounts of data to discover patterns in the data – and this information can be used for further analysis to help answer complex business questions. With data mining software, you can sift through all the chaotic and repetitive noise in data, pinpoint what's relevant, use that information to assess likely outcomes, and then accelerate the pace of making informed decisions.

[**Hadoop**](https://www.sas.com/en_us/insights/big-data/hadoop.html)**.**

 This open source software framework can store large amounts of data and run applications on clusters of commodity hardware. It has become a key technology to doing business due to the constant increase of data volumes and varieties, and its distributed computing model processes big data fast. An additional benefit is that Hadoop's open source framework is free and uses commodity hardware to store large quantities of data.

[**In-memory analytics**](https://www.sas.com/en_us/solutions/in-memory-analytics.html)**.**

 By analyzing data from system memory (instead of from your hard disk drive), you can derive immediate insights from your data and act on them quickly. This technology is able to remove data prep and analytical processing latencies to test new scenarios and create models; it's not only an easy way for organizations to stay agile and make better business decisions, it also enables them to run iterative and interactive analytics scenarios.

[**Predictive analytics**](https://www.sas.com/en_us/insights/analytics/predictive-analytics.html)**.**

 Predictive analytics technology uses data, statistical algorithms and machine-learning techniques to identify the likelihood of future outcomes based on historical data. It's all about providing a best assessment on what will happen in the future, so organizations can feel more confident that they're making the best possible business decision. Some of the most common applications of predictive analytics include fraud detection, risk, operations and marketing.

[**Text mining**](https://www.sas.com/en_us/software/text-miner.html)**.**

With text mining technology, you can analyze text data from the web, comment fields, books and other text-based sources to uncover insights you hadn't noticed before. Text mining uses [machine learning](https://www.sas.com/en_us/insights/analytics/machine-learning.html) or [natural language processing](https://www.sas.com/en_us/insights/analytics/what-is-natural-language-processing-nlp.html) technology to comb through documents – emails, blogs, Twitter feeds, surveys, competitive intelligence and more to help you analyze large amounts of information and discover new topics and term relationships. In this particular study it will be used in analyzing information from customers regarding the eradication of rodents from their houses, enhancing the efficiency of the organization