PROLOGUE

Big Data Applications in the Modern Era

Big data applications have created new opportunities in almost every sphere of life. The world in which we are living is driven by cutting-edge competition. Taking a break may lead one to lag behind others. Using big data technologies is one of the significant opportunities available today to maintain the speed with fast changing milieu. Big data applications have qualitatively improved our lives. People use there applications for raising efficiency and productivity. At times, one may not be able to realize the impact made by the data science. However, benefits of big data applications can be felt and spelled out very clearly.

1. *Banking Sector*: People keep their precious documents and valuables in the banks for security. To keep our wealth safe and well maintained, banks formulate and implement number of strategies. In each bank, big data has been used for quite some time now. Big data applications have made banks more efficient in every function, including cash collection and financial management. Such applications have diminished the problems of customers and produced revenue for the banks. Banks take vital decisions by applying clustering techniques. New branch locations can be identified on the basis of demand. Amount of cash required by a branch at a particular time in the year can be predicted by applying association rule. Since banking platforms are digital now, all operations can be performed even from home. Frauds are detected by many banks by using machine learning and artificial intelligence. It has become easy to handle, store and analyze the huge data and ensure its security as well due to data science.

2. *Media and Entertainment*: Digital transformation needs to be driven to distribute the products and contents as briskly as possible by media companies and entertainment sector. It has become a wide spread practice to search as well as access any content anywhere with any device. Popularity of an artist in the digital media can also be assessed by figuring out the views and likes

about him or her. Big data analytics tools can be used to explore the reason for subscribing and unsubscribing a content, and the interest in a specific content. Public demand can be analyzed to identify novel features. Place for promotion of one's performance can also be explored by an artist.

3.   *Applications in Healthcare*: Data science is geared to enhance the quality of healthcare services nowadays. Besides identifying treatment, it is playing a significant role in improving the process of healthcare service. Reduction in the wastage of money and time is also made possible by the application of big data in healthcare. New infrastructure and emergency medical services are developed by governments by using big data technologies. It enables health administrators to predict the number of doctors required at a particular time and keep track of the records pertaining to patients. Big data applications can monitor patients and send reports to the concerned doctors by using wearable digital devices. It can facilitate evaluation of symptoms and diagnosis of many diseases at an early stage. Sensitive records can be kept secure and huge amount of data can be stored efficiently. Behaviour and health conditions of the patients can be analyzed by big data technologies to save lives. The location where there is a chance of spreading dengue, malaria or COVID-19 can also be forecasted by big data applications.

4.   *Applications in E-commerce*: Small and large businesses compete with each other in the e-commerce industry. E-commerce has the benefit of operating online, and facing many challenges to accomplish the business goals. Insights and analytical reports are provided by big data tools to strengthen e-commerce by giving it several competitive advantages. Big data empowers e-commerce with data on customer requirements even before the operation has commenced. Most viewed products and the pages which appeared several times can be identified by the promoters of business. Matching products are suggested on the basis of evaluation of customer behaviour. It increases sale and generates revenue. Sorted reports can be prepared by using big data analytics tools in terms of the visitor's age, gender, location, and so on.

5. *Disaster Management*: Every year huge damage is caused to the material property and large number of lives are lost due to natural calamities, such as floods and earthquakes. Governments are unable to take sufficient preventive measures when scientists are not able to appropriately forecast the disasters. The preventable devastations take place primarily because of this reason. It is not for the first time that big data is used for disaster management, but recent technologies have made all the difference. Accuracy in forecasting has certainly improved by using technologies like artificial intelligence, data mining and visualization. Ensuing disasters can be identified by assessing temperature, wind pressure, water level, and other related parameters.

Governments can take necessary preventive measures to minimize the adverse effects due to natural disasters if big data is used in a systematic manner. Data collected from satellite and Radar can facilitate weather forecasters by using the outcome of in-depth analysis. Probability of flood in a particular region during certain months of the year can be assessed from the level of water. Actions like excavations can be done before devastation is caused by the flood; Even earthquakes can be monitored by natural disaster management experts, who can caution the people accordingly.

6. *Application in Digital Marketing*: Marketing trends for the business have altogether changed. Digital marketing is vitally important for any business to survive. Now, besides large companies, small entrepreneurs can also advertise to promote their products through social media. Digital marketing has become a very powerful medium by drawing its strength from big data technologies to become necessary part of any business. It analyzes market and competitors, and evaluates the business goals. It can identify the current users of social media and focus on them in terms of gender, income, age, and interests. Reports can be produced after every ad campaign to reflect the performance, audience engagements, and necessary steps required to be taken to produce better results also. Data science can be used for possible retargeting of customers and transform them into loyal clients. Website of the business can be ranked higher on Google by identifying the highly searched titles for

improving content strategy. It can use existing audience database to create similar audience to target new clients and earn profits.

This book has chapters based on the papers submitted by delegates of the conference. The selected papers have been included to encourage the young academicians to contribute and learn from each other. It is an attempt to facilitate them to do better next time.

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