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Certificate

This is to certify that Prof./Dr./Mr./Ms. *Lahamage Namrata Vitthal, Affiliated to Savitribai Phule, Pune University, Pune* has participated in One Day Multidisciplinary International E-Conference on “*Socio-Economic Relevance in Science, Social Science, and Commerce toward Sustainability*” Organized by Department of zoology and Internal Quality Assurance Cell (IQAC), Government College For Men(A), Kadapa in collaboration with Global Foundation, India on Tuesday, 5th March 2024.

He/She has participated and presented a research paper entitled *Big Data a Middle Man between Data Science, Machine Learning, Artificial Intelligence and IoT.*

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Govt. College for Men (Autonomous), Kadapa,
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Govt. College for Men (Autonomous), Kadapa,
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Principal,

Govt. College for Men (Autonomous), Kadapa,
Andhra Pradesh, India

Big Data a Middle Man Between Data Science, Machine Learning, Artificial Intelligence and Iot

Lahamage namrata vitthal

Dept. of Computer Science, G.M.D.Art's,B.W.Commerce and Science
College,Sinnar. Savitribai Phule Pune University , Pune, Maharashtra

Email: namratalahamage@gmail.com

Abstract:

Large, different, collection of unstructured, structured and semi-structured data that grows continuously over time is big data. Typical data base management systems were unable to handle such huge sets. Traditional DBMS systems cannot process, store and analyze large volume of data. Big Data has capability and features to handle different structured and featured data sets. With the help of un structured, structured and semi -structured data volume big data manages systems of different features. One can easily manage TPS (transaction Processing System), mails, different set of records from different sector, documents, internet, applications in mobile by using fantastic features of Big Data. For doing technological innovations and research in various fields big data and artificial intelligence is helpful. Big data takes help of artificial intelligence theories to store large volume of data and artificial intelligence supports big data technologies in decision making capabilities. High velocity, complex massive data sets are nothing but big data. Barrier factor in popularity of big data, data science is the cost factor. Training to users, hardware requirement for storage of large volume of data sets costs too much for users which in turn limits the usage of good features offered by data science and big data. Without taking into consideration barriers in using Big Data, focusing on its features will offer more options beneficial in handling large data sets.

Keywords: Data Science, Big data, Artificial Intelligence, Machine Learning

Data and Methodology: online data, Analytical methods

Objectives:

Vast online activities created big problem of data storage. Traditional mechanisms limit to few amounts of data storage capacity. Features of Big Data solved the major problem of data storage collected from various platforms online. Data-sensitive part of human life collected and managed easily through big data.

Introduction:

Traditional way of data storage systems like DBMS (Data Base Management System), RDBMS (Relational Data Base Management System) limits the data storage to limited records, that was made overhead to large systems, how to store bulk of data under same roof. Technological evolutions shifted large population over internet to accomplish day to day activities easily. As online activities rate is increased which ultimately

increased problem of data storage. Big Data technology answered all these queries.

Large, different, collection of unstructured, structured and semi-structured data that grows continuously over time is big data. Typical data base management systems were unable to handle such huge sets. Traditional DBMS systems cannot process, store and analyze large volume of data. Big Data has capability and features to handle different structured and featured data sets. With the help of un structured, structured and semi -structured data volume big data manages systems of different features. One can easily manage TPS (transaction Processing System), mails, different set of records from different sector, documents, internet, applications in mobile by using fantastic features of Big Data.

Artificial Intelligence is a powerful feature for decision making. Big Data plays vital role of fuel for artificial intelligence in decision making. Hadoop framework handles large data sets of Big Data. Machine Learning technology offers mechanisms to inspect large data volume. Big Data provides readymade observation sets to machine learning. Big Data works on scatter, raw data sets to polish it into fine required results with the help of regression and clustering. Both qualitative and quantitative data are handled by big data. Pig, a running platform over Hadoop clusters, especially designed to analyze and process large data sets. Open source platform that is Hadoop , used to manage bulk data sets from range of gigabytes to petabytes of information. Maintaining data manually with the help of machines is also a tedious task. Automation is a term which offers us ReLeaf from too many complicated procedures. Observing surrounding environment automatically and maintaining records with only few efforts, will be happiest moment for all of us. Big data mechanism works on observation of surrounding human being behavior and helps us to store it in record terms, so that it will helps us to analyze these records for future reference. With the help of big data, management team from various sectors like bank, shopping mall, keep record of customer behavior from future point of view and enhance their business from customer point of view.

Keeping customer or users likes in data bases will offer various recommendations to customers that help them to enlarge their market. Things appear Infront of us automatically, will definitely changes our mind to at least think on that and if so, deeply it related to our heart enforce us to buy that. Data Collected with the help big data mechanism will give chance to too many business men to grow their market with help of flashing advertisements on webpages. Cameras situated on roads for traffic analysis provides the data collection for further traffic management. Such traffic analysis with the help of big data offers functionality to develop smart traffic system in cities. Which further helps us in saving fuel also. System like this is also helpful in air traffic analysis. Cars can be driven without driver by the help of big data analysis stored in record format. Smart mechanisms offering features without human intervention takes help of big data. Apple devices uses Siri, windowstake help of cortana gives answers to different questions spontaneously with the help of records maintained by big data. Operational data, patient history in health care system maintained with the help of big data, offers

better suggestion from previous one. Searching history of any one on any platform will help owners to launch or suggest their products easily with the help of data recorded by big data. Various shopping sites, educational websites take the advantage of large record maintaining features of big data to grab the customers easily.

For doing technological innovations and research in various fields big data and artificial intelligence is helpful. Big data takes help of artificial intelligence theories to store large volume of data and artificial intelligence supports big data technologies in decision making capabilities. High velocity, complex massive data sets are nothing but big data. Identifying patterns and concluding them into actions with the help of artificial intelligence and machine learning is also a big data.

Data Science is applicable in fields like healthcare, fraud and risk detection, internet, targeted advertisements, website recommendations, speech recognition, airline route planning, which in background takes help of big data for data storage. Barrier factor in popularity of big data, data science is the cost factor. Training to users, hardware requirement for storage of large volume of data sets costs too much for users which in turn limits the usage of good features offered by data science and big data.

Big data provides mechanism for storing large data volumes of various data sets, but this is the big challenge how to efficiently handle these data sets. Who helps big data in data collection? Answer is data mining and web scrapping. Data mining works with the mechanism like collecting data, different organizations further gather data from various sources like-data warehouse, databases and even social media platforms. Devices with sensor facility, software's, different technologies which connect with each other and exchange data with other devices and systems over communication network and internet comes under Internet of Things. Internet of things covers communication, electronics, computer science and engineering.

Internet of things communicate between different devices and cloud and also among devices themselves. We can host devices into inert objects like electronic systems, vehicles, lighting which in turn measure environment parameters, collect data and transmit through a communication network. Activities performed without human intervention comes under smart technology. Smart homes, appliances, connected heating, electronic devices and lighting can be easily controlled remotely via smartphones and computers. Sensors act as backbone for Internet of Things. In the mechanism of Internet of things different devices are connected with each other through internet, so Internet of Things is large provider of Big Data. Machine Learning, Artificial Intelligence and Internet of Things are interconnected technologies. These all collect bulk of data using wireless applications. Big data analytics based on Artificial Intelligence is performed on this large data sets which in turn predict the patterns which in turn helpful in improving better human life.

Conclusion:

Major issue of data storage easily solved by Big Data Mechanism. Big Data offers features of large data storage capacity which helps too many users in accessing this data

and perform actions on that. Data Science, Data Analytics, IoT, Machine Learning, Artificial Intelligence created more data online which is stored easily by Big Data storage capacity. Big Data mechanism handling training and hardware costs too much which limits its popularity. Without taking into consideration barriers in using Big Data, focusing on its features will offer more options beneficial in handling large data sets.

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