LITERATURE SURVEY

Analytics of Hospital Health- care data

Medical data is currently being generated from a variety of sources, including cell phones, body area monitors, patients, hospitals, researchers, healthcare professionals, and organizations. Big data in healthcare refers to vast amounts of

data generated by the use of digital technology that capture medical records and aid in the management of hospital results, which would otherwise be too broad and complicated for conventional technologies. The use of Big Data analytics in healthcare has shown a slew of promising results, many of which are life-saving. Electronic Health Records, computer generated/sensor data, health information exchanges, patient registries, portals, genomic databases, and public records are all examples of data types used in healthcare applications. Public reports are important data points in the healthcare system that need effective data analytics to address their medical challenges. This major health data is specially processed for next stage review on medical servers (MS), clinical databank (CDB) and CDRs. Storage infrastructures are mainly used to store, process, interpret, handle, and recover massive volumes of data in order to facilitate people's lives. As a result, it not only provides information to help people understand symptoms, illnesses, and medications, but also to warn them, forecast results early on, and make the best choices possible. Big Data Analytics is a modern method for analyzing, managing, and accurately extracting valuable information from vast quantities of data sets that are very close to a specific patient in a brief period of time. Furthermore, this new technology-based system of analysis transforms treatment to the right patient at the right time [4,5].

LITERATURE REVIEW

- Ashwin Belle along with few others have published their paper, titled Big Data Analytics in Healthcare in Biomed International Journal. In this paper, they have discussed how big data is a set of data elements whose size, speed, type, and complexity necessitate the search, adoption, as well as invention of new hardware and software mechanisms in order to effectively process, interpret, and represent the data. Their focused areas of interest were medical image analysis, physiological signal processing, and genomic data processing. An overview of analytical methods that are used

in medical image analysis to improve the interpretability of depicted contents, different challenges and existing approaches in the development of monitoring systems that consume both high fidelity waveform data and discrete data from non-continuous sources as well as wide variety of topics that cover big data applications in genomics [6].

- Revanth Sonnati in the paper Improving Healthcare Using Big Data Analytics discussed Hadoop data processing as one of the best choices to go with at the current trends, and how itll provide an extra edge to analyze the data. The aim of this paper was to provide a viable computer approach using big data and analysis to enhance healthcare through the promotion of healthcare science, affordability and accessibility. It focuses to benefit the society with advanced
- computation techniques to analyze and provide patient-centric health care. It clearly gives the picture of the data flow starting from the raw data along with its types through the Hadoop ecosystem and the analytic engines to achieve the final goal of the system. The paper affirms that given geographic location is also important to analyze healthcare data [7].

- Big Data Analytics in Healthcare by M. Ambigavathi and D. Sridharan, has summarised about the evolution of Vs and characteristics of big data in healthcare applications. It discusses the key roles of various components involved in the big health data analytics from data mining to the knowledge discovery process. The various big data analytical tools for data analysis and their functionalities are summarized in this paper. Some of the open research challenges and feasible solutions are highlighted in order to reduce the healthcare cost, enhance treatment, and improve the quality of patient care. With the help of analytics tools, data scientists are able to integrate health related information from both internal and external sources [5].

- The paper Big Data Analytics for Healthcare Industry: Impact, Applications, and Tools authored by Sunil Kumar and Maninder Singh, discusses the various sources and forms of Big Data which challenge the information technology industry to improve data processing methods. Techniques that merge different sources of data are highly requested. There are a host of conceptual ways to detect anomalies in large quantities of data from various datasets. It has a brief overview about improving outcomes for patients by following a pathway and how it will directly impact the patient.

It discusses how various applications provided by the Hadoop ecosystem can help the healthcare domain, which involves the utilization of the big data, generated by different levels of medical data and the development of methods for analysing this data and to obtain answers to medical questions [4].

- Manpreet Singh and others in their paper, BIG DATA ANALYTICS Solution to Healthcare'', discusses the usefulness of application of Big Data Analysis using the patient care dataset for better insight in care coordination, health management and patient engagement. It shows their studies in healthcare and how big data provides solutions and huge application to biomedical problems. It concludes that Big Data will bring greater changes to the healthcare system than estimated and be a boon. The impact on health science seems to be amplified by predictive analysis as the science reports can go viral, assist and predict an enormous amount of emergency clinical cases [8].

1. USAGE OF BIG DATA IN HEALTHCARE

By effectively using big data , the applications of big data analytics can improve the efficiency and quality of healthcare delivery, detect diseases at an early stage, provide evidence- based treatment options to patients , and monitor the quality of the medical and healthcare institutions as well as provide better treatment methods. Big data has use cases in almost all the industry and it has very crucial use cases in the healthcare domain too [9].

Hadoop data processing is one of the best choices to go with the current trends. The computer capability of Hadoop will stimulate existing statistical techniques and approaches to medical science to maximise the efficiency of outcomes [7]. Hadoop based applications are used in Healthcare to provide treatment in Cancer and Genomics, to monitor Patient Vitals, for Hospital Network, for Prevention and Detection of Frauds and much more [4].

A few viable Big Data and Analytics computer solutions are aimed at encouraging testing, affordability and usability in the area of medical care. It offers measurable advantages to transform the area of healthcare by offering ground-breaking computational technologies for analysing and providing patient-oriented healthcare for the good of the population. These

proposed objectives are Clinical Decision Support, Disease Management, Patient Matching and Lifestyle Analytics [7].

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