

Chapter 6

Knowledge Discovery Through Intelligent Data Analytics in Healthcare

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ABSTRACT

The chapter aims to embed the demanding computing concepts to attain intelligent data analytics in the domain of healthcare. The targeted outcome provides the pathway to design the brainy decision support system needed to have efficient prediction with trained input patterns. The usage of IoT devices is increasing tremendously to overcome the challenges existing in handling the data related to human-relevant happenings. The volume, velocity, and variety of data are emerging newly and dominating the decision support characteristics. This scenario happens almost in all the computing fields, but more attention is expected to implement in the healthcare sector due to the existence of sensitive data. The traditional data analytics methods are deviating in the performance due to the unpredictable dynamic challenges emerging in the day-to-day operation. The efficient features of demanding computing strategies are motivated to embed together to discover crucial knowledge through intelligent data analytics.

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INTRODUCTION

The Internet of things (IoT) is comprised of physical objects that are integrated with sensors, processing capacity, hardware, software, and other communicating components. These comprised units are connected to exchange the domain-specific generated data with other devices over the Internet networks and initiate the data analytics process.(Zhang, 2004, p.93)

The following processes are planned to merge with strategies and computing techniques to ensure efficient data handling and analytics, (A.Adhikari & J.Adhikari, 2017, pp.189-192)

- Domain-specific Data Generation
- Data Storage and Security
- Data Preprocessing and Handling
- Data Communication over the Internet
- Data Accessibility and Maintainability
- Data Analytics
- Data Extraction

The outcome will be the knowledge extracted through intelligent data analytic strategies from the hidden information of the transactional data. The objective is attained through the IoT-based architecture that consists of web-based smart devices to execute the sub-tasks like collecting the data from a different source, send to the targeted destination, and initiate the data analysis process which creates an impact in dominating the timely decision over the system process. (Maimon & Rokach, 2014, p.172). The data analysis can be carried out either using cloud storage or local storage depending upon the level of security needed in accessing the stored data.

Advantages of IoT Based Data Analytics

The current emerging computing concept internet of things offers unmeasurable services to the environment where it is implemented and used. The services are categorized as industry-specific called unique services and common services (Zobaa & Bihl, 2018, pp.203-211). The common services of IoT enabled processes are listed below as:

- Centralized Monitoring Services
- Maintenance Service based on Customer Experience
- Handling Time and Cost-Effectively.
- Yield High Productivity support Services.

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