Chapter 11
Process Analytics Model Approach in Healthcare:
The Technological Perspective

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ABSTRACT

Process analytics involves the relationship between the doctor, diagnostic centers and patient. The primary advantages of using process analytics in healthcare are expert guidance, global medical assistance, and possible alternate treatment mechanisms. The secondary advantages are the analysis of the same type of disease complications and the creation of a disease-based healthcare data repository. This chapter focuses on the process model-based approach for healthcare analytics. The two emerging techniques Big data and IoT are needed to be incorporated with the process model for storing and analyzing the healthcare data. The first category assists administrators with identifying areas to streamline operations and concretely increase savings. Research and development are crucial aspects of healthcare, providing new innovative solutions and treatments that can be properly tracked, measured, and analyzed.

BACKGROUND

Today a small town is having chemical labs and test labs with computer facility. The doctor gives the subscription to the patient based on the test report given by the lab. But the hospital and doctor are not maintainging the patients data consistently. The patient history can be analysed manually with technical assistance. The same method is followed for all other tests like CT Scan, MRI, ECG, etc. The leading hospital consists of patient personal information and his treatment history alone. For comparing any two test reports like Blood sugar with the Eye scan report. The doctor has to compare both manually, more-

over, the patient has to keep his medical records in each time of the visit. It is one of the most complex tasks and not possible to maintain the overall medical records for a long time.

In certain cases, the doctor may need for patients' teenage treatment history while treating him at the age of '50s. The disease like tuberculosis, cancer occurs due to the lifestyle habits of a person in the his early age (Amer, 2018; Lee, 2019; d'Angelo et al., 2019).

The following aspects must be considered

- There is a need for digitization of the medical history of a person since from his birth.
- There is a need to integrate the multiple resources of data stored in different devices.
- There is a need to monitor a patient from remote places i.e. houses and hospitals with the use of technology.

INTRODUCTION

Data has become one of the most valuable assets in the world. Data has its value and it can be changed when it is used for business applications. The growth of the Internet and the digitization of real-world processes lead to digital transmission (Meeker, & Wu, 2018; Angus & Westbrook, 2018; Pereira & Pereira, 2015; Contreas, 2018; Kuziemsky et al., 2019; Pendse et al., 2019). The storage becomes more centralized which is also secured as personalized one. Email, smart phone, Laptops, Desktops and all other electronic devices are connected with the internet and it generates large amounts of data every day. The secured centralized storage called cloud storage provides sophisticated efficient use of data once it is stored (Batrouni et al., 2018; Zhong et al., 2018). The stored data can be accessed and modified with any electronic devices from anywhere in the world. The use of technologies in all fields has become paperless, cost-efficient and instant access to data to all of its users. Exchange of information through the digital medium is a time-saving and it gives solutions for division making the problem-solving.In the healthcare industry, healthcare data is computerized and stored separately in magnetic disks. The patient records are stored as files and manual work is needed more in the system. The digitization and storing all sources of data in a single location or possible to Interco melt one another when it is needed will do magics in analysis and decision making. This chapter discusses the role of the Internet of Things and Big Data in healthcare Digitalization (Khan & Salah, 2018; Srinivasan et al., 2019; Sowmya et al., 2019; Bilami & Sahraoui, 2020; Oussous et al., 2018).

The Healthcare analytics is a service-oriented architecture which helps to store, analyze and manage the patient records whenever it is needed (Mehta & Pandit, 2018; Manogaran & Lopez, 2018; Carvalho et al., 2019; Fernandez-Luque et al., 2019). It gives the present biography of a human with their historical healthcare information. It is very useful for remote medical assistance, decision making, possible treatment methods, etc., The outcomes of healthcare analytics lead to increased healthcare and critical care. The vast growth of data, internet, and technology leads to generate and combine the data in the second which is useful for many purposes. In the medical industry decision making and treatment methodology are leading factors of patient survival. The drug and treatment procedure is the common procedure that will be positive only when proper medicine is given or treatment procedure followed.

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