

# An Application for Treatment Time Analyzer by Integrating Patient History and Current Stage of Treatment in Big Data

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**Abstract-** Presently the patient will not be able to understand the phases of treatment and also to predict the waiting time duration based on the illness. The suggested waiting times by the hospitals are not in real time and there is huge difference with additional hour, due to this patient gets exasperated and there is no unambiguousness about the treatment process. Treatment Time Analyzer will integrate the patient history and the stages of treatment suggested based on the illness, such that patient will have awareness about the treatment and its process. And there is no repeated examination will undergo for the patient also treatment time get consumed and fast recovery from the illness, since there is immediate treatment undergone based on the patient health condition. Due to Hospitals' data volumes are increasing every day, managing the patient historical data in each and every hospital is to recommend maintaining very high. A big data systematic platform is the best way to analyze the structured and unstructured data generated from hospital management systems. Finally, this prediction model is designed to know the future health condition of the most interrelated patients based on their current health status.

**Keywords-** Big Data, Predictive Model, Hospitals, Disease, Emergency department.

## I. INTRODUCTION

Hospitals are one of the most essential in our lives, providing the treatment for the people suffering from various illnesses. It is very necessary for the hospital to keep track of the patient history details to provide the best treatment when the patient in Emergency Department, such that there will not be any repeated examination process will undergo. Based on the current illness and the patient history, the patient can directly treated the next level of process by avoiding unnecessary initial screening. Whereas when we the patient to know the stage of treatment can easily determine the treatment time.

Treatment time analyzer predicts time in different phases of patient treatment, such as blood test, X-rays, CT scan, surgeries. We call each of these phases as treatment tasks. Each treatment task varies in time for each patient, which makes time prediction. Initially a patient is usually required to undergo examinations, based on the patient details. In such a case, more than one treatment task will be required for each patient. Big data in healthcare is a systematic environment to handle the large volume of patient data. The differentiated data sets with respect to the cumulative data sets such as clinical reports, EHRs, and radiological images and veracity explains the truthfulness of the data sets with respect to data availability.

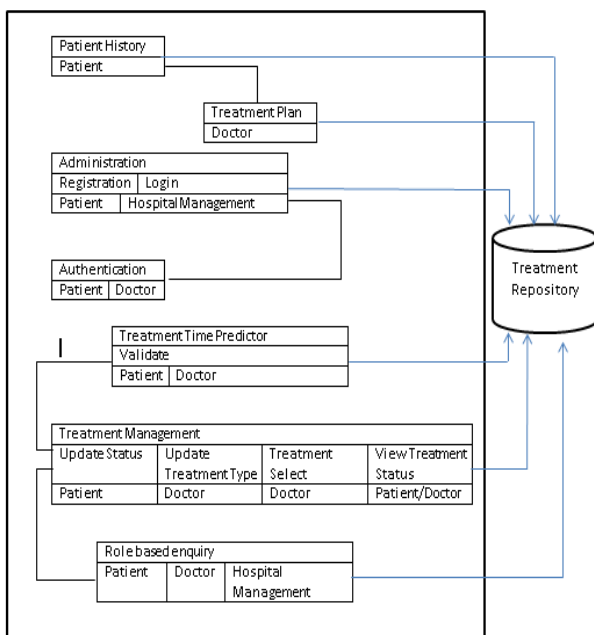
Now-a-days various applications are developed, which need some efficient analytic models. Many approaches are considered by different authors in the recent past for healthcare parameter analysis. Moreover, the similarity between health parameters of a patient is considered by the physicians for better decisions. Big data analytic is applied in healthcare to identify the collections of patient diseases and future predictions. In a learning healthcare system, data are analyzed and used as insights continuously for patient care. During this process, the patient data are combined with the clinical reports for better suggestions and decisions.

In this paper, we focus on helping patients to complete their treatment in a predictable time in effective manner. We use massive realistic data from various hospitals to develop a patient treatment time consumption model. The realistic patient data are analyzed carefully based on important parameters, such as patient treatment start time, end time, patient age, and detail treatment content for each different task. We identify and calculate different waiting times for different patients based on their conditions and operations performed during treatment.

## II. RELATED WORKS

Big data architecture with approach for healthcare is proposed rate of workload on the map and reduces number of phases. In another prospective, MapReduce framework is designed to reduce the re-computation for incremental iterative computations. An online community-based health services is proposed, where the health data are collected and mined through some questionnaires and their respective answers. A scalable and distributable method is proposed to find the similarity among patients by modifying the MapReduce framework. This method can support the storage and information retrieval over the time stamp. However, the visiting frequency, health parameters and hidden symptoms of patients are very important but are not taken into consideration for analyzing and processing the data in this work. Zhang et al, propose a task-level adaptive and scalable MapReduce framework, which can estimate the future arrival

## III. SYSTEM DESIGN



## IV. MODULE DESIGN

Treatment time analyzer is useful for managing the patient waiting time at hospitals. The modules included in the proposed system are as follows:

**Login/Registration:** First the new patient has to register in the system. Once registered, user can login with the unique ID and password. The system then asks user data like name, gender, date of birth, age, contact number, etc. Patient

can directly go to hospital where receptionist will generate his unique id and password.

**Treatment Stages:** The stages of treatment based on the illness will be maintained by respective doctor.

**Patient History:** The details of patient history will be updated regularly by hospital management. Based on the patient history the current illness will be treated and passed on with stages of illness which is maintained respectively.

**Treatment time predictor:** After scheduling appointment, system will predict the waiting time of patient based on the data taken from system. The waiting time notification and the treatment stages will be sent to the patient via message.

**Treatment Management:** Once patient consults with doctor and gets medicine prescription, he will receive medicine alerts on periodic basis until his medicine course gets completed. The block diagram for the same is as shown below.

## V. CONCLUSION

The Treatment time analyzer mainly focuses on reducing overcrowding at hospitals. The system predicts waiting time of each patient. For each patient in the queue, the total treatment time is based on the stage of treatment with respective to his illness combined with patient history. The system initially can be implemented in private clinics and in future it can be proved to be useful for government hospitals also.

## VI. ACKNOWLEDGMENT

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