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Parallel Patient Treatment Time Prediction with Hospital Queuing Recommendation System

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Abstract:- *Nowadays, in every hospital, we see a large amount of people waiting in queue to take treatment from doctors for different types of illness. In this scenario people get fed up to stand in queue for a long time waiting for their turn for treatment, leaving all their usual important work and job. To help them out and to avoid their stress to stand in the queue and wastage of their important time, we have developeda system that gives queue waiting time to patients through the web application which update in real time. We developed a Parallel Patient Time Prediction Algorithm which will give the patient waiting time for their treatment.So that they can attain the hospital according to the time predicted to them.Also we developed the Hospital Queuing Recommendation (HQR) System,which suggests the treatment to the patient according to waiting time of treatment. The treatment with less queue among other is first recommended to the patient.*

Keywords*: Hospital queuing recommendation, Patient treatment time prediction.*

I. Introduction

In hospitals most of the patients come for treatment such as CT scan,sugar level,blood test,etc. and wait for an inestimable long period in lengthy queuefor their turn to complete their treatment.Every treatment task may have changeable time for every patient that formsthetime prediction and recommendation much difficult. Some treatments are interdependent and based on the result of first treatment while some are independent.In this paper, we concentrate on helping patients to finish their treatment tasks in a calculable time,also helping hospitals to schedule every treatment task queue and avoid overflowing and inefficient queues.For that we have visited the hospital and received the patient information to make a patient treatment time prediction model for every treatment task to presage the treatment time for every patient inside the queue. We examined the patients data based on their treatment start time,end time, patient age and details of the treatment taken by the patient for the individual treatment task.By doing this, we are able to analyze the waiting time for the different treatment task of patients.

II. Objective

- To figure out the waiting period of every treatment task.
- A Proposed system is used to analyze Patient Treatment Time Prediction (PTTP) algorithm to presage waiting period for every treatment task.
- HQR system recommends the suitable treatment task to the patient.

III. Literature survey

A Random forest algorithm which depends on decision tree is acceptable foralgorithm of data mining in big data,which used in several areas likerapid action disclosurethrough particular random forest voting [2].
An outline of the present generation of suggestion method such as a content basedsuggestion, collaborative and hybrid suggestion approach is given in this paper. Also,there is no any existence of parallel patient treatment time prediction algorithm wasfound [3].To increase the accuracy of data analysis, many optimization waysof regression are designed.For the increasing composition of binary regression tree a self-adaptive induction algorithm is given[4].A random forest mechanism builds on weighted trees is designed to distinguish high-dimensional noisy data.However the initial random forest algorithm uses a conventional direct voting mechanismin processes[5]
Bayesian-inference-based recommendation system is introduced for online social networks where a user raises a content rating query on the social network to his direct and indirect friends [6].A travel recommendation algorithm

which mines the public's characteristic and travel-group types is proposed in this paper [7].A multi-branch decision tree algorithm is designedwhich establisheduponcorrelation-splitting criterion [8].

IV. System Architecture

When Patient registered itself on hospital website with username and password,the registered information stored on hospitals database.Then patient selects treatment after selecting PTTP algorithm shows how much time patient required to wait in the queue for each treatment.According to this the HQR system predict the treatment that has less queues.

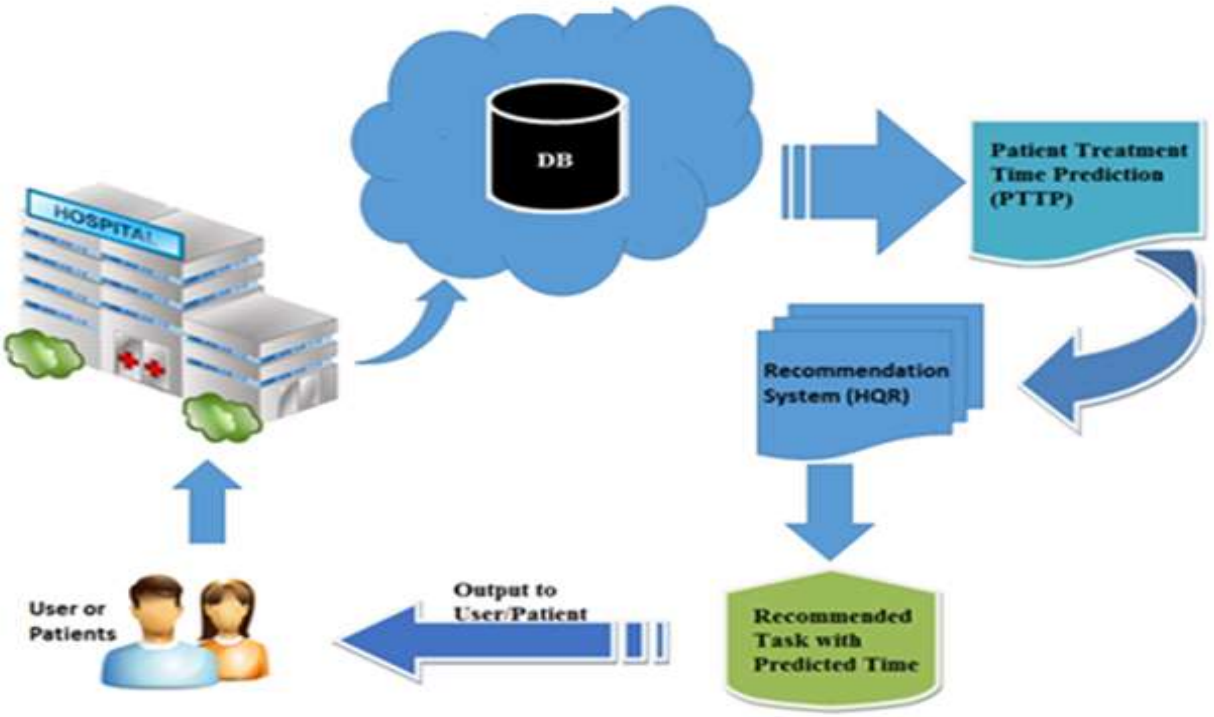

Figure 1.Architecture Diagram

A. PTTP Algorithm

Patients information is recorded in hospital database while registration. The registration includes patient information such as name, age, blood group, mobile number etc. After registration, patients logged in through username and password which he created at the time of registration. After login, patients will select the treatments that he want to perform or that is prescribed by the doctors. After selection of treatments, the required waiting time for that treatment will be allocated to the patient.Suppose there is one patient in the queue then the allocated time will be after the end time of that first patient, through this the patient come to know that how much time he required to wait for treatment. If the treatment of the first patient is completed before the allocated time, then the queue will be updated in real time and updated time will be shown to the remaining patients in the queue.If the same person come next time, then as the registration details does not require to fill again, the details will be retrieved from the database thus only login is required.

B. HQR System

Hospital Queuing-Recommendation (HQR) system recommends the least waiting treatment queue to the patient. It takes the waiting time of each queue from PTTP and selects the least waiting queue among them. If the treatment of one patient is completed before the allocated time, then it updates the queue in real time and show the updated time to the patient.HQR system is resposible for recommendation of treatment to patients.

V. Conclusion

In this paper, a PTTP algorithm is proposed and HQR system is developed. The PTTP model generates the waiting time for every treatment task and HQR system recommends the favorable treatment plan to the patient.Ourmain aim

is to presage the treatment task for every patient and to help them for completing their treatment in predictable time and also to avoid thelengthy and time consuming queues at hospitals.

VI. Applications

- The system can be used in hospitals to manage patientsqueue and to reduce the wait delays and patients overcrowding in hospitals.
- On Bus Stations for ticket queue,we can develop system that predicts the less crowded queue among many counters of tickets.
- In ATM systems,long queues for withdrawal of money can be managed by developing system that predict the time for each person waiting in queue for their turn to withdraw money.
- In Bank, we can manage the queue of money deposit or withdrawal, etc. by using this system which will predict the waiting time of each person standing in queue.

VII. Future Scope

For managing the queues for multiple hospitals in same campus, we can use big data for storing and analyzing the information of each patient visited to each hospital for different treatments. If more than one hospital is giving the same treatment to the patient then we can show the least queue among them to the patient for the treatment so that overcrowding of only one hospital will be managed.

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