Project Title

B.Tech/M.Tech Category Project Report

Submitted in partial fulfillment of
the requirements for the award of the degree
of
Master of Technology/ Bachelors
in
Department of Computer Science and Engineering
by
Student Name (Roll Number: ¡2K15/CSE/16¿)
under the guidance of
Supervisor
Supervisor Designation
Department of Computer Science and Engineering

DEPTT. OF COMPUTER SCIENCE AND ENGINEERING
DELHI TECHNOLOGICAL UNIVERSITY,DELHI
¡MONTH¿ ¡YEAR¿

CERTIFICATE

This is to certify that Project Report entitled **Project Title** submitted by ¡Student Name¿ (¡Roll Number¿) for partial fulfillment of the requirement for the award of degree ¡Master/Bachelors Of Technology¿ (Computer Science and Engineering) is a record of the candidate work carried out by her under my supervision.

¡Supervisor¿
¡Designation¿
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Delhi Technological University

DECLARATION

I hereby declare that the ¡Report¿ work entitled **¡Title¿** which is being submitted to Delhi Technological University, in partial fulfillment of requirements for the award of degree of Master/Bachelor Of Technology(Computer Science and Engineering) is a bonafide report of M.Tech/B.Tech Thesis carried out by me. The material contained in the report has not been submitted to any university or institution for the award of any degree.

¡Student name¿
¡Student Roll number¿

ACKNOWLEDGEMENT

I would like to express my gratitude and appreciation to all those who gave me the support to complete this project.
A special thanks to my mentor and project guide, **Supervisor** , ...

(Student Name)

ABSTRACT

This project aims to ...

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Chapter 1

Introduction

1.1 Overview

1.2 Motivation

1.3 Problem Statement

The main objective of this research work is to improve ..

Chapter 2

Literature Review

Different sections to highlight the background related information

2.1 Figures

Sample Figure 2.1.

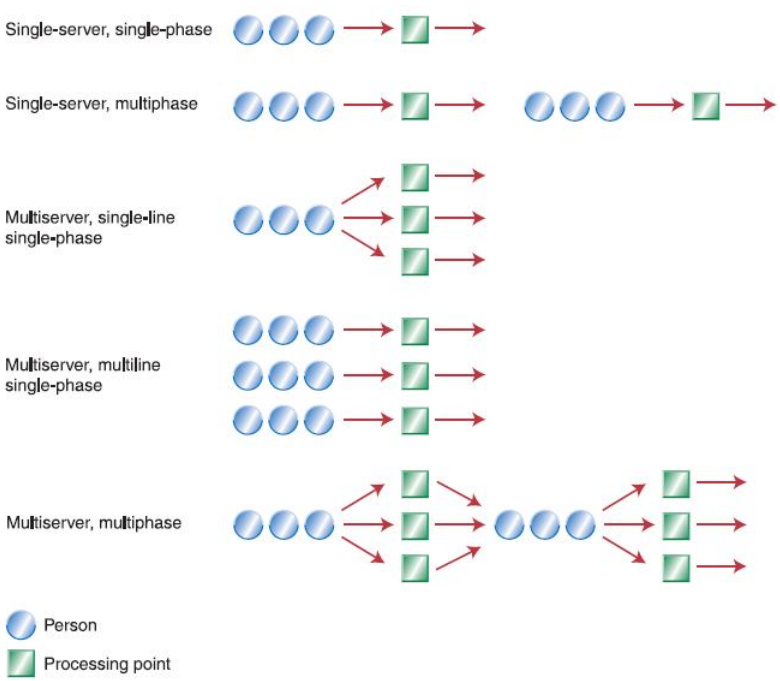

Figure 2.1: Examples of various Queuing systems

2.2 Equations

Sample Equations... We can write L_q as given below.

$$L_q = \sum_{n=c}^{\infty}(n-c)P_n$$

To determine Lq, substitute j=n-c or n=c+j in the above equation as shown below.

$$L_q = \sum_{n=c}^{\infty}(n-c)P_n$$

Pc+j can be written as,

$$P_{c+j} = \left(\frac{\lambda}{\mu} + \frac{\lambda}{2\mu} + ... + \frac{\lambda}{c\mu}\right)\left(\frac{\lambda}{c\mu}\right)^{j} P_0$$

which can be again written as,

$$= \left(\frac{\rho^{c+1}}{c!Xc^j}\right) XP_0X \frac{\partial\left(\sum_{j=0}^{\infty}\left(\frac{\rho}{c}\right)^j\right)}{\partial\left(\frac{\rho}{c}\right)}$$

$$= \left(\frac{\rho^{c+1}}{c!Xc^j}\right) XP_0X \frac{\partial\left(\frac{1}{1-\frac{\rho}{c}}\right)}{\partial\left(\frac{\rho}{c}\right)}$$

$$L_q = \left(\frac{\rho^{c+1}}{(c-1)!(c-\rho)^2}\right) P_0$$

After determining L_q , using Little's law we can determine the waiting time in the queue W_q as shown below.

$$W_q = \frac{L_q}{\lambda}$$

Patients waiting in the service system will be sum of W_q and service time.

$$W = W_q + \frac{1}{\mu}$$

The number of patients in the service system,

$$L = \lambda W \quad (Using \quad Little's \quad law)$$
$$= \lambda W_q + \frac{\lambda}{\mu}$$

2.2.1 Subsection name

The Poisson distribution [1] is a discrete event probability distribution that keeps track of no. of events that occurring randomly for a given period of time or space.
If say X = The no. of events occurring in the system in a given period,

2.3 Electronic Health Records (EHR)

2.3.1 HL7

FHIR Architecture and Implementation

Figure for architecture 2.2

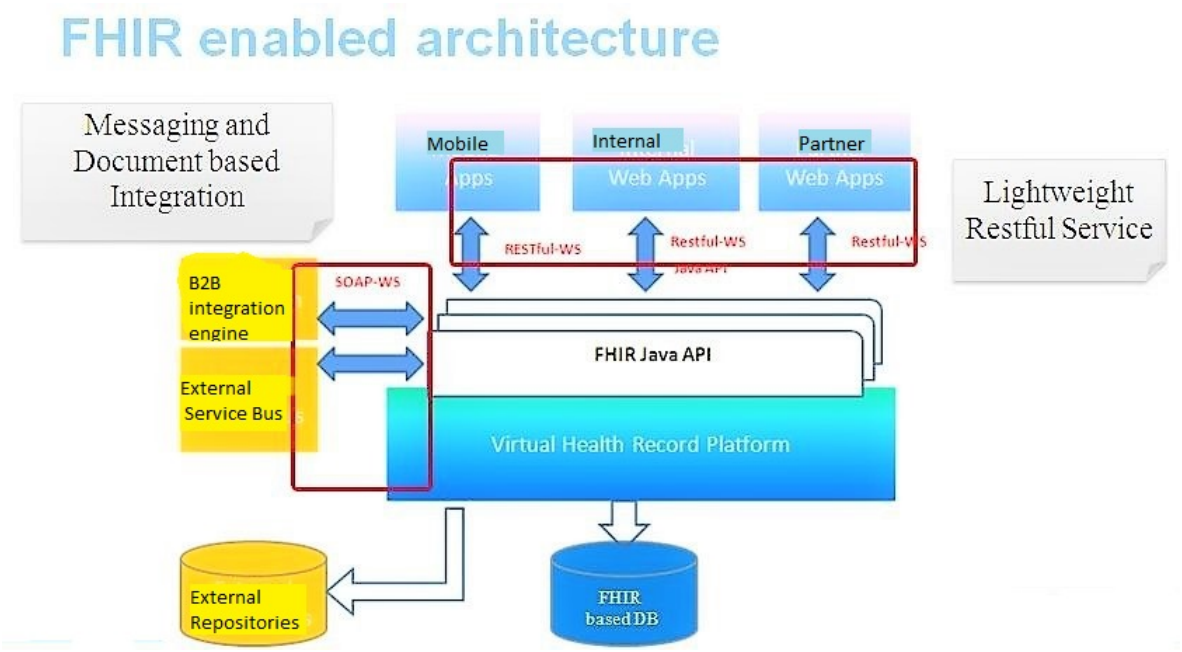

Figure 2.2: FHIR Enabled Architecture
[2]

Sample FHIR data

Observation Example

Semantic Interoperability

Check citations M.Fam et al. in their research work [3] have taken Wuhan Smart Health as a case to describe the typical smart health construction model in big city of central China. They have described one network dedicated network for smart health and common platform for all services, i.e. a smart health information platform, which is the core of the whole project. It contains the municipal and district information platforms, and three kinds of smart health cloud services (healthcare, public health, medical management). The former needs cloud computing and cloud storage technology; the latter is based on the EMR and EHR database. However, in their Wuhan smart health care system nowhere they have considered portability and interoperability of electronic health records.

Nikakhtar et al. [4] in their research work have used

Chapter 3

Proposed Work

3.1 Present workflow of system

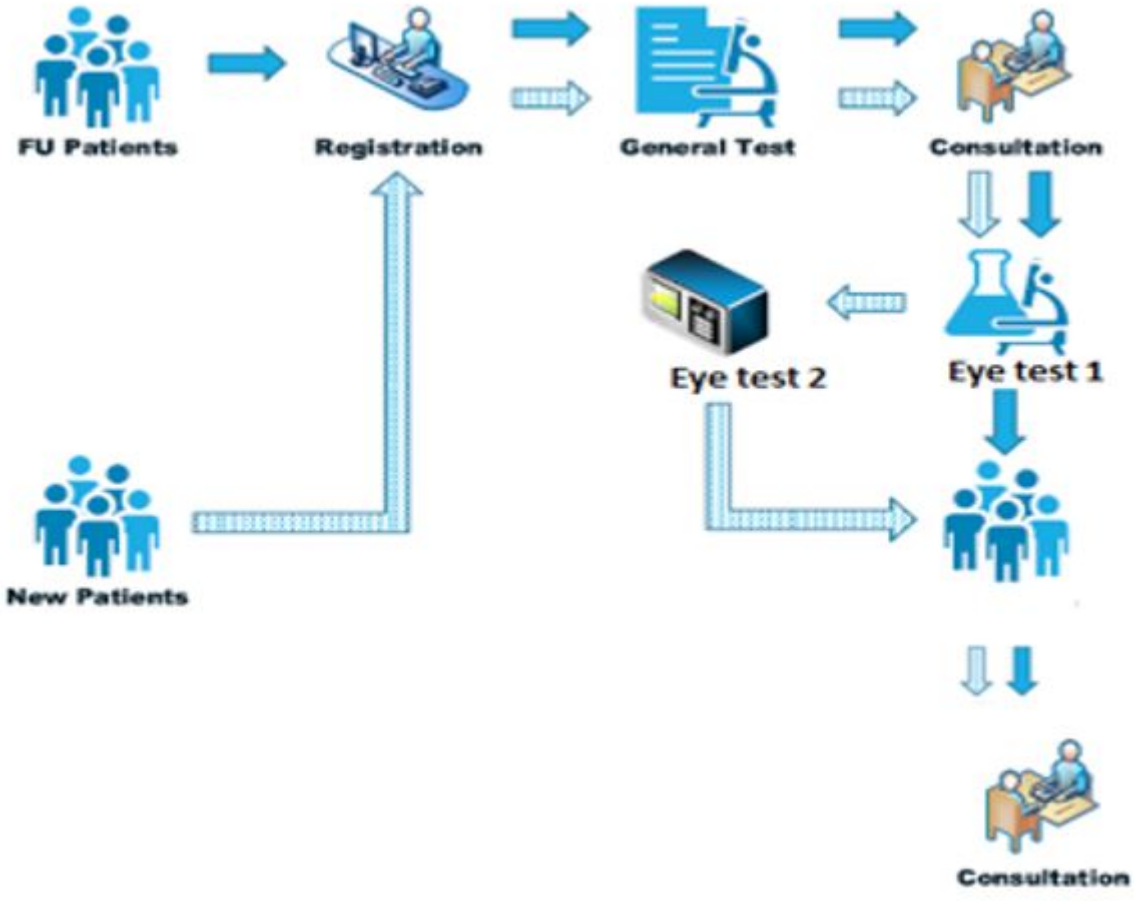

Figure 3.1: General flow of patients in department

3.2 Proposed workflow of system/ Proposed Algorithm/ System

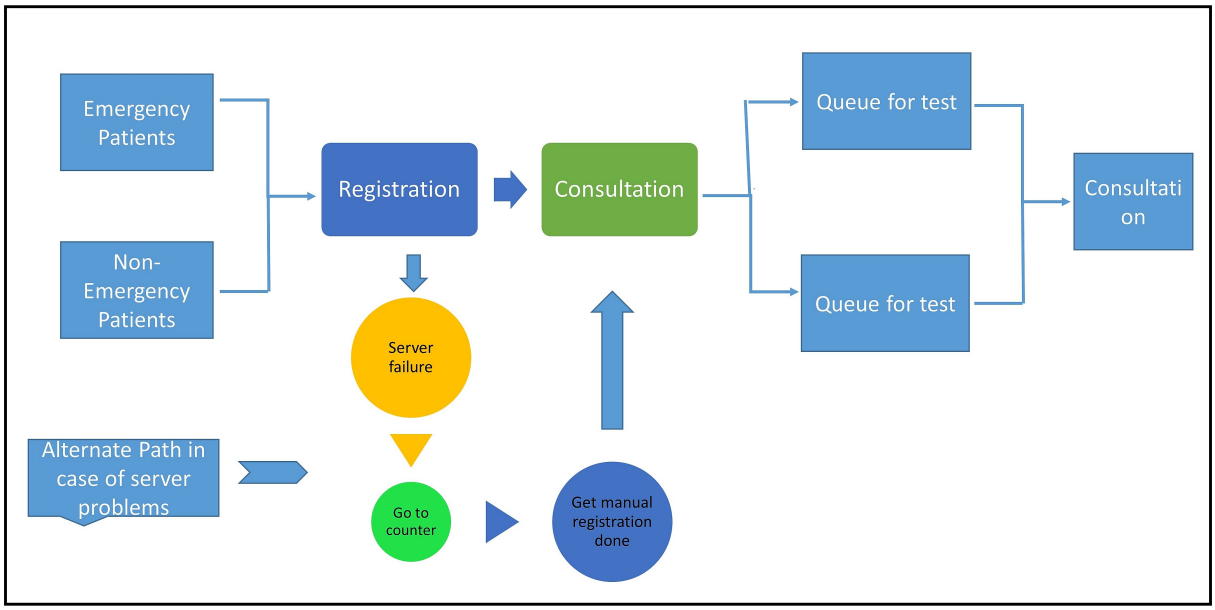

Figure 3.2: Proposed work flow of department

Main components of our research work:-

3.2.1 Smart Registration process

3.2.2 Portable Health Records

Chapter 4

Experimental Results

4.1 Experimental Environment

Table 4.1: Simulation Environment statistics

	Parameter	Value
1.	Simulation duration	4 hours
2.	Number of patients per day	200
3.	Arrival Rate	60 arrivals per hour
4.	Probability of kiosk failure	1/100
5.	Probability of server outage	1/50

4.2 Simulation of present system

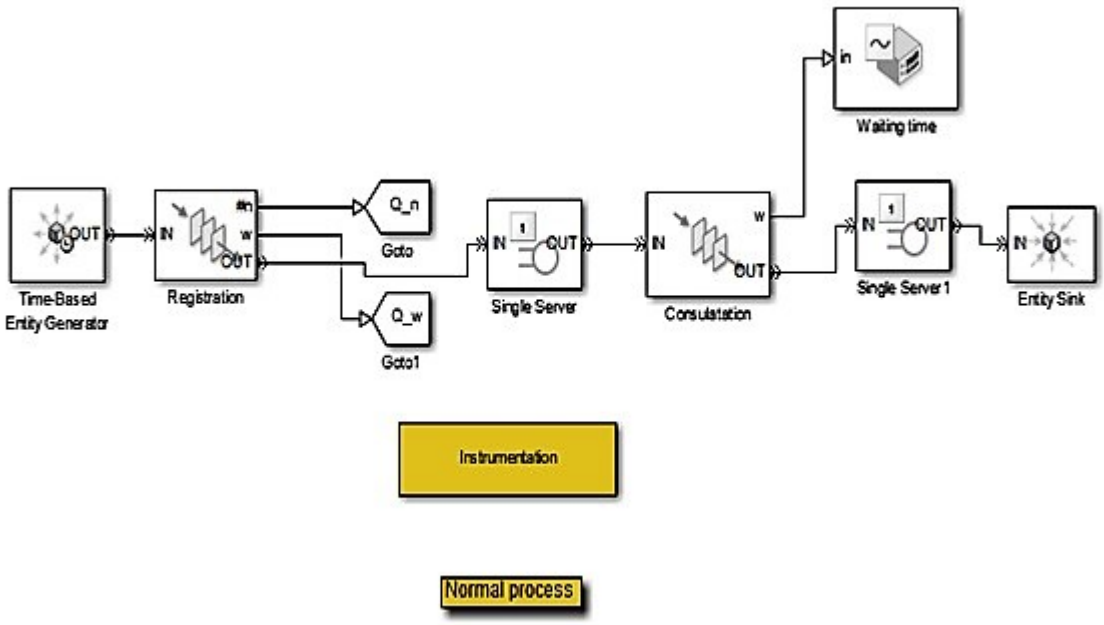

Figure 4.1: Screenshot:Present workflow of department

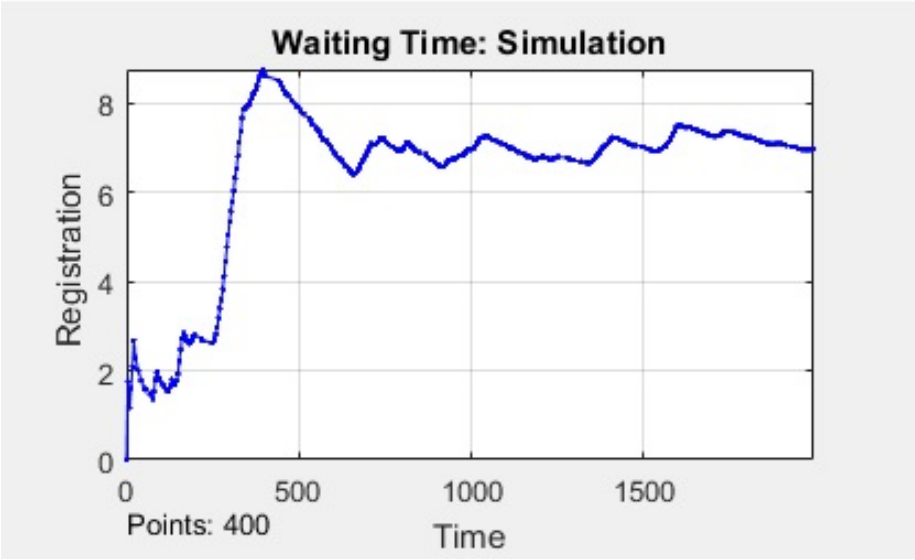

Figure 4.2: Waiting time for registration process

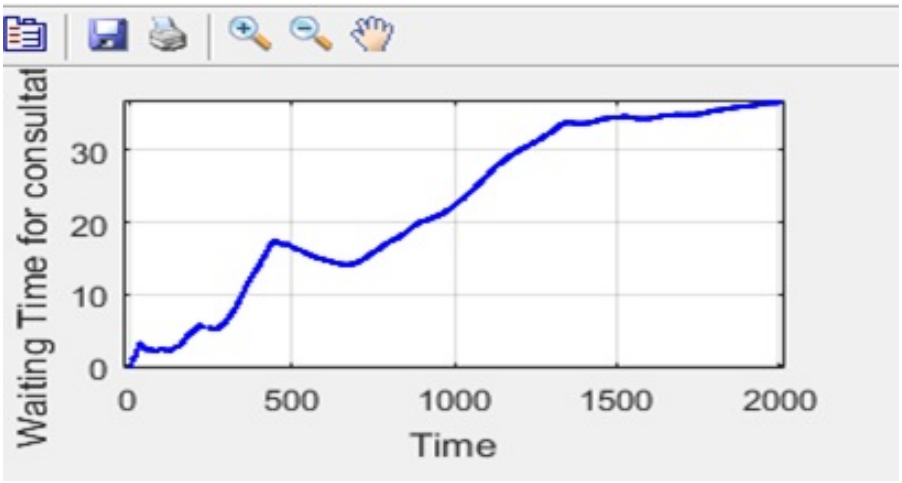

Figure 4.3: Waiting time for consultant

Table 4.2: Statistics for specialty clinics [12]

	Specialty Clinic	New cases	Old Cases	Total
1.	Cornea Clinic	5959	11524	17483
2.	Lens Clinic	825	1955	2780
3.	Uvea Clinic	1079	3667	4746
4.	Contact Lens Clinic	985	2239	3224
5.	Glaucoma Clinic	3759	11195	14954
6.	Oculoplasty Clinic	3305	2493	5798
7.	Paed. Ophthalmology Clinic	418	36	454
8.	Retina Clinic	3883	4904	8787
9.	Neuro-Ophthalmology Clinic	2584	2328	4912
10.	Vitreo retinal Clinic	2478	2282	4760
11.	ROP	830	1124	1954
12.	Ocular Oncology Clinic	378	1329	1707
13.	Low visual Aid	2798	464	3262
14.	Orthoptic Clinic	2211	21265	23476
15.	Squint Clinic	5205	19982	25187
16.	Refraction	40644	40644	40644
	Total Cases	36697	127431	164128

4.3 Simulation of proposed system

Figure 4.4: Proposed system with portable electronic health records

TAble:

Table 4.3: Total Cases in Dr. Rajendra Prasad Centre for Ophthalmic Sciences at AIIMS [12]

		New Cases	Old Cases	Total
1.	General O.P.D.	152455	99349	251804
2.	Emergency	8799	-	8799
	Total Cases	161254	99349	260603

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