LRCH System solution

Zachariah Elhayek, Ethen Chen, Can Saruhan, Ray Oviasuyi

Table of Contents

[Introduction 3](#_Toc132314784)

[Mission Statement 4](#_Toc132314785)

[Data Flow Diagram 5](#_Toc132314786)

[Functional/Non-Functional Requirements 6](#_Toc132314787)

[Functional Requirements 6](#_Toc132314788)

[Non-Functional Requirements 6](#_Toc132314789)

[3NF 7](#_Toc132314790)

[Entity Relationship Diagram 8](#_Toc132314791)

[Data Dictionary 9](#_Toc132314792)

# Introduction

To fulfill the needs of the Lake Ridge Community Hospital, we have developed a new system to meet the hospital’s needs. This new application will allow for: medical staff to be able to record lab results for patients, digitize treatment subscriptions, removal of the batch-oriented system to allow for immediate recording and retrieval of information, and allow for scalability for future development. Along with the above additions/improvements, the system will be packaged in a web-application to allow for use on any device.

# Mission Statement

The purpose of the LRCH project is to provide greater efficiency to the operations of the hospital through a centralized system capable of managing the day-to-day requirements of the LRCH staff in order to provide free and high-quality health care to the community of Oshawa.

# Data Flow Diagram



# Functional/Non-Functional Requirements

## Functional Requirements

* Record lab results
* Record prescriptions
* Accumulate revenue by cost Centre
* Must be flexible/scalable to meet the need of a changing environment
* Room-Utilization Dashboard

## Non-Functional Requirements

**Operational Requirements**

* Online transaction processing
* Minimum system requirements
* Recommended system requirements

**Performance Requirements**

* Within 3 – 4 seconds retrieval/adding of datamor

**Security Requirements**

* Must check the credentials of user login to verify what type of user they are

**Cultural / Political**

* What language is the system in?
* Handle 15k or more active patient data
* Must usable offline in the case of an internet outage

# 3NF

Admissions (VisitID, PatientNumber, LocationID, DateAdmitted, DischargeDate)

Patient (PatientNumber, PatientFirstName, PatientLastName, FinancialStatus, PatientAddress, City, Prov, PC, Telephone, Sex, HCN)

Physician (PhysicianId, PhysicianFirstName, PhysicianLastName, Telephone, Specialty)

Cost Center (CostCenterId, CostCenterName)

Location (LocationID, Room#, BedId, Extension, Type)

Items (ItemID, CostCenterId, Description, ItemPrice, ItemQtyOnHand)

ChargedItems (ChargedItemId, ItemID, VisitID, ChargeDate, TotalCharge)

PatientResults (PatientResults, ChargedItemID, Results)

# Entity Relationship Diagram



# Data Dictionary

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table  | Attribute | Type | Format | PK/FK | ReferencingTable |
| Admissions | VisitID | Int |  | PK |  |
|  | PatientNumber | Int |  | FK | Patient |
|  | LocationID | Int |  | FK | Location |
|  | DateAdmitted | Date | YYYY-MM-DD |  |  |
|  | DischargeDate |  |  |  |  |
| Patient | PatientNumber | Int |  | PK |  |
|  | PatientFirstName | Varchar |  |  |  |
|  | PatientLastName | Varchar |  |  |  |
|  | Telephone | Char | x xxx-xxx-xxxx |  |  |
|  | FinancialStaus | varchar |  |  |  |
|  | PatientAddress | varchar |  |  |  |
|  | City | Varchar |  |  |  |
|  | PC | Char | A1A-1A1 |  |  |
|  | Sex | Char |  |  |  |
|  | HCN | Char | xxxx-xxx-xxx-AA |  |  |
| Physician | PhysicianID | Int |  | PK |  |
|  | PhysicianFirstName | Varchar |  |  |  |
|  | PhysicianLastName | Varchar |  |  |  |
|  | Telephone | Char | x xxx-xxx-xxxx |  |  |
|  | Speciality | Varchar |  |  |  |
| Cost Center | CostCenterID | Int |  | PK |  |
|  | CostCenterName | Varchar |  |  |  |
| Location | LocatoinID | Int |  | PK |  |
|  | Room# | Int |  |  |  |
|  | BedId | Int |  |  |  |
|  | Extension | Int | xxx |  |  |
|  | Type | Varchar |  |  |  |
| Items | ItemID | Int |  | PK |  |
|  | ConstCenterID | int |  | FK | Const Center |
|  | Description | Varchar |  |  |  |
|  | ItemPrice | Money |  |  |  |
|  | ItemQTYOnHand | Int |  |  |  |
| Charged Items | ChargedItemID | Int |  | PK |  |
|  | ItemID | Int |  | FK | Items |
|  | VisitID | Int |  | FK | Admissions |
|  | ChargeDate | Date |  |  |  |
|  | TotalCharge | Money |  |  |  |
| Patient Results | PatientResults | Varchar |  | PK |  |
|  | ChargedItemID | Int |  | FK | Charged Items |
|  | Results | Varchar |  |  |  |