Software Requirements Specification

Automated Hospital Management System

S.D.L.H Maheeshanake
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1.Introduction

1.1.Purpose

The main purpose of our system is to make hospital task easy and is to develop software that replaces the manual hospital system into automated hospital management system.So this SRS document consists of a simple explanation about the system and its features.

1.2 Scope of the Development Project

The purpose of this specification is to document requirements for a system to manage the activities of a hospital.The current manual method of managing patients, nurses, and beds is time consuming and error prone. manage the large paper flow involved in this process is a hard task . The Hospital Management System will allow hospital administrative staff to access relevant information efficiently and effectively.From this we can store the details of all the admissions of patients , Employee Attendance, Payments of the patients.And we can Find about all the employees and their special things such as Specialization of the each doctor grade of the nurse etc.Also we can find data and about wards and their details .In this system searching updating and deleting data are also allowed .This system is implemented with the object oriented concepts of java language and database connectivity with mysql server.

1.3 Definitions, Acronyms, Abbreviations

Java - A platform independent object-oriented programming language.
Database - Consist of all information about employees wards and patients
HMS- Hospital Management System
SRS - System requirement specification
DOB -Date of Birth
NIC - National Identity card Number

Specialization - Doctor’s Status According to their Education and fields
Grade - Nurses status according to their seniority

1.4 References

Youtube tutorials
https://stackoverflow.com/

1.5 Overview Of Document

Section one provides a brief introduction to the software requirements of the project. The second section presents several user characteristics , data requirements, and the types of anticipated interaction between the users and program. The third section discusses the interface, functional, and performance requirements in detail.

2.General Description

2.1 User Characteristics

- In this HMS the data entry operator ,Doctors and nurses will be given the admin privileges.
- Users should have an average knowledge in English and to operate a computerized system.
- Data entry operator should have a basic knowledge about medical services.

2.2 Product Perspective

- The HMS is designed to help to handle the details of doctors,nurses,attendants and maintenance staff members with a computerized system .
- Manual system will be replaced with this system to have more efficiency, accuracy and user friendliness.
- With this system we can find any detail within seconds. So no need to check out details from files and papers which are wasting your time.
- We will accommodate easy access, retrieval, search and manipulation of data.
- The system will facilitate concurrent access and convenient management of activities of the medical center.

2.4 Operating environment

- Windows 7 or above operating system
- Mysql server
- Core i3 processor
- 4GB ram

2.5 General Constraints

- System is only accessible with a valid username and a password
- System should be connected to a mysql server
- This system will be written in java language with object oriented concepts
- In this system a patient should be registered only 1 time.when a previous patient comes he will be identified with his patient id and new admission id will be given
- Employees will be registered using their NIC numbers .
- GUI will be only provided in English language

2.6 Assumptions, Dependencies

- Hospital have a staff with proper english knowledge and computer literacy.
- Hospital has many computers with high performance
- The system database will be accessible in real time.
- Data entry operators and other people who will be given access are honest and reliable and won't edit and disuse other employee's details

3.Specific Requirements

3.1 External Interface Requirements

3.1.1 User interface

- Input from the user will be via keyboard input and mouse point and click.
- The user will navigate through the software by clicking on buttons. The icons will give appropriate responses to the given input.

3.1.2 Hardware interface

- Core i3 processor
- 4GB ram
- 500 HDD

3.1.3 Software interface

- JDK 1.8 - Java is fast, secure, and reliable.
- Netbeans 8.2 - IDE for Java developing.
- MySQL server - Database connectivity and management

3.2 Functional requirements

3.2.1 Login

- Admin ,Doctor or Nurse should start the application
- System will send you to the Login screen

- Provide the Username and password.Then click the login button (Default values - Username = lochana ,password =abc)
- Home screen will be displayed to the user

Alternative scenario

- Authorization fails
- A message is given to the admin that the provided Username or password is incorrect
- Reset the Username and password by clicking Reset button
- Allow the admin to re-enter the password and login with a valid one

3.2.2 Home Screen

- User will be given the main menu and he can click the relevant button and go to the place where he needs to go.

3.2.3 Details Screen

- To enter ward details ,Provide the details and click the Submit button.You'll be shown message which shows"Submitted successfully".
- If user needs to Search a certain ward's details, He needs to enter the Ward ID in the Ward Id Text field and click search button.Then the details of the ward will be displayed .
- If user needs to update the details of a Ward, first enter the Ward id and get the details on fields by clicking the search button.
- Then update the fields you need to update and click the update button.You'll be shown message which shows"successfully Updated"
- If you need to delete a Ward,Enter the Ward id in the Textarea and click the Delete button.You'll be shown message which shows"successfully Deleted"
- If you want to go to the Home screen you have to click the back button

Alternative scenario

- When Searching and Deleting or updating ,If an invalid Ward id was entered .A message should says that “You have entered an invalid ID .Please recheck and Enter again ”.

3.2.4 Patient Details Screen

- Provide the details and click the Submit button.You’ll be shown your patient ID in the Text field in the bottom.The Id will be automatically generated.
- If user needs to Search a certain patient’s details, He needs to enter the patient ID in the text field on the bottom and click search button.Then the details of the patient will be displayed .
- When you need to clear the fields .click the clear button.
- If user needs to update the details of a person first enter the patient id and get the details on fields by clicking the search button.
- Then update the fields you need to update and click the update button
- If you need to delete a patient ,Enter the Patient id in the text area which is in bottom and click the Delete button.

Alternative scenario

- When Searching and Deleting or updating ,If an invalid Patient id was entered .A message should says that “You have entered an invalid ID .Please recheck and Enter again ”

3.2.5 Admission details Screen

- If person is a new person to the hospital first of all the details of the patient should be entered.The New Patient button will sends you to the patient's detail screen.Then use back button and complete your registration.
- Insert,Delete, Update and search method can be executed as i stated in patient details scenario.

Alternative scenario

- If user inputs an invalid patient id to update, search or delete **,**system should show an **error** message which says "That patient ID doesn't exist.Please recheck and enter".

3.2.6 Payment details Screen

- Insert,Delete, Update and search method can be executed as i stated in patient details scenario.

Alternative scenario

- If user inputs an invalid patient id **or** Admission ID to update, search or delete ,system should show an **error** message which says "That patient ID / admission ID doesn't exist.Please recheck and enter".

3.2.7 Service details Screen

- User should select whether this is a treatment or a test by using the combo box.
- Insert,Delete, Update and search method can be executed as i stated in patient details scenario.

Alternative scenario

- If user inputs an invalid patient id **or** Admission ID to update, search or delete ,system should show an **error** message which says “That patient ID / admission ID doesn’t exist. Please recheck and enter ”.

3.2.8 Employee details Screen

- In here we consider the NIC number as the employee ID.
- The profession of the employee should be selected by using the combo box.(Select one from Doctor,Nurse,Attendant or maintenance staff member)
- If you have selected doctor You need to fill the specialization field and if you have selected nurse you need to fill the Grade field.
- Then click the submit button.
- You can search the employee details by enter the NIC no in the text field and click search button.
- You can delete a employee by enter the NIC no in the text field and click Delete button.
- If user needs to update the details of an Employee first enter the NIC and get the details on fields by clicking the search button.
- Then update the fields you need to update and click the update button.(Error should occur when you trying to update the type.So you can’t update the employee type)

- When you want to clear fields .enter the clear button
- Go to the home screen by clicking the back button

Alternative scenario

- If user inputs an invalid Employee ID(NIC) ,system should show an **error** message which says “That Employee ID doesn’t exist.Please recheck and enter”.

3.2.9 Employee admission Screen

- To mark the attendance enter the employee NIC ,Date ,Month and the ward number and click the submit button.
- By entering the Employee NIC and select the month from the combo box and click the get count button will show you the number of days that person have come in that particular month.

Alternative scenario

- If user inputs an invalid Employee ID(NIC) ,system should show an **error** message which says “That Employee ID doesn’t exist.Please recheck and enter”.

3.3 Performance Requirements

- Response time-The system will give responses within 1 second after checking the patient information and other information.

- Capacity-The system can be operated by many people concurrently with no failure.

- User interface- User interface screen will response within 3 seconds

3.4 Quality Attributes

- Robustness

  The entire system includes every function which is always help to the system to work correctly & strongly in all conditions.

- Reliability

  The system has the ability to work all the time without failures apart from network failure

- Availability

  The system should be available all the time

- Usability

  software can be used again and again without Interruption.

- Accessability

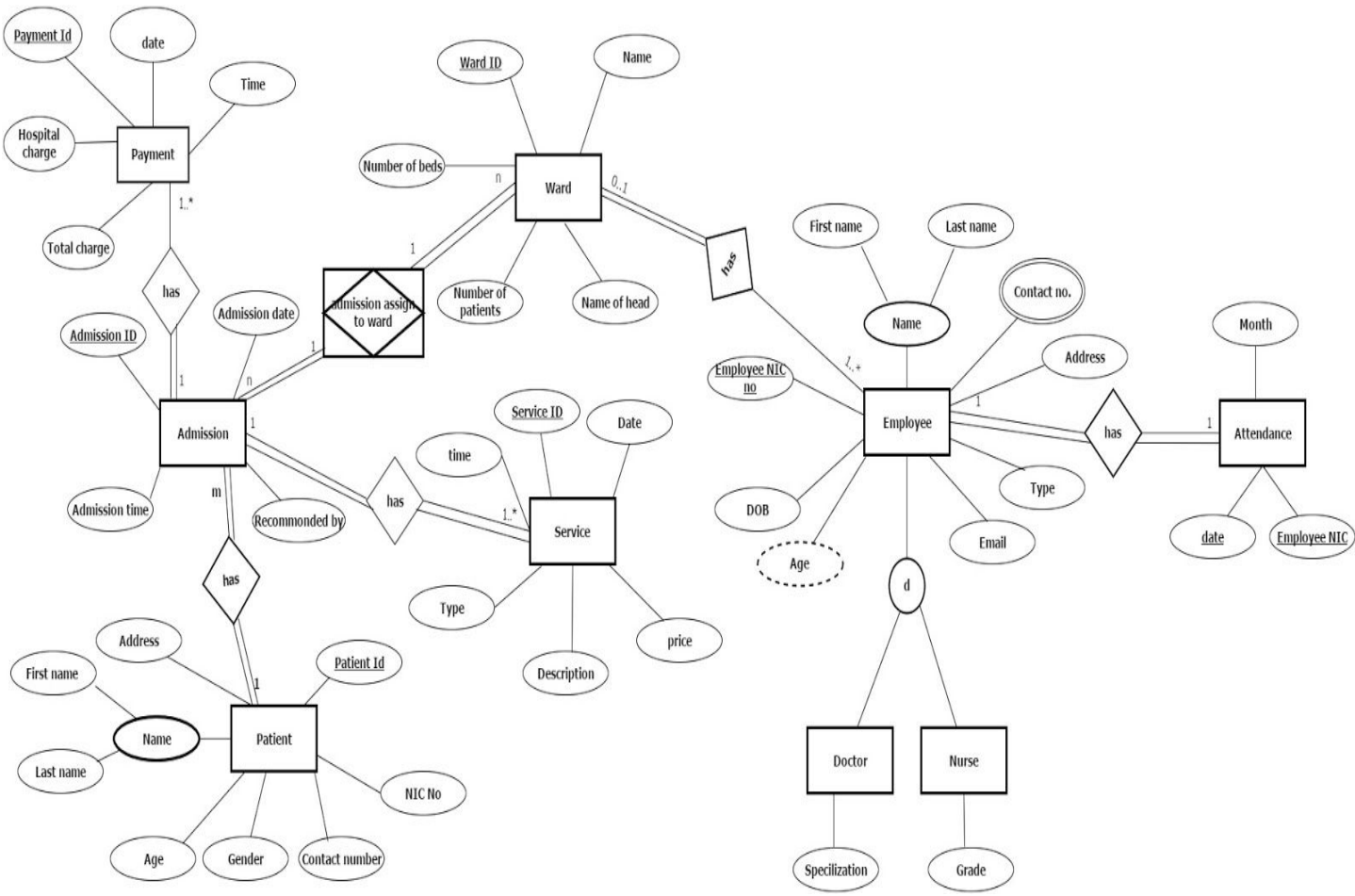
  Administrator and many other users can access the system but the access level is controlled for each user according to their work scope.

3.5 Other requirements

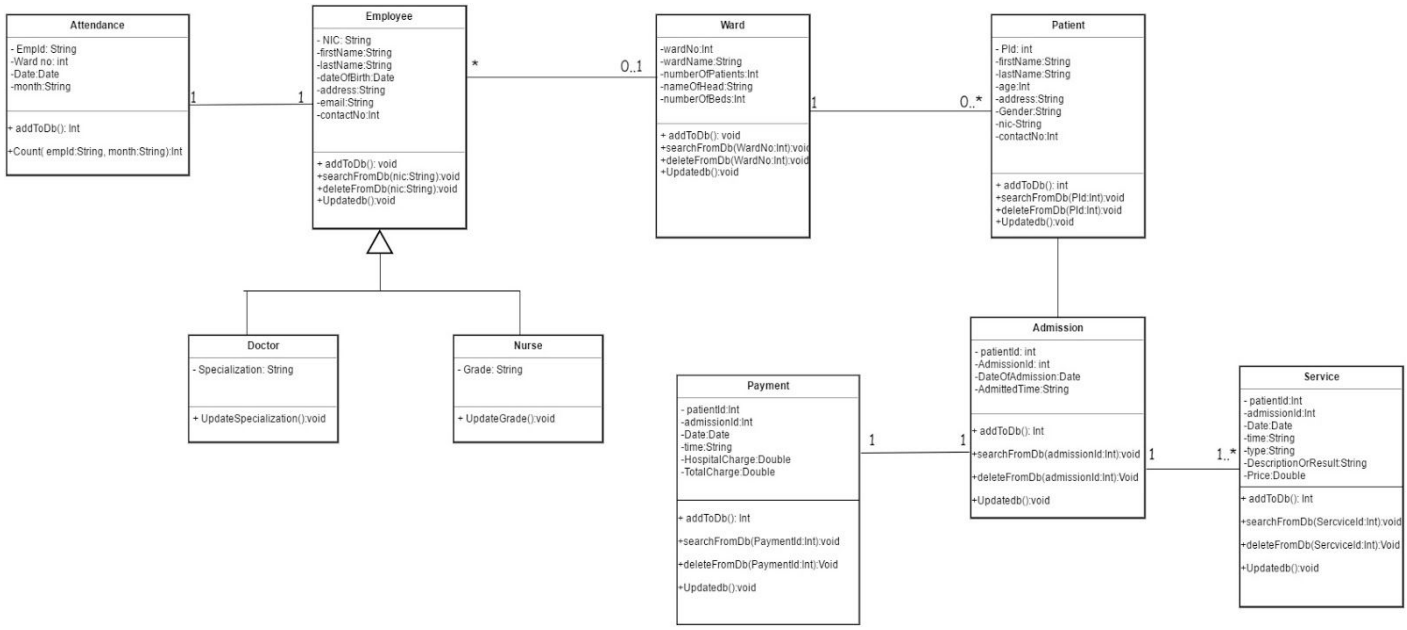
- Security requirements

  users can access the system only with a valid username or password

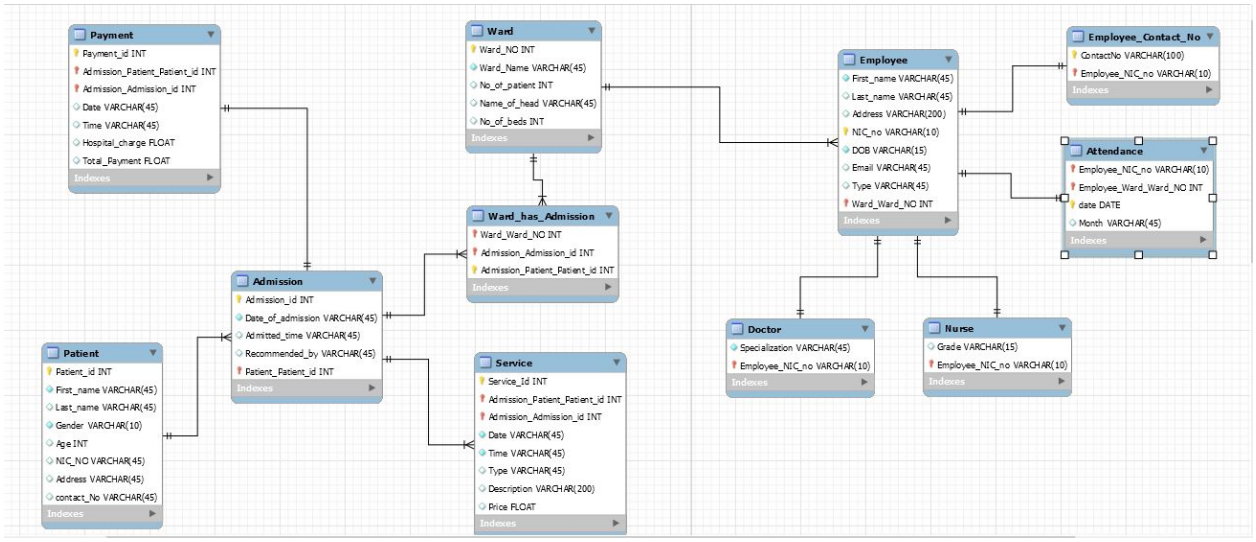
Appendix a : ER diagram


Payment Id
date
Time
Hospital charge
Payment
Total charge
1..*
has
Admission ID
Admission date
Admission
Admission time
m
Recommonded by
has
Address
First name
Patient Id
Name
Last name
Patient
NIC No
Age
Gender
Contact number
Ward ID
Name
Number of beds
n
Ward
0..1
1
Admission assign to ward
1
n
Number of patients
Name of head
has
Service ID
Date
time
1..*
Service
Type
price
Description
First name
Last name
Contact no.
Name
Employee NIC no
1..*
Address
Employee
1
has
1
Attendance
Month
Type
DOB
Email
Age
d
date
Employee NIC
Doctor
Nurse
Specilization
Grade

Appendix b : Class diagram


Attendance
- EmpId: String
-Ward no: int
-Date:Date
-month:String
+ addToDb(): Int
+Count(empId:String, month:String):Int
1
1
Employee
- NIC: String
-firstName:String
-lastName:String
-dateOfBirth:Date
-address:String
-email:String
-contactNo:Int
+ addToDb(): void
+searchFromDb(nic:String):void
+deleteFromDb(nic:String):void
+Updatedb():void
*
0..1
Ward
-wardNo:Int
-wardName:String
-numberOfPatients:Int
-nameOfHead:String
-numberOfBeds:Int
+ addToDb(): void
+searchFromDb(WardNo:Int):void
+deleteFromDb(WardNo:Int):void
+Updatedb():void
1
0..*
Patient
- PId: int
-firstName:String
-lastName:String
-age:Int
-address:String
-Gender:String
-nic-String
-contactNo:Int
+ addToDb(): int
+searchFromDb(PId:Int):void
+deleteFromDb(PId:Int):void
+Updatedb():void
Doctor
- Specialization: String
+ UpdateSpecialization():void
Nurse
- Grade: String
+ UpdateGrade():void
Admission
- patientId: int
-AdmissionId: int
-DateOfAdmission:Date
-AdmittedTime:String
+ addToDb(): Int
+searchFromDb(admissionId:Int):void
+deleteFromDb(admissionId:Int):Void
+Updatedb():void
1
1
1
1..*
Payment
- patientId:Int
-admissionId:Int
-Date:Date
-time:String
-HospitalCharge:Double
-TotalCharge:Double
+ addToDb(): Int
+searchFromDb(PaymentId:Int):void
+deleteFromDb(PaymentId:Int):Void
+Updatedb():void
Service
- patientId:Int
-admissionId:Int
-Date:Date
-time:String
-type:String
-DescriptionOrResult:String
-Price:Double
+ addToDb(): Int
+searchFromDb(SercviceId:Int):void
+deleteFromDb(SercviceId:Int):Void
+Updatedb():void

Appendix c : mapped tables to the ER Diagram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Payment_id INT
Admission_Patient_Patient_id INT
Admission_Admission_id INT
Date VARCHAR(45)
Time VARCHAR(45)
Hospital_charge FLOAT
Total_Payment FLOAT
Indexes
Ward
Ward_NO INT
Ward_Name VARCHAR(45)
No_of_patient INT
Name_of_head VARCHAR(45)
No_of_beds INT
Indexes
Employee
First_name VARCHAR(45)
Last_name VARCHAR(45)
Address VARCHAR(200)
NIC_no VARCHAR(10)
DOB VARCHAR(15)
Email VARCHAR(45)
Type VARCHAR(45)
Ward_Ward_NO INT
Indexes
Employee_Contact_No
ContactNo VARCHAR(100)
Employee_NIC_no VARCHAR(10)
Indexes
Attendance
Employee_NIC_no VARCHAR(10)
Employee_Ward_Ward_NO INT
date DATE
Month VARCHAR(45)
Indexes
Ward_has_Admission
Ward_Ward_NO INT
Admission_Admission_id INT
Admission_Patient_Patient_id INT
Indexes
Admission
Admission_id INT
Date_of_admission VARCHAR(45)
Admitted_time VARCHAR(45)
Recommended_by VARCHAR(45)
Patient_Patient_id INT
Indexes
Patient
Patient_id INT
First_name VARCHAR(45)
Last_name VARCHAR(45)
Gender VARCHAR(10)
Age INT
NIC_NO VARCHAR(45)
Address VARCHAR(45)
contact_No VARCHAR(45)
Indexes
Service
Service_Id INT
Admission_Patient_Patient_id INT
Admission_Admission_id INT
Date VARCHAR(45)
Time VARCHAR(45)
Type VARCHAR(45)
Description VARCHAR(200)
Price FLOAT
Indexes
Doctor
Specialization VARCHAR(45)
Employee_NIC_no VARCHAR(10)
Indexes
Nurse
Grade VARCHAR(15)
Employee_NIC_no VARCHAR(10)
Indexes