

18CSC303J-DATABASE MANAGEMENT SYSTEM

A PROJECT REPORT ON HOSPITAL MANAGEMENT SYSTEM

Submitted by

**HITESH[RA181100310775]
SHREEJAN MISHRA[RA181100310776]
YASH[RA1811003010777]
TUSHAR AGARWAL[RA1811003010778]
RAGHAVENDRA[RA1811003010779]**

Under the guidance of

Mrs. Ida Seraphim

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE & ENGINEERING

of

FACULTY OF ENGINEERING AND TECHNOLOGY



SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
Deemed to be University u/s 3 of UGC Act, 1956

**S.R.M. Nagar, Kattankulathur, Kancheepuram District
May 2021**

ABSTRACT

Hospital Management System provides the benefits of streamlined operations, enhanced administration & control, superior patient care, strict cost control and improved profitability. HMS is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals. More importantly it is backed by reliable and dependable support. The project 'Hospital Management System' is based on the database techniques. As there are many areas where we keep the records in database for which we are using oracle software which is one of the best and the easiest software to keep our information.

This project Hospital Management system includes registration of patients, storing their details into the system, and also computerized billing based on their diagnosis and allocated doctor. The software has the facility to give a unique id for every patient and stores the clinical details of every patient and hospital tests done automatically. It includes a search facility to know the current status of each patient. User can search details of a patient using the id. The data can be retrieved easily. The interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast.

INTRODUCTION

Hospital management system is a computer system that helps manage the information related to health care and aids in the job completion of health care providers effectively.

HMS was introduced to solve the complications coming from managing all the paper works of every patient associated with the various departments of hospitalization with confidentiality. HMS provides the ability to manage all the paperwork in one place, reducing the work of staff in arranging and analyzing the paperwork of the patients.

HMS does many works like:

- Maintain the medical records of the patient .
- Maintain doctor personal details.
- Tracking the bill payments.

The advantages of HMS can be pinpointed to the following:

- Time-saving Technology.
- Improved Efficiency by avoiding human errors.
- Reduces scope for Error.
- Data security and correct data retrieval made possible.

IMPLEMENTATION

1. We'll start with an virtual representation of our database with the help of an ER diagram.

2. Total code.

3. Concepts implemented.

3.1. Trigger- to generate the bill of patients, to get values of derived attributes.

3.2. View - To see bill with patient, doctor details.

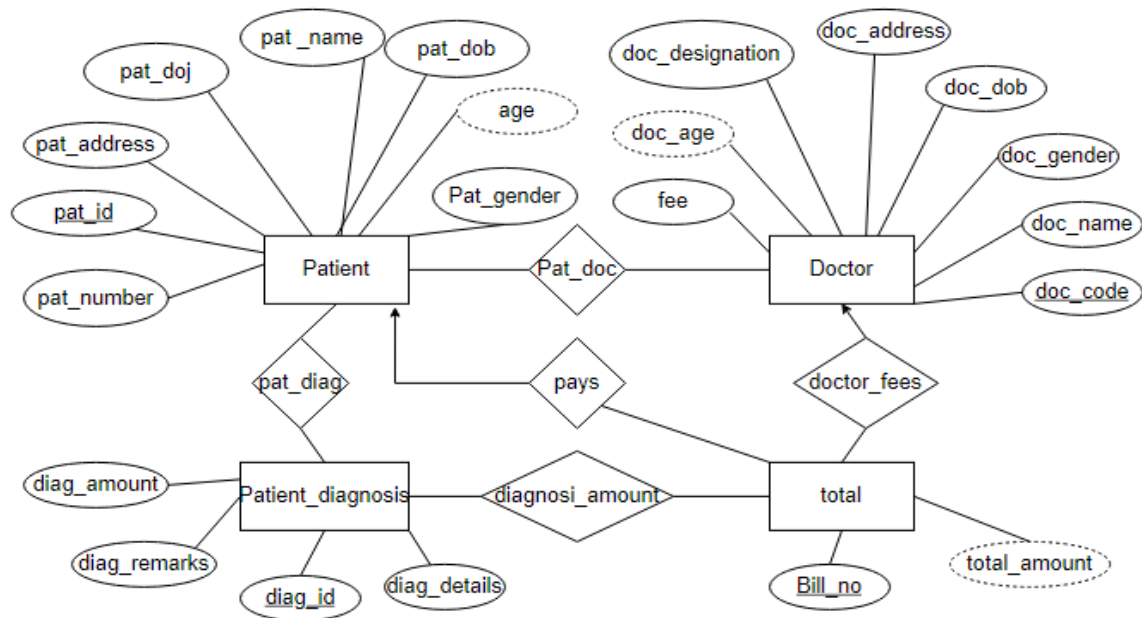
3.3. Procedure - To calculate age from date of birth.

3.4. Exception handling - To show an error when the sequence is not present.

3.5. Sequence - To generate bill number in sequence.

1.0 VIRTUAL REPRESENTATION - ER DIAGRAM

An Entity-relationship model (ER model) describes the structure of a database with the help of a diagram, which is known as Entity Relationship Diagram (ER Diagram). An ER model is a design or blueprint of a database that can later be implemented as a database. The main components of E-R model are: entity set and relationship set.



2.0

TOTAL CODE

```
--Drop table doctor if already existing
BEGIN
    EXECUTE IMMEDIATE 'DROP TABLE DOCTOR CASCADE CONSTRAINT
PURGE';
EXCEPTION
    WHEN OTHERS THEN
        NULL;
END;
/

--create table doctor
create table doctor(
doc_code varchar2(10 CHAR),
doc_name varchar2(60 CHAR) not null,
doc_gender varchar2(2 CHAR),
doc_dob date,
doc_age int,
doc_address varchar2(200 CHAR),
doc_designation varchar2(30 CHAR) not null,
doc_number number(11,0) not null,
fee numeric(6) not null,
constraint pk_doctor primary key (doc_code)
);
/

--procedure to calc age from dob
create or replace procedure cage(y in date,a out int) is
begin
if extract(month from sysdate)>extract(month from y) or (extract(month from
sysdate)=extract(month from y) and extract(day from sysdate)>=extract(day from y)) then
a:=extract(year from sysdate)-extract(year from y);
else
a:=extract(year from sysdate)-extract(year from y)-1;
end if;
end;
/

--trigger to insert age
create or replace trigger finddoc_age
before insert on doctor
for each row
declare
```

```

y date:=:new.doc_dob;
a int;
begin
cage(y,a);
:new.doc_age:=a;
end;
/

```

```

--Drop table patient if already existing
BEGIN
    EXECUTE IMMEDIATE 'DROP TABLE PATIENT CASCADE CONSTRAINT
PURGE';
EXCEPTION
    WHEN OTHERS THEN
        NULL;
END;
/

```

```

--Create table patient
create table patient (
pat_id varchar2(10 CHAR),
pat_name varchar2(60 CHAR),
pat_gender varchar2(2 CHAR),
pat_dob date,
pat_age int,
pat_doj date,
pat_address varchar2(200 CHAR),
pat_number number(11,0),
pat_doc_code varchar2(10 CHAR),
constraint pk_patient primary key (pat_id),
constraint fk_pat_doc_code foreign key(pat_doc_code)
references doctor(doc_code)
);
/

```

```

--trigger to insert age
create or replace trigger findpat_age
before insert on patient
for each row
declare
y date:=:new.pat_dob;
a int;
begin
cage(y,a);

```

```

:new.pat_age:=a;
end;
/

--Drop table patient_diagnosis if already existing
BEGIN
    EXECUTE IMMEDIATE 'DROP TABLE PATIENT_DIAGNOSIS CASCADE
CONSTRAINT PURGE';
EXCEPTION
    WHEN OTHERS THEN
        NULL;
END;
/

--Create table patient_diagnosis
create table patient_diagnosis(
Diag_ID varchar2(10 CHAR),
diag_details varchar2(200 CHAR),
diag_remarks varchar2(200 CHAR),
pat_id varchar2(10 CHAR),
diag_amount numeric(19,9),
constraint pk_patient_diagnosis primary key (diag_id),
constraint fk_pat_id foreign key (pat_id)
references patient(pat_id)
);
/

--Drop table total if already existing
BEGIN
    EXECUTE IMMEDIATE 'DROP TABLE TOTAL CASCADE CONSTRAINT PURGE';
EXCEPTION
    WHEN OTHERS THEN
        NULL;
END;
/

--create table total
CREATE TABLE TOTAL(
bill_no int primary key,
pat_id varchar2(10 CHAR),
TOTAL_amount NUMBER(10),
constraint fk_pat_idt foreign key (pat_id)
references patient(pat_id)
);

```



```

/
--trigger to calc total_amount and assign bill_no
CREATE OR REPLACE TRIGGER T_TRG
before INSERT ON TOTAL
FOR EACH ROW
DECLARE
DOC_ID VARCHAR(10 CHAR);
k int;
y int;
d date;
BEGIN
SELECT diag_amount INTO k FROM patient_diagnosis where pat_id=:new.pat_id;
select pat_doj,pat_doc_code into d,doc_id from patient where pat_id=:new.pat_id;
select fee into y from doctor where doc_id=doc_code;
:new.total_amount:=y+k*(trunc(sysdate-d));
if :new.total_amount=0 then :new.total_amount:=y+k;
end if;
if :new.total_amount>0 then
select BILL_NO_SEQ.NEXTVAL into :new.bill_no from dual;
end if;
end;
/

BEGIN
EXECUTE IMMEDIATE 'DROP SEQUENCE BILL_NO_SEQ';
EXCEPTION
WHEN OTHERS THEN
IF SQLCODE!= -2289 THEN
RAISE;
END IF;
END;
/

CREATE SEQUENCE BILL_NO_SEQ
MINVALUE 1
MAXVALUE 100000
START WITH 1
INCREMENT BY 1;
/

--Drop VIEW bill if already existing
BEGIN

```

```

EXECUTE IMMEDIATE 'DROP VIEW BILL CASCADE CONSTRAINT PURGE';
EXCEPTION
    WHEN OTHERS THEN
        NULL;
END;
/

--create view bill
create OR REPLACE view bill as
select BILL_NO,pat_name,pat_gender,pat_address,doc_name,total_amount
from(select BILL_NO,pat_name,pat_gender,pat_address,total_amount,pat_doc_code from
patient inner join total on total.pat_id=patient.pat_id) inner join doctor on
pat_doc_code=doctor.doc_code;

```

INSERTION (Sample data used):-

```

INSERT INTO
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D001','Dr P R Goyal','M','09-aug-1969','H1/10, Hauz Khas, New Delhi,
Delhi','Allergist',9810506571,1000);

INSERT INTO
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D002','Dr Jagmeet Soin','M','30-nov-1982','94/4, GNH Hospital, Opposite Govt. Girls College, Near
Sector 14, Gurugram, Haryana 122001','Cardiologist',8800188336,1500);

INSERT INTO
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D003','Dr Priyanka Yadav','F','31-jul-1986','CLACS, GNH Hospital, MG Road, Opp. Govt Girls
College, Anamika Enclave, Gurugram, Haryana 122001','Dermatologist',7042795770,2000);

INSERT INTO
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D004','Dr Kaushal Yadav','M','5-aug-1976','Sector 14, Gurugram, Haryana','Oral
Surgeon',8800188336,1500);

INSERT INTO
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D005','Dr. Praveen Gupta','M','19-feb-1982','Fortis Memorial Research Institute Sector 44, Opposite
HUDA City Centre Metro Station, Gurugram, Haryana 122002','Neurologist',9990766036,3000);

INSERT INTO
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D006','Dr A M Aggarwal','M','25-dec-1969','H6/10, Kalkaji, New Delhi,
Delhi','Allergist',9206576571,1700);

INSERT INTO
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D007','Dr Arun Nag ','M','8-nov-1985','104/11, Bayview Community Hospital, Opposite Govt. Girls
College, Near Sector 14, Surat,Gujrat ','Cardiologist',8806168336,1500);

INSERT INTO
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D008','Dr Payal dev','F','26-apr-1990','Silverstone Medical Center, MG Road, Opp. Govt Girls College,
Anamika Enclave, Gurugram, Haryana 122001','Dermatologist',7042795770,3000);

INSERT INTO

```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D009','Dr kaushal Pahija','M','19-sep-1987','Promise Clinic Sector 14, Gurugram, Haryana','Oral Surgeon',8876188336,2500);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D010','Dr. prakash Gupta','M','30-jun-1962','Clearwater Lake Community Hospital Sector 44, Aizawl , Mizoram ','Neurologist',9997766036,2100);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D011','Dr Suresh pahija ','M','22-jan-1979','Flowerhill Hospital , Ghandinagar,Gujrat','Cardiologist',8806748736,1800);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D012','Dr Pankal Udas','M','11-oct-1987','Desert Springs Wellness Clinic, New Delhi, Delhi','Allergist',9264666571,3500);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D013','Dr Sneha Sachdeva','F','1-aug-1987','Bayhealth General Hospital,Chandigarh Haryana','Dermatologist',7049995770,2700);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D014','Dr Kartik khanna','M','22-may-1975','Promise Clinic Tranquil Valley Hospital, Gurugram, Haryana','Oral Surgeon',8876188336,3100);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D015','Dr. Ankit aggarwal','M','15-sep-1972','Grand University Medical Center, Varanasi, Uttar Pradesh ','Neurologist',9997766036,3500);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D016','Dr Kamal Nath','M','21-feb-1985','Olympus Hospitali, Delhi','Allergist',9203474971,2700);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D017','Dr Kabir Singh','M','2-sep-1990','Oasis Hospital Jamshedpur,Jharkahnd','Surgeon',8806168336,3500);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D018','Dr Kajal Mishra','F','6-jun-1981','Beacon Medical Center Bangalore','Dermatologist',7097880770,3100);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D019','Dr Akansha Jha ','F','31-jul-1992','Oak Valley Hospital Center Karnatka','Oral Surgeon',8877373336,2800);
```

```
INSERT INTO
```

```
DOCTOR(doc_code,doc_name,doc_gender,doc_dob,doc_address,doc_designation,doc_number,fee)
VALUES('D020','Dr. Amar Saxena','M','16-oct-1974','Lullaby Medical Clinic Bhopal,Madhya Pradesh','Neurologist',9875878036,3000);
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P001','Raghav Sharma','M','3-jan-2001',sysdate,'#33, Sec 22, Gurugram',1111111111,'D001');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P002','Shivam Kumar','M','9-jun-2000',sysdate,'#2789, Udhog Vihar P-2,
Gurugram',222222222,'D004');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P003','Kiran','F','17-jun-2010',sysdate,'#3672, Sec 37D, Chandigarh',333333333,'D003');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P004','Akshay Chauchan','M','19-aug-1996',sysdate,'#4534, Sec 57C, Delhi',444444444,'D005');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P005','Karan Chaudary','M','12-jan-2013',sysdate,'Tamil Nadu',555555555,'D002');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P006','Raghavendra','M','3-jan-2006',sysdate,'#plot 3, gokul nagar, chipwad',999999999,'D009');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P007','Riya Prasad','F','2-Feb-1998',sysdate,'301, Avenue Apartment, Valsad',111111112,'D001');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P008','Shreya Singh','F','18-Oct-2000',sysdate,'804, Sun Residency, Vapi',111111113,'D005');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P009','Kenali Patel','F','3-jan-1999',sysdate,'Plot6, Patel Falia, Pardi',222222221,'D010');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P010','Mishal Desai','M','29-May-1999',sysdate,'7, Desai Falia, Valsad',333333331,'D011');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P011','Sid Mayer','M','3-jan-2011',sysdate,'#100,Krishna Society,Mumbai',123123123,'D013');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P012','Gautam Gambhir','M','6-April-1985',sysdate,'A-5,Pramukh Society,
Gurugram',111111119,'D008');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P013','Yash Goyal','M','12-May-1970',sysdate,'8,daman Road,Vapi',111141111,'D004');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P014','Shivani Thakkar','F','20-December-2005',sysdate,'02,Neelkanth
Society,Gurugram',211111111,'D006');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P015','Abhay Chaubay','M','30-May-1991',sysdate,'C-6,Ishwar Society, Bhopal',111167111,'D014');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P016','Rohan Das','M','29-Oct-1981',sysdate,'811,Dhwaj Aparment, Chennai',111123511,'D016');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P017','Bhavya Gera','F','12-Dec-2000',sysdate,'Plot-94, Dwarka Colony,Mumbai',111121446,'D003');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P018','Raghav Varma','M','12-Sep-2001',sysdate,'1012, Fortune
Residency,Calcutta',342111111,'D010');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P019','Jay Patel','M','3-jan-2011',sysdate,'40, Fortune Residency,Morwad',621111111,'D013');
```

```
INSERT INTO PATIENT(pat_id,pat_name ,pat_gender,pat_dob,pat_doj,pat_address,pat_number,pat_doc_code)
VALUES ('P020','Abhi Jha','M','25-jan-2001',sysdate,'301,Kamal Society,Patna',311111111,'D017');
```

```
INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG001','Suffering from asthma','Need to use rescue
inhalers','P001',5000);
```

```
INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG002','Suffering from heart diseases','Treatments vary
widely and can include lifestyle changes, medication, surgery, stents, pacemakers and ablation.','P002',4000);
```

```
INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG003','Suffering from skin diseases','Use anti-fungal
```

sprays/creams to treat the skin infection','P003',3000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG004','Suffering from mouth diseases','Need to use pain relievers','P004',5000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG005','Suffering from migrane','Avoid stress, improve sleep habit and have a balanced diet','P005',6000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG006','Suffering from fever','Acetaminophen (Tylenol and others) can be used to lower a fever','P006',2000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG007','Suffering from dehydration','Fluid Replacement is the treatment for dehydration','P007',3000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG008','Suffering from eye Allergies','Need to use eye care products','P008',7000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG009','Suffering from food poisoning','The diagnosis of this is based on history and physical examination of body','P009',4000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0010','Suffering from gangrene','Need to do surgery','P010',5000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0011','Suffering from Influenza','Increase in liquid intake and warm showers','P011',3000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0012','Suffering from sore throat','Specific medicines are required','P012',2000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0013','Suffering from Ear pain','Amoxicillin is the preferred antibiotic for ear infection','P013',6000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0014','Suffering from Urinary Tract Infection','Treatment depending upon which bacteria is found','P014',8000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0015','Suffering from Skin Infection','Proper Treatment And Care','P015',7000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0016','Suffering from Heart disease','Need to eat healthy food and getting regular exercise','P016',8000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0017','Suffering from Cancer','Proper Treatment Is Required','P017',3000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0018','Suffering from Typhoid','Treatment Includes Antibiotics And Fluids','P018',2000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0019','Suffering from kidney disease','Need to do regular screening','P019',7000);

INSERT INTO PATIENT_DIAGNOSIS VALUES ('DIAG0020','Suffering from Common cold','Proper Treatment is Required','P020',1000);

insert into total(pat_id) values('P001');

insert into total(pat_id) values('P002');

insert into total(pat_id) values('P003');

insert into total(pat_id) values('P004');

insert into total(pat_id) values('P005');

insert into total(pat_id) values('P006');

insert into total(pat_id) values('P007');

insert into total(pat_id) values('P008');

insert into total(pat_id) values('P009');

insert into total(pat_id) values('P010');

3.0 CONCEPTS IMPLEMENTED

3.1. Trigger- to generate the bill of patients, to get values of derived attributes.

In this we've made a trigger which helps calculate the bill of the patients individually and generate automatic sequence of bill number for each bill.

CODE:

```
--trigger to calc total_amount and assign bill_no
CREATE OR REPLACE TRIGGER T_TRG
before INSERT ON TOTAL
FOR EACH ROW
DECLARE
DOC_ID VARCHAR(10 CHAR);
k int;
y int;
d date;
BEGIN
SELECT diag_amount INTO k FROM patient_diagnosis
where pat_id=:new.pat_id;
select pat_doj.pat_doc_code into d,doc_id from patient
where pat_id=:new.pat_id;
select fee into y from doctor where doc_id=doc_code;
:new.total_amount:=y+k*(trunc(sysdate-d));
if :new.total_amount=0 then :new.total_amount:=y+k;
end if;
if :new.total_amount>0 then
select BILL_NO_SEQ.NEXTVAL into :new.bill_no from
dual;
end if;
end;
/
```

3.2. View - To see bill with patient, doctor details.

A view called 'Bill' is created which displays the join of patient, doctor, total.

CODE:

```
BEGIN
EXECUTE IMMEDIATE 'DROP VIEW BILL
CASCADE CONSTRAINT PURGE';
EXCEPTION
WHEN OTHERS THEN
NULL;
END;
/
--create view bill
create OR REPLACE view bill as
select
BILL_NO,pat_name,pat_gender,pat_address,doc_name,tot
al_amount
from(select
BILL_NO,pat_name,pat_gender,pat_address,total_amount,
pat_doc_code from patient inner join total on
total.pat_id=patient.pat_id) inner join doctor on
pat_doc_code=doctor.doc_code;
```

BILL_NO	PAT_NAME	PAT_GENDER	PAT_ADDRESS	DOC_NAME	TOTAL_AMOUNT
1	Raghav Sharma	M	#33, Sec 22, Gurugram	Dr P R Goyal	1000
7	Riya Prasad	F	301, Avenue Apartment, Valsad	Dr P R Goyal	1000
5	Karan Chaudary	M	Tamil Nadu	Dr Jagmeet Soin	1500
3	Kiran	F	#3672, Sec 37D, Chandigarh	Dr Priyanka Yadav	2000
2	Shivam Kumar	M	#2789, Udhog Vihar P-2, Gurugram	Dr Kaushal Yadav	1500
4	Akshay Chauchan	M	#4534, Sec 57C, Delhi	Dr. Praveen Gupta	3000
8	Shreya Singh	F	004, Sun Residency, Vapi	Dr. Praveen Gupta	3000
6	Raghavendra	M	#plot 3, gokul nagar, chipwad	Dr kaushal Pahija	2500
9	Kenali Patel	F	Plot6, Patel Falia, Pardi	Dr. prakash Gupta	2100
10	Wishal Desai	M	7, Desai Falia, Valsad	Dr Suresh pahija	1000

3.3. Procedure - To calculate age from date of birth.

Procedure cage is created to calculate age of patient and doctor from their date of birth.

CODE:

```
--procedure to calc age from dob
create or replace procedure cage(y in date,a out int) is
begin
if extract(month from sysdate)>extract(month from y) or
(extract(month from sysdate)=extract(month from y) and
extract(day from sysdate)>=extract(day from y)) then
a:=extract(year from sysdate)-extract(year from y);
else
a:=extract(year from sysdate)-extract(year from y)-1;
end if;
end;
/
```

3.4. Sequence - To generate bill number in sequence.

Created sequence to generate bill number in sequence with min value 1 and max value as 100000 and increment by 1.

CODE:

```
CREATE SEQUENCE BILL_NO_SEQ
MINVALUE 1
MAXVALUE 100000
START WITH 1
INCREMENT BY 1;
/
```

3.5. Exception handling - To show an error when the sequence is not present, And to not show an error when dropping non existing table.

Here SQL code 2289 represents error code when no such sequence exist.

CODE:

For sequence:

```
EXCEPTION
WHEN OTHERS THEN
IF SQLCODE!= -2289 THEN
RAISE;
```

For drop table:

```
BEGIN
EXECUTE IMMEDIATE 'DROP TABLE DOCTOR
CASCADE CONSTRAINT PURGE';
EXCEPTION
WHEN OTHERS THEN
NULL;
END;
/
```

OUTPUT

PATIENT TABLE

CODE:

```
--Drop table patient if already existing
BEGIN
    EXECUTE IMMEDIATE 'DROP TABLE PATIENT
    CASCADE CONSTRAINT PURGE';
    EXCEPTION
    WHEN OTHERS THEN
    NULL;
END;
/

--Create table patient
create table patient (
pat_id varchar2(10 CHAR),
pat_name varchar2(60 CHAR),
pat_gender varchar2(2 CHAR),
pat_dob date,
pat_age int,
pat_doj date,
pat_address varchar2(200 CHAR),
pat_number number(11,0),
pat_doc_code varchar2(10 CHAR),
constraint pk_patient primary key (pat_id),
constraint fk_pat_doc_code foreign key(pat_doc_code)
references doctor(doc_code)
);
/
```

SELECT * FREOM PATIENT;

PAT_ID	PAT_NAME	PAT_GENDER	PAT_DOB	PAT_AGE	PAT_DOJ	PAT_ADDRESS	PAT_NUMBER	PAT_DOC_CODE
P001	Raghav Sharma	M	03-JAN-01	20	05-MAY-21	#33, Sec 22, Gurugram	111111111	D001
P002	Shivam Kumar	M	09-JUN-00	20	05-MAY-21	#2789, Udhog Vihar P-2, Gurugram	222222222	D004
P003	Kiran	F	17-JUN-10	10	05-MAY-21	#3672, Sec 37D, Chandigarh	333333333	D003
P004	Akshay Chauchan	M	19-AUG-96	24	05-MAY-21	#4534, Sec 57C, Delhi	444444444	D005
P005	Karan Chaudary	M	12-JAN-13	8	05-MAY-21	Tamil Nadu	555555555	D002
P006	Raghavendra	M	03-JAN-06	15	05-MAY-21	#plot 3, gokul nagar, chipwad	999999999	D009
P007	Riya Prasad	F	02-FEB-98	23	05-MAY-21	301, Avenue Apartment, Valsad	111111112	D001
P008	Shreya Singh	F	18-OCT-00	20	05-MAY-21	004, Sun Residency, Vapi	111111113	D005
P009	Kenali Patel	F	03-JAN-99	22	05-MAY-21	Plot6, Patel Falia, Pardi	222222221	D010
P010	Mishal Desai	M	29-MAY-99	21	05-MAY-21	7, Desai Falia, Valsad	333333331	D011
P011	Sid Mayer	M	03-JAN-11	10	05-MAY-21	#100,Krishna Society,Mumbai	123123123	D013
P012	Gautam Gambhir	M	06-APR-85	36	05-MAY-21	A-5,Pramukh Society, Gurugram	111111119	D008
P013	Yash Goyal	M	12-MAY-70	50	05-MAY-21	8,daman Road,Vapi	111141111	D004
P014	Shivani Thakkar	F	20-DEC-05	15	05-MAY-21	02,Neelkanth Society,Gurugram	211111111	D006
P015	Abhay Chaubay	M	30-MAY-91	29	05-MAY-21	C-6,Ishwar Society, Bhopal	111167111	D014
P016	Rohan Das	M	29-OCT-81	39	05-MAY-21	811,Dhwaj Aparment, Chennai	111123511	D016
P017	Bhavya Gera	F	12-DEC-00	20	05-MAY-21	Plot-94, Dwarka Colony,Mumbai	111121446	D003
P018	Raghav Varma	M	12-SEP-01	19	05-MAY-21	1012, Fortune Residency,Calcutta	342111111	D010
P019	Jay Patel	M	03-JAN-11	10	05-MAY-21	40, Fortune Residency,Morwad	621111111	D013
P020	Abhi Jha	M	25-JAN-01	20	05-MAY-21	301,Kamal Society,Patna	311111111	D017

PATIENT_DIAGNOSIS TABLE

CODE:

```
--Drop table patient_diagnosis if already existing
BEGIN
    EXECUTE IMMEDIATE 'DROP TABLE
PATIENT_DIAGNOSIS CASCADE CONSTRAINT
PURGE';
    EXCEPTION
    WHEN OTHERS THEN
    NULL;
END;
/
--Create table patient_diagnosis
create table patient_diagnosis(
Diag_ID varchar2(10 CHAR),
diag_details varchar2(200 CHAR),
diag_remarks varchar2(200 CHAR),
pat_id varchar2(10 CHAR),
diag_amount numeric(19,9),
constraint pk_patient_diagnosis primary key (diag_id),
constraint fk_pat_id foreign key (pat_id)
references patient(pat_id)
);
/
```

SELECT * FREOM PATIENT_DIAGNOSIS;

DIAG_ID	DIAG_DETAILS	DIAG_REMARKS	PAT_ID	DIAG_AMOUNT
DIAG001	Suffering from asthma	Need to use rescue inhalers	P001	5000
DIAG002	Suffering from heart diseases	Treatments vary widely and can include lifestyle changes, medication, surgery, stents, pacemakers and ablation.	P002	4000
DIAG003	Suffering from skin diseases	Use anti-fungal sprays/creams to treat the skin infection	P003	3000
DIAG004	Suffering from mouth diseases	Need to use pain relievers	P004	5000
DIAG005	Suffering from migraine	Avoid stress, improve sleep habit and have a balanced diet	P005	6000
DIAG006	Suffering from fever	Acetaminophen (Tylenol and others) can be used to lower a fever	P006	2000
DIAG007	Suffering from dehydration	Fluid Replacement is the treatment for dehydration	P007	3000
DIAG008	Suffering from eye Allergies	Need to use eye care products	P008	7000
DIAG009	Suffering from food poisoning	The diagnosis of this is based on history and physical examination of body	P009	4000
DIAG0010	Suffering from gangrene	Need to do surgery	P010	5000
DIAG0011	Suffering from Influenza	Increase in liquid intake and warm showers	P011	3000
DIAG0012	Suffering from sore throat	Specific medicines are required	P012	2000
DIAG0013	Suffering from Ear pain	Amoxicillin is the preferred antibiotic for ear infection	P013	6000
DIAG0014	Suffering from Urinary Tract Infection	Treatment depending upon which bacteria is found	P014	8000
DIAG0015	Suffering from Skin Infection	Proper Treatment And Care	P015	7000
DIAG0016	Suffering from Heart disease	Need to eat healthy food and getting regular exercise	P016	8000
DIAG0017	Suffering from Cancer	Proper Treatment Is Required	P017	3000
DIAG0018	Suffering from Typhoid	Treatment Includes Antibiotics And Fluids	P018	2000
DIAG0019	Suffering from kidney disease	Need to do regular screening	P019	7000
DIAG0020	Suffering from Common cold	Proper Treatment is Required	P020	1000

DOCTOR TABLE

CODE:

```

BEGIN
EXECUTE IMMEDIATE 'DROP TABLE DOCTOR
CASCADE CONSTRAINT PURGE';
EXCEPTION WHEN OTHERS THEN
NULL;
END;
/
--create table doctor
create table doctor(
doc_code varchar2(10 CHAR),
doc_name varchar2(60 CHAR) not null,
doc_gender varchar2(2 CHAR),
doc_dob date,
doc_age int,
doc_address varchar2(200 CHAR),
doc_designation varchar2(30 CHAR) not null,
doc_number number(11,0) not null,
fee numeric(6) not null,
constraint pk_doctor primary key (doc_code)
);
/

```

SELECT * FREOM DOCTOR;

DOC_CODE	DOC_NAME	DOC_GENDER	DOC_DOB	DOC_AGE	DOC_ADDRESS	DOC_DESIGNATION	DOC_NUMBER	FEE
D001	Dr P R Goyal	M	09-AUG-69	51	H1/10, Hauz Khas, New Delhi, Delhi	Allergist	9810506571	1000
D002	Dr Jagmeet Soin	M	30-NOV-82	38	94/4, GNH Hospital, Opposite Govt. Girls College, Near Sector 14, Gurugram, Haryana 122001	Cardiologist	8800188336	1500
D003	Dr Priyanka Yadav	F	31-JUL-86	34	CLACS, GNH Hospital, MG Road, Opp. Govt Girls College, Anamika Enclave, Gurugram, Haryana 122001	Dermatologist	7042795770	2000
D004	Dr Kaushal Yadav	M	05-AUG-76	44	Sector 14, Gurugram, Haryana	Oral Surgeon	8800188336	1500
D005	Dr. Praveen Gupta	M	19-FEB-82	39	Fortis Memorial Research Institute Sector 44, Opposite HUDA City Centre Metro Station, Gurugram, Haryana 122002	Neurologist	9990766036	3000
D006	Dr A M Aggarwal	M	25-DEC-69	51	H6/10, Kalkaji, New Delhi, Delhi	Allergist	9206576571	1700
D007	Dr Arun Nag	M	08-NOV-85	35	104/11, Bayview Community Hospital, Opposite Govt. Girls College, Near Sector 14, Surat,Gujrat	Cardiologist	8806168336	1500
D008	Dr Payal dev	F	26-APR-90	31	Silverstone Medical Center, MG Road, Opp. Govt Girls College, Anamika Enclave, Gurugram, Haryana 122001	Dermatologist	7042795770	3000
D009	Dr kaushal pahija	M	19-SEP-87	33	Promise Clinic Sector 14, Gurugram, Haryana	Oral Surgeon	8876188336	2500
D010	Dr. prakash Gupta	M	30-JUN-62	58	Clearwater Lake Community Hospital Sector 44, Aizawl , Mizoram	Neurologist	9997766036	2100
D010	Dr. prakash Gupta	M	30-JUN-62	58	Clearwater Lake Community Hospital Sector 44, Aizawl , Mizoram	Neurologist	9997766036	2100
D011	Dr Suresh pahija	M	22-JAN-79	42	Flowerhill Hospital , Ghandinagar,Gujrat	Cardiologist	8806748736	1800
D012	Dr Pankal Udas	M	11-OCT-87	33	Desert Springs Wellness Clinic, New Delhi, Delhi	Allergist	9264666571	3500
D013	Dr Sneha Sachdeva	F	01-AUG-87	33	Bayhealth General Hospital,Chandigarh Haryana	Dermatologist	7049995770	2700
D014	Dr Kartik khanna	M	22-MAY-75	45	Promise Clinic Tranquil Valley Hospital, Gurugram, Haryana	Oral Surgeon	8876188336	3100
D015	Dr. Ankit aggarwal	M	15-SEP-72	48	Grand University Medical Center, Varanasi, Uttar Pradesh	Neurologist	9997766036	3500
D016	Dr Kamal Nath	M	21-FEB-85	36	Olympus Hospital, Delhi	Allergist	9203474971	2700
D017	Dr Kabir Singh	M	02-SEP-90	30	Oasis Hospital Jamshedpur,Jharkahnd	Surgeon	8806168336	3500
D018	Dr Kajal Mishra	F	06-JUN-81	39	Beacon Medical Center Bangalore	Dermatologist	7097880770	3100
D019	Dr Akansha Jha	F	31-JUL-92	28	Oak Valley Hospital Center Karnatka	Oral Surgeon	8877373336	2800
D020	Dr. Amar Saxena	M	16-OCT-74	46	Lullaby Medical Clinic Bhopal,Madhya Pradesh	Neurologist	9875870036	3000

TOTAL TABLE

CODE:

```
--Drop table total if already existing
BEGIN
  EXECUTE IMMEDIATE 'DROP TABLE TOTAL
CASCADE CONSTRAINT PURGE';
  EXCEPTION
    WHEN OTHERS THEN
      NULL;
END;
/
--create table total
CREATE TABLE TOTAL(
  bill_no int primary key,
  pat_id varchar2(10 CHAR),
  TOTAL_amount NUMBER(10),
  constraint fk_pat_idt foreign key (pat_id)
  references patient(pat_id)
);
/
```

SELECT * FROM TOTAL;

BILL_NO	PAT_ID	TOTAL_AMOUNT
1	P001	1000
2	P002	1500
3	P003	2000
4	P004	3000
5	P005	1500
6	P006	2500
7	P007	1000
8	P008	3000
9	P009	2100
10	P010	1800

CONCLUSION

In conclusion that the hospital management system is the inevitable part of the lifecycle of the modern hospitals. It automates numerous daily operations and enables smooth interactions of the users. Developing the hospital system software is a great opportunity to create the distinct, efficient and fast delivering healthcare model. Implementation of hospital management system project helps to store all the kinds of records, provide coordination and user communication, implement policies, improve day-to-day operations, arrange the supply chain, manage financial and human resources, and market hospital services. This beneficial decision covers the needs of the patients, staff and hospital authorities and simplifies their interactions. It has become the usual approach to manage the hospital. Many clinics have already experienced its advantages and continue developing new hospital management system project modules.

REFERENCES

https://www.tutorialspoint.com/plsql/plsql_quick_guide.htm

<https://livesql.oracle.com/>

<https://www.geeksforgeeks.org/exception-handling-plsql/>

https://docs.oracle.com/cd/B14117_01/server.101/b10759/statements_6014.htm

https://docs.oracle.com/cd/B28359_01/server.111/b28310/views001.htm#ADMIN11774