Database Systems - Project Report

PHARMACY MANAGEMENT SYSTEM

ABSTRACT

The aim of this project is to design and implementation of pharmacy management system. The system was implemented by creating a database containing information about the stored medicines in the inventory, customers making transaction with the pharmaceutical trading company, medical suppliers, employees, payments, etc. It includes adding/updating employees' information, preparing sale and purchase invoices, generating reports, adding/updating customers and suppliers, tracking customer payments and checking expired medicines in order to be disposed.

INTRODUCTION

Inventory management is one of the essential problems in almost every company. Before computer age and integration, solutions were used as inventory management tools. If there is no automated system available, these solutions may cause a lot of paperwork usually lead to mistakes as the workload increases since it deals with more than hundreds of medications. The company needs to use a new technology to keep track of all its transactions and day-to-day operations to achieve its business goals by introducing a computer-based Designing and Implementing such a system is possible but there is preliminary work studying the operational environment and needs of the company, identifying the requirements, determining software tools, designing database and developing the user interface application

For the company, it is important to ensure that there is sufficient quantity of medications the needs of the customers. In addition, careful inventory management can increase the earnings. A badly managed inventory may have more loss through medications expiring, incorrect accounting and inappropriately recorded returns than a well-managed inventory (Katie Ingersoll, 2015).

OBJECTIVE:

The proposed system should achieve the
following goals:

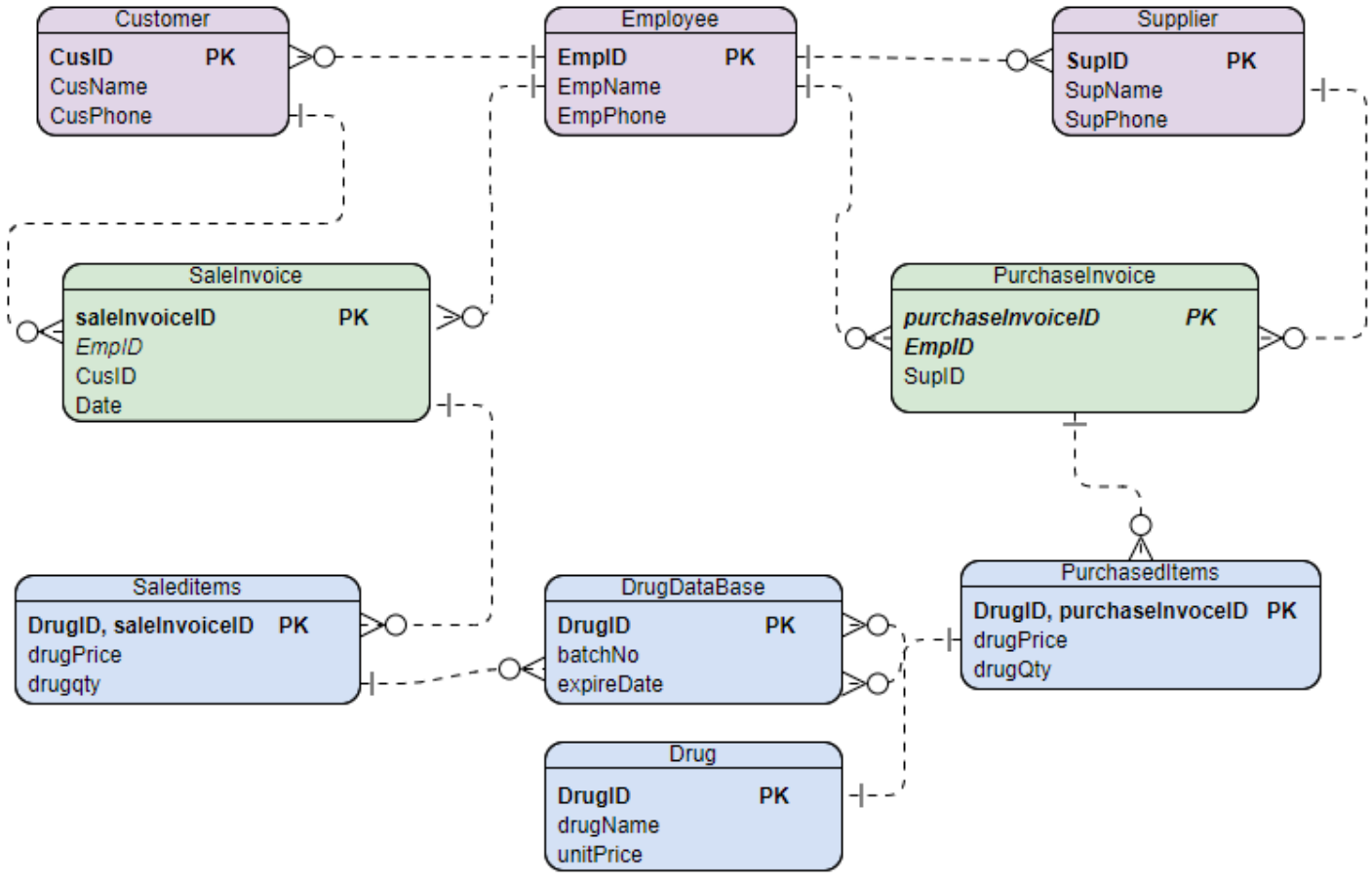
- Add/update customers and medicine suppliers
- Add/update system users and inventory employees.
- Add/update medicines manufacturing company, manufacturing and expiry dates, batch numbers and the available quantities from each batch.
- Prepare sale and purchase invoices.
- Generate reports.
- Track customer payments.
- Detect expired medicines in order to be disposed.
- Manage returned medicines from customers in case of damage or overstock.

PROBLEMS IN EXITSTING SYSTEM

The system contain some following problems:

- This system is just database part of the whole real world pharmacy management system.
- This system can’t keep track of login info of users, though which can be added.
- If the pharmacy made their own products, we can’t handled with this system. It only deals with the suppliers.
- It can’t be used in other than Oracle Apex without the minor variations in SQL, which vary from platform to platform.

ERD (Conceptual Database Design)



This ERD has limitation, it couldn’t include all the variables/parameters of an entity due to simplicity.

RELATIONAL SCHEMA

Employee

EmpID	empName	empDOB	empHiredate	empPhone	empAddress	empSal	empjob	empMgr	City

Customer

CusID	CusName	CusPhone	CusAddress	City

Supplier

SupID	SupName	SupPhone	SupAddress	City

Drug

DrugID	DrugName	scentificName	DrugCategory	unitPrice	noOfUnitsInPackage

DrugDatabase

DrugID	batchNo	manufactureDate	expiryDate	quantity

SaleInvoice

saleInvoiceID	**empID**	**CusID**	Date	totalAmount	Discount	NewPrice

SaledItems

DrugID	**saleInvoiceID**	drugPrice	DrugQty

PurchaseInvoice

purchaseInvoiceID	Date	totalAmount	Discount	NewPrice	**EmpID**	**SupID**

PurchasedItems

DrugID	**purchaseInvoiceID**	drugPrice	DrugQty	DliveredDate	manufactureDate	expiryDate

DESCRIPTION OF REALTIONS

Table Name: Employee

Attribute	Data Type	Size	Constraints
EmpID	Number	5	Primary Key
Empname	Varchar2	15	Not Null
empDOB	Date		
empHiredate	Date		Not Null
empPhone	Varhchar2	15	

empAddress	Varchar2	20	
empSal	Number	5,2	
empjob	Varchar2	10	Can be 'Manager', 'Accountant', 'seller'
empMgr	Number	5	Not Null
City	Varchar2	10	

Table Name: Customer

Attribute	Data Type	Size	Constraints
CusID	Number	5	Primary Key
CusName	Varchar2	15	Not Null
CusPhone	Varchar2	10	
CusAddress	Varchar2	20	
City	Varchar2	10	

Table Name: Supplier

Attribute	Data Type	Size	Constraints
SupID	Number	5	Primary Key
SupName	Varchar2	15	Not Null
SupPhone	Varchar2	10	
SupAddress	Varchar2	20	
City	Varchar2	10	

Table Name: Drug

Attribute	Data Type	Size	Constraints
DrugID	Number	5	Primary Key
DrugName	Varchar2	10	Not Null
scentificName	Varchar2	10	
DrugCategory	Varchar2	10	Not Null
unitPrice	Number	5,2	Not Null
noOfUnitsInPackage	Number	2	

Table Name: DrugDatabase

Attribute	Data Type	Size	Constraints
DrugID	Number	5	Primary key

batchNo	Number	5	Not Null
manufactureDate	Date		
expiryDate	Date		Not Null
quantity	Number	5,2	

Table Name: saleInvoice

Attribute	Data Type	Size	Constraints
saleInvoiceID	Number	5	Primary Key
empID	Number	5	Foreign Key
CusID	Number	5	Foreign Key
Date	Date		
totalAmount	Number	5,2	
Discount	Number	5,2	
NewPrice	Number	5,2	

Table Name: saledItems

Attribute	Data Type	Size	Constraints
DrugID	Number	5	Primary Key, Foreign Key
saleInvoiceID	Number	5	Primary Key
drugPrice	Number	5	
DrugQty	Number	5	

Table Name: PurchaseInvoice

Attribute	Data Type	Size	Constraints
purchaseInvoiceID	Number	5	PrimaryKey
Date	Date		
totalAmount	Number	5,2	
Discount	Number	5,2	
NewPrice	Number	5,2	
EmpID	Number	5	Foreign Key
SupID	Number	5	Foreign Key

Table Name: purchasedItems

Attribute	Data Type	Size	Constraints

DrugID	Number	5	Primary Key, Foreign Key
purchaseInvoiceID	Number	5	Primary Key
drugPrice	Number	5,2	
DrugQty	Number	5	
DliveredDate	Date		
manufactureDate	Date		
expiryDate	Date		

STATEMENTS FOR TABLE:

EMPLOYEE

```
CREATE TABLE Project_PMS_Employee (
    empID   NUMBER(5)   PRIMARY KEY,
    empName VARCHAR2(15) NOT NULL,
    empDOB  DATE,
    empHiredate DATE    NOT NULL,
    empPhone    VARCHAR2(15),
    empAddress  VARCHAR2(20),
    empSal  NUMBER(5),
    empJob  VARCHAR2(10) CHECK (empJob IN ('MANAGER','ACCOUNTANT','SELLER')),
    empMgr  NUMBER(5)  CONSTRAINT MANAGER_REF_FK REFERENCES Project_PMS_Employee(empID)

);
```

CUSTOMER

```
CREATE TABLE Project_PMS_Customer (
    cusID   NUMBER(5)   PRIMARY KEY,
    cusName VARCHAR2(15) NOT NULL,
    cusPhone    VARCHAR2(15),
    cusAddress  VARCHAR2(20),
    city        VARCHAR2(10)
);
```

SUPPLIER

```
CREATE TABLE Project_PMS_Supplier (
    supID   NUMBER(5)   PRIMARY KEY,
    supName VARCHAR2(15) NOT NULL,
    supPhone    VARCHAR2(15),
    supAddress  VARCHAR2(20),
    city        VARCHAR2(10)
);
```

DRUG

```
CREATE TABLE Project_PMS_Drug (
    drugID   NUMBER(5)   PRIMARY KEY,
    drugName VARCHAR2(15) NOT NULL,
    scientificName VARCHAR2(10),
    drugCat     VARCHAR2(10),
    unitPrice   NUMBER(5,2),
    noOfUnitPerPackage  NUMBER(2)
);
```

DRUGDATABASE

```
CREATE TABLE Project_PMS_DrugDatebase (
    drugID   NUMBER(5)   PRIMARY KEY,
    batchNo  NUMBER(5)   NOT NULL,
    manufactureDate Date,
    expirayDate     Date,
    Qty      NUMBER(5,2),
    FOREIGN KEY(drugID) REFERENCES Project_PMS_Drug(drugID)

);
```

SALEINVOICE

```
CREATE TABLE Project_PMS_SaleInvoice (
    saleInvoiceID   NUMBER(5)   PRIMARY KEY,
    SaleDate        Date,
    totalAmount     NUMBER(5,2),
    discount        NUMBER(5,2),
    newPrice        NUMBER(5,2),
    empID  NUMBER(5)  CONSTRAINT EMP_REF_FK REFERENCES Project_PMS_Employee(empID),
    cusID  NUMBER(5)  CONSTRAINT CUS_REF_FK REFERENCES Project_PMS_Customer(cusID)

);
```

SALEDITEMS

```
CREATE TABLE Project_PMS_SaleItems (
    drugID          NUMBER(5),
    SaleInvoiceID   NUMBER(5),
    drugPrice       NUMBER(5,2),
    drugQty         NUMBER(5,2),
    PRIMARY KEY(drugID,SaleInvoiceID),
    FOREIGN KEY(drugID) REFERENCES Project_PMS_Drug(drugID)

);
```

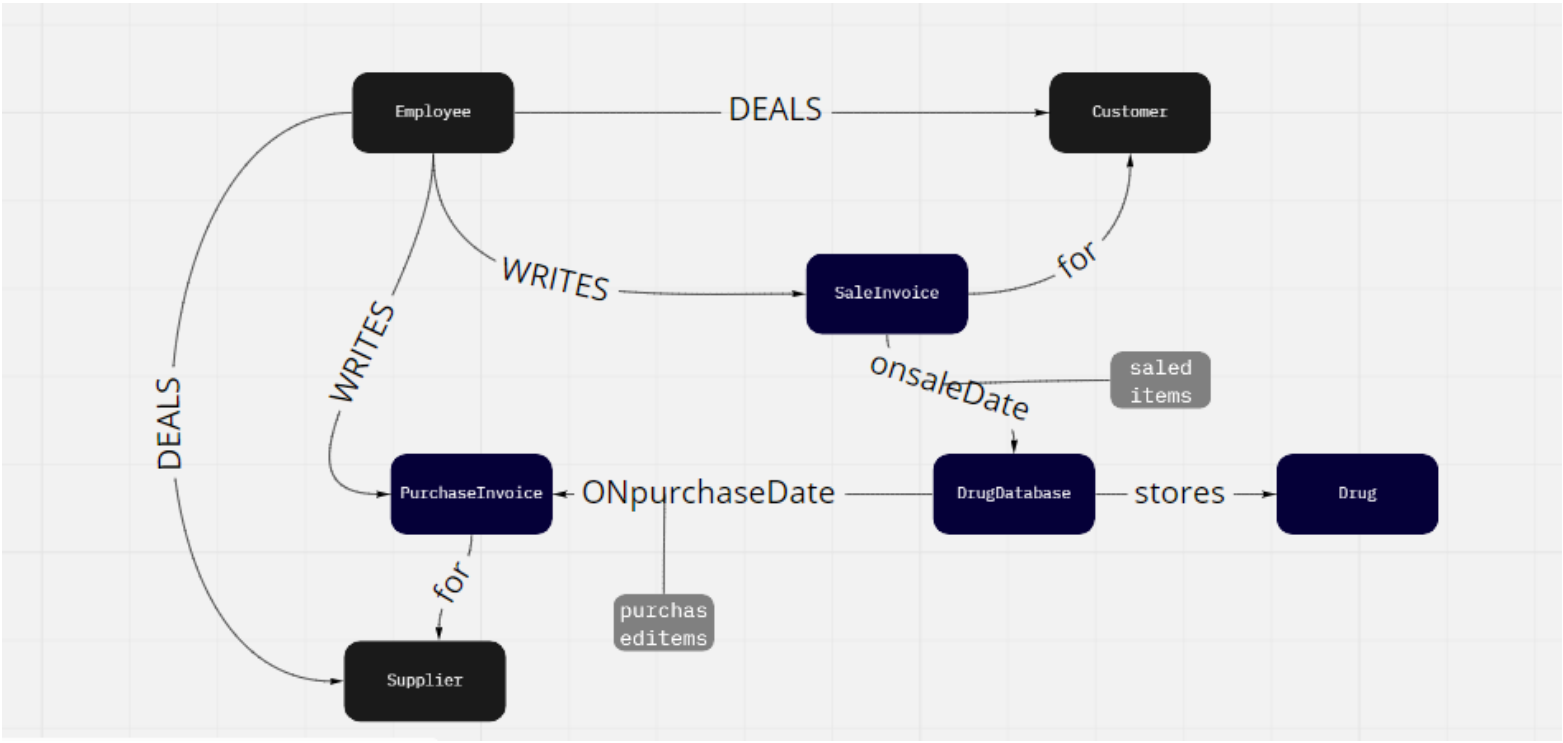
PURCHASEINVOICE

```
CREATE TABLE Project_PMS_PurchaseInvoice (
    purchaseInvoiceID   NUMBER(5)   PRIMARY KEY,
    purchaseDate        Date,
    totalAmount     NUMBER(5,2),
    discount        NUMBER(5,2),
    newPrice        NUMBER(5,2),
    empID  NUMBER(5)  CONSTRAINT EMP_PUR_REF_FK REFERENCES Project_PMS_Employee(empID),
    supID  NUMBER(5)  CONSTRAINT sup_REF_FK REFERENCES Project_PMS_Supplier(supID)

);
```

PURCHASEDITEMS

```
CREATE TABLE Project_PMS_PurchaseItems (
    drugID          NUMBER(5),
    purchaseInvoiceID   NUMBER(5),
    drugPrice       NUMBER(5,2),
    drugQty         NUMBER(5,2),
    DliveredDate    DATE,
    manufactureDate DATE,
    expirayDate     DATE,
    PRIMARY KEY(drugID,purchaseInvoiceID),
    FOREIGN KEY(drugID) REFERENCES Project_PMS_Drug(drugID)

);
```

BATCHDIAGRAM:



REPORTS:

1) This statement gives the drugs ordered by the customer in specific invoice, which are include in receipt.

```
SELECT *
FROM Project_PMS_SaleInvoice SV
JOIN Project_PMS_SaleItems SI ON SV.saleInvoiceId=SI.saleInvoiceId
WHERE SI.saleInvoiceId=2
```

OUTPUT:

SALEINVOICEID	SALEDATE	TOTALAMOUNT	DISCOUNT	NEWPRICE	EMPID	CUSID	DRUGID	SALEINVOICEID
2	12/20/2020	400	30	370	2	1	2	2
2	12/20/2020	400	30	370	2	1	1	2

2	12/20/2020	400	30	370	2	1	

2) This statement gives the drugs supplied by the supplier in specific invoice, which are included in the receipt.

```
SELECT *
FROM Project_PMS_PurchaseInvoice  PV
JOIN Project_PMS_PurchaseItems  PI ON PV.purchaseInvoiceID=PI.purchaseInvoiceID
WHERE PI.purchaseInvoiceID=1
```

OUTPUT:

PURCHASEINVOICEID	PURCHASEDATE	TOTALAMOUNT	DISCOUNT	NEWPRICE	EMPID	SUPID	DRUGID	PURCHAS
1	12/20/2020	444	0	444	1	1	3	1

3) This statement gives the stored drugs in the pharmacy at any time

```
4) SELECT *
5) FROM Project_PMS_DrugDatebase
```

Output

DRUGID	BATCHNO	MANUFACTUREDATE	EXPIRAYDATE	QTY
2	3	12/20/2020	01/20/2021	10
3	2	12/20/2020	01/20/2021	20
1	2	12/20/2020	02/20/2021	50

4) this statement gives the customers which ordered the drugs at any time. And the related informatio

```
SELECT *
FROM Project_PMS_SaleInvoice
```

Output

SALEINVOICEID	SALEDATE	TOTALAMOUNT	DISCOUNT	NEWPRICE	EMPID	CUSID
1	12/20/2020	200	0	200	1	1
2	12/20/2020	400	30	370	2	1

6) this statement gives the suppliers which supplied the drugs at any time. And the related information

```
SELECT *
FROM Project_PMS_PurchaseInvoice
```

Output

PURCHASEINVOICEID	PURCHASEDATE	TOTALAMOUNT	DISCOUNT	NEWPRICE	EMPID	SUPID
1	12/20/2020	444	0	444	1	1
2	12/20/2020	200	40	160	1	