

Accounting System

Group ID: 5

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Lab: Lab 9

1. RealAccount

```
CREATE TABLE RealAccount(  
    AccountID varchar(20) NOT NULL REFERENCES Account(AccountID)  
    ON DELETE RESTRICT ON UPDATE CASCADE);
```

❖ No change required, as the table is already in BCNF form.

2. NominalAccount

```
CREATE TABLE NominalAccount(  
    AccountID varchar(20) NOT NULL REFERENCES Account(AccountID)  
    ON DELETE RESTRICT ON UPDATE CASCADE  
);
```

❖ No change required, as the table is already in BCNF form.

3. PersonalAccount_Email

```
CREATE TABLE PersonalAccountEmail(  
    AccountID varchar(20) NOT NULL REFERENCES  
    Account(AccountID) ON DELETE RESTRICT ON UPDATE  
    CASCADE,EmailAddress varchar(100),  
    PRIMARY KEY(AccountID, EmailAddress)  
);
```

- ❖ No change required, as the table is already in BCNF form.

4. PersonalAccount_Contact

```
CREATE TABLE PersonalAccountContactNumber(  
    AccountID varchar(20) NOT NULL REFERENCES  
    Account(AccountID) ON DELETE RESTRICT ON UPDATE  
    CASCADE,  
    ContactNumber decimal(10,0) NOT NULL UNIQUE  
);
```

- ❖ No change required, as the table is already in BCNF form.

5. AccountGroup

```
CREATE TABLE AccountGroup(  
    AccountGroupId varchar(20) PRIMARY KEY,  
    Header boolean NOT NULL,  
    ShowIn FinalAccount NOT NULL,  
    Name varchar(50) NOT NULL,  
    CompanyId varchar(20) NOT NULL REFERENCES  
    Company(CompanyId) ON DELETE CASCADE ON UPDATE CASCADE  
);
```

- ❖ No change required, as the table is already in BCNF form.

6. Account

```
CREATE TABLE Account(  
    AccountId varchar(20) PRIMARY KEY,  
    AccountName varchar(50) NOT NULL,  
    Description varchar(300),  
    AccountGroupId varchar(20) NOT NULL REFERENCES  
    AccountGroup(AccountGroupId) ON DELETE RESTRICT ON UPDATE  
    CASCADE  
);
```

- ❖ No change required, as the table is already in BCNF form.

7. CompanyContactNumber

```
CREATE TABLE COMPANY_ContactNumber (  
    CompanyID varchar(20) REFERENCES COMPANY(CompanyID)  
    ON DELETE CASCADE ON UPDATE CASCADE NOT NULL,  
    ContactNumber decimal(10,0) UNIQUE  
);
```

- ❖ Due to an update anomaly, contactNumber should be not null.

Query to change the structure of the table is given below.

```
ALTER TABLE company_ContactNumber ALTER COLUMN  
contactNumber SET NOT NULL;
```

8. Company

```
Create Table Company (  
    CompanyID varchar(20) PRIMARY KEY,  
    CompanyName varchar(50) NOT NULL UNIQUE,  
    GSTIN varchar(15) NOT NULL UNIQUE,  
    AddresLine1 varchar(300),  
    AddresLine2 varchar(300),  
    Pincode varchar(6) ,  
    CityID INT REFERENCES City(CityID) ON DELETE RESTRICT ON  
    UPDATE CASCADE NOT NULL,
```

```
Logo varchar(50)  
);
```

- ❖ No change required, as the table is already in BCNF form.

9. Country

```
CREATE TABLE Country (  
CountryId SERIAL PRIMARY KEY,  
CountryName varchar UNIQUE  
);
```

- ❖ No change required, as the table is already in BCNF form.

10. State

```
CREATE TABLE State (  
StateId SERIAL PRIMARY KEY,  
StateName varchar,  
CountryId int REFERENCES Country(CountryId)  
);
```

- ❖ No change required, as the table is already in BCNF form.

11. FinancialTransactions

```
CREATE TABLE FinancialTransaction(  
TransactionNumber int PRIMARY KEY,  
TransactionDate date NOT NULL,  
TransactionDescription varchar(300)  
);
```

- ❖ No change required, as the table is already in BCNF form.

12. FinancialTransactionsEntry

```
CREATE TABLE FinancialTransactionEntry(  

```

```
TransactionNumber int NOT NULL REFERENCES  
FinancialTransaction(TransactionNumber) ON UPDATE CASCADE ON DELETE  
CASCADE,  
Amount decimal(15,2),  
AccountId varchar(20) NOT NULL REFERENCES Account(AccountId) ON  
UPDATE CASCADE ON DELETE RESTRICT  
);
```

❖ No change required, as the table is already in BCNF form.

13. PurchaseInvoice

```
CREATE TABLE PurchaseInvoice(  
ReceiptID int,  
Date date NOT NULL,  
AccountID varchar(20) NOT NULL REFERENCES Account(AccountID) ON  
DELETE RESTRICT,  
CompanyID varchar(20) NOT NULL REFERENCES Company(CompanyID)  
ON DELETE CASCADE ON UPDATE CASCADE,  
PRIMARY KEY (ReceiptID, CompanyID)  
);
```

❖ No change required, as the table is already in BCNF form.

14. PurchaseItem

```
CREATE TABLE PurchaseItem(  
ReceiptID int NOT NULL,  
CompanyID varchar(20),  
ItemID varchar(20) NOT NULL REFERENCES Item(ItemID) ON DELETE  
RESTRICT ON UPDATE CASCADE,  
Amount decimal(15,2) NOT NULL,  
Qty real NOT NULL CHECK(Qty>0),  
FOREIGN KEY (ReceiptID, CompanyID) REFERENCES  
PurchaseInvoice(ReceiptID, CompanyID) ON DELETE CASCADE ON UPDATE  
CASCADE  
);
```

❖ No change required, as the table is already in BCNF form.

15. SalesInvoice

```
CREATE TABLE SalesInvoice(  
InvoiceId int,
```

```

Date date NOT NULL,
AccountID varchar(20) NOT NULL REFERENCES Account(AccountID) ON
DELETE RESTRICT ON UPDATE CASCADE,
CompanyID varchar(20) NOT NULL REFERENCES Company(CompanyID) ON
DELETE CASCADE ON UPDATE CASCADE,
PRIMARY KEY (InvoiceId, CompanyID)
);

```

❖ No change required, as the table is already in BCNF form.

16. SalesItem

```

CREATE TABLE SalesItem(
InvoiceId int NOT NULL,
CompanyID varchar(20),
ItemId varchar(20) NOT NULL REFERENCES Item(ItemID) ON DELETE
RESTRICT ON UPDATE CASCADE,
Amount decimal(15,2) NOT NULL,
Qty real NOT NULL CHECK(Qty>0),
FOREIGN KEY (InvoiceId, CompanyID) REFERENCES SalesInvoice(InvoiceId,
CompanyID) ON DELETE CASCADE ON UPDATE CASCADE
);

```

❖ No change required, as the table is already in BCNF form.

17. ItemGroup

```

CREATE TABLE ItemGroup (
ItemGroupID varchar(20) PRIMARY KEY,
Category varchar(100) NOT NULL UNIQUE,
CompanyID varchar(20) NOT NULL REFERENCES Company(CompanyID) ON
UPDATE CASCADE ON DELETE CASCADE,
ParentItemGroupID varchar(20) REFERENCES ItemGroup(ItemGroupID) ON
UPDATE CASCADE ON DELETE CASCADE,
UNIQUE(Category, CompanyID)
);

```

❖ No change required, as the table is already in BCNF form.

18. Item

```

CREATE TABLE Item (
ItemID varchar(20) PRIMARY KEY,
ItemName varchar(100) NOT NULL,
Barcode varchar(40),

```

```
Price numeric(15,2),
ItemGroupID varchar(20) DEFAULT 'OTH01' NOT NULL REFERENCES
ItemGroup(ItemGroupID) ON UPDATE CASCADE ON DELETE SET DEFAULT,
UNIQUE(ItemName, ItemGroupID)
);
```

❖ No change required, as the table is already in BCNF form.

19. City

```
CREATE TABLE City (
CityId SERIAL PRIMARY KEY,
CityName varchar,
StateId int REFERENCES State(StateId)
);
```

❖ No change required, as the table is already in BCNF form.

20. PersonalAccount

```
CREATE TABLE PersonalAccount(
    AccountID varchar(20) NOT NULL REFERENCES Account(AccountID)
ON DELETE RESTRICT ON UPDATE CASCADE,
    CompanyName varchar(50) NOT NULL,
    GSTIN varchar(15),
    AddressLine1 varchar(300),
    AddressLine2 varchar(300),
    Pincode varchar(6)
);
```

❖ **Query to change the structure of the table is given below.**

```
ALTER TABLE PersonalAccount ADD CONSTRAINT unique_AccountId
UNIQUE(AccountId);
```