1.Describe the 5 normal form.

First Normal Form (1NF)
o Every attribute must have value. It should not be empty. In RDBMS a column without value has NULL value that can be manipulated or accesses like a normal value.
o Every attribute must have atomic value that cannot be shorten further. For example: Name is non-atomic attribute as it can be broken into First Name, Middle Name and Surname.

Second Normal Form (2NF)
o An entity must be in First Normal Form
o Entity must have a Primary Key or Composite Primary Key
o Every attribute must be fully and functionally dependent upon Primary Key

Third Normal Form (3NF)
o An entity must be Second Normal Form.
o There must not be any dependency among non-key attributes (other that Primary Key)

Boyce-Codd Normal Form (BCNF)
o An entity must be in Third Normal Form.
o If the entity has a Composite Primary Key & Alternate Primary Key with one or more attribute common to both, in such case entity must be broken into three entities.

Fourth Normal Form (4NF)
o An entity must be in Boyce-Codd Normal Form.
o If an attribute is based on Value List must be taken out as a separate entity.

Fifth Normal Form (5NF)
o An entity must be in Fourth Normal Form.
o If an attribute is multi-valued attribute then it must be taken out as a separate entity.

User(*userId*,firstName,lastName,email)
CreditCard*(userId,*cardNumber,securityCode,ExpirationDate)

Item(*ItemId,*name,description,pricePerUnit)

Order*(orderid*,userId,Cardnumber,orderTotalAmount)

ItemsInOrder(orderId,itemId,quantity)

Select u.email,max(o.orderTotalAmount)from user u ,Order o where u.userId=o.userId

group by u.email;

Select userId, from Order o where

1.Write DDL To Create the Table User.

Create Table User(userId int,firstName varchar(50),lastName varchar(50),email varchar(50),primary Key(userId));

2.List emails of People which have an expired credit card ,the email should be present once even if the user has more expired cards.

select distinct u.email from user u where u.userid IN (

select c.userID from creditcard c where getdate() >c. expiredDate)

3.List the emails of the user who made the biggest purchd ever.Biggest purchase is defined as largest total amount.

Select u.email,max(o.orderTotalAmount)from user u ,Order o where u.userId=o.userId

group by u.email;

4.List all items(itemId,name,description) Purchaded by John smith.

Select i.itemid,i.name,i.description from Item i where i.userId =(Select userId from User where firstName='John' AND lastName='Smith');

Normalize it into 3NF and draw ER diagram.Note that internatioal interantional call have different prices different country that are called. List any assumption that u made with real world.

user	userphone	dialedphone	Duration (min)	Domestic/ Internationl	Price per min	Totalpriceperc all
John Smith	123-456-7890	641-123-2345	4	domestic	0.1	0.40
John Smith	123-456-7890	641-123-6655	25	domestic	0.1	2.5
Jack Black	2332344532 2	+373249763 95	30	Internationl	0.5	15

(**Normalisation:**

1NF: Since no two rows are repeating and all the values of attributes are atomic, the relation is 1NF.

2NF: (Assumptions: One user has only one phone)
user(userId, user, userPhone**)---- userID here is primary key**
callHistory(call_id,FK_userID,dailedPhone,duration,domestic_intl, price per min, totalpricepercall**) ----**In this table,call_id and FK_userID combinely works as primary key)

3NF:

user(userId, user, userPhone**) ---- PK - userID**
callHistory(callid, userId, dailedPhone, duration, totalpricepercall)
callRate(rateId, countryId, price per min**)**
country(countryId, country, domestic/Intl)**)**

Explain the concept of referential Integrity constraint?

Referential integrity constraints is defining the relationship between two tables by creating foreign key(Referencing) on the table based on the primary key(Referenced) of other table.

Referential Integrity constraint

1.No Action:This is default behaviour.No action supecifies that if an attempt is made to delete or update a row with a key referenced by foreign

key in existing rows in other tables an error is raised and the Delete or Update is rolled back

2.Cascade:Specifies that if an attempt is made to delte or update a row with a key referenced by foreing key in esixting rows in other

tables all rows containing tohse foreing key are also deleted or updated

3.Set null:Specifies that if an attempt is made to delte or update a row with a key referenced by foreing key in esixting rows in other

tables all rows containing tohse foreing key are set to null.

4.set default: Specifies that if an attempt is made to delte or update a row with a key referenced by foreing key in esixting rows in other

tables all rows containing tohse foreing key are set to defalut.

.How Referential integrity is created between tables

Referential integrity is created between using one table primary key to the other table key as a foreign key.Means, Refrenced Table key is in referencing table then relation is established.

.Examples of actions(SQL commands) which can violation of integrity constraint

create table student(sid varchar(20) not null,sname varchar(20) not null)

course(course id,coursename,sid)

If we try to put null values to the primary key then integrity constraint is violated.

If we try to delete a referenced Table(Primary key)table , where its referencing key(Foreign key) is avalible in another table then we are viloating integrity constraint.

If we try keep null values to sid then it will generate error.

If we try to delete students table then it cant be deleted as it reference is in another table.

.How sql server can help in avoiding violation of the integrity constraint.

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Explain the "Rishi Devta and chanda "(Knower ,knowing,) and how it is manifested in dbms world.

1. The E-R model employs three basic concepts: entity sets, relationship sets, and attributes. On the subjective side, Rishi (knower), Devata (process of knowing) and Chhandas (known) are the three basic qualities that structure all of creation.

2. The overall logical structure of a database can be expressed graphically by an *E-R diagram* which gives holistic overview of the data that will be in the database. It is important that each relationship be understood in terms of the whole diagram; otherwise connection traps may occur. A graphical technique employed by Vedic science is the unified field chart which gives a holistic overview of a discipline and links all knowledge with the Self.

3. The ER model has been extended to include support for specialization and generalization, two sides of the same coin. The relative is infinite in its diversity and challenges any model that attempts to describe it. Vedic Science conquers diversity by transcending it locating the source of all diversity in a field of non-change.