1.Explain in detail about Foreign Key constraints with examples.

Answer 1: A foreign key constraint is a type of constraint in SQL that is used to link two tables together and create a relationship between them. It is used to enforce referential integrity between tables. A foreign key constraint is a column or a combination of columns in a table that is used to establish and enforce a link between the data in two tables. It is used to link two tables together and create a relationship between them. The FOREIGN KEY constraint is used to prevent actions that would destroy links between tables. A FOREIGN KEY is a field (or collection of fields) in one table that refers to the PRIMARY KEY in another table. [The table with the foreign key is called the child table, and the table with the primary key is called the referenced or parent table**1**](https://www.ibm.com/docs/en/db2/10.5?topic=constraints-foreign-key-referential)[**2**](https://www.ibm.com/docs/en/db2/11.1?topic=constraints-types)[**3**](https://www.programiz.com/sql/foreign-key).

For example, consider two tables: Voter and Location. Voter table includes Voter id, voter name, location and age. Set the voter id as primary key and no voter information should be included under age 18. Fix the constraint on it. Refer location as foreign key from location table[**2**](https://www.ibm.com/docs/en/db2/11.1?topic=constraints-types).

2.Create a Voter table which includes Voter id, voter name, location and age. Set the voter id as primary key and no voter information should be included under age 18. Fix the constraint on it. refer location as foreign key from location table.

Answer 2:

CREATE TABLE Voter (

Voter\_id INT PRIMARY KEY,

Voter\_name VARCHAR(255),

Location\_id INT,

Age INT,

CONSTRAINT chk\_age CHECK (Age >= 18),

FOREIGN KEY (Location\_id) REFERENCES Location(Location\_id)

);

In this example, we create a Voter table with columns for Voter\_id, Voter\_name, Location\_id and Age. We set the Voter\_id as the primary key and add a check constraint to ensure that no voter information is included under age 18. We also add a foreign key constraint to refer location as foreign key from location table.

3.What is meant by candidate key? Give an example.

Answer 3: A candidate key is a column or set of columns in a table that can uniquely identify each row in the table. It is a minimal set of attributes that can be used to identify a single row in a table. [A table can have multiple candidate keys, but only one of them can be chosen as the primary key**1**](https://www.javatpoint.com/dbms-keys)[**2**](https://www.techopedia.com/definition/21/candidate-key).

For example, consider a bank’s database. [To uniquely define each customer’s account, a combination of the customer’s birthdate and a sequential number for each of his or her accounts can be used](https://www.techopedia.com/definition/21/candidate-key)

4.What is super key? Give an example.

Answer 4: A super key is a set of one or more attributes that can be used to uniquely identify a record in a table. A super key can contain more attributes than are required to uniquely identify a record. [A candidate key is a minimal super key, which means it is a super key with no redundant attributes**1**](https://www.exploredatabase.com/2014/02/super-key-candidate-key-and-primary-key.html)[**2**](https://www.techopedia.com/definition/24475/superkey).

For example, consider an Employee table with columns Emp\_ID, Emp\_Name, Emp\_Salary, and Emp\_Address. The combination of Emp\_ID and Emp\_Name can uniquely identify any record in the table. Therefore, {Emp\_ID, Emp\_Name} is a super key for the Employee table.