postgres=# create database arun;

CREATE DATABASE

postgres=# \c arun;

psql (15.3, server 16.4 (Ubuntu 16.4-1.pgdg20.04+1))

You are now connected to database "arun" as user "mcass232430".

arun=# create table students(Regno int primary key,name varchar(50),gender char(1) check(gender in('M','F')),Bcode int);

CREATE TABLE

arun=# \d

List of relations

Schema | Name | Type | Owner

--------+----------+-------+-------------

public | students | table | mcass232430

(1 row)

arun=# insert into students values(2411,'Hamen','M',101);

INSERT 0 1

arun=# insert into students values(2412,'Ani','F',101);

INSERT 0 1

arun=# insert into students values(2413,'John','M',102);

INSERT 0 1

arun=# insert into students values(2414,'James','M',104);

INSERT 0 1

arun=# insert into students values(2415,'Mary','F',NULL);

INSERT 0 1

arun=# select \* from students;

regno | name | gender | bcode

-------+-------+--------+-------

2411 | Hamen | M | 101

2412 | Ani | F | 101

2413 | John | M | 102

2414 | James | M | 104

2415 | Mary | F |

(5 rows)

arun=# create table dept(

arun(# bcode int primary key,bname varchar(40));

CREATE TABLE

arun=# insert into dept values(101,'Computer');

INSERT 0 1

arun=# insert into dept values(102,'Data Science');

INSERT 0 1

arun=# insert into dept values(103,'Multimedia');

INSERT 0 1

arun=# insert into dept values(104,'Machine Learning');

INSERT 0 1

arun=# \d

List of relations

Schema | Name | Type | Owner

--------+----------+-------+-------------

public | dept | table | mcass232430

public | students | table | mcass232430

arun=# select \* from students;

regno | name | gender | bcode

-------+-------+--------+-------

2411 | Hamen | M | 101

2412 | Ani | F | 101

2413 | John | M | 102

2414 | James | M | 104

2415 | Mary | F |

(5 rows)

arun=# select \* from dept;

bcode | bname

-------+------------------

101 | Computer

102 | Data Science

103 | Multimedia

104 | Machine Learning

(4 rows)

**Cartesian Product**

arun=# select \* from students,dept;

regno | name | gender | bcode | bcode | bname

-------+-------+--------+-------+-------+------------------

2411 | Hamen | M | 101 | 101 | Computer

2412 | Ani | F | 101 | 101 | Computer

2413 | John | M | 102 | 101 | Computer

2414 | James | M | 104 | 101 | Computer

2415 | Mary | F | | 101 | Computer

2411 | Hamen | M | 101 | 102 | Data Science

2412 | Ani | F | 101 | 102 | Data Science

2413 | John | M | 102 | 102 | Data Science

2414 | James | M | 104 | 102 | Data Science

2415 | Mary | F | | 102 | Data Science

2411 | Hamen | M | 101 | 103 | Multimedia

2412 | Ani | F | 101 | 103 | Multimedia

2413 | John | M | 102 | 103 | Multimedia

2414 | James | M | 104 | 103 | Multimedia

2415 | Mary | F | | 103 | Multimedia

2411 | Hamen | M | 101 | 104 | Machine Learning

2412 | Ani | F | 101 | 104 | Machine Learning

2413 | John | M | 102 | 104 | Machine Learning

2414 | James | M | 104 | 104 | Machine Learning

2415 | Mary | F | | 104 | Machine Learning

(20 rows)

arun=# alter table students add foreign key(bcode) references dept(bcode);

ALTER TABLE

**Equi Join**

arun=# select \* from students, dept where students.bcode = dept.bcode;

regno | name | gender | bcode | bcode | bname

-------+-------+--------+-------+-------+------------------

2411 | Hamen | M | 101 | 101 | Computer

2412 | Ani | F | 101 | 101 | Computer

2413 | John | M | 102 | 102 | Data Science

2414 | James | M | 104 | 104 | Machine Learning

(4 rows)

**Left Join**

arun=# select \* from students left join dept on students.bcode = dept.bcode;

regno | name | gender | bcode | bcode | bname

-------+-------+--------+-------+-------+------------------

2411 | Hamen | M | 101 | 101 | Computer

2412 | Ani | F | 101 | 101 | Computer

2413 | John | M | 102 | 102 | Data Science

2414 | James | M | 104 | 104 | Machine Learning

2415 | Mary | F | | |

(5 rows)

**Right Join**

arun=# select \* from students right join dept on students.bcode = dept.bcode;

regno | name | gender | bcode | bcode | bname

-------+-------+--------+-------+-------+------------------

2411 | Hamen | M | 101 | 101 | Computer

2412 | Ani | F | 101 | 101 | Computer

2413 | John | M | 102 | 102 | Data Science

2414 | James | M | 104 | 104 | Machine Learning

| | | | 103 | Multimedia

(5 rows)

**Full Join**

arun=# select \* from students full join dept on students.bcode = dept.bcode;

regno | name | gender | bcode | bcode | bname

-------+-------+--------+-------+-------+------------------

2411 | Hamen | M | 101 | 101 | Computer

2412 | Ani | F | 101 | 101 | Computer

2413 | John | M | 102 | 102 | Data Science

2414 | James | M | 104 | 104 | Machine Learning

2415 | Mary | F | | |

| | | | 103 | Multimedia

(6 rows)