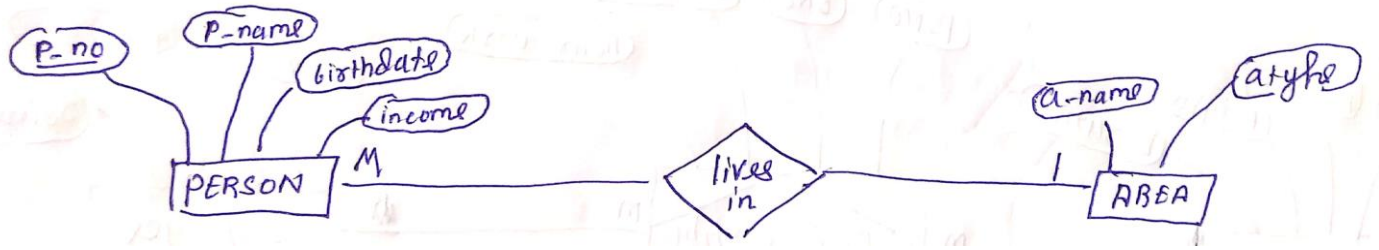
Q.1) Practical Questions on PostgresSQL the following database

Person (pnumber, pname, birthdate, income)Area (aname,area_type)

An area can have one or more person living in it , but a person belongs to exactly one area.The attribute 'area_type' can have values as either urban or rural.

Assume appropriate data types for all the attributes.

a) Draw the ER diagram for above relational schema and normalize it in 3NF.



b) Create the above database in 3NF form in PostgresSQL using constraints.

```
CREATE TABLE Area (aname VARCHAR(50) PRIMARY KEY, area_type VARCHAR(10));

CREATE TABLE Person (pnumber INT PRIMARY KEY, pname VARCHAR(50), birthdate DATE, income FLOAT, aname VARCHAR(50) REFERENCES Area);

INSERT INTO Area VALUES ('Pune', 'urban'), ('Mumbai', 'urban'), ('Alandi', 'urban'), ('Khed', 'rural'), ('Chakan', 'rural');

INSERT INTO Person VALUES (1,'Tushar', '2003-03-15', 15000.00, 'Pune'),(2,'Sujal', '2005-04-20', 12000.00, 'Pune'), (3,'Hrushi', '2004-02-19', 8000.00, 'Alandi'), (4,'Aditya', '18-06-2005', 11000, 'Alandi'),(5,'Sumeet', '07-06-2005', 9000, 'Mumbai'),(6,'Suyog', '01-05-2005', 20000, 'Khed'),(7,'Omkar', '23-07-2006', 9500, 'Chakan'),(8,'Shubham', '08-09-2005', 7500, 'Khed'),(9,'Raj', '01-02-2006', 13000, 'Mumbai'),(10,'Sarthak', '28-01-2004', 18000, 'Chakan');
```

Q2) Using above database, solve the following queries:

a) List all people area wise living in rural area type.

```
SELECT p.pname, a.aname FROM Person p JOIN Area a ON p.aname = a.aname WHERE a.area_type = 'rural';
```

b) Find the count of people area wise.

```
SELECT a.aname, COUNT(p.pnumber) AS people_count FROM Person p JOIN Area a ON p.aname = a.aname GROUP BY a.aname;
```

c) Find average income of people living in urban area.

```
SELECT AVG(p.income) AS average_income FROM Person p JOIN Area a ON p.aname = a.aname WHERE a.area_type = 'urban';
```

d) Delete people staying in 'rural' area and having income less than Rs 50000.

```
DELETE FROM Person WHERE aname IN (SELECT aname FROM Area WHERE area_type = 'rural') AND income < 50000;
```