**Aim:** To implement Horizontal and Vertical Fragmentation

**ATM TRANS TABLE:-**

ruchi=# select \* from atm.atmtran;

atmid | cashlimit | atm\_addr | bid | cid

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

1 | 10000 | malad(w) | b1 | c1

2 | 25000 | malad(w) | b2 | c2

3 | 45000 | virar | b3 | c3

4 | 12000 | cst | b4 | c4

5 | 75000 | marinelines | b5 | c5

(5 rows)

**HORIZONTAL FRAGMENTS OF ATM TRANS:-**

ruchi=# create table atm.at1 as(select \* from atm.atmtran where cashlimit<20000);

SELECT 2

ruchi=# select \* from atm.at1;

atmid | cashlimit | atm\_addr | bid | cid

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

1 | 10000 | malad(w) | b1 | c1

4 | 12000 | cst | b4 | c4

ruchi=# create table atm.at2 as(select \* from atm.atmtran where cashlimit>=20000);

SELECT 3

ruchi=# select \* from atm.at2;

atmid | cashlimit | atm\_addr | bid | cid

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

2 | 25000 | malad(w) | b2 | c2

3 | 45000 | virar | b3 | c3

5 | 75000 | marinelines | b5 | c5

**BANK TABLE:-**

ruchi=# select \* from atm.bank;

bid | bname | baddr

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

b1 | sbi | borivali

b2 | hdfc | kandivali(w)

b3 | icici | kandivali(e)

b4 | axis bank | dahisar(e)

b5 | canara bank | dahisar(w)

(5 rows)

**HORIZONTAL FRAGMENTS OF BANK:-**

ruchi=# create table atm.bank1 as(select \* from atm.bank where baddr='borivali');

SELECT 1

ruchi=# select \* from atm.bank1;

bid | bname | baddr

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

b1 | sbi | borivali

ruchi=# create table atm.bank2 as(select \* from atm.bank where baddr!='borivali');

SELECT 4

ruchi=# select \* from atm.bank2;

bid | bname | baddr

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

b2 | hdfc | kandivali(w)

b3 | icici | kandivali(e)

b4 | axis bank | dahisar(e)

b5 | canara bank | dahisar(w)

**CORRECTNESS PROPERTIES:-**

* **COMPLETENESS**

Since both the fragments are having all the attributes of the main relation atmtrans, bank the property of completeness is satisfied.

* **RECONSTRUCTION**

ruchi=# select \* from atm.at1 union select \* from atm.at2;

atmid | cashlimit | atm\_addr | bid | cid

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

1 | 10000 | malad(w) | b1 | c1

2 | 25000 | malad(w) | b2 | c2

5 | 75000 | marinelines | b5 | c5

3 | 45000 | virar | b3 | c3

4 | 12000 | cst | b4 | c4

ruchi=# select \* from atm.bank1 union select \* from atm.bank2;

bid | bname | baddr

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

b1 | sbi | borivali

b2 | hdfc | kandivali(w)

b3 | icici | kandivali(e)

b4 | axis bank | dahisar(e)

b5 | canara bank | dahisar(w)

* **DISJOINTNESS:-**

ruchi=# select \* from atm.at1 intersect select \* from atm.at2;

atmid | cashlimit | atm\_addr | bid | cid

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

(0 rows)

ruchi=# select \* from atm.bank1 intersect select \* from atm.bank2;

bid | bname | baddr

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

(0 rows)

**CUSTOMER TABLE:-**

ruchi=# select \* from atm.customer;

cid | cno | caddr | fname | mname | lname | bid

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

c1 | 1232445 | cvhar society | ram | mohan | roy | b1

c2 | 32458645 | rajhans society | rini | kiran | shah | b2

c3 | 45778645 | madhu society | vimal | kantilal | ekbote | b3

c4 | 7865645 | sfit society | pooja | k | ekbote | b4

c5 | 8615645 | shivsadan society | nikita | darshan | jadhav | b5

(5 rows)

**VERTICAL FRAGMENT OF CUSTOMER TABLE:-**

ruchi=# create table atm.cust1 as(select cid,cno from atm.customer);

SELECT 5

ruchi=# select \* from atm.cust1;

cid | cno

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

c1 | 1232445

c2 | 32458645

c3 | 45778645

c4 | 7865645

c5 | 8615645

(5 rows)

ruchi=# create table atm.cust2 as(select cid,caddr,fname,mname,lname,bid from at

m.customer);

SELECT 5

ruchi=# select \* from atm.cust2;

cid | caddr | fname | mname | lname | bid

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

c1 | cvhar society | ram | mohan | roy | b1

c2 | rajhans society | rini | kiran | shah | b2

c3 | madhu society | vimal | kantilal | ekbote | b3

c4 | sfit society | pooja | k | ekbote | b4

c5 | shivsadan society | nikita | darshan | jadhav | b5

(5 rows)

**CORRECTNESS PROPERTIES:-**

* **RECONSTRUCTION:-**

ruchi=# select cc.cid,cc.cno,c.caddr,c.fname,c.mname,c.lname,c.bid from atm.cust

1 cc,atm.cust2 c where cc.cid=c.cid;

cid | cno | caddr | fname | mname | lname | bid

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

c1 | 1232445 | cvhar society | ram | mohan | roy | b1

c2 | 32458645 | rajhans society | rini | kiran | shah | b2

c3 | 45778645 | madhu society | vimal | kantilal | ekbote | b3

c4 | 7865645 | sfit society | pooja | k | ekbote | b4

c5 | 8615645 | shivsadan society | nikita | darshan | jadhav | b5

(5 rows)

* **DISJOINTNESS:-**

Both the fragments as a combination do not contain similar attributes except the primary key.

* **COMPLETENESS:-**

The original table is fragmented in such a way that each fragment consist of the values present in the original table.