Lab 10: ADMS Assignment on Range, List and ODBMS

Aim: To understand Implementation of Data partitioning through Range and List partitioning and ODBMS

Range:

1. Create a table **Customer** with following schema & partition the c**id** column by using range partitioning:

cid number not null
fname varchar2(20)
mname
varchar2(20) lname
varchar2(20)
address
varchar2(20)

- Make 3 partitions which will contain the values from 1 to 99, 100 to 199, and 200 onwards.

- Insert the appropriate records into the table (Also insert some ids with value more than 400)

- Retrieve the values from the table

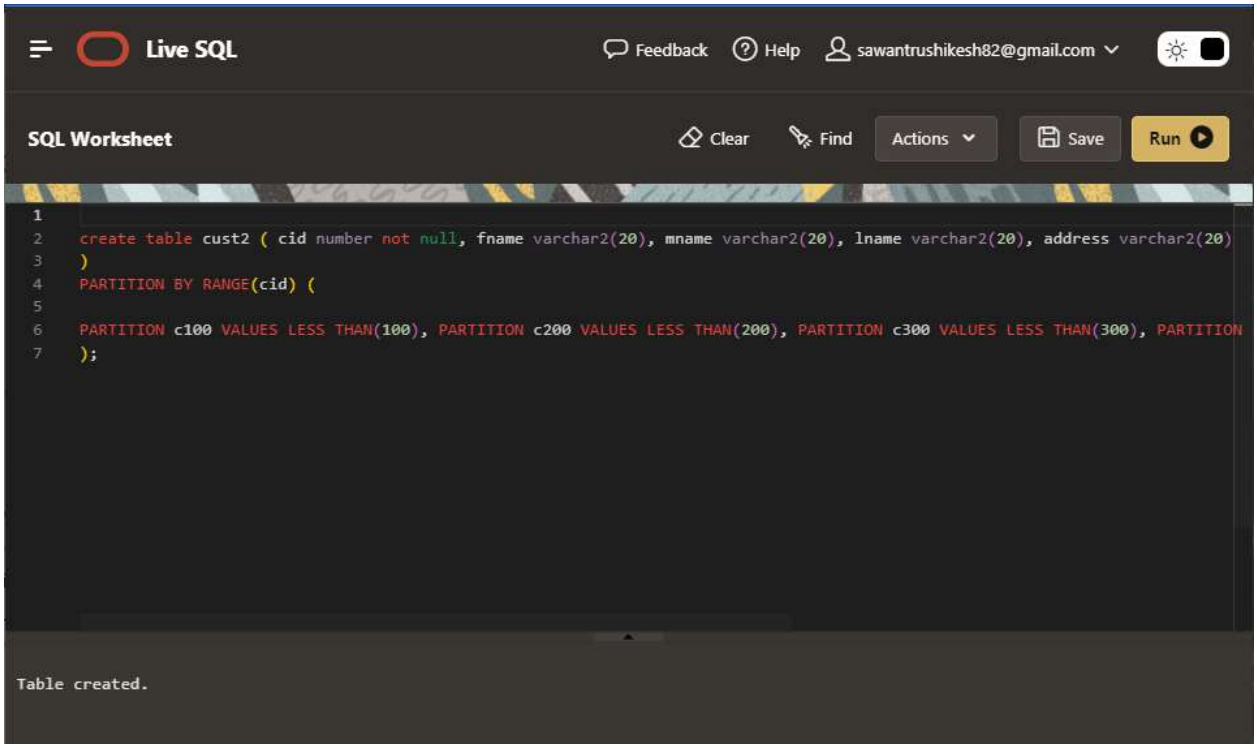
- Retrieve the values from individual partition

- Retrieve the partition details from Customer table.

query:

```
create table cust2 ( cid number not null, fname varchar2(20), mname varchar2(20), lname varchar2(20), address varchar2(20)
)
PARTITION BY RANGE(cid) (

PARTITION c100 VALUES LESS THAN(100), PARTITION c200 VALUES LESS THAN(200), PARTITION c300 VALUES LESS THAN(300), PARTITION c400 VALUES LESS THAN(400), PARTITION cother VALUES LESS THAN (MAXVALUE)
);
```



query:
insert into cust2 values (93, 'Rushikesh', 'Nitn', 'Sawant','Mumbai');
insert into cust2 values (90, 'Rutvik', 'R', 'Redkar', 'Mumbai');
insert into cust2 values (104, 'Ashvin', 'A', 'Shetty', 'Mumbai');

```
insert into cust2 values(93,'Rushikesh','Nitn','Sawant','Mumbai');
insert into cust2 values(90,'Rutvik','R','Redkar','Mumbai');
insert into cust2 values(104,'Ashvin','A','Shetty','Mumbai');
```

query:
select * from cust2;

```
select * from cust2;
```

CID	FNAME	MNAME	LNAME	ADDRESS
93	Rushikesh	Nitn	Sawant	Mumbai
90	Rutvik	R	Redkar	Mumbai
104	Ashvin	A	Shetty	Mumbai

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3 rows selected.

query:

SELECT * FROM Cust2 PARTITION(c100);

```
1
2   SELECT * FROM Cust2 PARTITION(c100);
```

CID	FNAME	MNAME	LNAME	ADDRESS
93	Rushikesh	Nitn	Sawant	Mumbai
90	Rutvik	R	Redkar	Mumbai

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query:
SELECT * FROM Cust2 PARTITION(c200);

```
1
2   SELECT * FROM Cust2 PARTITION(c200);
```

CID	FNAME	MNAME	LNAME	ADDRESS
104	Ashvin	A	Shetty	Mumbai

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query:
SELECT * FROM Cust2 PARTITION(c300);

```
1
2    SELECT * FROM Cust2 PARTITION(c300);
```

CID	FNAME	MNAME	LNAME	ADDRESS
269	Abhijeet	B	sharma	Thane

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query:
SELECT * FROM Cust2 PARTITION(c400);

```
1
2    SELECT * FROM Cust2 PARTITION(c400);
```

no data found

SELECT * FROM Cust2 PARTITION(cother);

```
SELECT * FROM Cust2 PARTITION(cother);
```

CID	FNAME	MNAME	LNAME	ADDRESS
450	Abhijeet	A	sharma	Thane

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SELECT TABLE_NAME,PARTITION_NAME FROM USER_TAB_PARTITIONS

```
SELECT TABLE_NAME,PARTITION_NAME FROM USER_TAB_PARTITIONS
```

TABLE_NAME	PARTITION_NAME
CUST2	C100
CUST2	C200
CUST2	C300
CUST2	C400
CUST2	COTHER

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2. Create a table with following schema
Table name: Purchase
transid number not null
cust_id number
inv_date date
cust_name
varchar2(30)

- Partition the table according to inv_date such that it has 4 partitions having: Data of 2008 & previous years,

Data of 2009

Data of 2010

Data of 2011 &onwards.

- Insert the appropriate records into the table

- Retrieve the values from the table

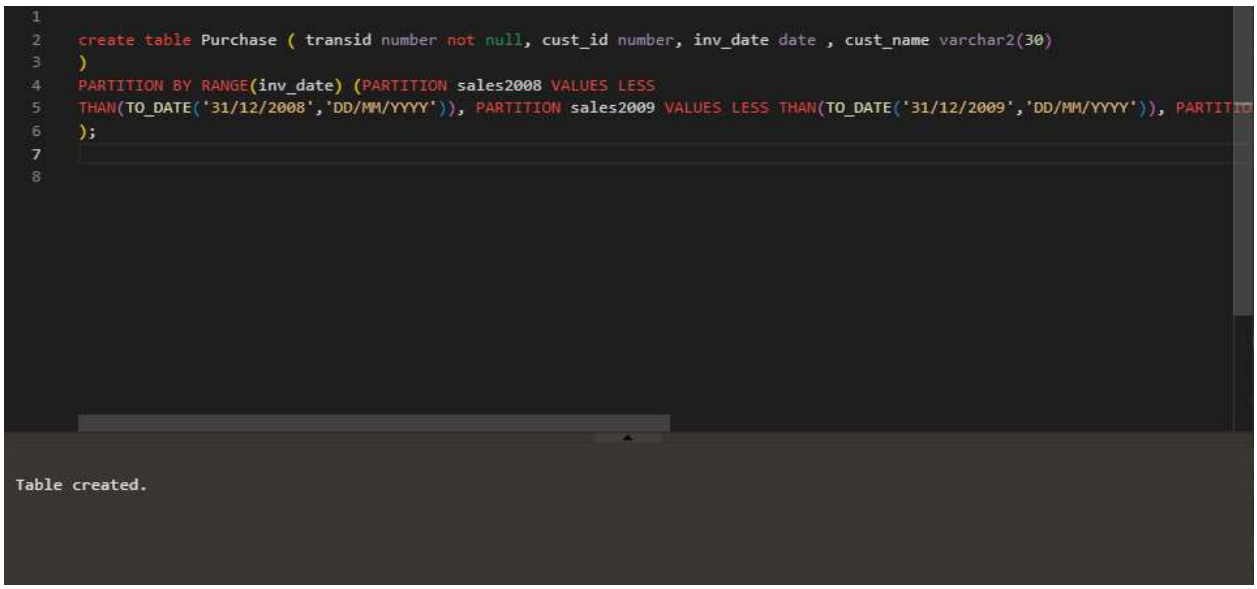
- Split the last partition so that we have a separate partition for 2011; check the entries of system table.

- Retrieve the values from individual partitions

- Find the number of transactions done in the year 2009

query:

```
create table Purchase ( transid number not null, cust_id number, inv_date date , cust_name varchar2(30)
)
PARTITION BY RANGE(inv_date) (PARTITION sales2008 VALUES LESS THAN(TO_DATE('31/12/2008','DD/MM/YYYY')), PARTITION sales2009 VALUES LESS THAN(TO_DATE('31/12/2009','DD/MM/YYYY')), PARTITION sales2010 VALUES LESS THAN(TO_DATE('31/12/2010','DD/MM/YYYY')), PARTITION sales2011 VALUES LESS THAN (Maxvalue)
);
```



query:

```
insert into Purchase values(1,1,TO_DATE('23/02/2007','DD/MM/YYYY'),'Rushikesh');
insert into Purchase values(2,2,TO_DATE('23/12/2008','DD/MM/YYYY'),'Ashvin');
insert into Purchase values(3,3,TO_DATE('13/01/2009','DD/MM/YYYY'),'Rutvik');
 insert into Purchase values(4,4,TO_DATE('13/01/2010','DD/MM/YYYY'),'Abijeet');
 insert into Purchase values(5,5,TO_DATE('13/11/2011','DD/MM/YYYY'),'Muskan');
```

```
1
2   insert into Purchase values(1,1,TO_DATE('23/02/2007','DD/MM/YYYY'),'Rushikesh');
3   insert into Purchase values(2,2,TO_DATE('23/12/2008','DD/MM/YYYY'),'Ashvin');
4   insert into Purchase values(3,3,TO_DATE('13/01/2009','DD/MM/YYYY'),'Rutvik');
5    insert into Purchase values(4,4,TO_DATE('13/01/2010','DD/MM/YYYY'),'Abijeet');
6    insert into Purchase values(5,5,TO_DATE('13/11/2011','DD/MM/YYYY'),'Muskan');
7
8
```

```
1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```

query:

SELECT * FROM Purchase PARTITION(sales2008);

```
SELECT * FROM Purchase PARTITION(sales2008);
```

TRANSID	CUST_ID	INV_DATE	CUST_NAME
1	1	23-FEB-07	Rushikesh
2	2	23-DEC-08	Ashvin

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query:
SELECT * FROM Purchase PARTITION(sales2010);

```
SELECT * FROM Purchase PARTITION(sales2010);
```

TRANSID	CUST_ID	INV_DATE	CUST_NAME
4	4	13-JAN-10	Abijeet

query:

SELECT * FROM Purchase PARTITION(sales2011);

```
SELECT * FROM Purchase PARTITION(sales2011);
```

TRANSID	CUST_ID	INV_DATE	CUST_NAME
5	5	13-NOV-11	Muskan

query:

SELECT count(*) as Total_Transaction_2009 FROM Purchase PARTITION(sales2009);

```
1
2   SELECT count(*) as Total_Transaction_2009 FROM Purchase PARTITION(sales2009);
3
```

TOTAL_TRANSACTION_2009
1

List:

1. Create a table Bookshelf with following schema & partition the Category column by using list partitioning:

Table name: Bookshelf

Title varchar2(60) not null Publisher
varchar2(40) not null Category
varchar2(30)

Rating number not null;

- Divide the data into 4 partitions using list partitioning on column Category with values 'TECHNOLOGY','QUANTITATIVE', 'LOGICAL', 'MYTHOLOGY'.

- Insert the appropriate records into the table

- retrieve the values from the table and from individual partitions

Retrieve the partition details from system table

query:

CREATE TABLE Bookshelf (Title varchar2(60) Not Null,
Publisher VARCHAR2(40) Not Null, Category VARCHAR2(30),
Rating NUMBER(10) Not Null
)
PARTITION BY LIST(Category) (
PARTITION cat_tech VALUES('Technology'), PARTITION cat_quant VALUES ('Quantitative'),
PARTITION cat_log VALUES('Logical'), PARTITION cat_myth VALUES('Mythology'),
PARTITION cat_other VALUES(Default)
) ;

```
CREATE TABLE Bookshelf (Title varchar2(60) Not Null,
Publisher VARCHAR2(40) Not Null, Category VARCHAR2(30),
Rating NUMBER(10) Not Null
)
PARTITION BY LIST(Category) (
PARTITION cat_tech VALUES('Technology'), PARTITION cat_quant VALUES ('Quantitative'), PARTITION cat_log VALUES('Logical'),
) ;
```

```
Table created.
```

```
insert into Bookshelf values('NLP','Def','Technology',7);
insert into Bookshelf values('Seeta','lmn','Mythology',9);
insert into Bookshelf values('Stats','hgf','Logical',4);
insert into Bookshelf values('jkl','pqr','Quantitative',8);
insert into Bookshelf values('opy','rts','Quantitative',3);
insert into Bookshelf values('srt','pol','other',3);
```

```
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
```

SELECT * FROM Bookshelf PARTITION(cat_tech);

```
SELECT * FROM Bookshelf PARTITION(cat_tech);
```

TITLE	PUBLISHER	CATEGORY	RATING
NLP	Def	Technology	7

SELECT * FROM Bookshelf PARTITION(cat_log);

```
SELECT * FROM Bookshelf PARTITION(cat_log);
```

TITLE	PUBLISHER	CATEGORY	RATING
Stats	hgf	Logical	4

SELECT * FROM Bookshelf PARTITION(cat_quant);

```
SELECT * FROM Bookshelf PARTITION(cat_quant);
```

TITLE	PUBLISHER	CATEGORY	RATING
jkl	pqr	Quantitative	8
opy	rts	Quantitative	3

SELECT * FROM Bookshelf PARTITION(cat_tech);

```
SELECT * FROM Bookshelf PARTITION(cat_tech);
```

TITLE	PUBLISHER	CATEGORY	RATING
NLP	Def	Technology	7

SELECT * FROM Bookshelf PARTITION(cat_log);

```
SELECT * FROM Bookshelf PARTITION(cat_log);
```

TITLE	PUBLISHER	CATEGORY	RATING
Stats	hgf	Logical	4

SELECT * FROM Bookshelf PARTITION(cat_quant);

```
SELECT * FROM Bookshelf PARTITION(cat_quant);
```

TITLE	PUBLISHER	CATEGORY	RATING
jkl	pqr	Quantitative	8
opy	rts	Quantitative	3

SELECT * FROM Bookshelf PARTITION(cat_myth);

```
SELECT * FROM Bookshelf PARTITION(cat_myth);
```

TITLE	PUBLISHER	CATEGORY	RATING
Seeta	lmn	Mythology	9

SELECT * FROM Bookshelf PARTITION(cat_other);

```
SELECT * FROM Bookshelf PARTITION(cat_other);
```

TITLE	PUBLISHER	CATEGORY	RATING
srt	pol	other	3

SELECT TABLE_NAME,PARTITION_NAME FROM USER_TAB_PARTITIONS

```
SELECT TABLE_NAME,PARTITION_NAME FROM USER_TAB_PARTITIONS
```

TABLE_NAME	PARTITION_NAME
BOOKSHELF	CAT_LOG
BOOKSHELF	CAT_MYTH
BOOKSHELF	CAT_OTHER
BOOKSHELF	CAT_QUANT
BOOKSHELF	CAT_TECH
CUST2	C100
CUST2	C200

Implementation of ORDBMS using ADT (Abstract Data Types)

1. Create type **Address** having the specified columns (address1, address2, state, city, pincode).
Create **Customer** table having the specified columns (Customer_id, Customer_name and Address type).

- Insert records into customer table.
- Display the details customer.
- display the description/structure of the customer table
- List the customers from Mumbai
- Count the number of customers' state wise

create type type_address As object:

(
address1 varchar(30), address2 varchar(30), state varchar(20), city varchar(20), pincode number(10)
);

```
create type type_address As object

(
address1 varchar(30), address2 varchar(30), state varchar(20), city varchar(20),
);
```

```
Type created.
```

```
create table Customer (
Customer_id number(5) primary key, Customer_name varchar2(30), Address type_address
);
```

```
Table created.
```

```sql
select * from Customer;
```

CUSTOMER_ID	CUSTOMER_NAME	ADDRESS
3	Rutvik	[unsupported data type]
4	Muskan	[unsupported data type]
1	Rushikesh	[unsupported data type]
2	Ashwin	[unsupported data type]

```sql
desc Customer;
```

TABLE CUSTOMER

Column	Null?	Type
CUSTOMER_ID	NOT NULL	NUMBER(5,0)
CUSTOMER_NAME	-	VARCHAR2(30)
ADDRESS	-	TYPE_ADDRESS

```sql
Select * from Customer c where c.address.city = 'Mumbai';
```

CUSTOMER_ID	CUSTOMER_NAME	ADDRESS
1	Rushikesh	[unsupported data type]
2	Ashwin	[unsupported data type]

```
Select c.address.state, count(*) as No_of_customer from Customer c Group by c.address.state;
```

ADDRESS.STATE	NO_OF_CUSTOMER
Maharashtra	2
Gujarat	1
Madhya Pradesh	1

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Conclusion: Successfully implemented Data partitioning through Range and List partitioning and ODBMS