Experiment No. 1

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Title: Implement multi-valued attributes and inheritance in ORDBMS.

Problem statement:

A. Implement multi-valued attributes in ORDBMS for a given dataset.

B. Implement inheritance in ORDBMS for a given dataset.

1. **Implement multi-valued attributes in ORDBMS for a given dataset.**

Questions:

1. Create type name_ty with following attributes:

- **Fname varchar**
- **Lname varchar**

```
create type name_ty as object
(
fname varchar(20),
lname varchar(20)
);
```

```
Type created.
```

2. Create type inv_ty with following attributes:

- **Inv_no varchar**
- **Cust_id varchar**

```
create type inv_ty as object
```

(

inv_no varchar(20),

cust_id varchar(20)

);

```
Type created.
```

3. Create table Customer with following attributes:

- **Cust_id varchar**
- **Name name_ty**
- **Area varchar**
- **Ph_no integer**

create table customer

(

id varchar(20),

name name_ty,

area varchar(20),

phn_no int

);

```
Table created.
```

4. Create table invoice using inv_ty.

create table invoice of inv_ty;

```
Table created.
```

5. Insert following data into customer table.

cust_id	name		area	ph_no
	fname	lname		
a01	Sumit	Kamble	sa	723622
a02	Shubham	Chougule	mo	237842
a03	ravi	kumar	bi	545621
a04	sunita	rai	ch	983724
a05	james	smith	wa	636472

insert into customer(id,name,area,phn_no) values ('a01',name_ty('Kamble','Sumit'),'sa',723671);

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

insert into
customer(id,name,area,phn_no)values('a02',name_ty('Shubham','Chougule'),'mo',237842);

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

insert into customer(id,name,area,phn_no)values('a03',name_ty('ravi','kumar'),'bi',545621);

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

insert into customer(id,name,area,phn_no)values('a04',name_ty('sunita','rai'),'ch',983724);

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

insert into customer(id,name,area,phn_no)values('a05',name_ty('james','smith'),'wa',636472);

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

6. Insert following data into invoice table.

Inv_no	Cust_id
i01	a01
i02	a02
i03	a03
i04	a04
i05	a05

insert into invoice values ('i01','a01');

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

insert into invoice values ('i02','a02');

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

insert into invoice values ('i03','a03');

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

insert into invoice values ('i04','a04');

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

insert into invoice values ('i05','a05');

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

7. Print both customer and invoice tables.

select c.id,c.name.fname,c.name.lname,c.area,c.phn_no from customer c;

ID	NAME.FNAME	NAME.LNAME	AREA	PHN_NO
a01	Kamble	Sumit	sa	723671
a02	Shubham	Chougule	mo	237842
a03	ravi	kumar	bi	545621
a05	james	smith	wa	636472
a03	ravi	kumar	bi	545621
a04	sunita	rai	ch	983724

Download CSV

6 rows selected.

select * from invoice;

INV_NO	CUST_ID
i02	a02
i03	a03
i04	a04
i05	a05
i01	a01

Download CSV

5 rows selected.

8. Retrieve the list of first name and area for all the customers.

select c.name.fname,c.id from customer c;

NAME.FNAME	ID
Kamble	a01
Shubham	a02
ravi	a03
james	a05
ravi	a03
sunita	a04

Download CSV

6 rows selected.

9. Find the name of all the customers having ‘a’ as second letter in first name.

select c.name.fname from customer c where c.name.fname like ‘_a%’;

NAME.FNAME
Kamble
ravi
james
ravi

Download CSV

4 rows selected.

10. Find the customers who stay in area sa or bi or ch.

select area from customer where area=’sa’ or area= ‘bi’ or area= ‘ch’;

AREA
sa
bi
bi
ch

Download CSV

4 rows selected.

select area from customer where area IN('sa','bi','ch');

AREA
sa
bi
bi
ch

Download CSV

4 rows selected.

11. Count the total number of customers.

select COUNT(c.name) from customer c;

COUNT(C.NAME)
6

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12. Find the customer name and area with invoice no ‘i04’.

```
select c.name.fname,c.name.lname ,c.area from customer c where id in
(
select cust_id from invoice where inv_no='i04'
);
```

NAME.FNAME	NAME.LNAME	AREA
sunita	rai	ch

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13. Change the phone number of ravi to 546120.

```
update customer set phn_no=546120 where id='a03';
```

```
2 row(s) updated.
```

ID	NAME.FNAME	NAME.LNAME	AREA	PHN_NO
a01	Kamble	Sumit	sa	723671
a02	Shubham	Chougule	mo	237842
a03	ravi	kumar	bi	546120
a05	james	smith	wa	636472
a03	ravi	kumar	bi	546120
a04	sunita	rai	ch	983724

Download CSV

14. Delete the record with invoice_no ‘i04’.

```
delete from invoice i where i.inv_no='i04';
```

```
1 row(s) deleted.
```

15. Arrange the customer table in decreasing order of customer id.

select c.id,c.name.fname,c.name.lname,c.area,c.phn_no from customer c

ORDER BY c.id DESC;

ID	NAME.FNAME	NAME.LNAME	AREA	PHN_NO
a05	james	smith	wa	636472
a04	sunita	rai	ch	983724
a03	ravi	kumar	bi	546120
a03	ravi	kumar	bi	546120
a02	Shubham	Chougule	mo	237842
a01	Kamble	Sumit	sa	723671

Download CSV

```
6 rows selected.
```

16. Delete all the records from customer and invoice table.

delete from customer;

```
6 row(s) deleted.
```

delete from invoice;

```
4 row(s) deleted.
```

B. Implement inheritance in ORDBMS for a given dataset.

Questions:

1. **Create type name_ty with following attributes:**
    - **Fname varchar**
    - **Lname varchar**

```
create type name_ty1 as OBJECT
(
fname varchar(20),lname varchar(20)
)not final;
```

```
Type created.
```

2. **Create type addr_ty with following attributes:**
    - **City varchar**
    - **Pincode number**

```
create type addr_ty1 as OBJECT
(
city varchar(20),pincode number
)not final;
```

```
Type created.
```

3. **Create type employee with following attributes:**
    - **emp_id number**
    - **name name_ty**
    - **address addr_ty.**

```
create type employee as OBJECT
(
```

```
emp_id number,name name_ty1,address addr_ty1
)not final;
```

```
Type created.
```

1. **Create type fulltime_emp under type employee with following attribute:**
    - **Salary number**

```
create type fulltime_emp under employee
(
salary number
)not final;
```

```
Type created.
```

1. **Create type parttime_emp under type employee with following attributes:**
    - **Rate number**
    - **Hours number**

```
create type parttime_emp under employee
(
rate number,hours number
);
```

```
Type created.
```

1. **Create table Fulltime of type fulltime_emp.**

```
create table fulltime of fulltime_emp;
```

```
Table created.
```

2. **Create table Parttime of type parttime_emp.**

```
create table parttime of parttime_emp;
```

```
Table created.
```

1. **Insert the following data to Fulltime table:**

emp_id	Name		address		salary
	fanme	lname	city	pincode	
1	Rahul	Kumar	pune	411234	50000
2	Aniket	Sharma	Kolhapur	410123	70000
3	Abhi	Verma	Kolhapur	410124	40000
4	Rohan	Kumar	mumbai	416605	60000

```
insert into fulltime values(1,name_ty('rahul','kumar'),addr_ty('pune',411234),50000);
insert into fulltime values(2,name_ty('aniket','sharma'),addr_ty('kop',410123),70000);
insert into fulltime values(3,name_ty('abhi','verma'),addr_ty('kop',410124),40000);
insert into fulltime values(4,name_ty('rohan','kumar'),addr_ty('mum',416605),60000);
```

```
1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```

2. **Insert the following data to Parttime table:**

emp_id	Name	address	rate	hours

	fanme	lname	city	pincode		
5	Vibhuti	mitra	sangli	410298	1000	8
6	Ketaki	Bhave	Kolhapur	410222	500	7
7	Mahesh	Kumbhar	pune	416289	2000	5
8	Raj	Patil	pune	409256	800	4

insert into parttime values(5,name_ty('vibhuti','mitra'),addr_ty('sangli',410298),1000,8);

insert into parttime values(6,name_ty('ketaki','bhave'),addr_ty('kop',410222),500,7);

insert into parttime values(7,name_ty('mahesh','kumbhar'), addr_ty('pune',416289), 2000,5);

insert into parttime values(8,name_ty('raj','patil'),addr_ty('pune',409256),800,4);

```
1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```

3. **Print the record of all Fulltime employees.**

select f.emp_id,f.name.fname,f.name.lname,f.address.city,f.address.pincode,f.salary from fulltime f;

EMP_ID	NAME.FNAME	NAME.LNAME	ADDRESS.CITY	ADDRESS.PINCODE	SALARY
1	rahul	kumar	pune	411234	50000
2	aniket	sharma	kop	410123	70000
3	abhi	verma	kop	410124	40000
4	rohan	kumar	mum	416605	60000

Download CSV

4 rows selected.

4. **Print the record of all Parttime employees.**

select p.emp_id,p.name.fname,p.name.lname,p.address.city,p.address.pincode,p.rate,p.hours from parttime p;

EMP_ID	NAME.FNAME	NAME.LNAME	ADDRESS.CITY	ADDRESS.PINCODE	RATE	HOURS
5	vibhuti	mitra	sangli	410298	1000	8
6	ketaki	bhave	kop	410222	500	7
7	mahesh	kumbhar	pune	416289	2000	5
8	raj	patil	pune	409256	800	4

Download CSV

4 rows selected.

5. **Retrieve the record of all fulltime employees staying in Kolhapur.**

select f.emp_id from fulltime f where f.address.city='kop';

EMP_ID
2
3

Download CSV

2 rows selected.

select f.emp_id,f.name.fname,f.name.lname,f.address.city,f.address.pincode,f.salary from fulltime f where f.address.city='kop';

EMP_ID	NAME.FNAME	NAME.LNAME	ADDRESS.CITY	ADDRESS.PINCODE	SALARY
2	aniket	sharma	kop	410123	70000
3	abhi	verma	kop	410124	40000

Download CSV
2 rows selected.

6. **Find all the employees whose rate is more than 500.**

select p.emp_id from parttime p where p.rate>500;

EMP_ID
5
7
8

Download CSV
3 rows selected.

select p.emp_id,p.name.fname,p.name.lname,p.address.city,p.address.pincode,p.rate,p.hours from parttime p where p.rate>500;

EMP_ID	NAME.FNAME	NAME.LNAME	ADDRESS.CITY	ADDRESS.PINCODE	RATE	HOURS
5	vibhuti	mitra	sangli	410298	1000	8
7	mahesh	kumbhar	pune	416289	2000	5
8	raj	patil	pune	409256	800	4

Download CSV
3 rows selected.