Relational Databases
(Section 13.2)

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The MLPQ System

"Management of Linear Programming Queries"

Free download from:
http://cse.unl.edu/~revesz/MLPQ/mlpq.htm

Developed at University of Nebraska-Lincoln

1. Relational Database

2. Constraint Database

3. Geographic Database

4. Moving Objects Database

Gallery Database

Painting

Pnum	Title	Price	Id
2345	Wild Waters	245.00	126
4536	Sea Storm	8359.00	335
6666	Wild Waters	6799.00	234
6789	Paradise	590,000.00	234
7878	High Tide	98,000.00	456
7896	Faded Rose	145.00	123
9889	Sunset	975,000.00	234

Gallery

Pnum	Owner
2345	Johnson
6666	Johnson
4536	McCloud
7878	McCloud
6789	Palmer
7896	Palmer
9889	Palmer

Painter

Id	Name	Phone
123	Ross	888-4567
126	Pollock	345-1122
234	Picasso	456-3345
335	O'Keefe	567-8999
456	Wharhol	777-7777

Representing Relational Databases as MLPQ input files

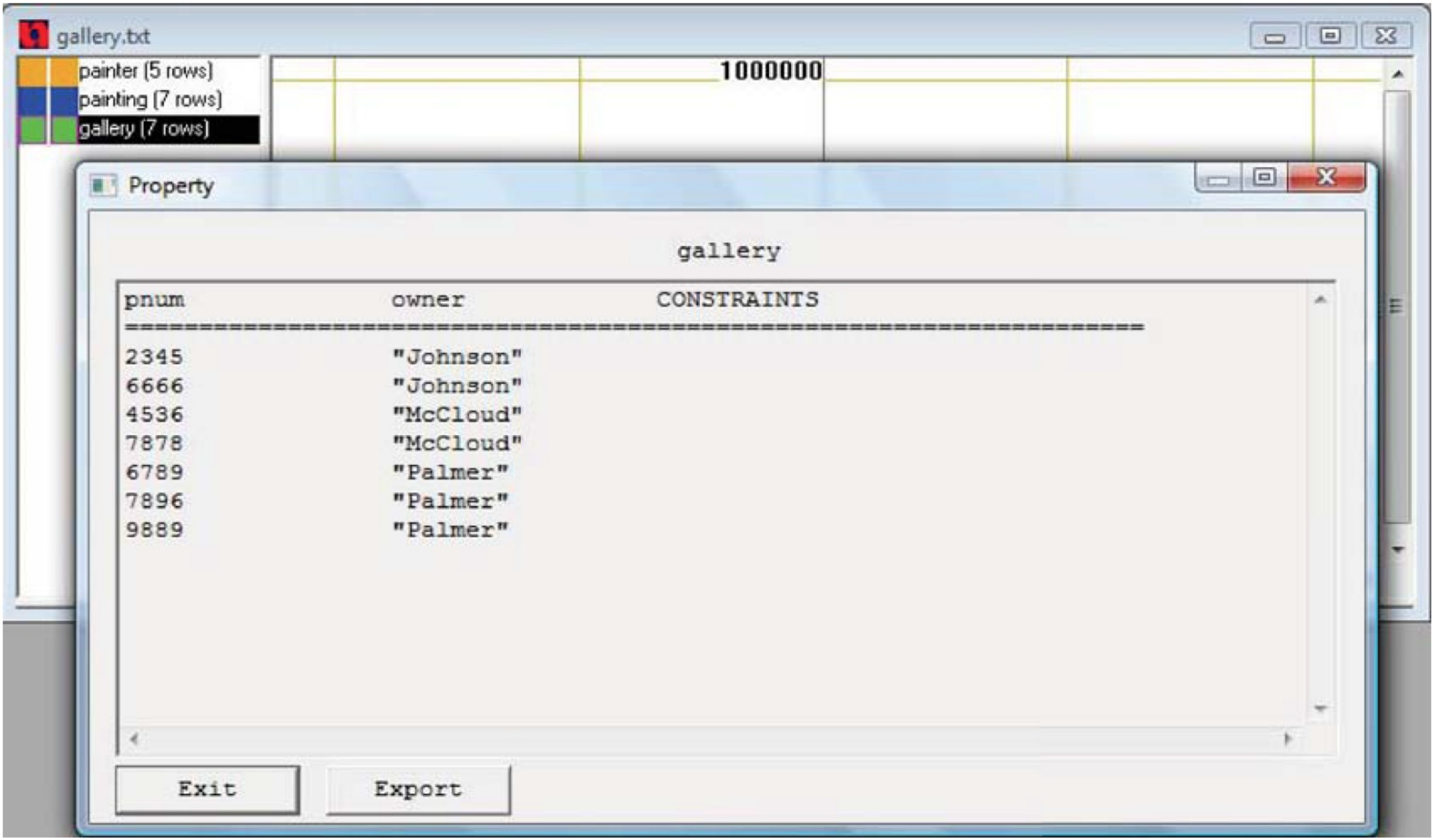
The Gallery Database can be represented by:

```
begin %MLPQ%
painter(id, name, phone) :- id=123, name="Ross",    phone="888-4567".
painter(id, name, phone) :- id=126, name="Pollock", phone="345-1122".
painter(id, name, phone) :- id=234, name="Picasso", phone="456-3345".
painter(id, name, phone) :- id=335, name="OKeefe",  phone="567-8999".
painter(id, name, phone) :- id=456, name="Warhol",  phone="777-7777".

painting(pnum, title, price, id) :- pnum=2345, title="Wild Waters",  price=245, id=126.
painting(pnum, title, price, id) :- pnum=4536, title="Sea Storm",   price=8359, id=335.
painting(pnum, title, price, id) :- pnum=6666, title="Wild Waters", price=6799, id=234.
painting(pnum, title, price, id) :- pnum=6789, title="Paradise",  price=590000, id=234.
painting(pnum, title, price, id) :- pnum=7878, title="High Tide",  price=98000, id=456.
painting(pnum, title, price, id) :- pnum=7896, title="Faded Rose",   price=145, id=123.
painting(pnum, title, price, id) :- pnum=9889, title="Sunset",    price=975000, id=234.

gallery(pnum, owner) :- pnum=2345, owner="Johnson".
gallery(pnum, owner) :- pnum=6666, owner="Johnson".
gallery(pnum, owner) :- pnum=4536, owner="McCloud".
gallery(pnum, owner) :- pnum=7878, owner="McCloud".
gallery(pnum, owner) :- pnum=6789, owner="Palmer".
gallery(pnum, owner) :- pnum=7896, owner="Palmer".
gallery(pnum, owner) :- pnum=9889, owner="Palmer".
end %MLPQ%
```

Displaying a Relation in MLPQ



SQL Queries in MLPQ

SQL query:

Find the titles of the paintings in Palmer's gallery.