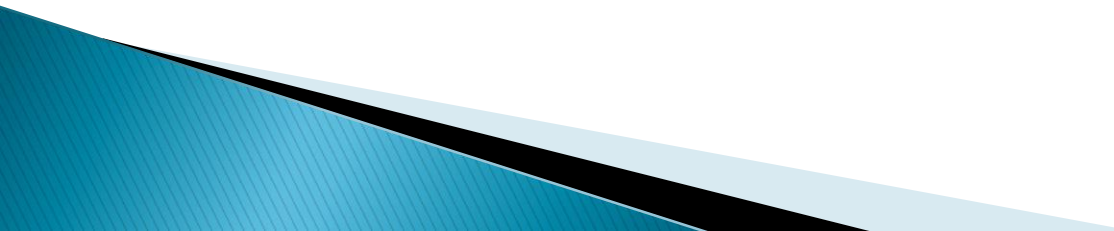


Methodology – Physical Database Design for Relational Databases, Chapter 18



Index

Index – structure that provides accelerated access to the rows of a table based on the values of one or more columns (page 192)

Indexes:

- ▶ speed up access but slows writes since indexes need to be updated
- ▶ Increase storage

Example

Fact Table

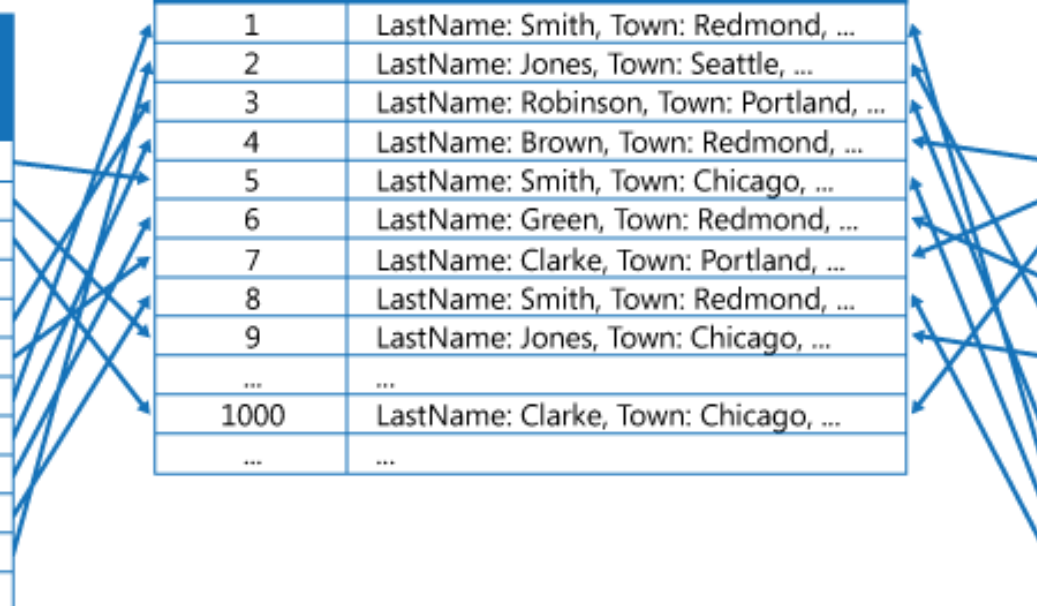
Index Table

Secondary Key (Town)	Customer Reference (ID)
Chicago	ID: 5
Chicago	ID: 9
Chicago	ID: 1000
...	...
Portland	ID: 3
Portland	ID: 7
Redmond	ID: 1
Redmond	ID: 4
Redmond	ID: 6
Redmond	ID: 8
Seattle	ID: 2
...	...

Primary Key (Customer ID)	Customer Data
1	LastName: Smith, Town: Redmond, ...
2	LastName: Jones, Town: Seattle, ...
3	LastName: Robinson, Town: Portland, ...
4	LastName: Brown, Town: Redmond, ...
5	LastName: Smith, Town: Chicago, ...
6	LastName: Green, Town: Redmond, ...
7	LastName: Clarke, Town: Portland, ...
8	LastName: Smith, Town: Redmond, ...
9	LastName: Jones, Town: Chicago, ...
...	...
1000	LastName: Clarke, Town: Chicago, ...
...	...

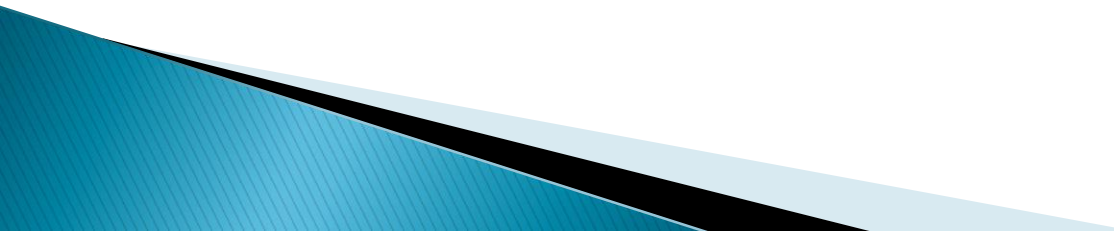
Index Table

Secondary Key (LastName)	Customer Reference (ID)
Brown	ID: 4
Clarke	ID: 7
Clarke	ID: 1000
Green	ID: 6
Jones	ID: 2
Jones	ID: 9
...	...
Robinson	ID: 3
Smith	ID: 1
Smith	ID: 5
Smith	ID: 8
...	...



Find Problematic Areas (page 480)

For the most active transactions:

1. Map transactions to relations
 2. Determine which relations are most frequently accessed by transactions
 3. Analyze the data usage of selected transactions that involve these relations
- 

Dream Home ER Diagram (pg. 323)

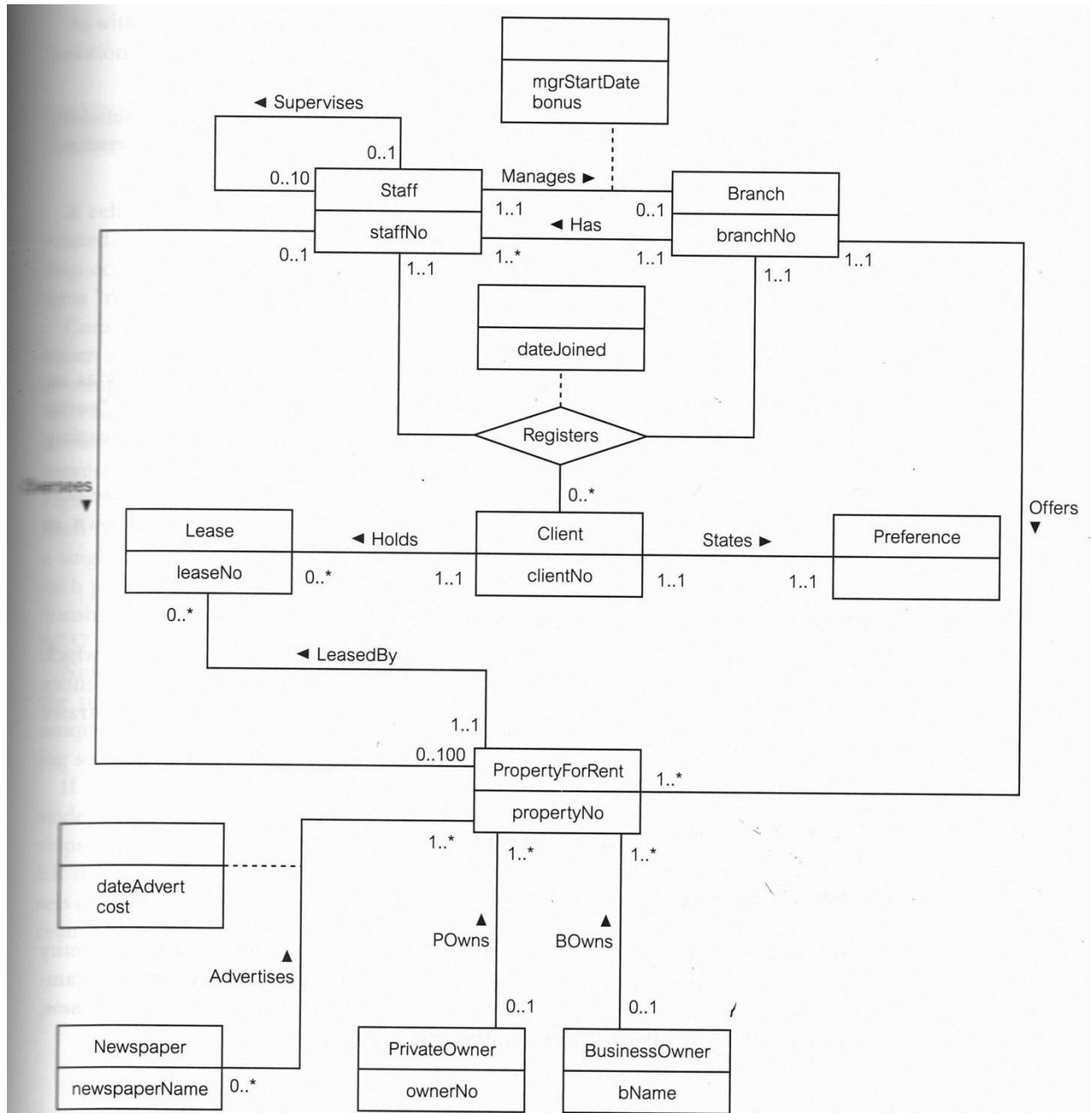


Figure 12.1 An Entity-Relationship (ER) diagram of the Branch view of *DreamHome*.

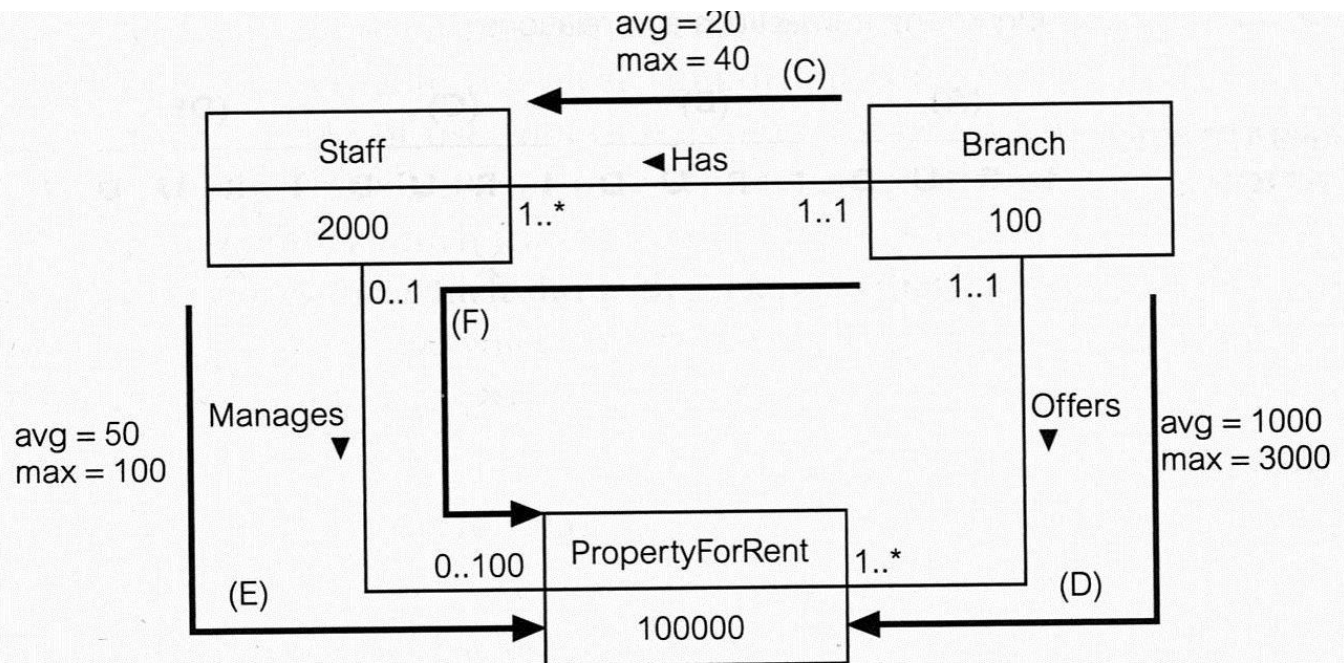
Transactions for DreamHome DB (page 480)

- (A) Enter the details for a new property and the owner (such as details of property number PG4 in Glasgow owned by Tina Murphy).
 - (B) Update/delete the details of a property.
 - (C) Identify the total number of staff in each position at branches in Glasgow.
 - (D) List the property number, address, type, and rent of all properties in Glasgow, ordered by rent.
 - (E) List the details of properties for rent managed by a named member of staff.
 - (F) Identify the total number of properties assigned to each member of staff at a given branch
- StaffClient view
- Branch view

Transaction Usage Map (page 482)

Figure 18.3

Transaction usage map for some sample transactions showing expected occurrences.



Transaction Analysis Form (page 483)

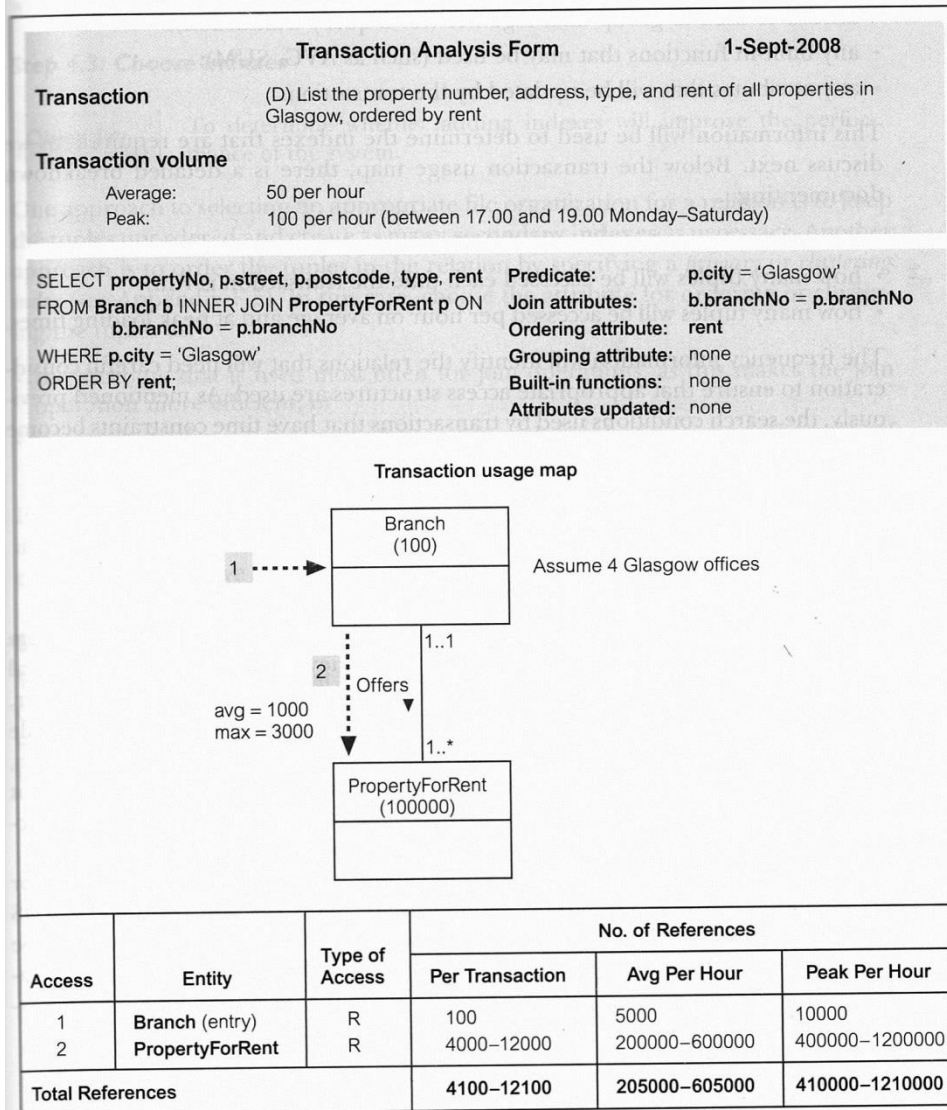


Figure 18.4 Example transaction analysis form.