

1.264 Lecture 12

SQL: Basics, SELECT, continued

Please download the homework 5 database file before class today.

This class: Upload your .sql file from the exercises after class
Next class: Read Murach chapters 4-6. Exercises due after class

Attaching the Homework 5 Database

- Download and unzip homework 5 database from the Web site
- Open Microsoft SQL Server Management Studio
- Create new login using SQL Server authentication.
 - Security->New Login. Username/password, default to hwk 5 db if there
- Right click “Databases”->”Attach” from popup menu
- Click "Add" button beneath the "Databases to attach" pane.
- Navigate to the .mdf file you downloaded and click "OK."
 - Move .mdf file to Public folder if not visible, or to SQL Svr folder
 - In pane below, click “...” button (“Data”) and select file again
 - Click “Log” in pane, then click “Remove”
- Click "OK" on the bottom of the popup.
 - If you get an error, it’s probably because of folder permissions.
- The homework database should now be visible under the "Databases" folder. Right click, choose “Refresh” if needed.
 - You can now browse this as you do homework 4, if you wish

Example tables

Orders

OrderNbr	Cust	Prod	Qty	Amt	Disc
1	211	Bulldozer	7	\$31,000.00	0.2
2	522	Riveter	2	\$4,000.00	0.3
3	522	Crane	1	\$500,000.00	0.4

Customers

CustNbr	Company	CustRep	CreditLimit
211	Connor Co	89	\$50,000.00
522	AmaratungaEnterprises	89	\$40,000.00
890	Feni Fabricators	53	\$1,000,000.00

SalesReps

RepNbr	Name	RepOffice	Quota	Sales
53	Bill Smith	1	\$100,000.00	\$0.00
89	Jen Jones	2	\$50,000.00	\$130,000.00

Offices

OfficeNbr	City	State	Region	Target	Sales	Phone
1	Denver	CO	West	\$3,000,000.00	\$130,000.00	970.586.3341
2	New York	NY	East	\$200,000.00	\$300,000.00	212.942.5574
57	Dallas	TX	West	\$0.00	\$0.00	214.781.5342

Example data model

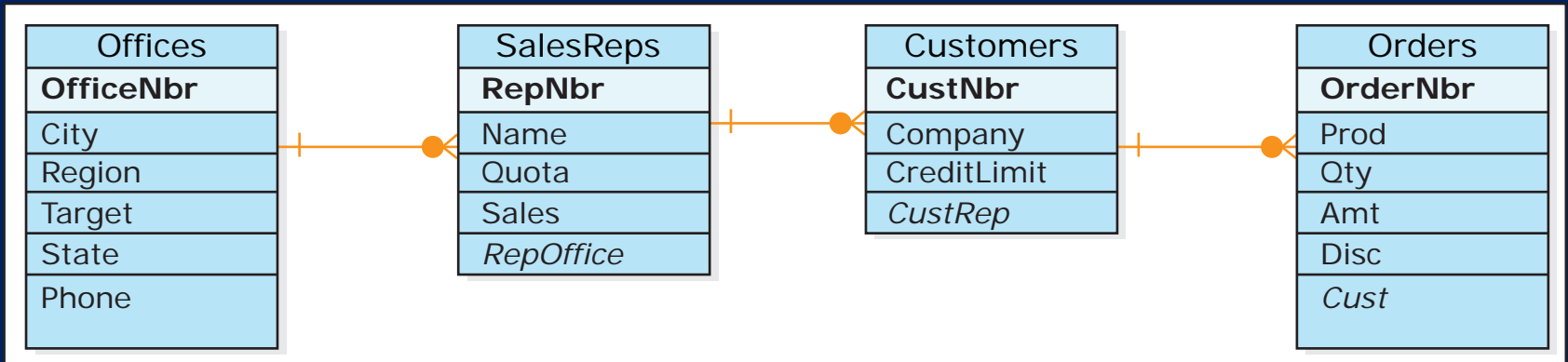


Image by MIT OpenCourseWare.

Exercise 1: NULLs

- **NULL values evaluate to NOT TRUE in all cases.**
 - Insert 'NewRep' with NULL (blank or empty) Quota
 - **Write this statement yourself**
- **The following two queries will not give all sales reps:**
 - **SELECT Name FROM SalesReps WHERE Sales > Quota;**
 - **SELECT Name FROM SalesReps WHERE Sales <= Quota;**
 - A new rep with a NULL quota will not appear in either list
- **Check for NULLS by:**
 - **SELECT Name FROM SalesReps WHERE Quota IS NULL;**
- **Be especially careful:**
 - **SELECT Name FROM SalesReps WHERE Sales <> Quota;**
 - **This does not return NULLs**

Exercise 2: SELECT Operators

- **SELECT * FROM**
 - **Orders WHERE Disc*Amt > 50000;**
 - **SalesReps WHERE Quota BETWEEN 50000 AND 100000;**
 - Range is inclusive (≥ 50000 and ≤ 100000)
 - **Offices WHERE State IN ('CO', 'UT', 'TX');**
 - **SalesReps WHERE RepNbr IS NOT NULL;**
 - **Offices WHERE Phone NOT LIKE '21%';**
- **SQL standard only has 2 wildcards**
 - % any string of zero or more characters
 - _ any single character
- **Most databases have additional/different wildcards.**
SQL Server has:
 - [list] match any single character in list, e.g., [a-f]
 - [^list] match any single character not in list, e.g. [^h-m]

Exercise 3: SELECT: COUNT, GROUP BY

Parts

PartID	Vendor
123	A
234	A
345	B
362	A
2345	C
3464	A
4533	C

- Number of parts from vendor A
 - **SELECT COUNT(*) FROM Parts WHERE Vendor = 'A';**
 - Result: 4
- Number of parts from each vendor
 - **SELECT Vendor, COUNT(*) AS PartsCount FROM Parts GROUP BY Vendor HAVING COUNT(*) > 2;**
 - Result:

Vendor	PartsCount
A	4
B	1
C	2



Exercise 4

- **What is the average credit limit of customers whose credit limit is less than \$1,000,000?**
- **How many sales offices are in the West region?**
- **Increase the price of bulldozers by 30% in all orders**
- **Delete any sales rep with a NULL quota**

Solution 4

- What is the average credit limit of customers whose credit limit is less than \$1,000,000?
 - **SELECT AVG(CreditLimit) FROM Customers WHERE CreditLimit < 1000000;**
- How many sales offices are in the West region?
 - **SELECT Count(*) FROM Offices WHERE Region= 'West';**
- Increase the price of bulldozers by 30% in all orders
 - **UPDATE Orders SET Amt= Amt*1.3 WHERE Prod= 'Bulldozer';**
- Delete any sales rep with a NULL quota
 - **DELETE FROM SalesReps WHERE Quota IS NULL;**

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