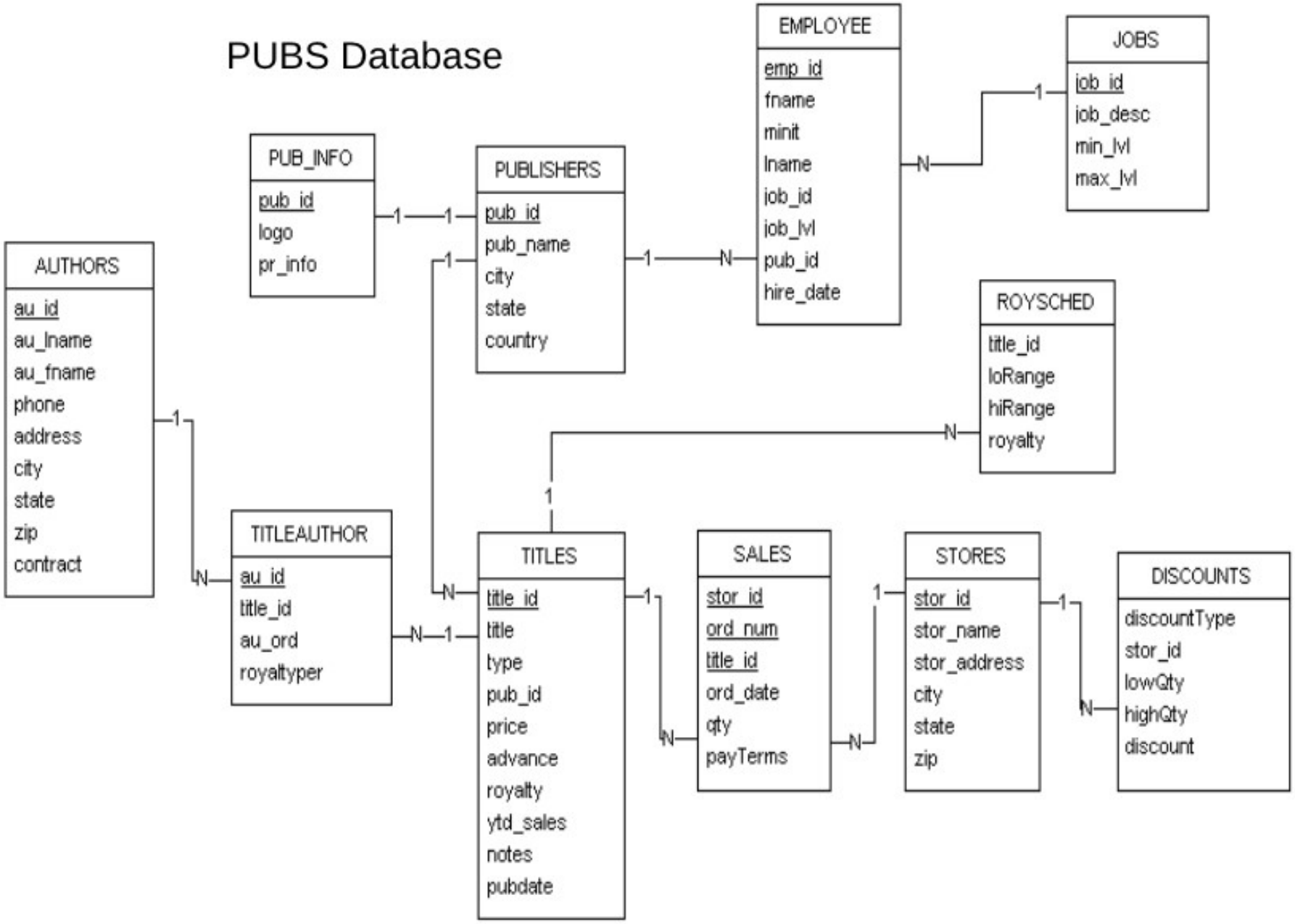
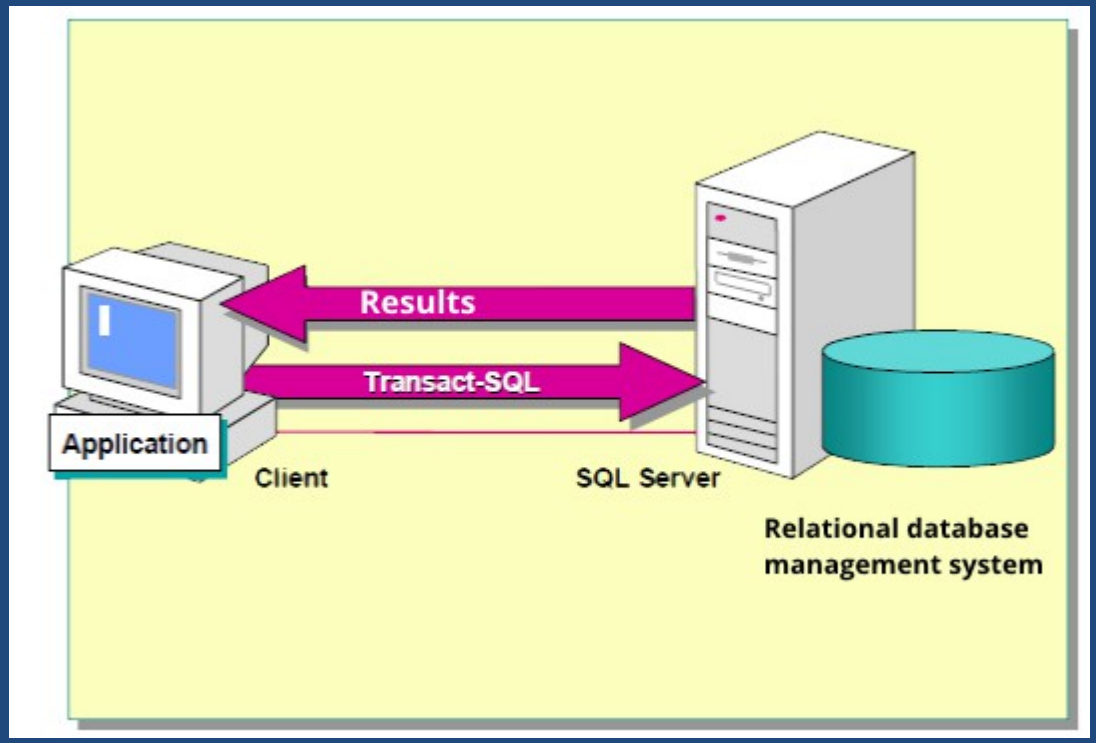
PUBS Database



SQL SERVER Definition

SQL Server is a client-server relational database management system (RDBMS) that uses Transact-SQL to forward queries between a client and SQL Server.

Client Architecture - Server



Client Architecture - Server :

- Server's role: database management, distribution of resources between different customer requests

  (heavy processing)

- Client's role: Viewing Query Results

  (Light Processing)

The TSQL language (Transact Structured Query Language)

- TSQL is an extension of the SQL language developed by IBM in 1970.
- TSQL (Microsoft 1996) is a procedural language as opposed to SQL which is a declarative language
- Different SQL standards: SQL / 86 (1986), SQL / 89 (1989), ANSI SQL / 92
- TSQL supports ANSI SQL / 92

Structured Query Language (SQL) can be divided into two subsets :

Data Manipulation Language (DML) : which allows us to select, add, modify, and delete data from a database.

Instructions **SELECT**, **UPDATE**, **INSERT**, **DELETE**

Data Definition Language (DDL) : which allows us to create, modify, and delete database objects (tables, columns, views, …)

Instructions **CREATE**, **ALTER**, **DROP**

Instruction SELECT

List all authors (last name, first name, address, city, state) in two columns: in the first column, display the first and last names, and in the second, show the address, the city and the state.

	First and Last Name	Address
1	White Johnson	10932 Bigge Rd. Menlo Park CA
2	Green Marjorie	309 63rd St. #411 Oakland CA
3	Carson Cheryl	589 Darwin Ln. Berkeley CA
4	O'Leary Michael	22 Cleveland Av. #14 San Jose CA
5	Straight Dean	5420 College Av. Oakland CA
6	Smith Meander	10 Mississippi Dr. Lawrence KS
7	Bennet Abraham	6223 Bateman St. Berkeley CA
8	Dull Ann	3410 Blonde St. Palo Alto CA
9	Gringlesby Burt	PO Box 792 Covelo CA
10	Locksley Charlene	18 Broadway Av. San Francisco CA
11	Greene Morningstar	22 Graybar House Rd. Nashville TN
12	Blotchet-Halls Reginald	55 Hillsdale Bl. Corvallis OR
13	Yokomoto Akiko	3 Silver Ct. Walnut Creek CA
14	del Castillo Innes	2286 Cram Pl. #86 Ann Arbor MI

```
SELECT au_lname + '  ' + au_fname AS 'Last and First Name',
       address + '  ' + city + '  ' + state AS Address
FROM  authors
```

Select all authors (last name, first name, address, city, state) from the state of California.
Two columns:
on the first column, display the first and last names,
and on the second, the address, the city and the state.

```
SELECT au_lname + ' ' + au_fname AS 'Last and First Name',
            address + ' ' + city + ' ' + state AS 'Address'

FROM authors
WHERE state='CA'
```

Select all authors (last name, first name, address, city, state) except those from the state of California.
Two columns: on the first column display the first and last names, and on the second display the address, the city and the state.

```
SELECT  au_lname + ' ' + au_fname AS 'First and Last Name',
        address + ' ' + city + ' ' + state AS 'Address'
FROM authors
WHERE state != 'CA'
```

```
SELECT  au_lname + ' ' + au_fname AS 'First and Last Name',
        address + ' ' + city + ' ' + state AS 'Address'
FROM authors
WHERE state <> 'CA'
```

1. Select the books (id, title, price, advance) whose advance is equal to 5000.

2. Select the books (id, title, price, advance) whose advance is less than 5000.

3. Select the books (id, title, price, advance) whose advance is between 5000 and 7000.

4. Select the books (id, title, price, advance) whose advance is not between 5000 and 7000.

1. Select the books (id, title, price, advance) whose advance is equal to 5000.

```
SELECT title_id, title, price,
advance  FROM  titles
WHERE advance = 5000
```

2. Select the books (id, title, price, advance) whose advance is less than 5000.

```
SELECT title_id, title, price,
advance  FROM  titles
WHERE advance <= 5000
```

3. Select the books (id, title, price, advance) whose advance is between 5000 and 7000.

```
SELECT title_id, title, price,
advance  FROM  titles
WHERE advance BETWEEN
5000 AND 7000
```

4. Select the books (id, title, price, advance) whose advance is not between 5000 and 7000.

```
SELECT title_id, title, price,
advance  FROM  titles
WHERE advance NOT
BETWEEN 5000 AND 7000
```

Write the following queries :

- R1. Authors whose state is 'MD', 'TN', 'KS' or 'UT'
- R2. Authors whose state is any state other than 'MD', 'TN', 'KS' or 'UT'

R1. Authors whose state is 'MD', 'TN', 'KS' or 'UT'

```
SELECT *
FROM authors
WHERE state IN ('MD', 'TN', 'KS' , 'UT')
```

R2. Authors whose state is any state other than 'MD', 'TN', 'KS' or 'UT'

```
SELECT *
FROM authors
WHERE state NOT IN ('MD', 'TN', 'KS' ,
'UT')
```

LIKE / NOT LIKE :

Syntax WHERE <field_name> [NOT] LIKE <pattern_string>

The available wildcards are as follows :

%	Replaces any character string
_	Replaces any character string
[ ]	Replaces any character specified between the brackets
[^]	Replaces any characters not within the brackets

Examples of wildcards being used:

LIKE '[wt]here'	Signifies “where” or “there”
LIKE 'C%'	Signifies any string starting with “C”
LIKE '_e'	Signifies any two characters where the second character is an “e”, like “me”
LIKE '1[0-5]'	Signifies “10”, “11”, “12”, “13”, “14”, “15”
LIKE '[A-D]x'	Signifies “Ax”, “Bx”, “Cx”, “Dx”

Exercise 3-5 :
From the "titles" table, get the list of titles containing the word "computer". Display the title and price of each book.

Exercise 3-6 :
From the "titles" table, obtain the list of titles containing the word "computer" (in the singular). Display the title and price of each book.

Exercise 3-7 :
From the "titles" table, obtain the list of titles whose identifier starts with SU or BU. Display the title and price of each book.

Exercise 3-8 :
From the "titles" table, get the list of titles that do not start with SU or BU. Display the title and price of each book.

Exercise 3-9 :
From the "titles" table, obtain the list of titles starting with neither S nor B,
but whose second letter is "o". Display the title and price of each book.

Exercise 3-10 :
From the "titles" table, obtain the list of titles starting with neither S nor B,
but whose 3rd letter is "f". Display the title and price of each book.

Exercise 3-11 :
From the titles table, get the list of titles beginning with one of the first 10 letters of the alphabet. Display the title and price of each book.

Exercise 3-5 :

From the "titles" table, get the list of titles containing the word "computer" Display the title and price of each book.

```
SELECT title, price FROM titles
WHERE title LIKE '%computer%'
```

Exercise 3-6 :

From the "titles" table, obtain the list of titles containing the word "computer" in the singular. Display the title and price of each book.

```
SELECT title, price FROM titles
WHERE  title LIKE '%computer%'  AND title NOT LIKE '%computers%'
```

```
select * from titles
where title LIKE '%computer[^s]%'
```

Exercise 3-7 :
From the "titles" table, obtain the list of titles whose identifier starts with SU or BU. Display the title and price of each book.

```
SELECT title,price FROM titles  WHERE title_id LIKE '[SB]U%'
```

Exercise 3-8 :
From the "titles" table, obtain the list of titles whose identifier does not start with SU or BU. Display the title and price of each book.

```
SELECT title,price FROM titles
WHERE  title_id NOT LIKE '[SB]U%'
```

```
SELECT title,price FROM titles
WHERE  NOT title_id LIKE '[SB]U%'
```

Exercise 3-9 :
From the "titles" table, obtain the list of titles starting with neither S nor B, but whose second letter is "o". Display the title and price of each book.

```
SELECT title,price FROM titles
WHERE title LIKE '[^SB]o%'
```

Exercise 3-10 :
From the "titles" table, obtain the list of titles starting with neither S nor B, but whose 3rd letter is "f". Display the title and price of each book.

```
SELECT title,price FROM titles
WHERETitle LIKE '[^SB]_f%'
```

Exercise 3-11 :
From the titles table, get the list of titles beginning with one of the first 10 letters of the alphabet. Display the title and price of each book.

```
SELECT title,price FROM titles
WHERE title LIKE '[A-J]%'
```

Authors whose phone number begins with 4 or 5

```
SELECT *
FROM authors
WHERE phone LIKE '[45]%'
```

1. Books whose id starts with B, M, or C
2. Books whose id starts with B, M or C published by id publisher 1389
3. Books whose id starts with B, M or C with a royalty between 10 and 15
4. State Authors of California whose phone number begins with 415
5. Authors from the state of California whose phone Number does not begin with 415
6. Authors who are not from the state of California whose phone number does not start with 5, 2 or 3.
7. American publishers
8. American or French publishers