

Queries in SQL

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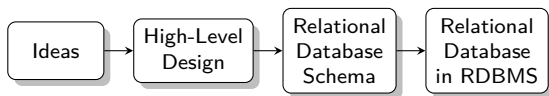
Outline

1 Introduction to SQL

2 Queries in SQL

- Selection
- Projection
- Conditionals
- Product and Join

Overview



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Introduction to SQL

SQL (pronounced as “sequel”) is the principal language used to describe and manipulate relational database, and has several aspects:

- ▶ Data definition language (DDL).
 - ▶ SQL includes commands to create database objects such as tables, indexes, and views, as well as commands to define access rights to those database objects.
 - ▶ Topics of this lecture: SQL commands to create database tables (relations)
- ▶ Data manipulation language (DML).
 - ▶ SQL includes commands to insert, update, delete, and retrieve data within the database tables.
- ▶ Transaction control language (TCL).
 - ▶ The DML commands in SQL are executed within the context of a transaction.
- ▶ Data control language (DCL).
 - ▶ Data control commands are used to control access to data objects.

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Queries to SQL

A SQL can be understood as a relational algebra query

Selection in SQL

Use

```
SELECT *  
FROM R  
WHERE C;
```

which is

$$\sigma_C(R) \quad (1)$$

```
SELECT *  
FROM Movies  
WHERE studioName='Disney' AND year=1990;
```


Projection in SQL

Use

```
SELECT L  
FROM R  
WHERE C;
```

which is

$$\pi_L(\sigma_C(R)) \quad (2)$$

```
SELECT title, length  
FROM Movies  
WHERE studioName='Disney' AND year=1990;
```

String Comparison

Use operators

▶ =

▶ <

▶ <=

▶ >

▶ >=

String Pattern Matching

s LIKE p

How to write p? To use two special characters

- ▶ % in p matches any sequence of 0 or more characters in s
- ▶ _ in p matches any one character in s

```
SELECT title
FROM Movies
WHERE title LIKE 'Star□_□_□_□';
```

```
SELECT title
FROM Movies
WHERE title LIKE '%''s%';
```

What might be the results?

Product and Join

To be continued ...