Views

create view view_name as query;

- A virtual table consists of the results of a query
- Example: create a view
  members_salespeople_view
  (member_name, salesperson_name)

About Views

- A view can be used as a table in SQL statements
  - Except that some views cannot be updated
- The data in a view is dynamically computed
  - Changes to base tables are automatically reflected in the view

Why Views

- Present the data in a different way
- Simplify SQL queries
- Security reasons
  - E.g. expose only part of the data to certain type of users

Indexes

- Make query execution more efficient

Query Example

```sql
select salary from employees where name = 'Sally';
```

<table>
<thead>
<tr>
<th>name</th>
<th>salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joe</td>
<td>2000</td>
</tr>
<tr>
<td>Bob</td>
<td>5000</td>
</tr>
<tr>
<td>Lisa</td>
<td>4000</td>
</tr>
<tr>
<td>Amy</td>
<td>4500</td>
</tr>
<tr>
<td>John</td>
<td>4500</td>
</tr>
<tr>
<td>Sally</td>
<td>5000</td>
</tr>
<tr>
<td>Val</td>
<td>3000</td>
</tr>
<tr>
<td>Max</td>
<td>6000</td>
</tr>
</tbody>
</table>
Search with an Index

Create Index

The Need for Transaction

SQL Statements Involved in A Transfer

Things Could Go Wrong

Transaction
Transaction Syntax in MySQL

begin; -- start of a transaction
select balance from accounts where account = 'A';
update account set balance = balance - 100
    where account = 'A';
update account set balance = balance + 100
    where account = 'B';
commit; -- end of a transaction
(or rollback;)

ACID Properties of Database Transactions

◆ Atomic
◆ Consistent
◆ Isolated
◆ Durable