

Merkblatt Structured Query Language SQL

Data Manipulation Language DML

Abfragen

Gesamtstruktur von Abfragen

```
select <Struktur des Ergebnisses>
  from <Tabelle oder Tabellenkonstrukt>
  where <Bedingung(en)>
  group by <Gruppierungsattribute>
  having <Bedingung an Gruppen>
  order by <Sortierattribute>
```

Verbund

... über alle gleichnamigen Attribute

```
select ...
  from <Tabelle_1> natural join <Tabelle_2>
  where ...
```

... über explizite gleichnamige Attribute

```
select ...
  from <Tabelle_1> join <Tabelle_2>
        using (<Attr1>, ...)
  where ...
```

... über verschiedene Attribute

```
select ...
  from <Tabelle_1> join <Tabelle_2>
        on (<Tabelle_1.Attr_x> = <Tabelle_2.Attr_y>)
  where ...
```

Datensätze hinzufügen

```
insert into <Tabelle>(<Attr_1>, ..., <Attr_n>)
  values (<Wert_1>, ..., <Wert_n>)
```

```
insert into <Tabelle>(<Attr_1>, ..., <Attr_n>)
  select <Attr_1>, ..., <Attr_n> from ...
```

Data Definition Language DDL

Tabelle definieren

```
create table <Tabelle>(
  <Attr_1> <Typ> <Constraint>,
  <Attr_2> <Typ> <Constraint>,
  ...
  <Attr_n> <Typ> <Constraint>,
  <Constraint>)
```

Integritätsbedingungen (Constraints)

```
... primary key
... not null
... check (<Bedingung>)
... unique
... references <Tabelle>(<Attr>)
```

Äußerer Verbund

... berücksichtigt unbekannt Information

```
select ...
  from <Tabelle_1> left outer join <Tabelle_2>
        using (<Attr_1>, ...)
  where ...
```

```
select ...
  from <Tabelle_1> right outer join <Tabelle_2>
        using (<Attr_1>, ...)
  where ...
```

```
select ...
  from <Tabelle_1> full outer join <Tabelle_2>
        using (<Attr_1>, ...)
  where ...
```

Geschachtelte Anweisungen

```
select ...
  from ...
  where <Attr> in (select <Attr> from ...)
```

```
select ...
  from ...
  where <Attr> not in (select <Attr> from ...)
```

Datensätze ändern

```
update <Tabelle>
  set <Attr_1> = <Wert_1>, <Attr_2> = <Wert_2>, ...
  where <Bedingung>
```

Datensätze löschen

```
delete from <Tabelle>
  where <Bedingung>
```

Tabelle ändern

Attribut hinzufügen

```
alter table <Tabelle>
  add column <Attr> <Typ> <Constraint>
```

Integritätsbedingung hinzufügen

```
alter table <Tabelle>
  add constraint <Name> <Constraint>
```

Index erzeugen

```
create index <Indexname>
  on <Tabelle>(<Attr_1>, ...)
```