

Lesson 6: Principles of Data Manipulation and Management

Lesson 7: Relational Algebra

Lesson 8: SQL for Data Science

▶ **Video:** From SQL to RA
6 min

▶ **Video:** Thinking in RA: Logical Query Plans
4 min

▶ **Video:** Practical SQL: Binning Timeseries
5 min

▶ **Video:** Practical SQL: Genomic Intervals
6 min

▶ **Video:** User-Defined Functions
3 min

▶ **Video:** Support for User-Defined Functions
4 min

Lesson 9: Key Principles of Relational Databases

Assignment 2: SQL

User-Defined Functions

User-defined functions

- As a user, you can write a function, register it in the database, call it from SQL, set permissions on it

- Scalar functions

```
SELECT myfunc(r.a, r.b) ...
WHERE yourfunc(r.c, r.d) < 5
```

- Aggregate functions

```
SELECT x, concat(r.s) ...
GROUP BY x
```

- Table functions

```
SELECT ... FROM tablefunc(a,b)
```

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33



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0:00 [MUSIC] Okay, let me add a short addendum about user-defined functions. So we've seen a couple of examples of them, and in fact, I'll click back here briefly. We pretended that there existed a user-defined function called overlaps and a user-defined function called the length of the overlap. And I wanted to point out at least in this context or especially in this context that

0:27 you can indeed define these kinds of application specific operations. Okay? So they're called UDFs and you can as a user, you can write one of these things. You can register it in the database, and then you can call it from within your SQL statements, and you can assign it, you can grant