Data Fellowship Webinars

Introduction to dbt

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Session Objectives

- Learn what dbt is and why it’s useful for analysts
- Discuss 3 cool features

What is dbt?

From dbt’s creators:

dbt “enables analytics engineers to transform data in their warehouses by simply writing select statements. dbt handles turning these select statements into tables and views.”

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01 Plan

02 Data prep

03 Analysis

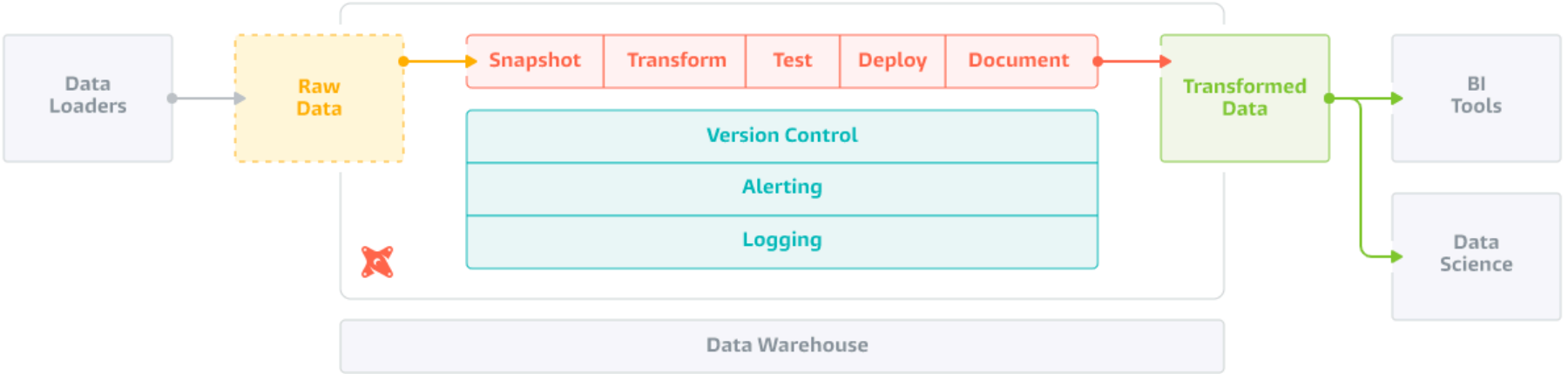
04 Modelling

05 Refine and compare

06 Communicate and implement

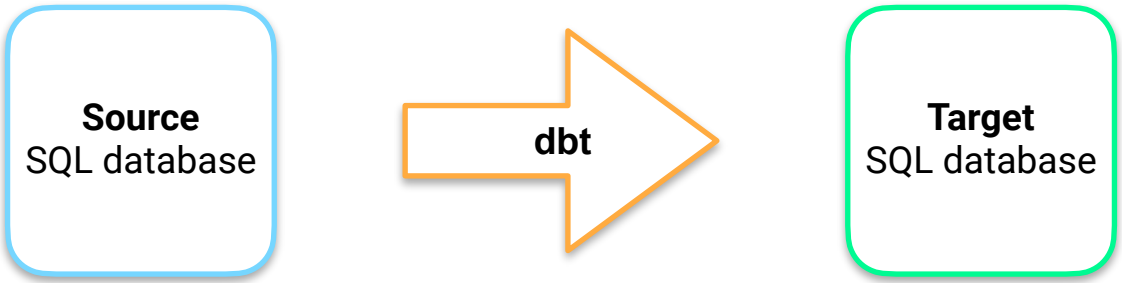
- dbt is an open source tool that you can download from the developers' website
- In addition, you need:
    - a text editor to write your code (e.g. Sublime, Atom)
    - the command line to execute that code (e.g. Terminal on Mac)

Note: there is also a paid web interface


Data Loaders
Raw Data
Snapshot
Transform
Test
Deploy
Document
Version Control
Alerting
Logging
Transformed Data
BI Tools
Data Science
Data Warehouse

How does it work?

- You write SQL select statements (plus a few extra bits)
- You write '**dbt run**' in the command line



transform

What is data transformation?

What is data transformation?

- Cleaning
- Changing structure

A real example

Cool feature #1: Incremental models

Sometimes tables have millions or billions of records

>> You might not want to transform all the old rows again

>>> We can tell dbt to **only** transform new rows using a SQL WHERE clause

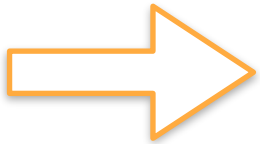
```
{% if is_incremental() %}

  -- this filter will only be applied on an incremental run
  where event_time > (select max(event_time) from {{ this }})

{% endif %}
```

Cool feature #2: Tests

Assert certain facts about the data



Check if facts are true

```yaml
models:
    - name: SESSIONS
      description: "Number of sessions and transactions per user"
      columns:
          - name: USER_ID
            tests:
              - not_null
              - unique
```

```
th dbt=0.16.0
odels, 2 tests, 0 snapshots, 0 analyses, 260 macros, 0 operations, 0 seed files, 4 sources

Concurrency: 1 threads (target='read')

1 of 2 START test not_null_SESSIONS_USER_ID..... [RUN]
1 of 2 PASS not_null_SESSIONS_USER_ID..... [PASS in 0.76s]
2 of 2 START test unique_SESSIONS_USER_ID..... [RUN]
2 of 2 FAIL 31 unique_SESSIONS_USER_ID..... [FAIL 31 in 0.79s]

Finished running 2 tests in 6.65s.

with 1 error and 0 warnings:

test unique_SESSIONS_USER_ID (models/SNOWPLOW/schema.yml)
sults, expected 0.

SQL at target/compiled/SNOWPLOW_WAREHOUSE/schema_test/unique_SESSIONS_USER_ID.sql

=1 WARN=0 ERROR=1 SKIP=0 TOTAL=2
```

Cool feature #3:
Auto Documentation

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Resources

- Jaffle shop tutorial https://github.com/fishtown-analytics/jaffle_shop
- dbt documentation https://docs.getdbt.com/docs/building-a-dbt-project/testing-and-documentation/documentation/
- dbt community and Slack channel https://community.getdbt.com/