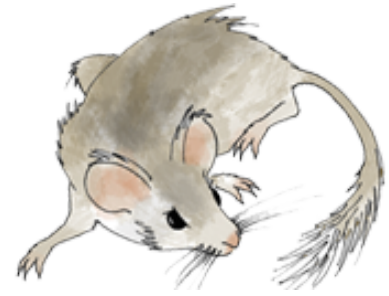
Neotoma2 R

EPD Workshop

June 2nd, 2022

Prague, Czechia



The Team!

- Simon Goring University of Wisconsin - Madison
- Socorro Dominguez University of Wisconsin - Madison
- Steve Crawford Penn State University
- Jonathan Nichols Penn State University

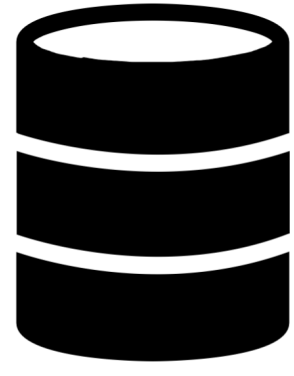
R in your Browser:
https://bit.ly/3FW0Qrh

Introduce yourselves in the following link:
https://docs.google.com/presentation/d/1j3SXPLE7O29lgK9nsx6HO76oaLFRI5THD9xY0j2kQr
usp=sharing

The Database

The Neotoma Database contains all the data

- Schema: https://open.neotomadb.org/dbschema
- Manual: https://open.neotomadb.org/manual



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from Noun Project

But we want to use it ourselves!

How Do We Get Data?

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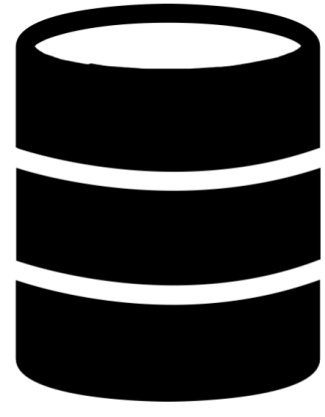

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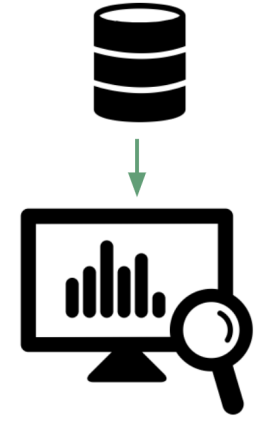
How Do We Get Data ***(DB Snapshot)***

- Database snapshot: https://neotomadb.org/snapshots
- Using PostgreSQL RMDBS
    - Restore the Snapshot
    - Connect to the Database (pgAdmin, dBeaver, others)

or

- R/Python with the DB directly (RPostgreSQL, psycopg2)



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How Do We Get Data ***(API)***

Using the Application Program Interface (API)
https://api.neotomadb.org

Structured (JSON) data, using URLs as “commands” for data:
https://api.neotomadb.org/v2.0/data/datasets/17473

Dataset information for Lake Allie, a Diatom Surface Sample

Where is the API used?

- Tilia uses the Tilia API for data input & output.
- Explorer uses the Neotoma API for data input.
- The Landing Pages use the Neotoma API for page information.
- The Neotoma “State of the Database” pages use the API (and SQL).

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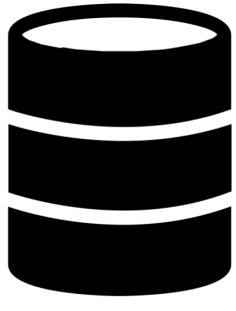

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How Do We Get Data *(R Package)*

Neotoma through the R package `neotoma2`

- Pre-defined functions to access & manipulate data
- Connect with other existing R packages

To try `neotoma2` from Binder: https://bit.ly/3FW0Qrh

To install, you need the `devtools` package as well.

```
install.packages('devtools')
devtools::install_github('NeotomaDB/neotoma2')
```

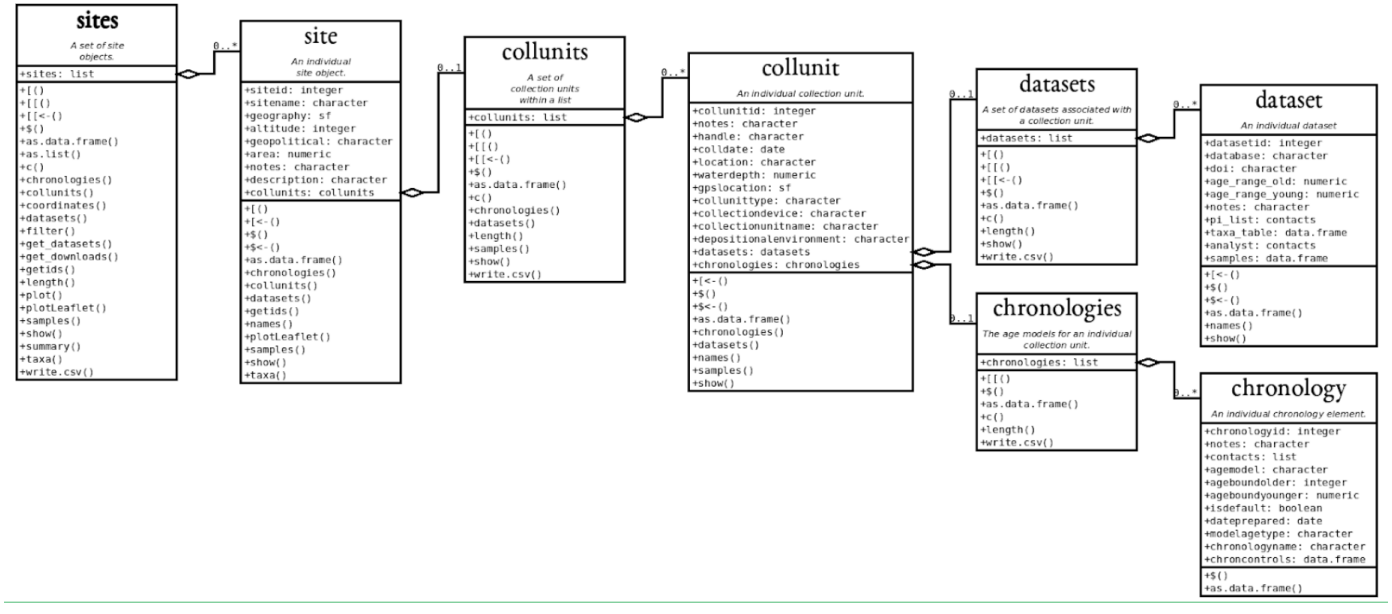
Sites

https://open.neotomadb.org/dbschema/tables/sites.html

Collection Units

https://open.neotomadb.org/dbschema/tables/collectionunits.html

Datasets

https://open.neotomadb.org/dbschema/tables/datasets.html

S4 Object Structure