

Package ‘bolt4jr’

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Title Interface for the 'Neo4j Bolt' Protocol

Version 1.4.0

Description Querying, extracting, and processing large-scale network data from Neo4j databases using the 'Neo4j Bolt' <<https://neo4j.com/docs/bolt/current/bolt/>> protocol. This interface supports efficient data retrieval, batch processing for large datasets, and seamless conversion of query results into R data frames, making it ideal for bioinformatics, computational biology, and other graph-based applications.

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Encoding UTF-8

RoxygenNote 7.3.2

Depends R (>= 4.1.0)

Imports data.table, glue, purrr, reticulate

Suggests knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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`convert_df`*Convert a Query Result into a Data Frame*

Description

This function takes a query result object and transforms it into a data frame with specified field names. For each entry in the query result, it attempts to extract values corresponding to the given field names. If a particular field does not exist in the entry, it is replaced with NA.

Usage

```
convert_df(  
  query_result,  
  field_names = c("node_id", "n.identifier", "n.name", "n.source")  
)
```

Arguments

`query_result` A list (or similar structure) representing the query result, typically containing entries from which fields can be extracted.

`field_names` A character vector of field names to be extracted from each entry in `query_result`. Defaults to `c("node_id", "n.identifier", "n.name", "n.source")`.

Value

A data frame with one row per entry in `query_result`, and columns corresponding to the specified `field_names`. Missing fields are filled with NA.

Examples

```
# Suppose query_result is a list of named lists:  
query_result = list(  
  list(node_id = 1, n = list(identifier = 1, name = "some node", source = "internet")),  
  list(node_id = 2, n = list(identifier = 2, name = "some other node", source = "library"))  
)  
  
query_result_df = convert_df(  
  query_result,  
  field_names = c("node_id", "n.identifier", "n.name", "n.source")  
)
```

run_batch_query	<i>Batch Query and Save Data from Neo4j</i>
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Description

This function performs batch queries to a Neo4j database and appends the results to a TSV file.

Usage

```
run_batch_query(  
  uri,  
  user,  
  password,  
  query,  
  field_names,  
  filename = NULL,  
  batch_size = 1000  
)
```

Arguments

uri	A string specifying the URI for the Neo4j database connection.
user	A string specifying the username for the Neo4j database.
password	A string specifying the password for the Neo4j database.
query	A string containing the Cypher query to execute. The query should not include SKIP or LIMIT, as these are appended for batching.
field_names	A character vector specifying the column names to use for the resulting data.
filename	A string specifying the name of the TSV file to save the results. If NULL, a temporary file will be used.
batch_size	An integer specifying the number of records to fetch per batch. Default is 1000.

Value

No return value, called for side effects.

Examples

```
## Not run:  
run_batch_query(  
  uri = "bolt://localhost:7687",  
  user = "<Username for Neo4j>",  
  password = "<Password for Neo4j>",  
  query = "MATCH (n) RETURN n LIMIT 10",  
  field_names = c("id", "name"),  
  filename = NULL, # Writes to a temp file by default  
  batch_size = 1000
```

```
)  
## End(Not run)
```

run_query	<i>Connect to Neo4j and Run a Simple Query</i>
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Description

This function demonstrates connecting to a Neo4j database via the Python neo4j driver and using pandas to manipulate the returned data.

Usage

```
run_query(uri, user, password, query)
```

Arguments

uri	Neo4j URI, e.g., "bolt://localhost:7687"
user	Username for Neo4j
password	Password for Neo4j
query	A Cypher query to execute, e.g. "MATCH (n) RETURN n LIMIT 5"

Value

A data.frame containing the query results.

setup_bolt4jr	<i>Set up the Conda environment for bolt4jr</i>
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Description

This function initializes the Conda environment required for the bolt4jr package. If no Conda binary is found, it installs Miniconda. If the required Conda environment (bolt4jr) is not found, it creates the environment and installs the necessary dependencies.

Usage

```
setup_bolt4jr()
```

Details

The function ensures that:

- A Conda binary is available.
- A Conda environment named `bolt4jr` exists.
- The `neo4j` Python package is installed in the `bolt4jr` environment.

Call this function manually before using any functionality that relies on Python.

Value

No return value, called for side effects.

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