Interactive Data Exploration

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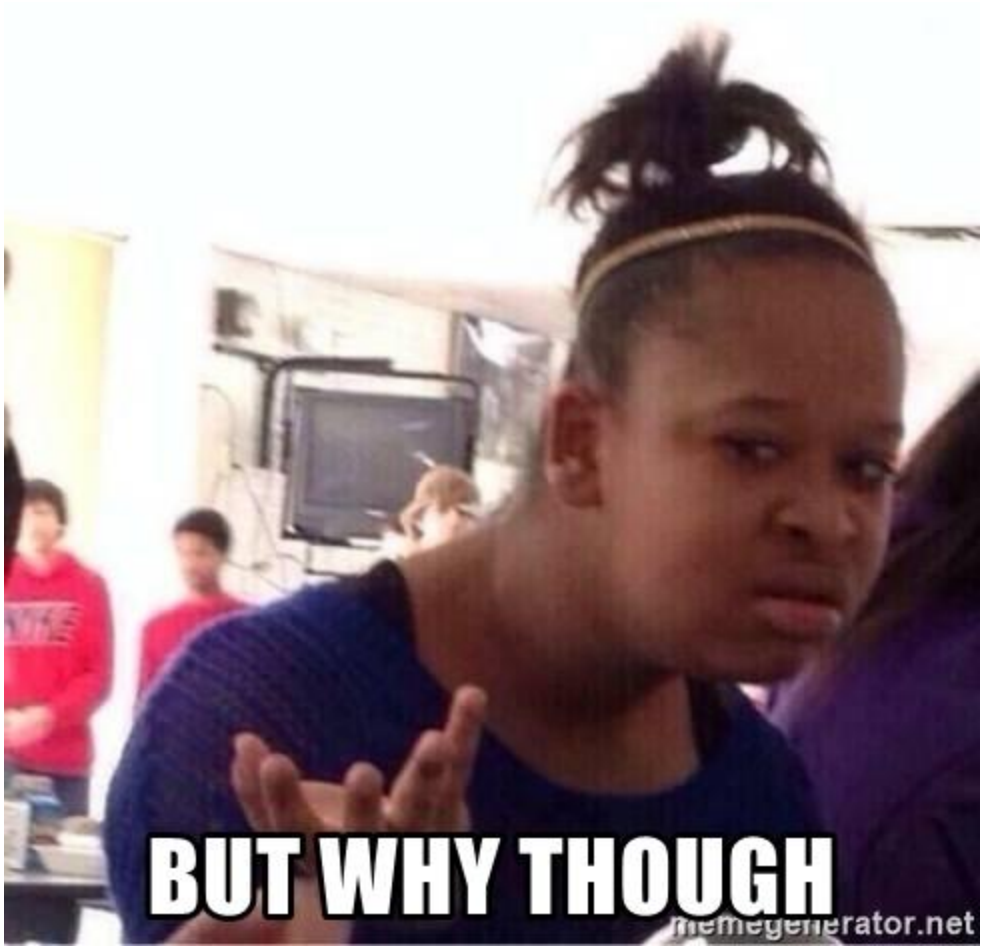
HaskellerZ March 2018

- Jupyter with Nix
- API discovery
- Haskell wrapping
- Visualization


BUT WHY THOUGH
memegenerator.net

Jupyter with Nix

Jupyter

- Python REPL in a browser
- Supports
  - Markdown
  - Code
  - PDF export
  - ...

Nix

- Functional programming language
  - $ nix repl
- Package manager
  - shell.nix
  - $ git clone https://github.com/nmattia/countries.git
  - $ cd countries
  - $ nix-shell --run ihaskell-notebook

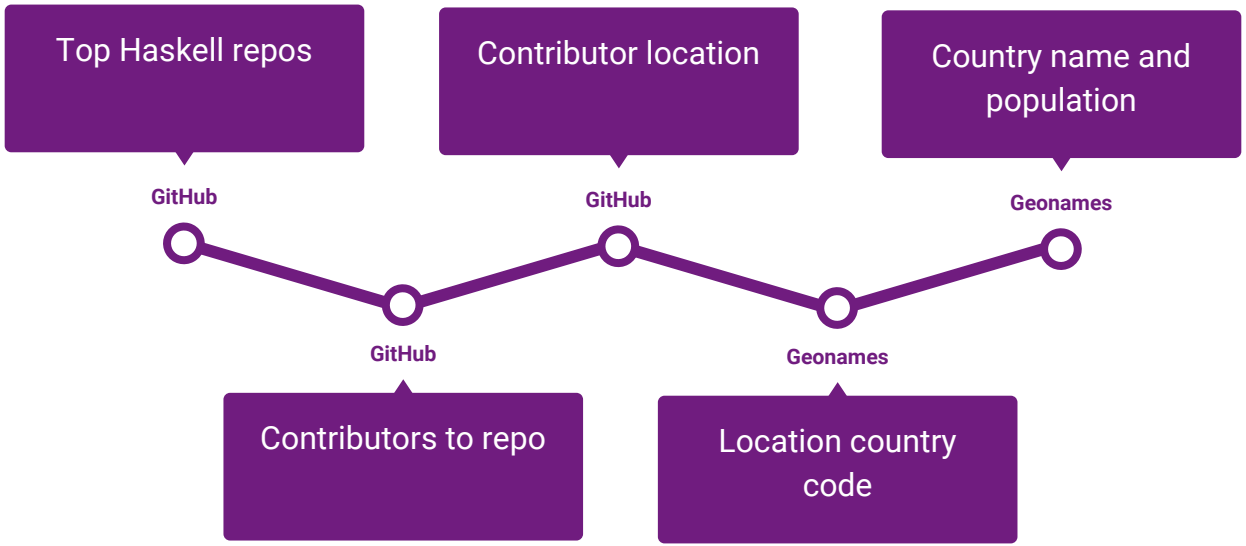
API discovery

github.com/topics/haskell

GitHub repo contributors and user location

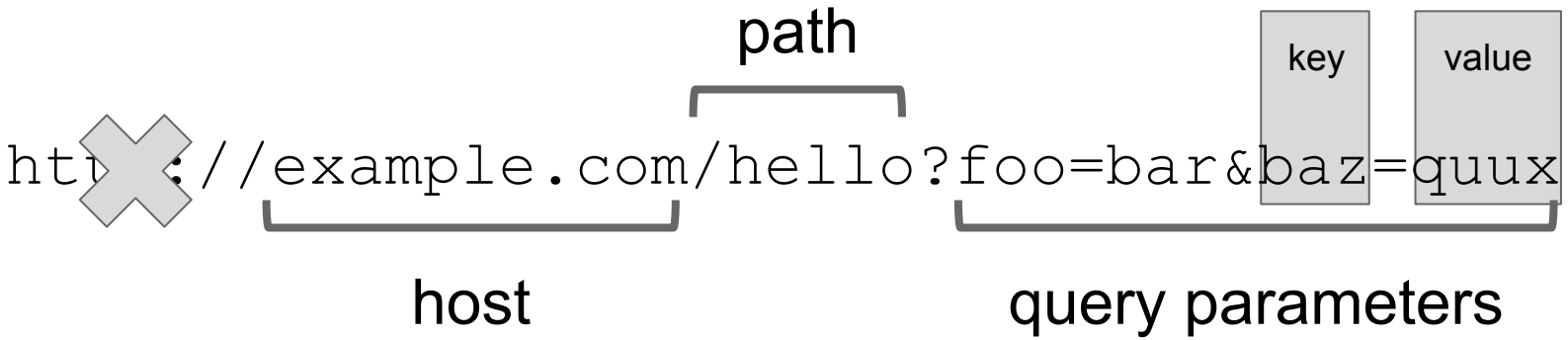
geonames.org

Location to country and population



Data pipeline

Vocabulary


path
key
value
http://example.com/hello?foo=bar&baz=quux
host
query parameters

APIs proper

https://api.github.com/search/repositories

Query parameters:

- “q”: “language:haskell”
- “sort”: “stars”

Response:

```
{ "items":
     [ { “full_name” : “jgm/pandoc” },
          ...
     ]
}
```

https://api.github.com/repos/jgm/pandoc/contributors

Query parameters: (none)

Response:

```
[ { "login": “jgm” },
  ...
]
```

https://api.github.com/users/jgm

Query parameters: (none)

Response:

```
{ "location": “Berkeley, CA” }
```

http://api.geonames.org/searchJSON

Query parameters:

- “q”: “Berkeley, CA”
- “username”: “my_secret_username”

Response:

```
[ { "countryCode": “US” },

  …

]
```

http://api.geonames.org/countryInfoJSON

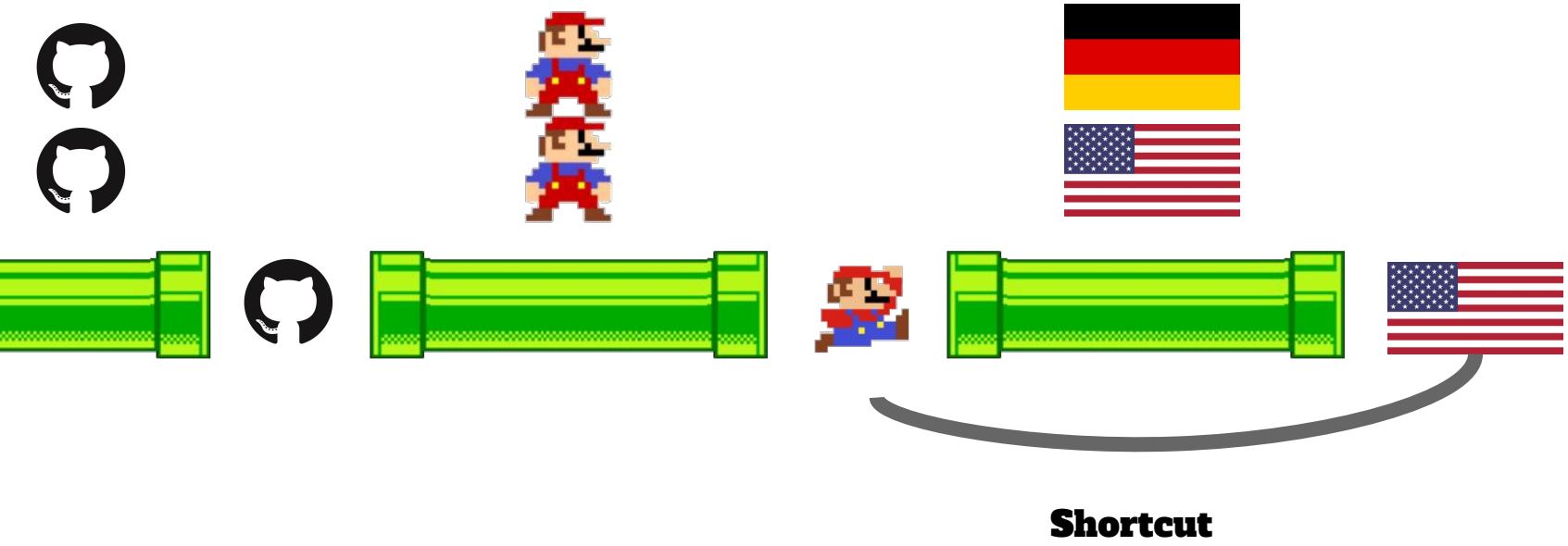
Query parameters:

- “country”: “US”
- “username”: “my_secret_username”

Response:

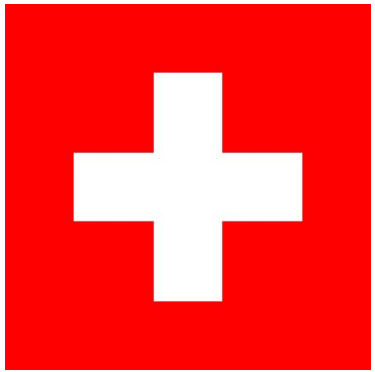
```
[ { "countryName": “United States”,
    "population": “310232863”
  },
  …
]
```

Haskell wrapping



Conduit

Visualization



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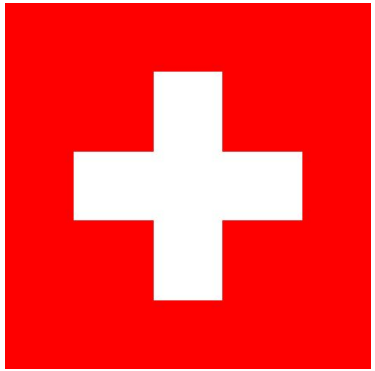

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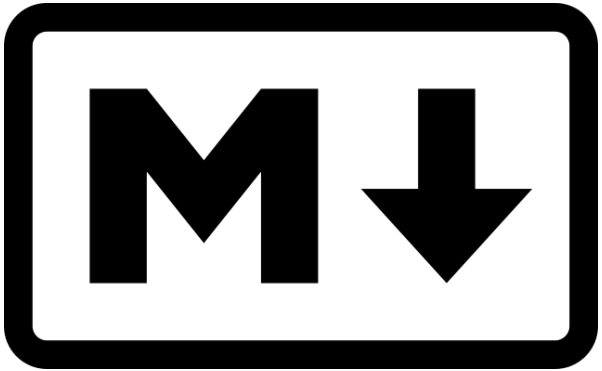

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THANKS