

Interactive Data Exploration



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



Jupyter with Nix

Jupyter

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



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

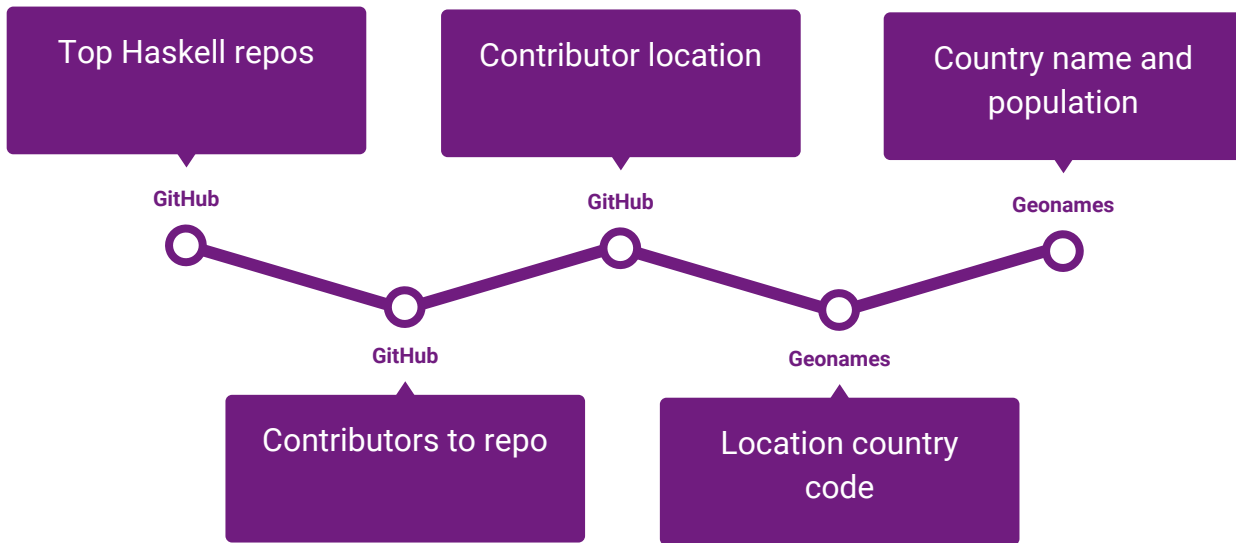
API discovery

github.com/topics/haskell

GitHub repo contributors and user location

geonames.org

Location to country and population



Data pipeline

Vocabulary

http://example.com/hello?foo=bar&baz=quux

The diagram illustrates the components of the URL `http://example.com/hello?foo=bar&baz=quux` using brackets and labels:

- host**: A bracket under `example.com` identifies the host part of the URL.
- path**: A bracket under `/hello` identifies the path part of the URL.
- query parameters**: A bracket under `?foo=bar&baz=quux` identifies the entire query string.
- key** and **value**: Two gray boxes are positioned above the query string. The **key** box is above `foo` and the **value** box is above `bar`, indicating that `foo` is the key and `bar` is its value. This structure is repeated for `baz` and `quux`.

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:

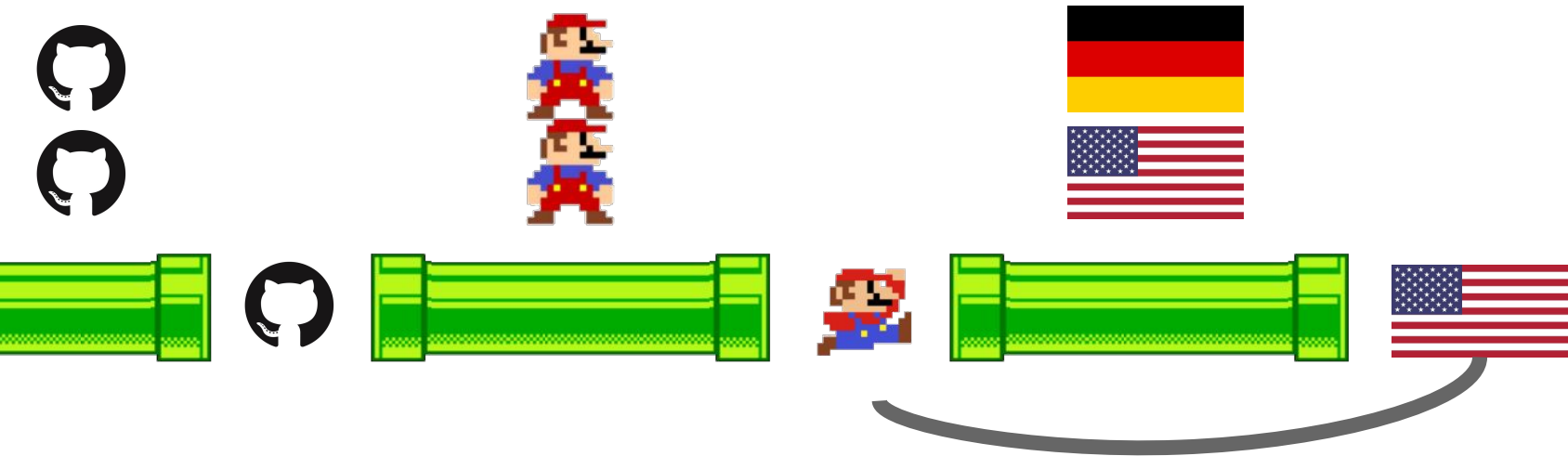
- “country”: “US”
- “username”: “my_secret_username”

Response:

```
[ { "countryName": "United States",  
    "population": "310232863"  
  },  
  
  ...  
]
```

Haskell wrapping

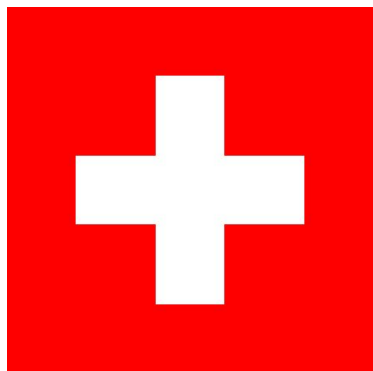




Shortcut

Conduit

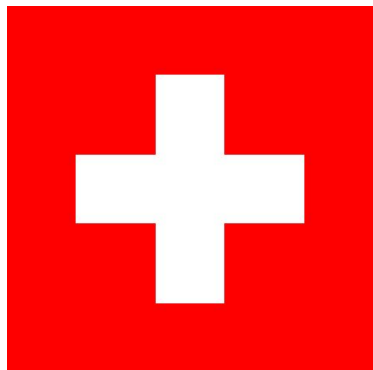
Visualization



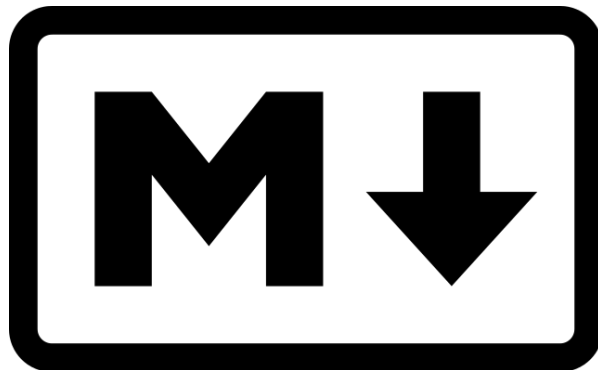
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THANKS