

INTRO To DATA SCIENCE

LECTURE 5.1: APIS & JSON

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INTRO TO DATA SCIENCE

I. APIS AND JSON

JSON

JSON (JavaScript Object Notation) is a borrowed JavaScript form turned into a string that can be passed between applications.

JSON

JSON are passed through applications as **strings**, and converted into native objects per language.

```

>>> someFile = open('/Users/epodojil/GA_Data_Science/a.json').read()
>>> print json.dumps(someFile)
"{\n  \"glossary\": {\n    \"title\": \"example glossary\", \n    \"GlossDiv\": {\n      \"title\": \"S\", \n      \"GlossList\": {\n        \"GlossEntry\": {\n          \"ID\": \"SGML\", \n          \"SortAs\": \"SGML\", \n          \"GlossTerm\": \"Standard Generalized Markup Language\", \n          \"Acronym\": \"SGML\", \n          \"Abbrev\": \"ISO 8879:1986\", \n          \"GlossDef\": {\n            \"para\": \"A meta-markup language, used to create markup languages such as DocBook.\", \n            \"GlossSeeAlso\": [\"GML\", \"XML\"] \n          }, \n          \"GlossSee\": \"markup\" \n        } \n      } \n    } \n  } \n}"
>>> print someFile
{
  "glossary": {
    "title": "example glossary",
    "GlossDiv": {
      "title": "S",
      "GlossList": {
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String

Object

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String

Object

Python Dict

APIS

APIs (Application Programming Interface) allow people to interact with the structures of an application to get, put, delete, or update data.

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Best practices for APIs are to use RESTful principles.

APIS

RESTful APIs include:

The Base URL and collection.

An interactive media type (usually JSON)

Operations (GET, PUT, POST, DELETE)

Driven by Hypertext (http requests)

APIS

Collection



GET https://api.instagram.com/v1/users/10



Element



Operation

APIS

RESTful API HTTP methods

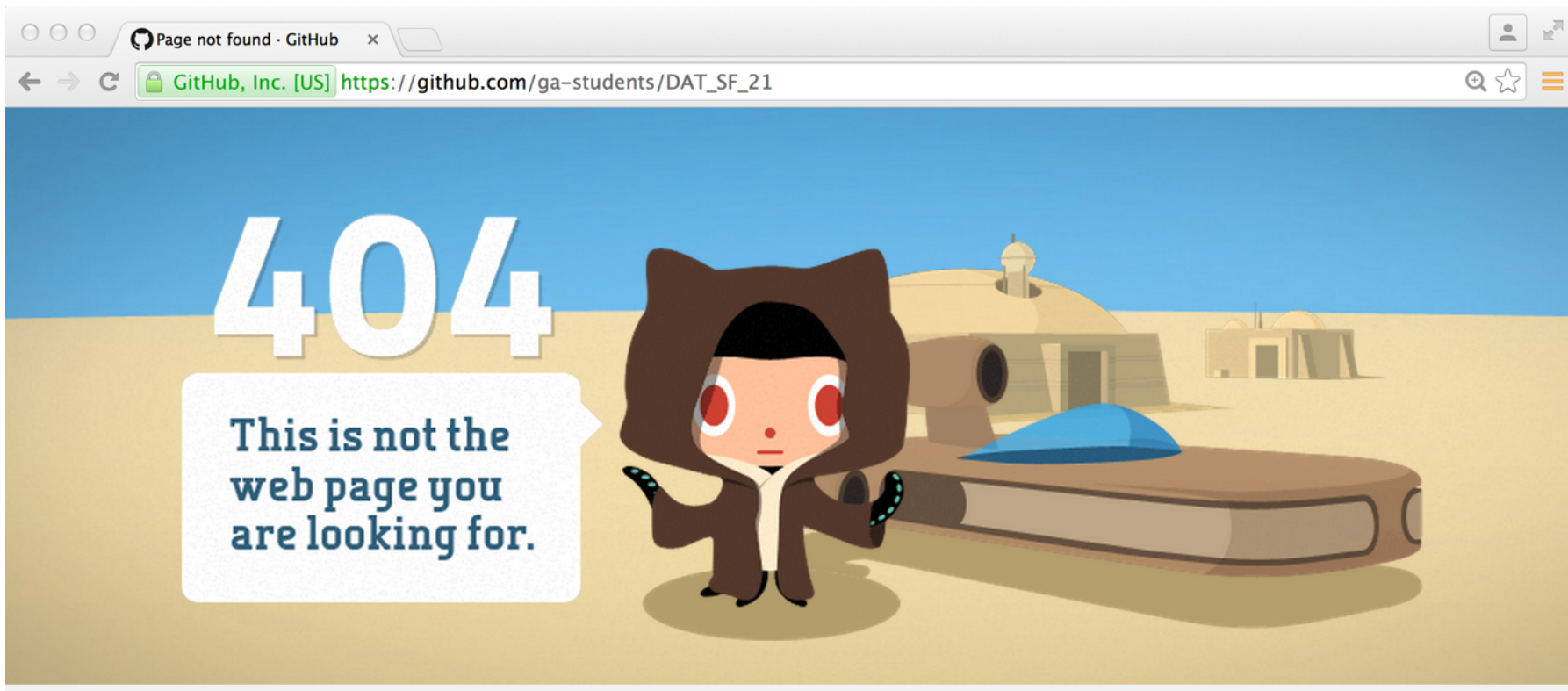
Resource	GET	PUT	POST	DELETE
Collection URI, such as <code>http://example.com/resources/</code>	List the URIs and perhaps other details of the collection's members.	Replace the entire collection with another collection.	Create a new entry in the collection. The new entry's URI is assigned automatically and is usually returned by the operation. ^[9]	Delete the entire collection.
Element URI, such as <code>http://example.com/resources/item17</code>	Retrieve a representation of the addressed member of the collection, expressed in an appropriate Internet media type.	Replace the addressed member of the collection, or if it doesn't exist, create it.	Not generally used. Treat the addressed member as a collection in its own right and create a new entry in it. ^[9]	Delete the addressed member of the collection.

APIS

Okay, so what if we execute the following, but there is no item 18 in the users collection?

GET <https://api.instagram.com/v1/users/18>

APIS



APIS

RESTful APIs can always be accessed using cURL requests: hence why hypertext access is a requirement!

Most have language libraries to make it easier to access through the language of your choice.

<http://www.pythonapi.com/>