INTRO TO DATA SCIENCE
LECTURE 5: APIS & JSON

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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    \"
\"SGML\",\n            \"SortAs\": \"SGML\",\n            \"GlossTerm\": \"Standard Generalized Markup Language\",\n            \"Acr
ef\": {\n                    \"para\": \"A meta-markup language, used to create markup languages such as DocBook.\",\n
\"GlossSee\": \"markup\"\n                }\n            }\n        }\n    }\n}"
>>> print someFile
{
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        "GlossList": {
                "GlossEntry": {
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            "SortAs": "SGML",
            "GlossTerm": "Standard Generalized Markup Language",
            "Acronym": "SGML",
            "Abbrev": "ISO 8879:1986",
            "GlossDef": {
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String

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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)

Collection

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

Operation

Element

APIS

RESTful API HTTP methods

Resource	GET	PUT	POST	DELETE
Collection URI, such as `http://example.com/resources/`	**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 `http://example.com/resources/item17`	**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.

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
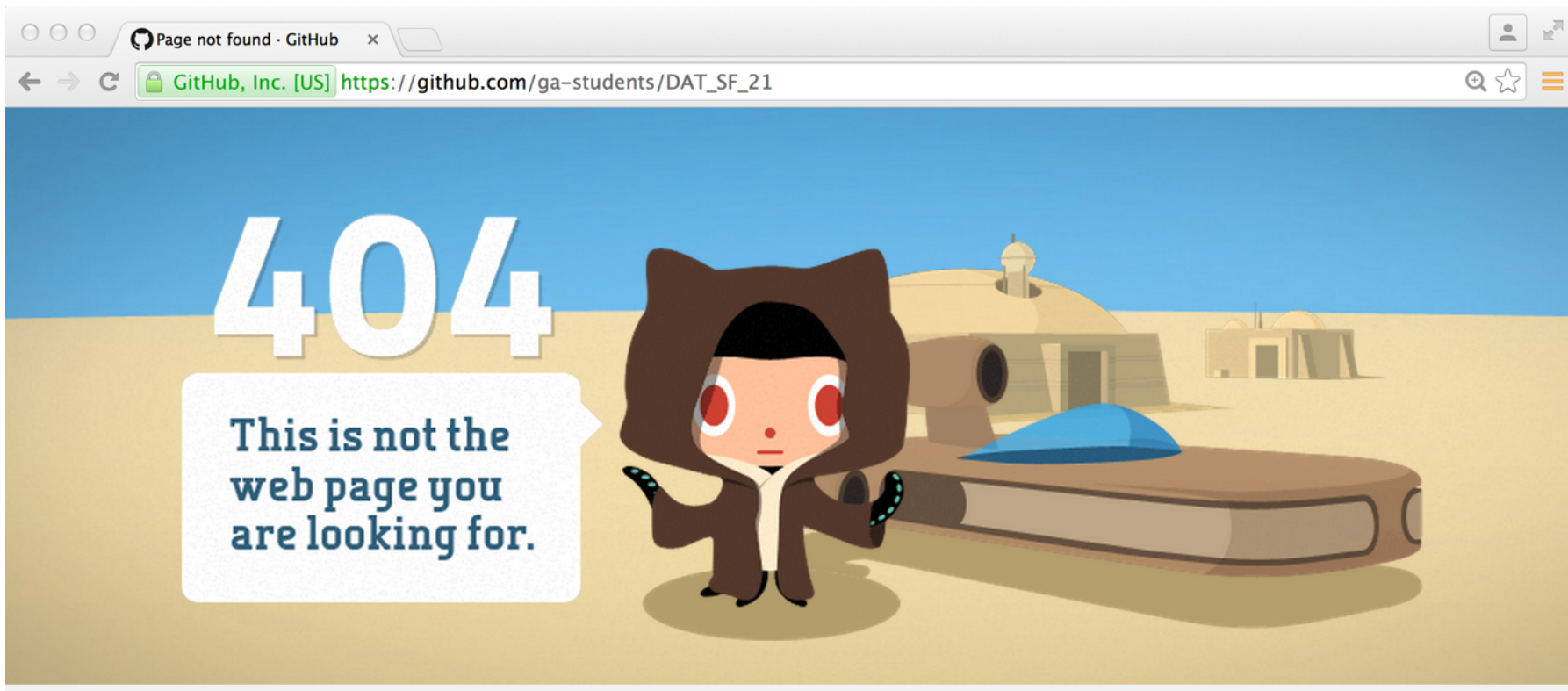
APIS

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/

Exit Ticket