JSON at Work: Search and Transform

Tom Marrs

About Me …

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dzone
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DEVELOPER
SUMMIT

What’s The Point?

JSON Search and Transform …

Simplify interaction with RESTful APIs

Our Agenda

Overview

JSON Search

JSON Transform

We’re Not Covering (:-

REST

Deep JS

Other Languages

Examples and Slides…

https://github.com/tmarrs/presentations/tree/master/JSON-at-Work-Search-and-Transform

Where Are We?

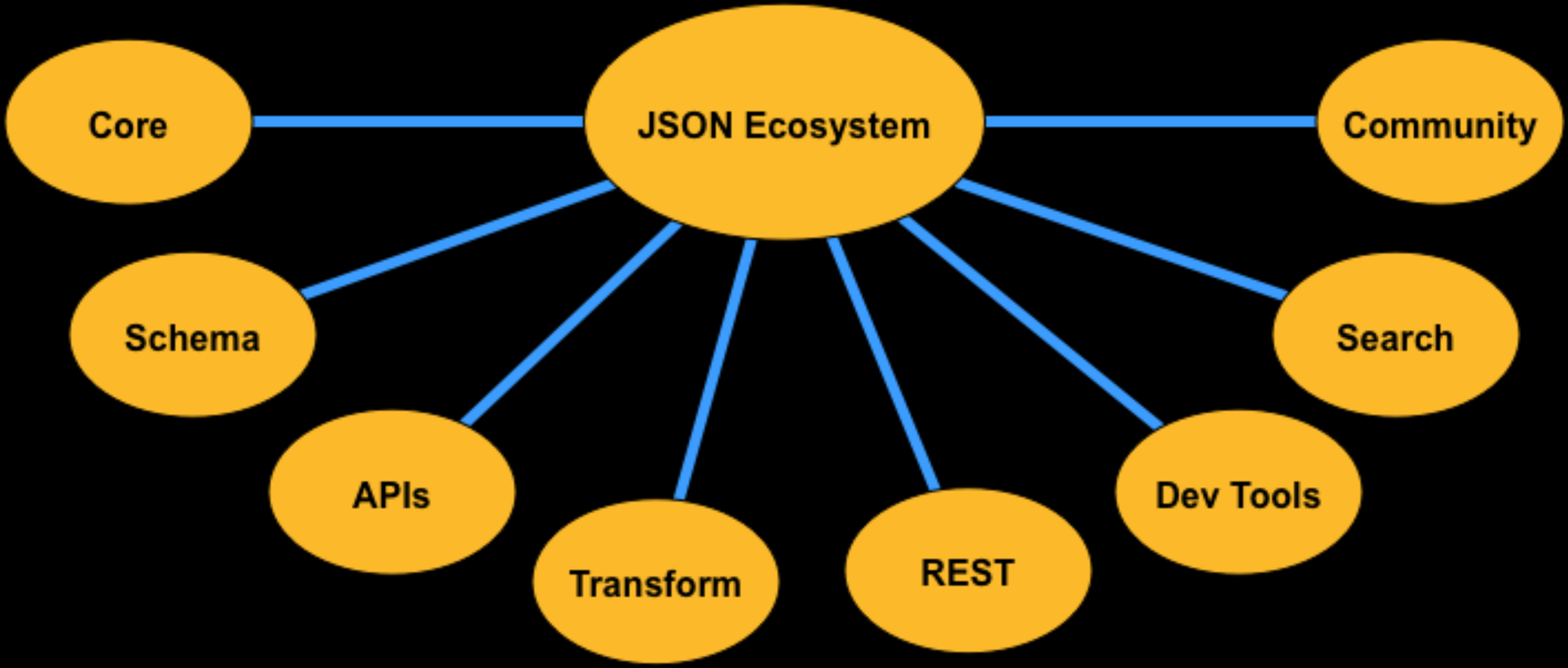
Overview

JSON Search

JSON Transform

JSON X

JSON Ecosystem



A Long Time Ago …

Algorithms + Data Structures = Programs

– Nicklaus Wirth

Our Client Stack

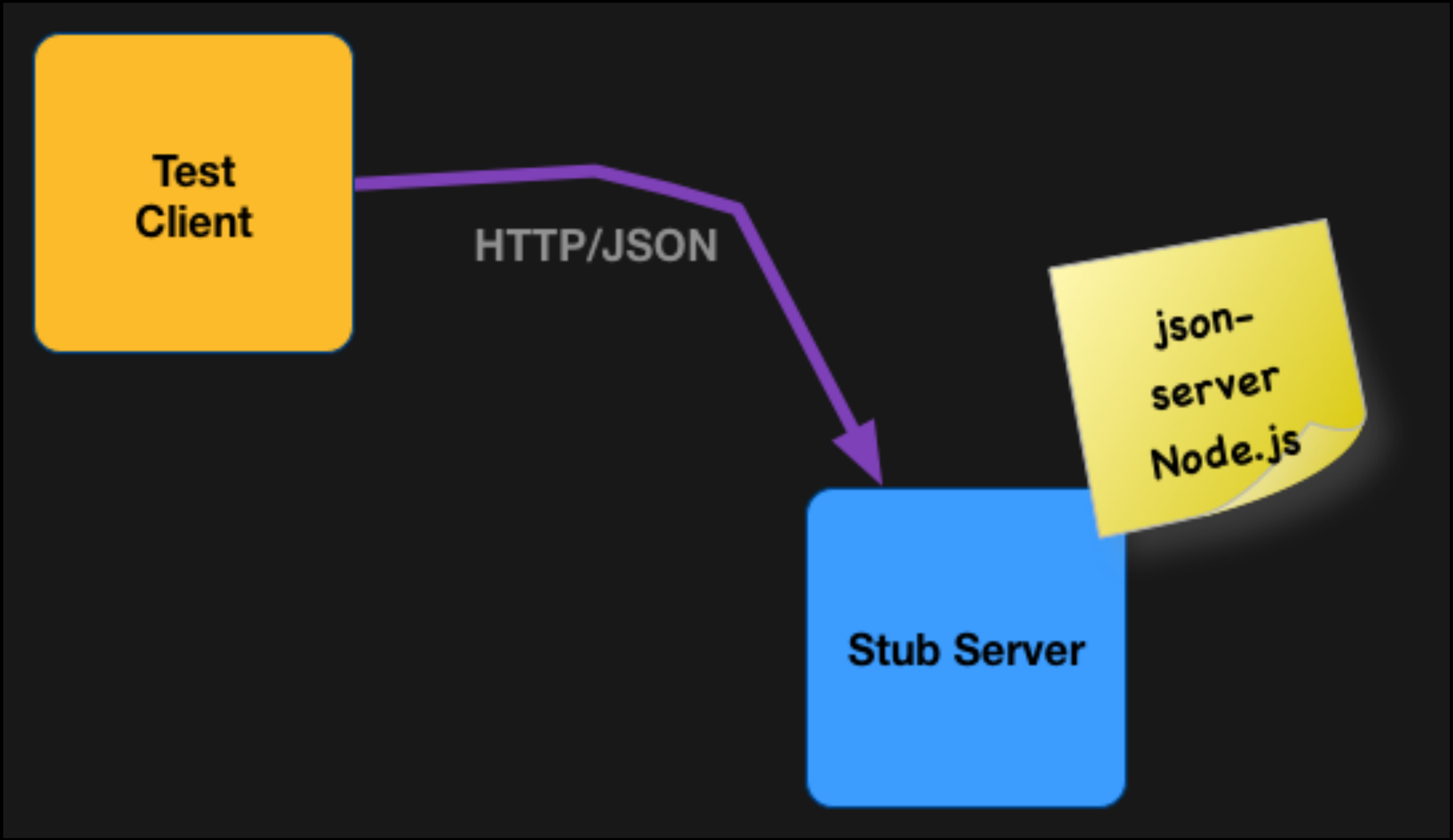
node JS™

mocha

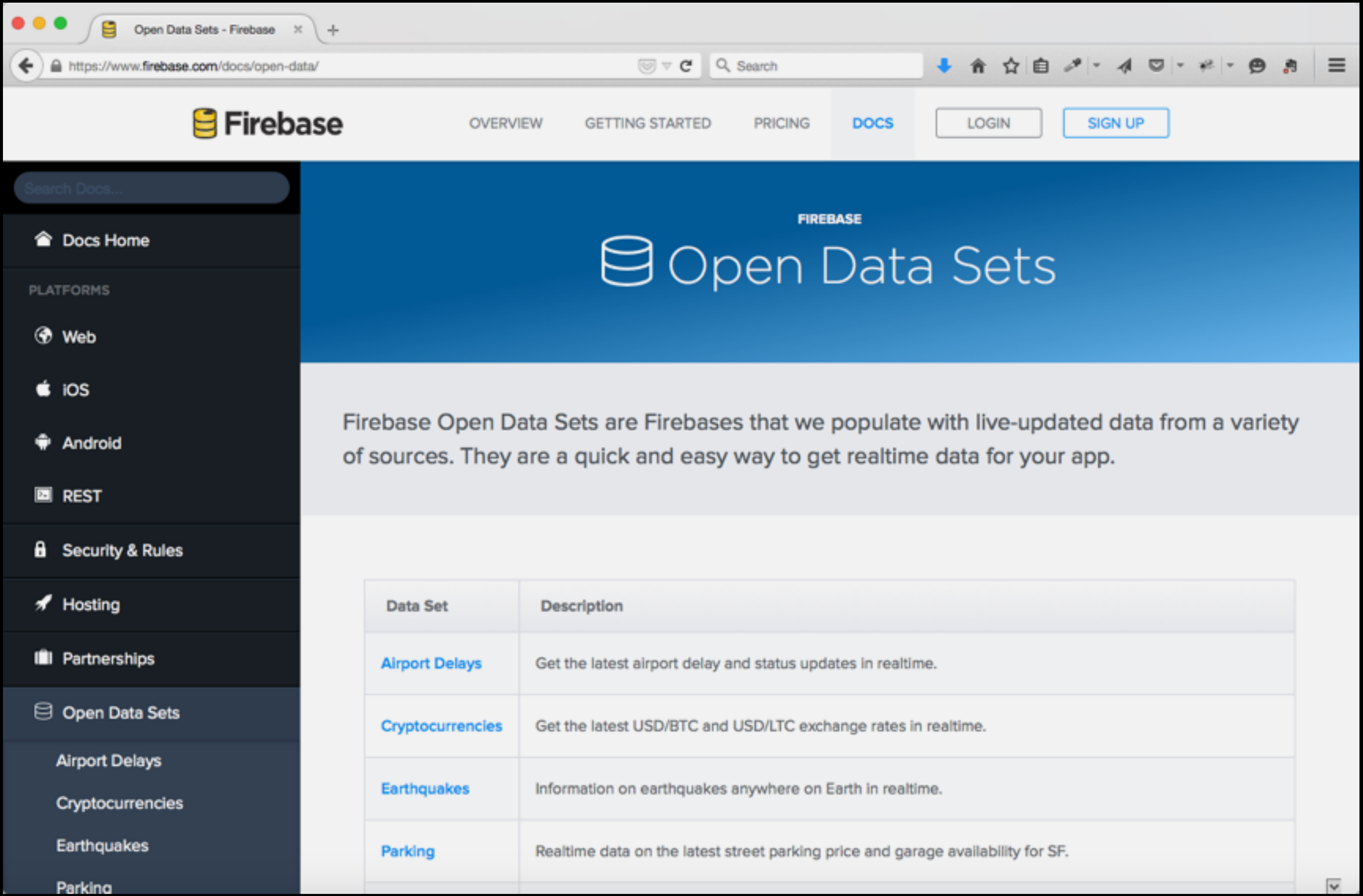
JS

chai

Our Architecture



Firebase Open Data Set

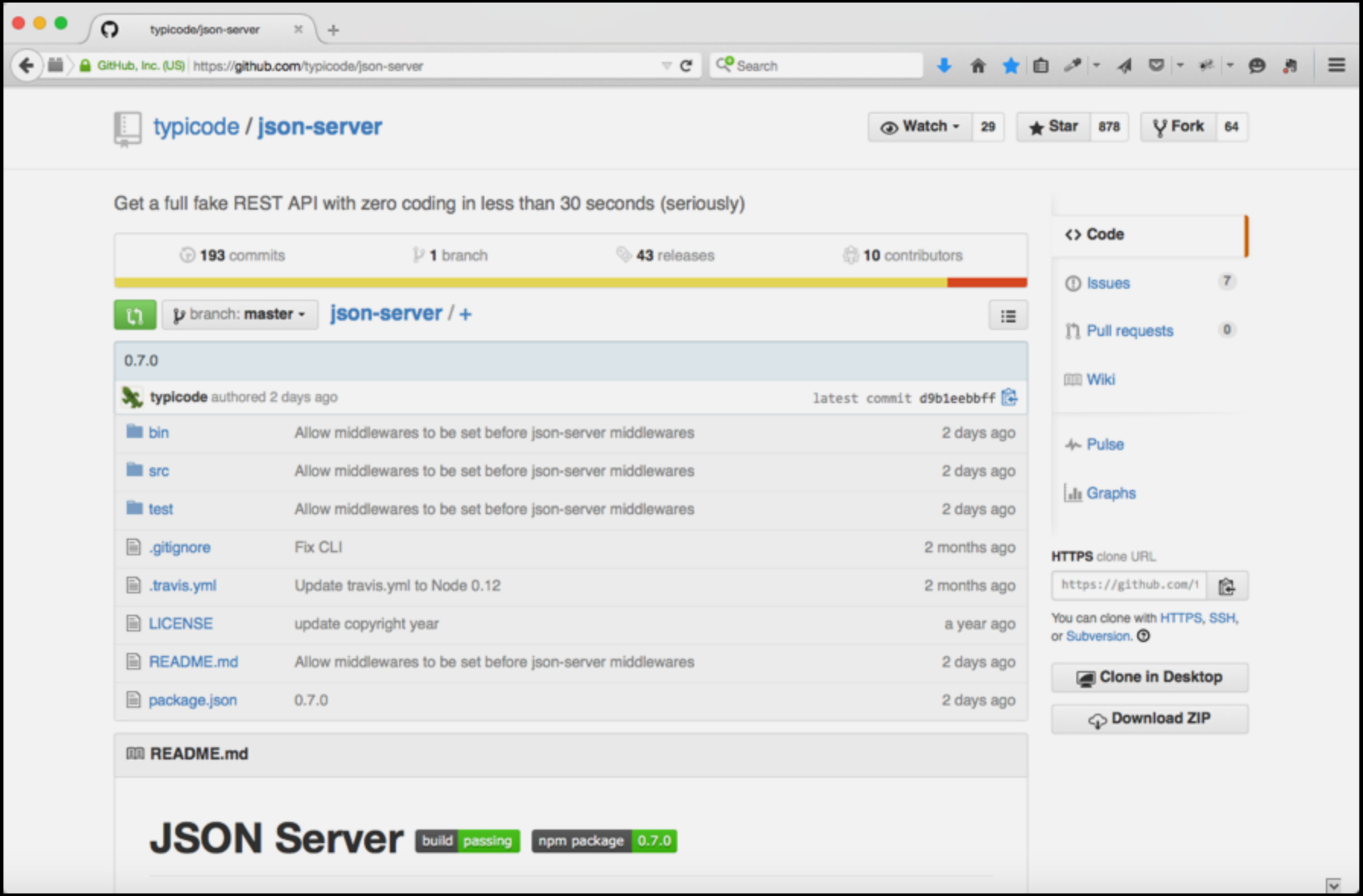


Open Data Sets

Firebase Open Data Sets are Firebases that we populate with live-updated data from a variety of sources. They are a quick and easy way to get realtime data for your app.

Data Set	Description
Airport Delays	Get the latest airport delay and status updates in realtime.
Cryptocurrencies	Get the latest USD/BTC and USD/LTC exchange rates in realtime.
Earthquakes	Information on earthquakes anywhere on Earth in realtime.
Parking	Realtime data on the latest street parking price and garage availability for SF.

json-server on GH



typicode / json-server

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Get a full fake REST API with zero coding in less than 30 seconds (seriously)

193 commits · 1 branch · 43 releases · 10 contributors

branch: master · json-server / +

0.7.0

typicode authored 2 days ago — latest commit d9b1eebbff

bin	Allow middlewares to be set before json-server middlewares	2 days ago
src	Allow middlewares to be set before json-server middlewares	2 days ago
test	Allow middlewares to be set before json-server middlewares	2 days ago
.gitignore	Fix CLI	2 months ago
.travis.yml	Update travis.yml to Node 0.12	2 months ago
LICENSE	update copyright year	a year ago
README.md	Allow middlewares to be set before json-server middlewares	2 days ago
package.json	0.7.0	2 days ago

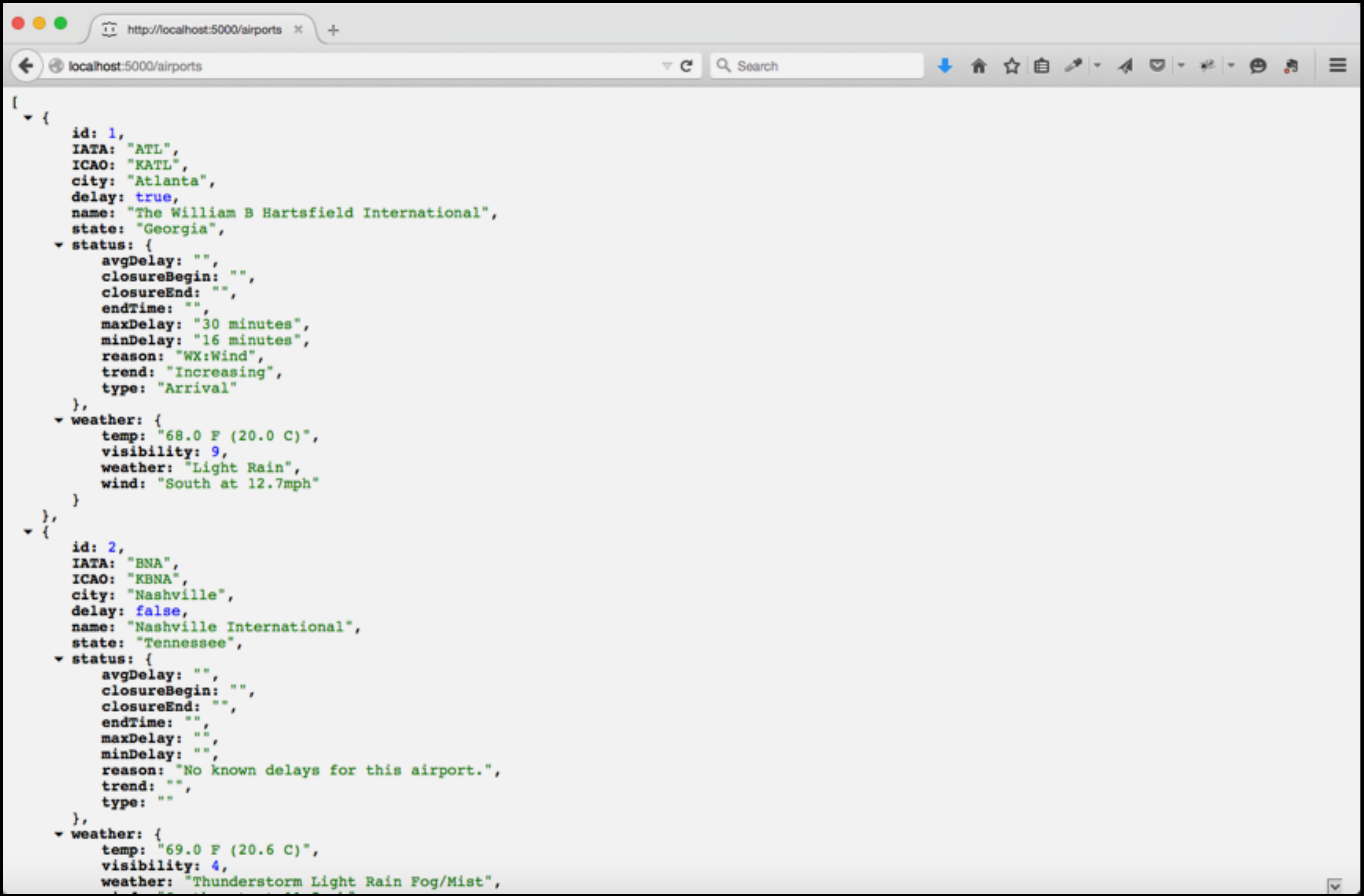
README.md

JSON Server — build passing · npm package 0.7.0

Install and Run …

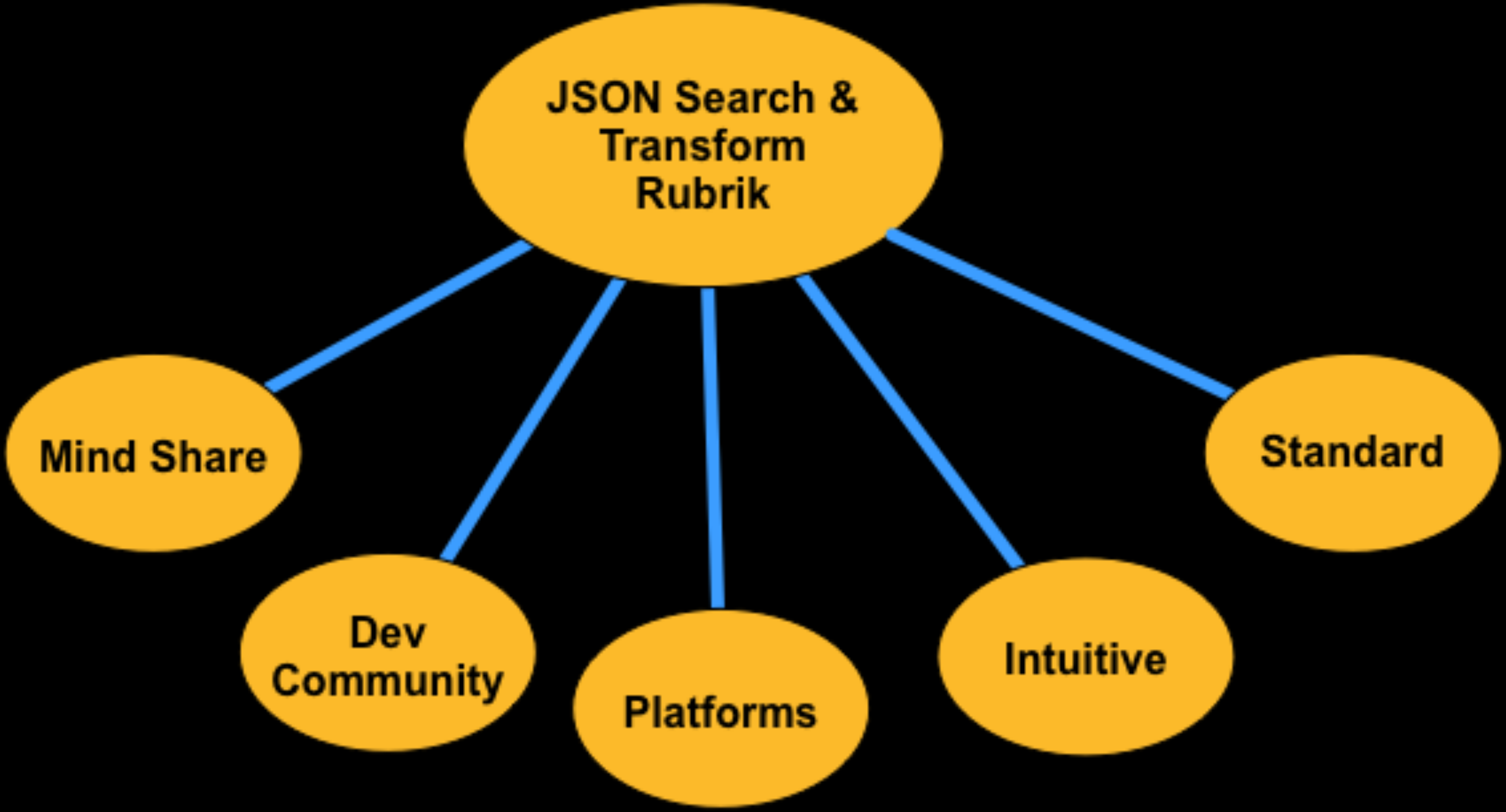
```
$ npm install -g json-server

$ json-server -p ./airports.json
```

Our Stub Server



```
[
  ▾ {
        id: 1,
        IATA: "ATL",
        ICAO: "KATL",
        city: "Atlanta",
        delay: true,
        name: "The William B Hartsfield International",
        state: "Georgia",
      ▾ status: {
            avgDelay: "",
            closureBegin: "",
            closureEnd: "",
            endTime: "",
            maxDelay: "30 minutes",
            minDelay: "16 minutes",
            reason: "WX:Wind",
            trend: "Increasing",
            type: "Arrival"
        },
      ▾ weather: {
            temp: "68.0 F (20.0 C)",
            visibility: 9,
            weather: "Light Rain",
            wind: "South at 12.7mph"
        }
    },
  ▾ {
        id: 2,
        IATA: "BNA",
        ICAO: "KBNA",
        city: "Nashville",
        delay: false,
        name: "Nashville International",
        state: "Tennessee",
      ▾ status: {
            avgDelay: "",
            closureBegin: "",
            closureEnd: "",
            endTime: "",
            maxDelay: "",
            minDelay: "",
            reason: "No known delays for this airport.",
            trend: "",
            type: ""
        },
      ▾ weather: {
            temp: "69.0 F (20.6 C)",
            visibility: 4,
            weather: "Thunderstorm Light Rain Fog/Mist",
```

JSON Search & Transform Rubrik



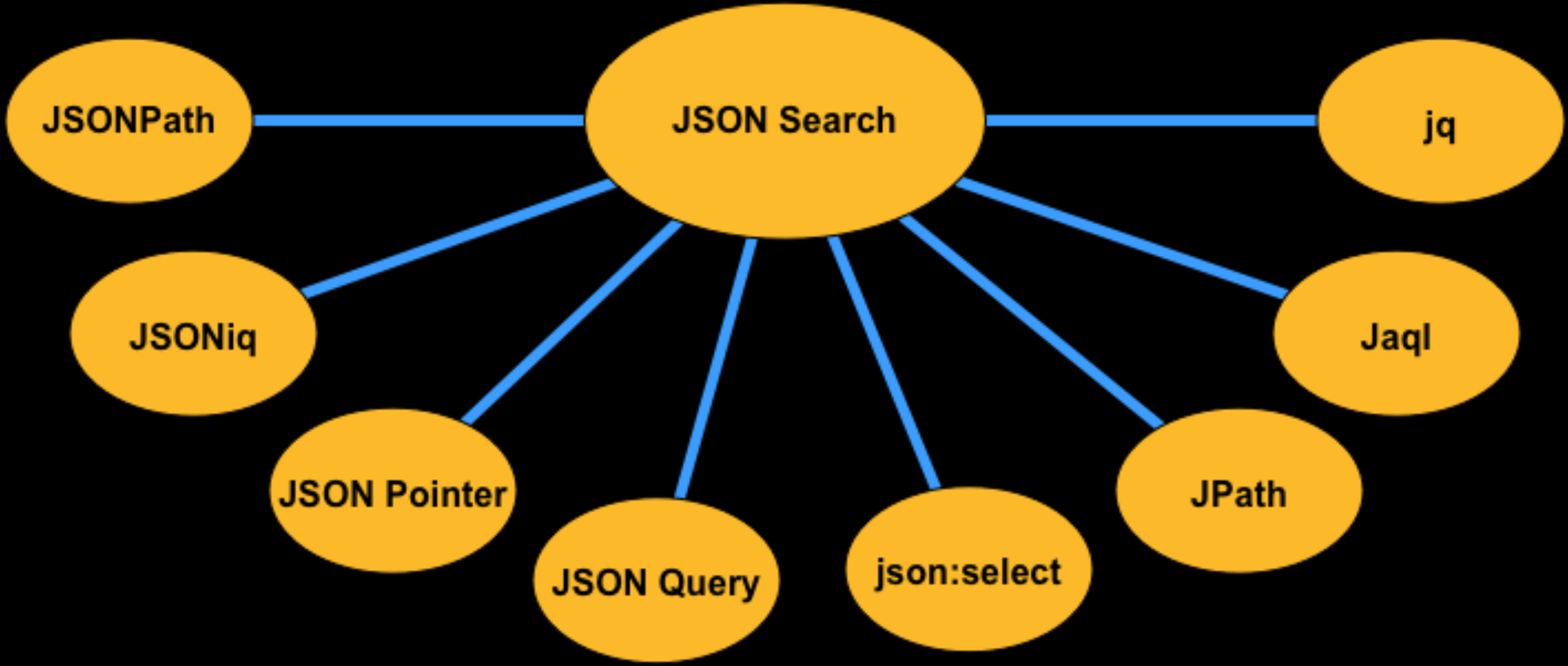
Where Are We?

Overview

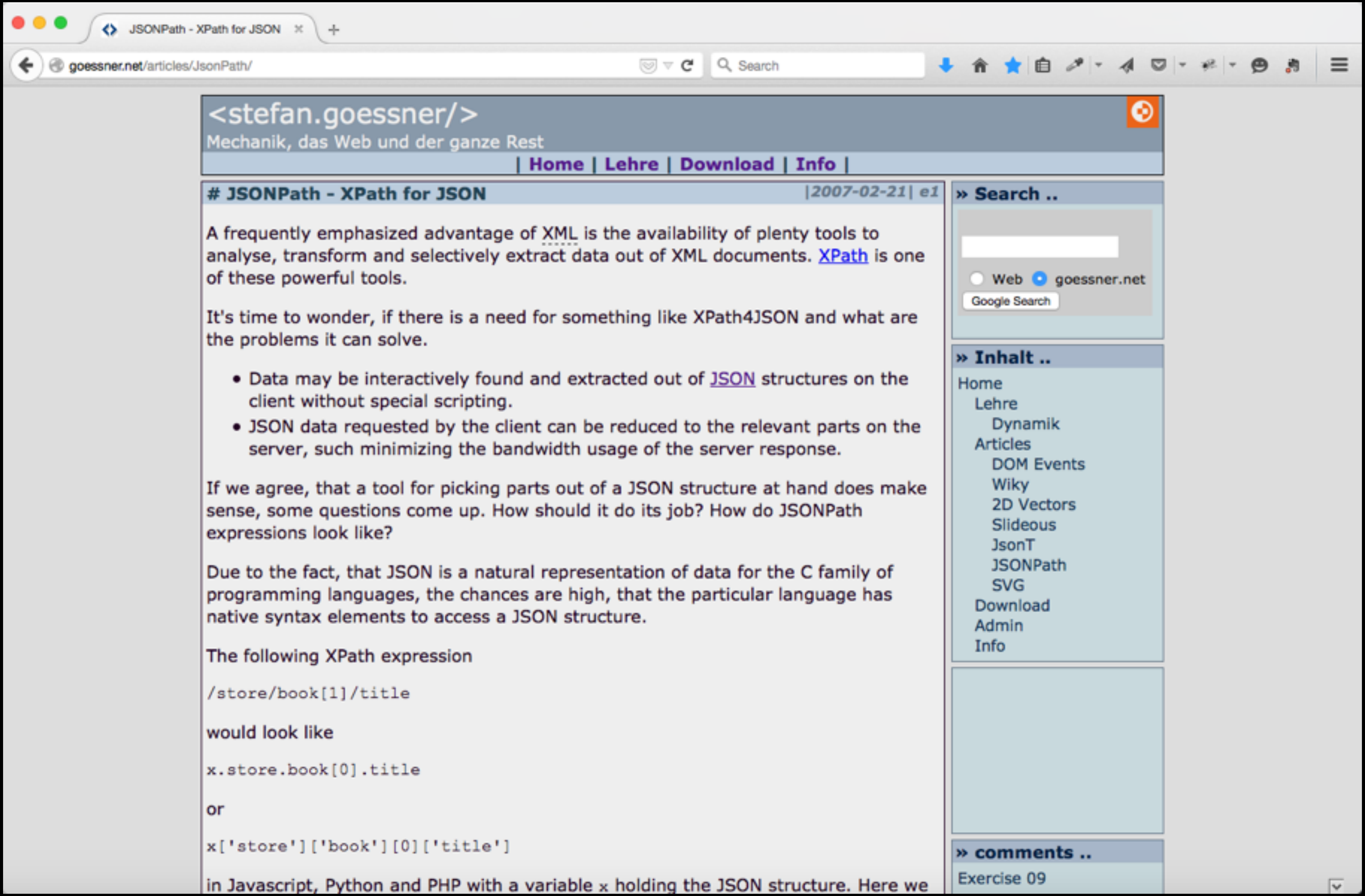
JSON Search

JSON Transform

JSON Search


JSON Search
JSONPath
jq
JSONiq
Jaql
JSON Pointer
JPath
JSON Query
json:select

JSONPath



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Mechanik, das Web und der ganze Rest

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JSONPath - XPath for JSON

|2007-02-21| e1

A frequently emphasized advantage of XML is the availability of plenty tools to analyse, transform and selectively extract data out of XML documents. XPath is one of these powerful tools.

It's time to wonder, if there is a need for something like XPath4JSON and what are the problems it can solve.

- Data may be interactively found and extracted out of JSON structures on the client without special scripting.
- JSON data requested by the client can be reduced to the relevant parts on the server, such minimizing the bandwidth usage of the server response.

If we agree, that a tool for picking parts out of a JSON structure at hand does make sense, some questions come up. How should it do its job? How do JSONPath expressions look like?

Due to the fact, that JSON is a natural representation of data for the C family of programming languages, the chances are high, that the particular language has native syntax elements to access a JSON structure.

The following XPath expression

```
/store/book[1]/title
```

would look like

```
x.store.book[0].title
```

or

```
x['store']['book'][0]['title']
```

in Javascript, Python and PHP with a variable x holding the JSON structure. Here we

» Search ..

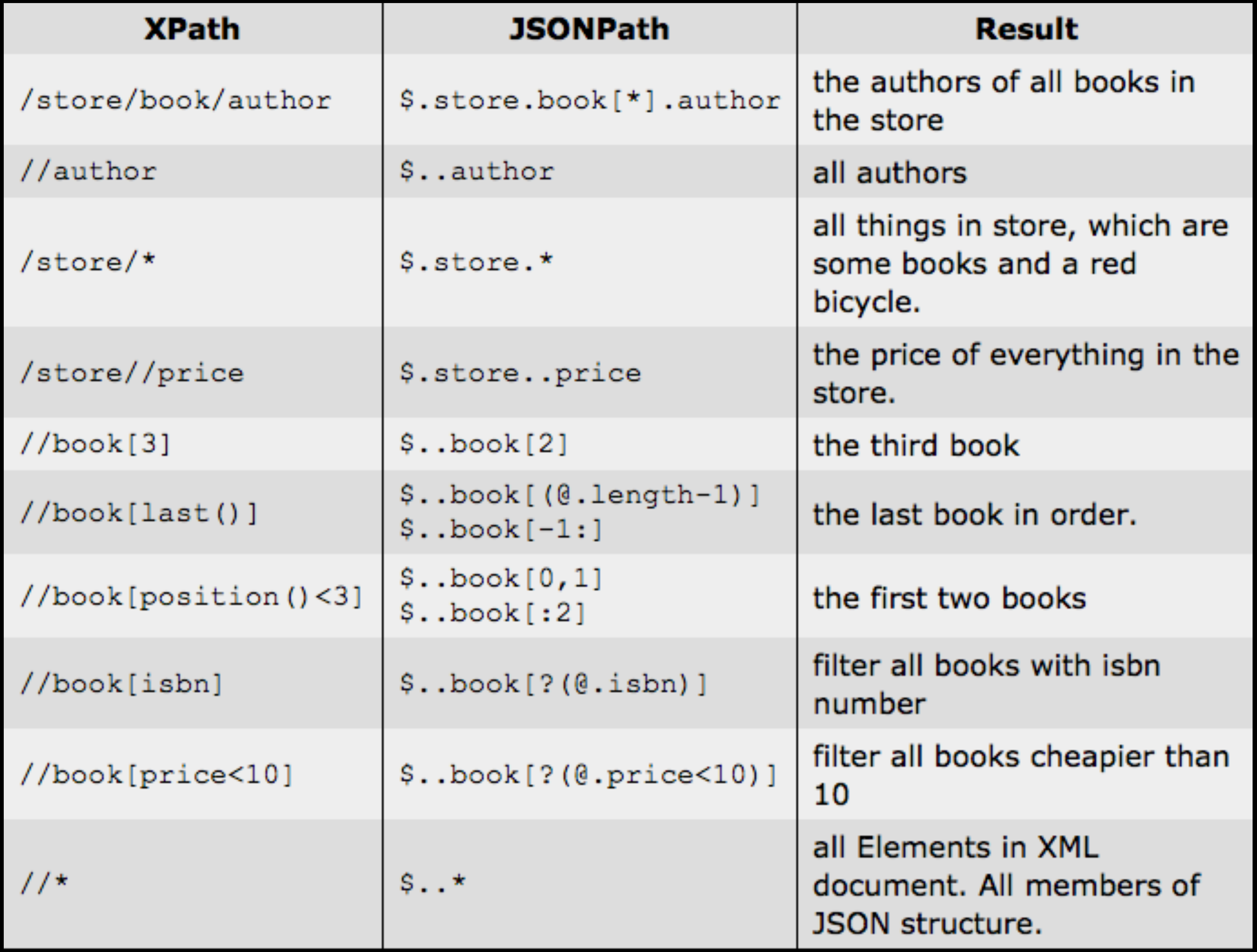
Web [✓ goessner.net]
Google Search

» Inhalt ..

» comments ..

Exercise 09

JSONPath Syntax



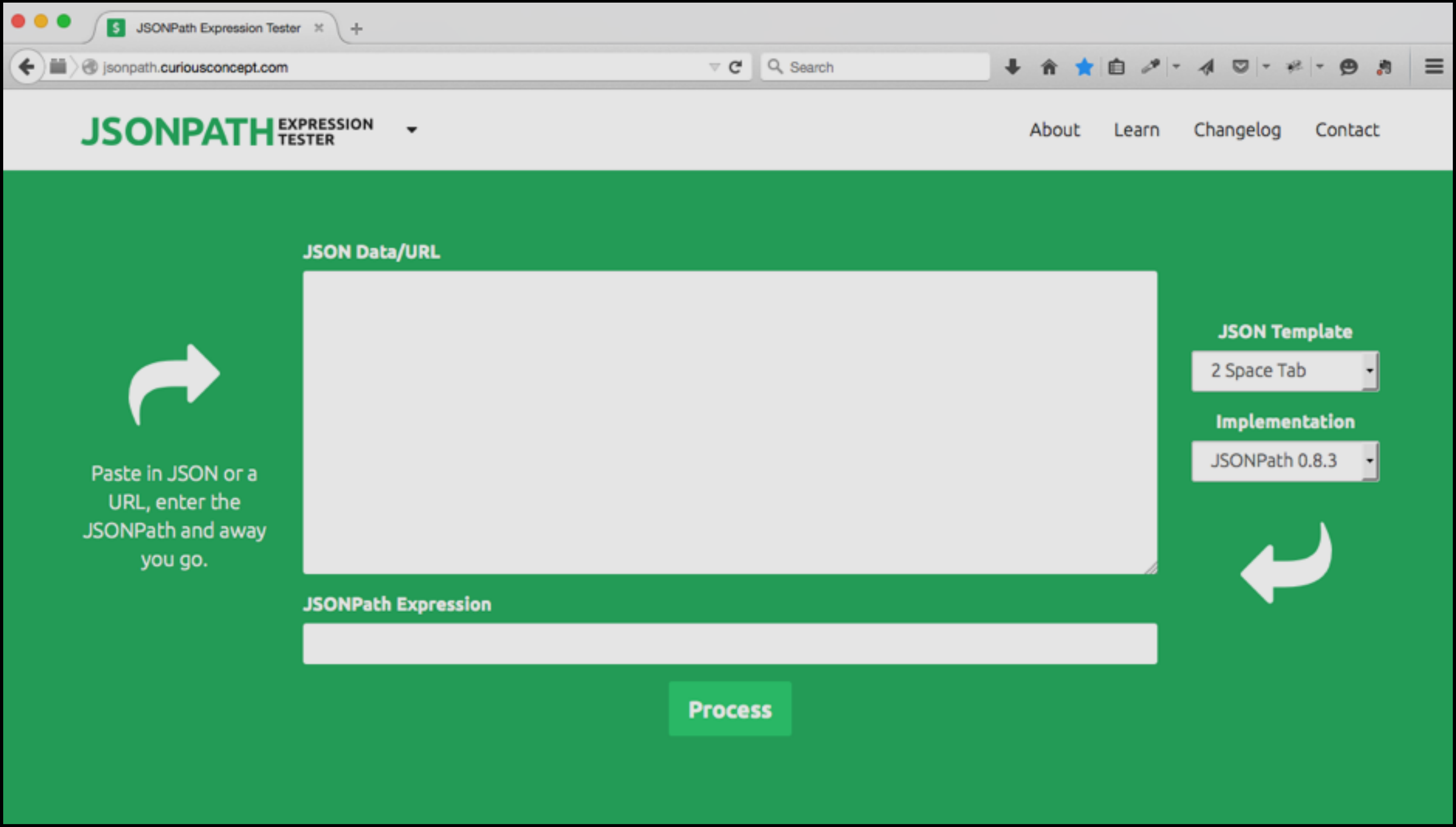
XPath	JSONPath	Result
`/store/book/author`	`$.store.book[*].author`	the authors of all books in the store
`//author`	`$..author`	all authors
`/store/*`	`$.store.*`	all things in store, which are some books and a red bicycle.
`/store//price`	`$.store..price`	the price of everything in the store.
`//book[3]`	`$..book[2]`	the third book

`//book[last()]`	`$..book[(@.length-1)]`
	`$..book[-1:]`
		the last book in order.

`//book[position()<3]`	`$..book[0,1]`
	`$..book[:2]`
		the first two books

`//book[isbn]`	`$..book[?(@.isbn)]`	filter all books with isbn number
`//book[price<10]`	`$..book[?(@.price<10)]`	filter all books cheapier than 10
`//*`	`$..*`	all Elements in XML document. All members of JSON structure.

JSONPath Expression Tester


JSONPath Expression Tester
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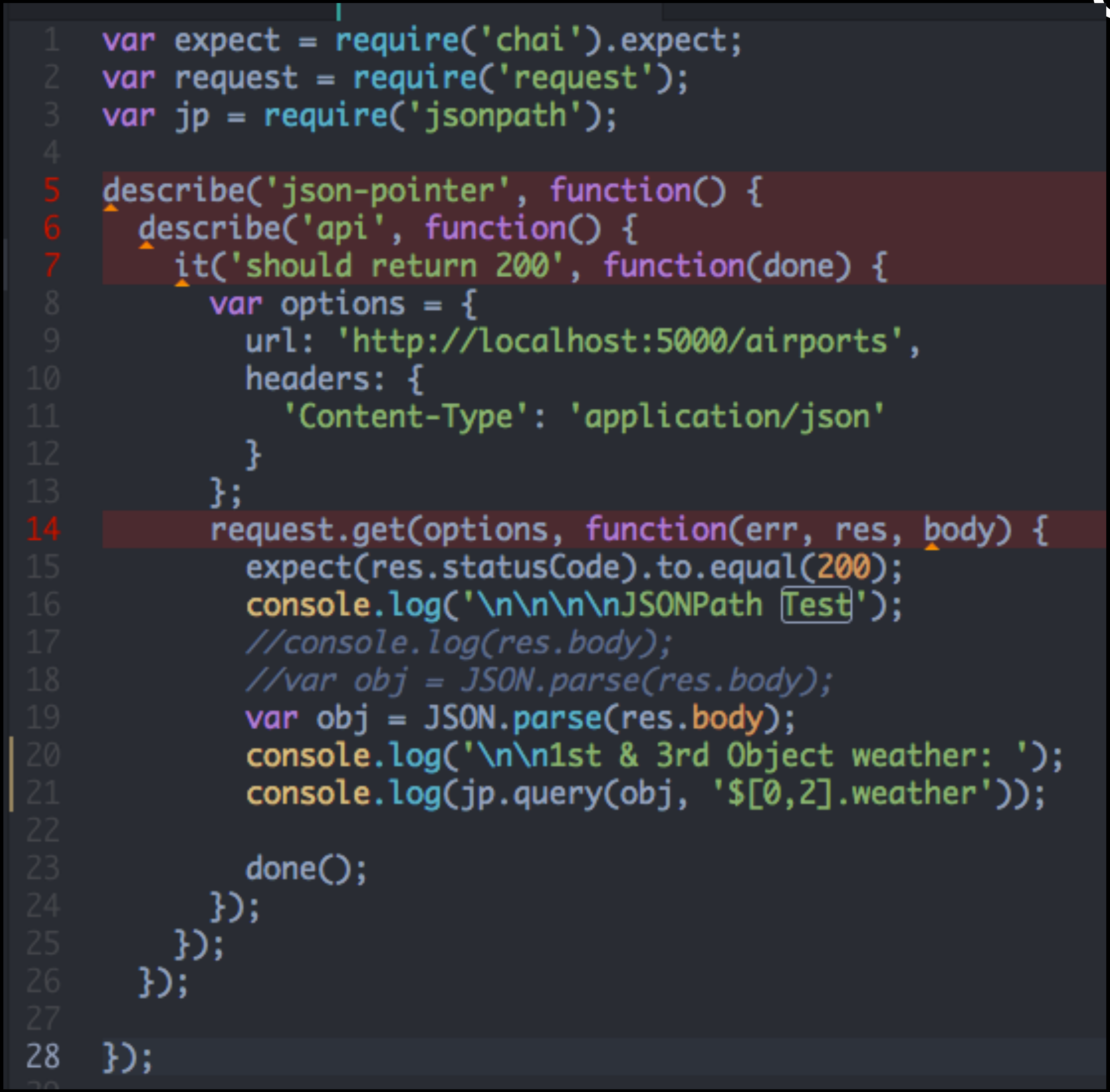
Search
JSONPATH EXPRESSION TESTER
About
Learn
Changelog
Contact
JSON Data/URL
Paste in JSON or a URL, enter the JSONPath and away you go.
JSON Template
2 Space Tab
Implementation
JSONPath 0.8.3
JSONPath Expression
Process

JSONPath Demo

JSONPath Testing

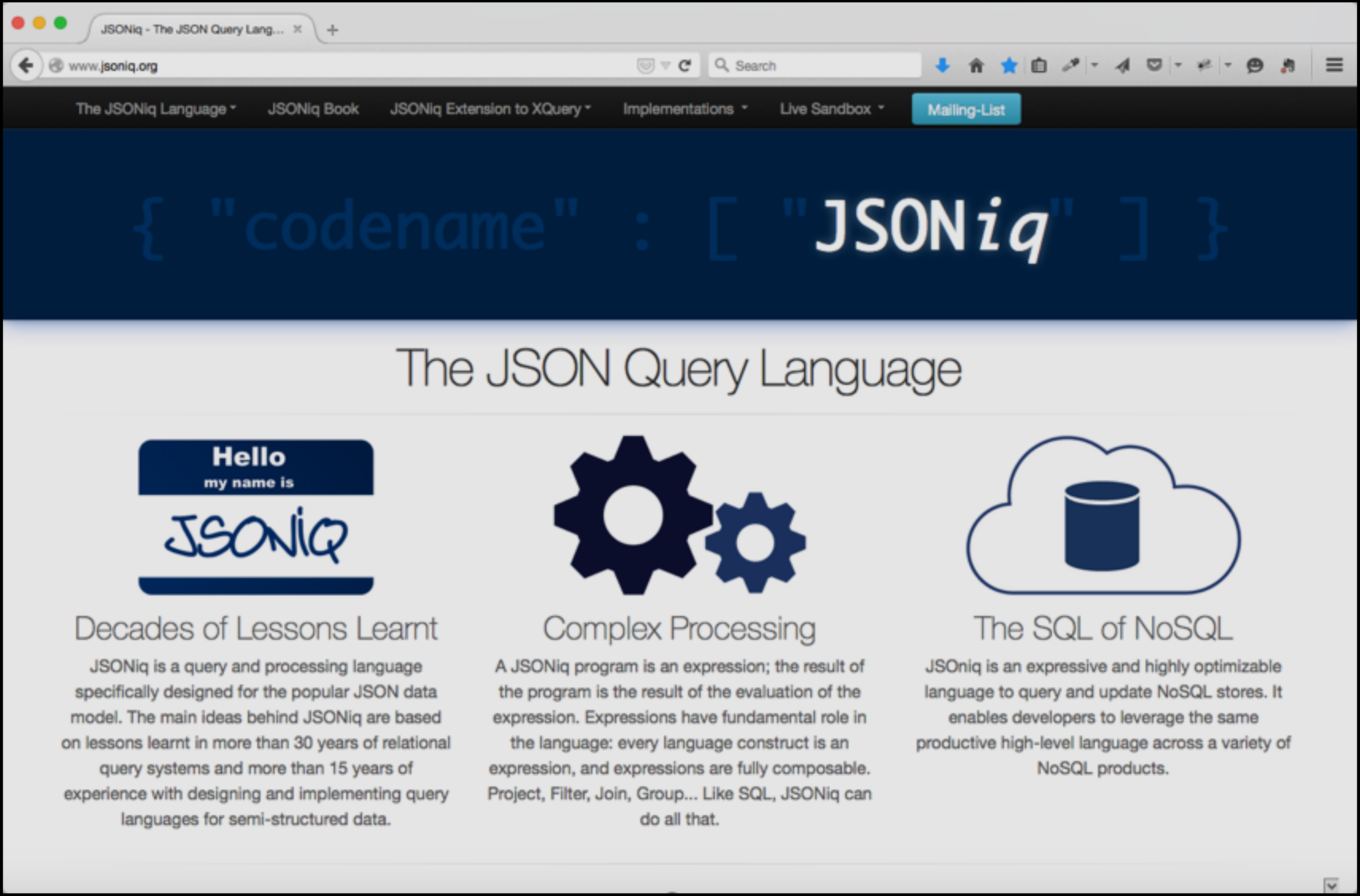


```
var expect = require('chai').expect;
var request = require('request');
var jp = require('jsonpath');

describe('json-pointer', function() {
  describe('api', function() {
    it('should return 200', function(done) {
      var options = {
        url: 'http://localhost:5000/airports',
        headers: {
          'Content-Type': 'application/json'
        }
      };
      request.get(options, function(err, res, body) {
        expect(res.statusCode).to.equal(200);
        console.log('\n\n\n\nJSONPath Test');
        //console.log(res.body);
        //var obj = JSON.parse(res.body);
        var obj = JSON.parse(res.body);
        console.log('\n\n1st & 3rd Object weather: ');
        console.log(jp.query(obj, '$[0,2].weather'));

        done();
      });
    });
  });

});
```

JSONPath Scorecard

Mind Share	Y?
Dev Community	Y?
Platforms	JavaScript, Node.js, Java, Ruby
Intuitive	Y
Standard	N

JSONiq



The JSON Query Language

Decades of Lessons Learnt

JSONiq is a query and processing language specifically designed for the popular JSON data model. The main ideas behind JSONiq are based on lessons learnt in more than 30 years of relational query systems and more than 15 years of experience with designing and implementing query languages for semi-structured data.

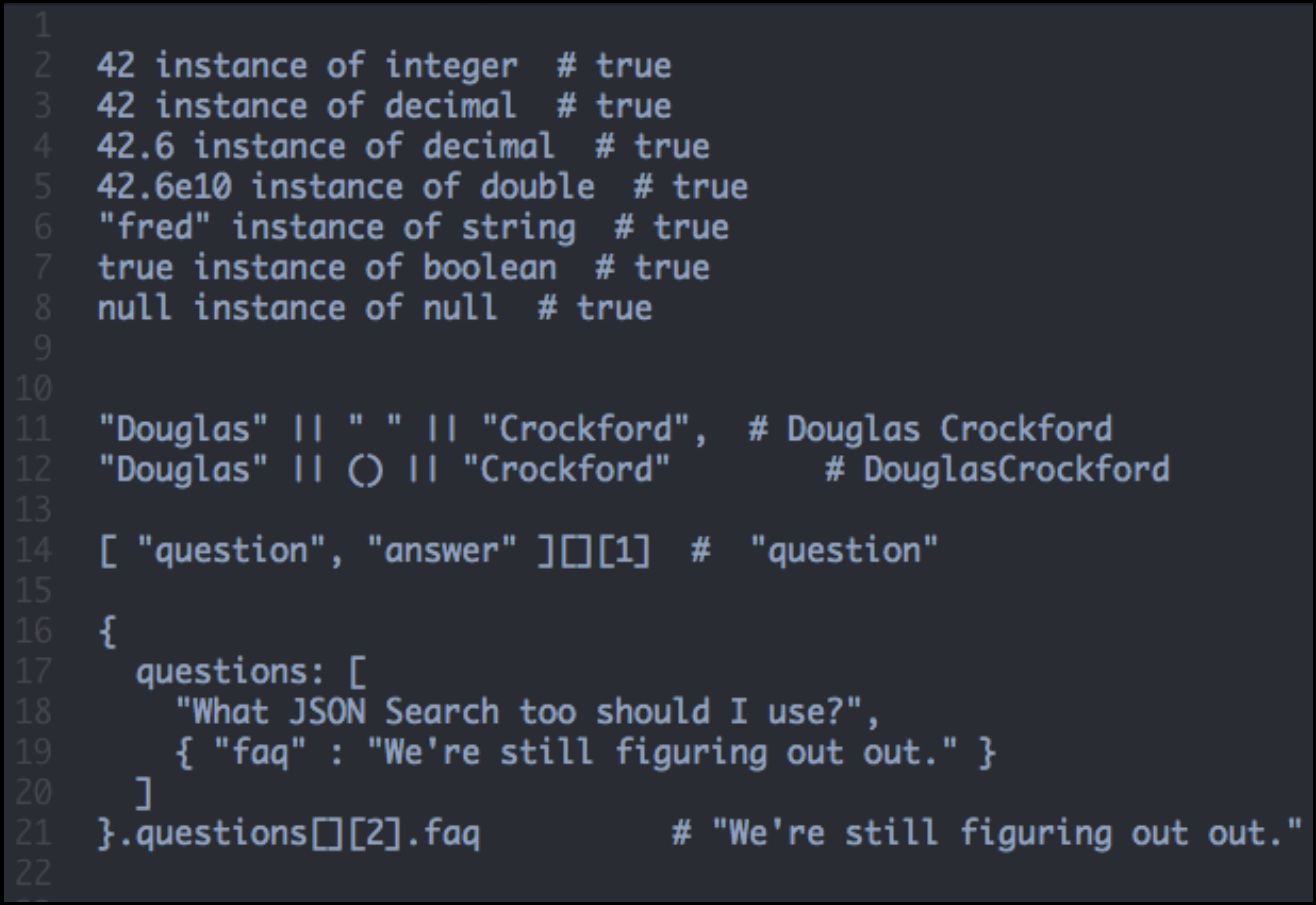
Complex Processing

A JSONiq program is an expression; the result of the program is the result of the evaluation of the expression. Expressions have fundamental role in the language: every language construct is an expression, and expressions are fully composable. Project, Filter, Join, Group... Like SQL, JSONiq can do all that.

The SQL of NoSQL

JSONiq is an expressive and highly optimizable language to query and update NoSQL stores. It enables developers to leverage the same productive high-level language across a variety of NoSQL products.

JSONiq Example

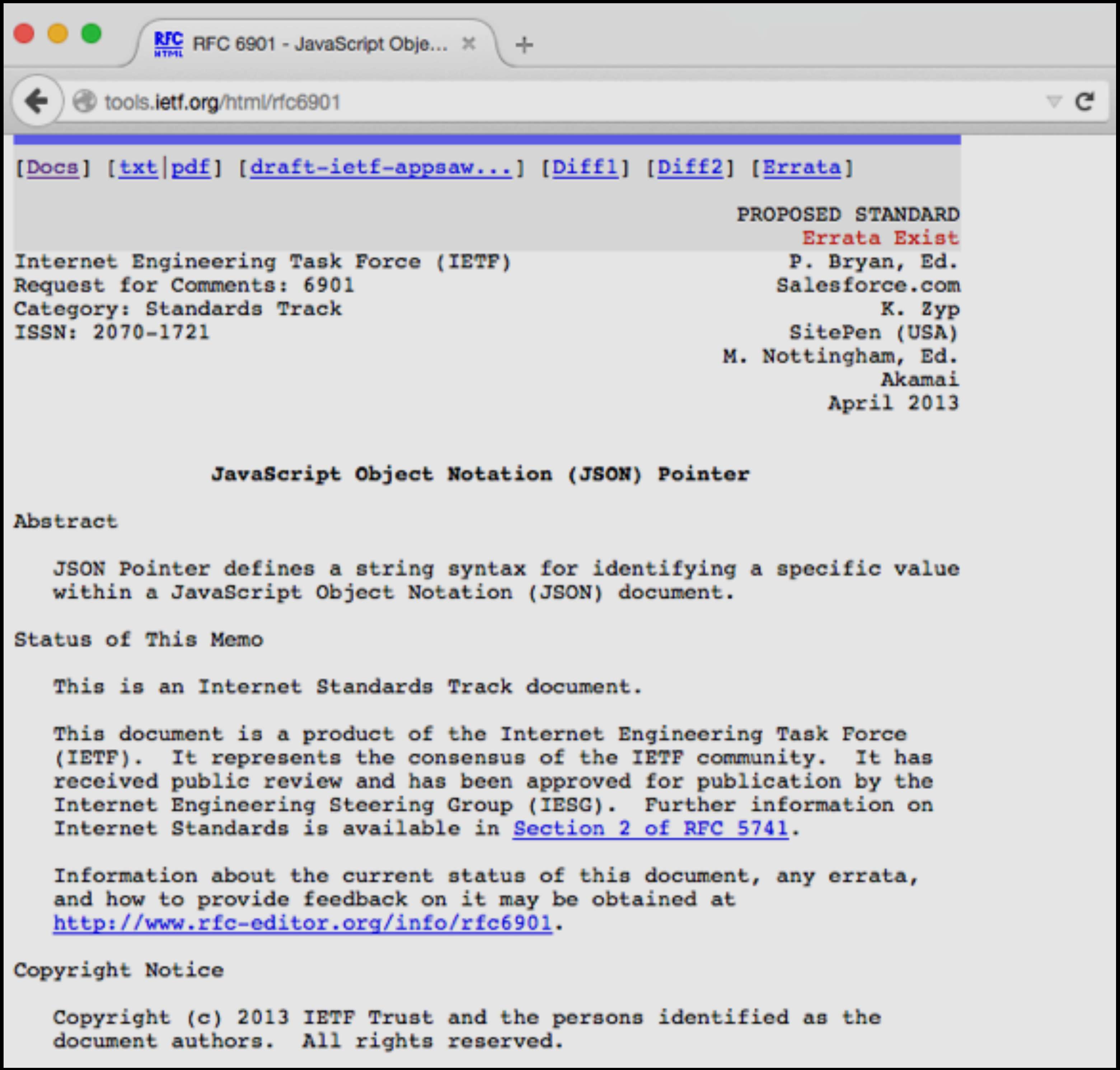


```

42 instance of integer  # true
42 instance of decimal  # true
42.6 instance of decimal  # true
42.6e10 instance of double  # true
"fred" instance of string  # true
true instance of boolean  # true
null instance of null  # true


"Douglas" || " " || "Crockford",  # Douglas Crockford
"Douglas" || () || "Crockford"        # DouglasCrockford

[ "question", "answer" ][][1]  #  "question"

{
  questions: [
    "What JSON Search too should I use?",
    { "faq" : "We're still figuring out out." }
  ]
}.questions[][2].faq          # "We're still figuring out out."

```

JSONiq Scorecard

Mind Share	N?
Dev Community	Y?
Platforms	Zorba.io
Intuitive	Y?
Standard	N

JSON Pointer



RFC 6901 - JavaScript Obje...

tools.ietf.org/html/rfc6901

```
[Docs] [txt|pdf] [draft-ietf-appsaw...] [Diff1] [Diff2] [Errata]

                                                       PROPOSED STANDARD
                                                            Errata Exist
Internet Engineering Task Force (IETF)                      P. Bryan, Ed.
Request for Comments: 6901                                Salesforce.com
Category: Standards Track                                         K. Zyp
ISSN: 2070-1721                                            SitePen (USA)
                                                       M. Nottingham, Ed.
                                                                  Akamai
                                                              April 2013


              JavaScript Object Notation (JSON) Pointer

Abstract

   JSON Pointer defines a string syntax for identifying a specific value
   within a JavaScript Object Notation (JSON) document.

Status of This Memo

   This is an Internet Standards Track document.

   This document is a product of the Internet Engineering Task Force
   (IETF).  It represents the consensus of the IETF community.  It has
   received public review and has been approved for publication by the
   Internet Engineering Steering Group (IESG).  Further information on
   Internet Standards is available in Section 2 of RFC 5741.

   Information about the current status of this document, any errata,
   and how to provide feedback on it may be obtained at
   http://www.rfc-editor.org/info/rfc6901.

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```
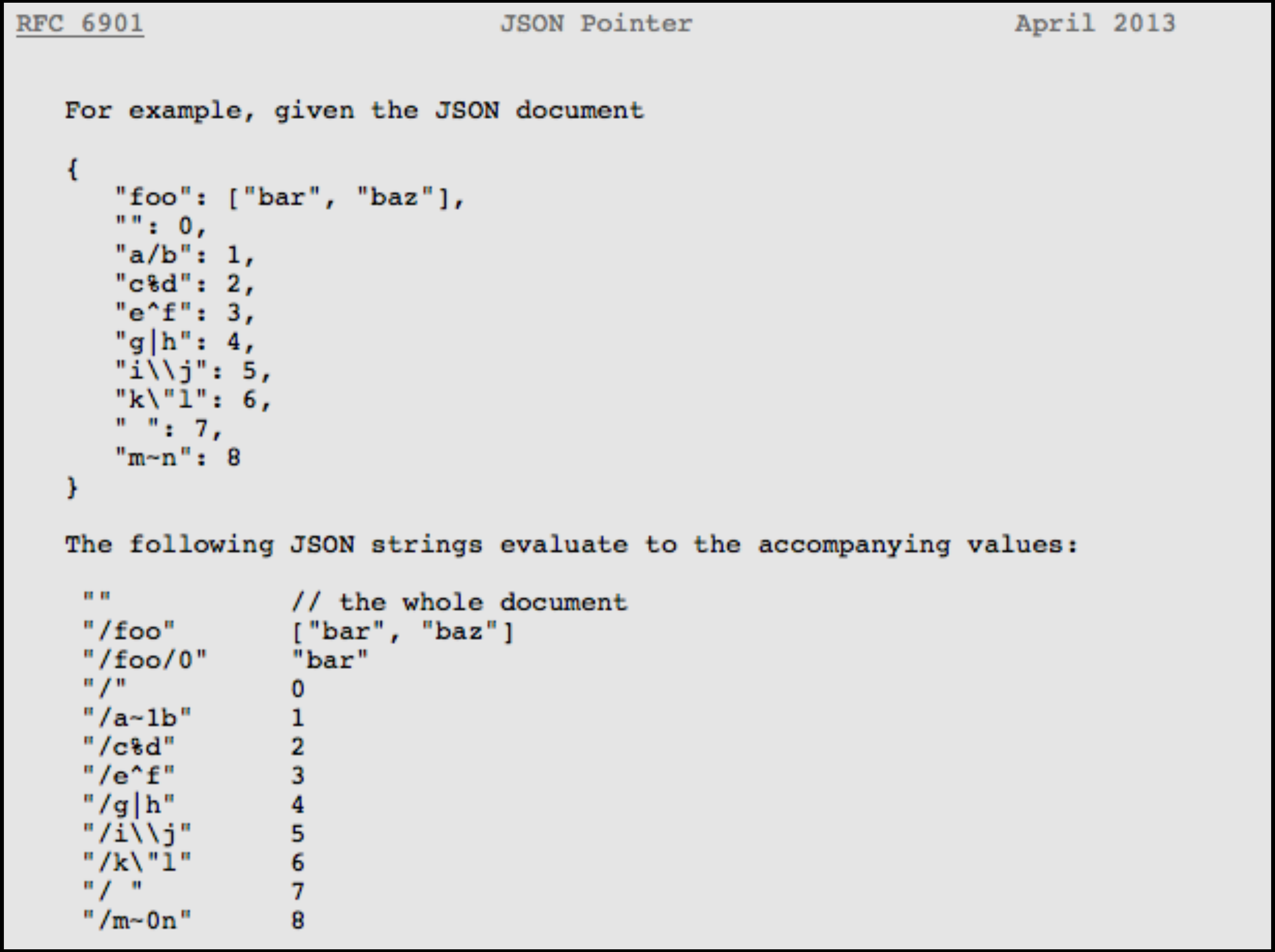
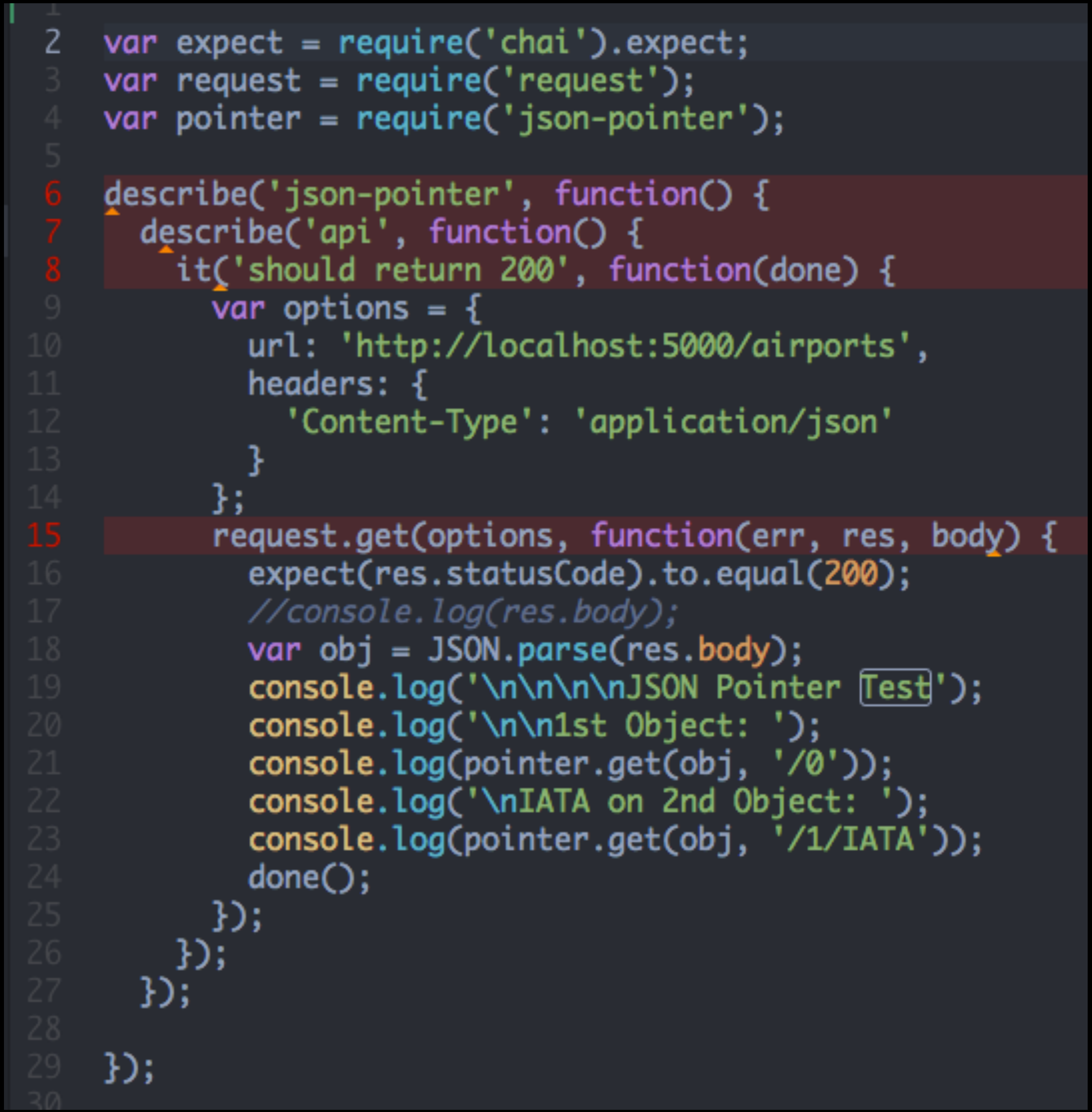

JSON Pointer Syntax



```
RFC 6901                       JSON Pointer                     April 2013


   For example, given the JSON document

   {
      "foo": ["bar", "baz"],
      "": 0,
      "a/b": 1,
      "c%d": 2,
      "e^f": 3,
      "g|h": 4,
      "i\\j": 5,
      "k\"l": 6,
      " ": 7,
      "m~n": 8
   }

   The following JSON strings evaluate to the accompanying values:

    ""           // the whole document
    "/foo"       ["bar", "baz"]
    "/foo/0"     "bar"
    "/"          0
    "/a~1b"      1
    "/c%d"       2
    "/e^f"       3
    "/g|h"       4
    "/i\\j"      5
    "/k\"l"      6
    "/ "         7
    "/m~0n"      8
```

JSON Pointer Testing

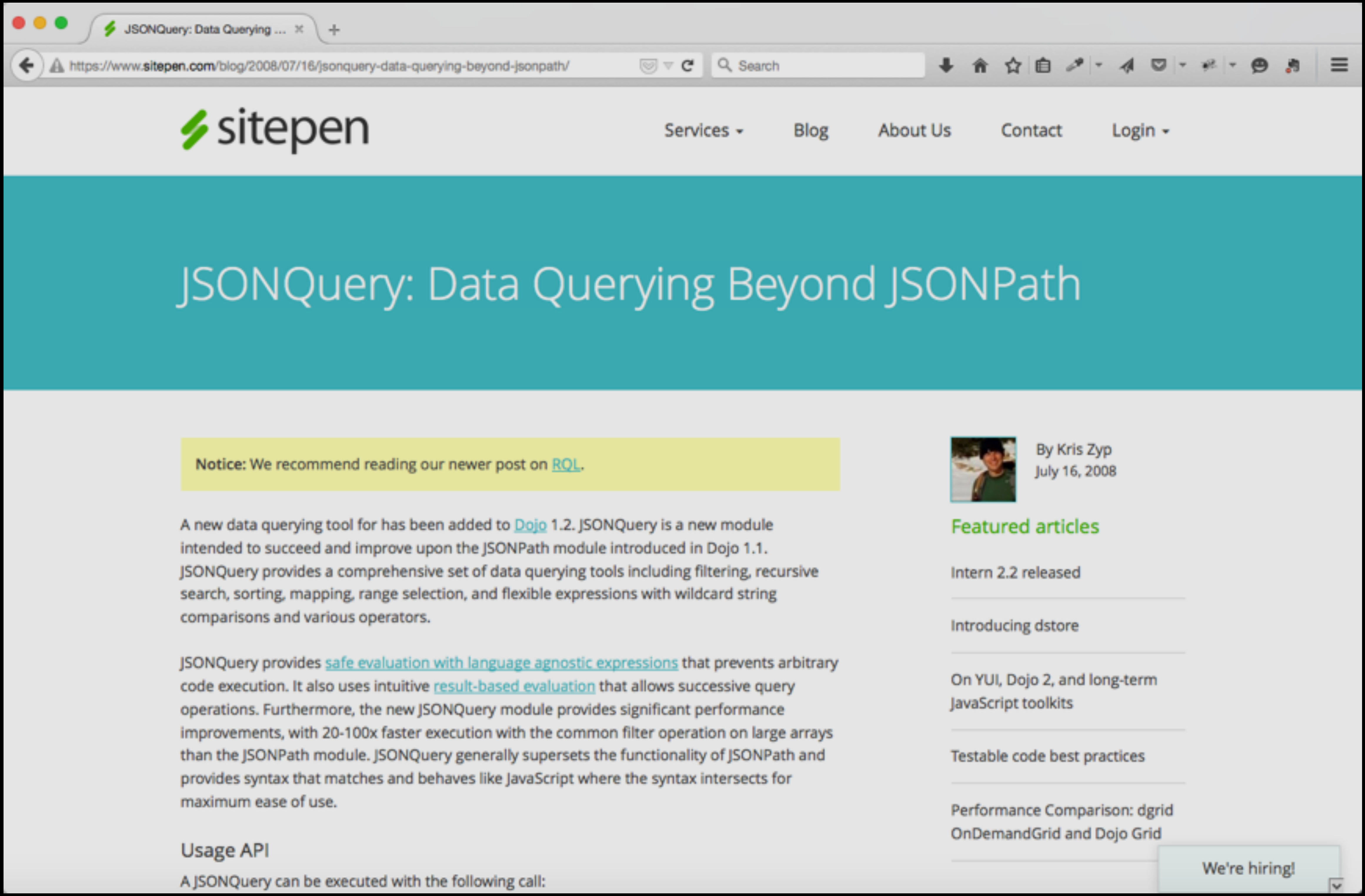


```

var expect = require('chai').expect;
var request = require('request');
var pointer = require('json-pointer');

describe('json-pointer', function() {
  describe('api', function() {
    it('should return 200', function(done) {
      var options = {
        url: 'http://localhost:5000/airports',
        headers: {
          'Content-Type': 'application/json'
        }
      };
      request.get(options, function(err, res, body) {
        expect(res.statusCode).to.equal(200);
        //console.log(res.body);
        var obj = JSON.parse(res.body);
        console.log('\n\n\n\nJSON Pointer Test');
        console.log('\n\n1st Object: ');
        console.log(pointer.get(obj, '/0'));
        console.log('\nIATA on 2nd Object: ');
        console.log(pointer.get(obj, '/1/IATA'));
        done();
      });
    });
  });

});
```

JSON Pointer Scorecard

Mind Share	Y?
Dev Community	Y
Platforms	JavaScript, Node.js, Java, Ruby, etc.
Intuitive	Y
Standard	RFC 6901 - Woot!

JSON Query


JSONQuery: Data Querying ...
https://www.sitepen.com/blog/2008/07/16/jsonquery-data-querying-beyond-jsonpath/
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JSONQuery: Data Querying Beyond JSONPath

Notice: We recommend reading our newer post on RQL.

By Kris Zyp
July 16, 2008

A new data querying tool for has been added to Dojo 1.2. JSONQuery is a new module intended to succeed and improve upon the JSONPath module introduced in Dojo 1.1. JSONQuery provides a comprehensive set of data querying tools including filtering, recursive search, sorting, mapping, range selection, and flexible expressions with wildcard string comparisons and various operators.

JSONQuery provides safe evaluation with language agnostic expressions that prevents arbitrary code execution. It also uses intuitive result-based evaluation that allows successive query operations. Furthermore, the new JSONQuery module provides significant performance improvements, with 20-100x faster execution with the common filter operation on large arrays than the JSONPath module. JSONQuery generally supersets the functionality of JSONPath and provides syntax that matches and behaves like JavaScript where the syntax intersects for maximum ease of use.

Usage API

A JSONQuery can be executed with the following call:

Featured articles

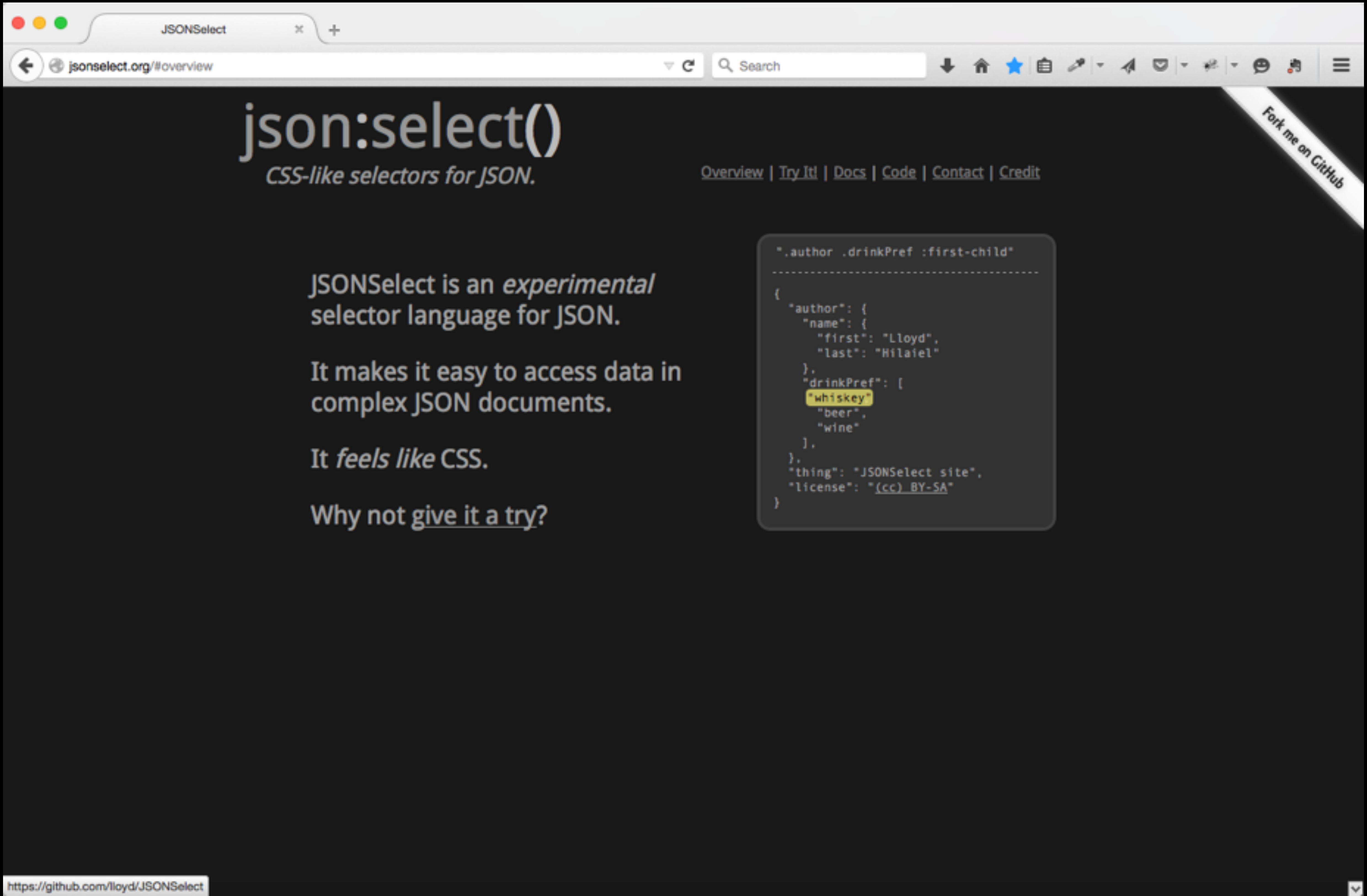
- Intern 2.2 released
- Introducing dstore
- On YUI, Dojo 2, and long-term JavaScript toolkits
- Testable code best practices
- Performance Comparison: dgrid OnDemandGrid and Dojo Grid

We're hiring!

JSON Query Scorecard

Mind Share	N?
Dev Community	N?
Platforms	JavaScript, Node.js
Intuitive	Y
Standard	N

json:select



json:select()

CSS-like selectors for JSON.

Overview | Try It! | Docs | Code | Contact | Credit

JSONSelect is an *experimental* selector language for JSON.

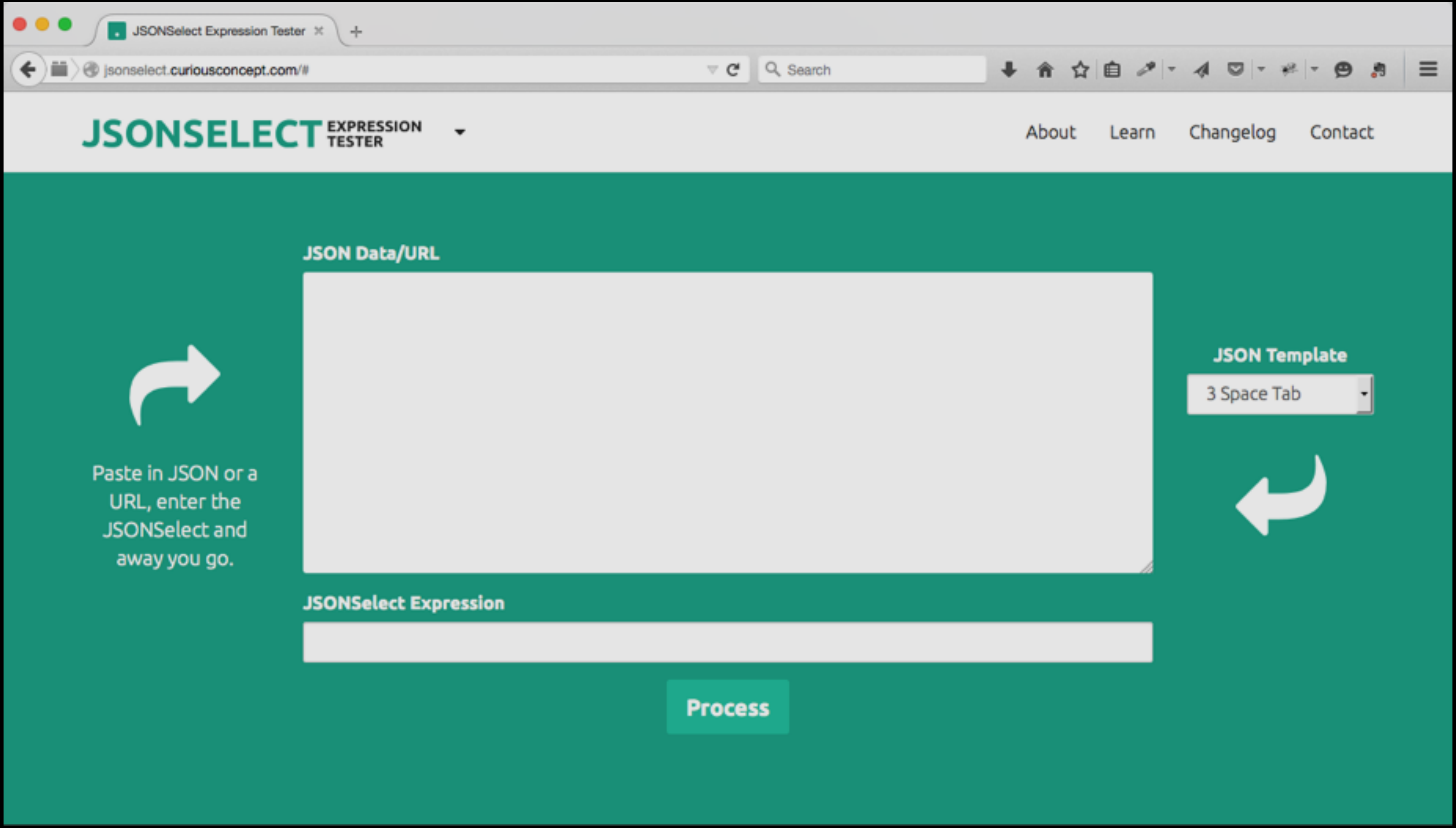
It makes it easy to access data in complex JSON documents.

It *feels like* CSS.

Why not give it a try?

```
".author .drinkPref :first-child"
----------------------------------------
{
  "author": {
    "name": {
      "first": "Lloyd",
      "last": "Hilaiel"
    },
    "drinkPref": [
      "whiskey",
      "beer",
      "wine"
    ],
  },
  "thing": "JSONSelect site",
  "license": "(cc) BY-SA"
}
```

json:select Expression Tester


JSONSelect Expression Tester
jsonselect.curiousconcept.com/#
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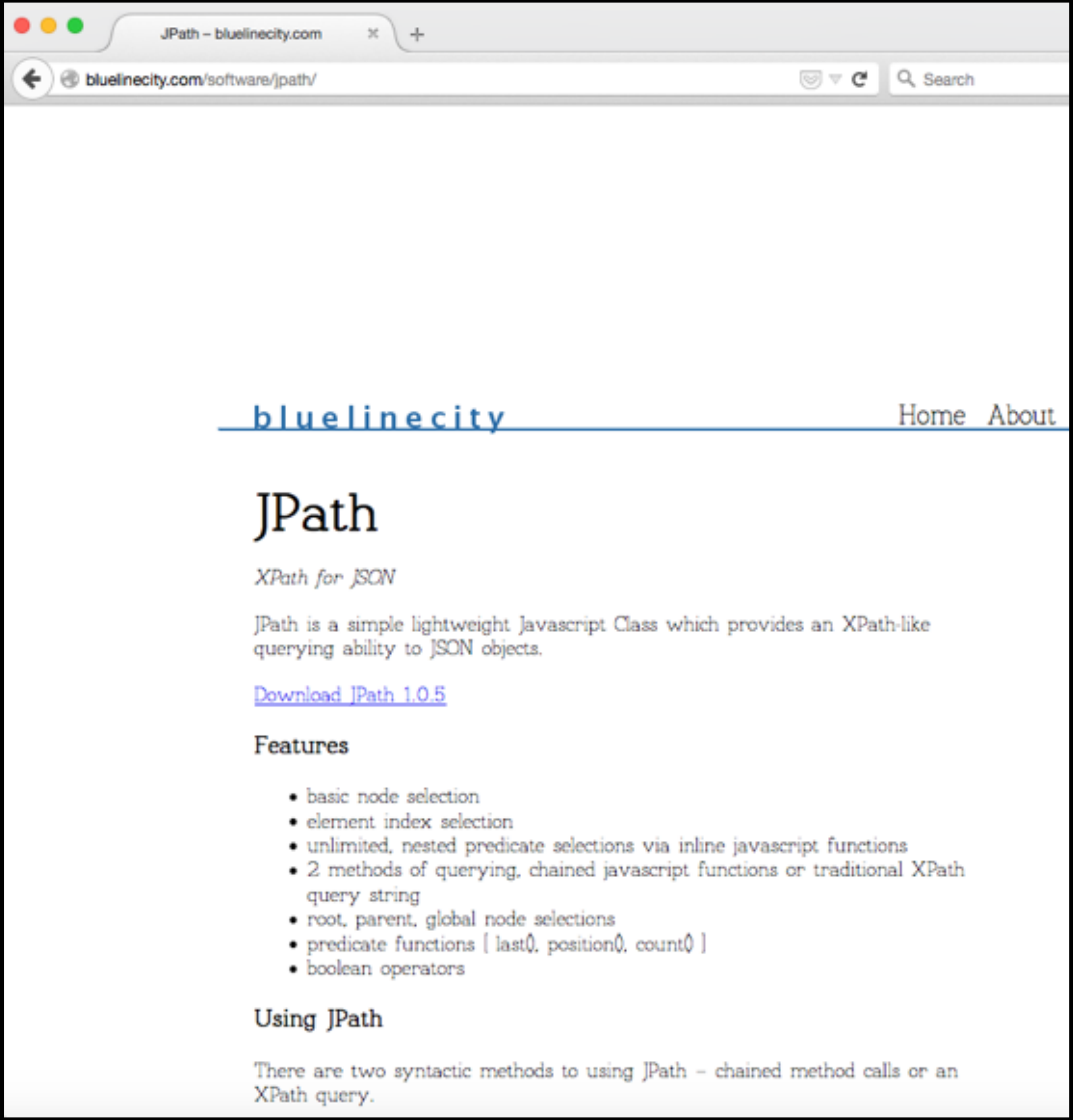
JSONSELECT EXPRESSION TESTER
About
Learn
Changelog
Contact
JSON Data/URL
Paste in JSON or a URL, enter the JSONSelect and away you go.
JSON Template
3 Space Tab
JSONSelect Expression
Process

json:select Demo

json:select Scorecard

Mind Share	Y?
Dev Community	Y?
Platforms	JavaScript, Node.js, Ruby
Intuitive	Y - CSS
Standard	N

JPath



JPath

XPath for JSON

JPath is a simple lightweight Javascript Class which provides an XPath-like querying ability to JSON objects.

Download JPath 1.0.5

Features

- basic node selection
- element index selection
- unlimited, nested predicate selections via inline javascript functions
- 2 methods of querying, chained javascript functions or traditional XPath query string
- root, parent, global node selections
- predicate functions [last(), position(), count()]
- boolean operators

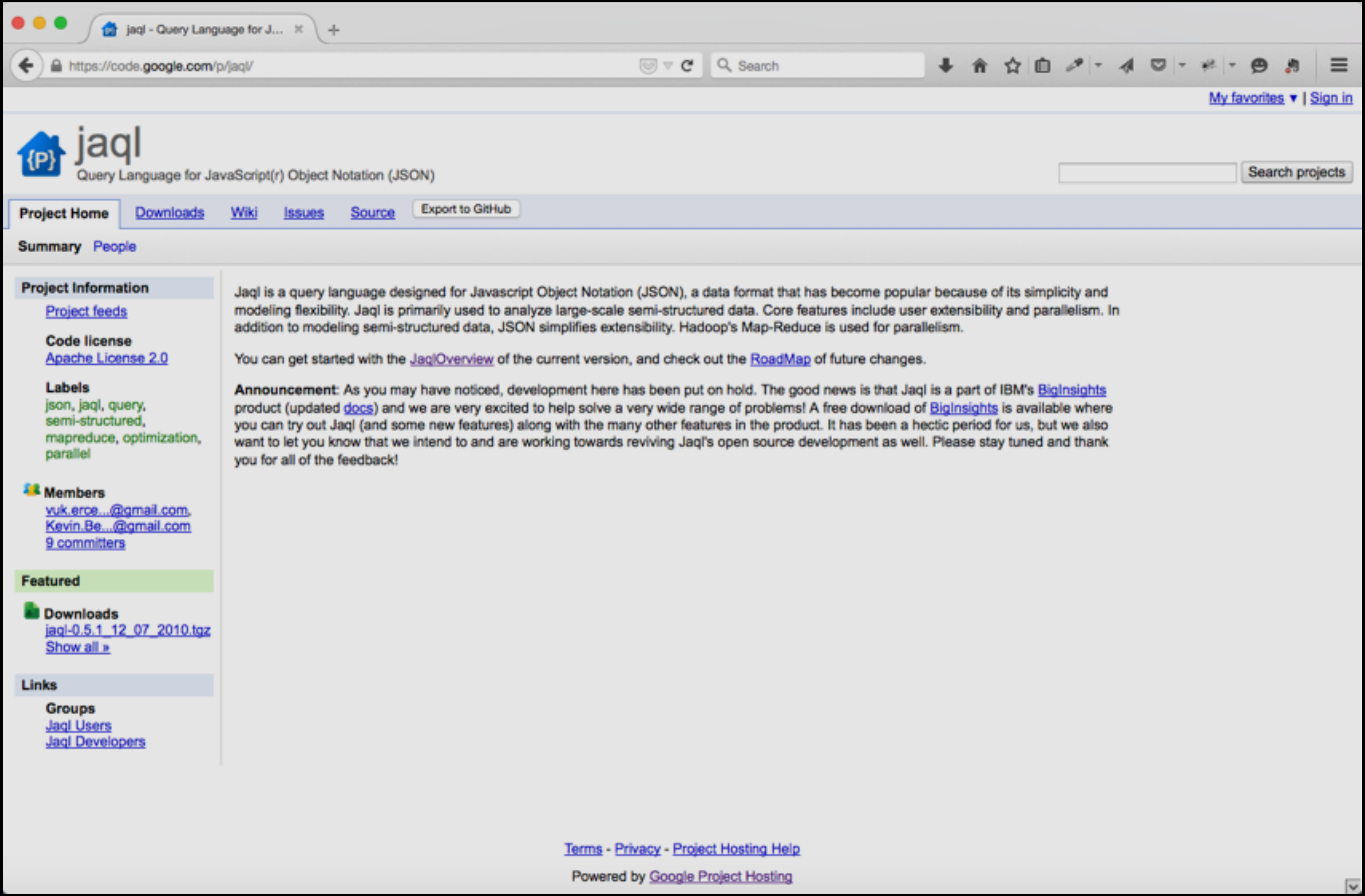
Using JPath

There are two syntactic methods to using JPath – chained method calls or an XPath query.

JPath Scorecard

Mind Share	N
Dev Community	Y?
Platforms	JavaScript, Node.js, Ruby
Intuitive	Y
Standard	N

Jaql



jaql

Query Language for JavaScript(r) Object Notation (JSON)

Project Information

Project feeds

Code license
Apache License 2.0

Labels
json, jaql, query, semi-structured, mapreduce, optimization, parallel

Members
vuk.erce...@gmail.com, Kevin.Be...@gmail.com
9 committers

Featured

Downloads
jaql-0.5.1_12_07_2010.tgz
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Links

Groups
Jaql Users
Jaql Developers

Jaql is a query language designed for Javascript Object Notation (JSON), a data format that has become popular because of its simplicity and modeling flexibility. Jaql is primarily used to analyze large-scale semi-structured data. Core features include user extensibility and parallelism. In addition to modeling semi-structured data, JSON simplifies extensibility. Hadoop's Map-Reduce is used for parallelism.

You can get started with the JaqlOverview of the current version, and check out the RoadMap of future changes.

Announcement: As you may have noticed, development here has been put on hold. The good news is that Jaql is a part of IBM's BigInsights product (updated docs) and we are very excited to help solve a very wide range of problems! A free download of BigInsights is available where you can try out Jaql (and some new features) along with the many other features in the product. It has been a hectic period for us, but we also want to let you know that we intend to and are working towards reviving Jaql's open source development as well. Please stay tuned and thank you for all of the feedback!

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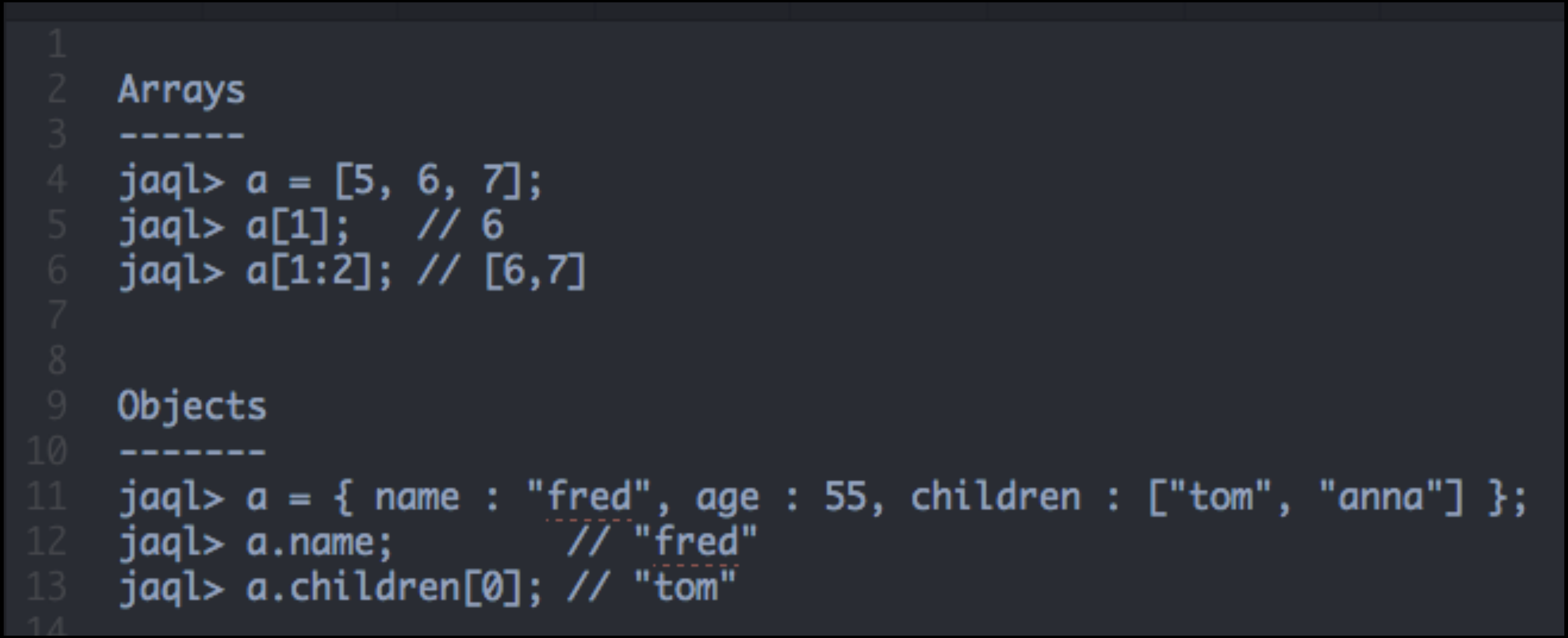
Jaql Example



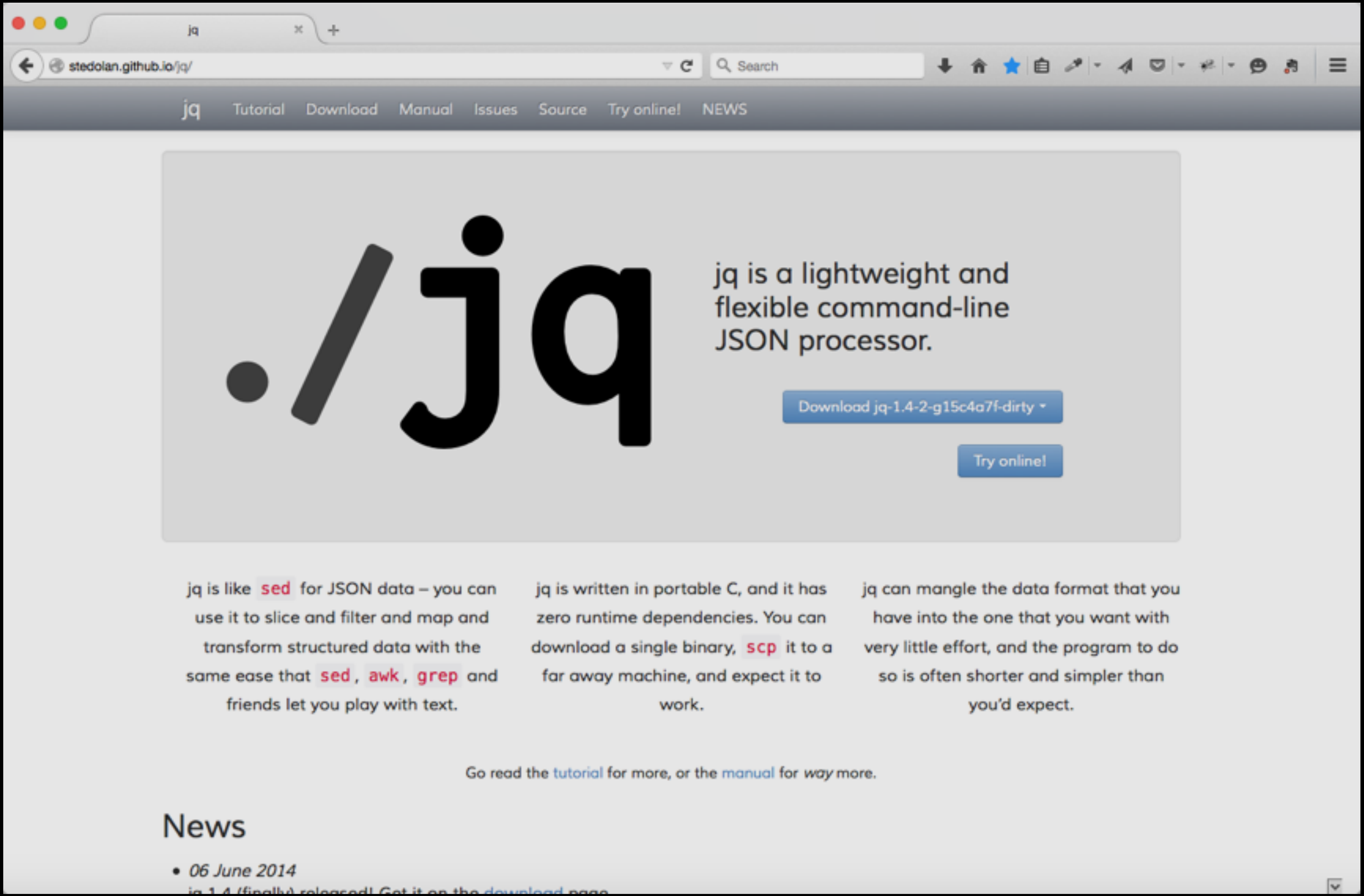
```
Arrays
------
jaql> a = [5, 6, 7];
jaql> a[1];   // 6
jaql> a[1:2]; // [6,7]


Objects
-------
jaql> a = { name : "fred", age : 55, children : ["tom", "anna"] };
jaql> a.name;         // "fred"
jaql> a.children[0]; // "tom"
```

Jaql Scorecard

Mind Share	N
Dev Community	N?
Platforms	JaqlShell, Hadoop
Intuitive	Y
Standard	N

jq


jq
stedolan.github.io/jq/
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./jq
Download jq-1.4-2-g15c4a7f-dirty
Try online!

jq is a lightweight and flexible command-line JSON processor.

jq is like `sed` for JSON data – you can use it to slice and filter and map and transform structured data with the same ease that `sed`, `awk`, `grep` and friends let you play with text.

jq is written in portable C, and it has zero runtime dependencies. You can download a single binary, `scp` it to a far away machine, and expect it to work.

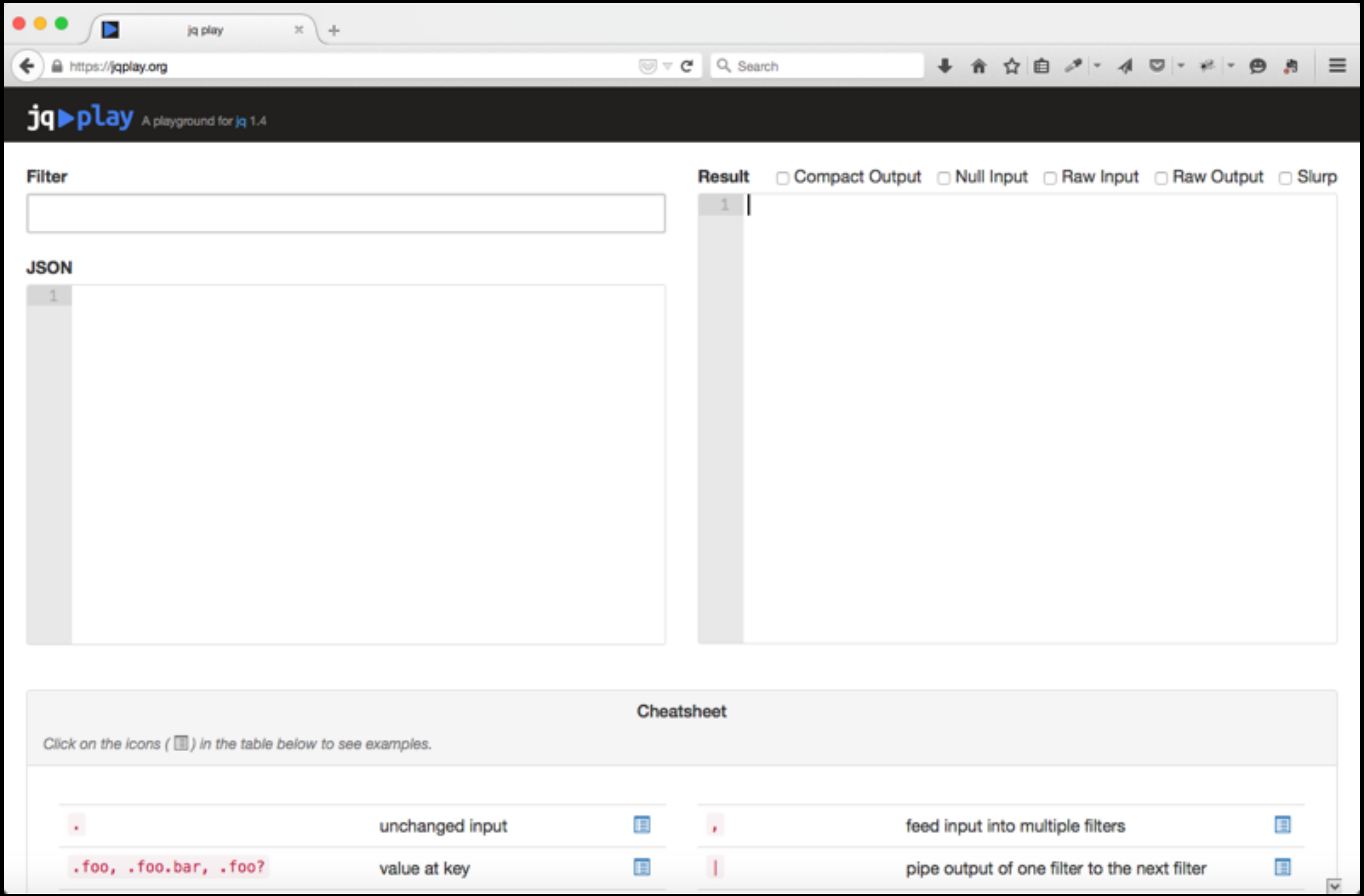
jq can mangle the data format that you have into the one that you want with very little effort, and the program to do so is often shorter and simpler than you'd expect.

Go read the tutorial for more, or the manual for *way* more.

News

- *06 June 2014*

jq play

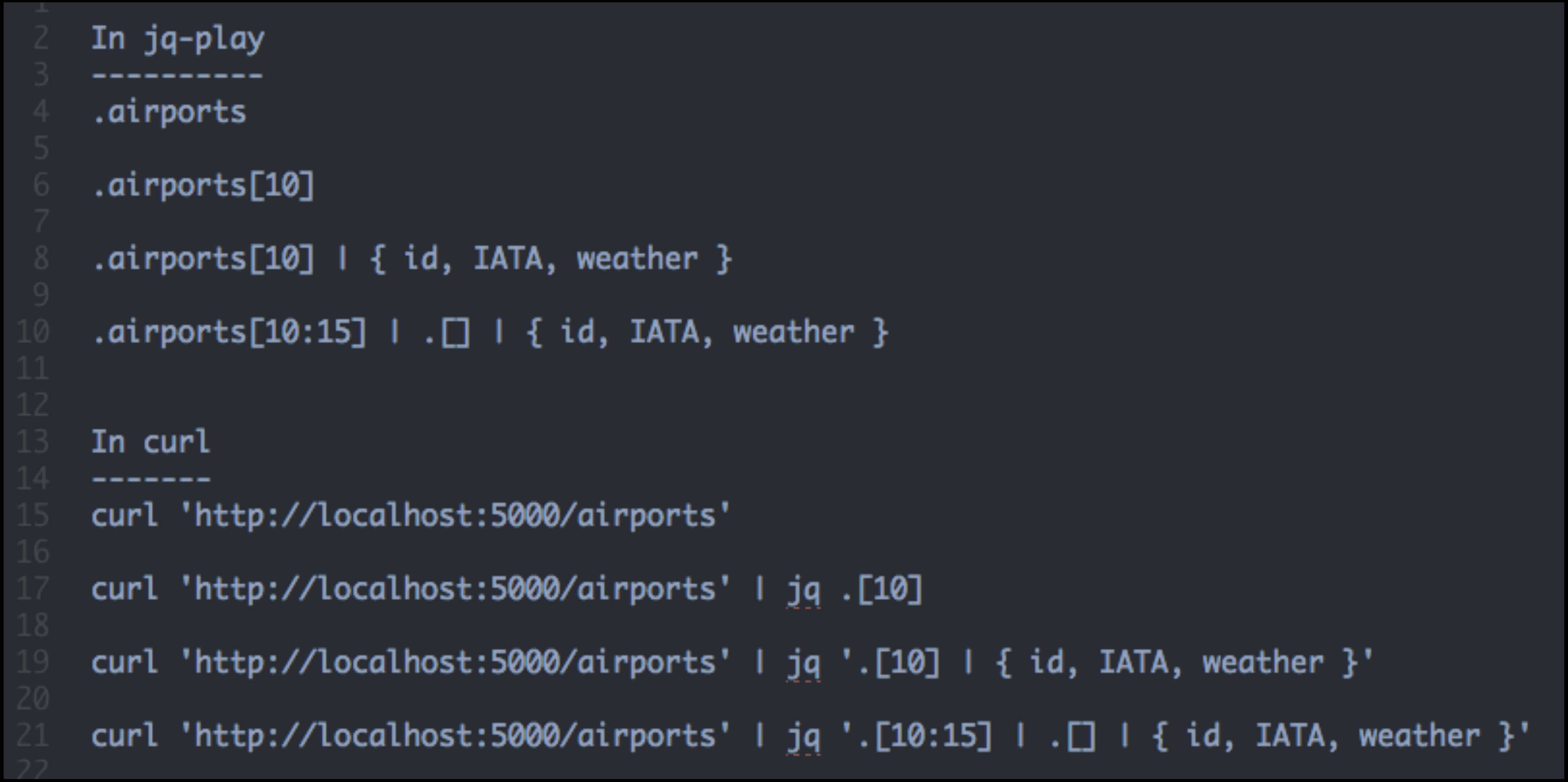


Cheatsheet

Click on the icons ( ) in the table below to see examples.

`.`	unchanged input	`,`	feed input into multiple filters
`.foo, .foo.bar, .foo?`	value at key	`|`	pipe output of one filter to the next filter

jq Examples



```
In jq-play
----------
.airports

.airports[10]

.airports[10] | { id, IATA, weather }

.airports[10:15] | .[] | { id, IATA, weather }


In curl
-------
curl 'http://localhost:5000/airports'

curl 'http://localhost:5000/airports' | jq .[10]

curl 'http://localhost:5000/airports' | jq '.[10] | { id, IATA, weather }'

curl 'http://localhost:5000/airports' | jq '.[10:15] | .[] | { id, IATA, weather }'
```

jq Scorecard

Mind Share	Y
Dev Community	Y
Platforms	CLI - Linux / Mac OS X / Windows
Intuitive	Y
Standard	N

My JSON Search Choices

API / Product	Type	Rank
JSON Pointer	**API**	**1**
JSON Path	API	2
json:select	API	3
JPath	API	3
JSON Query	API	4

My JSON Search Choices

API/Product	Type	Rank
jq	CLI	1

My JSON Search Choices

API/Product	**Type**	**Rank**
Jaql	**Shell**	**1**
JSONiq	Shell	2

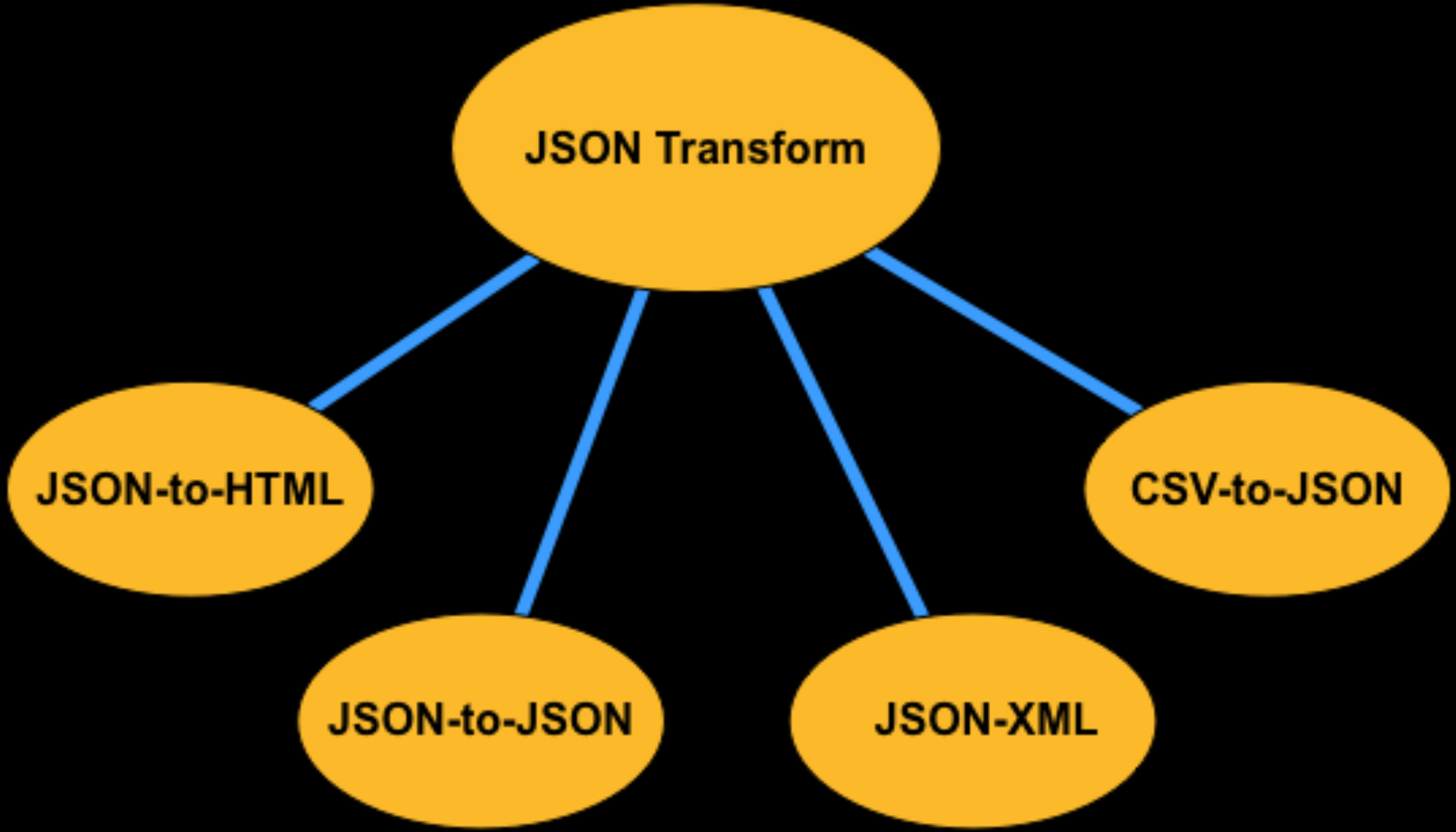
Where Are We?

Overview

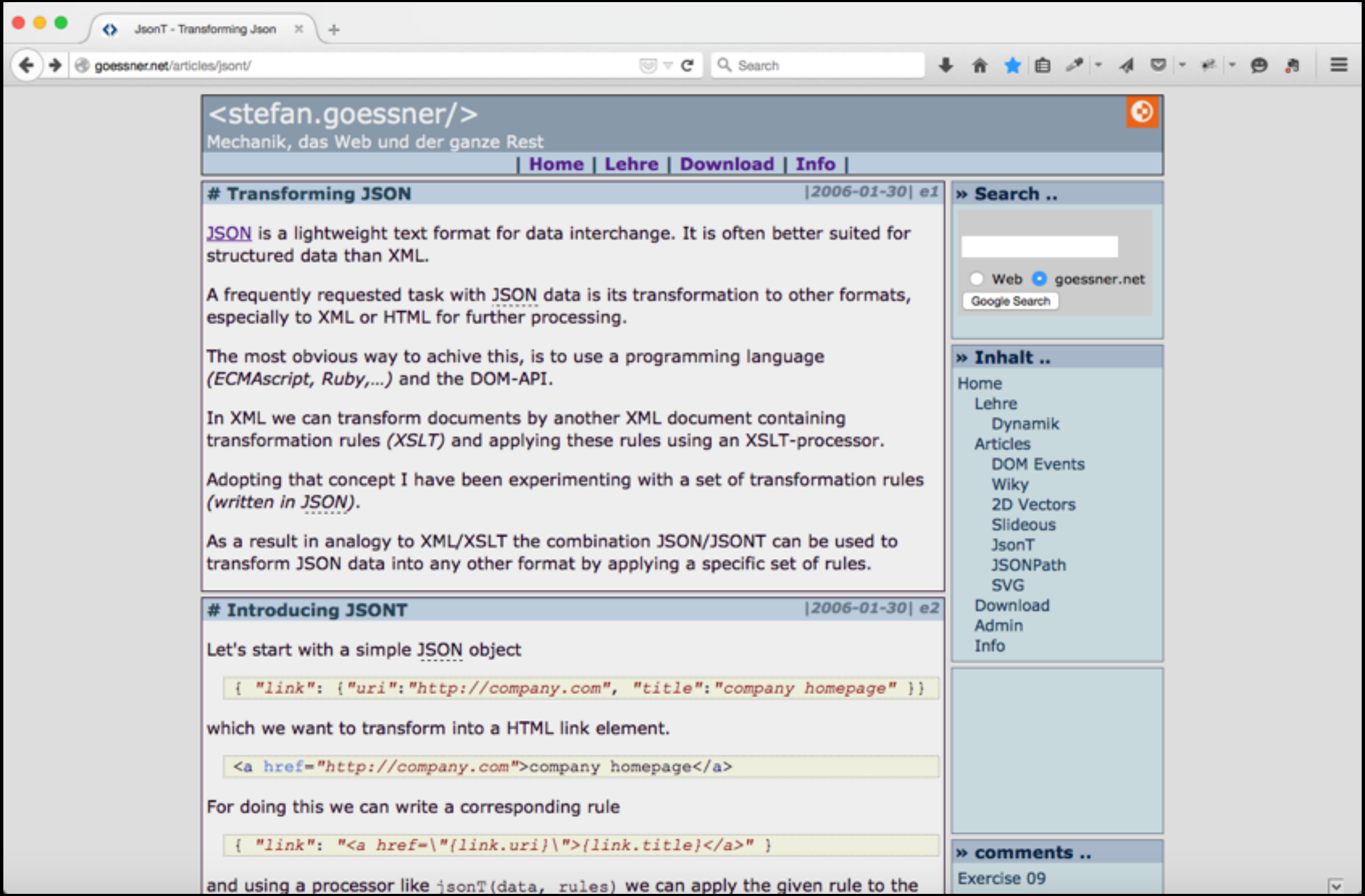
JSON Search

JSON Transform

JSON Transform



JSON-T



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Mechanik, das Web und der ganze Rest

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# Transforming JSON |2006-01-30| e1

JSON is a lightweight text format for data interchange. It is often better suited for structured data than XML.

A frequently requested task with JSON data is its transformation to other formats, especially to XML or HTML for further processing.

The most obvious way to achive this, is to use a programming language *(ECMAscript, Ruby,...)* and the DOM-API.

In XML we can transform documents by another XML document containing transformation rules *(XSLT)* and applying these rules using an XSLT-processor.

Adopting that concept I have been experimenting with a set of transformation rules *(written in JSON)*.

As a result in analogy to XML/XSLT the combination JSON/JSONT can be used to transform JSON data into any other format by applying a specific set of rules.

# Introducing JSONT |2006-01-30| e2

Let's start with a simple JSON object

```
{ "link": {"uri":"http://company.com", "title":"company homepage" }}
```

which we want to transform into a HTML link element.

```
<a href="http://company.com">company homepage</a>
```

For doing this we can write a corresponding rule

```
{ "link": "<a href=\"{link.uri}\">{link.title}</a>" }
```

and using a processor like `jsonT(data, rules)` we can apply the given rule to the

» Search ..

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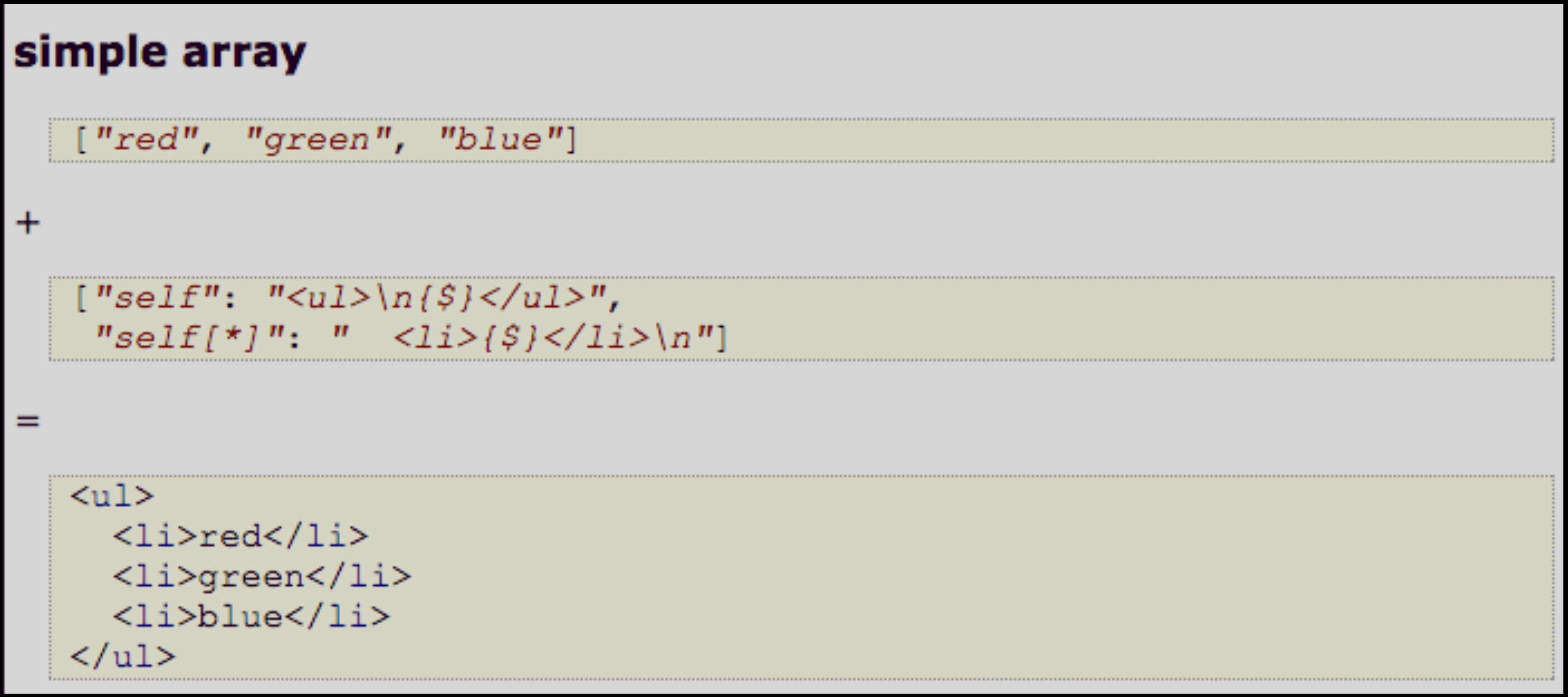
Exercise 09

JSON-T Example



simple array

```
["red", "green", "blue"]
```

+

```
["self": "<ul>\n{$}</ul>",
 "self[*]": "  <li>{$}</li>\n"]
```

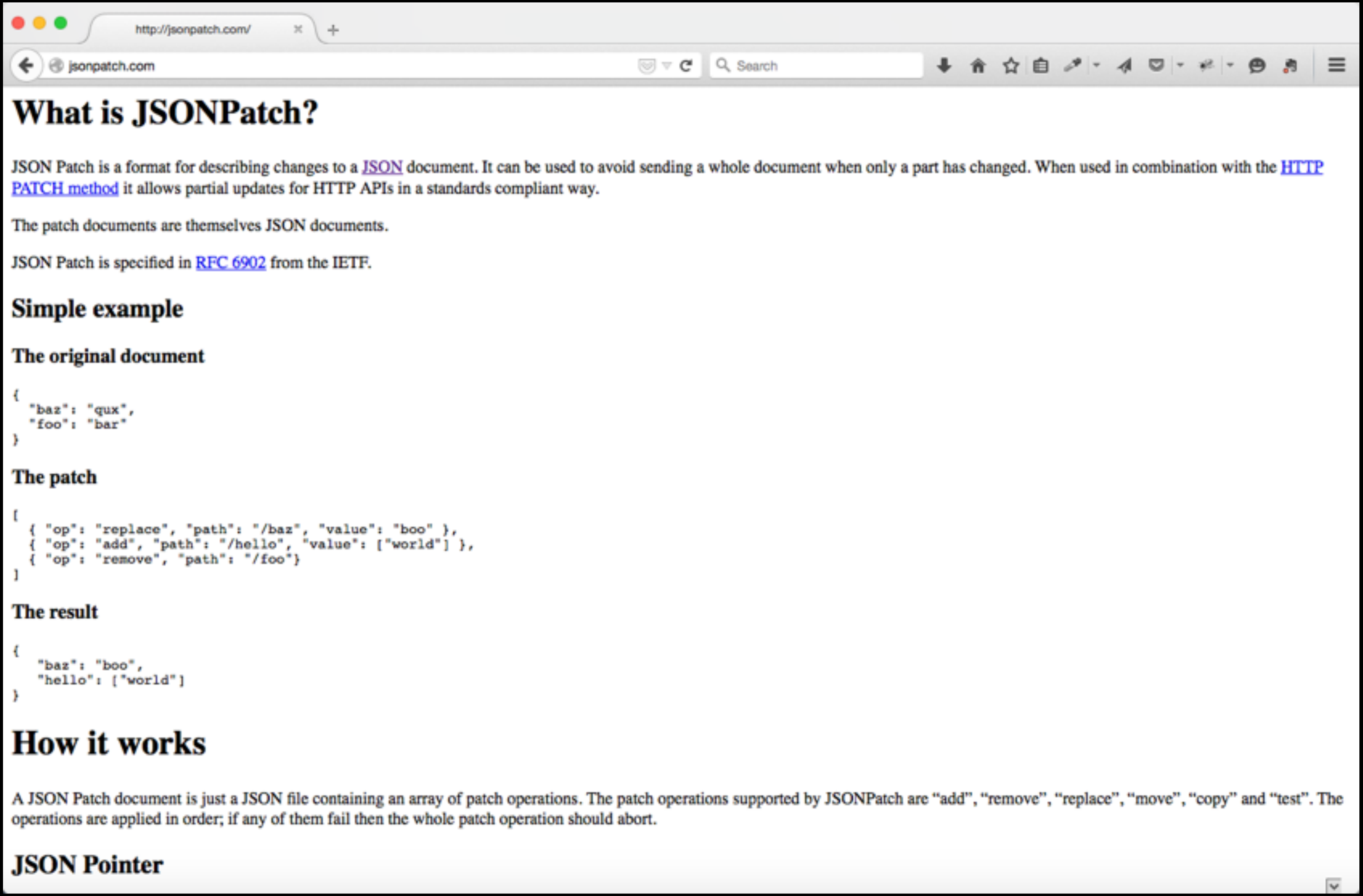
=

```
<ul>
  <li>red</li>
  <li>green</li>
  <li>blue</li>
</ul>
```

JSON-T Scorecard

Mind Share	N
Dev Community	N
Platforms	JavaScript, Node.js
Intuitive	Y
Standard	N

JSON Patch



What is JSONPatch?

JSON Patch is a format for describing changes to a JSON document. It can be used to avoid sending a whole document when only a part has changed. When used in combination with the HTTP PATCH method it allows partial updates for HTTP APIs in a standards compliant way.

The patch documents are themselves JSON documents.

JSON Patch is specified in RFC 6902 from the IETF.

Simple example

The original document

```
{
  "baz": "qux",
  "foo": "bar"
}
```

The patch

```
[
  { "op": "replace", "path": "/baz", "value": "boo" },
  { "op": "add", "path": "/hello", "value": ["world"] },
  { "op": "remove", "path": "/foo"}
]
```

The result

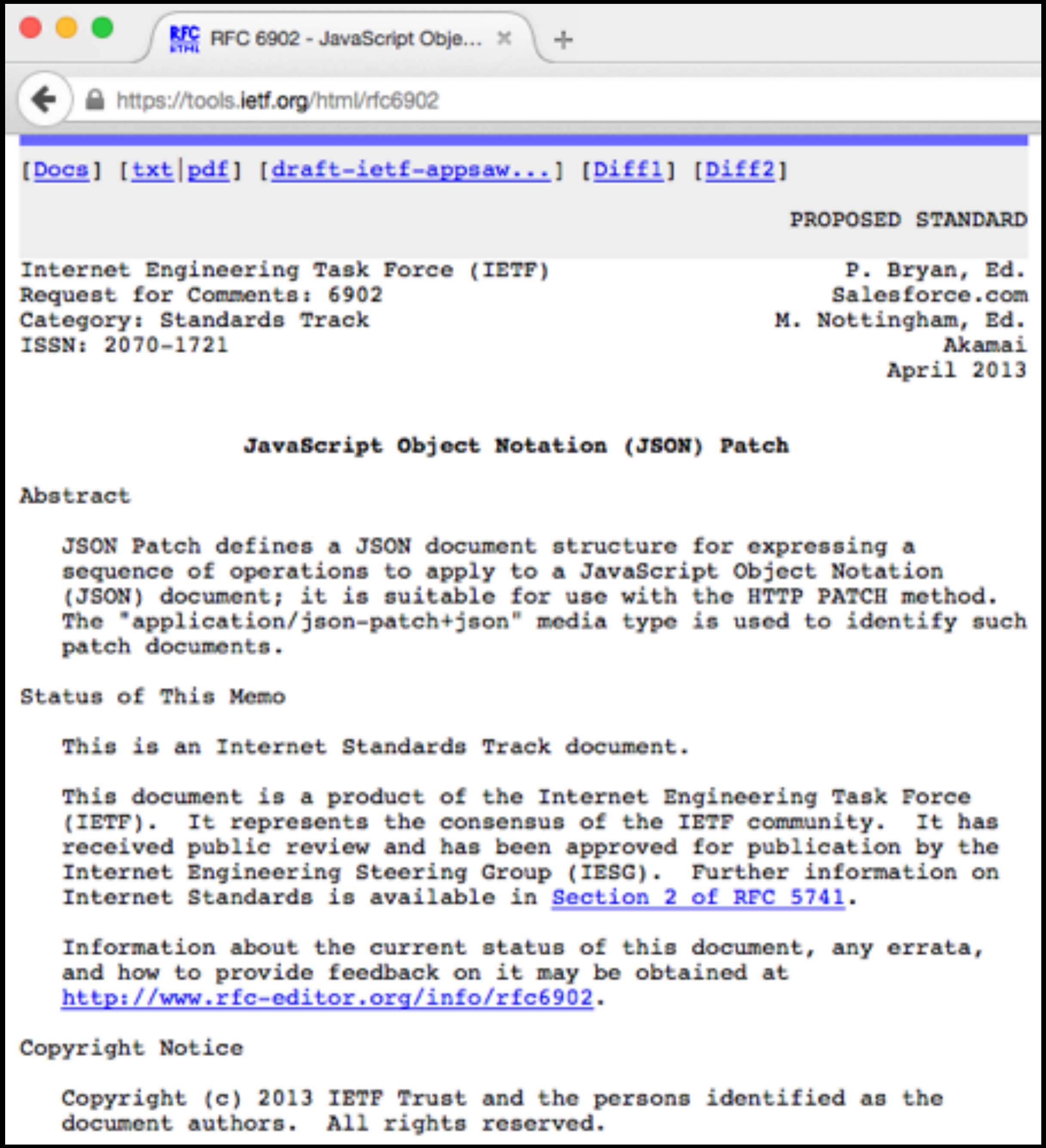
```
{
   "baz": "boo",
   "hello": ["world"]
}
```

How it works

A JSON Patch document is just a JSON file containing an array of patch operations. The patch operations supported by JSONPatch are “add”, “remove”, “replace”, “move”, “copy” and “test”. The operations are applied in order; if any of them fail then the whole patch operation should abort.

JSON Pointer

JSON Patch Standard



RFC 6902 - JavaScript Obje...

https://tools.ietf.org/html/rfc6902

[Docs] [txt|pdf] [draft-ietf-appsaw...] [Diff1] [Diff2]

PROPOSED STANDARD

```
Internet Engineering Task Force (IETF)                    P. Bryan, Ed.
Request for Comments: 6902                               Salesforce.com
Category: Standards Track                           M. Nottingham, Ed.
ISSN: 2070-1721                                                 Akamai
                                                            April 2013
```

JavaScript Object Notation (JSON) Patch

Abstract

JSON Patch defines a JSON document structure for expressing a sequence of operations to apply to a JavaScript Object Notation (JSON) document; it is suitable for use with the HTTP PATCH method. The "application/json-patch+json" media type is used to identify such patch documents.

Status of This Memo

This is an Internet Standards Track document.

This document is a product of the Internet Engineering Task Force (IETF). It represents the consensus of the IETF community. It has received public review and has been approved for publication by the Internet Engineering Steering Group (IESG). Further information on Internet Standards is available in Section 2 of RFC 5741.

Information about the current status of this document, any errata, and how to provide feedback on it may be obtained at http://www.rfc-editor.org/info/rfc6902.

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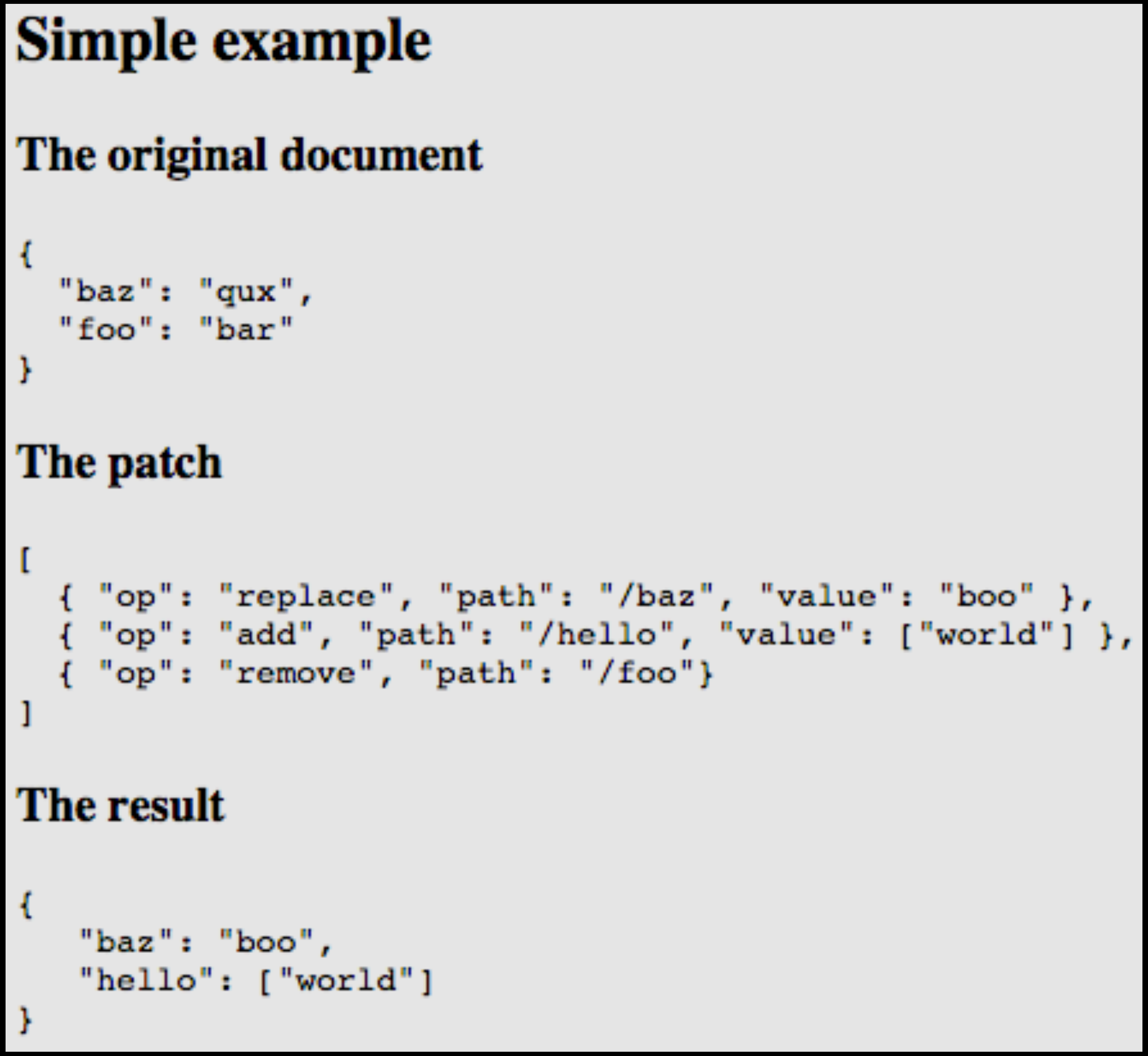
JSON Patch Example



Simple example

The original document

```
{
  "baz": "qux",
  "foo": "bar"
}
```

The patch

```
[
  { "op": "replace", "path": "/baz", "value": "boo" },
  { "op": "add", "path": "/hello", "value": ["world"] },
  { "op": "remove", "path": "/foo"}
]
```

The result

```
{
   "baz": "boo",
   "hello": ["world"]
}
```

JSON Patch Scorecard

Mind Share	Y?
Dev Community	Y
Platforms	JavaScript, Node.js, Java, Ruby, etc.
Intuitive	Y
Standard	RFC 6902 - Yes!

My JSON Transform Choices

API / Product	Type	Rank
JSON Patch	**JSON-to-JSON**	1
JSON-T	JSON-to-JSON	2

Our Agenda

Overview

JSON Search

JSON Transform

What's The Point?

JSON Search and Transform …

Simplify interaction with RESTful APIs

Questions?

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@TomMarrs

JSON Resources

JSON Spec - http://tools.ietf.org/html/rfc4627

JSON.org - http://www.json.org

JSONLint - http://www.jsonlint.com

JSON Editor Online - http://jsoneditoronline.org/

JSON Resources

JSONiq - http://www.jsoniq.org/

JSONT - http://goessner.net/articles/jsont/

JSONPath Resources

http://goessner.net/articles/JsonPath/

https://github.com/jayway/JsonPath

https://rubygems.org/gems/jsonpath/versions/0.5.6

https://www.npmjs.com/package/json-path

https://www.npmjs.com/package/jsonpath

JSON Pointer Resources

https://tools.ietf.org/html/rfc6901

https://www.npmjs.com/package/json-pointer

https://rubygems.org/gems/json-pointer

https://github.com/fge/jackson-coreutils

http://susanpotter.net/blogs/software/2011/07/why-json-pointer-falls-short/

https://zato.io/blog/posts/json-pointer-rfc-6901.html

JSON Query Resources

https://github.com/jcrosby/jsonquery

https://github.com/mmckegg/json-query

https://www.npmjs.com/package/json-query

json:select Resources

http://jsonselect.org/#overview

https://github.com/lloyd/JSONSelect

https://github.com/lloyd/JSONSelect/blob/master/JSONSelect.md

https://www.npmjs.com/package/JSONSelect

https://github.com/fd/json_select

JPath Resources

http://bluelinecity.com/software/jpath/

https://www.npmjs.com/package/jpath

https://www.npmjs.com/package/node-jpath

https://github.com/merimond/jpath

jaql Resources

https://code.google.com/p/jaql/

http://www.havlena.net/en/programming/jaql-in-hadoop-a-brief-introduction/

http://www-01.ibm.com/support/knowledgecenter/SSPT3X_3.0.0/com.ibm.swg.im.infosphere.biginsights.jaql.doc/doc/c0057749.html

jq Resources

http://stedolan.github.io/jq/

http://stedolan.github.io/jq/tutorial/

https://github.com/stedolan/jq

https://robots.thoughtbot.com/jq-is-sed-for-json

https://zerokspot.com/weblog/2013/07/18/processing-json-with-jq/

https://jqplay.org/

JSON-T Resources

http://goessner.net/articles/jsont/

https://github.com/CamShaft/jsont

https://www.npmjs.com/package/jsont

JSON Patch Resources

http://jsonpatch.com/

https://tools.ietf.org/html/rfc6902

http://jsonpatchjs.com/

https://rubygems.org/gems/json_patch

https://github.com/flipkart-incubator/zjsonpatch

https://www.npmjs.com/package/json-patch

https://www.npmjs.com/package/jsonpatch

JSON Groups

Google - http://groups.google.com/group/json-schema

Yahoo! - http://tech.groups.yahoo.com/group/json/