

DATA COLLECTION

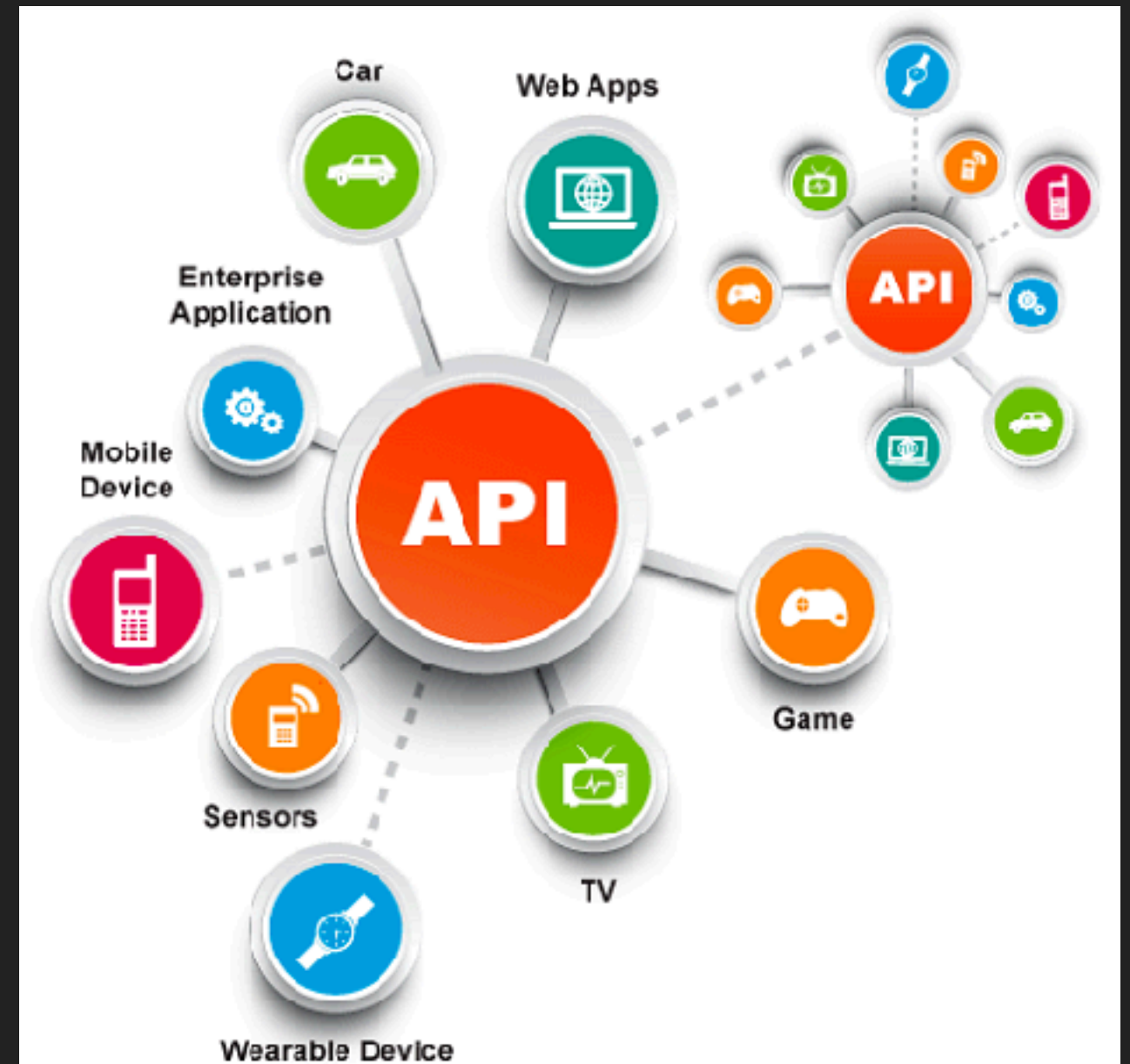
**APPLICATION PROGRAMMING
INTERFACE**

TODAY'S AGENDA

- ▶ What are apis, and how can I use them to take over the world?
- ▶ Introduction to APIs
- ▶ WWW and remote servers
- ▶ Examples of API calling
- ▶ Introduction to JSON
- ▶ <https://github.com/toddmotto/public-apis> (public APIs)
- ▶ <https://openclassrooms.com/en/courses/3432056-build-your-web-projects-with-rest-apis/3496011-examples-of-rest-apis> (more API examples)
- ▶ <https://github.com/ptwobrussell/Mining-the-Social-Web-2nd-Edition> (social media APIs)

WHAT IS AN API

- ▶ A predictable way to communicate with a computer system
- ▶ A set of functions and procedures that allow the creation of applications which access the features or data of an operating system, application, or other service.



WWW AND REMOTE SERVERS

- ▶ WWW: a large network of connected servers.
- ▶ When you type `www.facebook.com` into your browser, a request goes out to Facebook's remote server. Once your browser receives the response, it interprets the code and displays the page.
- ▶ An API isn't the same as the remote server – rather it is the part of the server that receives requests and sends responses.

API EXAMPLE SCENARIO

- ▶ Your small business's website has a form used to sign clients up for appointments. You want to give your clients the ability to automatically create a Google calendar event with the details for that appointment.
- ▶ API use: The idea is to have your website's server talk directly to Google's server with a request to create an event with the given details. Your server would then receive Google's response, process it, and send back relevant information to the browser, such as a confirmation message to the user.
- ▶ Alternatively, your browser can often send an API request directly to Google's server bypassing your server.
- ▶ SO how is this Google Calendar's API different from the API of any other remote server out there?
- ▶ REQUEST and RESPONSE + syntax

USER PERSPECTIVE

- ▶ APIs allow users to complete the action without leaving your website.
- ▶ It's not uncommon for development teams to break up their application into multiple servers that talk to each other via APIs.
- ▶ when a company offers an API to their customers, it just means that they've built a set of dedicated URLs that return pure data responses – meaning the responses won't contain the kind of presentational overhead that you would expect in a graphical user interface like a website.
- ▶ Recall the plotly lab with collisions data.

```
url = 'https://data.cityofnewyork.us/resource/qiz3-axqb.json?$limit=10000&\n$where=date%20between%20%272016-01-01T00:00:00%27%20and%20%272017-01-01T00:00:00%27'
```

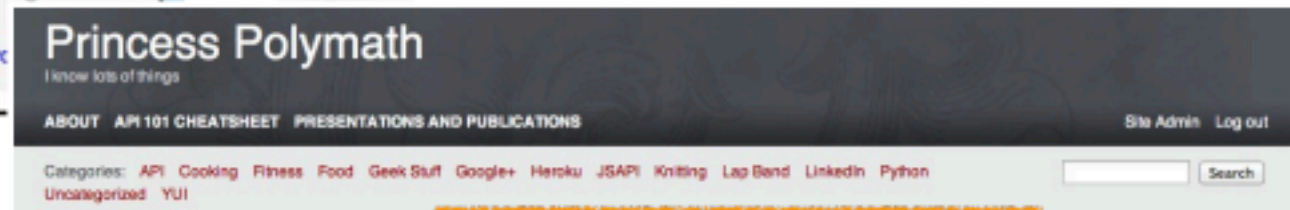
```
collisions = pd.read_json(url)
```

API EXAMPLE

quick api example



twitter -> wordpress



Quantifying your Fitness

At OSCON last week, I gave a presentation on *Quantifying your Fitness* and most people were quite amused to see me wander around with a bunch of devices (6 if you count my iPhone). You're welcome to a copy of the information, but as I suspect most readers are in a hurry, I'll pass along the information if you have some of these devices provide more or less information regularly will work great, even if it's a simpler model. The summaries. You can check the slides for more detailed information.

Ok, ready? Let's go.

Roundup

Bodymedia Fit

This is something of the gold standard of fitness devices. It track very closely to chest-strap heart rate monitors and this device is approved by the FDA for use in clinical trials of various types. The skin temperature, moisture and these motion sensors collect 5,000 data points per minute, which they combine with some amazing background algorithms to create a fantastic product. Price wise it's reasonable, although the subscription price is a little daunting. The main drawback of this device is that it's just really ugly - it must be worn on the upper arm and looks somewhat like an insulin pump. They are coming out with a new model this month (August 2013) which will look much better and also have an optional heart rate monitor - and it will be usable during swimming, which is a huge boost of coolness.

Categories: API Cooking Fitness Food
Uncategorized YUI

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- > About
- > Resume
- > The Intersect
- > Adaptation

PIStrategy Tweets

Kirsten Jones said: Don't forget to sign up for workshops at #apistrat - Lots of cool opportunities to warm up for the conference! Gonna be a great week! This happened 12 minutes

how does that work?



Twitter API



Wordpress Plugin

Uses Authentication

Searches API for #api101

Formats response

Fills in sidebar



Wordpress

EXAMPLE: GITHUB API

- ▶ you can access GitHub's API directly with your browser without even needing an access token. Here's the JSON response you get when you visit a GitHub user's API route in your browser (<https://api.github.com/users/<username>>)

A IS FOR APPLICATION !

- ▶ “Application” can refer to many things. Here are some of them in the context of API:
- ▶ A piece of software with a distinct function.
- ▶ The whole server, the whole app, or just a small part of an app.
- ▶ Basically any piece of software that can be distinctively separated from its environment, can be an “A” in API, and will probably also have some sort of API.

SOME MORE API EXAMPLES

what can apis do?



JSON FILES

- ▶ A lightweight text based data-interchange format
- ▶ Completely language independent
- ▶ Based on a subset of the JavaScript Programming Language
- ▶ Easy to understand, manipulate and generate

JSON FORMAT

- ▶ Unordered sets of name/value pairs
- ▶ Begins with { (left brace)
- ▶ Ends with } (right brace)
- ▶ Each name is followed by : (colon)
- ▶ Name/value pairs are separated by , (comma)

JSON FORMAT

```
▶ employeeData = {  
  "employee_id": 1234567,  
  "name": "Jeff Fox",  
  "hire_date": "1/1/2013",  
  "location": "Norwalk, CT",  
  "consultant": false };
```


- Anywhere and everywhere!



And many,
many more!