

Introduction to Web-APIs

Github: <https://github.com/ashish-mw/workshop-webapis>

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Websites

The screenshot shows the search results for "Animal Farm" on Amazon.co.uk. The results page includes filters for delivery, climate pledges, departments like Books, and price ranges. It displays several book covers and their details, such as "1984 Nineteen Eighty-Four (Penguin Modern Classics)" by George Orwell and "Animal Farm: A Fairy Story (Penguin Modern Classics)" by George Orwell.

Eligible for free delivery
 Free UK Delivery by Amazon
FREE Delivery on orders over £10 for books or over £20 for other categories shipped by Amazon

Climate Pledge Friendly
 Climate Pledge Friendly

Department
Books
Political Fiction
Fiction Classics
Literary Fiction
Contemporary Fiction
Parodies
Education & Reference Material for Young Adults
School Books
Literature & Fiction for Young Adults
[See All 22 Departments](#)

Avg. Customer Review
 & Up
 & Up
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Price
Up to £5
£5 to £10
£10 to £20
£20 to £50
£50 & above

Deals
 Today's Deals

New Arrivals
Last 30 days
Last 90 days
Next 90 days

Book Format
Hardcover
Paperback
Audiobooks
Kindle Books

Kindle Unlimited
 Kindle Unlimited Eligible

Author

George Orwell in Penguin Classics
[Shop now >](#)

1984 Nineteen Eighty-Four (Penguin Modern Classics)
by George Orwell | 7 Jan 2021
★★★★★ 6,508

The Complete Novels of George Orwell: Animal Farm, Burmese Days, A Clergyman's Daughter, C...
by George Orwell | 7 Jan 2021
★★★★★ 349

Animal Farm: A Fairy Story (Penguin Modern Classics)
by George Orwell | 24 Feb 2000
★★★★★ 3,147

Animal Farm: The Internationally Best selling Classic from the Author of 1984 (Collins Classics)
by George Orwell | 7 Jan 2021
★★★★★ ~ 24,261
Paperback
£2.25 £2.50

Kindle Edition
£0.49 £3.99
Available instantly

Audible Audiobooks
£0.00 £7.09
Free with Audible trial
Other formats: Hardcover, Audio CD

Animal Farm: A Fairy Story (Penguin Modern Classics)
by George Orwell and Robert Coss | 24 Feb 2000
★★★★★ ~ 3,147
Paperback
£5.99 £7.99

Kindle Edition
£3.99 £7.99
Available instantly

Hardcover
£9.73 £12.99

prime Get it Thursday, Apr 29
More buying choices
£0.31 (63 used & new offers)

Display data in HTML as browsers can only understand HTML

Databases

ACME Shopping ★ 📁 🌐 **Database**

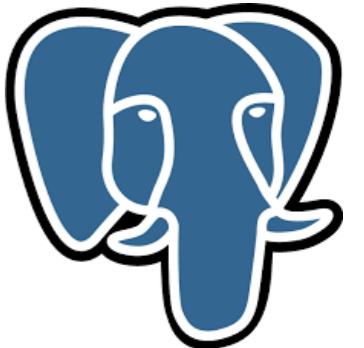
File Edit View Insert Format Data Tools Add-ons Help Last edit was seconds ago

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 **Tables** 35 36 37

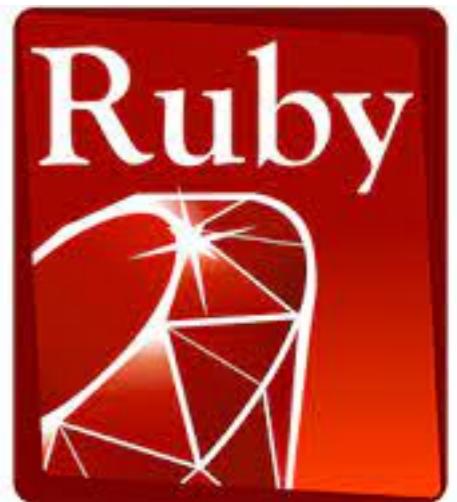
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1	A	B	C	D	E	F	G	H	I
2	Product_ID	SKU	Name	Product_URL	Price	Retail_Price	Date_Created	Uploaded_By_User	Product_Status
7631	HEH-9133	On Cloud Nine Pillow	https://www.domain.com/product/heh-9133	24.99	24.99	2018-03-03 17:41:13	9897612	Active	
7615	HEH-2245	Simply Sweet Blouse	https://www.domain.com/product/heh-2245	42	59.95	2018-03-20 22:24:21	9897611	Active	
7625	HEH-2145	Power Shoes	https://www.domain.com/product/heh-2145	232	240	2018-03-02 11:02:09	9897610	Inactive	
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+ ⚒ Products ▾ Users ▾ Shops ▾

A program that helps us organise data.



Websites



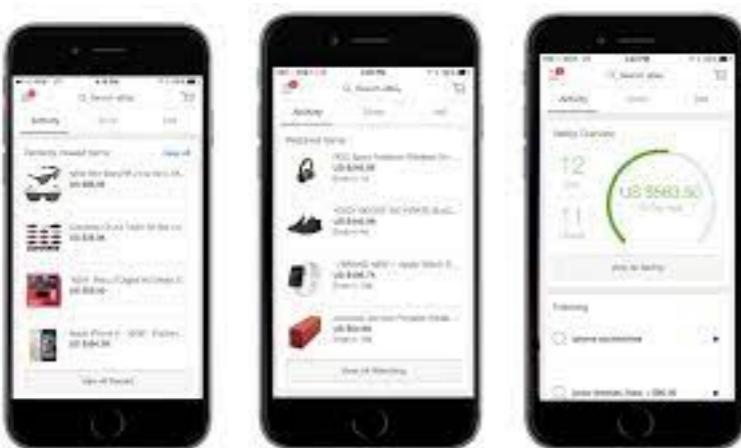
- We mean “dynamic” websites or web apps.
- A web server takes data from a database.
- Makes HTML.
- Gives it to the browser to display.

What if?

- We want to share just the data from acme.com to smith.com?

The screenshot shows the eBay Developers Program website at https://developer.ebay.com/products/ebay-apis. The main heading is "eBay Developers Program". Below it, a sub-section titled "eBay's Buy APIs" is highlighted with a large image of a server rack. The text reads: "With the eBay Developers Program's latest APIs for selling and buying, eBay is arming its developers with powerful technology and features that benefit both buyers and sellers:". A quote from Amit Patel, Ebates General Manager, is displayed: "It was key for us to work with a great technology partner that has a product catalog that really spans to every type of category for members. With access to eBay's Buy API we can now help our members find products directly from the eBay marketplace fast and efficiently." Below the quote, a list of benefits for sellers is provided, followed by a link to "APIs for Buying Items on eBay". At the bottom, there is a link to "Next Generation Sell APIs".

- We want to display our data not just on our website?



The solution

- Make websites give out just the data with API endpoints.
- Allow applications to consume that data and display however they like it.
- The application can be another web app or even a mobile app.
- An API endpoint is just a URL that returns some data in a **structured format** for some **resource**

<https://api.coronavirus.data.gov.uk/v1/data>

Structured format

ACME Shopping ★ 📁 🌐 Database

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3	7615	HEH-2245	Simply Sweet Blouse	https://www.domain.com/product/heh-2245	42	59.95	2018-03-20 22:24:21	9897611	Active	
4	7625	HEH-2145	Power Shoes	https://www.domain.com/product/heh-2145	232	240	2018-03-02 11:02:09	9897610	Inactive	
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Tables

+ ⚒ Products ▾ Users ▾ Shops ▾

Structured format - XML

```
<?xml version="1.0" encoding="UTF-8"?>
<Products>
  <Product>
    <Product_ID>7631</Product_ID>
    <SKU>HEH-9133</SKU>
    <Name>On Cloud Nine Pillow</Name>
    <Product_URL>https://www.domain.com/product/heh-9133</Product_URL>
    <Price>24.99</Price>
    <Retail_Price>24.99</Retail_Price>
    <Date_Created>2018-03-03 17:41:13</Date_Created>
  </Product>
  <Product>
    <Product_ID>7615</Product_ID>
    <SKU>HEH-2245</SKU>
    <Name>Simply Sweet Blouse</Name>
    <Product_URL>https://www.domain.com/product/heh-2245</Product_URL>
    <Price>42</Price>
    <Retail_Price>59.95</Retail_Price>
    <Date_Created>2018-03-20 22:24:21</Date_Created>
  </Product>
</Products>
```

eXtensible Markup Language - SOAP

Where something **starts** and **ends** in a document == **markup**

Tags represent a data value



SoapUI

Structured format - JSON

```
{  
  "Products": [  
    {  
      "Product_ID": "7631",  
      "SKU": "HEH-9133",  
      "Name": "On Cloud Nine Pillow",  
      "Product_URL": "https://www.domain.com/product/heh-9133",  
      "Price": "24.99",  
      "Retail_Price": "24.99",  
      "Date_Created": "2018-03-03 17:41:13"  
    },  
    {  
      "Product_ID": "7615",  
      "SKU": "HEH-2245",  
      "Name": "Simply Sweet Blouse",  
      "Product_URL": "https://www.domain.com/product/heh-2245",  
      "Price": "42",  
      "Retail_Price": "59.95",  
      "Date_Created": "2018-03-20 22:24:21"  
    }  
  ]  
}
```

JavaScript Object Notation - REST

Less emphasis on structure and simpler to work with.

Key-Value pairs represent a data value



POSTMAN

How to read?

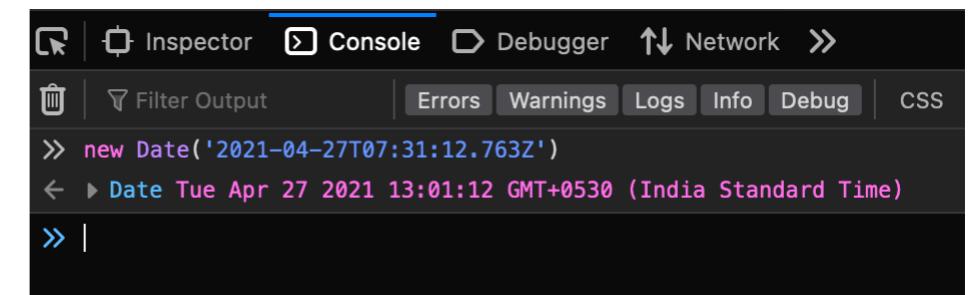
```
{  
  "has_cod": true,  
  "min_delivery_date": "2021-04-27T07:31:12.763Z",  
  "orders_from": null,  
  "sales": 32  
}
```

has_cod / hasCod / HasCod / has-cod / Has-Cod

The letter casing depends on the developer. But it'll be consistent. The **key** simply states if the item has Cash on Delivery available or not. What COD stands for will be mentioned in API documentation.

2021-04-27T07:31:12.763Z

Dates are usually mentioned with Timezone or in UTC format.



null

No data

Questions?

<https://github.com/public-apis/public-apis>

<https://public-apis.xyz>

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