3.4.1 What's JSON and why does it matter?

APIs are fantastic for transmitting information, but one thing they don't do very well is format data. Thankfully, another tool exists that is excellent at doing just that—and you've already heard of it this week.

JSON is an open standard file format and data-interchange format. Even though the expansion of the word means JavaScript Object Notation, it was simply derived from JavaScript. You don't have to know the language to use JSON. JSON makes it easy for us to understand the kind of data that is exchanged with easy-to-understand key-value pairs, similar to a dictionary in Python.

In this video, Monica Liu discusses more of the advantages and disadvantages of using JSON.

COS60016: What are the advantages and disadvantages of working with JSON? (2021) created by Swinburne Online.

Transcript (https://swinburneonline.instructure.com/courses/5055/pages/transcript-what-are-the-advantages-and-disadvantages-of-working-with-json)

JSON output

Investigate the code block. Can you see the curly `({})`) brackets?

```json
{
   "firstName": "David",
   "lastName": "Waterman",
  "age": 28,
  "phoneNumbers": [
     {
      "number": "987-654-3210",
      "type": "home"
     },
     {
      "number": "123-456-7890",
      "type": "office"
     }
   ]
}
```

This file structure is a simple JSON that describes some basic characteristics of a person:

- The first level of attributes contains the first name, last name, age, and phone numbers.
- If you see the phone numbers data, you can see that it is given in square brackets, meaning that it is an array and will contain multiple values. Inside it, you can see there are two phone numbers: one for the office and the other for home.
- An application may use this object to store information about the user and an API call on the object to display on a web page when the user logs in.

Python has a built-in package called JSON that can be used to work with JSON data.

> ### Apply your learning
>
> Head over to **Coding Rooms** ⤷ **(https://app.codingrooms.com/app/org/swinburne-online-NHciF9n/course/cos60016-q1-programming-for-development-2023-piKGheK/b/3.3.4%2BUsing%2Bheaders%2Band%2BparametersbJWmLG1)** to see how to format JSON text.