

JSON

JavaScript **O**bject **N**otation

What is JSON?

- JSON is a lightweight data-interchange format. It is easy for humans to read and write. It is easy for machines to parse and generate. It is based on a subset of the JavaScript Programming Language Standard ECMA-262 3rd Edition - December 1999.
- JSON is a text format that is completely language independent but uses conventions that are familiar to programmers of the C-family of languages, including C, C++, C#, Java, JavaScript, Perl, Python, and many others. These properties make JSON an ideal data-interchange language.
- JSON stands for **JavaScript Object Notation**
- JSON is a lightweight data-interchange format
- JSON is plain text written in JavaScript object notation
- JSON is used to send data between computers
- JSON is language independent *

JSON structures

- JSON is built on two structures:
 1. A collection of name/value pairs. In various languages, this is realized as an *object*, record, struct, dictionary, hash table, keyed list, or associative array.
 2. An ordered list of values. In most languages, this is realized as an *array*, vector, list, or sequence.
- These are universal data structures. Virtually all modern programming languages support them in one form or another. It makes sense that a data format that is interchangeable with programming languages also be based on these structures.

<https://www.json.org/json-en.html>

JSON Syntax

- JSON Syntax Rules
- JSON syntax is derived from JavaScript object notation syntax:
- Data is in name/value pairs
- Data is separated by commas
- Curly braces hold objects
- Square brackets hold arrays

```
{"name":"John"}
```

```
{"name":"John",  
  "age":31,  
  "city":"New York"};
```

JSON Data Types

- In JSON, values must be one of the following data types:
 - a string
 - a number
 - an object (JSON object)
 - an array
 - a boolean
 - *null*
- JSON values **cannot** be one of the following data types:
 - a function
 - a date
 - *undefined*

JSON Data Types

- JSON Strings

Strings in JSON must be written in double quotes.

```
{"name": "Mohamed"}
```

- JSON Numbers

Numbers in JSON must be an integer or a floating point.

```
{"age": 30}
```

JSON Data Types

- JSON Objects

```
{  
  "employee":{"name":"John", "age":30, "city":"New York"}  
}
```

- JSON Arrays

```
{  
  "employees":["John", "Anna", "Peter"]  
}
```

JSON Data Types

- JSON Booleans

Values in JSON can be true/false.

```
{"sale":true}
```

- JSON null

```
{"middlename":null}
```