

JavaScript Object Notation (JSON)

- JSON is a lightweight data-interchange format that is completely language independent.
- It was derived from JavaScript, but many modern programming languages include code to generate and parse JSON-format data
- The official Internet media type for JSON is application/json.
- It was designed for human-readable data interchange.
- The filename extension is .json.





Uses of JSON

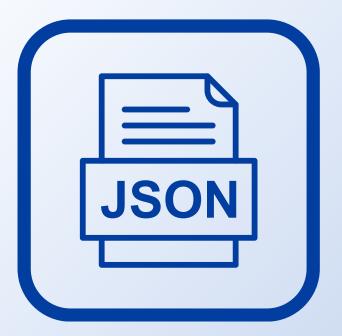
- It is used while writing JavaScript based applications that includes browser extensions and websites.
- JSON format is used for serialising and transmitting structured data over network connection.
- It is primarily used to transmit data between a server and web applications.
- Web services and APIs use JSON format to provide public data.





Characteristics of JSON

- JSON is easy to read and write.
- It is a lightweight text-based interchange format.
- JSON is language independent.

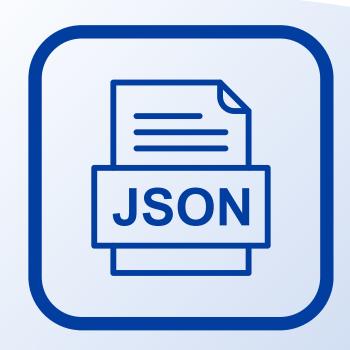




Understanding JSON Structure

```
Object Starts
"Title": "The Cuckoo's Calling"
"Author": "Robert Galbraith",
"Genre": "classic crime novel",
"Detail": { — Object Starts
  -----Value number
  "Publication Year": 2013,
  "ISBN-13": 9781408704004,
  "Language": "English",
  "Pages": 494
Object ends
Object Starts
    "type": "Hardcover",
    "price": 16.65,
     Object ends
      Object Starts
    "type": "Kindle Edition",
    "price": 7.03,
    Object ends
     Array ends

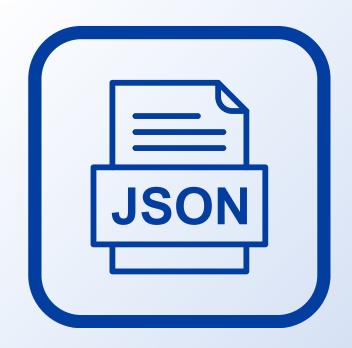
    Object ends
```





JSON - Data Types

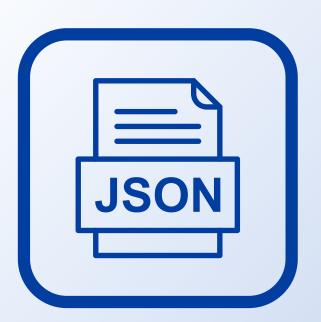
- Number: Double- precision floating-point format in JavaScript
- String: Double-quoted Unicode with backslash escaping
- Boolean: True or False
- Array: An ordered sequence of values
- Value: It can be a string, a number, true or false, null etc
- Object: An unordered collection of key:value pairs
- Whitespace: Can be used between any pair of tokens
- **null:** Empty





Bad Special Characters Inside JSON & Solution

- Backspace : Replace with \b
- Form feed: Replace with \f
- Newline: Replace with \n
- Carriage return: Replace with \r
- Tab: Replace with \t
- Double quote: Replace with \"
- Backslash: Replace with \\





• Always enclose the Key: Value pair within double quotes

```
{'id': '1', 'name':File} is not right X

{"id": 1, "name":"File"} is okay ✓

{"id": "1", "name":"File"} is the best ✓
```





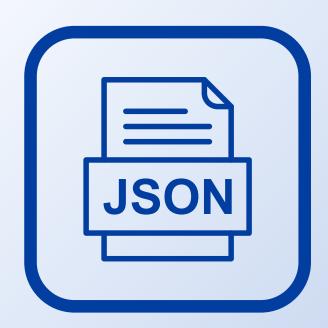
Never use Hyphens in your Key fields

```
{"first-name":"Rachel", "last-name":"Green"} is not right. X

{"first_name":"Rachel", "last_name":"Green"} is okay \( \square \)

{"firstname":"Rachel", "lastname":"Green"} is okay \( \square \)

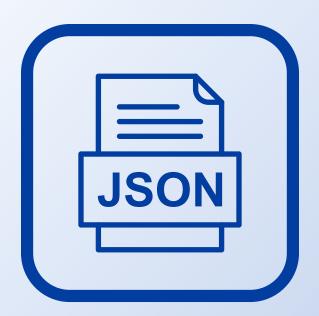
{"firstName":"Rachel", "lastName":"Green"} is the best. \( \square \)
```





Bad Special Characters And Solution

"<h2>About US
\r\n</h2>\r\nIt has been exactly 3 years since I wrote my first blog series
\r\nentitled "Flavor+u1 Tuscany", but starting it was definitely not easy. \r\nBack then, I didn't know
much about blogging, let alone think that one \r\nday it could become my full-time job.
Even though I had\r\n many recipes and food-related stories to tell, it never crossed my mind\r\n that I
could be sharing them with the whole world.\r\nI am now a full-time blogger and
the curator of the <a data-cke-saved-href=\"https://ckeditor.com/ckeditor-4/#\"
Simply delicious newsletter, sharing stories about
traveling and cooking, as well as tips on how to run a successful blog.\r\n





Always create a Root element.

```
JSON with root element
"menu": [
    "id": "1",
    "name":"File",
    "value": "F",
    "popup": {
       "menuitem": [
         {"name":"New", "value": "1N", "onclick": "newDoc()"},
         {"name":"Open", "value": "10", "onclick": "openDoc()"},
         {"name":"Close", "value": "1C", "onclick": "closeDoc()"}
    "id": "2",
    "name":"Edit",
    "value": "E",
    "popup": {
       "menuitem":
         {"name":"Undo", "value": "2U", "onclick": "undo()"},
         {"name": "Copy", "value": "2C", "onclick": "copy()"},
         {"name": "Cut", "value": "2T", "onclick": "cut()"}
```

```
JSON without root element
    "id": "1",
    "name": "File",
    "value": "F",
    "popup": {
       "menuitem": [
         {"name":"New", "value": "1N", "onclick": "newDoc()"},
          {"name": "Open", "value": "10", "onclick": "openDoc()"},
         {"name": "Close", "value": "1C", "onclick": "closeDoc()"}
    "id": "2",
    "name": "Edit",
    "value": "E",
    "popup": {
       "menuitem": [
         {"name":"Undo", "value": "2U", "onclick": "undo()"},
          {"name":"Copy", "value": "2C", "onclick": "copy()"},
          {"name": "Cut", "value": "2T", "onclick": "cut()"}
```

