

COMP4021
Internet Computing

A Quick Look at JSON

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JSON

- JSON stands for **JavaScript Object Notation**
- It is an easy-to-use, text-based data format
- Although it has JavaScript in its name, it is language-independent
- It was created based on the structure of JavaScript objects and therefore it looks almost identical to them

The JSON Format

- Let's look at this example JSON content:

```
{  
  "series": "Demon Slayer",  
  "author": "Koyoharu Gotouge",  
  "volumes": 23  
}
```

- It is just like making a JavaScript object without a variable name!

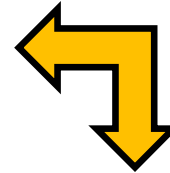
JSON Vs JavaScript Objects

- JSON is different to JavaScript objects as JSON is always stored as a string, i.e.:
 - The keys of JSON can only be strings and they are enclosed by " . . . " only
 - JSON cannot contain functions or other things that cannot be shown as strings
- JSON can also be an array, rather than an object

More JSON Examples

JavaScript

```
const devices = {  
  phone: ["Cisco", "IPhone"],  
  tablet: "Surface",  
  notebook: "Thinkpad"  
}
```

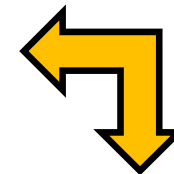


JSON

```
{"phone":["Cisco","IPhone"],"tablet":"Surface","notebook":"Thinkpad"}
```

JavaScript

```
const rainbow = [  
  "Red", "Orange", "Yellow", "Green",  
  "Lime", "Blue", "Purple"  
];
```



JSON

```
["Red","Orange","Yellow","Green","Lime","Blue","Purple"]
```

Using JSON in JavaScript

- You can convert between JSON and JavaScript objects using two JavaScript functions:

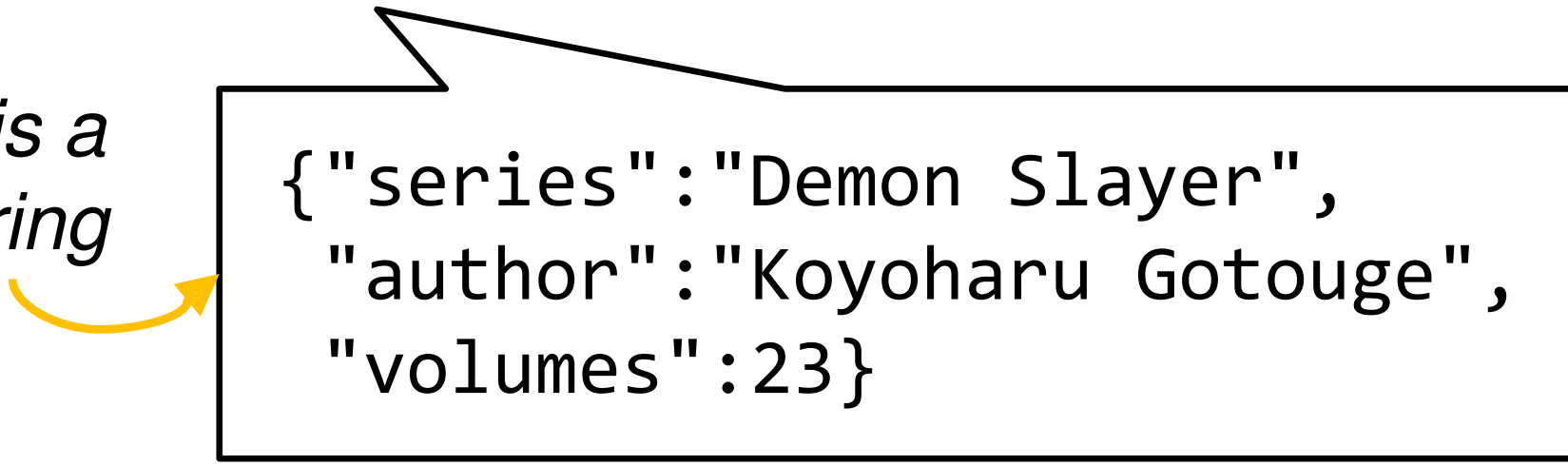
`JSON.stringify()` changes a JavaScript object to a JSON string

`JSON.parse()` changes a JSON string to a JavaScript object

Using JSON.stringify()

```
const item = {  
  series: "Demon Slayer",  
  author: "Koyoharu Gotouge",  
  volumes: 23  
};  
const jsonItem = JSON.stringify(item);
```

*It is a
string*

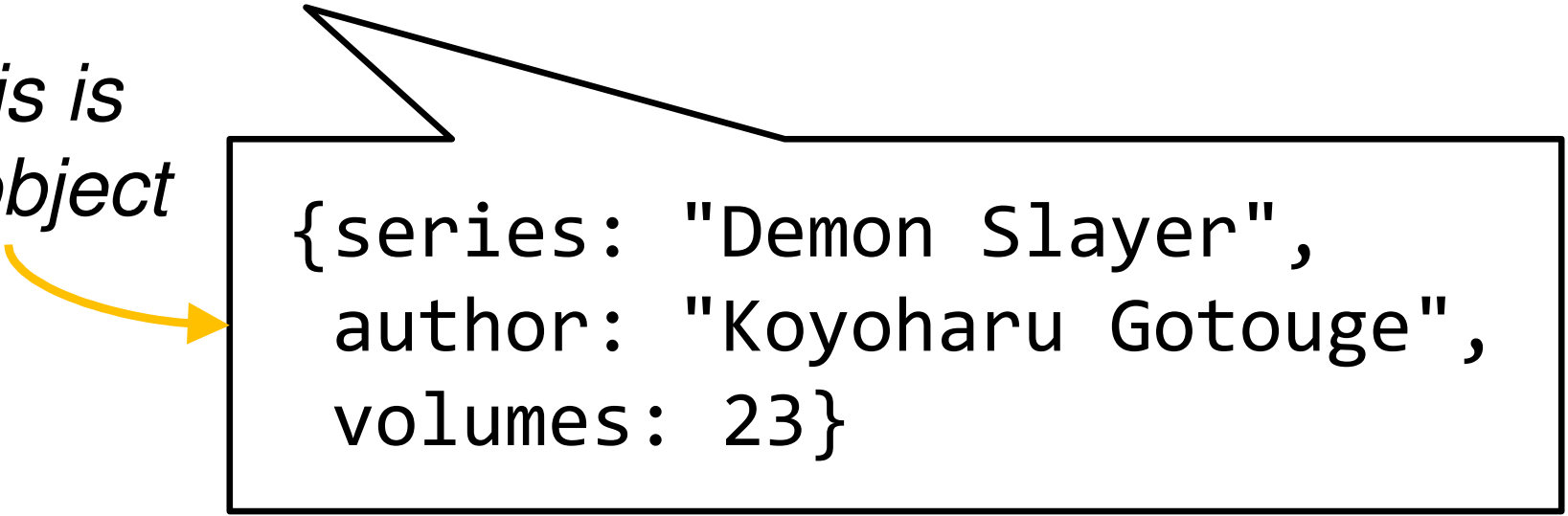


```
{"series": "Demon Slayer",  
  "author": "Koyoharu Gotouge",  
  "volumes": 23}
```

Using JSON.parse()

```
const jsonItem =  
  '{"series":"Demon Slayer",' +  
  '  "author":"Koyoharu Gotouge",' +  
  '  "volumes":23}';  
const item = JSON.parse(jsonItem);
```

*This is
an object*



```
{series: "Demon Slayer",  
  author: "Koyoharu Gotouge",  
  volumes: 23}
```


Using JSON

- In the course later, you will see JSON used in different ways, e.g.:
 - For storing things in the browsers
 - For storing things on the server
 - As part of the message content in client-server communication