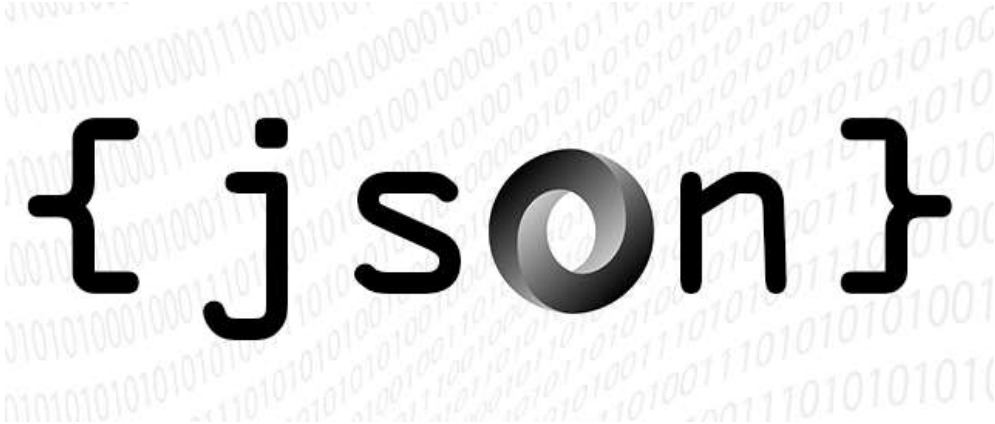
JSON

(JavaScript Object Notation)

A lightweight format for data exchange



- What is JSON?
- Why is JSON used on the web?
- Example of JSON
- JSON vs JavaScript Object
- Converting Between JSON and JavaScript Object
- Real Use Cases

What is JSON?

- JSON = **JavaScript Object Notation**.
- A **text format** used to represent data.
- Inspired by JavaScript objects, but **independent of any programming language**.
- Qualities:
    - Human-readable
    - Lightweight
    - Universal (works with Python, Java, PHP, etc.)

Why is JSON used on the web?

- Used everywhere in **APIs** and **web apps**.
- Easy to **send and receive** between client and server.
- Examples:
  - Weather app fetching forecast data.
  - Online shop sending product info from server to browser.
  - Social media apps exchanging user posts/messages.

Example of JSON

```json
{
  "name": "Alice",
  "age": 20,
  "isStudent": true,
  "hobbies": ["reading", "music"]
}
```

- Keys always **in quotes**.
- Values: strings, numbers, booleans, arrays, objects.

JSON vs JavaScript Object

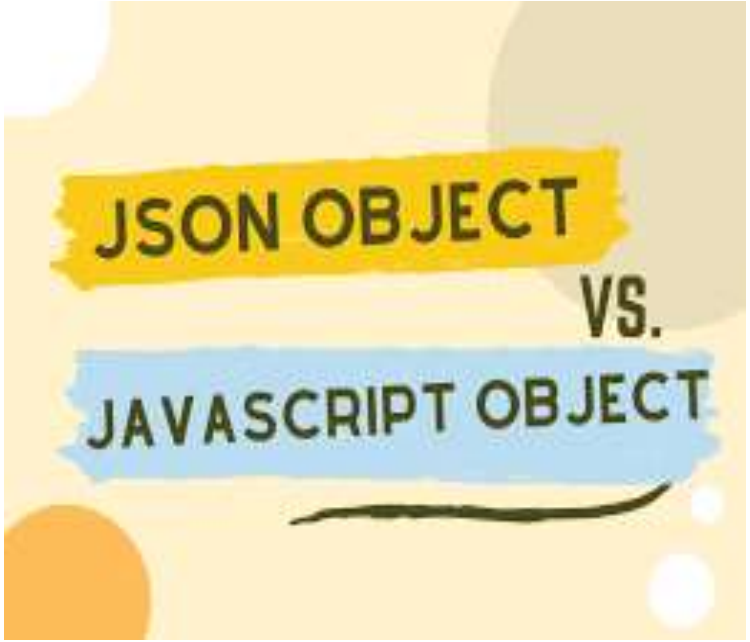
Difference between JSON and JavaScript object:

JavaScript Object (code):
const person = { name: "Alice", age: 20, isStudent: true };

JSON (text):
{"name":"Alice","age":20,"isStudent":true}

🔑 **Difference**:

- **Object** = used directly in JS code.
- **JSON** = text format, mainly for **storage or transfer**.



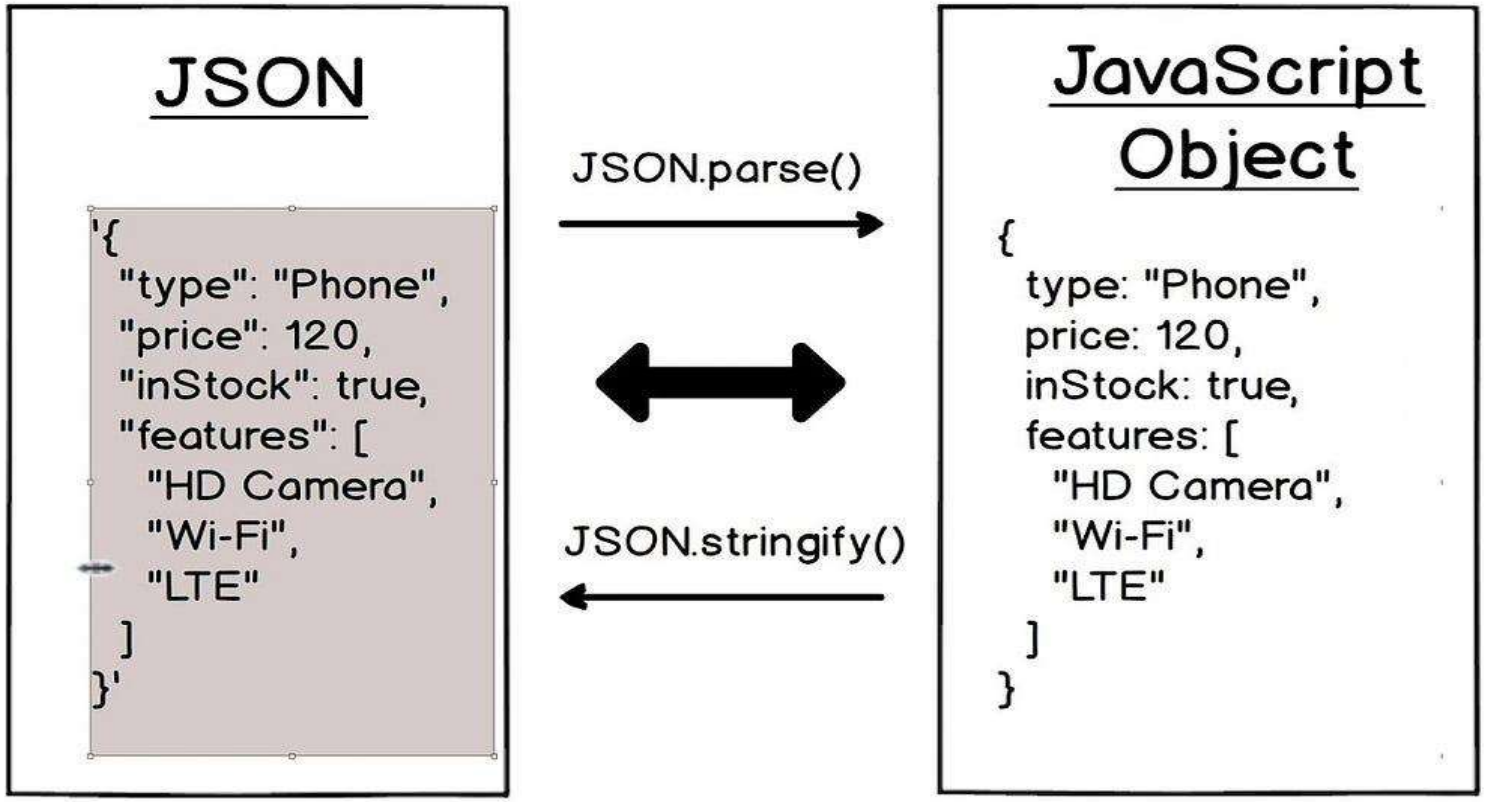
Converting Between JSON and JavaScript Object

In JavaScript, we use two methods:

```
// Object → JSON (serialize)
JSON.stringify(person);

// JSON → Object (parse)
JSON.parse(jsonString);
```

Converting


JSON
'{
"type": "Phone",
"price": 120,
"inStock": true,
"features": [
"HD Camera",
"Wi-Fi",
"LTE"
]
}'
JSON.parse()
JSON.stringify()
JavaScript Object
{
type: "Phone",
price: 120,
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features: [
"HD Camera",
"Wi-Fi",
"LTE"
]
}

Real Use Cases

1 - APIs

- Example: https://api.weather.com/today returns JSON with temperature, humidity, etc.

2 - localStorage (saving data in browser)

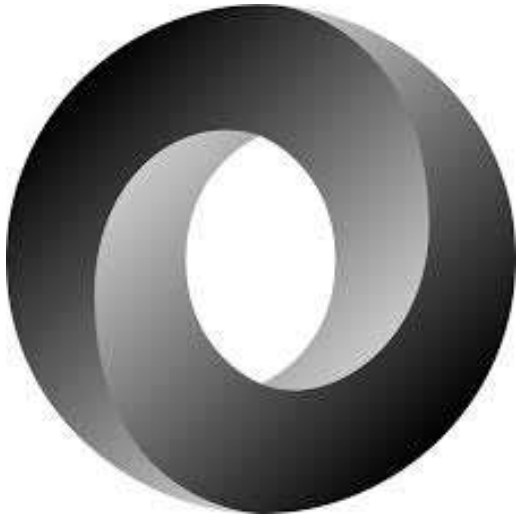
```
localStorage.setItem("user", JSON.stringify(person));
const saved = JSON.parse(localStorage.getItem("user"));
```

3 - Databases

- MongoDB stores documents in JSON-like format.

Summary

- JSON = **universal text format** for data.
- Easy to **read, write, and exchange**.
- Works in **all programming languages**.
- Essential for **modern web development**.

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