



# JSON Parser

...

# Objectives

In this lecture, we'll explore

- **What is JSON?**
- **Why do we use it?**
- **How to break down a large problem into smaller subproblems using helper functions**
- **An useful implementation of a stack, in the wild!**

**I HAVE NO  
IDEA WHO JSON IS**

**AND AT THIS  
POINT I'M AFRAID TO ASK**

# What is JSON? Why do we use it?

## JavaScript Object Notation

- A format for representing structured data based on Javascript syntax as a string
- Useful when communicating between a front-end, a back-end, or to an external API
- The native Javascript JSON object contains methods for serializing and deserializing JSON data (i.e. converting from a string to an object and back).
- Many different languages also have support for serializing and deserializing JSON data (exe. Python, Java, C++, PHP)

# JSON Methods



```
{
  widget: {
    debug: "on",
    window: {
      title: "Sample Konfabulator Widget",
      name: "main_window",
      width: 500,
      height: 500,
    },
    image: {
      src: "Images/Sun.png",
      name: "sun1",
      hOffset: 250,
      vOffset: 250,
      alignment: "center",
    },
  },
};
```

`{}.toString()`

`[object Object]`



`JSON.stringify(jsonObject)`



`JSON.parse(jsonString)`



```
'{"widget":{"debug":"on","window":{"title":"Sample Konfabulator Widget","name":"main_window","width":500,"height":500},.....}}'
```

# Data Types

## Primitive

- **String**
- **Boolean**
- **Number**
- **Null**
- Undefined
- BigInt
- Symbol

## Composite

- **Object**

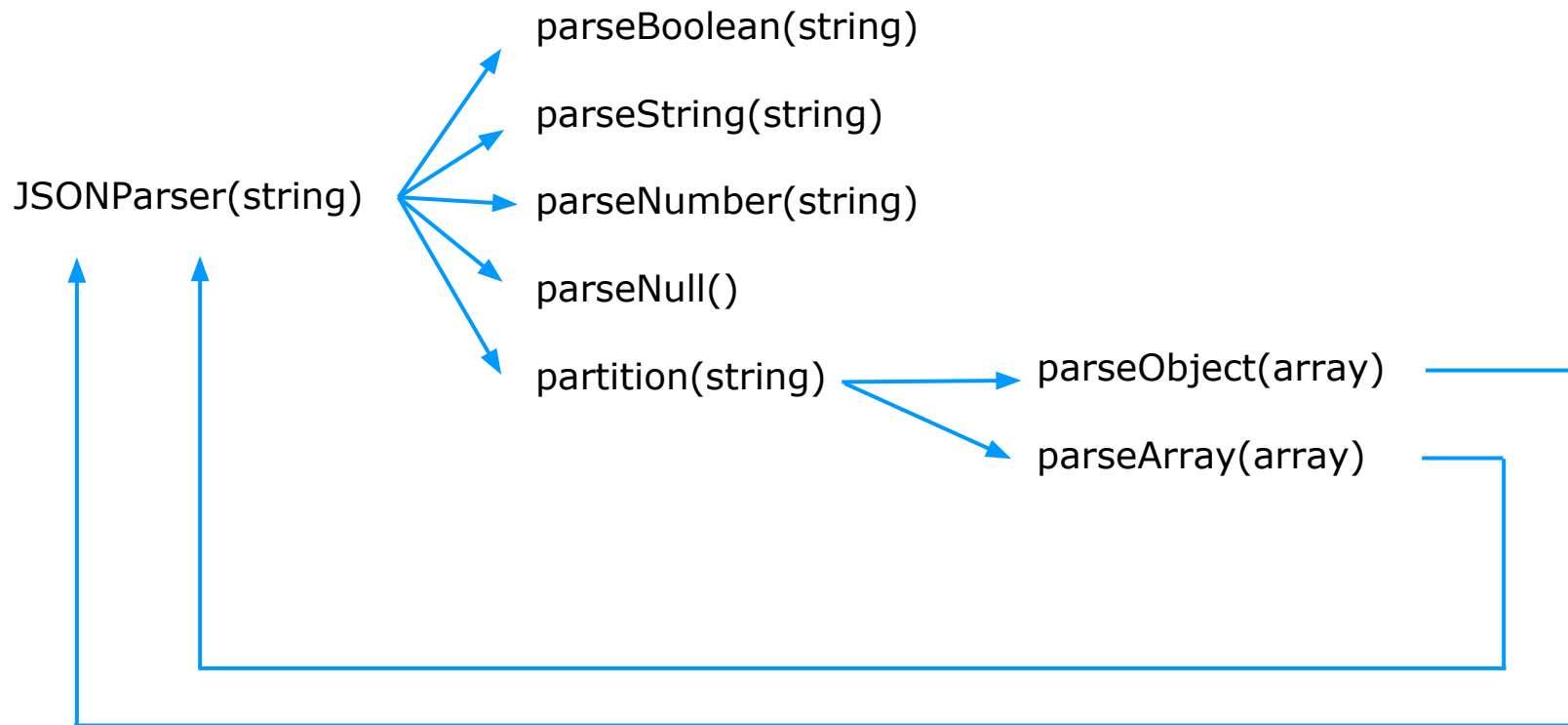
Built in data-structures (objects constructors)

- **Array**
- Map
  - Object.fromEntries(map) [key/value]
- Set
  - Array.from(set) [value/value]

# JSON rules

- JSON is purely a string with a specified data format
- Must be syntactically correct JavaScript - a single typo can cause the whole file to be invalid
- Can take the form of any valid primitive or composite data type
  - However, this does not include functions!
- Requires double quotes to be used around strings. Single quotes are not valid (other than to surround the entire JSON string).
- Unlike in JavaScript objects, JSON property names must be inside quotes

# Control Flow





# Demo: JSON Parser

# Summary

- JSON is a format for representing structured data based on Javascript syntax as a string.
- JSON is useful for communication between front-end, back-end, and external APIs
- Break up a large problem into smaller, manageable chunks
- Using a dispatch method with helper functions can make code more modular and readable
- We love JSON!

# Resources

- Regular Expression info <https://www.regular-expressions.info/javascript.html>
- Regular Expression practice <https://regex101.com/>
- [O'Reilly's Overview](#) of JSON
- JSON documentation <https://www.json.org/json-en.html>
- MDN Official documentation for [JSON.parse\(\)](#)