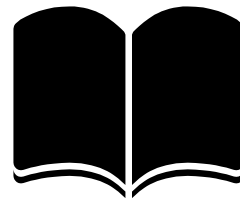




# Introduction to JSON

# AGENDA



- WHAT IS JSON
- JAVASCRIPT VS. JSON OBJECT
- JSON DATA TYPES
- ACTIVITY
- ACCESSING JSON
- PARSING JSON
- AJAX AND JSON
- SELECTING JSON DATA

# JSON

## What is JSON?

a lightweight text -based  
open standard designed  
for human -readable data  
interchange.

```
"testSteps": [  
  {  
    "type": "REST Request",  
    "method": "GET",  
    "URI": "http://google.com/",  
    "assertions": [  
      {  
        "type": "Valid HTTP Status Codes",  
        "validStatusCodes": [  
          200,  
          302  
        ]  
      }  
    ]  
  }  
]
```

# Need to Know info about JSON

1.

- JSON stands for JavaScript Object Notation .
- Consist of Key -value pairs
- The filename extension is .json
- JSON Internet Media type is application/ json

# Need to Know info about JSON

# 2.

- JSON format is used for serializing 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 .
- It can be used with modern programming languages.

# JavaScript vs JSON Object



## JavaScript Object

With JavaScript Objects, we can call associate functions to key  
Quotes are needed for key value.

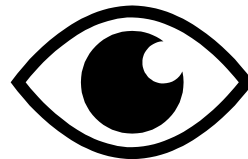
```
var program = {  
  programName: "Web Development",  
  enrolledStudent: 82,  
  program_acronym: "CDEV",  
  review_date: null  
}
```

## JSON Object

JSON Key's wrapped in quotes

```
var program = {  
  "programName": "Web Development",  
  "enrolledStudent": 82,  
  "program_acronym": "CDEV",  
  "review_date": null  
}
```

# JSON Data Types



## Strings

Strings in JSON must be written in double quotes .

```
{ "name": "Joe" }
```

## Numbers

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

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

## Objects

Values in JSON can be objects .

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

## Arrays

Values in JSON can be arrays .

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

## Boolean

Values in JSON can be true/false .

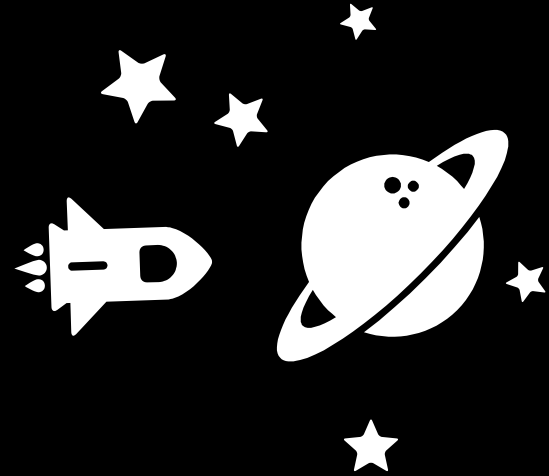
```
{ "sale": true }
```

## Null

Values in JSON can be null .

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

# ACTIVITY



Place in JSON format :

Silas returned back to school at the age of 81 to earn a master's degree from Loyola University Chicago . Silas needs three courses to graduate. He needs COMP 251 which starts at 5 pm and currently has 5 students enrolled, COMP10 which starts at 6 pm and currently has 12 students enrolled and CPST343 which starts at 7 pm and currently has 14 students enrolled. Colin started during the Fall 2021 term and is hoping to graduate at the conclusion of the Spring 2023 term .



# What is AJAX



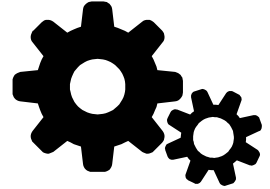
Update a web page  
without reloading the  
page

Request data from a  
server - after the page  
has loaded

Receive data from a  
server - after the page  
has loaded

Send data to a server - in  
the background

# How do you request data from a server?



**Ajax is a client-side script that communicates to and from a server/database without the need for a postback or a complete page refresh.**

**Good Tutorial:** [https://www.w3schools.com/xml/ajax\\_intro.asp](https://www.w3schools.com/xml/ajax_intro.asp)



# JSON.parse()



When you receive information from a web server or api, how do you begin to work with the data that is presented to you.

- Data that we receive from the server is always in string format
- We can convert the data into a javascript object by using the `parse()` function

```
var xmlhttp = new XMLHttpRequest();
xmlhttp.onreadystatechange = function() {
    if (this.readyState == 4 && this.status == 200) {
        var myObj = JSON.parse(this.responseText);
        document.getElementById("demo").innerHTML = myObj.name;
    }
};
xmlhttp.open("GET", "json_demo.txt", true);
xmlhttp.send();
```

# Requesting and Parson JSON via AJAX

## HTTP Status Codes

200's are used for successful requests.

300's are for redirections.

400's are used if there was a problem with the request.

500's are used if there was a problem with the server

[https://www.w3schools.com/tags/ref\\_httpmessages.asp](https://www.w3schools.com/tags/ref_httpmessages.asp)

Checking the header info to  
make sure file is located on  
server

JSON objects are listed in  
the json\_demo.txt file, you  
can also name this file .json

# Working with JSON

```
var student = {  
  "name": "Lisa",  
  "id": 1234,  
  "term": "Spring 2017"  
}
```

## SELECTING AND OUTPUTTING A KEY VALUE

```
console.log(student.name);
```

Should print out "Lisa"

```
var student = [  
  {  
    "name": "Lisa",  
    "id": 1234,  
    "term": "Spring 2017"  
  },  
  {  
    "name": "Silas",  
    "id": 4321,  
    "term": "Fall 2017"  
  }  
]
```

## ITERATING THROUGH A JSON OBJECT AND OUTPUTTING DATA

```
console.log(student[1].name);
```

Should print out "Silas"



# Credits

Special thanks to all the people who made and released these awesome resources for free:

- Presentation template by [SlidesCarnival](#)
- Photographs by [Unsplash](#)