**Learning Objectives**

* To grasp uses of JSON objects;
* To grasp uses of JSON.stringify and JSON.parse methods.

**Learning Contents**

* JSON(JavaScript Object Notation) is a lightweight data exchange format.
* JSON is a self-descriptive nested hierarchy. It can be parsed through JavaScript and transmitted through Ajax.
* JSON syntax is a subset of JavaScript syntax.
  + Data is stored in the form of key value pair;
  + Different data items are separated with comma;
  + JSON objects are saved with braces;
  + In JSON object content, data value can be an array, which is saved with brackets.
* JSON object example:
* **{**
* **name: 'tw',**
* **age: '17',**
* **major: 'Computer Science'**
* **}**
* JSON value can be in the following data structure:
  + Number (integer or floating number)
  + String (in double quotes)
  + Logical value(true or false)
  + Array (in brackets)
  + Object (in braces)
  + null
* As JSON shares JavaScript syntax, we can process JSON in JavaScript without any extra software. For example:
* **var employees = [**
* **{ "firstName":"Bill" , "lastName":"Gates" },**
* **{ "firstName":"George" , "lastName":"Bush" },**
* **{ "firstName":"Thomas" , "lastName": "Carter" }**
* **];**
* ***// Access***
* **employees[1].lastName; *// Bush***
* ***// Modify***
* **employees[0].lastName = 'Michael';**
* JSON.stringify
  + JSON.stringify method is used to convert one string into a JSON string, which can be restored with JSON.parse method.
  + For example:
  + **JSON.stringify(100) *// "100"***
  + **JSON.stringify('tws') *// ""tws""***
  + **JSON.stringify([]) *// "[]"***
  + **JSON.stringify({}) *// "{}"***
  + **JSON.stringify(true) *// "true"***
  + **JSON.stringify(["true", true])**
  + ***// "["true",true]"***
  + **JSON.stringify({ name: "tws" })**
  + ***// '{"name":"tws"}'***
* JSON.parse
  + JSON.parse method is used to convert JSON string into corresponding value.
  + For example:
  + **JSON.parse("100") *// 100***
  + **JSON.parse("[]") *// []***
  + **JSON.parse("{}") *// {}***
  + **JSON.parse("true") *// true***
  + **var person = JSON.parse('{"name":"tws"}')**
  + **person.name *// tws***
  + If the string input is not valid in JSON format, JSON.parse method will report an error. For example:
  + **JSON.parse("'Number'") *// Uncaught SyntaxError: Unexpected token' in JSON at position 0***

**Recommended Resources**

* Introduction to JSON (<https://www.json.org/json-zh.html>)
* MDN - JSON (<https://developer.mozilla.org/zh-CN/docs/Web/JavaScript/Reference/Global_Objects/JSON>)
* Deep Understanding of JavaScript Series (9): JSON Object Does Not Exist Totally! (<https://www.cnblogs.com/TomXu/archive/2012/01/11/2311956.html>)