Working with JSON

In this lesson:

- What is JSON
- JSON structure and data types
- Manipulating data in JSON

What is JSON

JSON – JavaScript Object Notation

JSON object: {}

```
{
  “key1”: “value1”,
  “key2”: “value2”
}
```

JSON array: []

```
[
  “value1”,
  “value2”
]
```

JSON structure and data types

JSON object: {}

Simple object

```
{ “key”: “value” }
```

Nested object

```
{
  “key”: {
        “nestedKey”: “nestedValue”
      }
}
```

Nested array

```
{
  “key”: [
        “value1”, “value2”
      ]
}
```

JSON array: []

Simple array

```
[ “value1”, “value2” ]
```

Array of objects

```
[
  { “key”: “value1” },
  { “key”: “value2” }
]
```

JSON structure and data types

Data Types

String

```
{
  “Name”: “John”,
  “Age”: “36”
}
```

Number

```
{
  “Weight”: 95,
  “Age”: 36
}
```

Boolean

```
{
  “IsHappy”: true,
  “isMarried”: false
}
```

Null

```
{
  “wifeName”: null
}
```

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 36,
  “Cars”: [“Honda”, “BMW”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”
      },
  ”Pets”: [
            {
               “Name”: “Jimmy”,
               “Type” : “Dog”
            },
            {
               “Name”: “Lisa”,
               ”Type”: “Cat”
            }
      ]
}
```

?

Examples:

Get the last name?

def lastName = myObject.LastName

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 36,
  “Cars”: [“Honda”, “BMW”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”
      },
  ”Pets”: [
            {
               “Name”: “Jimmy”,
               “Type” : “Dog”
            },
            {
               “Name”: “Lisa”,
               ”Type”: “Cat”
            }
      ]
}
```

?

Examples:

Get the second car?

```
def secondCar = myObject.Cars[1]
```

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 36,
  “Cars”: [“Honda”, “BMW”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Lisa”,
              ”Type”: “Cat”
            }
      ]
}
```

?

Examples:

Get the Income for Q2?

def incomeForQ2 = myObject.Income.Q2

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 36,
  “Cars”: [“Honda”, “BMW”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” “Dog”
            },
            {
              “Name”: “Lisa”,
              ”Type”: “Cat”
            }
      ]
}
```

?

Examples:

Get the type of first pet?

def typeOfTheFirstPet = myObject.Pets[0].Type

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 36,
  “Cars”: [“Honda”, “BMW”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Lisa”,
              ”Type”: “Cat”
            }
      ]
}
```

Examples:

Update the Age?

set myObject.Age = 40

Update the Cat’s name to the Dog’s name?

set myObject.Pets[1].Name = myObject.Pets[0].Name

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Honda”, “BMW”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Jimmy”,
              ”Type”: “Cat”
            }
      ]
}
```

Examples:

Update the Age?

set myObject.Age = 40

Update the Cat’s name to the Dog’s name?

set myObject.Pets[1].Name = myObject.Pets[0].Name

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Honda”, “BMW”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Jimmy”,
              ”Type”: “Cat”
            }
      ]
}
```

Examples:

Add new Income for Q3?

set myObject.Income.Q3 = “$30,000”

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Honda”, “BMW”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”,
            “Q3”: “$30,000”
      },
  ”Pets”: [
            {
               “Name”: “Jimmy”,
               “Type” : “Dog”
            },
            {
               “Name”: “Jimmy”,
               ”Type”: “Cat”
            }
      ]
}
```

Examples:

Add new Income for Q3?

set myObject.Income.Q3 = “$30,000”

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Honda”, “BMW”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”,
            “Q3”: “$30,000”
      },
  ”Pets”: [
            {
               “Name”: “Jimmy”,
               “Type” : “Dog”
            },
            {
               “Name”: “Jimmy”,
               ”Type”: “Cat”
            }
      ]
}
```

Examples:

Add a new car?

set myObject.Cars[] = “Porsche”

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Honda”, “BMW”, “Porsche”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”,
            “Q3”: “$30,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Jimmy”,
              ”Type”: “Cat”
            }
      ]
}
```

Examples:

Add a new car?

set myObject.Cars[] = “Porsche”

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Honda”, “BMW”, “Porsche”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”,
            “Q3”: “$30,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Jimmy”,
              ”Type”: “Cat”
            }
      ]
}
```

Examples:

Replace the existing value in the array?

set myObject.Cars[0] = “Tesla”

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Tesla”, “BMW”, “Porsche”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”,
            “Q3”: “$30,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Jimmy”,
              ”Type”: “Cat”
            }
      ]
}
```

Examples:

Replace the existing value in the array?

set myObject.Cars[0] = “Tesla”

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Tesla”, “BMW”, “Porsche”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q2”: “$20,000”,
            “Q3”: “$30,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Jimmy”,
              ”Type”: “Cat”
            }
      ]
}
```

Examples:

Delete record for Q2 income?

remove myObject.Income.Q2

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Tesla”, “BMW”, “Porsche”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q3”: “$30,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Jimmy”,
              ”Type”: “Cat”
            }
      ]
}
```

Examples:

Delete record for Q2 income?

remove myObject.Income.Q2

Note:
Keyword remove works only in Karate script.
In JavaScript need to use keyword delete

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Tesla”, “BMW”, “Porsche”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q3”: “$30,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Jimmy”,
              ”Type”: “Cat”
            }
      ]
}
```

Examples:

Delete record for BMW?

remove myObject.Cars[1]

Note:
Keyword remove works only in Karate script.
In JavaScript need to use keyword delete

Manipulating data in JSON

def myObject

```
{
  “FirstName”: “John”,
  “LastName”: “Smith”,
  “Age”: 40,
  “Cars”: [“Tesla”, “Porsche”],
  “Income”: {
            “Q1”: “$10,000”,
            “Q3”: “$30,000”
      },
  ”Pets”: [
            {
              “Name”: “Jimmy”,
              “Type” : “Dog”
            },
            {
              “Name”: “Jimmy”,
              ”Type”: “Cat”
            }
      ]
}
```

Examples:

Delete record for BMW?

remove myObject.Cars[1]

Note:
Keyword remove works only in Karate script.
In JavaScript need to use keyword delete

Summary

- JSON consist of objects{} and arrays[]
- Possible structures are:
  - simple objects and simple arrays
  - nested object and nested array
  - array of objects
- Data types: String, Number, Boolean, null
- Native JSON support to manipulate data