

JSON PATH FOR BEGINNERS

# YAML Introduction



### WHAT IS YAML?

<Servers> {

<name>Server1</name>
<owner>John</owner>
<created>12232012</created>
<status>active</status>

XML

</Server>

<Server>

JSON

YAML

#### Servers:

name: Server1 owner: John

created: 12232012

status: active



### WHAT IS YAML?

XML JSON

```
{
    Servers: [
        {
            name: Server1,
            owner: John,
            created: 12232012,
            status: active,
        }
    ]
```

### Servers:

- name: Server1 owner: John

YAML

created: 12232012

status: active



### YAML - NOTES

#### Dictionary/Map

#### Banana:

Calories: 105

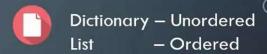
Fat: 0.4 g Carbs: 27 g



#### Banana:

Calories: 105

Carbs: 27 g Fat: 0.4 g



### Array/List

#### Fruits:

- Orange
- Apple
- Banana



#### Fruits:

- Orange
- Banana
- Apple

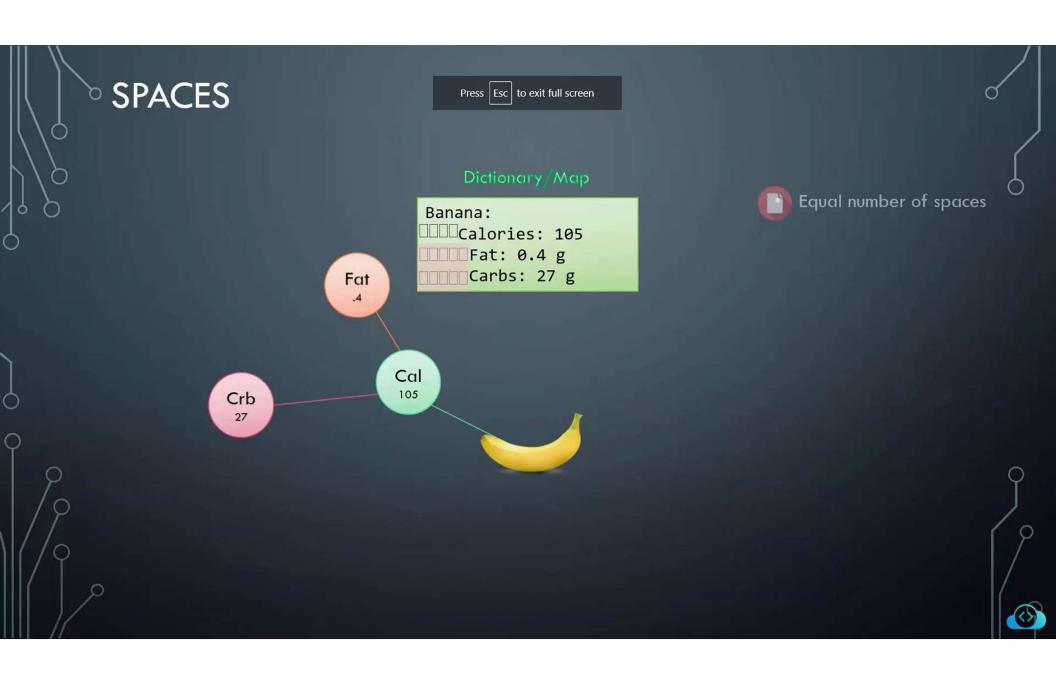
### # List of Fruits Fruits:

- Orange
- Apple
- Banana



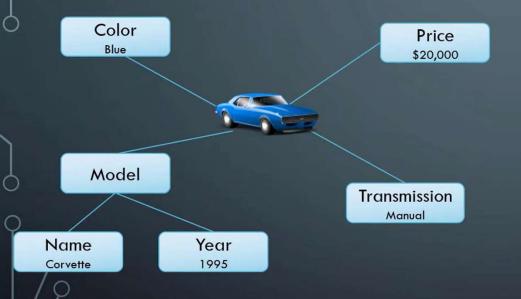
Hash # — Comments







### DICTIONARY VS LIST VS LIST OF DICTIONARIES



### Dictionary In Dictionary

Color: Blue

Model:

Name: Corvette

Year: 1995

Transmission: Manual

Price: \$20,000



### DICTIONARY VS LIST VS LIST OF DICTIONARIES



Color: Blue Model:

Name: Corvette Model: 1995 Transmission: Manual Price: \$20,000



Color: Grey Model:

Price: \$22,000

Name: Corvette Model: 1995 Transmission: Manual



Color: Red Model:

Name: Corvette Model: 1995 Transmission: Automatic

Price: \$20,000



Color: Green Model:

Name: Corvette Model: 1995 Transmission: Manual Price: \$23,000



Name: Corvette Model: 1995 Transmission: Manual

Price: \$20,000

Color: Black Model:

Name: Corvette Model: 1995 Transmission: Automatic Price: \$25,000 - Color: Blue

Model:

Name: Corvette Model: 1995

List Of Dictionaries

Transmission : Manual

Price: \$20,000 - Color: Grey

Model:

Name: Corvette Model: 1995 Transmission: Manual

Price: \$22,000

Color: Red Model:

> Name: Corvette Model: 1995

Transmission : Automatic

Price: \$20,000

- Color: Green

Model:

Name: Corvette Model: 1995

Transmission : Manual

Price: \$23,000 - Color: Blue

Model:

Name: Corvette Model: 1995

Transmission: Manual

Price: \$20,000



### YAML - NOTES

#### Dictionary/Map

#### Banana:

Calories: 105

Fat: 0.4 g Carbs: 27 g



#### Banana:

Calories: 105

Carbs: 27 g Fat: 0.4 g



### Array/List

#### Fruits:

- Orange
- Apple
- Banana



#### Fruits:

- Orange
- Banana
- Apple

### # List of Fruits Fruits:

- Orange
- Apple
- Banana



Hash # — Comments





Check out our full JSON Path course here: https://kode.wiki/3NuVhVV

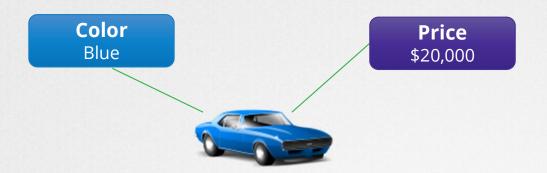


# JSON PATH PART—1-INTRODUCTION

# Objectives

- YAML
- YAML vs JSON
- JSON PATH
  - Dictionaries
  - Lists
  - Lists and Dictionaries
  - Criteria
- Practice Exercises

# IYAML



car:

color: blue

price: \$20,000

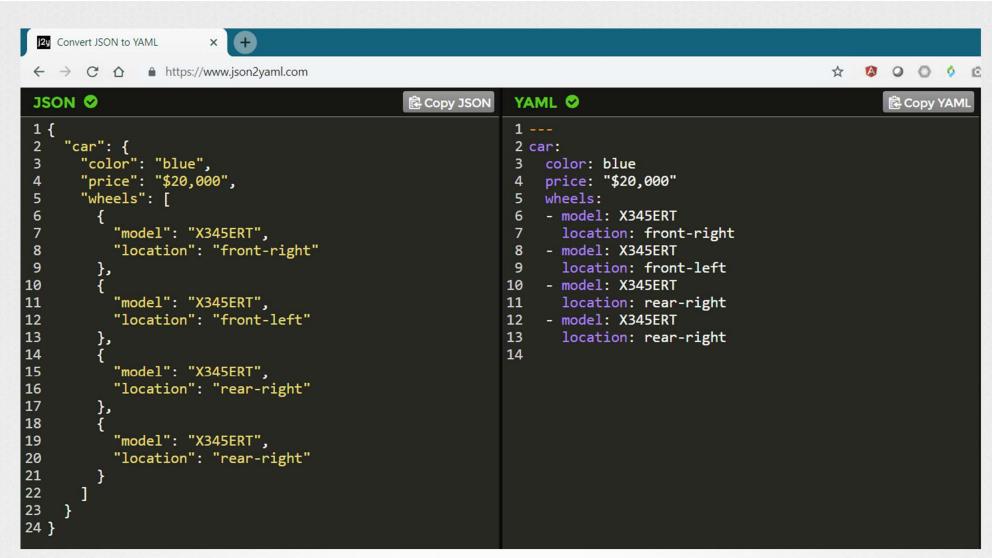
# IYAML vs JSON

```
{
    "car": {
        "color": "blue",
        "price": "$20,000"
}
```

```
car:
color: blue
price: $20,000
```

### YAML vs JSON

```
"wheels": [
© Copy
```



# **IJSON PATH**

```
{
    "car": {
        "color": "blue",
        "price": "$20,000"
    }
}
```

```
car:
    color: blue
    price: $20,000
```

# Query

DAT A

1

### **QUERY**

**RESULT** 

1 Get co

Cai	Color	TTICE	Tear
1	Blue	\$20,000	1987
2	Red	\$22,000	1988

\$18,000

Get col	lor and	price	of d	cars
select	color,	price :	from	cars;

Color	Price
Blue	\$20,000
Red	\$22,000
Yellow	\$18,000

2

1989

Get blue car details
select * from cars
where color is "Blue";

Car	Color	Price	Year
1	Blue	\$20,000	1987

3

Get price of the blue car
select price from cars
where color is "Blue";

Price

\$20,000

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Yello

W

3

# IJSON PATH

DAT

```
QUERY
```

```
RESULT
```

```
car
```

### **IJSON PATH - Dictionaries**

DAT A **QUERY** 

**RESULT** 

```
{
    "car": {
        "color": "blue",
        "price": "$20,000"
},
    "bus": {
        "color": "white",
        "price": "$120,000"
}
}
```

```
Get car details
```

```
Get bus details bus
```

```
Get car's color car.color
```

```
Get bus's color
bus.price
```

```
{
    "color": "blue",
    "price": "$20,000"
}
```

```
{
    "color": "white",
    "price": "$120,000"
}
```

"blue"

"\$120,000"

### **IJSON PATH - Dictionaries**

DAT A

QUERY RESULT

```
{
    "vehicles": {
        "car": {
            "color": "blue",
            "price": "$20,000"
        },
        "bus": {
            "color": "white",
            "price": "$120,000"
        }
    }
}
```

```
Get car details
vehicles.car
```

```
Get bus details
vehicles.bus
```

```
Get car's color
vehicles.car.color
```

```
Get bus's color

vehicles.bus.price
```

```
{
    "color": "blue",
    "price": "$20,000"
}
```

```
{
    "color": "white",
    "price": "$120,000"
}
```

```
blue"
```

```
`$120,000"
```

### Root element

### QUERY

#### **RESULT**

```
"car": {
    "color": "blue",
    "price": "$20,000"
},
"bus": {
    "color": "white",
    "price": "$120,000"
}
```

```
Get car details
```

```
Get bus details
vehicle$.bus
```

Get car's color

vehicle§.car.color

Get bus's color

vehicle\$.bus.price

```
{
    "color": "blue",
    "price": "$20,000"
}
```

```
{
    "color": "white",
    "price": "$120,000"
}
```

blue"

`\$120,000"

### **IJSON PATH - Dictionaries**

DAT

**QUERY** 

**RESULT** 

```
Get car details
```

\$.vehicles.car

Get bus details

\$.vehicles.bus

#### Get car's color

\$.vehicles.car.color

#### Get bus's color

\$.vehicles.bus.price

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# JSON PATH - Lists

DAT A

```
[ 0 "car", 1 "bus", 2 "truck", 3 "bike" ]
```

**QUERY** 

Get the 1<sup>st</sup> element

\$[0]

Get the 4<sup>th</sup> element

\$[3]

Get the 1<sup>st</sup> and 4<sup>th</sup> element

\$[0,3]

**RESULT** 

[ "car" ]

[ "bike" ]

[ "car", "bike"]

# JSON PATH – Dictionary & Lists

**DAT** 

```
"color": "blue",
<u>"price":</u> "$20,000",
"wheels": [
    "location": "front-left"
```

QUERY

RESULT

Get the model of the 2<sup>nd</sup> wheel \$.car.wheels[1].model

```
"model": "X345ERT",
    "location": "front-right"
},

{
    "model": "X346GRX"
    "location": "front-left"
}

"model": "X236DEM",
    "location": "rear-right"
},

{
    "model": "X987XMV",
    "location": "rear-right"
}
```

### JSON PATH - Criteria

DAT
A

[
12,
43,
23,
12,
56,
43,
93,
32,
45,
63,
87

```
Get all numbers greater than 40

$[Check if each item in the array > 40]

Check if => ? ()

$[?(each item in the list > 40)]

each item in the list => @
```

**QUERY** 

```
$[?( @ > 40 )]
```

```
0 == 40 0 \text{ in } [40, 43, 45] 1 = 40 1 = 40 1 = 40 1 = 40 1 = 40
```

56, 43, 93, 45, 63, 78

# IJSON PATH – Criteria

**DAT** 

QUERY

RESULT

Get the model of the rear-right wheel \$.car.wheels[2].model

"X236DEM"

# JSON PATH – Criteria

**DAT** 

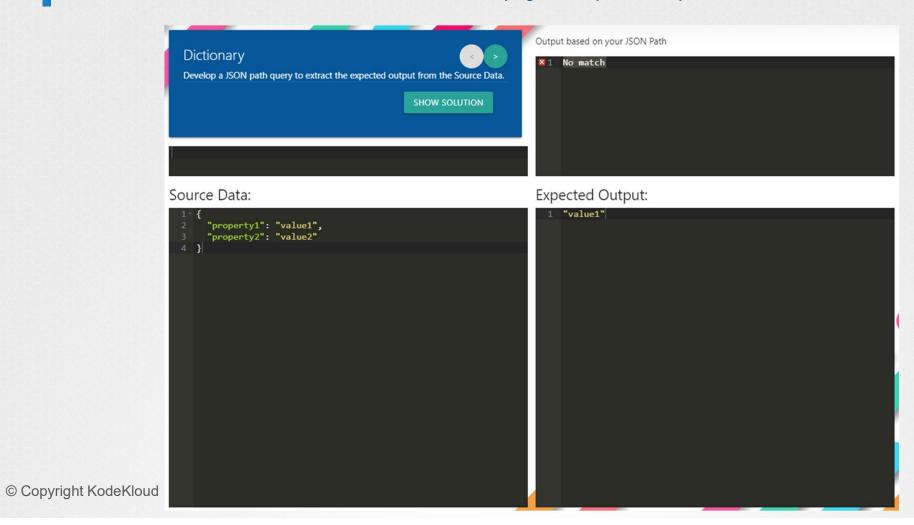
QUERY RESULT

```
Get the model of the rear-right wheel $.car.wheels[2].model
```

```
$.car.wheels[?(@.location == "rear-right")].model
```

"x236dem"

### kodekloud.com/p/json-path-quiz



# References

https://github.com/json-path/JsonPath



Check out our full JSON Path course here: https://kode.wiki/3NuVhVV



# JSON PATH PART-2-WILD CARD

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# JSON PATH - Wildcard

DAT A **QUERY** 

```
{
    "car": {
        "color": "blue",
        "price": "$20,000"
    },
    "bus": {
        "color": "white",
        "price": "$120,000"
    }
}
```

```
Get car's color
$.car.color
```

```
Get bus's color
$.bus.color
```

```
Get all colors
$.*.color
```

```
Get all prices
$.*.price
```

```
[ "blue" ]
```

```
[ "white" ]
```

```
[ "blue", "white" ]
```

```
"$20,000", "$120,000" ]
```

# JSON PATH - Wildcard

DAT

**QUERY** 

```
Get 1st wheel's model
$[0].model
Get 4th wheel's model
$[4].model
Get all wheels' model
```

# JSON PATH – Wildcard

DAT

```
QUERY
```

```
Get car's 1st wheel model
$.car.wheels[0].model

Get car's all wheel model
$.car.wheels[*].model

Get bus's wheel models
$.bus.wheels[*].model

Get all wheels' models

$.*.wheels[*].model
```

```
[ "X345ERT", "X346ERT" ]
```

```
[ "Z227KLJ", "Z226KLJ" ]
```

```
"X345ERT", "X346ERT", "Z227KLJ", "Z226KLJ"]
```



Check out our full JSON Path course here: https://kode.wiki/3NuVhVV



# JSON PATH PART - 3 - LISTS

### JSON PATH - Lists

### DAT

```
"Apple",
"Google",
"Microsoft",
"Amazon",
"Facebook",
"Coca-Cola",
"Samsung",
"Disney",
"Toyota",
"McDonald's"
]
```

### **QUERY**

```
Get the 1st element

$[0]

Get the 4th element

$[3]

Get the 1st and 4th element

$[0,3]

Get the 1st to 4th element

$[0:3]

START:END
```

### **RESULT**

# JSON PATH - Lists

# [ "Apple", "Google", "Microsoft", "Amazon", "Facebook", "Coca-Cola", "Samsung", "Disney", "Toyota", "McDonald's" ]

# **QUERY** \$[0:8]

START: END

Y[0.0.2]

START: END: STEP

### **RESULT**

```
"Apple",
  "Google",
  "Microsoft",
  "Amazon",
  "Facebook",
  "Coca-Cola",
  "Samsung",
  "Disney"
]
```

```
[
  "Apple",
  "Microsoft",
  "Facebook",
  "Samsung"
]
```

# JSON PATH - Lists

### DAT 1 "Google", -9 2 "Microsoft", -8 3 "Amazon", -7 -6 4 "Facebook", -5 5 "Coca-Cola", -4 7 "Disney", 8 "Toyota", -2 9 "McDonald's"

```
[
  "Apple",
  "Microsoft",
  "Facebook",
  "Samsung"
]
```

### **QUERY**

```
Get the last element $[9]
```

```
Get the last element $[-1]
```

```
$[-1:0]
```

\$[-1:]

```
Get the last 3 elements $[-3:]
```

### **RESULT**

```
[
"McDonald's"
]
```

Does not work in certain implementations

```
[
"Disney",
"Toyota",
"McDonald's"
]
```



Check out our full JSON Path course here: https://kode.wiki/3NuVhVV



# JSON PATH IN KUBERNETES

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# Objectives

- JSON PATH in KubeCtl
- Why JSON PATH?
- View and interpret KubeCtl output in JSON Format
- How to use JSON PATH with KubeCtl
- JSON PATH Examples
- Loops Range
- Custom Columns
- Sort
- Practice Tests and Exercises

# Pre-Requisite

- JSON PATH for Beginners on Youtube
- JSON PATH Practice Tests on KodeKloud
- JSON PATH Practice Tests on Kubernetes data set on KodeKloud

www.kodekloud.com/p/json-path-quiz

# Why JSON PATH?

- Large Data sets
  - 100s of Nodes
  - 1000s of PODs, Deployments, ReplicaSets

### **KubeCtl**



NAME	STATUS	ROLES	AGE	VERSION
master	Ready	master	40m	v1.11.3
node01	Ready	<none></none>	40m	v1.11.3

# **KubeCtl**

NAME	STATUS	ROLES	AGE	VERSION
master	Ready	master	40m	v1.11.3
node01	Ready	<none></none>	40m	v1.11.3

kubectl get nodes -o wide

NAME	STATUS	ROLES	AGE	VERSION	INTERNAL-IP	EXTERNAL-IP	OS-IMAGE	K
master	Ready	master	7m	v1.11.3	172.17.0.44	<none></none>	Ubuntu 16.04.2 LTS	4
node01	Ready	<none></none>	6m	v1.11.3	172.17.0.63	<none></none>	Ubuntu 16.04.2 LTS	4

# KubeCtl - JSON PATH

NAME CPU master 4 node01 4

NAME TAINTS
master node-role.kubernetes.io/master
node01

NAME ARCHITECTURE master amd64 node01 amd64

NAME IMAGE red nginx blue ubuntu yellow redis

### How to JSON PATH in KubeCtl?

- 1 Identify the **kubectl** command
- Familiarize with **JSON** output
- Form the JSON PATH query
  .items[0].spec.containers[0].image
- Use the **JSON PATH** query with **kubectl** command

```
kubectl get nodes -o json
```

kubectl get pods -o json

```
kubectl get pods -o=jsonpath='{
```

# JSON PATH Examples

```
kubectl get nodes -o=jsonpath='{.items[*].metadata.name}'
master node01
```

```
kubectl get nodes -o=jsonpath='{.items[*].status.nodeInfo.architecture}'
amd64 amd64
```

```
kubectl get pods -o=jsonpath='{.items[*].status.capacity.cpu}'
```

4 4

```
"operatingSystem": "linux",
```

# IJSON PATH Examples

```
kubectl get nodes -o=jsonpath='{.items[*].metadata.name}'
master node01
                                                                                              New line
                                                                                   {"\n"}
  kubectl get nodes -o=jsonpath='{.items[*].status.nodeInfo.architecture}'
                                                                                   {"\t"}
                                                                                              Ta
amd64 amd64
  kubectl get nodes -o=jsonpath={{iiems[*]]stabuscappaiitycpp}}'
4 4
  kubectl get nodes -o=jsonpath='{.items[*].metadata.name}
master node01 4 4
  kubectl get nodes -o=jsonpath='{.items[*].metadata.name}{{!\tems[*].status.capacity.cpu}'
master node01
```

### Loops - Range

```
kubectl get nodes -o=jsonpath='{.items[*].metadata.name}{"\n"}{.items[*].status.capacity.cpu}'
```

```
master node01
4 4
```

```
master 4
node01 4
```

```
FOR EACH NODE

PRINT NODE NAME \t PRINT CPU COUNT \n

END FOR
```

```
'{range .items[*]}
    {.metadata.name} {"\t"} {.status.capacity.cpu}{"\n"}
{end}'
```

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# Loops - Range

```
kubectl get pods -o=jsonpath='{.items[*].metadata.name} {"\n"}{.items[*].status.capacity.cpu}'
```

```
kubectl get nodes -o=jsonpath=
'{range .items[*]}{.metadata.name}{"\t"}{.status.capacity.cpu}{"\n"}{end}'
```

### **IJSON PATH for Custom Columns**

```
kubectl get nodes -o=jsonpath='{.items[*].metadata.name]{"\n"}{.items[*].status.capacity.cpu}'
                                                                              NODE
                                                                                        CPU
master node01
                                                                              master
                                                                              node01
                                                                                         4
```

```
kubectl get nodes -o=custom-columns=<COLUMN NAME>:<JSON PATH>
```

```
kubectl get nodes -o=custom-columns=NODE:.metadata.name ,CPU:.status.capacity.cpu
NODE
         CPU
master
          4
node01
          4
```

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### IJSON PATH for Sort

kubectl get nodes -o=custom-columns=NODE:.metadata.name,CPU:.status.capacity.cpu

NODE CPU master 4 node01 4

### kubectl get nodes --sort-by=

NAME	STATUS	ROLES	AGE	VERSION
master	Ready	master	5m	v1.11.3
node01	Ready	<none></none>	5m	v1.11.3

### kubectl get nodes --sort-by=

NAME	STATUS	ROLES	AGE	VERSION
master	Ready	master	5m	v1.11.3
node01	Ready	<none></none>	5m	v1.11.3



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