



# Introduction to JSON

The man behind the mask



# What is JSON?

JSON stands for JavaScript Object Notation and is a standard for coding data in text format, using a syntax very close to JavaScript (or EcmaScript).

It is designed to be readable by both humans and machines (pretty much like XML, for instance).

JSON is a very common format for data exchange, typically for web services like APIs for open data etc.

# Why should I learn about JSON?

JSON is common for

- web programming (both applications and clients)
- web services
- android applications accessing data over HTTP

JSON is a great buzz word for you CV.

Most programming languages have support for JSON via some library.

# What does JSON look like?

```
{
  "users": [
    {
      "Name": "Kalle Anka",
      "Email": "donald@email.dt",
      "UserName": "donaldd"
    },
    {
      "Name": "Joakim von Anka",
      "Email": "scrooge@email.dt",
      "UserName": "onkelscrooge"
    },
    {
      "Name": "Arne Anka",
      "Email": "arne@email.com",
      "UserName": "arneanka"
    }
  ]
}
```

# Elements of a JSON document

```
{  
  "users": [  
    {  
      "Name": "Kalle Anka",  
      "Email": "donald@email.dt",  
      "UserName": "donaldd"  
    },  
    {  
      "Name": "Joakim von Anka",  
      "Email": "scrooge@email.dt",  
      "UserName": "onkelscrooge"  
    },  
    {  
      "Name": "Arne Anka",  
      "Email": "arne@email.com",  
      "UserName": "arneanka"  
    }  
  ]  
}
```

outermost object - enclosed in { }

# Elements of a JSON document

```
{  
  "users": [  
    {  
      "Name": "Kalle Anka",  
      "Email": "donald@email.dt",  
      "UserName": "donaldd"  
    },  
    {  
      "Name": "Joakim von Anka",  
      "Email": "scrooge@email.dt",  
      "UserName": "onkelscrooge"  
    },  
    {  
      "Name": "Arne Anka",  
      "Email": "arne@email.com",  
      "UserName": "arneanka"  
    }  
  ]  
}
```

name-value pair

in this case "users" and an array of objects

# Elements of a JSON document

```
{  
  "users": [  
    {  
      "Name": "Kalle Anka",  
      "Email": "donald@email.dt",  
      "UserName": "donaldd"  
    },  
    {  
      "Name": "Joakim von Anka",  
      "Email": "scrooge@email.dt",  
      "UserName": "onkelscrooge"  
    },  
    {  
      "Name": "Arne Anka",  
      "Email": "arne@email.com",  
      "UserName": "arneanka"  
    }  
  ]  
}
```

an object with three name-value pairs

# That's pretty much it

JSON is a very small specification:

<http://www.json.org/>

In general, the simple syntax leads to smaller documents than for instance XML. It doesn't use "end-tags", for instance.



# JSON and Java

There are many libraries for parsing and generating JSON from Java, and you'll need to learn a few of them. They are pretty similar, so once you know one or two, you'll have no problem switching to a new API.

Android (typically) uses `org.json`.

We'll look at `org.json` and perhaps also `javax.json` and `json-lib` in a future lecture.

# Further reading

In order to become fluent in JSON, you should read the following resources:

- <http://www.json.org/>
- [http://www.w3schools.com/js/js\\_json\\_intro.asp](http://www.w3schools.com/js/js_json_intro.asp)
- <https://www.tutorialspoint.com/json/index.htm>