
JSONTas Documentation

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JSONTas is a tool for generating dynamic JSON structures.

1.1 JSONTas

JSONTas is a tool for generating dynamic JSON data.

1.1.1 Description

JSONTas adds conditionals and logic to JSON files in order to create dynamic JSON data depending on which dataset you supply.

It opens up the possibility to create generic tools where most of the operations are done by executing JSONTas on the data.

Documentation: <https://jsontas.readthedocs.io/en/latest>

1.1.2 Features

- Simple yet powerful syntax.
- HTTP requests on parse
- Separation of environments by providing different datasets.

1.1.3 Installation

Install the project by running:

```
pip install jsontas
```

1.1.4 Examples

First we create two datasets. One for our ‘dev’ environment and one for our ‘prod’ environment.

Dataset 'dev.json'

```
{
  "mode": "dev",
  "database": "dev_db"
}
```

Dataset 'prod.json'

```
{
  "mode": "prod",
  "database": "prod_db"
}
```

JSONTas JSON file

Next up, let's create our JSONTas file.

```
{
  "database": {
    "host": "myawesomedb.example.com",
    "database": "$database"
  },
  "message": {
    "$condition": {
      "if": {
        "key": "$mode",
        "operator": "$eq",
        "value": "dev"
      },
      "then": "This is the DEV server.",
      "else": "This is the PROD server."
    }
  }
}
```

JSONTas execute with 'dev' dataset

```
jsontas -d dev.json data.json
```

```
{
  "database": {
    "host": "myawesomedb.example.com",
    "database": "dev_db"
  },
  "message": "This is the DEV server."
}
```

JSONTas execute with 'prod' dataset

```
jsontas -d prod.json data.json
```

```
{
  "database": {
    "host": "myawesomedb.example.com",
    "database": "prod_db"
  },
  "message": "This is the PROD server."
}
```

These examples only show the bare minimum. For more examples look at our documentation at: <https://jsontas.readthedocs.io/en/latest>

1.1.5 Contribute

- Issue Tracker: <https://github.com/AxisCommunications/jsontas/issues>
- Source Code: <https://github.com/AxisCommunications/jsontas>

1.1.6 Support

If you are having issues, please let us know. Email tobias.persson@axis.com or just write an issue.

1.2 Examples

In order to run these examples you need to create two JSON-files; one for the dataset and one for the actual JSONTas JSON file.

Run the examples by executing

```
jsontas -d dataset.json jsonfile.json
```

1.2.1 Condition

jsontas.data_structures.condition

Set value in JSON on a condition. Supported operators are defined here: *jsontas.data_structures.operator.Operator*

Dataset

```
{
  "name": "John Doe"
}
```

JSON

```
{
  "occupation": {
    "$condition": {
      "if": {
        "key": "$name",
        "operator": "$eq",
        "value": "John Doe",
      },
      "then": "Engineer",
      "else": "Unemployed"
    }
  }
}
```

Result

```
{
  "occupation": "Engineer"
}
```

1.2.2 Condition List

jsontas.data_structures.condition

Set a value in JSON on multiple conditions. Supported operators are defined here: *jsontas.data_structures.operator.Operator*

Dataset

```
{
  "name": "John Doe",
  "occupation": "Engineer"
}
```

JSON

```
{
  "team": {
    "$condition": {
      "if": [
        {
          "key": "$name",
          "operator": "$eq",
          "value": "John Doe",
        },
        {
          "key": "$occupation",
          "operator": "$in",
          "value": ["Engineer", "Manager"]
        }
      ]
    }
  }
}
```

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```

        }
      ],
      "then": "The Best Team",
      "else": "The Worst Team"
    }
  }
}

```

Result

```

{
  "team": "The Best Team"
}

```

Note that condition list is an ‘AND’ check so all conditions must be True for the ‘then’ field to execute.

1.2.3 Expand

jsonatas.data_structures.expand

Expand a value into a list of a certain number of elements.

Dataset

```

{
  "likes": 2,
  "upvotes": 3
}

```

JSON

```

{
  "upvotes": {
    "$expand": {
      "value": {
        "upvote": true
      },
      "to": "$upvotes"
    }
  },
  "likes": {
    "$expand": {
      "value": "Like",
      "to": "$likes"
    }
  }
}

```

Result

```
{
  "upvotes": [
    {"upvote": true},
    {"upvote": true},
    {"upvote": true}
  ],
  "likes": ["Like", "Like"]
}
```

1.2.4 Filter

jsontas.data_structures.filter

Remove items that do not match a certain filter. Supported operators are defined here: *jsontas.data_structures.operator.Operator*

Dataset

```
{
  "employees": [
    {
      "name": "John Doe",
      "occupation": "Engineer"
    },
    {
      "name": "Jane Doe",
      "occupation": "Engineer"
    },
    {
      "name": "Jane Smith",
      "occupation": "Manager"
    }
  ]
}
```

JSON

```
{
  "engineers": {
    "$filter": {
      "items": "$employees",
      "filters": [
        {
          "key": "occupation",
          "operator": "$eq",
          "value": "Engineer"
        }
      ]
    }
  }
}
```

Result

```
{
  "engineers": [
    {
      "name": "John Doe",
      "occupation": "Engineer"
    },
    {
      "name": "Jane Doe",
      "occupation": "Engineer"
    }
  ]
}
```

1.2.5 From

jsontas.data_structures.from_item

Get a value from a dictionary.

Dataset

```
{
  "manager": {
    "name": "Jane Smith",
    "occupation": "Manager"
  }
}
```

JSON

```
{
  "manager": {
    "$from": {
      "item": "$manager",
      "get": "name"
    }
  }
}
```

Result

```
{
  "manager": "Jane Smith"
}
```

1.2.6 List

jsontas.data_structures.list

While List is not supposed to be used directly inside a JSON structure one can operate on lists in a dataset like this

Dataset

```
{
  "employees": [
    {
      "name": "John Doe",
      "occupation": "Engineer"
    },
    {
      "name": "Jane Doe",
      "occupation": "Engineer"
    },
    {
      "name": "Jane Smith",
      "occupation": "Manager"
    }
  ]
}
```

JSON

```
{
  "first_employee": "$employees.0",
  "last_employee": "$employees.-1",
  "first_two_employees": "$employees.:2"
}
```

Result

```
{
  "first_employee": {
    "name": "John Doe",
    "occupation": "Engineer"
  },
  "last_employee": {
    "name": "Jane Smith",
    "occupation": "Manager"
  },
  "first_two_employees": [
    {
      "name": "John Doe",
      "occupation": "Engineer"
    },
    {
      "name": "Jane Doe",
      "occupation": "Engineer"
    }
  ]
}
```

1.2.7 Operator

jsontas.data_structures.operator

Dataset

```
{
  "employee": {
    "name": "Jane Doe",
    "occupation": "Engineer"
  }
}
```

JSON

```
{
  "is_manager": {
    "$operator": {
      "key": "$employee.occupation",
      "operator": "$eq",
      "value": "Manager"
    }
  }
}
```

Result

```
{
  "is_manager": false
}
```

Available operators are further explained in *jsontas.data_structures.operator* They are:

- **\$eq** *jsontas.data_structures.operator.Operator._equal*
- **\$in** *jsontas.data_structures.operator.Operator._in*
- **\$notin** *jsontas.data_structures.operator.Operator._notin*
- **\$startswith** *jsontas.data_structures.operator.Operator._startswith*
- **\$regex** *jsontas.data_structures.operator.Operator._regex*

1.2.8 Reduce

jsontas.data_structures.reduce

Reduce a list from end to beginning (from right) to a specific value.

Dataset

```
{
  "max_list_length": 2
}
```

JSON

```
{
  "reduced_list": {
    "$reduce": {
      "list": [
        "element 1",
        "element 2",
        "element 3"
      ],
      "to": "$max_list_length"
    }
  }
}
```

Result

```
{
  "reduced_list": [
    "element 1",
    "element 2"
  ]
}
```

1.2.9 Request

jsontas.data_structures.request

Make HTTP requests and get JSON values from the response. Useful for when the dataset is located on a website or if one wants to parse JSON based APIs.

Dataset

```
{
  "userdata": "https://jsonplaceholder.typicode.com/users/1"
}
```

JSON

```
{
  "user": {
    "$request": {
      "url": "$userdata",
      "method": "GET"
    }
  }
}
```

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```
}
}
```

Result

```
{
  "user": {
    "address": {
      "city": "Gwenborough",
      "geo": {
        "lat": "-37.3159",
        "lng": "81.1496"
      },
      "street": "Kulas Light",
      "suite": "Apt. 556",
      "zipcode": "92998-3874"
    },
    "company": {
      "bs": "harness real-time e-markets",
      "catchPhrase": "Multi-layered client-server neural-net",
      "name": "Romaguera-Crona"
    },
    "email": "Sincere@april.biz",
    "id": 1,
    "name": "Leanne Graham",
    "phone": "1-770-736-8031 x56442",
    "username": "Bret",
    "website": "hildegard.org"
  }
}
```

Getting a specific response from the response will be further explained below in segment *Nested*

1.2.10 Wait

`jsontas.data_structures.wait`

Waiting for a query tree to evaluate to true. A query tree is the full, unresolved, JSON structure that is currently being resolved. This is mostly used for when utilizing the *Request* datastructure as a way to wait for an API to respond with the data required.

Example will look similar to the *Request* example as this is how the *Wait* structure is normally used.

Dataset

```
{
  "userdata": "https://jsonplaceholder.typicode.com/users/this_does_not_exist"
}
```

JSON

```
{
  "user": {
    "$wait": {
      "for": {
        "$request": {
          "url": "$userdata",
          "method": "GET"
        }
      },
      "interval": 1,
      "timeout": 5,
      "else": "No user found"
    }
  }
}
```

Result

Result will come after 5 seconds.

```
{
  "user": "No user found"
}
```

1.2.11 Nested

Now that we know how all the data structures work in isolation we can start nesting data structures and create more advanced logic.

This example will get the title of all the posts from the user ‘Leanne Graham’ at <https://jsonplaceholder.typicode.com/users>

Dataset

```
{
  "users_api": "https://jsonplaceholder.typicode.com/users",
  "posts_api": "https://jsonplaceholder.typicode.com/posts",
  "username": "Leanne Graham",
  "accepted_status_codes": [200]
}
```

JSON

```
{
  "user_id": {
    "$from": {
      "item": {
        "$filter": {
          "items": {
```

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```

        "$wait": {
          "for": {
            "$condition": {
              "then": {
                "$request": {
                  "url": "$users_api",
                  "method": "GET"
                }
              },
              "if": {
                "key": "$response.status_code",
                "operator": "$in",
                "value": "$accepted_status_codes"
              },
              "else": null
            }
          },
          "interval": 1,
          "timeout": 20,
          "else": {}
        }
      },
      "filters": [
        {
          "key": "name",
          "operator": "$eq",
          "value": "$username"
        }
      ]
    },
    "get": "id"
  },
  "posts": {
    "$from": {
      "item": {
        "$request": {
          "url": "$posts_api",
          "method": "GET",
          "params": {
            "userId": "$this.user_id.0"
          }
        }
      },
      "get": "title"
    }
  }
}

```

Result

```

{
  "posts": [
    "sunt aut facere repellat provident occaecati excepturi optio reprehenderit",

```

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```
"qui est esse",
"ea molestias quasi exercitationem repellat qui ipsa sit aut",
"eum et est occaecati",
"nesciunt quas odio",
"dolorem eum magni eos aperiam quia",
"magnum facilis autem",
"dolorem dolore est ipsam",
"nesciunt iure omnis dolorem tempora et accusantium",
"optio molestias id quia eum"
],
"user_id": [
  1
]
}
```

1.2.12 Conclusion

There are many crazy ways of utilizing JSONTas and it's quite impossible to write examples for each and every use-case. If there are any questions then please to not hesitate contacting the maintainers or writing an issue in github. We encourage you to play around with it and send a PR with new examples.

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```

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limitations under the License.

1.4 Maintainers

- Tobias Persson <tobias.persson@axis.com>
- Fredrik Fristedt <fredrik.fristedt@axis.com>

1.5 Contributing

Thank you for showing interest in improving JSONTas, it is appreciated!

1.5.1 Proposing changes

Anyone can propose changes by just writing an issue in GitHub. These proposals will be reviewed by our maintainers in order to make sure that it's feasible.

When writing proposals for JSONTas, be as precise as possible and include arguments as to why this change is beneficial and possible downsides.

Note that our maintainers will implement submitted proposals in due time and that you are welcome to implement the proposal yourself for faster integration. During implementation, it is required to assign yourself to the issue and following the contribution guide below.

1.5.2 How to contribute

Make contributions by forking the project, make the change and create a pull request. Note that it is required to link an issue in the pull request unless it is a very minor change (i.e. spelling corrections etc.).

Every pull request is appreciated but note that all changes might not be accepted. If this is the case, the reasons shall be communicated in the pull request. If there is no communication or the communicated reasons are not clear enough, do not hesitate to contact the maintainers at jsontas-maintainers@google-groups.com

License

All contributions must be licensed under the Apache License 2.0. This means that a license notice shall be included in every file in the following format:

Copyright <Year(s)> <Copyright holder of original contribution [and others].>

For a full list of individual contributors, please see the commit history.

1.6 Contributor Covenant Code of Conduct

1.6.1 Our Pledge

In the interest of fostering an open and welcoming environment, we as contributors and maintainers pledge to make participation in our project and our community a harassment-free experience for everyone, regardless of age, body size,

disability, ethnicity, sex characteristics, gender identity and expression, level of experience, education, socio-economic status, nationality, personal appearance, race, religion, or sexual identity and orientation.

1.6.2 Our Standards

Examples of behavior that contributes to creating a positive environment include:

- Using welcoming and inclusive language
- Being respectful of differing viewpoints and experiences
- Gracefully accepting constructive criticism
- Focusing on what is best for the community
- Showing empathy towards other community members

Examples of unacceptable behavior by participants include:

- The use of sexualized language or imagery and unwelcome sexual attention or advances
- Trolling, insulting/derogatory comments, and personal or political attacks
- Public or private harassment
- Publishing others' private information, such as a physical or electronic address, without explicit permission
- Other conduct which could reasonably be considered inappropriate in a professional setting

1.6.3 Our Responsibilities

Project maintainers are responsible for clarifying the standards of acceptable behavior and are expected to take appropriate and fair corrective action in response to any instances of unacceptable behavior.

Project maintainers have the right and responsibility to remove, edit, or reject comments, commits, code, wiki edits, issues, and other contributions that are not aligned to this Code of Conduct, or to ban temporarily or permanently any contributor for other behaviors that they deem inappropriate, threatening, offensive, or harmful.

1.6.4 Scope

This Code of Conduct applies within all project spaces, and it also applies when an individual is representing the project or its community in public spaces. Examples of representing a project or community include using an official project e-mail address, posting via an official social media account, or acting as an appointed representative at an online or offline event. Representation of a project may be further defined and clarified by project maintainers.

1.6.5 Enforcement

Instances of abusive, harassing, or otherwise unacceptable behavior may be reported by contacting the project team at oss-conduct@axis.com. All complaints will be reviewed and investigated and will result in a response that is deemed necessary and appropriate to the circumstances. The project team is obligated to maintain confidentiality with regard to the reporter of an incident. Further details of specific enforcement policies may be posted separately.

Project maintainers who do not follow or enforce the Code of Conduct in good faith may face temporary or permanent repercussions as determined by other members of the project's leadership.

1.6.6 Attribution

This Code of Conduct is adapted from the Contributor Covenant, version 1.4, available at <https://www.contributor-covenant.org/version/1/4/code-of-conduct.html>

For answers to common questions about this code of conduct, see <https://www.contributor-covenant.org/faq>

1.7 Changelog

1.7.1 Version 1.0.0

- JSONTas is a tool for generating dynamic JSON structures.

1.8 jsontas

1.8.1 jsontas package

Subpackages

jsontas.data_structures package

Submodules

jsontas.data_structures.condition module

Condition datastructure.

```
class jsontas.data_structures.condition.Condition(jsonkey,      datasubset,      dataset,
                                                **data)
```

Bases: *jsontas.data_structures.datastructure.DataStructure*

Condition datastructure.

Example:

```
{
  "$condition": {
    "if": {
      "key": "Key to match",
      "operator": "$eq",
      "value": "something",
    },
    "then": "returnvalue",
    "else": "Default value"
  }
}
```

Example:

```
{
  "$condition": {
    "if": [
```

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```

        {
            "key": "Key to match",
            "operator": "$eq",
            "value": "something",
        },
        {
            "key": "Another key to match",
            "operator": "$in",
            "value": "somethingelse"
        }
    ],
    "then": "returnvalue",
    "else": "Default value"
}

```

Supported operators defined here: `jsontas.data_structures.operator.Operator`

`_if (operator)`

If operator.

Parameters `operator` (*dict*) – Data to check “if” on.

Returns Operator result.

Return type `bool`

`static _else (data)`

Else operator. Just return the data.

Note that this method is added for readability in *execute* only.

Parameters `data` (*any*) – Data to just return.

Returns Condition.

Return type `str`

`execute ()`

Execute data.

Returns None and value from either ‘else’ or ‘then’.

Return type `tuple`

jsontas.data_structures.datastructure module

Base datastructure.

`class jsontas.data_structures.datastructure.DataStructure` (*jsonkey, datasubset, dataset, **data*)

Bases: `object`

Base datastructure class.

`execute ()`

Execute datastructure.

Implement this.

jsontas.data_structures.expand module

Expand datastructure.

class jsontas.data_structures.expand.**Expand**(*jsonkey, datasubset, dataset, **data*)

Bases: *jsontas.data_structures.datastructure.DataStructure*

Expand datastructure.

Expand a value into a list of a certain number of elements.

Example:

```
{
  "a_list": {
    "$expand": {
      "value": {
        "hello": "world"
      },
      "to": 5
    }
  }
}
```

Result:

```
{
  "a_list": [
    {
      "hello": "world"
    },
    {
      "hello": "world"
    },
    {
      "hello": "world"
    },
    {
      "hello": "world"
    },
    {
      "hello": "world"
    },
    {
      "hello": "world"
    }
  ]
}
```

Example:

```
{
  "another_list": {
    "$expand": {
      "value": "something"
      "to": 5
    }
  }
}
```

Result:

```
{
  "another_list": [
    "something",
    "something",
    "something",
    "something",
    "something"
  ]
}
```

execute()

Execute expand.

Returns None and a list of values.

Return type tuple

jsontas.data_structures.filter module

Filter datastructure.

class jsontas.data_structures.filter.**Filter**(jsonkey, datasubset, dataset, **data)

Bases: *jsontas.data_structures.datastructure.DataStructure*

Filter datastructure.

Example:

```
{
  "data": {
    "$filter": {
      "items": [
        {
          "status": "success",
          "value": "1"
        },
        {
          "status": "failure",
          "value": "2"
        },
        {
          "status": "success",
          "value": "3"
        }
      ],
      "filters": [
        {
          "key": "status",
          "operator": "$eq",
          "value": "success"
        }
      ]
    }
  }
}

# {"data": [{"status": "success", "value": "1"}, {"status": "success", "value": "3"}]}
```

execute()

Execute the filter datastructure.

Returns Key and the value(s) found.**Return type** tuple**filter(item)**

Execute the filtering list against item.

The filtering list is the list of key,operator,value dictionaries following the format of *jsontas.data_structures.operator.Operator* (in fact, the *jsontas.data_structures.operator.Operator* datastructure is used in this method to validate the filters)

Note that when running the filter, the dataset is appended with an “item” which is a single item from the “items” filter list (can be seen above).

The dataset could then be this:

```
{
  **current_dataset,
  "item": { "status": "success", "value": "1" }
}
```

With the filter being:

```
{
  "key": "status",
  "operator": "$eq",
  "value": "success"
}
```

And the filter would be True (the status of the item is ‘success’). Note that this method will only ever run on the “item”. If there is not “\$item” in the “key”, the method will add it. That is why it’s possible to write:

```
{ "key": "status" }
```

instead of:

```
{ "key": "$item.status" }
```

But it would also mean that if one were to write:

```
{ "key": "$anotherkey.something.else" }
```

it would become:

```
{ "key": "$item.$anotherkey.something.else" }
```

which would fail.

This is a design choice. The filter shall not utilize any data aside from the ‘item’ key in the dataset.

Parameters *item(dict)* – Item to filter.**Returns** Whether or not all items in filter evaluates to True.**Return type** bool

jsontas.data_structures.from_item module

From datastructure.

class jsontas.data_structures.from_item.**From**(jsonkey, datasubset, dataset, **data)
Bases: *jsontas.data_structures.datastructure.DataStructure*

From datastructure.

Example:

```
{
  "hello" {
    "$from": {
      "item": {
        "value": "something",
        "text": "world"
      },
      "get": "text"
    }
  }
}
# {"hello": "world"}
```

execute()

Execute the \$from datastructure.

Returns Key and the value(s) found.

Return type tuple

jsontas.data_structures.list module

List datastructure.

class jsontas.data_structures.list.**List**(jsonkey, datasubset, dataset, **data)
Bases: *jsontas.data_structures.datastructure.DataStructure*

List datastructure.

Not to be used directly in JSON structure. Use it with the .int operator.

index - Index 0:

```
{
  "something": "$value.0"
}
```

index - Last index:

```
{
  "something": "$value.-1"
}
```

slice - Everything after index 1:

```
{
  "something": "$value.1:"
}
```

slice - Everything before index 4:

```
{
    "something": "$value.:4"
}
```

slice - Everything between index 2 and 4:

```
{
    "something": "$value.2:4"
}
```

execute()

Execute the list datastructure.

Returns Key and the value(s) found.

Return type `tuple`

static index (*data*, *index*)

Get an index from data.

Parameters

- **data** (*list*, *set* or *tuple*) – Data to get index from.
- **index** (*int*) – Index to get.

Returns Value on index.

Return type `any`

static slice (*data*, *first*, *second*)

Slice a string based on first and second integers.

Parameters

- **data** (*list*, *set* or *tuple*) – Data to get slice from.
- **first** (*int* or *None*) – Number to put before ‘:’ if not None.
- **second** (*int* or *None*.) – Number to put after ‘:’ if not None.

Returns Sliced list.

Return type `list`

static split (*value*)

Split a string on ‘:’ and return first and second value.

Parameters **value** (*str*) – Value to split.

Returns First and second value. Any of them can be None.

Return type `tuple`

jsonatas.data_structures.operator module

Operator datastructure.

class `jsonatas.data_structures.operator.Operator` (**args*, ***kwargs*)

Bases: `jsonatas.data_structures.datastructure.DataStructure`

Operator datastructure.

Example:

```
{
  "$operator": {
    "key": "key to match",
    "operator": "$eq",
    "value": "value to match against key"
  }
}
```

Supported operators:

- **\$eq** *_equal*
- **\$in** *_in*
- **\$notin** *_notin*
- **\$startswith** *_startswith*
- **\$regex** *_regex*

_equal()

Operator '=='.

Example:

```
{
  "$operator": {
    "key": "key to match",
    "operator": "$eq",
    "value": "value to match against key"
  }
}
```

_in()

Operator 'in'.

Example - In list:

```
{
  "$operator": {
    "key": "key",
    "operator": "$in",
    "value": ["key", "anotherkey"]
  }
}
```

Example - In string:

```
{
  "$operator": {
    "key": "k",
    "operator": "$in",
    "value": "key"
  }
}
```

_notin()

Operator 'not in'.

Example - In list:

```
{
  "$operator": {
    "key": "key",
    "operator": "$notin",
    "value": ["key", "anotherkey"]
  }
}
```

Example - In string:

```
{
  "$operator": {
    "key": "k",
    "operator": "$notin",
    "value": "key"
  }
}
```

`_startswith()`

Operator 'str.startswith()'.

Example:

```
{
  "$operator": {
    "key": "key",
    "operator": "$startswith",
    "value": "k"
  }
}
```

`_regex()`

Operator 're.match'.

Example:

```
{
  "$operator": {
    "key": "key",
    "operator": "$regex",
    "value": "^[A-Za-z]+$"
  }
}
```

`execute()`

Execute operator.

Returns None and whether key matches value or not.

Return type tuple

jsonatas.data_structures.reduce module

Reduce datastructure.

class jsonatas.data_structures.reduce.**Reduce** (jsonkey, datasubset, dataset, ***data*)

Bases: *jsonatas.data_structures.datastructure.DataStructure*

Reduce a list from end to beginning (from right) to a specific value

Example:

```
{
  "reduced_list": {
    "$reduce": {
      "list": [
        "element 1",
        "element 2",
        "element 3"
      ],
      "to": 2
    }
  }
}
```

Result:

```
{
  "reduced_list": [
    "element 1",
    "element 2"
  ]
}
```

execute()

Execute reduce.

Returns None and a list of values.

Return type tuple

jsontas.data_structures.request module

Request datastructure.

class jsontas.data_structures.request.**Request** (jsonkey, datasubset, dataset, ***data*)

Bases: *jsontas.data_structures.datastructure.DataStructure*

HTTP request datastructure.

Example:

```
{
  "$request" {
    "url": "http://localhost:8000/something.json",
    "method": "GET"
  }
}
```

Example:

```
{
  "$request" {
    "url": "http://localhost:8000/something.json",
    "method": "POST",
    "json": {
```

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```
        "my_json": "hello"
    },
    "headers": {
        "Content-Type": "application/json"
    },
    "auth": {
        "username": "admin",
        "password": "admin",
        "type": "basic"
    }
}
```

Example getting response after:

```
# Assume response from request is: {"hello": "world"}
{
    "data": {
        "$request" {
            "url": "http://localhost:8000/something.json",
            "method": "GET"
        }
    },
    "text": "$response.json.hello"
}
# Resulting JSON will be:
{
    "data": {
        "hello": "world"
    },
    "text": "world"
}
```

execute()

Execute data.

Returns None and response as JSON (or None).

Return type Tuple

request (*url*, *method*, *json=None*, *headers=None*, ***requests_parameters*)

Make an HTTP request.

Parameters

- **url** (*str*) – URL to request.
- **method** (*str*) – HTTP method.
- **json** (*dict*) – Optional JSON data to request.
- **headers** (*dict*) – Optional extra headers to request.
- **requests_parameters** (*dict*) – Extra parameters to python requests.

Returns Wait generator for getting responses from request.

Return type generator

static wait (*method*, *timeout=None*, *interval=5*, ***kwargs*)

Iterate over result from method call.

Parameters

- **method** – Method to call.
- **timeout** (*int* or *None*) – How long, in seconds, to iterate.
- **interval** (*int*) – How long, in seconds, to wait between method calls.
- **kwargs** (*dict*) – Keyword arguments to pass to method call.

jsontas.data_structures.wait module

Wait datastructure.

class jsontas.data_structures.wait.**Wait** (*jsonkey, datasubset, dataset, **data*)

Bases: *jsontas.data_structures.datastructure.DataStructure*

Wait datastructure.

Wait for a query tree to evaluate to True.

Example:

```
{
  "$wait": {
    "for": {
      "$request": {
        "url": "http://example.com",
        "method": "GET"
      }
    },
    "interval": 1,
    "timeout": 20,
    "else": {}
  }
}
```

Request example.com until a non-null response. Maximum 1 request/s for 20s

Due to the storage of the ‘query_tree’ in dataset it is possible to nest queries:

Example:

```
{
  "response": {
    "$from": {
      "item": {
        "$wait": {
          "for": {
            "$condition": {
              "then": {
                "$request": {
                  "url": "http://example.com",
                  "method": "GET"
                }
              },
              "if": {
                "key": "$response.status_code",
                "operator": "$eq",
                "value": 200
              }
            }
          }
        }
      }
    }
  }
}
```

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```

        },
        "else": null
    }
},
"interval": 1,
"timeout": 20,
"else": {}
}
},
"get": "items"
}
}
}

```

Wait for example.com to respond with status_code 200 and a non-null response and get the ‘items’ key from the response. Maximum 1 request/s for 20s

execute()

Execute wait datastructure.

Waiting for will requires a ‘query_tree’ which is a collection of all requests that are ‘below’ the ‘wait’ datastructure. This is to keep track of the queries that have executed before (but not the results of these queries).

This query tree is then executed in the `jsontas.jsontas.JsonTas.resolve()` method, which can be considered weird. We’re executing JsonTas inside of a JsonTas query. But this is the only way to re-run a query tree.

Returns None and the result of re-running a query tree.

Return type Tuple

static wait (*method, timeout, interval, **kwargs*)

Iterate over result from method call.

Parameters

- **method** – Method to call.
- **timeout** (*int or None*) – How long, in seconds, to iterate.
- **interval** (*int*) – How long, in seconds, to wait between method calls.
- **kwargs** (*dict*) – Keyword arguments to pass to method call.

Module contents

Datastructure.

Submodules

jsontas.dataset module

Dataset module.

class `jsontas.dataset.Dataset`

Bases: `object`

JSONTas dataset object. Used for lookup of \$ notated strings in a JSON file.

add (*key*, *value*)

Add a new dataset value and key.

Parameters

- **key** (*str*) – Dictionary key for global dataset dict.
- **value** (*any*) – Dictionary value for global dataset dict.

copy ()

Make a copy of this dataset.

Returns A dataset object with a copy of the internal dataset in it.

Return type *Dataset*

get (*key*, *default=None*)

Get a key from dataset global dictionary.

Parameters

- **key** (*any*) – Key to get from global dataset dictionary.
- **default** (*any*) – Default value if the key does not exist.

Returns Value from key in global dataset dictionary or default.

Return type *any*

get_or_getattr (*datasubset*, *key*)

Get a key from a datasubset. Either using ‘get’ or ‘getattr’.

Raises AttributeError if attribute could not be found with either ‘get’ or ‘getattr’.

Parameters

- **datasubset** (*any*) – Dataset to attempt to get key from.
- **key** (*any*) – Key to get.

Returns Value from key.

Return type *any*

logger = <Logger Dataset (WARNING)>

lookup (*query_string*, *parameters*)

Lookup JSONTas query string against dataset.

Query string is a dot separated string of keywords which is split and iterated over.

If the query string is “\$something.another.third”:

```
# Iterate through the words
["something", "another", "third"]
```

These keywords are then matched against the dataset very simply

1. Try to get keyword from dataset, either via “get” or “getattr”.
2. If keyword exists, inspect what the type of the keyword value is.
3. If it’s a *jsontas.data_structures.datastructure.DataStructure*, call its ‘execute’ method with the parameters and keyword value.
4. If it’s a function, call the function with the parameters and keyword value.
5. If neither of the above are True, set dataset to the value.

6. Loop to the next keyword.

If at any point of this, the keyword value becomes None, return without changing the key. (the key is, by default, the `query_string`)

If the keyword value is not None after the loop is finished, return the key and value. Note that the `jsonatas.data_structures.datastructure.DataStructure` and functions must return a key, value pair.

Value will be put as the ‘value’ in the JSON dict when returned, key is what the key will be changed to.

Assume the following dataset for the JSON below:

```
{
  "query": {
    "call": "Chaos"
  }
}
```

Input:

```
{
  "Text": "$query.call"
}
```

Output:

```
{
  "Text": "Chaos"
}
```

In most cases, as well as in these examples, the key returned is None. It is expected that the caller handles this situation by setting the correct key when None is returned.

The “correct” key is generally the key that was already there. In the examples above the the key is “Text”, and this method returns None, so JSONTas will keep the key as ‘Text’

However, if the key returned is not None, the key is overwritten by JSONTas. This is not a very common use-case, but it is possible to implement in a `jsonatas.data_structures.datastructure.DataStructure`

This should be used with care! In fact, the only built-in use-case for this behavior is when there’s an exception in the lookup or the keyword value becomes None at any point in order to have the key stay as the `query_string` in case of problems.

Parameters

- **query_string** (*str*) – JSONTas query string.
- **parameters** (*any*) – Parameters that exist nested below the `query_string` in JSON data. For instance `{"$querystring": {"some": "data"}}` parameters would be `{"some": "data"}`

Returns New key and value as defined by dataset.

Return type `tuple`

merge (*dataset*)

Merge a dataset with this dataset.

Parameters **dataset** (*dict*) – Dataset to merge with this one.

regex = `re.compile('[\\$\\-\\w!, :]+')`

jsontas.jsontas module

JSONTas module.

class jsontas.jsontas.JsonTas (*dataset=None*)

Bases: `object`

JSONTas resolver.

logger = <Logger JSONTas (WARNING)>

resolve (*json_data, query_tree=None*)

Resolve JSONTas queries. Takes a JSON structure and resolve all values against dataset.

This is a recursive method.

Parameters

- **json_data** (*any*) – JSON data to iterate through and resolve.
- **query_tree** (*any*) – Used in recursion to keep track of query_tree.

Returns New JSON structure with resolved values.

Return type `any`

run (*json_data=None, json_file=None, copy=True*)

Run JSONTas. This should be the main entry to JSONTas.

Parameters

- **json_data** (*file*) – JSON data to run JSONTas on.
- **json_file** – JSON file to run JSONTas on.

Returns Resolved JSON structure.

Return type `OrderedDict`

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