

# Sathish\_Kumar\_Rajendiran\_Week7\_7.2\_Semi-structured\_JSON

August 12, 2020

Name: Sathish Kumar Rajendiran Task: Week7: JSON Data Date: 8/12/2020

```
[2]: #Import libraries
from urllib import request
import json
```

```
[3]: # USGS earthquake website
earthquake_url = 'http://earthquake.usgs.gov/earthquakes/feed/v1.0/summary/
↳significant_month.geojson'
```

```
[4]: # reponse
response = request.urlopen(earthquake_url).read().decode('utf8')
```

```
[5]: # print values
print('type:', type(response), '\n')
print(response[:100])
```

type: <class 'str'>

```
{"type": "FeatureCollection", "metadata": {"generated": 1597284216000, "url": "https://
/earthquake.usgs.gov
```

```
[6]: #json parser
eq_parsed_json = json.loads(response)
```

```
[7]: # print json parser values
print('type:', type(eq_parsed_json), '\n')
print(eq_parsed_json)
```

type: <class 'dict'>

```
{'type': 'FeatureCollection', 'metadata': {'generated': 1597284216000, 'url': 'h
ttps://earthquake.usgs.gov/earthquakes/feed/v1.0/summary/significant_month.geojs
on', 'title': 'USGS Significant Earthquakes, Past Month', 'status': 200, 'api':
'1.10.3', 'count': 13}, 'features': [{'type': 'Feature', 'properties': {'mag':
6, 'place': '66 km ESE of Vikindu, Tanzania', 'time': 1597252395896, 'updated':
1597282742982, 'tz': None, 'url':
'https://earthquake.usgs.gov/earthquakes/eventpage/us6000bdg8', 'detail':
```

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'https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/us6000bdg8.geojson',
'felt': 171, 'cdi': 4.3, 'mmi': 5.309, 'alert': 'green', 'status': 'reviewed',
'tsunami': 0, 'sig': 627, 'net': 'us', 'code': '6000bdg8', 'ids':
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failure,losspager,moment-tensor,origin,phase-data,shakemap,', 'nst': None,
'dmin': 5.239, 'rms': 0.98, 'gap': 26, 'magType': 'mww', 'type': 'earthquake',
'title': 'M 6.0 - 66 km ESE of Vikindu, Tanzania', 'geometry': {'type':
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North Carolina', 'time': 1596974857680, 'updated': 1597284106551, 'tz': None,
'url': 'https://earthquake.usgs.gov/earthquakes/eventpage/se60324281', 'detail':
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'felt': 101916, 'cdi': 6.4, 'mmi': 7.48, 'alert': 'yellow', 'status':
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text,ground-failure,losspager,moment-tensor,oaf,origin,phase-data,shakemap,',
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of Magas Arriba, Puerto Rico', 'time': 1596770820400, 'updated': 1596999808878,
'tz': None, 'url':
'https://earthquake.usgs.gov/earthquakes/eventpage/pr2020220000', 'detail':
'https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/pr2020220000.geojson',
'felt': 545, 'cdi': 6.2, 'mmi': 5.694, 'alert': 'green', 'status': 'reviewed',
'tsunami': 0, 'sig': 692, 'net': 'pr', 'code': '2020220000', 'ids':
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',dyfi,losspager,moment-tensor,origin,phase-data,shakemap,', 'nst': 31, 'dmin':
0.1203, 'rms': 0.15, 'gap': 161, 'magType': 'ml', 'type': 'earthquake', 'title':
'M 4.8 - 2 km SSE of Magas Arriba, Puerto Rico', 'geometry': {'type': 'Point',
'coordinates': [-66.7606, 17.995, 12]}, 'id': 'pr2020220000'}, {'type':
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'time': 1596757004553, 'updated': 1596921908354, 'tz': None, 'url':
'https://earthquake.usgs.gov/earthquakes/eventpage/us6000badi', 'detail':
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'felt': None, 'cdi': None, 'mmi': 0, 'alert': 'green', 'status': 'reviewed',
'tsunami': 0, 'sig': 611, 'net': 'us', 'code': '6000badi', 'ids':
',us6000badi,', 'sources': ',us,', 'types': ',losspager,moment-
tensor,origin,phase-data,shakemap,', 'nst': None, 'dmin': 8.274, 'rms': 0.8,
'gap': 18, 'magType': 'mww', 'type': 'earthquake', 'title': 'M 6.3 - Prince
Edward Islands region', 'geometry': {'type': 'Point', 'coordinates': [42.4486,
-41.6794, 10]}, 'id': 'us6000badi'}, {'type': 'Feature', 'properties': {'mag':
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'https://earthquake.usgs.gov/earthquakes/eventpage/us6000b9mv', 'detail':
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'felt': None, 'cdi': None, 'mmi': 4.24, 'alert': 'green', 'status': 'reviewed',
'tsunami': 0, 'sig': 630, 'net': 'us', 'code': '6000b9mv', 'ids':

```

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',us6000b9mv,', 'sources': ',us,', 'types': ',ground-failure,losspager,moment-
tensor,origin,phase-data,shakemap,', 'nst': None, 'dmin': 1.073, 'rms': 0.92,
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'updated': 1596551529757, 'tz': None, 'url':
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failure,losspager,moment-tensor,origin,phase-data,shakemap,', 'nst': None,
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Fernando, CA', 'time': 1596116899180, 'updated': 1596973196531, 'tz': None,
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mechanism,moment-tensor,nearby-cities,origin,phase-data,scitech-link,shakemap,',
'nst': 141, 'dmin': 0.03806, 'rms': 0.23, 'gap': 16, 'magType': 'mw', 'type':
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'ci39322767'}, {'type': 'Feature', 'properties': {'mag': 4.17, 'place': '1km SE
of Sylmar, CA', 'time': 1596108569050, 'updated': 1597171344405, 'tz': None,
'url': 'https://earthquake.usgs.gov/earthquakes/eventpage/ci39322287', 'detail':
'https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/ci39322287.geojson',
'felt': 15506, 'cdi': 4.9, 'mmi': 5.82, 'alert': 'green', 'status': 'reviewed',
'tsunami': 1, 'sig': 758, 'net': 'ci', 'code': '39322287', 'ids':
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'types': ',dyfi,focal-mechanism,impact-link,losspager,moment-tensor,nearby-
cities,oaf,origin,phase-data,scitech-link,shake-alert,shakemap,', 'nst': 196,
'dmin': 0.03917, 'rms': 0.26, 'gap': 14, 'magType': 'mw', 'type': 'earthquake',
'title': 'M 4.2 - 1km SE of Sylmar, CA'}, 'geometry': {'type': 'Point',
'coordinates': [-118.4383333, 34.3016667, 8.85]}, 'id': 'ci39322287'}, {'type':
'Feature', 'properties': {'mag': 6.4, 'place': 'South Sandwich Islands region',
'time': 1595724839067, 'updated': 1596779061364, 'tz': None, 'url':
'https://earthquake.usgs.gov/earthquakes/eventpage/us6000b46r', 'detail':
'https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/us6000b46r.geojson',
'felt': 0, 'cdi': 0, 'mmi': 3.32, 'alert': 'green', 'status': 'reviewed',
'tsunami': 1, 'sig': 630, 'net': 'us', 'code': '6000b46r', 'ids':
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link,losspager,moment-tensor,origin,phase-data,shakemap,', 'nst': None, 'dmin':
8.819, 'rms': 0.57, 'gap': 20, 'magType': 'mww', 'type': 'earthquake', 'title':

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'M 6.4 - South Sandwich Islands region'}, 'geometry': {'type': 'Point', 'coordinates': [-25.4055, -60.7812, 10]}, 'id': 'us6000b46r'}, {'type': 'Feature', 'properties': {'mag': 6.3, 'place': 'western Xizang', 'time': 1595448439183, 'updated': 1596034387259, 'tz': None, 'url': 'https://earthquake.usgs.gov/earthquakes/eventpage/us6000b26j', 'detail': 'https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/us6000b26j.geojson', 'felt': 2, 'cdi': 2, 'mmi': 7.363, 'alert': 'yellow', 'status': 'reviewed', 'tsunami': 0, 'sig': 650, 'net': 'us', 'code': '6000b26j', 'ids': ',us6000b26j,', 'sources': ',us,', 'types': ',dyfi,ground-failure,losspager,moment-tensor,origin,phase-data,shakemap,', 'nst': None, 'dmin': 5.171, 'rms': 0.88, 'gap': 14, 'magType': 'mww', 'type': 'earthquake', 'title': 'M 6.3 - western Xizang'}, 'geometry': {'type': 'Point', 'coordinates': [86.8666, 33.1463, 10]}, 'id': 'us6000b26j'}, {'type': 'Feature', 'properties': {'mag': 7.8, 'place': '105 km SSE of Perryville, Alaska', 'time': 1595398364593, 'updated': 1597040570876, 'tz': None, 'url': 'https://earthquake.usgs.gov/earthquakes/eventpage/us7000asvb', 'detail': 'https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/us7000asvb.geojson', 'felt': 287, 'cdi': 7.1, 'mmi': 6.924, 'alert': 'green', 'status': 'reviewed', 'tsunami': 1, 'sig': 1140, 'net': 'us', 'code': '7000asvb', 'ids': ',at00qdux98,us7000asvb,ak0209dha24u,', 'sources': ',at,us,ak,', 'types': ',dyfi,finite-fault,general-link,general-text,ground-failure,impact-link,losspager,moment-tensor,oaf,origin,phase-data,shakemap,trump-origin,trump-shakemap,', 'nst': None, 'dmin': 0.647, 'rms': 1.27, 'gap': 64, 'magType': 'mww', 'type': 'earthquake', 'title': 'M 7.8 - 105 km SSE of Perryville, Alaska'}, 'geometry': {'type': 'Point', 'coordinates': [-158.5217, 55.0298, 28]}, 'id': 'us7000asvb'}, {'type': 'Feature', 'properties': {'mag': 5.9, 'place': '3 km SE of Iquique, Chile', 'time': 1594964436354, 'updated': 1596460328841, 'tz': None, 'url': 'https://earthquake.usgs.gov/earthquakes/eventpage/us7000aq5p', 'detail': 'https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/us7000aq5p.geojson', 'felt': 230, 'cdi': 6.9, 'mmi': 6.771, 'alert': 'yellow', 'status': 'reviewed', 'tsunami': 0, 'sig': 809, 'net': 'us', 'code': '7000aq5p', 'ids': ',us7000aq5p,', 'sources': ',us,', 'types': ',dyfi,losspager,moment-tensor,origin,phase-data,shakemap,', 'nst': None, 'dmin': 0.634, 'rms': 1.19, 'gap': 30, 'magType': 'mww', 'type': 'earthquake', 'title': 'M 5.9 - 3 km SE of Iquique, Chile'}, 'geometry': {'type': 'Point', 'coordinates': [-70.1306, -20.2349, 74.2]}, 'id': 'us7000aq5p'}, {'type': 'Feature', 'properties': {'mag': 7, 'place': '114 km NNW of Popondetta, Papua New Guinea', 'time': 1594954223017, 'updated': 1595660930309, 'tz': None, 'url': 'https://earthquake.usgs.gov/earthquakes/eventpage/us7000aq3e', 'detail': 'https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/us7000aq3e.geojson', 'felt': 100, 'cdi': 6.4, 'mmi': 6.948, 'alert': 'green', 'status': 'reviewed', 'tsunami': 1, 'sig': 818, 'net': 'us', 'code': '7000aq3e', 'ids': ',at00qdlek0,pt20199000,us7000aq3e,', 'sources': ',at,pt,us,', 'types': ',dyfi,finite-fault,general-text,ground-failure,impact-link,losspager,moment-tensor,origin,phase-data,shakemap,', 'nst': None, 'dmin': 1.663, 'rms': 1.14, 'gap': 18, 'magType': 'mww', 'type': 'earthquake', 'title': 'M 7.0 - 114 km NNW of Popondetta, Papua New Guinea'}, 'geometry': {'type': 'Point', 'coordinates':

```
[147.7656, -7.8428, 79.79]], 'id': 'us7000aq3e']], 'bbox': [-158.5217, -60.7812, 7.24, 168.0816, 55.0298, 480.6]]
```

```
[8]: #print keys from json file
print(eq_parsed_json.keys())
```

```
dict_keys(['type', 'metadata', 'features', 'bbox'])
```

```
[35]: #print type of parsed file
eq_parsed_json['type']
```

```
[35]: 'FeatureCollection'
```

```
[9]: #print metadata of the of parsed file
eq_parsed_json['metadata']
```

```
[9]: {'generated': 1597284216000,
      'url': 'https://earthquake.usgs.gov/earthquakes/feed/v1.0/summary/significant_m
onth.geojson',
      'title': 'USGS Significant Earthquakes, Past Month',
      'status': 200,
      'api': '1.10.3',
      'count': 13}
```

```
[10]: #print the title of the file
title = eq_parsed_json['metadata']['title']
print('title:',title)
```

```
title: USGS Significant Earthquakes, Past Month
```

```
[12]: quakelist = eq_parsed_json['features']
print(len(quakelist))
```

```
13
```

```
[13]: #print first item from the dictionary array
quake1 = quakelist[0]
print(quake1.keys(),'\n')
print(json.dumps(quake1, indent=2))
```

```
dict_keys(['type', 'properties', 'geometry', 'id'])
```

```
{
  "type": "Feature",
  "properties": {
    "mag": 6,
    "place": "66 km ESE of Vikindu, Tanzania",
    "time": 1597252395896,
```

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    "updated": 1597282742982,
    "tz": null,
    "url": "https://earthquake.usgs.gov/earthquakes/eventpage/us6000bdg8",
    "detail":
"https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/us6000bdg8.geojson",
    "felt": 171,
    "cdi": 4.3,
    "mmi": 5.309,
    "alert": "green",
    "status": "reviewed",
    "tsunami": 0,
    "sig": 627,
    "net": "us",
    "code": "6000bdg8",
    "ids": ",us6000bdg8,",
    "sources": ",us,",
    "types": ",dyfi,ground-failure,losspager,moment-tensor,origin,phase-
data,shakemap,",
    "nst": null,
    "dmin": 5.239,
    "rms": 0.98,
    "gap": 26,
    "magType": "mww",
    "type": "earthquake",
    "title": "M 6.0 - 66 km ESE of Vikindu, Tanzania"
  },
  "geometry": {
    "type": "Point",
    "coordinates": [
      39.8073,
      -7.3283,
      15.49
    ]
  },
  "id": "us6000bdg8"
}

```