Big Data and Automated Content Analysis

Week 2 – Thursday

Discussing solution Appendix A

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Today

This week's exercise

Discussing the code

Reading a JSON file into a dict, looping over the dict

Task 1: Print all titles of all videos

```
1  import json
2
3  with open("/home/damian/pornexercise/xhamster.json") as fi:
4      data=json.load(fi)
5
6  for k,v in data.items()):
7      print (v["title"])
```

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NB: You have to know (e.g., by reading the documentation of the dataset) that the key is called `title`

Reading a JSON file into a dict, looping over the dict

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NB: `data` is in fact a dict of dicts, such that each value `v` is another dict.

For each of these dicts, we retrieve the value that corresponds to the key `title`

What to do if you do not know the structure of the dataset?

Inspecting your data: use the functions `type()` and `len()` and/or the dictionary method `.keys()`

```
1 len(data)
2 type(data)
3 data.keys()
```

What to do if you do not know the structure of the dataset?

Inspecting your data: use the functions `type()` and `len()` and/or the dictionary method `.keys()`

```
1 len(data)
2 type(data)
3 data.keys()
```

`len()` returns the number of items of an object; `type()` returns the type object; `.keys()` returns a list of all available keys in the dictionary

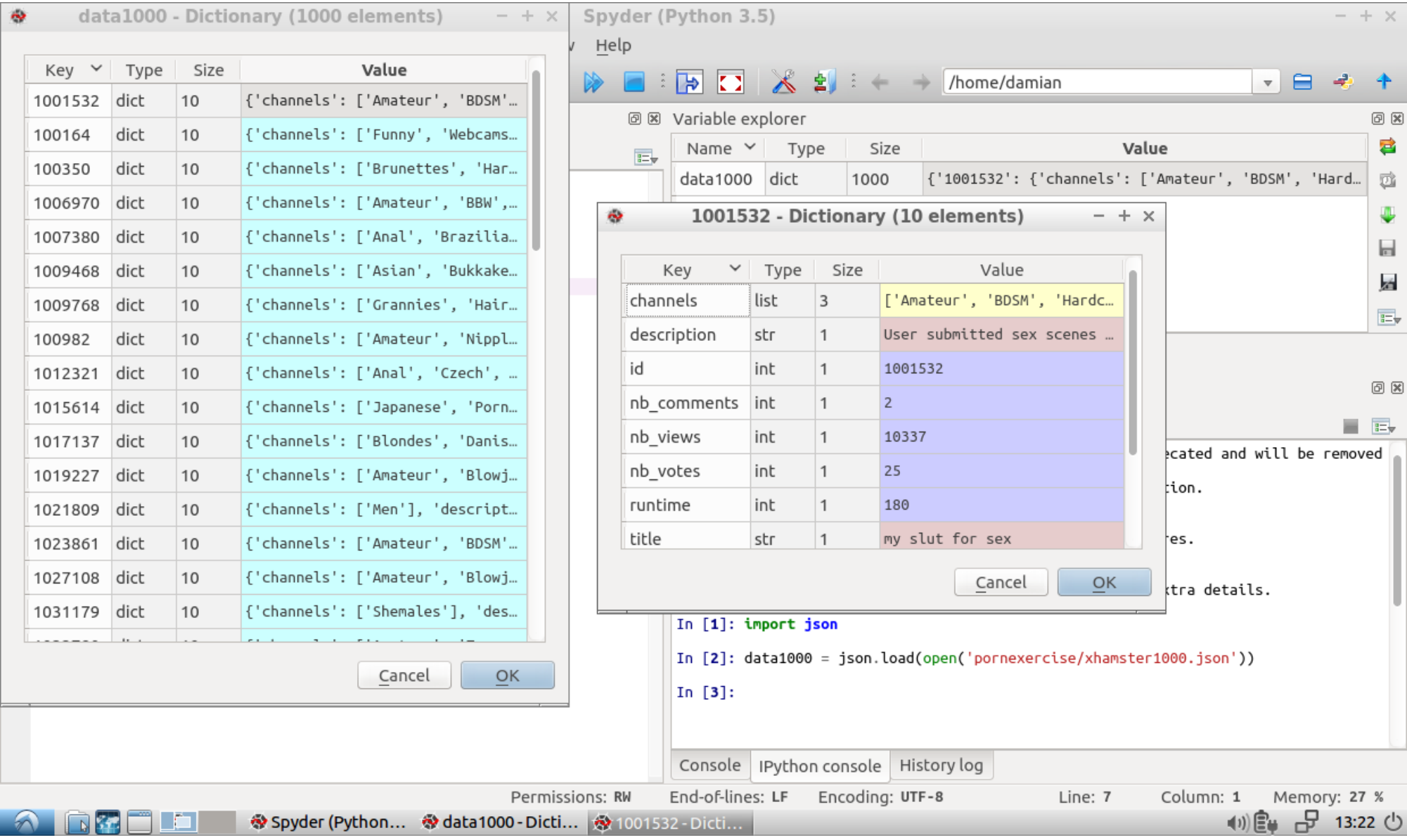
What to do if you do not know the structure of the dataset?

Inspecting your data: use the module `pprint`

```
1 from pprint import pprint
2 pprint(data)
```

(but better do this on a smaller subset of the data!)

```
{'1002968': {'channels': ['Tits'],
             'description': 'NA',
             'id': 1002968,
             'nb_comments': 6,
             'nb_views': 26683,
             'nb_votes': 68,
             'runtime': 1083,
             'title': 'big tit chick gets fucked',
             'upload_date': '2012-01-22',
             'uploader': '894621d2f89ab1b859c17b9b81f182e82a375c55'},
 '1003007': {'channels': ['Hardcore', 'Spanking', 'Squirting'],
             'description': 'Antonia plays with her 16 inch toy and her '
                            'crop,till she sprays cum into her own mouth!',
             'id': 1003007,
             'nb_comments': 5,
             'nb_views': 5008,
             'nb_votes': 35,
             'runtime': 213,
             'title': 'antonia just playin around',
             'upload_date': '2012-01-22',
```


data1000 - Dictionary (1000 elements)
Key
Type
Size
Value
1001532 dict 10 {'channels': ['Amateur', 'BDSM'…
100164 dict 10 {'channels': ['Funny', 'Webcams…
100350 dict 10 {'channels': ['Brunettes', 'Har…
1006970 dict 10 {'channels': ['Amateur', 'BBW',…
1007380 dict 10 {'channels': ['Anal', 'Brazilia…
1009468 dict 10 {'channels': ['Asian', 'Bukkake…
1009768 dict 10 {'channels': ['Grannies', 'Hair…
100982 dict 10 {'channels': ['Amateur', 'Nippl…
1012321 dict 10 {'channels': ['Anal', 'Czech', …
1015614 dict 10 {'channels': ['Japanese', 'Porn…
1017137 dict 10 {'channels': ['Blondes', 'Danis…
1019227 dict 10 {'channels': ['Amateur', 'Blowj…
1021809 dict 10 {'channels': ['Men'], 'descript…
1023861 dict 10 {'channels': ['Amateur', 'BDSM'…
1027108 dict 10 {'channels': ['Amateur', 'Blowj…
1031179 dict 10 {'channels': ['Shemales'], 'des…
Cancel
OK
Spyder (Python 3.5)
Help
/home/damian
Variable explorer
Name
Type
Size
Value
data1000 dict 1000 {'1001532': {'channels': ['Amateur', 'BDSM', 'Hard…
1001532 - Dictionary (10 elements)
Key
Type
Size
Value
channels list 3 ['Amateur', 'BDSM', 'Hardc…
description str 1 User submitted sex scenes …
id int 1 1001532
nb_comments int 1 2
nb_views int 1 10337
nb_votes int 1 25
runtime int 1 180
title str 1 my slut for sex
Cancel
OK
ecated and will be removed
tion.
es.
tra details.
In [1]: import json
In [2]: data1000 = json.load(open('pornexercise/xhamster1000.json'))
In [3]:
Console
IPython console
History log
Permissions: RW
End-of-lines: LF
Encoding: UTF-8
Line: 7
Column: 1
Memory: 27 %
Spyder (Python…
data1000 - Dicti…
1001532 - Dicti…
13:22

For the sake of completeness...

`.items()` returns a key-value *pair*, that's why we need to assign *two* variables in the for statement.
These alternatives would also work:

```
1 for v in data.values()):
2         print(v["title"])
```

```
1 for k in data:    #or: for k in data.keys():
2         print(data[k]["title"])
```

Do you see (dis-)advantages?

Working with a subset of the data

What to do if you want to work with a smaller subset of the data?
Taking a random sample of 10 items in a dict:

```
1 import random
2 mydict_short = dict(random.sample(mydict.items(),10))
```

Taking the first 10 elements in a list:

```
1 mylist_short = mylist[:10]
```

Initializing variables, merging two lists, using a counter

Task 2: Average tags per video and most frequently used tags

```
1  from collections import Counter
2
3  alltags=[]
4  i=0
5  for k,v in data.items():
6      i+=1
7      alltags.extend(v["channels"])
8
9  print(len(alltags),"tags are describing",i,"different videos")
10 print("Thus, we have an average of",len(alltags)/i,"tags per video")
11
12 c=Counter(alltags)
13 print (c.most_common(100))
```

(there are other, more efficient ways of doing this)

Nesting blocks, using a defaultdict to count, error handling

Task 3: What porn category is most frequently commented on?

```
1  from collections import defaultdict
2
3  commentspercat=defaultdict(int)
4  for k,v in data.items():
5          for tag in v["channels"]:
6              try:
7                  commentspercat[tag]+=int(v["nb_comments"])
8              except:
9                  pass
10 print(commentspercat)
11 # if you want to print in a fancy way, you can do it like this:
12 for tag in sorted(commentspercat, key=commentspercat.get, reverse=True):
13     print( tag,"\t", commentspercat[tag])
```

A defaultdict is a normal dict, with the difference that the type of each value is pre-defined and it doesn't give an error if you look up a non-existing key

Nesting blocks, using a defaultdict to count, error handling

Task 3: What porn category is most frequently commented on?

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6              try:
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8              except:
9                  pass
10 print(commentspercat)
11 # if you want to print in a fancy way, you can do it like this:
12 for tag in sorted(commentspercat, key=commentspercat.get, reverse=True):
13     print( tag,"\t", commentspercat[tag])
```

A defaultdict is a normal dict, with the difference that the type of each value is pre-defined and it doesn't give an error if you look up a non-existing key

NB: In line 7, we assume the value to be an int, but the datasets sometimes contains the string "NA" instead of a string representing an int. That's why we need the try/except construction

Adding elements to a list, sum() and len()

Task 4: Average length of descriptions

```
1  length=[]
2  for k,v in data.items():
3      length.append(len(v["description"]))
4
5  print ("Average length",sum(length)/len(length))
```

Extending (merging) vs appending

Merging:

```
l1 = [1,2,3]
l2 = [4,5,6]
# either:
l1 = l1 + l2
# or:
l1.extend(l2)
print(l1)
```

gives `[1,2,3,4,5,6]`

Appending:

```
l1 = [1,2,3]
l2 = [4,5,6]
l1.append(l2)
print(l1)
```

gives `[1,2,3,[4,5,6]]`

`l2` is seen as *one* element to append to `l1`

Tokenizing with .split()

Task 5: Most frequently used words

```
allwords=[]
for k,v in data.items():
    allwords+=v["description"].split()
c2=Counter(allwords)
print(c2.most_common(100))
```

`.split()` changes a string to a list of words.
`"This is cool''.split()`
results in
`["This", "is", "cool"]`

Concluding remarks

Make sure you fully understand the code!

Re-read the corresponding chapters

PLAY AROUND!!!