Lecture11

February 28, 2024

```
[1]: # regular expressions
     # Text files (read, write)
```

0.0.1 Example

```
[3]: # cat ../datafiles/chat.txt
     # find the name of the person who participated most
     f=open('../datafiles/chat.txt')
     lines=f.readlines()
     f.close()
```

```
[11]: # list(map(lambda l:l.split()[0],lines[::2]))
      names=[l.split()[0] for l in lines[::2]]
      freq={}
      for n in names:
          if n not in freq:
              freq[n]=1
          else:
              freq[n]+=1
      freq
```

```
[11]: {'Jack': 90,
       'Michael': 98,
       'William': 91,
       'John': 99,
       'Emily': 122,
       'Mary': 86,
       'Jayden': 83,
       'Emma': 87,
       'Daniel': 77,
       'Elizabeth': 89}
```

```
[20]: # sorted(freq.items(), key=lambda r:r[1], reverse=True)
      # sorted(freq.items(), key=lambda r:r[1])[::-1]
      sorted(freq.items(), key=lambda r:r[1], reverse=True)[0][0]
```

```
[20]: 'Emily'
```

```
[29]: # Alternative method -1
      import numpy as np
      sorted(list(zip(np.unique(names, return_counts=True)[0], np.unique(names,
       ↪return_counts=True)[1])), key=lambda r:r[1])[-1]
```

[29]: ('Emily', 122)

```
[31]: # Alternative method -2
      f=open('names.txt','w')
      for n in names:
          f.write(n+'\n')
      f.close()
```

```
[39]: !cat names.txt | sort| uniq -c | sort -nr | head -n1
```

```
        122 Emily
```

1   Binary Files

```
[58]: class person:
          def __init__(self, n='none', a=0):
              self.name=n
              self.age=a
          def intro(self):
              return 'I am person, my name is: ' + self.name +' , my age is: '+
       ↪str(self.age)
```

```
[59]: p1=person('james', 20)
      p2=person('sara', 19)
```

```
[60]: #  save two objects in binary file
      import pickle
      f=open('data.bin', 'wb')
      pickle.dump(p1, f)
      pickle.dump(p2,f)
      f.close()
```

```
[61]: import pickle
      f=open('data.bin', 'rb')
      v1= pickle.load(f)
      v2=pickle.load(f)
      f.close()
```

```
[64]: v1.intro()
```

[64]: 'I am person, my name is: james , my age is: 20'

```
[65]: v2.intro()
```

```
[65]: 'I am person, my name is: sara , my age is: 19'
```

```
[66]: # save two objects in text file
      f=open('data.txt','w')
      f.write(p1.name + ',' + str(p1.age))
      f.write('\n')
      f.write(p2.name + ',' + str(p2.age))
      f.close()
```

```
[67]: cat data.txt
```

```
james,20
sara,19
```

```
[ ]: L=[p1,p2]
     pickle.dump(L,f)
```

[ ]:

[ ]:

[ ]:

[ ]:

[ ]:

[ ]:

[ ]:

[ ]:

[ ]:

[ ]: