INF 502 – SOFTWARE DEVELOPMENT METHODOLOGIES

Python: advanced concepts

NAU NORTHERN ARIZONA UNIVERSITY

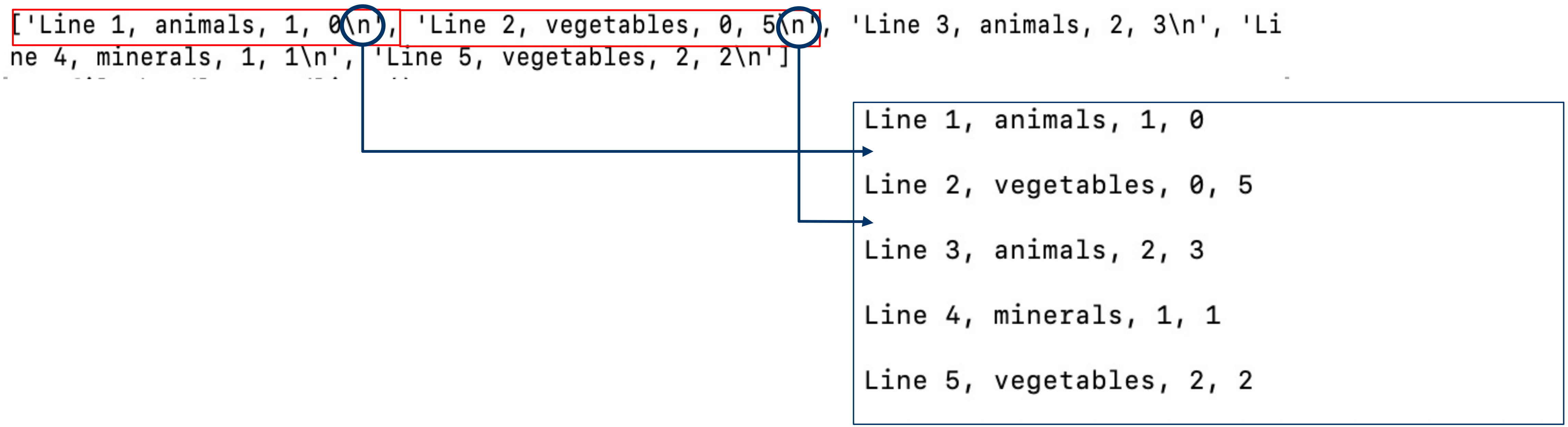
Dealing with Files

A file in Python serves as a link to an actual file from the computer

file_handle = open(‘data.csv’, ‘r’)	Open the csv file in read mode
content = file_handle.read()	Read whole file content into a string
content = file_handle.read(N)	Reads N bytes (N >= 1) into a string
line = file_handle.readline ()	Read one line from the file
lines = file_handle.readlines()	Returns a list of line strings
file_handle.close()	Close the file

Reading from a file

```
file_handler = open(‘lines.csv’, ‘r’)
for line in file_handler.readlines():
   print (line)
file_handler.close()
```

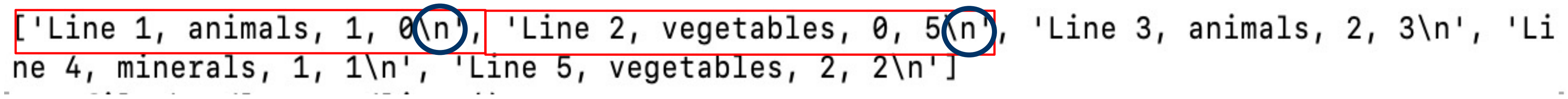


```
['Line 1, animals, 1, 0\n', 'Line 2, vegetables, 0, 5\n', 'Line 3, animals, 2, 3\n', 'Li
ne 4, minerals, 1, 1\n', 'Line 5, vegetables, 2, 2\n']
```

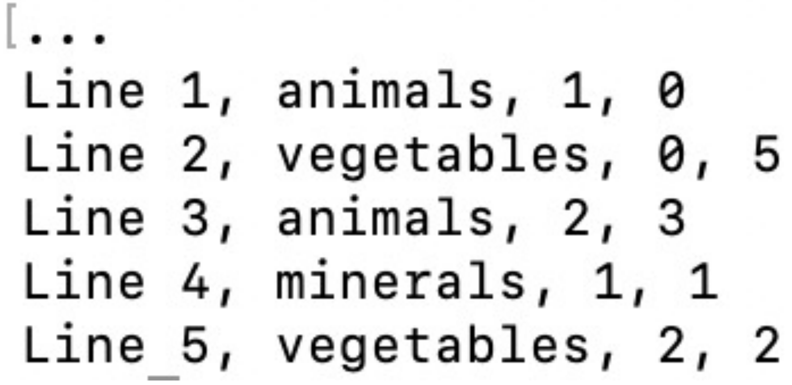
```
Line 1, animals, 1, 0

Line 2, vegetables, 0, 5

Line 3, animals, 2, 3

Line 4, minerals, 1, 1

Line 5, vegetables, 2, 2
```

Reading from a file

```
file_handler = open(‘lines.csv’, ‘r’)
for line in file_handler.readlines():
   print (line.rstrip(‘\n’))
file_handler.close()
```



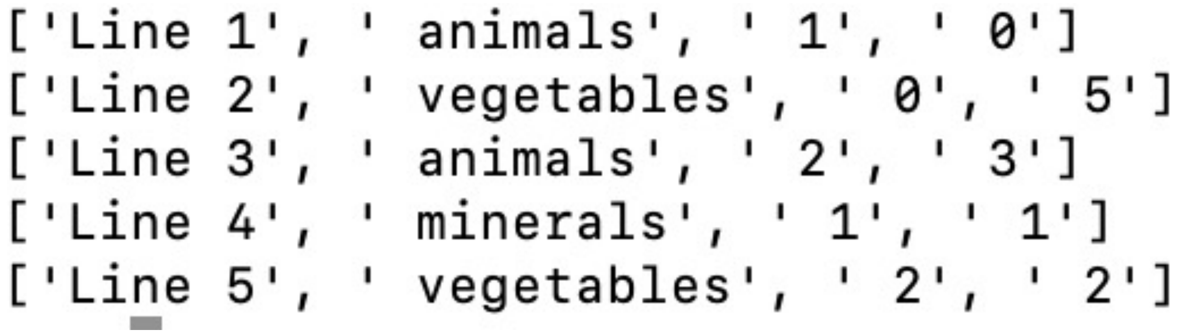
```
['Line 1, animals, 1, 0\n', 'Line 2, vegetables, 0, 5\n', 'Line 3, animals, 2, 3\n', 'Li
ne 4, minerals, 1, 1\n', 'Line 5, vegetables, 2, 2\n']
```



```
[...
 Line 1, animals, 1, 0
 Line 2, vegetables, 0, 5
 Line 3, animals, 2, 3
 Line 4, minerals, 1, 1
 Line 5, vegetables, 2, 2
```

Reading from a file

```
file_handler = open('lines.csv', 'r')
for line in file_handler.readlines():
   line = line.rstrip('\n')
   field = line.split(',') #break the string into a list (split – comma)
   print (field)
file_handler.close()
```



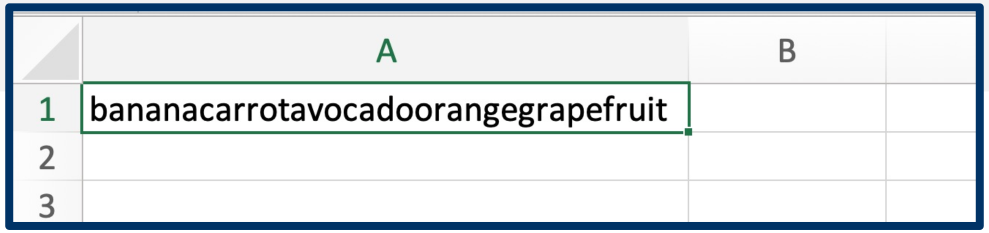
```
['Line 1', ' animals', ' 1', ' 0']
['Line 2', ' vegetables', ' 0', ' 5']
['Line 3', ' animals', ' 2', ' 3']
['Line 4', ' minerals', ' 1', ' 1']
['Line 5', ' vegetables', ' 2', ' 2']
```

Writing to a file

file_handle = open(‘data.csv’, ‘w’)	Open the file ‘data.csv’ in write mode
content = file_handle.write(S)	Write string S to a file
content = file_handle.writelines(L)	Write the strings in the list L to a file
file_handle.close()	Close the file

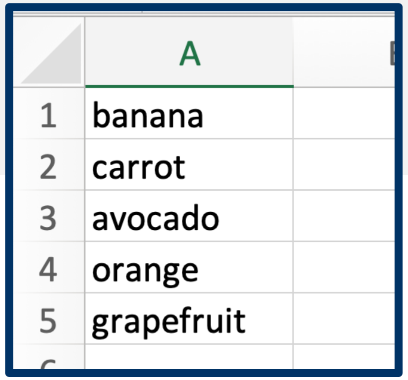
Writing to a file

```
file_handler = open('other.csv', 'w')
list_1 = ('banana', 'carrot', 'avocado', 'orange', 'grapefruit')
file_handler.writelines(list_1)
file_handler.close()
```



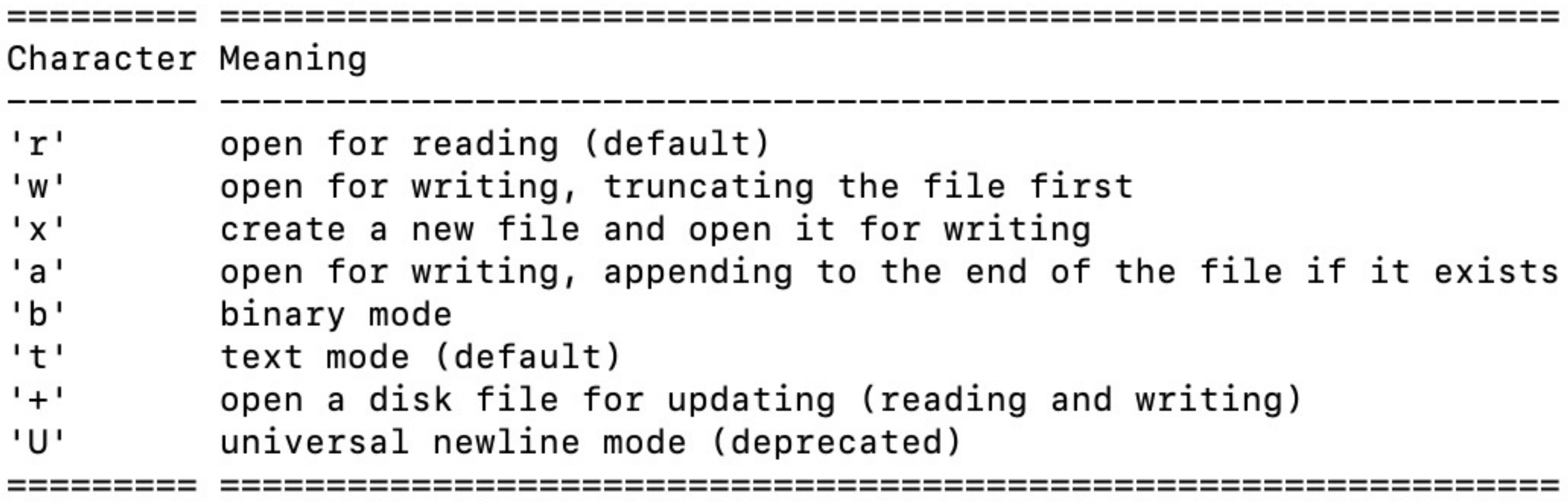
	A	B
1	bananacarrotavocadoorangegrapefruit	
2		
3		

```
file_handler = open('other.csv', 'w')
list_1 = ('banana', 'carrot', 'avocado', 'orange', 'grapefruit’)
for item in list_1:
   file_handler.write(item + '\n')
file_handler.close()
```



	A
1	banana
2	carrot
3	avocado
4	orange
5	grapefruit

File Open Modes



```
========= ===============================================================
Character Meaning
--------- ---------------------------------------------------------------
'r'       open for reading (default)
'w'       open for writing, truncating the file first
'x'       create a new file and open it for writing
'a'       open for writing, appending to the end of the file if it exists
'b'       binary mode
't'       text mode (default)
'+'       open a disk file for updating (reading and writing)
'U'       universal newline mode (deprecated)
========= ===============================================================
```

Removing a file

- Watch out! This removes the file **permanently**!

```
import os
os.remove("other.csv") #remove other.csv permanently!
```

The end