Social Media & Text Analysis

part 1 - Intro to Python

Ohio State University

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Website: socialmedia-class.org

python

Why Python?

- Python is an object-oriented and high level programming language (first released in 1991).

- Very beginner-friendly!
  - shorter code needed for the same task.

- Very powerful!
  - many well-maintained libraries (e.g. numpy, Matplotlib, Scikit-learn, PyTorch, TensorFlow,)
  - a popular programming language in AI and machine learning research

Simplicity of Python

- Create a list of integers:
  - Python

```
nums = [45, 23, 51, 32, 5]
```

- Java, in contrast:

```
List<Integer> nums =
    Arrays.asList(new Integer[] {45, 23, 51, 32, 5});
```


Source: http://amontalenti.com/pub/python-training/

Simplicity of Python

- Create a list of integers, and print them out:
  - Python

```
nums = [45, 23, 51, 32, 5]
for idx, num in enumerate(nums):
    print idx, num
```

- Java, in contrast:

```
List<Integer> nums =
    Arrays.asList(new Integer[] {45, 23, 51, 32, 5});

for (int i = 0; i < nums.size(); i++) {
    String number = nums.get(i);
    System.out.println(i + " " + number);
}
```


Source: http://amontalenti.com/pub/python-training/

Simplicity of Python

- Create a list of integers, and print them out:

```
nums = [45, 23, 51, 32, 5]
for idx, num in enumerate(nums):
    print (idx, num)
```

```
0 45
1 23
2 51
3 32
4 5
```

← output

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1 23
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```

Lists are declared using [item1, item2, item3, …]

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2 51
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```

← output

Iterates over each item in the list, yielding (index, value) tuples

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← output

simple and very useful print() function

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```
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2 51
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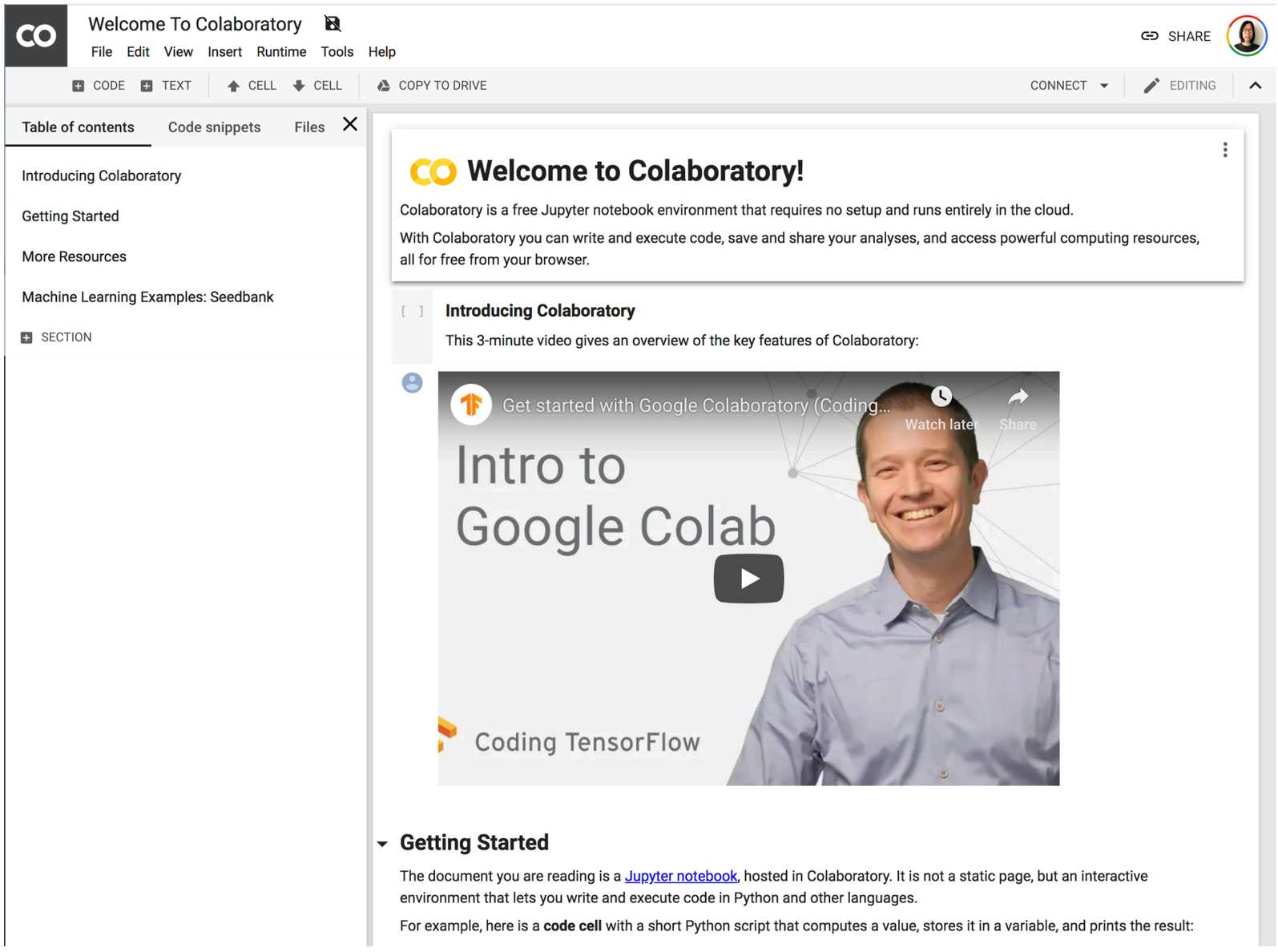
4 5
```

Indentation is very important in Python!

Try it Out!

- We will use **Google's Colab** programming environment:



Basic String Operations

- A Code Sample:

```
sent1 = "Hello world!"      # A comment.
print (sent1)               # Another one.

print (sent1[4])            # The 5th char (index starts from 0)

l = len(sent1)              # The length (in number of characters)
print ("There are " + str(l) + " charasters.")

tokens = sent1.split()      # Split a string by space
print (tokens)

print (len(tokens))         # The length (in number of tokens/words)
```

```
Hello world!
o
There are 12 charasters.
['Hello', 'world!']
2
```

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← output

Characters in a string can be assessed using the [] syntax.

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The **len(string)** function returns the length of a string.

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['Hello', 'world!']
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```

← output

The **str()** function converts values to a string data type.

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2
```

← output

The + operator can concatenate two strings.

Basic String Operations

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l = len(sent1)              # The length (in number of characters)
print ("There are " + str(l) + " charasters.")

tokens = sent1.split()      # Split a string by space
print (tokens)

print (len(tokens))         # The length (in number of tokens/words)
```

```
Hello world!
o
There are 12 charasters.
['Hello', 'world!']
2
```

← output

The **split()** function returns a list of substrings.

More Resources

- Python :
  - Google's class: https://developers.google.com/edu/python/
  - Christophe Morisset's notebook: https://github.com/Morisset/Python-lectures-Notebooks/blob/master/Notebooks/intro_Python.pdf
  - and many others …

- Got a Error Messages or questions?
  - Search on Google
  - StackOverflow