Inspire…Educate…Transform.

Text Mining

Lab 01 - 2017-02-18

Which of the following languages do you know

- C or C++
- Java
- Perl
- Scheme
- Fortran
- Etc..

Today's Agenda

- How to Learn Python

Outline

- Installation
- Basic datatypes
- Conditional Statements and Loops
- Functions

Installation

- Introduction to Python
  - Anaconda installation- platform python 2.7
  - Please follow the steps given in piazza

Different Notebooks to be used

- Jupyter
- Spyder
- Idle

you can choose whatever you want,

Just type in start.

But we choose jupyter(for this module).

Simple Intro for Jupyter

- Jupyter Environment
  - Opening a new notebook
  - Kernel and cell
  - Executing cell (using Shift+Enter)
  - Creating a new cell
  - Creating a heading/markdown
  - Using help (? and tab)

Printing simple messages

- Usage of print
  - Eg: print (‘hai python’)
  - Eg: print(2)
- Elements separated by commas print with a space between them
  - Eg: print(123),
  - print(‘hai’)
- A comma at the end of the statement (print ‘hello’,) will not print a newline character

Basic Data Types in Python

- Integers
- Lists
- Strings
- Tuples
- Dictionary

Integers

- Are not declared, just assigned
- The variable is created the first time you assign it a value
- Everything in Python is an object

Eg: a=10

a, b=10,15

it assigns a=10 b=15

Lists

- List is a collection of elements of same or different data type.

  l1=[‘a’,1,2,’4.5’]

Group of elements given in a pair of ’[‘, ’]’(square brackets) is called list.

Strings

- Strings are amongst the most popular types in Python.
- We can create them simply by enclosing characters in quotes. Python treats single quotes the same as double quotes.
- Creating strings is as simple as assigning a value to a variable

  Ex: s1='python' s2='hai'

Tuples

- A tuple is a sequence of immutable Python objects.
- Tuples are sequences, just like lists. The differences between tuples and lists are, the tuples cannot be changed unlike lists
- Tuples use parentheses, whereas lists use square brackets.
  - X=(1,2,3)
  - Y=()
  - Z=(15,)

Sets

- A set is an unordered collection with no duplicate elements.
- Basic uses include membership testing and eliminating duplicate entries.
- Set objects also support mathematical operations like union, intersection, difference.
  - basket = ['apple', 'orange', 'apple', 'pear', 'orange', 'banana']
  - fruit = set(basket)

Dictionary

- A dictionary is a key value pair called item.
- Each key is separated from its value by a colon (:), the items are separated by commas, and the whole thing is enclosed in curly braces.
- An empty dictionary without any items is written with just two curly braces, like this: {}.
  - Eg: dict={‘Name’:’ABC’, ’Marks’:12}

Accessing values:

- Simple variables can be accessed through their names.

  Eg: a=10; print(a)

- Strings,Lists and Tuples are accessed through the position of the elements called index.

- Dictionary values can be accessed through keys

Accessing values in Lists:

- Lists index starts from zero.
  - Eg: L1=[10,15,20,25]
    - L1[0] gives 10
    - L1[1] gives 15
    - L1[2] gives 20
    - L1[3] gives 25

    These can also be accessed by simply writing

    L1[0:4] called slicing.

    You can try and see L1[0:],L1[2:3],L1[:3]

Accessing values in Lists:

- Lists can also be accessed from the end.
  - Eg: L1=[3,4,5]
  - L1[-1] prints 5
  - L1[-2] prints 4
  - L1[-3] prints 3
- Eg: L1=[5,10,'are',5.5,6.7]
  - Try L1[2:-1]

Built in functions and methods of lists

len()—gives length of list

max()---- maximum element of list

min()----- minmum element of list

append()

extend()

count()

index()

sort()

reverse()

Etc...

Built in methods of lists

Append()

l1=[15,18,20]

l1.append(21)

Now l1 updated to [15,18,20,21]

We can only add only single element

Built in methods of lists

- extend
  - List1=[‘ML’,’TEXT’,’23’,23]
  - List1.extend([4,5,6])
  - Now list1 is updated to
    - [ML’,’TEXT’,’23’,23,4,5,6]
    - You try List1+[1,2,3] and print List1
    - List2=List1+[1,2,3] print List1 and List2 see the difference

Built in methods of lists

- Remaining methods please explore..
  - https://www.tutorialspoint.com/python/python_lists.htm
  - https://www.learnpython.org/en/Lists

  Etc..

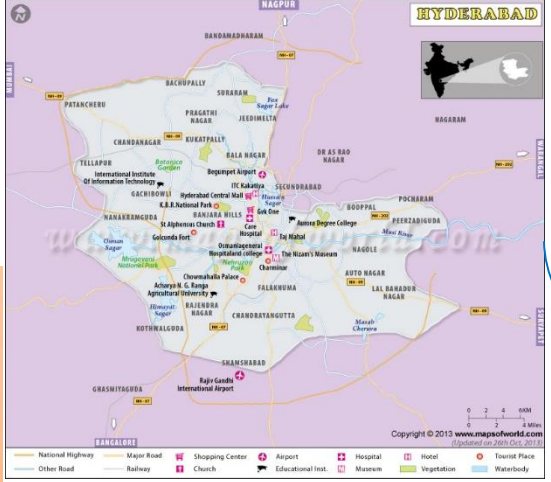
- Remaining data types and their uses

  Please check in python_Basics.ipynb file.

  Thanks for your co-operation.

Text Preprocessing

- Splitting the words
- Removal of Stopwords
- Removal of whitespaces, considering only words
- Removal of numbers/ certain characters-** (Regular expressions)
- Stemming and Lemmatization



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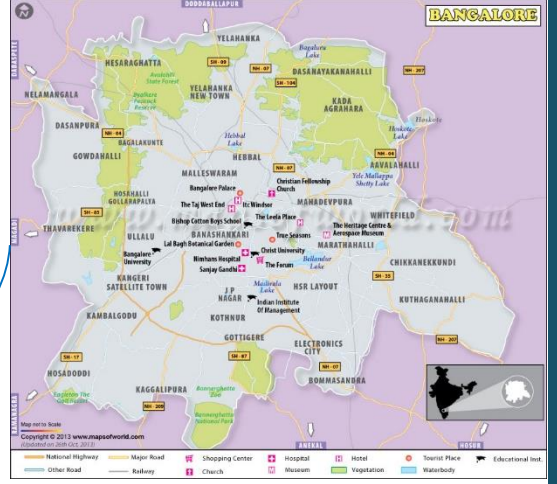

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