A Taste of What’s Cooking at US Foods

Python for the Oracle DBA

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Why Python?

• Easy to use
• Connects to everything
Easy to use

- Takes effort to learn
- Easy to come back to
- Great online documentation
- Very active online forum
- Features that make it easy to use
- Used for teaching
Easy to use - Takes effort to learn

- Python tutorial - https://docs.python.org/3/tutorial/
- edX classes - https://www.edx.org/

- Introduction to Computer Science and Programming Using Python
  - 9 weeks, 15 hours per week

- Introduction to Computational Thinking and Data Science
  - 10 weeks, 15 hours per week

- Finished second class Dec 22, 2015
Easy to use - Easy to come back to

• A language that is easy to use is easy to come back to after not using it for a while

• Oracle DBAs might go weeks or months without writing new code

• Two other languages that were hard to come back to
  – C++
  – Java
Hello World – C++

#include <iostream>

int main () {
    std::cout << "Hello world!" << std::endl;
}

http://rosettacode.org/wiki/Hello_world/Text
public class HelloWorld
{
    public static void main(String[] args)
    {
        System.out.println("Hello world!");
    }
}
print("Hello world!")

http://rosettacode.org/wiki/Hello_world/Text
Easy to use - Great online documentation

• Google search: python 3 list

• First answer: https://docs.python.org/3/tutorial/datastructures.html

• Two versions of Python: 2 and 3

• Tutorial also
5. Data Structures

This chapter describes some things you've learned about already in more detail, and adds some new things as well.

5.1. More on Lists

The list data type has some more methods. Here are all of the methods of list objects:

- `list.append(x)`
  Add an item to the end of the list. Equivalent to `a[len(a):] = [x]`.

- `list.extend(iterable)`
  Extend the list by appending all the items from the iterable. Equivalent to `a[len(a):] = iterable`.

- `list.insert(i, x)`
  Insert an item at a given position. The first argument is the index of the element before which to insert, so `a.insert(0, x)` inserts at the front of the list, and `a.insert(len(a), x)` is equivalent to `a.append(x)`.

- `list.remove(x)`
  Remove the first item from the list whose value is `x`. It is an error if there is no such item.

- `list.pop(i)`
  Remove the item at the given position in the list, and return it. If no index is specified, `a.pop()` removes and returns the last item in the list. (The square brackets around the `i` in the method signature denote that the parameter is optional, not that you should type square brackets at that position. You will see this notation frequently in the Python Library Reference.)

- `list.clear()`
  Remove all items from the list. Equivalent to `del a[:]`. 
Easy to use - Very active online forum

• Stack Overflow - [https://stackoverflow.com/](https://stackoverflow.com/)

• Structured question and answer format with point system

• Many Python questions

• Fast answers
### Stack Overflow Screenshot

#### Top Questions

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<th>Answers</th>
<th>Views</th>
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Easy to use - Features that make it easy to use

- Dynamic Typing
- Lists
- Indentation
Dynamic typing

```python
>>> x=5
>>> type(x)
<class 'int'>
>>> x="Hello"
>>> type(x)
<class 'str'>
>>> x = [1,2,"Greetings"]
>>> type(x)
<class 'list'>
```
List type

>>> l=[1,2,3]

>>> l.append(4)

>>> l
[1, 2, 3, 4]

>>> l[2:4]
[3, 4]

>>> l[3]
4
Indentation

>>> x = 5
>>> if x > 0:
...     print("Greater than zero")
...     x = 0
...
Greater than zero

>>> if x == 0:
...     print("Equals zero")
...     x = 1
...     File "<stdin>", line 3
...     x = 1
...     ^
IndentationError: unindent does not match any outer indentation level
Easy to use – used for teaching

• Python books for children
• Raspberry Pi
• MIT
• University of Arizona
Connects to everything

• Databases
• Graphics
• Local programs
• Remote servers
• Cloud

What is Python? Executive Summary:

“…use as a scripting or glue language to connect existing components together..”

https://www.python.org/doc/essays/blurb/
Connects to everything - Databases

- Oracle
- Snowflake
- MySQL
- Google BigQuery
import cx_Oracle

con = cx_Oracle.connect('test/test@dbatest')

cur = con.cursor()

cur.execute('select table_name from user_tables')

for result in cur:
    print(result[0])

cur.close()
con.close()
Connects to everything - Graphics

- Matplotlib
- http://matplotlib.org/index.html

- PythonDBAGraphs
- https://github.com/bobbydurrett/PythonDBAGraphs
PythonDBAGraphs example
Connects to everything – local programs

• Subprocess module

• https://docs.python.org/3/library/subprocess.html

```python
p = subprocess.Popen(['sqlplus','/nolog'],
                      stdin=subprocess.PIPE,
                      stdout=subprocess.PIPE,
                      stderr=subprocess.PIPE)
```
Connects to everything – remote servers

- Ftplib - ftp

- https://docs.python.org/3/library/ftplib.html

- Paramiko – ssh

- http://www.paramiko.org/
import boto3
import botocore

s3 = boto3.resource('s3')

mybucket='aws.xyz.bobby'

bucket = s3.Bucket(mybucket)

s3.meta.client.head_bucket(Bucket=mybucket)

s3.Object(mybucket, 'Test/test3.csv').put(
    Body=open('test3.csv', 'rb'))
Conclusion

• One DBA’s experience
• Why I think Python is useful to me:
  – Easy to use
  – Connects to everything
• Does Python make sense in your situation?
Contact Information

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