



Why Python?

Introduction

Making Friends with Python



Minal Chakraborty


- ✓ **Programming:** SAS, R, Server, TensorFlow and Scala
- ✓ **Big Data:** Cloudera Hadoop certification and Spark Ecosystem
- ✓ **Machine Learning:** Logistic Regression, Neural Networks, Support vector machines, XGBoost, Classification and Association rules
- ✓ **Allied Analytics skills:** Visualization, Marketing & Web analytics
- ✓ **Certifications:** PMP, Certified Scrum Master & Certified in Business analytics from Indian School of Business <http://www.isb.edu/india/>



Why Learn Python ?




```
python words.py
Enter file: clown.txt
the 7
```




🔍

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Rasperry Pi 2 Model B 1GB - The Complete Kit

Plan (months)	EMI (payable to provider)	Total Cost (payable to provider)
3	1,648.57	No Cost
6	837.35	No Cost
9	567.21	No Cost
12	432.21	No Cost



Rasperry Pi 2 Model B 1GB - The Complete Kit: Amazon.in: Amazon.in
[www.amazon.in/rasperry-pi-Model-B-1GB-Complete-Kit/dp/B0072U7873](#)



YES !

You can start coding in Python with just

~ Rs. 1,625

of upfront hardware cost!



An interpreted **language**. **Python** has a design philosophy which emphasizes code readability (notably using whitespace indentation to delimit code blocks rather than curly braces or keywords), and a syntax which allows programmers to express concepts in fewer lines of code than possible in **languages** such as C++ or Java.



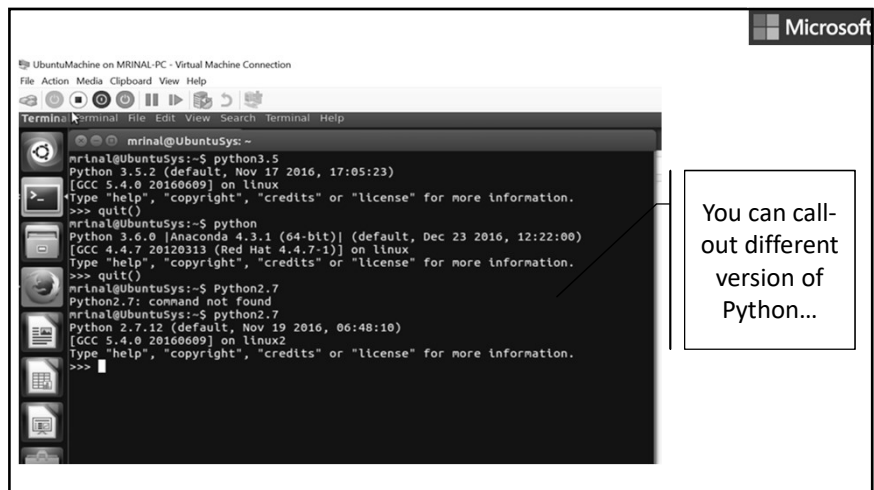
www.python.org

Python (programming language) - Wikipedia
[https://en.wikipedia.org/wiki/Python_\(programming_language\)](https://en.wikipedia.org/wiki/Python_(programming_language))

Guido van Rossum is the author of the Python programming language. In the Python community, Van Rossum is known as a "Benevolent Dictator For Life" (BDFL), meaning that he continues to oversee the Python development process, making decisions where necessary.



Talking to Python



What Do We Say?



Elements of Python

- Vocabulary / Words - Variables and Reserved words (Chapter 2)
- Sentence structure - valid syntax patterns (Chapters 3-5)
- Story structure - constructing a program for a purpose



Reserved Words



- You cannot use reserved words as variable names / identifiers

and del for is raise assert elif from
lambda return break else global
not try class except if or while
continue exec import pass yield
def finally in print as with

Sentences or Lines



<code>x = 2</code>	—	Assignment statement
<code>x = x + 2</code>	—	Assignment with expression
<code>print x</code>	—	Print statement

Variable	Operator	Constant	Reserved Word
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Programming Paragraphs



Python Scripts

- Interactive Python is good for experiments and programs of 3-4 lines long.
- Most programs are much longer, so we type them into a file and tell Python to run the commands in the file.
- In a sense, we are "giving Python a script".
- As a convention, we add ".py" as the suffix on the end of these files to indicate they contain Python.



Writing a Simple Program



Interactive versus Script

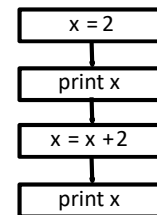
- Interactive
 - > You type directly to Python one line at a time and it responds
- Script
 - > You enter a sequence of statements (lines) into a file using a text editor and tell Python to execute the statements in the file



Program Steps or Program Flow

- Like a recipe or installation instructions, a program is a sequence of steps to be done in order.
- Some steps are conditional - they may be skipped.
- Sometimes a step or group of steps are to be repeated.
- Sometimes we store a set of steps to be used over and over as needed several places throughout the program (Chapter 4).

Sequential Steps



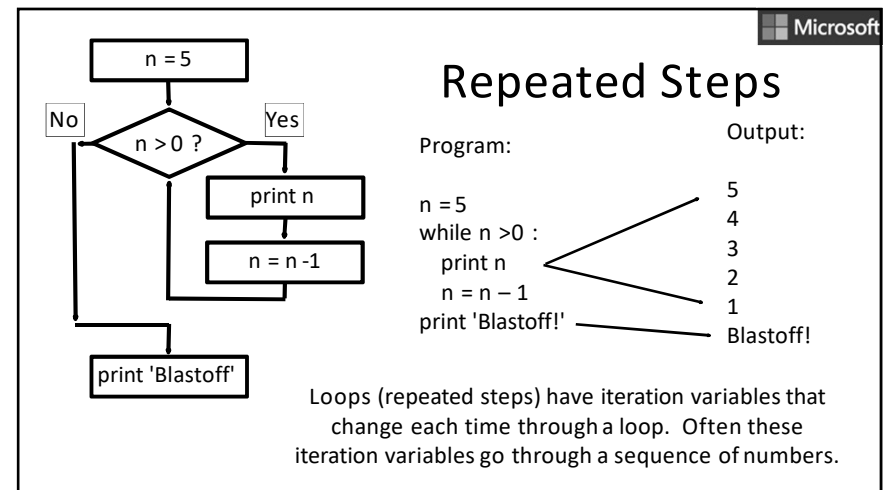
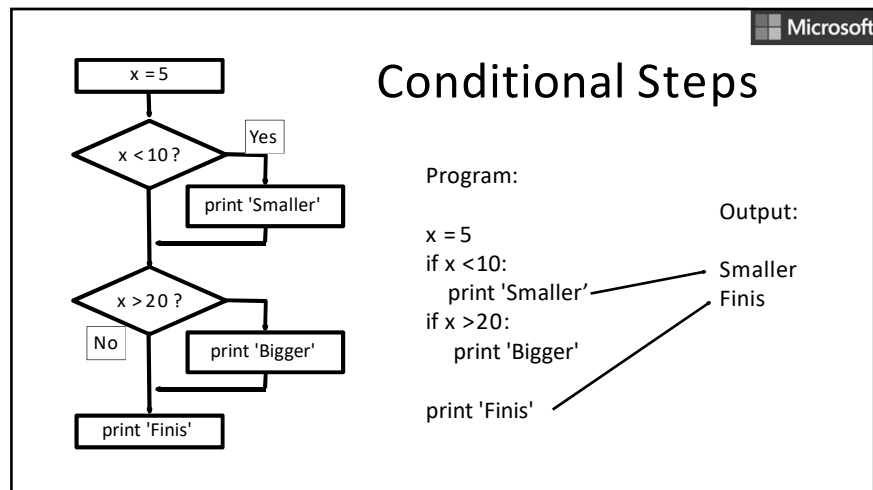
Program:

x = 2
print x
x = x + 2
print x

Output:

2
4

When a program is running, it flows from one step to the next.
As programmers, we set up "paths" for the program to follow.



```
name = raw_input('Enter file:')
handle = open(name, 'r')
text = handle.read()
words = text.split()
```

```
counts = dict()
for word in words:
    counts[word] = counts.get(word,0) + 1
bigcount = None
bigword = None
```

```
for word,count in counts.items():
    if bigcount is None or count >
bigcount:
    bigword = word
    bigcount = count
```

```
print bigword, bigcount
```



Sequential
Repeated
Conditional

Summary



- This is a quick overview of Topic # 1
- We will revisit these concepts throughout the course
- After the break, lets focus on the big-picture

Acknowledgements / Contributions



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