Introduction to Python and R

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Introduction to Python

- Why Python
- Introduction to anaconda
- Python Syntax
- Data Structures
- Control Flows
- Functions

Introduction to Python

- Python is an interpreted, interactive, object-oriented programming language.
- Apart from standard distribution following distributions are available
  - Anaconda Python
  - Active Python
  - Win9xPython
  - Portable Python etc.

Why Python

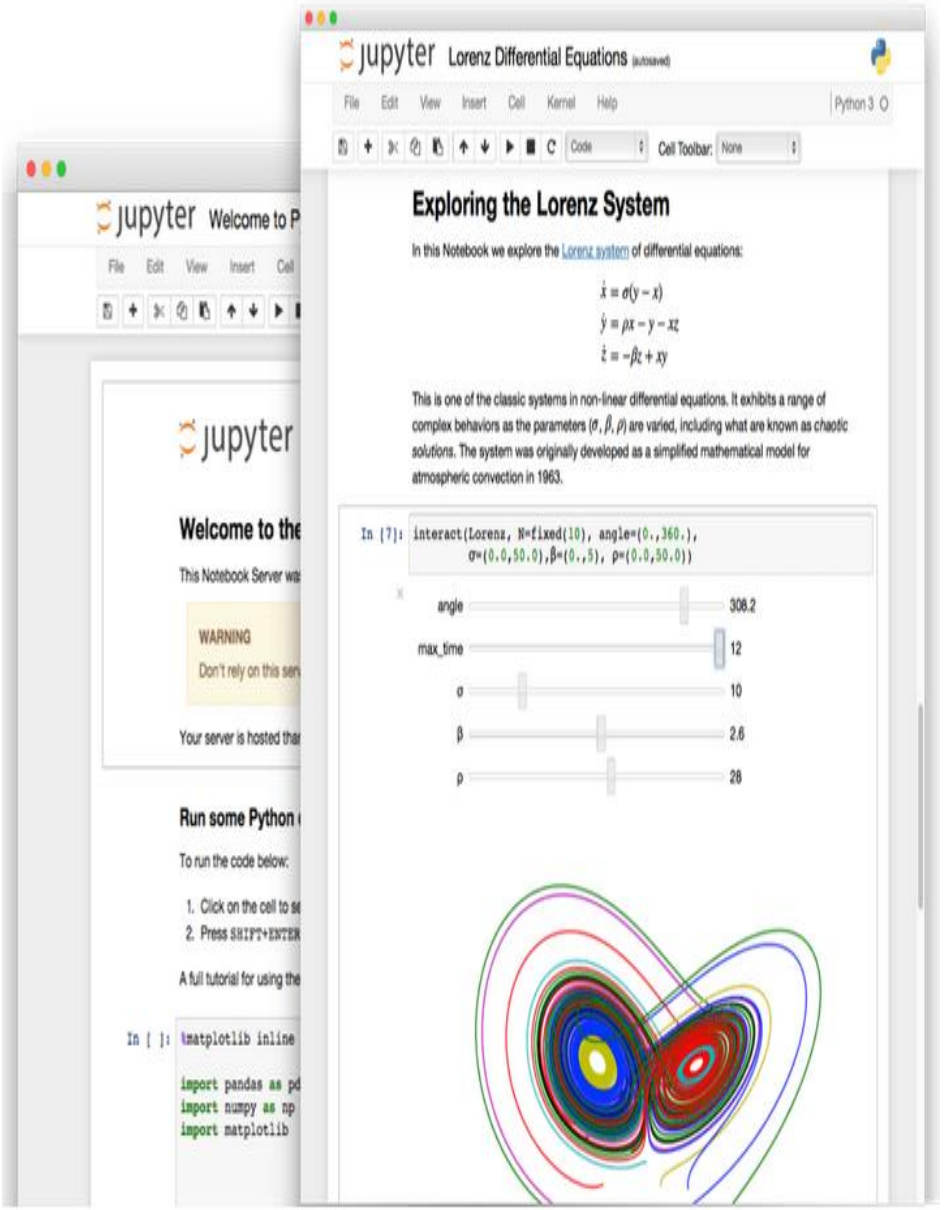
- Python is Powerful… and Fast
- Runs every where
- Friendly and easy to learn
- Python is Open Source
- Lets you work more quickly and integrate systems easily
- Python's documentation, tutorials, and guides are constantly evolving with large community support

Introduction to Anaconda Python

- Anaconda is:
  - one most popular python distribution
  - package manager
  - environment manager
  - python distribution with 1000+ open source packages
- Installing Anaconda on Windows
  - Download the anaconda installer https://www.anaconda.com/distribution/#windows
  - Anaconda Navigator or Conda

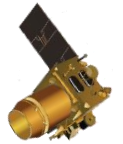
Jupyter Notebook

- Open Source web application for: creating and sharing documents that contains live code, equations, visualizations and narrative text
- Supports Multiple programming languages



Python Basics

- A value is the fundamental thing that a program manipulates.
- Values can be **'Hello Python', 1 , True**
- Values have types.
  1. Numeric
  2. String
  3. Sequences



Variables

- One of the most basic and powerful concepts is that of a variable.
- A variable assigns a name to a value.
- Variables are nothing more than reserved memory locations that store values.
- Python variables does not need explicit declaration to reserve memory.
- Unlike C/C++ and Java, variables can change types

Modules

- module is a file containing Python definitions and statements
- not all functionality available comes automatically when starting Python
- extra functionality can be added by importing modules
- names from a module directly into the importing module's symbol table

Indentation

- In Python, blocks of code are defined using indentation
- The indentation within the block needs to be consistent
- The first line with less indentation is outside of the block
- The first line with more indentation starts a nested block
- Often a colon appears at the start of a new block

Write and call/invoke a function

keyword

name

Parameter or argument

Specification, docstring

```
def check_odd_even( i ):
    """
    Input: i, a +ve integer.
    Returns True if i id odd, otherwise False
    """
    if i%2==0:
        print(i,':is an even number')
    else:
        print(i,':is an odd number')
```

Body

```
check_odd_even(10)
```

Calling check_odd_even

Thank You

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