Python Basics

Jesse Kaminsky

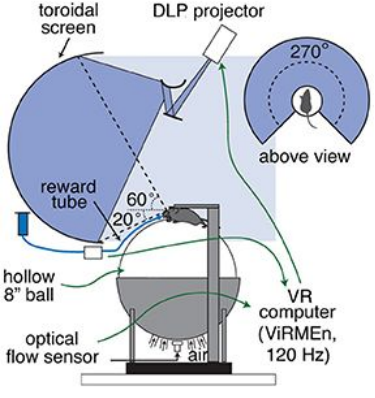
I’m Jesse

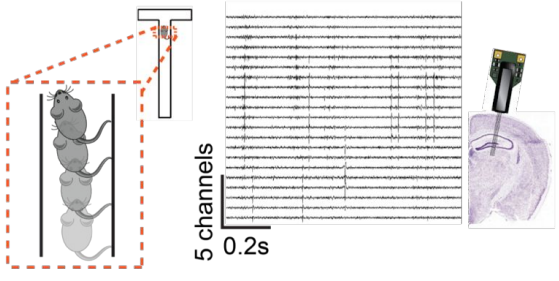
3rd year in Brody lab (also work closely with Tank lab). Undergrad at Pitt where I majored in bioinformatics and neuroscience.

I study learning, decision making, prefrontal cortex, hippocampus.

I do experiments with electrophysiology, optogenetics, modelling, some 2-photon microscopy, in mice performing T-maze tasks in VR.

I play too many board games and not enough soccer. I have two crazy cats.





What is python and why do we use it?

Ultimately everything your computer is doing is manipulating a bunch of 0s and 1s which comprise its memory.

A programming language is just a way to tell your computer what you want it to do with its memory. Different languages operate at different “levels” of description. Python is a very high-level language, meaning it has wrapped up large chunks of commonly performed operations into short, understandable commands.

The set of all the rules python expects you to follow when issuing commands to the computer is the syntax of the language, and this varies from language to language.

We need computers because I can’t look at the traces on previous slide and even tell you how many there are, let alone do nonlinear log-likelihood based latent variable modelling on them.

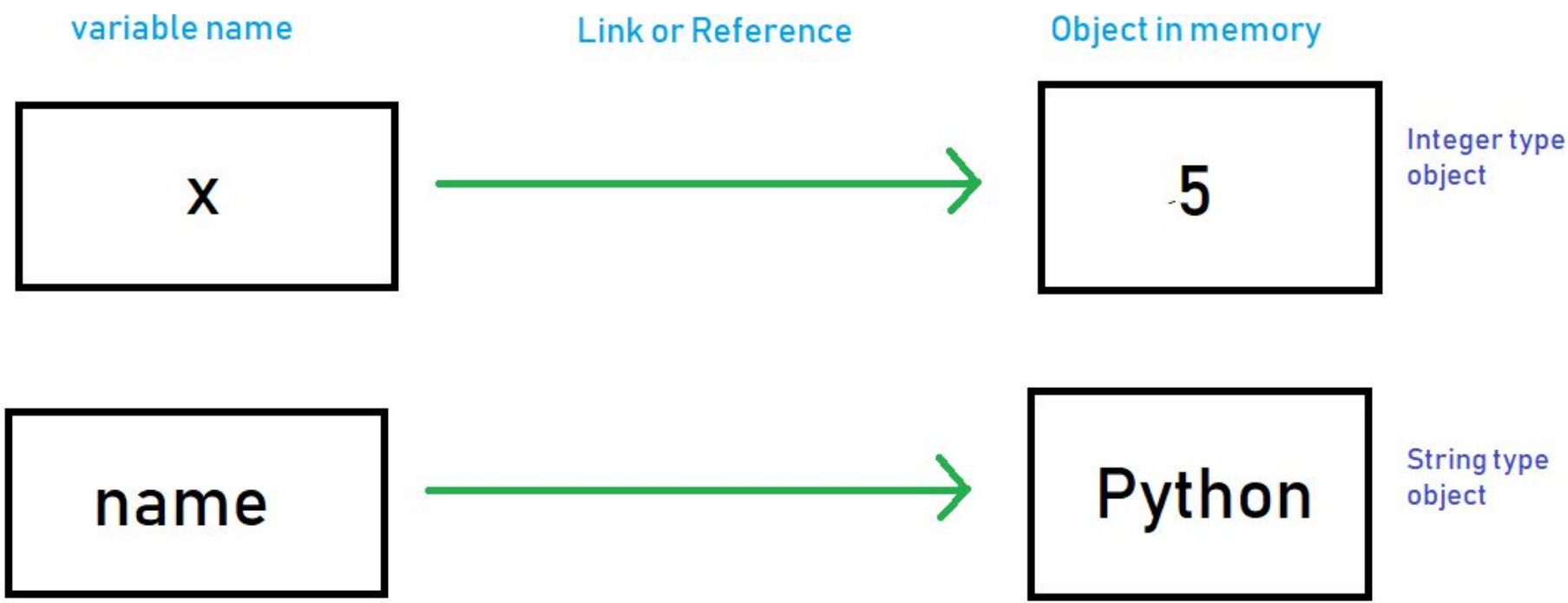
Continuing from yesterday

Dave showed you a number of different great ways to get started coding in python.

In contrast to this I’m going to show you a terrible way…

Remember, python is just a set of rules to tell your computer what to do. When you run something with python, you are telling the computer to use python’s rules to interpret your text (all still ultimately represented by 0s and 1s). What’s the simplest way to access this interpreter?

Off to the command line.


variable name
Link or Reference
Object in memory
x
5
Integer type object
name
Python
String type object

Good places for a refresher on basic python

https://docs.python.org/3/tutorial/introduction.html

(and the rest of the tutorial)

https://stackoverflow.com/questions

(for specific questions)