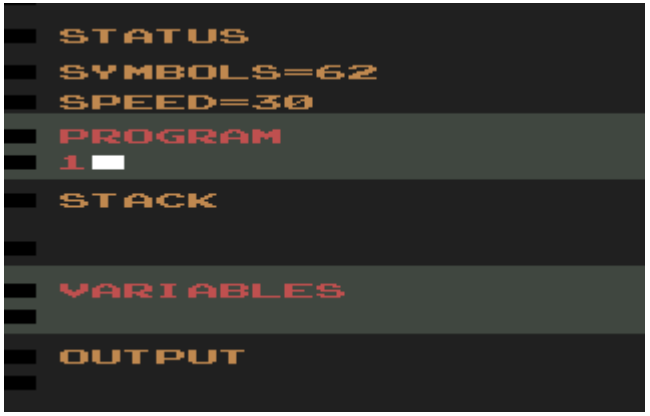
python introduction

programming: my story

I first learned how to program with my Atari 2600 game console and the *BASIC Programming* cartridge

http://en.wikipedia.org/wiki/BASIC_Programming

...in 1979



BASIC

Example of "unstructured programming"

```
GOTO 100
```

I continued to use BASIC with my Atari computers (400, 800) in college

Wrote my own "word processor" which I used to type short papers

Wrote my own "paint" program that could draw/erase with the high-res Atari graphics

FORTRAN

FORTRAN was required as part of my undergrad degree at Michigan

FORTRAN 77

lectures were videotaped

I ended up skipping those since I slept through them (in a big room with the lights out)

programs were written on IBM PC/AT machines networked together - had to submit code to one machine to compile...took forever

PASCAL

also learned PASCAL at Michigan, but never used it again

FORTRAN...continued

used FORTRAN for just about everything

NCARGRAPHICS: had FORTRAN libraries that could do maps, contours, color fills, wind barbs, line plots

NCEP: Models are written in FORTRAN, post-processing codes, numerous libraries

array syntax in the 90s with FORTRAN 90

csh/bash scripting

unix/linux shell scripting

learned this while working at NCEP

never took a class or read a book

learned by looking at other scripts and copying parts that I needed for my work

Matlab

learned/used as part of my PhD research

considered a 4th generation programming language...high-level language
more of a computing/visualization environment

toolboxes for statistics, image processing,etc.
great for students, but $$$ for real-world
Mathematica,IDL are other examples

python

first heard of this at NSSL around early 2000s

I'm still learning (old dog...new tricks)

seems to be able to do it all

- scripting
- programming
- object-oriented
- interactive (dynamically typed)
- array syntax
- open source/platform independent

1000s of packages

everyone's using it

easy to incorporate packages to help solve your particular problem

Johnny Lin's book

http://pyaos.johnny-lin.com

"A Hands-On Introduction to Using Python in the Atmospheric and Oceanic Sciences"

strongly encourage you to install on your own computer

I use ubuntu linux - free and easy - dual boot with windows (but I never seem to boot to windows anymore...)

Enthought - EPD

free for academic email address

we're working to get things installed on our linux network, RCAC clusters

python

/opt/EPD/bin/python

we'll do some things interactively: command-line

also write scripts and run in batch mode