Outline

- Old slides with agenda and requirements reviewed...

- Class exercises and materials on them
  - function calling in list defining
  - a function call returns only once
  - when things get defined, etc.
  - lists of lists (of lists ... ) exercises with observing and accessing them, such lists in biology, etc.
Agenda

- Sensors: research with Myro's senses

- 1, 2 or 3 member team project:
  - Preliminary version due in 1 week (Wednesday)
  - Improved version due in 2 weeks (following Wed.)
  - Presentation at Parents/Prosp. Students day Sat, October 10.

- Project must give user a menu of choices of robot demonstrations.

- Lists and other program organization ideas to combine behaviors.
Some Project Requirements

- Make the first couple of choices very simple demos.

- Implement the action for EACH CHOICE by a SEPARATE FUNCTION.

- More complex choices must involve (1) the robot seeking light (2) the robot avoiding obstacles (3) a combination of seeking something AND avoiding obstacles.

More Project Requirements

- It must include a choice that provides a COMBINATION of behaviors controlled by the list-based control and arbitration decision structure from Kumar, Chapter 7.
Goals for today.

- Comfort with small programs.
- Structures for making a sequence of decisions.
  - To get started with current HW: Which menu choice did the user make? Call a different function depending on the choice.
  - Move on: To develop interesting combinations of robot behaviors which depend on sensory data (Chap. 7 content): In a priority sequence, call functions whose return values specify:
    1) Is the sensed condition for this behavior True?
    2) If yes, the value ALSO specifies the behavior's robot motion.
- Lists and some subtle distinctions and thoughts.
Monday

- HW progress: Build your menu system and then deploy and experiment with “Insect Behaviors” with your own robot kit. (Kumar Ch. 6)
  Everybody bring in ONE WRITTEN QUESTION.

- Monday's class: Discussions based on the questions, use of init('simulator')

- Monday's lab: Members of each team report to team problematic or useful observations or demos. Each team will then report and demonstrate to all what supports the HW best.
HOMEWORK

In your preliminary version due on Wednesday, use a menu control structure based on one or two lists that indirectly or directly contain functions or strings. (Not the old-fashioned if ... : ... elif ... : ... elif ... : ... elif ... : ... else ... structure if you want full credit.)

If you finished the slides, you practiced all the ideas you will need for this. Whether to use one list of lists or two parallel lists is up to you; but learn both structures (for exams, Google interviews, etc.)
Fri, Oct. 9 exam..

- Closed book, computer, etc, with 1 sheet (both sides) of notes encouraged.
- Programming AND hand interpreting of ALL sample programs on slides, individual and group assignments, or programs with operations or concepts appearing therein.
def demo1():
    print 'i'' called'
    return 245.67
LS = [ 34, 567.7]
LS1 = [‘ast’, demo1()]
LS2 = [‘ast’, demo1 ]
LL=[ [ ‘abc’, demo1 ], [ ‘dce’, demo2 ], [ ‘asdf’, demo3 ], [’asdfasdf’,dnmoe ] ]
print LS
print LS1 the value of LS1 was [‘ast’, 245.67]
print LS2

print funfun
funfun was NOT DEFINED
def funfun():
    return 3
    return "Hello"
print funfun
funfun( )
funfun is DEFINED
print funfun()
def demo1():
    print 'i'' called'
    return 245.67
LS = [ 34, 567.7]
LS1 = ['ast', demo1()]
LS2 = ['ast', demo1 ]
LL=[ [ 'abc', demo1 ], [ 'dce', demo2 ], [ 'asdf', demo3 ], ['asdfasdf', dnmoe ] ]
print LS
print LS1
the value of LS1 was ['ast', 245.67]
print LS2

print funfun
funfun was NOT DEFINED

def funfun():
    return 3
    return "Hello"
print funfun
funfun( )
funfun is DEFINED
print funfun()

print LL
LL [1]
Select item 1 of a list. The selection is a list.

[0] [0] selects item 0 of that (blackened)
list.
Lists of Lists of Lists of Lists of Lists etc express the taxonomy of life

http://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?name=Eukaryota

Lists of Lists of Lists of Lists of Lists etc express folders of documents or folders of documents or folders of documents or folders ...

Explore some folders under “My Computer”