

**CS1315:  
Introduction to  
Media Computation**

Introduction to JES

**Today's class**

- Installing JES
- Using JES
- How to succeed

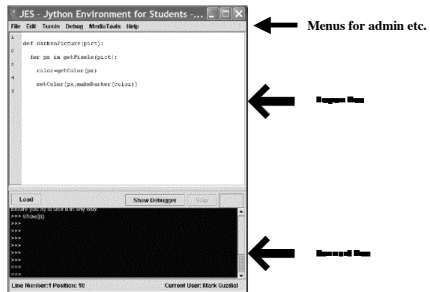
**Installation**

- Installing JES and starting it up
  - **Windows users:**
    - Just copy the folder
    - Double-click JES application
  - **Mac users:**
    - Just copy the folder
    - Double-click the JES application
- There is always Help
  - **Lots and lots of excellent help**

**We will program in JES**

- JES: Jython Environment for Students
- A simple *editor* (for entering in our *programs* or *recipes*): We'll call that the *program area*
- A *command* area for entering in commands for Python to execute.

## JES - Jython Environment for Students



## Python understands *commands*

- We can name data with =
- We can print values, expressions, anything with `print`

## Using JES

```
>>> print 34 + 56
90
>>> print 34.1/46.5
0.7333333333333334
>>> print 22 * 33
726
>>> print 14 - 15
-1
>>> print "Hello"
Hello
>>> print "Hello" + "Mark"
HelloMark
```

## Command Area Editing

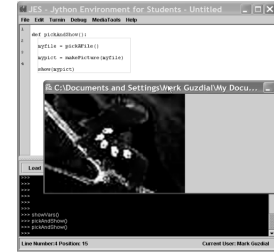
- Up/down arrows walk through *command history*
- You can edit the line at the bottom
  - and then hit **Return/Enter**
  - that makes that last line execute

## Demonstrating JES for files and sounds

```
>>> print pickAFile()
/Users/guzdial/mediasources/barbara.jpg
>>> print makePicture(pickAFile())
Picture, filename /Users/guzdial/mediasources/barbara.jpg height 294 width 222
>>> print pickAFile()
/Users/guzdial/mediasources/hello.wav
>>> print makeSound(pickAFile())
Sound of length 54757
>>> print play(makeSound(pickAFile()))
None
>>> myfilename = pickAFile()
>>> print myfilename
/Users/guzdial/mediasources/barbara.jpg
>>> mypicture = makePicture(myfilename)
>>> print mypicture
Picture, filename /Users/guzdial/mediasources/barbara.jpg height 294 width 222
>>> show(mypicture)
```

## Writing a recipe: Making our own functions

- To make a function, use the command **def**
- Then, the name of the function, and the names of the input values between parentheses (“(input1)”)
- End the line with a colon (“:”)
- The *body* of the recipe is indented (Hint: Use two spaces)
  - **That’s called a *block***



## Making functions the easy way

- Get something working by typing commands
- Enter the **def** command.
- Copy-paste the right commands up into the recipe

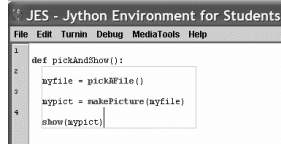
## A recipe for playing picked sound files

```
def pickAndPlay():
    myfile = pickAFile()
    mysound = makeSound(myfile)
    play(mysound)
```

**Note:** **myfile** and **mysound**, inside **pickAndPlay()**, are *completely different* from the same names in the command area.

## Blocking is indicated for you in JES

- Statements that are indented the same, are in the same block.
- Statements that are in the same block as the cursor are enclosed in a blue box.



```
JES - Jython Environment for Students
File Edit Termin Debug MediaTools Help
1 def pickAndShow():
2     myfile = pickAFile()
3     mypict = makePicture(myfile)
4     show(myPict)
```

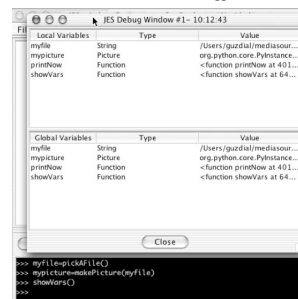
## A function for playing picked picture files

```
def pickAndShow():
    myfile = pickAFile()
    mypict = makePicture(myfile)
    show(mypict)
```

## The Most Common JES Bug: Forgetting to Load

- Your function does NOT exist for JES until you *load* it
  - Before you load it, the program is just a bunch of characters.
  - Loading *encodes* it as an executable function
- Save and Save As
  - You must Save before Loading
  - You must Load before you can use your function

## What if you forget your variable names? showVars()



## JES Menus and administration

- Save and Save As
- Cut/Copy/Paste with shortcut keys
- Turning in assignments
  - You will use Webwork for this
  - You will use this first with Lab 2
  - Webwork will be explained before then
- Help
  - Explain is contextualized help: Highlight a JES (media) function
  - Lots of help on mediatools and the like

## MOST IMPORTANT THING TO DO TO PASS THIS CLASS!

- *DO THE EXAMPLES!*
- Try them out for yourself. Try to replicate them.  
*Understand them*
  - **EVERY CLASS, TYPE IN AT LEAST TWO OF THE EXAMPLES FROM CLASS**
- To understand a program means that you know why each line is there.
- You will encounter all the simple-but-confusing errors *early*—**BEFORE** you are rushing to get homework done!!