

Lab 0 Feedback

- Great!
- Details got some of you
 - Print out copy
 - Copy directory to turnin directory
 - Python practice (expressions into shell)
 - Web page changes in index.html
 - ...

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Linux Key -- online

- `ls -l`
 - “Long” listing format
 - Displays detailed info about files
 - Last modified date
 - File size
 - Owners, permission
- `ls /home/courses/cs111/handouts/lab0/*.py`
 - “.py” extension in common

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CS Issues Feedback

- First one: more lenient in grading
- Later: tougher on grammar, spelling errors, post as a comment, explicitly summarize the top three points, etc.
 - Spelled out on “CS Issues” page
- Future rubric
 - Blog entry - 6 pts
 - Discussion - 4 pts

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Linux Command Conventions

- `<arg>` means fill in the appropriate thing
- `[arg]` means optional argument
- Example: Move or Rename a file
 - `mv <sourcefile> <destination>`
 - If `<destination>` is a directory, keeps the original source file’s name
 - Ex: `mv ~/labs/file.py labs/lab1/`
 - File “file.py” will be in labs/lab1 directory

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Calling Functions

- Functions perform some task
 - May take **arguments/parameters**
 - May **return** a value that can be used in assignment
- Syntax
 - `func_name` ^{Argument/parameter list} `(arg0, arg1, ..., argn)`
- Depending on the function, the arguments may or may not be required
 - `[]` indicate an optional argument

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Example Functions

- `raw_input([prompt])`
 - If `prompt` is given as an argument, prints the prompt without a newline/carriage return
 - If no `prompt`, just waits for user’s input
 - Returns user’s input (up to “enter”) as a **string**
 - `input([prompt])`
 - Similar to `raw_input` but returns a **number**
- Known as function’s “signature”
Template for how to “call” function
Optional argument

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Getting Input From User

- **input** and **raw_input** are functions
 - Prompts user for input, gets the user's input
 - **input**: for numbers
 - **raw_input**: for strings
- Typically used in assignments
 - `width = input("Enter the width: ")`
- In execution, terminal displays
 - "Enter the width: "
 - Assigns `width` the value the user enters

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Getting Input from User

- `color = raw_input("What is your favorite color? ")`

Terminal:

```
> python input_demo.py
What is your favorite color? blue
Cool! My favorite color is _light_ blue !
```

Grabs every character up to the user presses "enter"

Assigns variable `color` the user's input

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input_demo.py

Other Built-in Functions

- `round(x[,n])`
 - Round the float to `n` digits after the decimal point
 - If no `n`, round to nearest int
- `abs(x)`
 - Returns the absolute value of `x`
- `type(x)`
 - Return the type of `x`

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function_example.py

Importing Modules

- Python has a rich library of functions and definitions available for your use
 - The library is broken into **modules**
 - A **module** is a file containing Python definitions and statements
- To use the definitions in a module, you must first **import** the module
 - Example: to use the **math** module's definitions, use the the import statement: **import math**
 - Typically import statements are at *top* of program

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Using Definitions from Modules

- Prepend constant or function with "modulename."
 - Examples for constants:
 - `math.pi`
 - `math.e`
 - Examples for functions:
 - `math.sqrt`
- Practice
 - How would we write the expression $e^{ix} + 1$ in Python?

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module_example.py

Lab 1 Notes

- Expect comments in programs
 - High-level comments, authorship
 - Notes for your algorithms, implementation
- Expect more testing on programs
 - What are good test cases for your programs?
 - Show the output from those test cases.
 - But don't go overboard, testing every possible number!
- Honor System
 - Pledge the Honor Code on printed sheets

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