UW CSE 190p Section

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Now it’s time to team up and code!

• Find a partner and make sure that you have at least one laptop.

• Try to share what you think with your teammate!
• Today’s material will also be covered in the following lectures with more details, so don’t worry if you feel confused.

• When in doubt, you can always stop me and ask!
Continue from Michael’s lecture...
A program is a recipe

Colvin Run Mill Corn Bread
1 cup cornmeal
1 cup flour
1/2 teaspoon salt
4 teaspoons baking powder
3 tablespoons sugar
1 egg
1 cup milk
1/4 cup shortening (soft) or vegetable oil

Mix together the dry ingredients. Beat together the egg, milk and shortening/oil. Add the liquids to the dry ingredients. Mix quickly by hand. Pour into greased 8x8 or 9x9 baking pan. Bake at 425 degrees for 20-25 minutes.
What is a program?

• A program is a sequence of instructions
• The computer executes one after the other, as if they had been typed to the interpreter

```python
x = 1
y = 2

x + y

print x + y
print "The sum of", x, "and", y, "is", x+y
```
• Now try to change $x = 3, y = 4$ and make print the result out again.
• Any better way rather than type everything all over again?
  – Use the editor
  – Be sure to save as .py to have code highlights
Exercise: Print a table

• Create a table using print about the simple info of your team.
• The required variable fields are: First name, Last name, Month of birth in number, and Favorite color.
• Your code should start with:
  ```python
  first_name = "Bill"
  last_name = "Howe"
  ...
  ```
• Example output:
  "Bill Howe, 1, likes green"
  "Dun-Yu Hsiao, 5, likes red"
Exercise: Print a table

- Careful about the conversion between number and string
- Use str(some number)
Exercise: Convert temperatures

• Testing your program
• Making a temperature conversion chart
  – Chart the conversion of 5F, 32F, 104F, 212F, 293F
  – Print out example:
    5F  -15.0C
    ...
  – (Tedious, isn’t it?)
• You can create a Python program!
Loops: basics

• Use loop to reduce code repetition!

• For loop:
  
  ```python
  for iterating_var in sequence:
      statements(s)
  ```

  ```python
  for x in [ 10, 2, 43]:
      print( x )
  ```

• List

  ```python
  list1 = ["a", "b", "c", "d"]
  list2 = [1, 2, 3, 4, 5 ]
  list3 = ["phys", "chem", 1997, 2000]
  ```
Exercise: Convert temperatures

- Now try it using one for loop!

- Much more concise!
Exercise: Create a log table using loop

• Numbers:
  1, 2, 4, 8, 10, 20, 40, 80, 100, 200, 400, 800, 1000

• Import
  - To not reinvent the wheel!
  - Use the console to check usage quickly!
Careful!

• Don’t forget colon

• Careful about the indentation
Start Using Command Lines

- Command Prompt in Windows
- Terminal in Mac/Linux
Command Line Basics

• Show current directory/folder
  – pwd (on unix, linux, osx)
  – echo %cd% (on windows)

• List contents in the current directory/folder
  – ls (on unix, linux, osx)
  – dir (mostly only on windows)

• / on unix, linux, osx

• \ on windows
• Change directory
  – cd
  Use “tab” to loop through path!

• Make directory
  – mkdir (on unix, linux, osx)
  – md (on windows)
Exercise

• Go to your desktop directory
• In Desktop, create directories in this structure:
  – Desktop
    • test_dir1
      – test_sub_dir1-1
      – Test_sub_dir1-2
    • test_dir2
      – Test_sub_dir2-1
• Now go into test_sub_dir_1-2
  — Copy and save the commands you used in the report.

• Now go into test_sub_dir_2-1
  — Copy and save the commands you used in the report.
Invoking Python from the command line

- python myprogram.py
- python myprogram.py argument1 argument2

- The operating system command shell is \textit{not} the same as the Python interpreter
Today’s takeaway

- IDLE
- Print
- Loop
- List
- Import
Questions?