NENG 685 Fall 2017
Pre-flight #1 Due Oct. 1, 2017

Name:

On Pre-flights:

- If you work with anyone else, document what you worked on together.
- If you are not using python, then substitute your language of choice when Python is specified.

Do not write in the table to the right.

Run LaTeX again to produce the table

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1. (5 points) Describe the basic variable types available in Python.

Solution:

- float - 64 bit approximations to real numbers
- integer - precise representation of a integer number
- string - character variables that can contain numbers and special characters

2. (a) (2 points) What does the variable *None* mean in Python?
   (b) (3 points) What is an example of how to use the *None* built-in variable?

Solution:

(a) Denotes that no value has been assigned.

(b) Possible answers include:

1. As a optional input where default behavior has no meaning.

3. State the solution to the following in Python 2 and, if different, Python 3:
   (a) (1 point) 10%3
   (b) (1 point) 11//6
   (c) (1 point) 4**3
   (d) (1 point) 12/5
   (e) (1 point) 6 != 5

Solution:

(a) 1

(b) 1

(c) 64

(d) 2 - Python 2; 2.4 Python 3

(e) True

4. (a) (2 points) What is the default encoding of strings in Python?

(b) (1 point) What is the starting index number in Python?

(c) (1 point) How do you reference the last element of a string?

(d) (1 point) How do you concatenate strings?

Solution:

(a) Trick question. Python 2 is ASCII and Python 3 is Unicode

(b) 0

(c) str[-1]

(d) '+'

5. (a) (2 points) Define the meaning of module in Python.

(b) (2 points) Define the meaning of package in Python and list what elements are required to make it a package.

(c) (2 points) Name at least 3 ways to import a function from a module in Python.

(d) (2 points) What 2 items are required to make packages visible in Python?

(e) (2 points) Label the following directory structure as packages, subpackages, or modules:

pyScripts/
── `__init__.py`
── physics.py
── BasicCalcs/
— ── `__init__.py`
— ── morephysics.py
— ── evenmorephysics.py
── AdvancedCalcs/
— ── readme.txt
— ── advancedphysics.py

Solution:

(a) Python file ending in .py

(b) Collection of python files with in a directory.

(c) 1. import physics

2. from physics import *
3. from physics import gauss
4. import physics as phy

(d) With a `__init__.py` file. Also must be in the PYTHONPATH.

(e) pyScripts/ **Package**
- `__init__.py`
- physics.py **Module**
- BasicCalcs/ **Subpackage**
  - `__init__.py` **Module**
  - morephysics.py **Module**
  - evenmorephysics.f90 **Module**
- AdvancedCalcs/
  - readme.txt
  - advancedphysics.py **Module**

6. (a) (1 point) Why are you taking this class?
   (b) (2 points) Is there a specific, non-grade related outcome you would like?
   (c) (2 points) What is one concept that you found difficult in the reading?