hw3q2

(revised) Python code template — Python

```python
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##  EE599, 2020

################################################
## this is a template to illustrate hd5 files
##
## also can be used as template for HW1 problem
################################################

import h5py
import numpy as np
import matplotlib.pyplot as plt

#DEBUG = True
DEBUG = False
DATA_FNAME = 'brandon_franzke_hw1_1.hd5'

if DEBUG:
    num_sequences = 3
    sequence_length = 4
else:
    num_sequences = 10
    sequence_length = 50

### Enter your data here...
### Be sure to generate the data by hand.  DO NOT:
###     copy-n-paste
###     use a random number generator
###
"""
x_list = [
    [ 0, 1, 1, 0],
    [ 1, 1, 0, 0],
    [ 0, 0, 0, 1]
]
"""
x_list=[[0,0,0,0,0,0,0,1,0,0,1,0,0,0,0,0,0,0,0,1,1,1,1,0,1,0,0,0,0,0,0,0,1
,1,1,1,1,1,1,1,0,0,0,0,0,0,1,0,1,0],
        [0,0,0,0,1,1,1,1,0,0,0,0,1,0,1,1,0,0,0,0,0,0,0,1,1,1,1,0,1,1,1,1,0
,0,0,0,0,1,1,1,1,0,0,0,0,0,0,0,0,0],
        [1,1,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,1,1,0,0
,1,0,1,1,1,1,1,1,1,0,0,0,0,1,1,1,1],
        [1,1,0,0,0,1,1,1,1,1,1,0,0,0,1,0,1,0,1,0,1,1,1,1,1,1,1,1,1,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1],

```

```
        [1,0,0,0,0,0,0,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,0,1,0,1,0,1,0,1,1
,1,1,1,1,1,1,1,0,0,0,0,1,1,1,0,0,0],
        [0,1,1,1,1,1,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,1,1,1,1,1,1
,1,1,1,1,1,1,1,1,1,1,0,0,0,0,0,0,0],
        [0,0,0,0,1,0,0,0,0,0,0,0,0,0,0,0,1,1,1,0,1,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0],
        [1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1
,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1],
        [0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0],
        [1,1,1,1,1,1,0,1,1,1,1,1,1,1,1,1,1,0,1,1,1,1,1,0,1,1,1,1,1,1,1,0,1
,1,1,1,1,1,1,1,0,1,1,1,1,1,1,1,0,1]]

# convert list to a numpy array...
human_binary = np.asarray(x_list)

### do some error trapping:

assert human_binary.shape[0] == num_sequences, 'Error: the number of seque
nces was entered incorrectly'
assert human_binary.shape[1] == sequence_length, 'Error: the length of th
e seqeunces is incorrect'

# the with statement opens the file, does the business, and close it up fo
r us...
with h5py.File(DATA_FNAME, 'w') as hf:
    hf.create_dataset('human_binary', data = human_binary)
    ## note you can write several data arrays into one hd5 file, just giv
e each a different name.

####################
# Let's read it back from the file and then check to make sure it is as w
e wrote...
with h5py.File(DATA_FNAME, 'r') as hf:
    hb_copy = hf['human_binary'][:]

### this will throw and error if they are not the same...
np.testing.assert_array_equal(human_binary, hb_copy)
```