

# CS412 Written Homework Guidelines

1. Submit a **typed** pdf file of answers. The pdf file of answers will be the primary basis for grading.
2. Submit a python file for each homework problem. Use proper file names to identify the corresponding questions. For instance, 'Question1.netid.py' should refer to the python source code for Question 1, replace netid with your netid.
3. Use version 3 of Python.
4. Print the answer to each subproblem in the file.
5. Compress all the files (pdf and source code files) into one file. Submit the compressed file ONLY.
6. Include intermediate results in your write-up in case you make a mistake.
7. You are allowed to use numpy, scipy, matplotlib, and pandas but no other libraries. Pandas will likely be unnecessary for the homework.

Here is an example of code for a problem:

What is the geometric mean of 4, 2, and 8?

```
import numpy as np
```

```
data = np.array([4, 2, 8])
```

```
n = data.size
```

```
prod = np.prod(data)
```

```
gmean = prod**(1/n)
```

```
print("Problem 1.a. :", gmean)
```

Write-up:

Problem 1.a.

First take the product: 64

Now take the 3rd root:

Geometric mean = 4