Lab 5: Notes on Assignment 1

Data structures and Algorithms for CL III

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General Notes

- follow the instructions and the template closely
- check if you input and output the correct values/ types
- write some comments so we can reconstruct the idea (even if it doesn't perfectly work)
- ask all your questions in the tutorial, on Github (`https://github.com/dsacl3-2020/dsacl3/issues`) or send us an email
- check your readability, remove commented out code
- work in teams (even if/especially if you're not too familiar with python)
- don't forget the honor code or final tag

Common mistakes

- account for any type of input, e.g. len(seq)==1 or len(seq)==2
- not always required, but accounting for unexpected input is also a good idea, e.g. len(seq)==0 or 1D seq when 2D expected
- make sure you don't skip an element during a search and it's possible to actually return any index (last element)
- don't return unexpected strings, print the message and return None or throw an exception
- check if your created samples are actually unimodal and have the mode at different indices (and as the first or last element)

Common mistake: array indexing

```
a = [1,2,3,4,5] # 1D array
a[-1] # last item
a[len(a)-1] # last item
a[len(a)] # index out of bounds error
for i in range(0, len(a)) # iterate over all indices
for item in a # iterate over all items

# 2D numpy array with 2 rows and 3 columns
b = np.array([[1, 2, 3],
            [4, 5, 6]])
b.shape # (2, 3) for (numRows, numCols)
>>> b[0][b.shape[1]-1] # returns 3 first row, last col
b[b.shape[0]-1][0] # returns 4 last row, first col
b.shape[0] # number of rows
b.shape[1] # number of columns
```