

Tech Check 1

Welcome to Tech Check 1. You will be asked 3 questions and you will have the remainder of your class to answer the questions and upload your answers to Brightspace.

Rules

- No searching on the web or LLMs
- No communications during the test
- No referencing of any materials

Submitting

- Upload your 3 answers to Brightspace. Each one should be an individual .py file. They should be named q1.py, q2.py, and q3.py.
- Submissions are due by 1) the end of class in order to qualify for full (potential) points or 2) by midnight on the day of the test to qualify for up to 80% of full pts.

Question 1: Scrambled Sentence (3 pts)

You intercept the following top secret message in the form of a scrambled array of words:

```
top_secret = ['through', 'day', 'calm', 'vibrant', 'jumping', 'waters',  
'energizes', 'reflecting', 'sunlight', 'A', 'keenly', 'ponds', 'frogs', 'near',  
'quietly', 'opulent']
```

Your job is to write **either** an insertion or selection sort in the form of a function called `decode_msg()`. The function should return the decoded message in the form of a single string.

Question 2: Message to Dean (4 pts)

Write an implementation of a Binary Tree. Use it to build a tree of words. Include a tree traversal function named `dean_msg(order)` that takes either 'in', 'pre', or 'post' as input and performs the corresponding type of traversal. Send me a message that only displays properly when I select the correct order!

Question 3: Displaying Binary Trees (3 pts)

Write a function called `ascii_tree()` that accepts an instance of your Binary Tree from question 2 and prints the tree at the command line. One point for something that outputs the node data and somehow represents the tree level of each node. Two points if you try to make it look kinda cool. Full pts if you get it oriented like a tree or inverted tree (vertically).