Stack Diagram Practice

(find and work with a partner)

1. Given the code below, draw the stack diagram as it would look right before line 5 is executed (so main is in the process of executing line 10 and add has just finished the for loop). Make sure to include all values on the heap and all functions (with the variables in their scope) on the stack.

```python
1 def add(lst, x):
2     n = len(lst)
3     for i in range(n):
4         lst[i] = lst[i] + x
5     print("done adding!")
6
7 def main():
8     data = [7, 10, 4]
9     z = 2
10    add(data, z)
11    print(data)
12
13 main()
```

2. After this program has finished, what is data equal to?

Steps for drawing stack diagrams:

- draw empty stack/heap
- put first function called on stack (usually main)
  - set up any parameters for this stack frame (assign to values on the heap)
  - execute function, step by step, setting up any local variables as you go
  - send return value (if any) back to calling function
  - remove finished function from stack (erase or cross out)
- continue executing the function that is now on top of stack
- note: be able to include and increment line numbers associated with the functions on the stack