Problem 1: Execute the following, drawing and updating the memory diagram for each variable and object involved.

**Problem 1 Code**

```python
number = 2
other_number = number
number += 1
```

**Problem 1 Diagram**

![Memory Diagram for Problem 1](image)

Problem 2: Execute the following, drawing and updating the memory diagram for each variable and object involved.

**Problem 2 Code**

```python
a = []
b = [1]
a.insert(0, b)
b[0] = 4
a.insert(0, b)
print(a)
```

**Problem 2 Diagram**

![Memory Diagram for Problem 2](image)
Problem 3: Implement the following function to create a true copy of a list. Hint: one possible approach uses a loop and the append method.

```python
def copy_list(in_list):
    """ Return a new list object containing the same elements as in_list.
    Precondition: in_list's contents are all immutable. """
```

Problem 4: Implement this function, which removes half the elements from the given list.

```python
def snap(avengers):
    """ Remove a randomly chosen half of the elements from the given list of avengers """