6.101 Recitation 16: Week 9 SAT Solver Midpoint **4/10/24**

This sheet is yours to keep!

Question 1: You ordered food from SuperEats for you and your friends. SuperEats delivered a variety of entrees with varying quantities. Your friends have given you their unordered preferences for which entrees they like. As the host, you are trying to determine a way to assign the delivered food to your so they can all get one of their preferred dishes.

No solution example (there is no food available for bobbie):

```
people = {'alex': ['salad', 'burger'], 'bobbie': ['zucchini fritters']}
food = {‘burger’: 1, ‘salad’: 1}
```

Solution example (alex can get the burger and tim can get a salad):

```
people = {'alex': ['salad', 'burger'], 'tim': ['salad']}
food = {‘burger’: 1, ‘salad’: 1}
```

Discuss with someone around you how you would approach solving this problem using different graph search methods:

- Brute force search
- BFS
- DFS
- Backtracking

Question 3: Fill in the body of the feed function below.

```
def feed(people, foods):
    """
    Given people who are hungry and the available food supplies, find a mapping
    from people to available foods they prefer if one exists.

    Parameters:
        people: a dictionary mapping a name to a list of their preferred foods
        food: a dictionary mapping available foods to their quantities

    Returns:
        Dictionary mapping person to assigned food if there is enough food to
        match everyone's preferences. None otherwise.

    >>> people = {'alex': ['oreo', 'chocolate'], 'bobbie': ['vanilla']}
    >>> feed(people, {'oreo': 1, 'vanilla': 1}) == {'alex':'oreo','bobbie': 'vanilla'}
    True
    >>> feed(people, {'oreo': 1, 'ketchup': 1}) == None
    True
    """
```

R16 Participation Credit **Kerberos : _____@mit.edu**

Hand this sheet in at the end of recitation to get participation credit for today.

Question 2: For the `feed` function (see question 3):

What are the constraints?

What is the success base case? What should it return?

What is the failure base case? What should it return?