

# Queues Practice Handout

Read the code for the function `unravel`.

```

1 def unravel(nested: list) -> None:
2     """Print elements of <L> and its nested sub-lists in "level order".
3     """
4     q = Queue()
5     for e in nested:
6         q.enqueue(e)
7
8     while not q.is_empty():
9         i = q.dequeue()
10        if not isinstance(i, list):
11            print(i)
12        else:
13            for e in i:
14                q.enqueue(e)

```

For this handout, when asked to draw the state of a queue, draw it with the front labeled, and queue elements separated by vertical lines. For example, if we enqueue 10, then 20, then 30, draw the queue like this: **front**  $\rightarrow$  10 | 20 | 30

Consider the following code snippet that uses a queue:

```
>>> L = ['a', ['b', ['c', 'd'], 'e', 'f'], ['g', 'h', 'i'], 'j']
>>> unravel(L)
```

1. Draw the state of **q** during the function call **unravel(L)** at line 7 in **unravel**.
  
  
  
  
  
  
  
  
  
  
2. For each iteration of the **while** loop in **unravel**, write/draw two things:
  - (i) What, if any, output is printed at line 11.
  - (ii) The state of **q** at the *end* of the iteration (right after line 15).

[illegible]