

Data Structures

Quiz - 5

Question:

- (a) Implement a method

```
public PositionList<E> unique(PositionList<E> list)
```

which returns a list of all unique elements in `list`. Make sure to use `UnsortedMap`!

- (b) What is the complexity of your method if there are m unique elements and `list.size() = n`?

Hint: Your answer should depend on m and n !

Solution: (2 solutions)

```
1 public PositionList<E> unique(PositionList<E> list) { // O(m*n)
2     UnsortedMap<E, E> map = new UnsortedMap<>();
3     Position<E> pos = list.first();
4
5     while (pos != null) {
6         map.put(pos.getElement(), pos.getElement());
7         pos = list.after(pos);
8     }
9
10    PositionList<E> keylist = new DoublyLinkedList<E>();
11    for (Entry<E, E> entry : map.entrySet()) {
12        keylist.addLast(entry.getKey());
13    }
14
15    return keylist;
16 }
```

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5     while (pos != null) {
6         map.put(pos.getElement(), pos.getElement());
7         pos = list.after(pos);
8     }
9     return map.keySet();
10 }
```