

Hashing Gone Crazy

For this question, use the following TA class for reference.

```
1     public class TA {
2         int charisma;
3         String name;
4         TA(String name, int charisma) {
5             this.name = name;
6             this.charisma = charisma;
7         }
8         @Override
9         public boolean equals(Object o) {
10            TA other = (TA) o;
11            return other.name.charAt(0) == this.name.charAt(0);
12        }
13        @Override
14        public int hashCode() {
15            return charisma;
16        }
17    }
```

Assume that the hashCode of a TA object returns charisma, and the equals method returns true if and only if two TA objects have the same first letter in their name.

Assume that the ECHashMap is a HashMap implemented with external chaining as depicted in lecture. The ECHashMap instance begins at size 4 and, for simplicity, does not resize. Draw the contents of map after the executing the insertions below:

```
1     ECHashMap<TA, Integer> map = new ECHashMap<>();
2     TA sohum = new TA("Sohum", 10);
3     TA vivant = new TA("Vivant", 20);
4     map.put(sohum, 1);
5     map.put(vivant, 2);
6
7     vivant.charisma += 2;
8     map.put(vivant, 3);
9
10    sohum.name = "Vohum";
11    map.put(vivant, 4);
12
13    sohum.charisma += 2;
14    map.put(sohum, 5);
15
16    sohum.name = "Sohum";
17    TA shubha = new TA("Shubha", 24);
18    map.put(shubha, 6);
```