

Just did HashSet...

no duplicates. we can

1. add an item
2. remove an item
3. search for an item
4. unordered, end up using an iterator loop

What is the difference between a Set and a Map?

A Map, will associate each object in the set (these are the keys) with an associated value.

Set: Students in a class

HashSet might have: {Bob, Amy, Annabelle, Daria, Kevin}

Key	Value
Bob →	321-999-8888
Amy →	407-123-4567
Annabelle →	407-867-5309
Daria →	863-666-7777
Kevin →	555-444-3333

## HashMap methods that we'll cover

```
HashMap() // default constructor
```

```
containsKey(Object key)
```

```
V get(Object key)
```

```
Set<K> keySet()
```

```
V put(K key, V value)
```

```
V remove(Object key)
```

```
int size()
```

Mapping String to Integer:

```
HashMap<String,Integer> map = new  
HashMap<String,Integer>();
```

containsKey, get, put, remove, size -  $O(1)$

keySet() is  $O(n)$

Zoo strategy:

map animal to count

tiger → 3

bear → 1

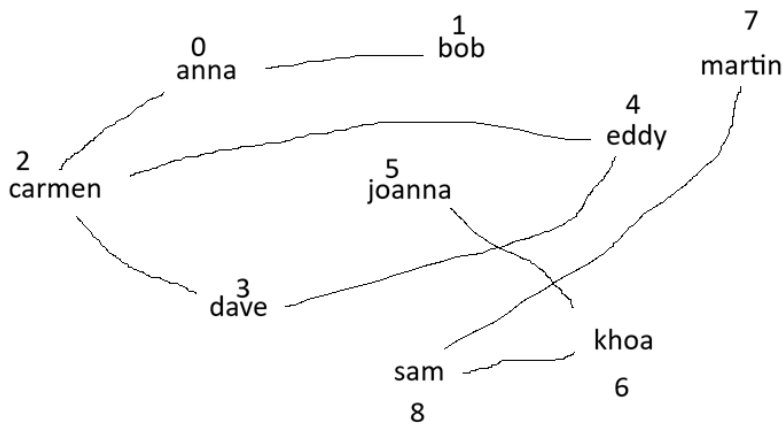
cat → 2

Store all the keys in an ArrayList, sort it, then use this to output the list.

8

Anna Bob  
Anna Carmen  
Dave Eddy  
Eddy Carmen  
Joanna Khoa  
Martin Sam  
Carmen Dave  
Khoa Sam

Here is the picture:



ArrayList of ArrayList

0: 1, 2  
1: 0  
2: 0, 3, 4  
3: 2, 4  
4: 2, 3  
5: 6  
6: 5, 8  
7: 8  
8: 6, 7

HashMap

Anna -> 0  
Bob -> 1  
Carmen -> 2  
Dave -> 3  
Eddy -> 4  
Joanna -> 5  
Khoa -> 6  
Martin -> 7  
Sam -> 8

0 1 2 3 4 5 6 7 8

Anna Bob Carmen Dave Eddy Joanna Khoa Martin Sam