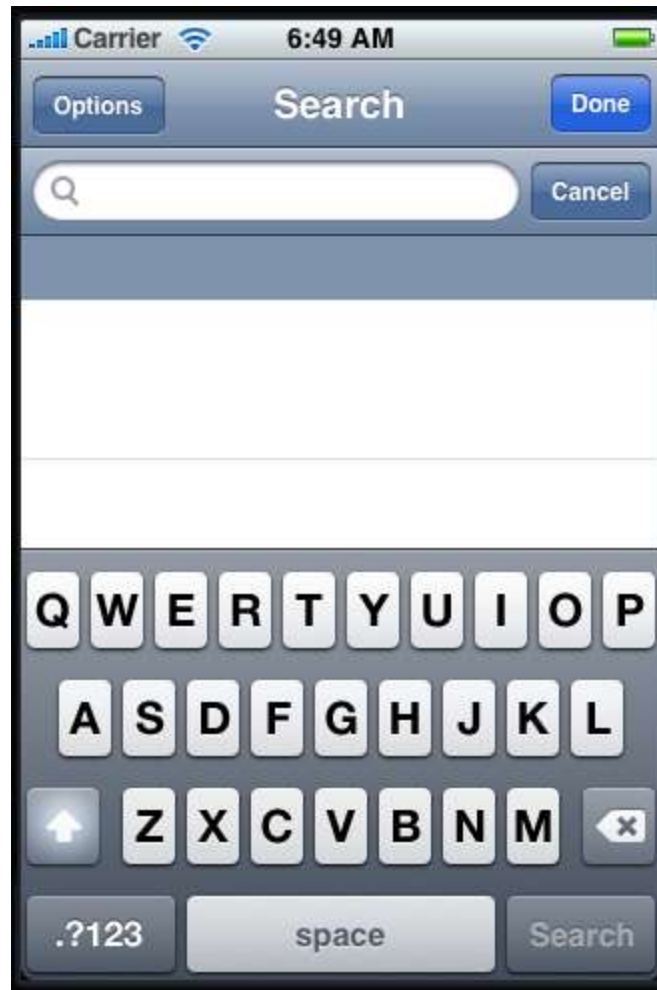


Lec 13

Search, Sorth, Hash

Search



Search

String staff =

{adam, hubert, bryan, andy, jerry, spencer, aaron, neil}

Sort

- Selection Sort -
https://en.wikipedia.org/wiki/Selection_sort
- Bubble Sort -
https://en.wikipedia.org/wiki/Bubble_sort
- https://en.wikipedia.org/wiki/Sorting_algorithm

Sort

```
import java.util.Arrays;
```

```
Arrays.sort(yourArray);
```

Guess

Difference in time between bubble sort and Java's built in sort method for $n = 100,000$:

- A) About the same
- B) java's sort 10x faster
- C) Java's sort 100x faster
- D) Java's sort 1000x faster

Search

String staff =

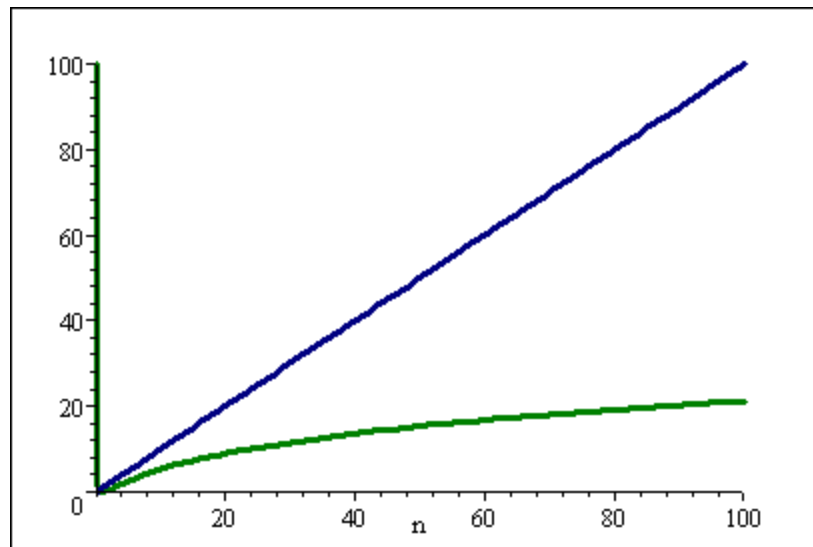
{adam, hubert, bryan, andy, jerry, spencer, aaron, neil};

Arrays.sort(staff);

{aaron, adam, andy, bryan, hubert, jerry, neil, spencer};

Binary Search

<http://www.cs.armstrong.edu/liang/animation/web/BinarySearch.html>



<http://i.stack.imgur.com/7ehp0.png>

Hash

Using Hashes

```
import java.util.HashSet;  
HashSet<type> hs = new HashSet<type>();
```

Ex:

```
HashSet<String> hs = new HashSet<String>();  
hs.add("first");  
hs.add("second");  
hs.contains("first");
```

What gets printed

```
HashSet<String> hset = new HashSet<>();  
  
hset.add("adam");  
hset.add("spencer");  
hset.add("adam")  
  
System.out.println(hset.contains("adam"));
```

- A) Compiler error
- B) Runtime error
- C) True
- D) False

HashMap

```
import java.util.HashMap;

HashMap<type1,type2> hmap = new HashMap<type1,type2>();

HashMap<String,Integer> hmap = new HashMap<String,Integer>();
hmap.put("adam", 8580001234);
hmap.put("specer", 6190001234);

Integer adamsNumber= hmap.get("adam");
int number = adamsNumber.intValue();
```

What gets printed

```
HashMap<String, String> hmap = new HashMap<>();
```

```
hmap.put("adam", "858");
```

```
hmap.put("spencer", "858");
```

```
hmap.put("adam", "619")
```

```
System.out.println(hmap.get("adam"));
```

- A) Compiler error
- B) Runtime error
- C) 858
- D) 619