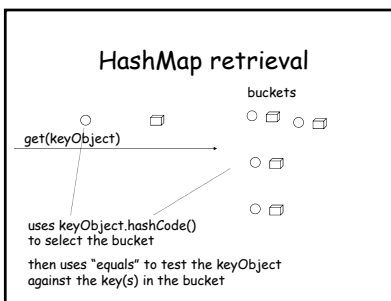
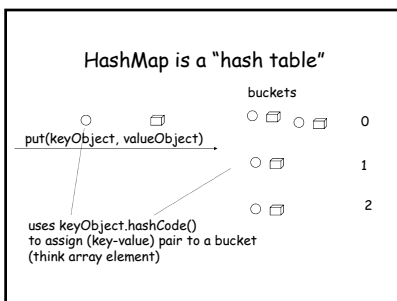
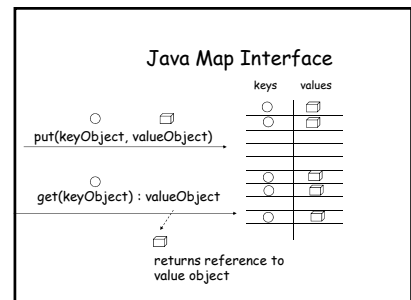
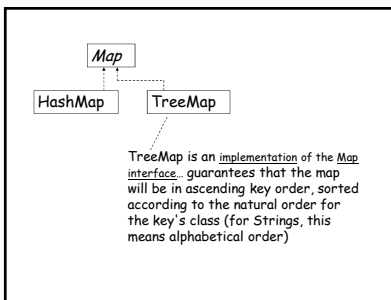
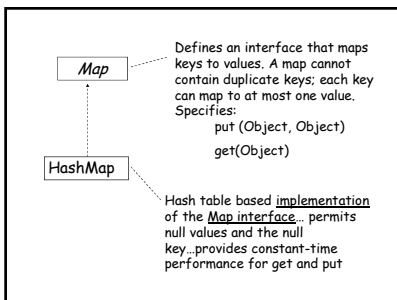
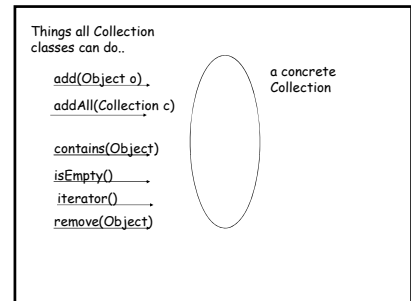
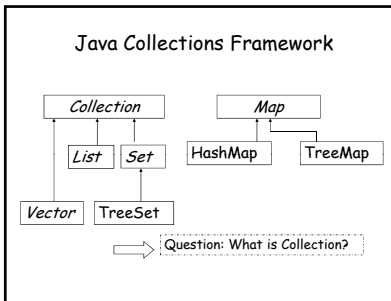


CSE 7345  
Advanced Application Development  
Java Collections and Maps



- ### Map altering operations
- Object `put(Object key, Object value)`
  - Object `remove(Object key)`
  - void `putAll(Map mapping)`
  - void `clear()`

### Map query operations

- Object `get(Object key)`
- boolean `containsKey(Object key)`
- boolean `containsValue(Object value)`
- int `size()`
- boolean `isEmpty()`

### Maps and Iteration over Elements

Enumerations are OUT!

### Map Iteration

You don't enumerate or iterate over a Map  
You extract keys, values or key-value pairs as Sets or Collections

### Map Iteration

You don't enumerate or iterate over a Map  
You extract keys, values or key-value pairs as Sets or Collections

### Map Iteration

You can extract key-value pairs as a Set of Map.Entry objects

### Your own classes: hashCode and equals

```
Employee class
String name
String title
int idNumber double salary
```

override equals so that two objects with the same data are considered equal

override hashCode so that two objects that are equal have the same hashCode