CYDEO

Map

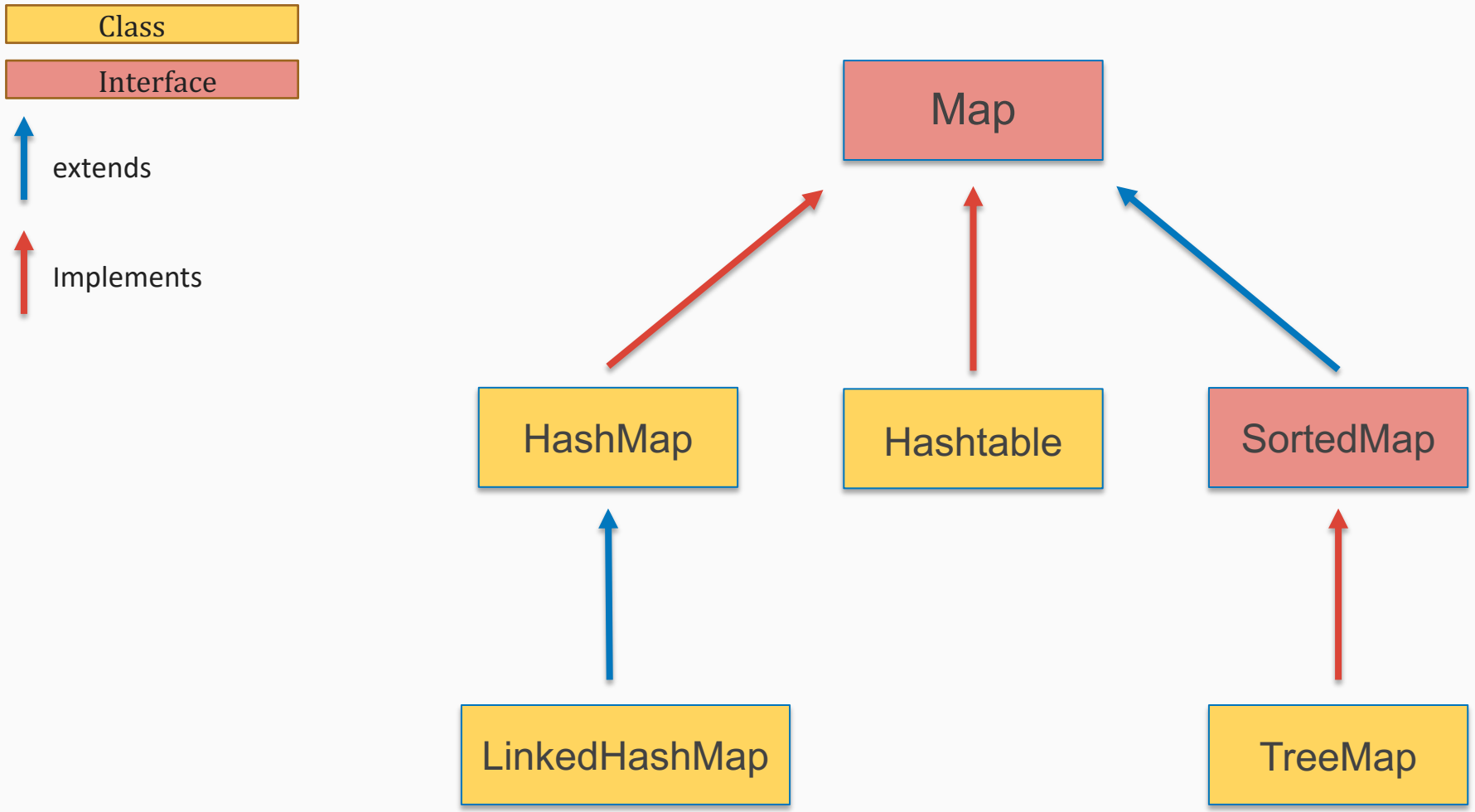
Map

- Collection of pairs
- Data structure based on the key + value pairs
- Does not have IS A relation with Collection
- Size can be increased or decreased
- Key can not be duplicated

ID (Key)	Name (Value)
10	Arthur
20	George
3	Jack
40	Emma
5	Isabella
6	Shay
70	Sophia

```
import java.util.Map;
```

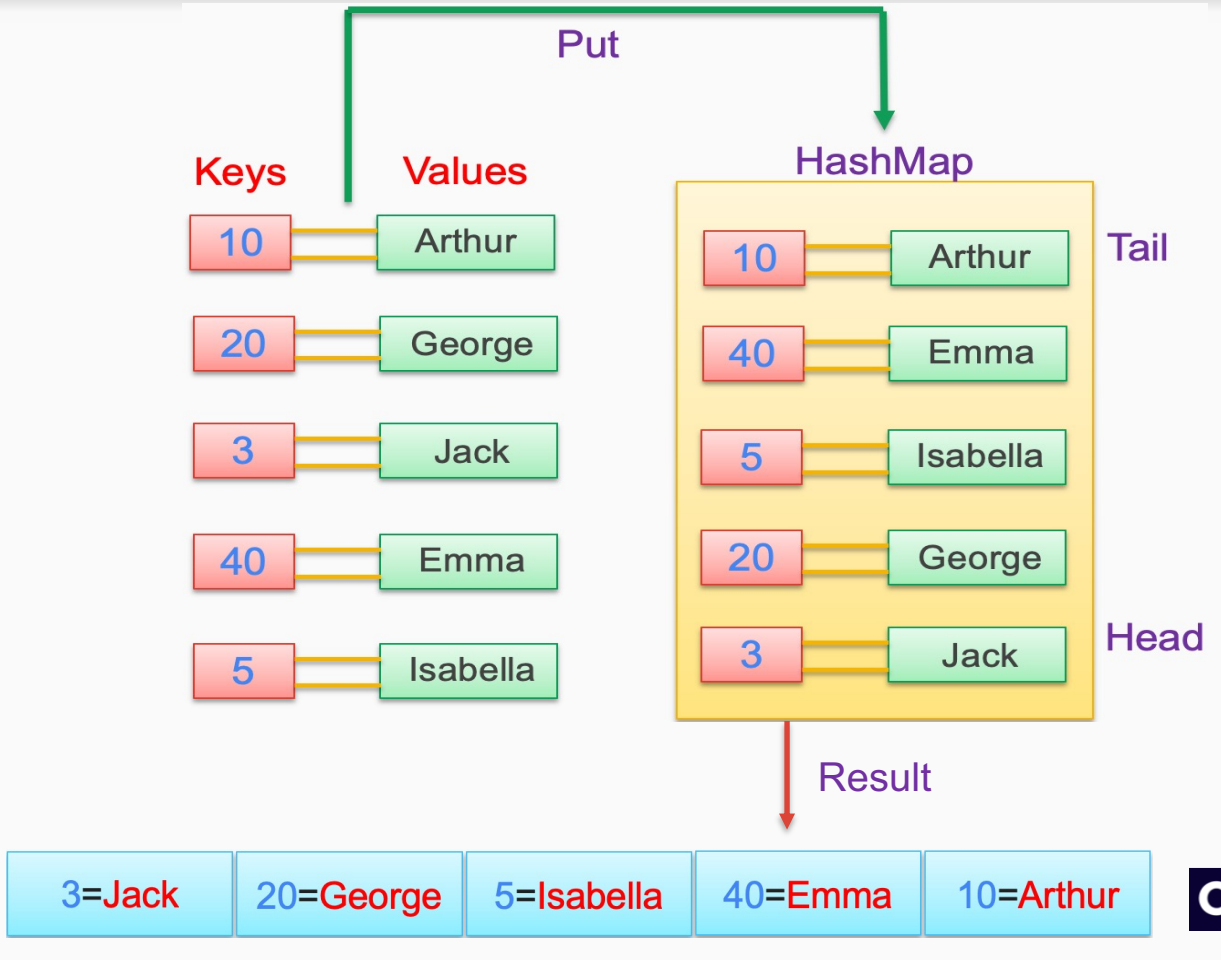
Map Hierarchy



HashMap Class

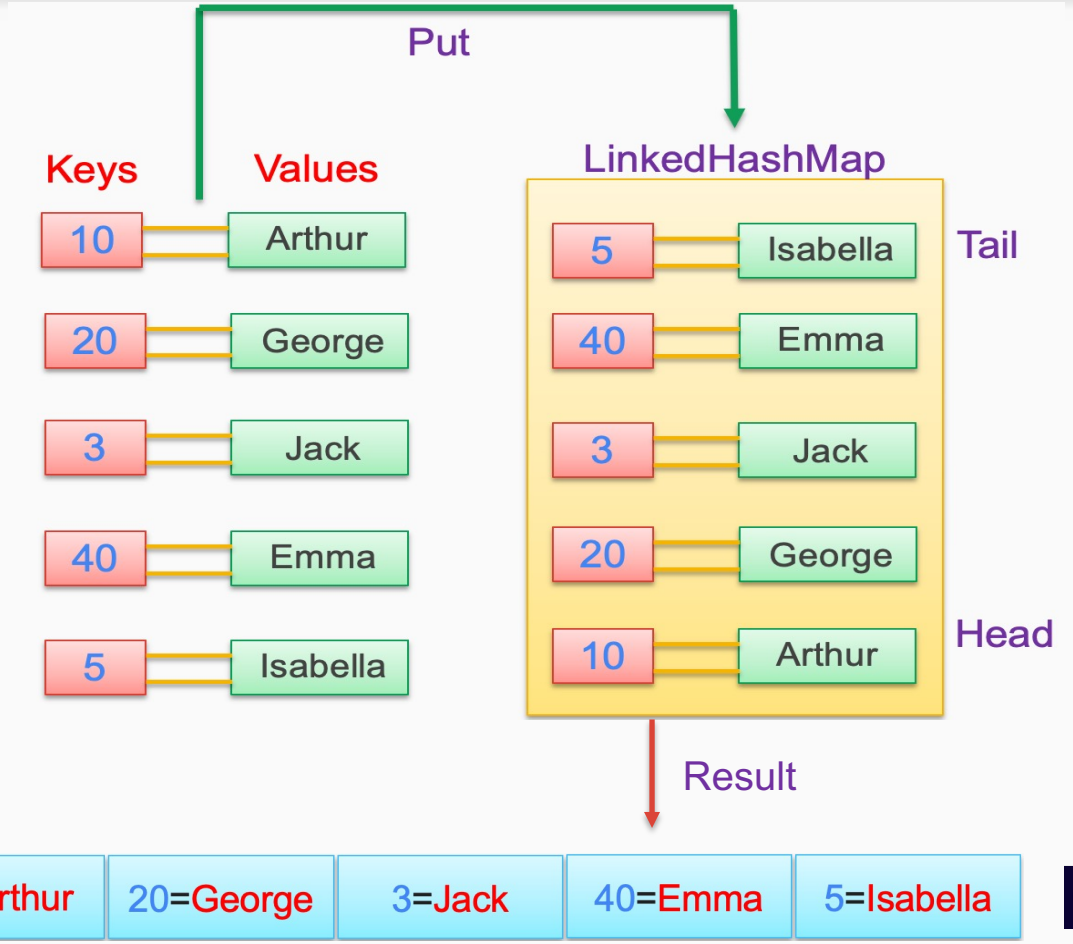
- Implements the Map interface
- Maintains the random order
- Accepts null value as a key

```
import java.util.HashMap;
```



LinkedHashMap Class

- Child class of HashMap
- Maintains the insertion order
- Accepts null value as a key




```
import java.util.LinkedHashMap;
```

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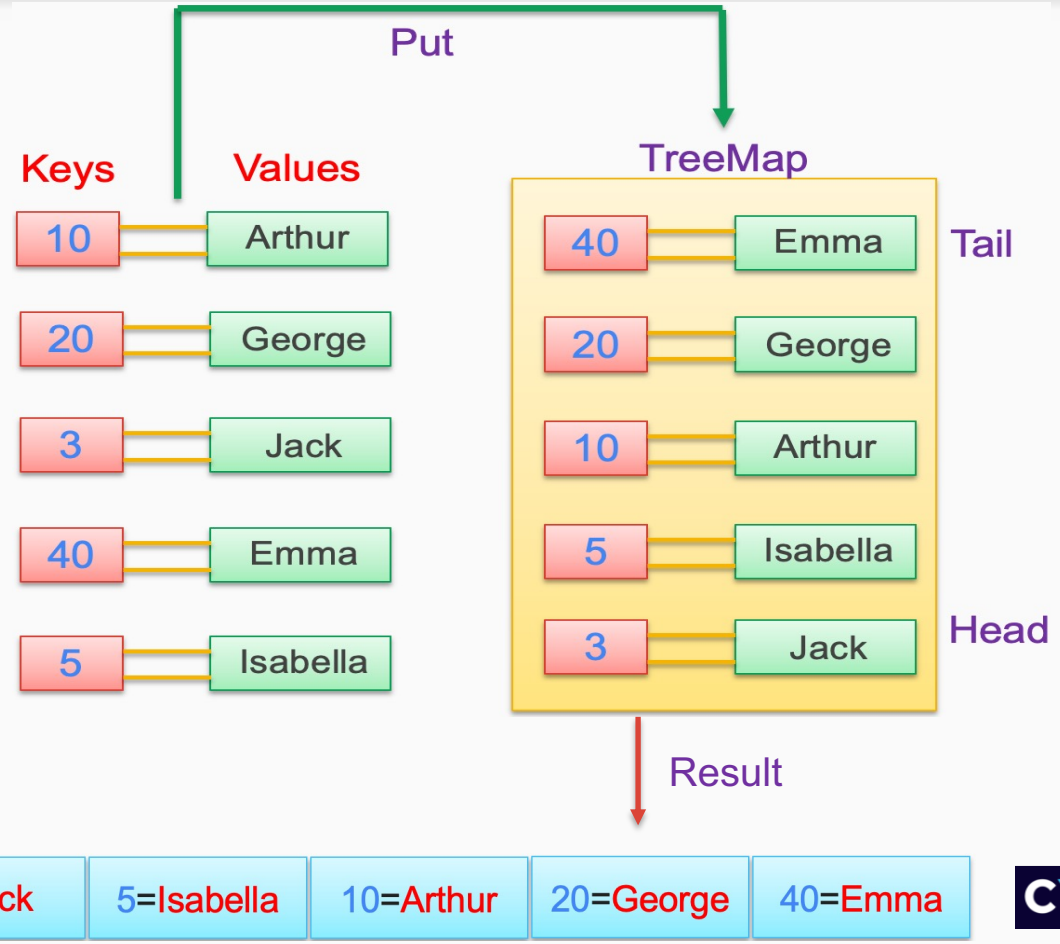
TreeMap Class

- Implements the SortedMap Interface
- Maintains the sorted (Ascending) order
- Does not accept null as a key

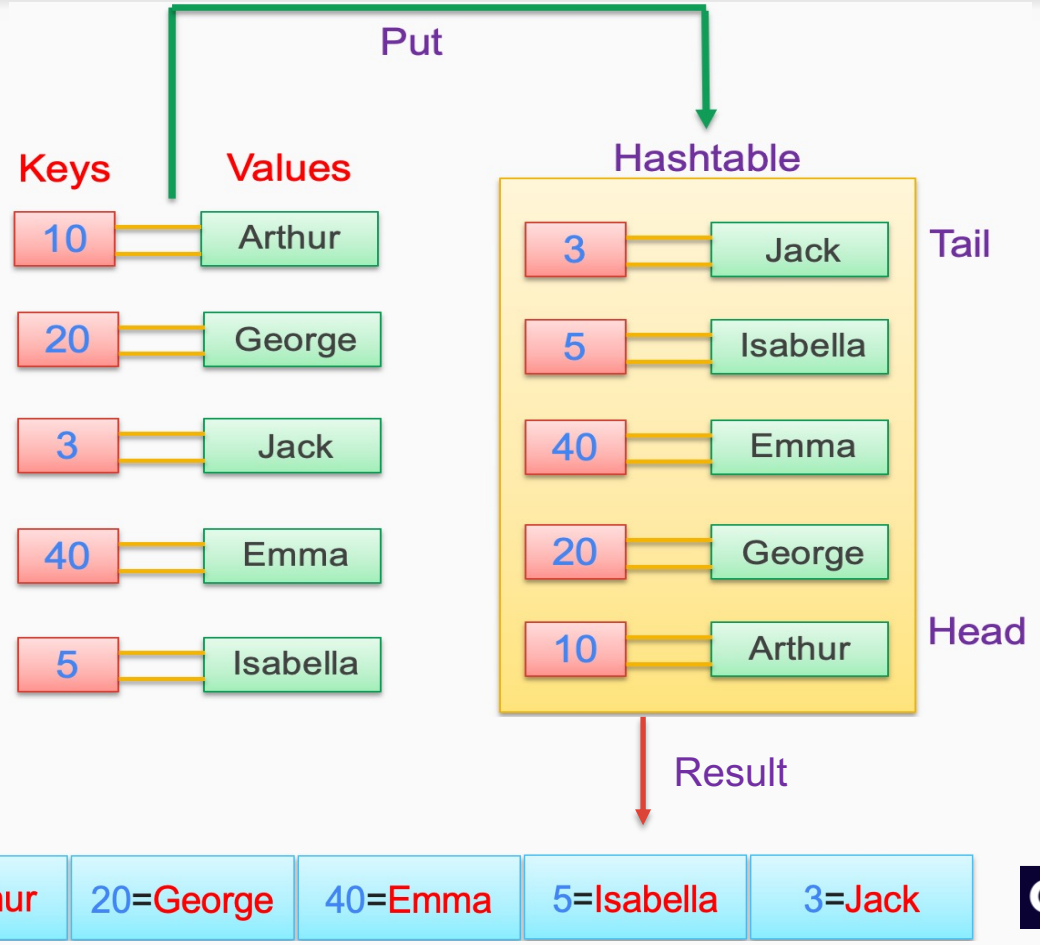
```
import java.util.TreeMap;
```



Hashtable Class

- Implements the Map interface
- Maintains the random order
- Does not accept null as a key
- Synchronized (Thread-Safe)

```
import java.util.Hashtable;
```



HashMap vs LinkedHashMap vs Hashtable vs TreeMap

HashMap	LinkedHashMap	Hashtable	TreeMap
Not synchronized	Not synchronized	Synchronized	Not synchronized
allows one null key and multiple null values	allows one null key and multiple null values	does not allow any null key or null value	does not allow any null key but allows null values
Maintains the random order	Maintains the insertion order	Maintains the random order	Maintains the sorted order

Methods Of Map

Method	Method	Method
put()	get()	size()
replace()	remove()	containsKey()
containsValue()	isEmpty()	equals()
clear()	putAll()	keySet()
values()	entrySet()	getKey()
getValue()	setValue()	