

\* Balanced Parentheses Problem :  $\rightarrow$

$S1 = \text{"}\{\{[\}\}\{(\}\}\text{"} \rightarrow \text{Balanced} \rightarrow \text{True}$   
 $S2 = \text{"}\{\}\{(\{[\}\text{"} \rightarrow \text{Not Balanced} \rightarrow \text{False}$

$S1 = \text{"}\{\{[\}\}\{(\}\}\text{"}$   
 0 1 2 3 4 5 6 7  
 { { [ } } { ( } }  
 Reverse (Stack)

boolean isBalancedParentheses (String s)  
 for (i=0; i < len; i++)  
 if (s[i] == '{' or '[' or '(')  
 stack.push(s[i]);  
 else if (if stack is not empty)  
 if s[i] == '}' & s.peek == '{'  
 or s[i] == ']' & s.peek == '['  
 or s[i] == ')' & s.peek == '('  
 return true;  
 else  
 return false;

stack (char) stack;  
 s[i] = '}', '}', '}'  
 st.peek = '[', '{', '{'  
 st.pop

stack  
 top  
 top  
 s[i]

$S3 = \text{"}\}\text{"}$

## Built-in Data Structures in Java: [ Collections Framework ]

package  $\rightarrow$  [java.util] It is called the Collections Library.

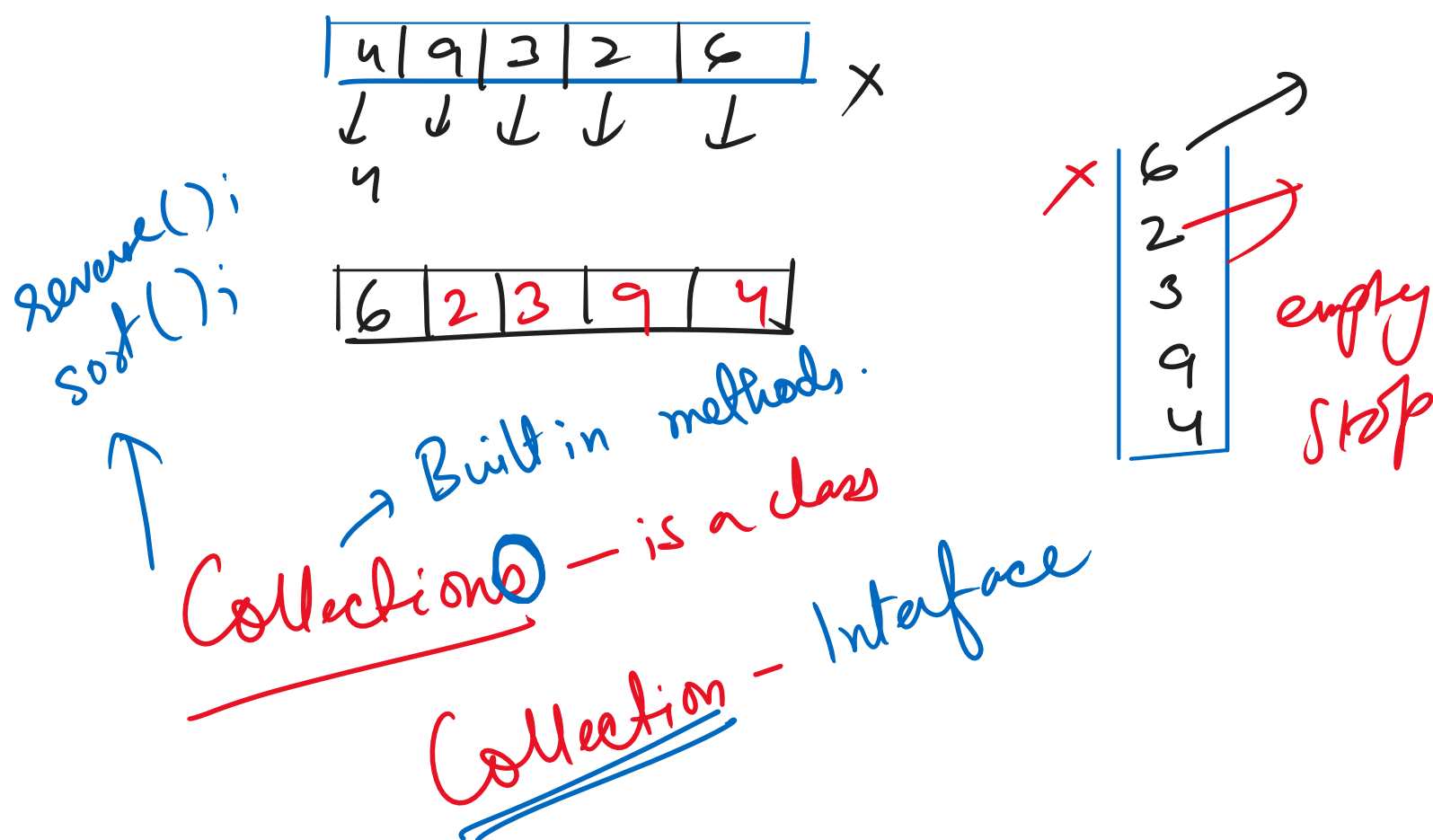
\* Given a queue, Reverse the queue.

queue = 

1	2	3	4	5
---	---	---	---	---

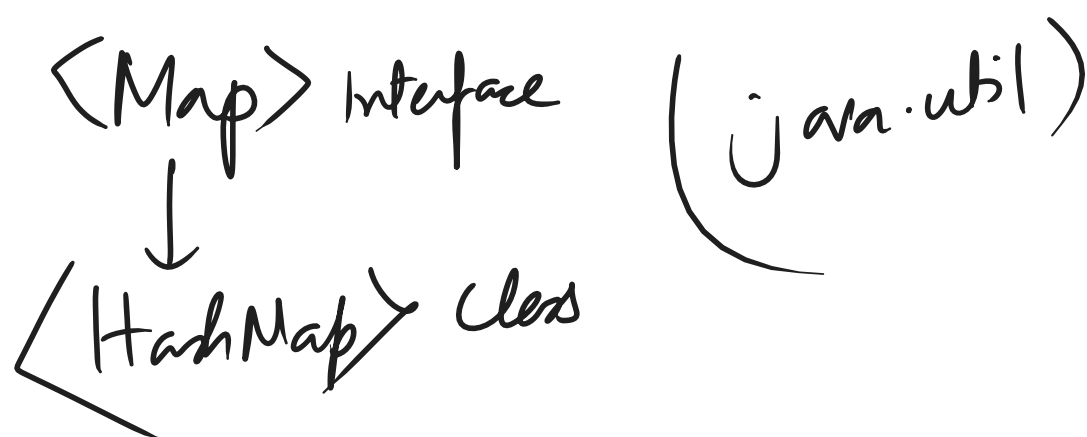
op = 5 4 3 2 1

5  
4  
3  
2  
1



A Hash Map follows sorted order or alphabetical order so: 2, 3, 4, 1, 0 will become 0, 1, 2, 3, 4

How do you preserve the insertion order?  
 $\hookrightarrow [2, 3, 4, 1, 0]$



Hashing  $\rightarrow$  Unique Code provided by JVM to the data.  
Hash Table  $\langle K, V \rangle \Rightarrow$  Array of Lists

```
HashTable<Integer, String> ht = new HashTable<>();
```

ht.put(106, "Nidhi");  
ht.put(117, "Bindhya");  
ht.put(128, "Gnana");  
ht.put(100, "Arun");  
ht.put(99, "Keerthana");  
ht.put(102, "Ajay");

Initial Size = 11

10p to 500m  
Right to Left

⇒

10			
9			
8			
7	106, Nidhi	117, Bindhya	128, Gnana
6	③	②	①
5			
4			
3	102, Ajay		④
2			
1	100, Arun		⑤
0	99, Keerthana		⑥

Initial load factor =  $0.75$

What is an Iterator in Java? Demonstrate the use of Java Iterator to remove items from a Collection : TCS / Cognizant / Capgemini

Ans: An **Iterator** is an interface used to traverse over Collections.

- \* hasNext();
- \* next();
- \* remove();