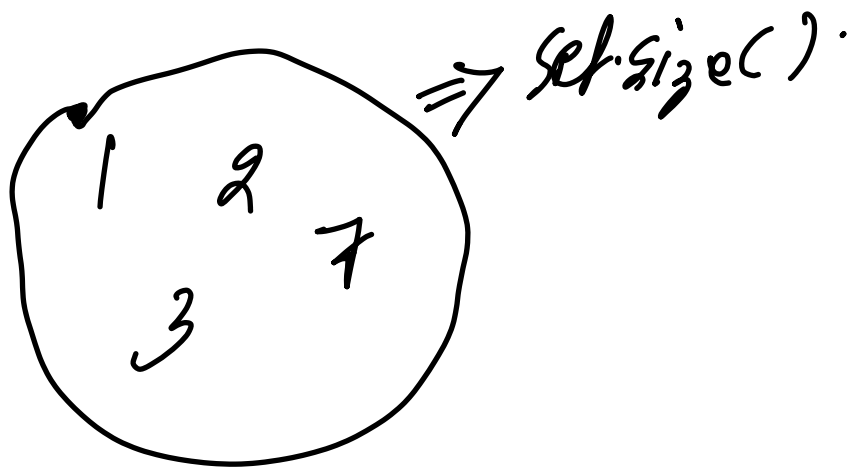


$A = \{1, 2, 3, 1, 7, 3\}$

Below the elements in the set, there are arrows pointing upwards to the first occurrence of each unique element: 1, 2, 3, and 7.



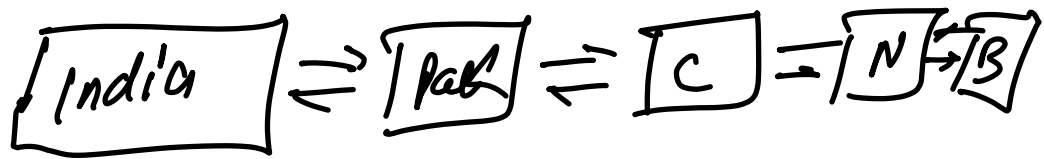
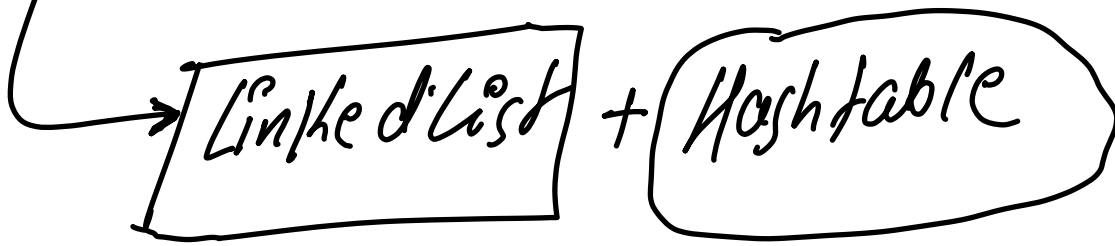
set

```

for(i=0; i<N; i++) {
    set.add(A[i]);
}
print(set)
  
```

Linked Hashset → 1.4 v

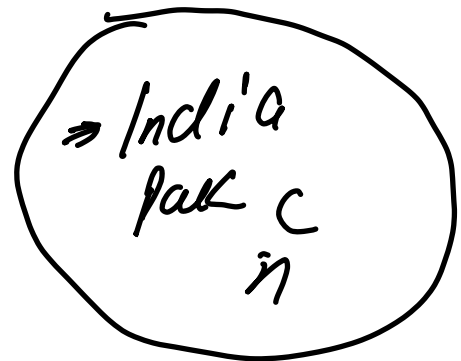
↳ child class of Hashset



India
Pak
China
nepal

Bangladesh -

India
China



Hash table

Hashset

- ① Hash table
- ② Insertion order ✓
- ③ 1.2 V

Linked Hashset

- ① Hash table + DLL
- ② Insertion order ✓
- ③ 1.4 V

Sorted Set

methods

- ① first()
- ② last()
- ③ headSet()
- ④ tailSet()
- ⑤ subSet()

TreeSet

→ class

→ set.add("eee") ;

→ set.add("ggg") ;

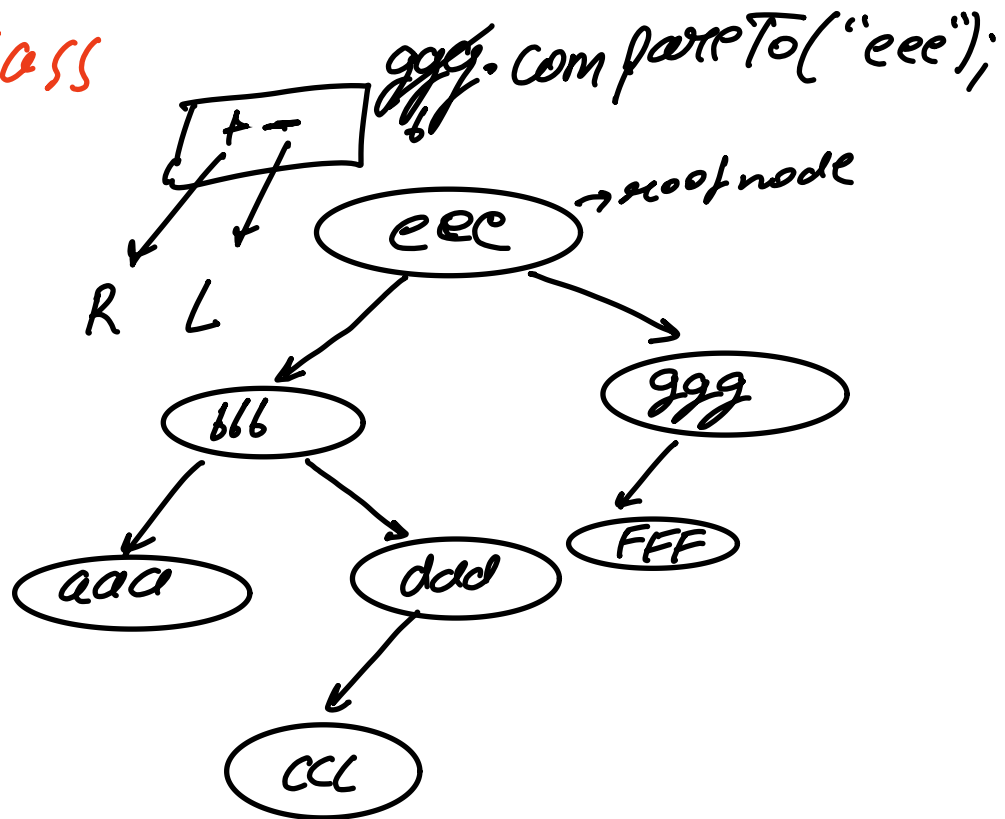
→ set.add("bbb") ;

→ set.add("ddd") ;

→

→

→



O/P ⇒ Left ~~data~~ Right

aaa bbb ccc ddd

eee FFF ggg

~~##~~ 0 1 2 3 4
 1 1 1 1 1

0 →

	1	2	3	4	5
1	16	17	18	19	6
2	15	24	25	20	7
3	14	23	22	21	8
4	13	12	11	10	9

$i=0$ $j=$ ~~1~~ ~~2~~ ~~3~~ ~~4~~

1 2 3 4 5
 16 17 18 - -

o/p: 1 2 3 4 5 6 7 8 9 10 11 - - - 25

`int [][] A = new int[5][5]`

`int [] A = { 1, 2, 3, 4, 5 };`

`int [][] A = { { 1, 2, 3, 4 }, { 5, 6, 7, 8 } };`

$N \rightarrow \text{rows}$
 $M \Rightarrow \text{column}$

for ($i=0$; $i < N$; $i++$) {

for ($j=0$; $j < M$; $j++$) {

do { $A[i][j]$ }

}

do { $print()$ }

}

Q:

A =

1	2	7
5	4	6
7	2	9

B =

9	5	1
2	8	6
7	12	15

O/P

10	7	8
7	12	12
14	14	24

inf[3][] ans = new int[N][M];

•		

1e9

for ($i=0; i < N; i++$) {

for ($j=0; j < M; j++$) {

ans[i][j] = A[i][j] + B[i][j];

}

}

Diagram illustrating a 5x5 grid with indices and values:

	left					right	
	↓					↓	
top	→	1	2	3	4	5	
	→	16	17	18	19	6	
		15	24	25	20	7	
	→	14	23	22	21	8	
bottom	→	13	12	11	10	9	

Annotations: A vertical double-headed arrow on the right side of the grid indicates the height. A horizontal double-headed arrow at the bottom indicates the width.

$top = 0$ $right = N - 1$
 $left = 0$ $bottom = N - 1$

left to right $\Rightarrow top++$

top to bottom $\Rightarrow right--$

right to left $\Rightarrow bottom--$

bottom to top $\Rightarrow left++$

Set → Hash set
→ tree set

QD → question



Comparable & Comparator

class Student {

int rollno;
string name;

// Constructor

}

Main Σ

psvm.c? Σ

Student s1 = new Student(101, "Arun");

s2

s3

s4

s5

TreeSet set = new TreeSet();

set.add(s1)

set.add(s2)

;

set.add(s5);

Print(set);