# The SSet (Sorted Set) Interface

Open Data Structures



A Sorted Set

• Stores *comparable* items

#### A Sorted Set

- Stores *comparable* items
  - Numbers:  $0 < 1 < 2 < 3 < \cdots < 4294967296$

#### A Sorted Set

- Stores *comparable* items
  - Numbers:  $0 < 1 < 2 < 3 < \cdots < 4294967296$
  - Letters:  $a < b < c < d < \cdots < z$

#### A Sorted Set

- Stores *comparable* items
  - Numbers:  $0 < 1 < 2 < 3 < \cdots < 4294967296$
  - Letters:  $a < b < c < d < \cdots < z$
  - ullet Strings: "apple" < "bread" < "brie" < "cheese" <  $\cdots$  < "zyxt"

A Sorted Set

Operations:

1

4

5

14

19

A Sorted Set

Operations: add(x)

1

4

5

14

19

A Sorted Set

Operations: add(x), remove(x)

1

4

5

14

19

A Sorted Set

• Operations: add(x), remove(x), find(x)

1

4

5

14

19

A Sorted Set

• Operations: add(x), remove(x), find(x)

1

4

5

14

19

#### A Sorted Set

Operations: add(x), remove(x), find(x)

add(7)

1

4

5

14

19

|42

#### A Sorted Set

Operations: add(x), remove(x), find(x)

add(7)

1

4

5

7

14

19

A Sorted Set

Operations: add(x), remove(x), find(x)

add(7)

1

4

5

7

14

19

A Sorted Set

• Operations: add(x), remove(x), find(x)

1

4

5

14

19

|42|

#### A Sorted Set

Operations: add(x), remove(x), find(x)

remove(14)

1

4

5

7

14

19

### A Sorted Set

Operations: add(x), remove(x), find(x)

remove(14)

1

4

5

14

19

|42

#### A Sorted Set

Operations: add(x), remove(x), find(x)

 $remove(14) \Rightarrow 14$ 

1

4

5 7

19

A Sorted Set

• Operations: add(x), remove(x), find(x)

1

4

5

19

### A Sorted Set

Operations: add(x), remove(x), find(x)

find(4)

1

4

 $5 \mid 7$ 

19

### A Sorted Set

• Operations: add(x), remove(x), find(x)

find(4)

1

4

5 7

19

|42|

#### A Sorted Set

Operations: add(x), remove(x), find(x)

$$find(4) \Rightarrow 4$$

1

4

5 7

19

A Sorted Set

• Operations: add(x), remove(x), find(x)

1

4

5

19

#### A Sorted Set

Operations: add(x), remove(x), find(x)

find(9)

1

4

 $5 \mid 7$ 

19

#### A Sorted Set

• Operations: add(x), remove(x), find(x)

find(9)

1

4

5

9

19

#### A Sorted Set

• Operations: add(x), remove(x), find(x)

find(9)

1

4

5 | 7

19

|42

#### A Sorted Set

Operations: add(x), remove(x), find(x)

$$find(9) \Rightarrow 19$$

1

4

5 7

19

A Sorted Set

• Operations: add(x), remove(x), find(x)

1

4

5

19

#### A Sorted Set

Operations: add(x), remove(x), find(x)

find(55)

1

4

 $5 \mid 7$ 

19

### A Sorted Set

Operations: add(x), remove(x), find(x)

find(55)

1

4

 $5 \mid \cdot \mid$ 

19

42

#### A Sorted Set

Operations: add(x), remove(x), find(x)

 $find(55) \Rightarrow null$ 

1

4

5 7

19

A Sorted Set

• Operations: add(x), remove(x), find(x)

1

4

5 | 7

19

### End of Lesson