Class Coord

java.lang.Object
    Coord

All Implemented Interfaces:

`java.lang.Comparable<Coord>`

```
public class Coord
extends java.lang.Object
implements java.lang.Comparable<Coord>
```

Coord Class (row, col) In java doc

| x | means that absolute value of x

x^2 means x * x

sign(x) means -1 if x < 0, 1 otherwise

iff means "if and only if"

Implementation notes:

compareTo -- compares the dist2(Origin) of the each Coord instance. a null instance is infinitely far from the Origin

equals() compares row == row and col == col for the two instances

toString format is Coord:(row=%d,col=%d)

default contructor creates the origin (0,0) coordinate

Field Summary

Fields

Modifier and Type	Field and Description
`int`	**`col`**
`int`	**`row`**

Constructor Summary

Constructors

Constructor and Description
Coord()
Coord(**Coord** other) "Copy" Constructor create a new Coord with identical row,col as the argument
Coord(int row1, int col1) Constructor - row, column

Method Summary

All Methods Instance Methods Concrete Methods

Modifier and Type	Method and Description
Coord	**add**(**Coord** b) Add coordinates together
int	**compareTo**(**Coord** other)
Coord	**diff**(**Coord** b) Compute the signed distance (difference)between two different coordinates
Coord	**dist**(**Coord** b) Compute the "Manhattan" distance between two different coordinates
int	**dist2**(**Coord** b) Compute the sum of distances squared between two Coords
boolean	**equals**(java.lang.Object other)
java.lang.String	**toString**()
Coord	**unit**() Compute the sign of the row, column component

Methods inherited from class java.lang.Object

clone, finalize, getClass, hashCode, notify, notifyAll, wait, wait, wait

Field Detail

row

```
public final int row
```

col

```
public final int col
```

Constructor Detail

Coord

```
public Coord()
```

Coord

```
public Coord(int row1,
             int col1)
```

Constructor - row, column

Parameters:

`row1 - row part of coordinate`

`col1 - columns part of coordinate`

Coord

```
public Coord(Coord other)
```

"Copy" Constructor create a new Coord with identical row,col as the argument

Parameters:

`other - Coordate to make a deep copy,`

Method Detail

dist

```
public Coord dist(Coord b)
```

Compute the "Manhattan" distance between two different coordinates

Parameters:

`b - coordinate against which to compute distance`

Returns:

`null, if b is null; else new Coord(|row - b.row|,|col - a.col|)`

diff

```
public Coord diff(Coord b)
```

Compute the signed distance (difference)between two different coordinates

Parameters:

`b - coordinate against which to compute distance`

Returns:

`null, if b is null; else new Coord(row - b.row,col - a.col)`

dist2

```
public int dist2(Coord b)
```

Compute the sum of distances squared between two Coords

Parameters:

`b - coordinate against which to compute distance`

Returns:

`Integer.MAX_VALUE if b is null, else (dist(b).row)^2 + (dist(b).col)^2`

unit

```
public Coord unit()
```

Compute the sign of the row, column component

Returns:

`Coord(sign(row), sign(col))`

add

```
public Coord add(Coord b)
```

Add coordinates together

Parameters:

`b - coordinate to add`

Returns:

`null, if b is null; else new Coord(row + b.row,col + a.col)`

compareTo

```
public int compareTo(Coord other)
```

Specified by:

`compareTo in interface java.lang.Comparable<Coord>`

equals

```
public boolean equals(java.lang.Object other)
```

Overrides:

`equals in class java.lang.Object`

toString

```
public java.lang.String toString()
```

Overrides:

`toString in class java.lang.Object`