

# Arboles Rojo y Negro

## ArbolesRYN

-red: Boolean  
-black: Boolean  
-root: Node

+ArbolRYN()  
+isRed(Node x) :boolean  
+size(Node x) : int  
+size():int  
+isEmpty() :boolean  
+get(Key key) : Value  
+ get(Node x, Key key) : value  
+contains(Key key) : boolean  
+put(Key key, Value val): void  
+ put(Node h, Key key, Value val):Node  
+ deleteMin():void  
+deleteMin(Node h):Node  
+deleteMax():void  
+deleteMax(Node h):Node  
+delete(key, Key):void  
+delete(Node h, Key key):Node  
+rotateRight(Node h):Node  
+rotateLeft(Node h):Node  
+flipColors(Node h):void  
+ moveRedLeft(Node h):Node  
+ moveRedRight(Node h):Node  
+balance(Node h):Node  
+height(Node x):int  
+height():int  
+min():key  
+min(Node x):Node  
+ max():key  
+ max(Node x):Node

### Nodo

- item : r

+ darItem() : r  
+ cambiarItem(item : r) : r  
+ darSiguiente() : Nodo  
+ darAnterior() : Nodo  
+ cambiarSiguiente(nodoNuevo : Nodo) : void  
+ cambiarAnterior(nodoNuevo : Nodo) : void

0..\*

data