

## BINARY HEAP

### I. Java Implementation

#### deleteMin

```
@Assertion(value = { @Case(
pre = "array!=null && currentSize>0 && currentSize<array.length && wellFormed()",
post = "wellFormed() ") })
public int deleteMin() {
    if( isEmpty() )
        return -1;
    int minItem = findMin();
    array[ 1 ] = array[ currentSize-- ];
    percolateDown( 1 );
    return minItem;
}
```

#### wellFormed

```
boolean wellFormed() {
    for(int i=1;i<currentSize;i++) {
        if(i*2 <= currentSize && array[i]>array[2*i]) {
            return false;
        }
        if(i*2 + 1<= currentSize && array[i]>array[2*i+1]) {
            return false;
        }
    }
    return true;
}
```