```
--------ConcurrentQuicksort.java--------

public class ConcurrentQuicksort implements Runnable{

      int array[], lo, hi, id;
      public ConcurrentQuicksort(int array[], int lo, int hi, int id) {
            this.array = array;
            this.lo = lo;
            this.hi = hi;
            this.id = id;
      }
      public void quicksort() {
            if(lo<hi) {
                  int p = partition();
                  /*
                   * now spawn new threads here
                  */
                  new Thread(new ConcurrentQuicksort(array, lo, p-1, 
id*2)).start();
                  new Thread(new ConcurrentQuicksort(array, p+1, hi, 
id*2+1)).start();
            }
      }
      public int partition() {
            int pivot = array[hi];
            int i = lo;
            for(int j=lo; j<=hi-1; j++) {
                  if(array[j]<=pivot) {
                        swap(j,i);
                        i++;
                  }
            }
            swap(i,hi);
            return i;
      }
      public void swap(int x, int y) {
            if(x!=y) {
                  int temp = array[x];
                  array[x] = array[y];
                  array[y] = temp;
            }
      }
      public String print(int lo, int hi) {
            String s = "array["+lo+".."+hi+"] = ";
            for(int i=lo; i<=hi; i++) {
                  s += array[i]+ " ";
            }
            s+="\n";
            return s;
      }
      public void run() {
            System.out.print("Thread"+id+" is now sorting: "+print(lo,hi));
            quicksort();
      }

}
```

```
--------Quicksort.java--------
import java.util.Scanner;


public class Quicksort {

      public static void main(String[] args) throws InterruptedException {
            System.out.println("Enter the array to be sorted(space separated): ");
            Scanner sc = new Scanner(System.in);
            String inputString = sc.nextLine();
            //String inputString = "3 1 2 7 5 6 4"; //"6 17 18 27 14 25 4 1 15 13
10 5 24 26 21 8 0 12 2 20 23 7 22 19 3 11 9 16";
            String input[] = inputString.split(" ");
            int array[] = new int[input.length];

            for(int i=0; i<input.length; i++) {
                  array[i] = Integer.parseInt(input[i]);
            }
            ConcurrentQuicksort qs = new ConcurrentQuicksort(array, 0,
input.length-1, 1);
            new Thread(qs).start();
            Thread.sleep(1000);
            //too lazy to use join or other methods to wait for all the threads to
complete
            System.out.println("\nThe sorted array is:");
            for(int i=0; i<array.length; i++) {
                  System.out.print(array[i]+ " ");
            }
            System.out.println();
      }
}
/*
--------Output--------:
Enter the array to be sorted(space separated):
3 1 2 7 5 6 4
Thread1 is now sorting: array[0..6] = 3 1 2 7 5 6 4
Thread2 is now sorting: array[0..2] = 3 1 2
Thread3 is now sorting: array[4..6] = 5 6 7
Thread4 is now sorting: array[0..0] = 1
Thread5 is now sorting: array[2..2] = 3
Thread6 is now sorting: array[4..5] = 5 6
Thread7 is now sorting: array[7..6] =
Thread13 is now sorting: array[6..5] =
Thread12 is now sorting: array[4..4] = 5

The sorted array is:
1 2 3 4 5 6 7
*/
```