Abraham Murciano - Data Structures HW9

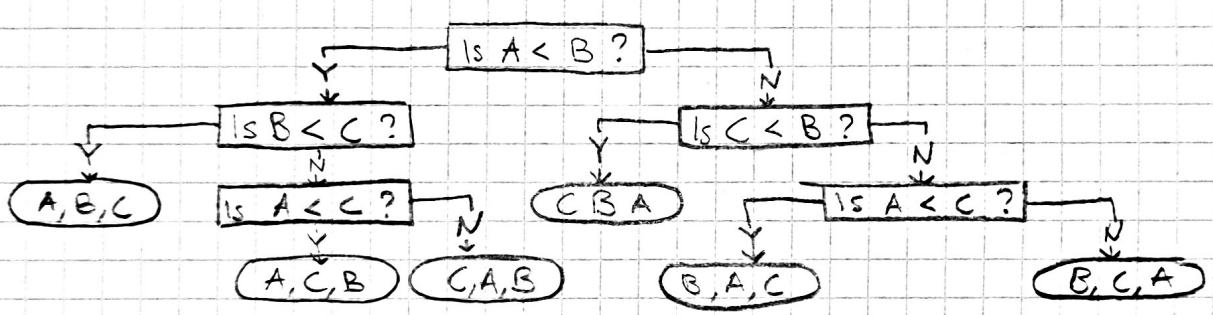
1)

0.79	min = 0.131	b0: 0.131 0.16 0.2	0.131
0.131	max = 0.894	b1:	0.16
0.16	diff = 0.763	b2:	0.2
0.64	bucket size:	b3: 0.39	0.39
0.39	0.084 $\dot{7}$	b4: 0.53	0.53
0.2		b5:	0.64
0.894		b6: 0.64 0.71	0.71
0.53		b7: 0.79	0.79
0.71		b8: 0.894	0.894

2)

JOY	JOY	JOB	JAVA
JUG	JUG	JUG	JEST
JOB	JOB	JOG	JOB
JOT	JOT	JEST	JOG
JEST	JOG	JOT	JOT
JOG	JAVA	JAVA	JOY
JAVA	JEST	JOY	JUG

3)



4) Use bucket sort with n buckets, each of size $\frac{a-b}{n}$, starting at a. Then sort each bucket with mergesort (or any other $O(n\log(n))$ sorting algorithm).

5) n, because if n comparisons are checked and all return true, array is sorted

6) $n\lg(n)$ because all comparison based algorithms must run at least in order $n\lg(n)$.

7) Use bucket sort with n buckets with size $\frac{n^2+1}{n}$