Project 1 Output without the deliberate throw of an exception

run:

O(1) method calculational verification

n= 1 time/1= 6669.0

n= 10 time/1= 2052.0

n= 100 time/1= 513.0

n= 1000 time/1= 513.0

n= 10000 time/1= 513.0

n= 100000 time/1= 513.0

n= 1000000 time/1= 513.0

n= 10000000 time/1= 513.0

Since time/constant is not growing with n demoBigO1 is O(1)

O(1) is not O( log(n) ) method calculational verification

n= 1 time/Log(n)= Infinity

n= 10 time/Log(n)= 222.79306921636817

n= 100 time/Log(n)= 111.39653460818408

n= 1000 time/Log(n)= 74.26435640545607

n= 10000 time/Log(n)= 111.39653460818408

n= 100000 time/Log(n)= 89.11722768654727

n= 1000000 time/Log(n)= 37.132178202728035

n= 10000000 time/Log(n)= 31.827581316624027

Since time/Log(n) is shrinking too rapidly with n demoBigO1 is worstTime(n) less than O(Log(n))

O( Log(n) ) method calculational verification

n= 1 time/Log(n)= Infinity

n= 10 time/Log(n)= 668.3792076491045

n= 100 time/Log(n)= 334.18960382455225

n= 1000 time/Log(n)= 222.7930692163682

n= 10000 time/Log(n)= 222.79306921636817

n= 100000 time/Log(n)= 133.58898263344025

n= 1000000 time/Log(n)= 148.52871281091214

Since time/log(n) is not growing with n demoBigOLogN is O(log n)

O(n) method calculational verification

n= 1 time/n= 21545.0

n= 10 time/n= 102.6

n= 100 time/n= 76.95

n= 1000 time/n= 64.633

n= 10000 time/n= 74.5843

n= 100000 time/n= 41.56001

n= 1000000 time/n= 2.489395

Since time/n is not growing with n demoBigOLogN is O(n)

O(n) is BIGGER than and not O( log(n) ) method calculational verification

n= 1 time/Log(n)= Infinity

n= 10 time/Log(n)= 222.79306921636817

n= 100 time/Log(n)= 222.79306921636817

n= 1000 time/Log(n)= 222.7930692163682

n= 10000 time/Log(n)= 1169.6636133859329

n= 100000 time/Log(n)= 18980.4928959961

n= 1000000 time/Log(n)= 72921.87977947947

Since time/Log(n) is growing with n demoBigOn is worstTime(n) bigger and worse than O(Log(n))

O(n) is not O(n log(n) ) method calculational verification

n= 1 time/nLog(n)= Infinity

n= 10 time/nLog(n)= 22.279306921636817

n= 100 time/nLog(n)= 1.1139653460818408

n= 1000 time/nLog(n)= 0.2227930692163682

n= 10000 time/nLog(n)= 0.12252533070695491

n= 100000 time/nLog(n)= 0.08732880301006968

n= 1000000 time/nLog(n)= 0.07262482235385764

Since time/nLog(n) is shrinking too rapidly with n demoBigOn is worstTime(n) less than O(Log(n))

O( nLog(n) ) method calculational verification

n= 10 time/n\*log(n)= 231330.2564238295

n= 100 time/n\*log(n)= 3357.2309764015263

n= 1000 time/n\*log(n)= 1735.4966289087326

n= 10000 time/n\*log(n)= 211.09109126038143

n= 100000 time/n\*log(n)= 126.66177892291

check this range in more detail

n= 100000 time/n\*log(n)= 174.4173082775354

n= 200000 time/n\*log(n)= 127.88263803850234

n= 300000 time/n\*log(n)= 125.24620662358524

n= 400000 time/n\*log(n)= 127.21052355283241

n= 500000 time/n\*log(n)= 249.37879556322005

n= 600000 time/n\*log(n)= 139.51671078123525

n= 700000 time/n\*log(n)= 292.44839280033756

n= 800000 time/n\*log(n)= 137.99054390838285

n= 900000 time/n\*log(n)= 156.16039730937928

n= 1000000 time/n\*log(n)= 161.27443503820177

n= 1100000 time/n\*log(n)= 166.25612359009997

n= 1200000 time/n\*log(n)= 167.42362102598665

n= 1300000 time/n\*log(n)= 146.24129629256774

Since time/n\*Log(n) is not growing with n demoBigONLogN is O(n)

O(n\*n) method calculational verification

n= 1 time/n\*n= 32829.0

n= 10 time/n\*n= 107.72

n= 100 time/n\*n= 136.2935

n= 1000 time/n\*n= 7.154765

n= 10000 time/n\*n= 1.29838367

n= 100000 time/n\*n= 1.0359635183

Since time/n\*n is not growing with n demoBigOnn is O(n\*n)

BUILD SUCCESSFUL (total time: 32 seconds)