Large random

dataset_1: Bubble Sort = 424.10621425s, Quick Sort = 0.14141641599997s
dataset_2: Bubble Sort = 432.337304792s, Quick Sort = 0.1371348749999015s
dataset_3: Bubble Sort = 413.1098095000001s, Quick Sort = 0.14218779200018616s
dataset_4: Bubble Sort = 432.43048904199986s, Quick Sort = 0.13765508300002693s
dataset_5: Bubble Sort = 453.4786308749999s, Quick Sort = 0.14340524999988702s
dataset_6: Bubble Sort = 493.13295066699993s, Quick Sort = 0.1433153749999292s
dataset_7: Bubble Sort = 498.3000087080004s, Quick Sort = 0.14397925000002942s
dataset_8: Bubble Sort = 481.13920204199985s, Quick Sort = 0.14187233299981017s
dataset_9: Bubble Sort = 492.63298395899983s, Quick Sort = 0.1446907919998921s
dataset_10: Bubble Sort = 507.03015620800034s, Quick Sort = 0.14912579199972242s
dataset_11: Bubble Sort = 502.48144370800037s, Quick Sort = 0.1480479589999959s
dataset_12: Bubble Sort = 577.6292988329997s, Quick Sort = 0.18844641699979547s
dataset_13: Bubble Sort = 646.1288279590008s, Quick Sort = 0.1835752090000824s
dataset_14: Bubble Sort = 651.9151996669998s, Quick Sort = 0.19410658300057548s
dataset_15: Bubble Sort = 673.5100728329999s, Quick Sort = 0.19249537499994529s
dataset_16: Bubble Sort = 660.7020194579991s, Quick Sort = 0.18872629200086521s
dataset_17: Bubble Sort = 642.9028205000013s, Quick Sort = 0.18619116700028826s
dataset_18: Bubble Sort = 653.3601735409993s, Quick Sort = 0.19433795900113182s
dataset_19: Bubble Sort = 674.9210334170002s, Quick Sort = 0.195921417000136s
dataset_20: Bubble Sort = 669.8014201669994s, Quick Sort = 0.202043125000273s
dataset_21: Bubble Sort = 672.9207131250005s, Quick Sort = 0.19621799999913492s
dataset_22: Bubble Sort = 664.0097146249991s, Quick Sort = 0.1951464579997264s
dataset_23: Bubble Sort = 681.5051428749994s, Quick Sort = 0.19991887499963923s
dataset_24: Bubble Sort = 640.0640032080009s, Quick Sort = 0.19825587500054098s
dataset_25: Bubble Sort = 660.4382189579992s, Quick Sort = 0.20008941700143623s
dataset_26: Bubble Sort = 667.8710495830001s, Quick Sort = 0.19770154199977696s
dataset_27: Bubble Sort = 644.5446785000004s, Quick Sort = 0.21441966599923035s
dataset_28: Bubble Sort = 697.919412833s, Quick Sort = 0.19628116700005194s
dataset_29: Bubble Sort = 709.0077701249993s, Quick Sort = 0.20703687499917578s
dataset_30: Bubble Sort = 715.7914174580001s, Quick Sort = 0.20612287500262028s
dataset_31: Bubble Sort = 700.0324930830029s, Quick Sort = 0.19488375000219094s
dataset_32: Bubble Sort = 722.3321055419983s, Quick Sort = 0.2089375840005232s
dataset_33: Bubble Sort = 721.6264720420004s, Quick Sort = 0.2013042079997831s
dataset_34: Bubble Sort = 688.9908218749988s, Quick Sort = 0.1977087909981492s
dataset_35: Bubble Sort = 673.6536710830005s, Quick Sort = 0.1970608750016254s
dataset_36: Bubble Sort = 684.8233834579987s, Quick Sort = 0.2076310829979775s
dataset_37: Bubble Sort = 677.5961915420012s, Quick Sort = 0.21232383299866342s
dataset_38: Bubble Sort = 654.0608870830001s, Quick Sort = 0.19544949999908567s
dataset_39: Bubble Sort = 654.8729557920014s, Quick Sort = 0.19325566599945887s
dataset_40: Bubble Sort = 643.0629840840011s, Quick Sort = 0.20002012500117416s
dataset_41: Bubble Sort = 643.4005784580004s, Quick Sort = 0.20822066699838615s
dataset_42: Bubble Sort = 644.800713624998s, Quick Sort = 0.2099272910018044s
dataset_43: Bubble Sort = 643.8384079170028s, Quick Sort = 0.19757450000179233s
dataset_44: Bubble Sort = 645.7082376670005s, Quick Sort = 0.20314970899926266s
dataset_45: Bubble Sort = 645.2288503750024s, Quick Sort = 0.20321200000034878s
dataset_46: Bubble Sort = 646.2665533340005s, Quick Sort = 0.1981990419990325s
dataset_47: Bubble Sort = 644.9451211670021s, Quick Sort = 0.19871595800213981s
dataset_48: Bubble Sort = 646.874463791999s, Quick Sort = 0.2008362919987121s
dataset_49: Bubble Sort = 644.632671833002s, Quick Sort = 0.2053434589979588s
dataset_50: Bubble Sort = 644.9100473750004s, Quick Sort = 0.1965772500007006s
Bubble sort averaga: 620.1355958508602
quicksort_times_average: 0.18680393588004107
T-statistic: 50.08137005975973
P-value (two-tailed): 9.516231829051677e-44
Standard Deviation Bubble Sort: 87.55443688880652
Standard Deviation Quick Sort: 0.02434528321326909

Small random

dataset_1: Bubble Sort = 6.708000000021919e-06s, Quick Sort = 1.041700000004031e-05s
dataset_2: Bubble Sort = 6.33399999994122e-06s, Quick Sort = 6.792000000088727e-06s
dataset_3: Bubble Sort = 5.833999999982353e-06s, Quick Sort = 7.749999999973056e-06s
dataset_4: Bubble Sort = 5.875000000440394e-06s, Quick Sort = 6.208999999923748e-06s
dataset_5: Bubble Sort = 5.083000000016824e-06s, Quick Sort = 6.959000000028581e-06s
dataset_6: Bubble Sort = 5.625000000009095e-06s, Quick Sort = 7.79200000000646e-06s
dataset_7: Bubble Sort = 5.417000000007555e-06s, Quick Sort = 7.791000000034742e-06s
dataset_8: Bubble Sort = 6.29200000018838e-06s, Quick Sort = 7.79200000000646e-06s
dataset_9: Bubble Sort = 7.042000000012649e-06s, Quick Sort = 7.915999999941192e-06s
dataset_10: Bubble Sort = 3.124999999992717e-06s, Quick Sort = 6.29100000004712e-06s
dataset_11: Bubble Sort = 6.375000000002906e-06s, Quick Sort = 6.999999999979245e-06s
dataset_12: Bubble Sort = 5.750000000026567e-06s, Quick Sort = 7.124999999996717e-06s
dataset_13: Bubble Sort = 6.833000000039391e-06s, Quick Sort = 7.666999999988988e-06s
dataset_14: Bubble Sort = 6.874999999961773e-06s, Quick Sort = 7.749999999973056e-06s
dataset_15: Bubble Sort = 5.833999999982353e-06s, Quick Sort = 8.208999999981259e-06s
dataset_16: Bubble Sort = 5.416000000035837e-06s, Quick Sort = 7.000000000090267e-06s
dataset_17: Bubble Sort = 3.625000000062606e-06s, Quick Sort = 6.834000000011109e-06s
dataset_18: Bubble Sort = 6.167000000001366e-06s, Quick Sort = 6.457999999986974e-06s
dataset_19: Bubble Sort = 6.625000000037851e-06s, Quick Sort = 7.707999999939652e-06s
dataset_20: Bubble Sort = 5.749999999915545e-06s, Quick Sort = 7.874999999990528e-06s
dataset_21: Bubble Sort = 6.084000000017298e-06s, Quick Sort = 6.999999999979245e-06s
dataset_22: Bubble Sort = 5.625000000009095e-06s, Quick Sort = 7.749999999973056e-06s
dataset_23: Bubble Sort = 5.499999999991623e-06s, Quick Sort = 8.458000000044485e-06s
dataset_24: Bubble Sort = 3.5419999999675156e-06s, Quick Sort = 7.042000000012649e-06s
dataset_25: Bubble Sort = 5.625000000009095e-06s, Quick Sort = 8.000000000008e-06s
dataset_26: Bubble Sort = 4.792000000031216e-06s, Quick Sort = 6.834000000011109e-06s
dataset_27: Bubble Sort = 6.124999999967962e-06s, Quick Sort = 6.6669999999602325e-06s
dataset_28: Bubble Sort = 5.625000000009095e-06s, Quick Sort = 6.625000000037851e-06s
dataset_29: Bubble Sort = 3.749999999969056e-06s, Quick Sort = 7.124999999996717e-06s
dataset_30: Bubble Sort = 4.790999999948475e-06s, Quick Sort = 7.625000000066606e-06s
dataset_31: Bubble Sort = 6.833000000039391e-06s, Quick Sort = 8.416000000011081e-06s
dataset_32: Bubble Sort = 6.54199999994276e-06s, Quick Sort = 7.458999999987448e-06s
dataset_33: Bubble Sort = 3.874999999986528e-06s, Quick Sort = 6.707999999910896e-06s
dataset_34: Bubble Sort = 6.124999999967962e-06s, Quick Sort = 6.375000000002906e-06s
dataset_35: Bubble Sort = 5.999999999950489e-06s, Quick Sort = 6.958000000056863e-06s
dataset_36: Bubble Sort = 5.041999999955138e-06s, Quick Sort = 8.249999999931923e-06s
dataset_37: Bubble Sort = 5.874999999933017e-06s, Quick Sort = 9.04099999998742e-06s
dataset_38: Bubble Sort = 5.04099999998342e-06s, Quick Sort = 7.583000000033202e-06s
dataset_39: Bubble Sort = 6.583000000004446e-06s, Quick Sort = 7.541999999971516e-06s
dataset_40: Bubble Sort = 5.999999999950489e-06s, Quick Sort = 7.707999999939652e-06s
dataset_41: Bubble Sort = 5.624999999898073e-06s, Quick Sort = 7.58299999992218e-06s
dataset_42: Bubble Sort = 6.29200000018838e-06s, Quick Sort = 5.874999999933017e-06s
dataset_43: Bubble Sort = 7.040999999929909e-06s, Quick Sort = 6.958000000056863e-06s
dataset_44: Bubble Sort = 5.04099999998342e-06s, Quick Sort = 6.791999999977705e-06s
dataset_45: Bubble Sort = 7.250000000141895e-06s, Quick Sort = 8.458000000044485e-06s
dataset_46: Bubble Sort = 6.874999999961773e-06s, Quick Sort = 8.082999999992069e-06s
dataset_47: Bubble Sort = 5.958000000281075e-06s, Quick Sort = 6.707999999910896e-06s
dataset_48: Bubble Sort = 6.54199999994276e-06s, Quick Sort = 6.208000000063052e-06s
dataset_49: Bubble Sort = 6.124999999967962e-06s, Quick Sort = 7.124999999996717e-06s
dataset_50: Bubble Sort = 5.249999999956678e-06s, Quick Sort = 7.58299999992218e-06s
Bubble sort averaga: 5.759179999988984e-06
quicksort_times_average: 7.397479999995404e-06
T-statistic: -10.898544831155064
P-value (two-tailed): 1.0714123625033377e-14
Standard Deviation Bubble Sort: 9.532959942495131e-07
Standard Deviation Quick Sort: 8.113156420434236e-07

Small partially sorted

dataset_1: Bubble Sort = 5.499999999991623e-06s, Quick Sort = 1.1416999999958044e-05s
dataset_2: Bubble Sort = 1.291999999986082e-06s, Quick Sort = 1.1709000000026393e-05s
dataset_3: Bubble Sort = 1.915999999990703e-06s, Quick Sort = 9.6670000000465e-06s
dataset_4: Bubble Sort = 3.2090000000595253e-06s, Quick Sort = 8.249999999931923e-06s
dataset_5: Bubble Sort = 1.0839999999845418e-06s, Quick Sort = 1.0167000000005366e-05s
dataset_6: Bubble Sort = 4.333000000023013e-06s, Quick Sort = 8.458000000044485e-06s
dataset_7: Bubble Sort = 1.082999999018014e-06s, Quick Sort = 9.790999999981231e-06s
dataset_8: Bubble Sort = 1.0000000000287557e-06s, Quick Sort = 9.792000000063972e-06s
dataset_9: Bubble Sort = 2.41700000003231e-06s, Quick Sort = 9.249999999960679e-06s
dataset_10: Bubble Sort = 9.999999999177334e-07s, Quick Sort = 9.833999999986354e-06s
dataset_11: Bubble Sort = 5.083999999988542e-06s, Quick Sort = 7.874999999990528e-06s
dataset_12: Bubble Sort = 3.3329999999942572e-06s, Quick Sort = 1.4167000000009367e-05s
dataset_13: Bubble Sort = 1.0409999999794195e-06s, Quick Sort = 1.0208000000067052e-05s
dataset_14: Bubble Sort = 5.208000000034296e-06s, Quick Sort = 8.416000000011081e-06s
dataset_15: Bubble Sort = 5.16699999997261e-06s, Quick Sort = 7.874999999990528e-06s
dataset_16: Bubble Sort = 3.250000000010189e-06s, Quick Sort = 7.874999999990528e-06s
dataset_17: Bubble Sort = 1.0409999999794195e-06s, Quick Sort = 9.958000000032108e-06s
dataset_18: Bubble Sort = 1.708000000100185e-06s, Quick Sort = 9.124999999943206e-06s
dataset_19: Bubble Sort = 1.0409999999794195e-06s, Quick Sort = 9.791000000092254e-06s
dataset_20: Bubble Sort = 1.0419999999511376e-06s, Quick Sort = 9.58399999995141e-06s
dataset_21: Bubble Sort = 1.0000000000287557e-06s, Quick Sort = 9.707999999997163e-06s
dataset_22: Bubble Sort = 1.0409999999794195e-06s, Quick Sort = 9.750000000030568e-06s
dataset_23: Bubble Sort = 3.7079999999356517e-06s, Quick Sort = 7.624999999955584e-06s
dataset_24: Bubble Sort = 1.0419999999511376e-06s, Quick Sort = 9.6670000000465e-06s
dataset_25: Bubble Sort = 1.0000000000287557e-06s, Quick Sort = 9.582999999979691e-06s
dataset_26: Bubble Sort = 5.667000000042499e-06s, Quick Sort = 7.916000000052215e-06s
dataset_27: Bubble Sort = 1.7500000000225668e-06s, Quick Sort = 9.833000000014636e-06s
dataset_28: Bubble Sort = 4.374999999945395e-06s, Quick Sort = 8.250000000042945e-06s
dataset_29: Bubble Sort = 5.250000000677005e-06s, Quick Sort = 7.957999999974597e-06s
dataset_30: Bubble Sort = 4.333000000023013e-06s, Quick Sort = 8.041999999930383e-06s
dataset_31: Bubble Sort = 1.0420000000621599e-06s, Quick Sort = 9.790999999981231e-06s
dataset_32: Bubble Sort = 4.290999999989609e-06s, Quick Sort = 9.166000000004892e-06s
dataset_33: Bubble Sort = 5.209000000006014e-06s, Quick Sort = 8.000000000008e-06s
dataset_34: Bubble Sort = 1.0419999999511376e-06s, Quick Sort = 1.0125000000082984e-05s
dataset_35: Bubble Sort = 1.0419999999511376e-06s, Quick Sort = 1.0166000000033648e-05s
dataset_36: Bubble Sort = 3.79200000000246e-06s, Quick Sort = 9.290999999911342e-06s
dataset_37: Bubble Sort = 3.250000000010189e-06s, Quick Sort = 7.917000000023933e-06s
dataset_38: Bubble Sort = 3.292000000435934e-06s, Quick Sort = 7.874999999990528e-06s
dataset_39: Bubble Sort = 1.0420000000621599e-06s, Quick Sort = 9.750000000030568e-06s
dataset_40: Bubble Sort = 5.250000000677005e-06s, Quick Sort = 9.37499999997815e-06s
dataset_41: Bubble Sort = 2.3749999999989058e-06s, Quick Sort = 8.790999999952476e-06s
dataset_42: Bubble Sort = 2.3749999999989058e-06s, Quick Sort = 9.000000000036756e-06s
dataset_43: Bubble Sort = 1.834000000893752e-06s, Quick Sort = 1.0124999999971962e-05s
dataset_44: Bubble Sort = 1.7500000000225668e-06s, Quick Sort = 9.334000000027487e-06s
dataset_45: Bubble Sort = 5.749999999915545e-06s, Quick Sort = 9.291000000022365e-06s
dataset_46: Bubble Sort = 1.0419999999511376e-06s, Quick Sort = 9.87500000004804e-06s
dataset_47: Bubble Sort = 1.0409999999794195e-06s, Quick Sort = 9.6670000000465e-06s
dataset_48: Bubble Sort = 2.4169999999212877e-06s, Quick Sort = 9.083000000020824e-06s
dataset_49: Bubble Sort = 2.500000000016378e-06s, Quick Sort = 8.999999999925734e-06s
dataset_50: Bubble Sort = 2.457999999982974e-06s, Quick Sort = 8.792000000035216e-06s
Bubble sort averaga: 2.654179999999062e-06
quicksort_times_average: 9.319100000004798e-06
 An
P-value (two-tailed): 7.036340532567351e-25
Standard Deviation Bubble Sort: 1.6542510567617021e-06
Standard Deviation Quick Sort: 1.1553219402976035e-06

Large partially sorted

dataset_1: Bubble Sort = 3.55100325s, Quick Sort = 0.040985083999999894s
dataset_2: Bubble Sort = 3.5000388750000004s, Quick Sort = 0.03179779200000077s
dataset_3: Bubble Sort = 3.326417166999999s, Quick Sort = 0.04194745800000099s
dataset_4: Bubble Sort = 3.814193125000001s, Quick Sort = 0.020268292000000798s
dataset_5: Bubble Sort = 3.7427652090000016s, Quick Sort = 0.029983542000000085s
dataset_6: Bubble Sort = 3.039952666999998s, Quick Sort = 0.26797116700000245s
dataset_7: Bubble Sort = 3.5593654159999986s, Quick Sort = 0.03440762500000005s
dataset_8: Bubble Sort = 3.097031083000001s, Quick Sort = 0.1760929580000017s
dataset_9: Bubble Sort = 3.1080800829999973s, Quick Sort = 0.09879566699999742s
dataset_10: Bubble Sort = 3.4584883330000054s, Quick Sort = 0.03247358299999803s
dataset_11: Bubble Sort = 3.400991167000001s, Quick Sort = 0.02889966700000457s
dataset_12: Bubble Sort = 3.610366916000004s, Quick Sort = 0.035072958999997184s
dataset_13: Bubble Sort = 3.945108417s, Quick Sort = 0.02228562499999498s
dataset_14: Bubble Sort = 3.6989494170000015s, Quick Sort = 0.032241417000001604s
dataset_15: Bubble Sort = 3.0932795000000013s, Quick Sort = 0.09209362500000395s
dataset_16: Bubble Sort = 3.6162462919999996s, Quick Sort = 0.035967084000006366s
dataset_17: Bubble Sort = 3.5188580410000014s, Quick Sort = 0.0417539580000001035s
dataset_18: Bubble Sort = 3.536201792000007s, Quick Sort = 0.027768542000004004s
dataset_19: Bubble Sort = 3.240388917000004s, Quick Sort = 0.0447118750000044s
dataset_20: Bubble Sort = 3.0612016669999917s, Quick Sort = 0.17776604199998758s
dataset_21: Bubble Sort = 3.3430720829999956s, Quick Sort = 0.049504624999997304s
dataset_22: Bubble Sort = 3.7887824999999964s, Quick Sort = 0.024926917000001936s
dataset_23: Bubble Sort = 3.89629270799999s, Quick Sort = 0.018666708000012022s
dataset_24: Bubble Sort = 3.302487792000008s, Quick Sort = 0.054361290999999221s
dataset_25: Bubble Sort = 3.7687077079999938s, Quick Sort = 0.018979874999999424s
dataset_26: Bubble Sort = 3.542561541999987s, Quick Sort = 0.0450984170000055s
dataset_27: Bubble Sort = 3.9024667919999985s, Quick Sort = 0.021644457999997258s
dataset_28: Bubble Sort = 3.8009972499999947s, Quick Sort = 0.027833000000001107s
dataset_29: Bubble Sort = 3.648238500000005s, Quick Sort = 0.03901391699999124s
dataset_30: Bubble Sort = 0.0006185830000049464s, Quick Sort = 3.2735739999999964s
dataset_31: Bubble Sort = 3.899942667000005s, Quick Sort = 0.0212648339999993016s
dataset_32: Bubble Sort = 3.931170709s, Quick Sort = 0.02443512500001077s
dataset_33: Bubble Sort = 3.331313915999999s, Quick Sort = 0.07380941699999255s
dataset_34: Bubble Sort = 3.8743793750000037s, Quick Sort = 0.026514792000000398s
dataset_35: Bubble Sort = 3.253023457999987s, Quick Sort = 0.07002008300000284s
dataset_36: Bubble Sort = 3.691596000000004s, Quick Sort = 0.024200250000006918s
dataset_37: Bubble Sort = 3.1181929169999876s, Quick Sort = 0.11833133299998622s
dataset_38: Bubble Sort = 3.552010709000001s, Quick Sort = 0.04173299999999358s
dataset_39: Bubble Sort = 3.1703300839999997s, Quick Sort = 0.06212404199999355s
dataset_40: Bubble Sort = 3.0215521249999995s, Quick Sort = 0.09760887500002013s
dataset_41: Bubble Sort = 3.291651833000003s, Quick Sort = 0.05120850000000132s
dataset_42: Bubble Sort = 0.000623875000002719s, Quick Sort = 3.306879791s
dataset_43: Bubble Sort = 3.747641540999979s, Quick Sort = 0.03721808299999907s
dataset_44: Bubble Sort = 3.2763668329999973s, Quick Sort = 0.06648250000000644s
dataset_45: Bubble Sort = 0.0006044170000052418s, Quick Sort = 3.4531736250000005s
dataset_46: Bubble Sort = 3.053162415999992s, Quick Sort = 0.14584883400002013s
dataset_47: Bubble Sort = 3.755149749999987s, Quick Sort = 0.028239291999994975s
dataset_48: Bubble Sort = 3.700538917000017s, Quick Sort = 0.032459375000001955s
dataset_49: Bubble Sort = 0.0006029159999911826s, Quick Sort = 3.260579917000001s
dataset_50: Bubble Sort = 3.404014332999992s, Quick Sort = 0.03722041700001455s
Bubble sort averaga: 3.2197404316599987
quicksort_times_average: 0.31732478510000095
T-statistic: 10.914983001715159
P-value (two-tailed): 1.0163890061726247e-14
Standard Deviation Bubble Sort: 0.9969230445942879
Standard Deviation Quick Sort: 0.8970374899394472