```
R version 4.4.0 (2024-04-24) -- "Puppy Cup"
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Platform: aarch64-apple-darwin20

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[R.app GUI 1.80 (8376) aarch64-apple-darwin20]

[History restored from /Users/alperkaragol/.Rapp.history]

> # Load necessary libraries
> library(ggplot2)
>
> # Given data
> x10 <-
c(0.7198,0.5522,0.5682,0.8188,0.6676,0.8691,0.8691,0.6299,0.4361,0.639,0.2365,0.1291,0.1191,0.998,0.1275,0.155,0.124
7,0.2304,0.3406,0.8151,0.8002,0.4253,0.6273,0.5947,0.4186,0.4107,0.6984,0.1775,0.807,0.6933,0.3168,0.3877,0.4871,0.1
317,0.2453,0.6473,0.2073,0.811,0.2437,0.1796,0.217,0.3557,0.5927,0.1553,0.1941,0.782,0.3706,0.7104,0.6755,0.7017,0.8
051,0.9154,0.5923,0.3918,0.1758,0.6668,0.5385,0.2146,0.25,0.2767,0.1839,0.1621,0.3679,0.2662,0.1767,0.2807,0.243,0.2
563,0.4258,0.5873,0.1964,0.2769,0.771,0.3372,0.6759,0.6944,0.5598,0.7565,0.9517,0.5636,0.4478,0.2488,0.859,0.3148,0.
2472,0.2188,0.3969,0.8503,0.1848,0.2128,0.2962,0.7295,0.7261,0.2954,0.5402,0.443,0.4162,0.3659,0.5317,0.726,0.5376,0
.275,0.2155,0.115,0.1009,0.1537,0.1114,0.5229,0.4748,0.1822,0.4405,0.3475,0.3289,0.4862,0.8457,0.288,0.3181,0.1087,0
.3618,0.6158,0.3459,0.2865,0.1455,0.4182,0.3153,0.8975,0.804,0.409,0.536,0.361,0.2062,0.1576,0.5556,0.2621,0.7264,0.
512,0.8978,0.9592,0.7082,0.8227,0.6943,0.882,0.6536,0.9462,0.202,0.7393,0.8026,0.5231,0.446,0.2542,0.5479,0.4962,0.8
86,0.671,0.3501,0.3522,0.2701,0.1755,0.1463,0.2924,0.1536,0.7722,0.4773,0.1261,0.4991,0.3934,0.3167,0.5859,0.9306,0.
306,0.1856,0.2598,0.5493,0.6323,0.2082,0.4001,0.3879,0.4035,0.2639,0.3883,0.8406,0.3099,0.7549,0.7648,0.5801,0.7894,
0.9681,0.6566,0.3695,0.1895,0.613,0.6523,0.1684,0.4439,0.3989,0.1033,0.2802,0.4135,0.493,0.3206,0.4312,0.6271,0.5612
,0.7104,0.6678,0.4066,0.5787,0.703,0.5063,0.2663,0.1747,0.1078,0.1,0.976,0.1342,0.6117,0.614,0.402,0.1843,0.1309,0.8
84,0.908,0.737,0.1058,0.4188,0.399,0.2699,0.3598,0.5741,0.4845,0.6251,0.4846,0.3557,0.408,0.4747,0.3012,0.4176,0.499
9,0.4512,0.6177,0.5196,0.3602,0.4503,0.6884,0.4693,0.5694,0.6905,0.5981,0.7835,0.682,0.5413,0.5612,0.422,0.9257,0.90
67,0.43,0.6977,0.6563,0.2726,0.5024,0.8421,0.2747,0.9007,0.805,0.3732,0.543,0.4449,0.1568,0.3642,0.8035,0.1095,0.674
3,0.3365,0.2301,0.1337,0.1341,0.106,0.2022,0.669,0.1622,0.6729,0.6624,0.1501,0.4178,0.3773,0.773,0.2676,0.4839,0.606
,0.3275,0.1753,0.889,0.939,0.91,0.708,0.1109,0.3605,0.589,0.4397,0.2154)
> x11 <-
c(0.1122,0.935,0.943,0.62,0.1078,0.4207,0.7474,0.4482,0.6381,0.6799,0.6698,0.7673,0.7965,0.5753,0.5212,0.3167,0.8439
,0.7281,0.4241,0.39,0.4285,0.2386,0.271,0.6992,0.4982,0.2895,0.4596,0.4866,0.4234,0.6297,0.598,0.3624,0.4474,0.1653,
0.8804,0.8338,0.2894,0.6109,0.6619,0.1576,0.2911,0.8022,0.4862,0.8886,0.8308,0.617,0.7459,0.8214,0.5483,0.4633,0.907
3,0.9039,0.759,0.8946,0.8938,0.8289,0.9003,0.9798,0.7959,0.3877,0.559,0.4432,0.2228,0.841,0.921,0.1152,0.743,0.1049,
0.2983,0.2152,0.8769,0.8995,0.1873,0.8254,0.7666,0.68,0.5411,0.7851,0.2424,0.8522,0.8598,0.1872,0.8144,0.6753,0.422,
0.5269,0.7162,0.6,0.399,0.7485,0.2419,0.3211,0.329,0.8447,0.3477,0.8829,0.5591,0.9755,0.991,0.8493,0.9687,0.8833,0.9
861,0.8715,0.995,0.3425,0.9059,0.9012,0.2978,0.7435,0.6786,0.7651,0.4911,0.8173,0.2992,0.8843,0.8647,0.4788,0.5542,0
.4774,0.6336,0.6537,0.9388,0.59,0.4831,0.2052,0.958,0.957,0.1255,0.772,0.984,0.3953,0.515,0.424,0.1419,0.702,0.68,0.
982,0.557,0.75,0.2421,0.1253,0.872,0.6902,0.1601,0.4808,0.4765,0.883,0.2382,0.5988,0.849,0.4051,0.528,0.282,0.2596,0
.1629,0.7314,0.2456,0.894,0.3418,0.8457,0.8112,0.317,0.7159,0.6347,0.6679,0.4824,0.6072,0.1539,0.8457,0.8394,0.3471,
0.4025,0.2999,0.4431,0.5101,0.9031,0.901,0.7789,0.6064,0.1299,0.2848,0.2113,0.1102,0.3483,0.7229,0.2362,0.8996,0.834
,0.1965,0.7042,0.6054,0.695,0.469,0.7531,0.54,0.3819,0.208,0.675,0.988,0.1156,0.563,0.1018,0.3753,0.9,0.6576,0.5948,
0.987,0.3871,0.3384,0.565,0.1939,0.5178,0.2786,0.3334,0.2644,0.4587,0.3246,0.5359,0.3695,0.2657,0.4064,0.386,0.3663,
0.3203,0.5057,0.3845,0.5519,0.4937,0.3387,0.5183,0.86,0.7269,0.4595,0.1448,0.1618,0.1351,0.865,0.2099,0.6746,0.102,0
.8401,0.5792,0.2029,0.2305,0.1757,0.1308,0.2897,0.8626,0.9081,0.8442,0.8602,0.9259,0.8365,0.9383,0.9241,0.8053,0.528
,0.4703,0.9799,0.9753,0.5669,0.9022,0.8568,0.3426,0.7018,0.9619,0.106,0.8182,0.7135,0.2361,0.2627,0.2043,0.1713,0.33
36,0.8726,0.908,0.7389,0.4656,0.1693,0.1865,0.1307,0.944,0.2396,0.7675,0.63,0.5775,0.3271,0.1246,0.119,0.1311,0.678,
0.1422,0.6534,0.9567,0.8769,0.9038,0.9365,0.872,0.947)
> x12 <-
c(0.9509,0.8753,0.6562,0.3691,0.9724,0.9643,0.589,0.7936,0.737,0.3001,0.5113,0.947,0.8505,0.7369,0.8136,0.8882,0.765
9,0.9184,0.8926,0.7099,0.6571,0.2015,0.6457,0.6551,0.1828,0.432,0.4347,0.1177,0.2726,0.3467,0.1348,0.3143,0.3889,0.1
477,0.22,0.286,0.12,0.1571,0.1973,0.101,0.449,0.3346,0.2595,0.1956,0.1271,0.2014,0.1725,0.5377,0.626,0.236,0.1946,0.
117,0.856,0.1027,0.1244,0.1127,0.396,0.1508,0.5864,0.4548,0.3153,0.1717,0.122,0.1935,0.315,0.6049,0.7694,0.2928,0.67
15,0.6285,0.6334,0.7355,0.8656,0.5686,0.3377,0.5142,0.8722,0.9043,0.5076,0.5526,0.6016,0.53,0.4204,0.7989,0.1796,0.5
621,0.4881,0.2259,0.251,0.2889,0.1595,0.3326,0.644,0.2783,0.1438,0.1307,0.926,0.861,0.1172,0.1045,0.3221,0.157,0.327
1,0.3937,0.1382,0.2685,0.2996,0.1116,0.1707,0.1902,0.663,0.2505,0.1456,0.1113,0.848,0.815,0.657,0.1024,0.2663,0.776,
0.2847,0.142,0.1378,0.883,0.912,0.694,0.1178,0.2898,0.788,0.4512,0.1857,0.1889,0.905,0.798,0.942,0.1101,0.3366,0.233
7,0.4723,0.5122,0.2462,0.2975,0.3716,0.1683,0.2148,0.3485,0.4139,0.8209,0.896,0.499,0.6375,0.6102,0.6686,0.4733,0.83
46,0.2353,0.5271,0.5639,0.1993,0.3458,0.376,0.2469,0.2505,0.3508,0.2,0.568,0.6441,0.195,0.4371,0.3712,0.1918,0.2687,
```

```
0.41,0.654,0.28,0.4333,0.2206,0.1721,0.1472,0.1878,0.1733,0.7791,0.3232,0.7148,0.8001,0.4152,0.4882,0.4812,0.2538,0.
3434,0.7307,0.3051,0.1064,0.269,0.3133,0.2747,0.4818,0.7383,0.2453,0.1804,0.208,0.4,0.5939,0.1878,0.3424,0.3388,0.23
53,0.2219,0.2759,0.4143,0.1568,0.2824,0.6092,0.4356,0.655,0.4052,0.4138,0.3459,0.832,0.3955,0.2541,0.1618,0.1243,0.1
12,0.695,0.2097,0.4602,0.696,0.3395,0.207,0.1502,0.1194,0.1085,0.678,0.1498,0.4431,0.583,0.2577,0.1306,0.11,0.769,0.
833,0.6,0.886,0.2905,0.579,0.2606,0.1379,0.1083,0.798,0.786,0.644,0.87,0.2587,0.171,0.882,0.149,0.2906,0.2273,0.3778
,0.1955,0.1973,0.2713,0.645,0.2979,0.1534,0.1328,0.849,0.864,0.648,0.1095,0.3115,0.9526,0.9518,0.8691,0.9691,0.8736,
0.978,0.9812,0.9025,0.7229,0.971,0.1147,0.1115,0.1273,0.1118,0.2544,0.2877,0.869,0.1947,0.732,0.6343,0.3339,0.1754,0
.1608,0.2255,0.2544,0.203,0.6492,0.6192)
> x13 <-
c(0.9655,0.9546,0.6909,0.896,0.8267,0.8236,0.7624,0.9344,0.2994,0.7574,0.7067,0.5481,0.5832,0.5988,0.5761,0.412,0.90
13,0.9478,0.7054,0.9205,0.8965,0.8801,0.9234,0.9884,0.8328,0.5043,0.9854,0.8178,0.9756,0.9065,0.7394,0.8862,0.9952,0
.8969,0.7088,0.9223,0.6048,0.8823,0.853,0.6548,0.8819,0.9913,0.7247,0.4973,0.1,0.3216,0.3723,0.2403,0.18,0.1659,0.50
17,0.2273,0.8805,0.9148,0.5448,0.8459,0.9285,0.6056,0.8984,0.9696,0.8607,0.6857,0.4916,0.1913,0.5802,0.5369,0.4113,0
.6834,0.9515,0.3858,0.3881,0.5386,0.9597,0.9566,0.5134,0.9004,0.7338,0.895,0.7409,0.9188,0.7535,0.2697,0.7683,0.4231
,0.3646,0.6128,0.9873,0.2775,0.4474,0.6635,0.9771,0.9931,0.9305,0.954,0.817,0.997,0.8602,0.9967,0.3654,0.957,0.948,0
.4517,0.7718,0.6372,0.9127,0.5659,0.9222,0.725,0.6005,0.4179,0.1375,0.1631,0.1337,0.2725,0.2052,0.6799,0.306,0.6527,
0.9283,0.6777,0.596,0.5899,0.6145,0.5591,0.9886,0.3677,0.833,0.9734,0.6594,0.4946,0.2706,0.9467,0.3921,0.9909,0.6955
,0.9088,0.9346,0.5747,0.8743,0.7816,0.9171,0.763,0.7508,0.9828,0.857,0.9723,0.9535,0.844,0.9557,0.9984,0.9239,0.5997
,0.3655,0.7548,0.8682,0.398,0.6771,0.5526,0.8567,0.4662,0.6809,0.3518,0.9748,0.9665,0.3293,0.8953,0.723,0.2423,0.678
,0.9232,0.8884,0.8861,0.8222,0.9083,0.8065,0.9119,0.9441,0.7592,0.8467,0.1981,0.9184,0.8314,0.2521,0.5406,0.4379,0.1
387,0.3179,0.7896,0.4515,0.5987,0.3456,0.7574,0.5717,0.698,0.5516,0.4535,0.6417,0.2625,0.3836,0.2356,0.5505,0.4372,0
.531,0.4647,0.3051,0.48,0.583,0.3212,0.1901,0.717,0.99,0.1019,0.651,0.1041,0.3599,0.723,0.5782,0.2498,0.1069,0.1293,
0.1291,0.756,0.1548,0.5979,0.3043,0.3298,0.2691,0.5062,0.4253,0.5349,0.4195,0.3135,0.3617,0.3099,0.9362,0.8953,0.275
6,0.7116,0.6419,0.1493,0.4811,0.8686,0.1428,0.7847,0.616,0.1619,0.4182,0.3479,0.718,0.2458,0.6689,0.515,0.4424,0.193
,0.859,0.969,0.1056,0.716,0.845,0.4672,0.531,0.4763,0.2169,0.818,0.947,0.969,0.621,0.995,0.4533,0.1349,0.8297,0.6838
,0.1549,0.4179,0.3637,0.839,0.2408,0.6328,0.8123,0.7161,0.6134,0.8423,0.7489,0.8321,0.8434,0.7088,0.6617,0.427,0.975
3,0.945,0.4604,0.8358,0.7756,0.2162,0.63,0.9468,0.281,0.9664,0.9192,0.2976)
> x14 <-
c(0.8089,0.7063,0.1119,0.5855,0.9172,0.6173,0.4251,0.4815,0.6436,0.5225,0.667,0.7556,0.4819,0.5066,0.3522,0.9591,0.9
118,0.4491,0.8655,0.8087,0.7807,0.6486,0.9372,0.3403,0.943,0.9526,0.4737,0.8861,0.7975,0.4896,0.6651,0.9576,0.6917,0
.9724,0.9983,0.8458,0.98,0.9296,0.9756,0.9559,0.9994,0.6656,0.9133,0.972,0.8727,0.8671,0.8461,0.8855,0.9059,0.994,0.
9943,0.9812,0.9831,0.9943,0.9867,0.9958,0.9979,0.9792,0.8516,0.2576,0.6437,0.6535,0.3589,0.4716,0.4023,0.9251,0.3247
,0.5269,0.1283,0.7797,0.5147,0.1912,0.229,0.1805,0.3304,0.3865,0.6198,0.9986,0.999,0.9942,0.9967,0.9841,0.998,0.9966
,0.9929,0.9836,0.6048,0.9814,0.9824,0.6644,0.9307,0.757,0.957,0.7863,0.9606,0.5869,0.5955,0.64,0.817,0.7675,0.8128,0
.7931,0.6606,0.3731,0.761,0.5424,0.3123,0.1345,0.113,0.1379,0.2079,0.1472,0.6167,0.668,0.5091,0.1799,0.1164,0.881,0.
1017,0.643,0.1032,0.373,0.669,0.5337,0.3249,0.1305,0.1213,0.118,0.2127,0.1279,0.4842,0.8077,0.5114,0.8306,0.9143,0.8
183,0.8902,0.984,0.8135,0.7363,0.4542,0.8071,0.9173,0.7947,0.7947,0.5407,0.96,0.8279,0.991,0.975,0.8625,0.9179,0.972
3,0.8257,0.9834,0.9947,0.93,0.8383,0.893,0.3101,0.4143,0.2729,0.1874,0.1676,0.9008,0.1098,0.9182,0.9938,0.969,0.9816
,0.9936,0.9527,0.9942,0.9974,0.9648,0.9328,0.3842,0.9352,0.8822,0.404,0.8008,0.5616,0.2597,0.5867,0.8946,0.997,0.996
4,0.9894,0.9897,0.9592,0.9951,0.9976,0.9778,0.961,0.8406,0.9505,0.9957,0.7946,0.9763,0.9432,0.9754,0.9764,0.998,0.58
43,0.9317,0.9895,0.8793,0.7021,0.6289,0.9725,0.6639,0.9969,0.1464,0.7095,0.4271,0.1601,0.2426,0.2415,0.2796,0.1611,0
.4271,0.582,0.467,0.1815,0.1076,0.743,0.85,0.481,0.851,0.3013,0.749,0.4972,0.1473,0.1761,0.812,0.1015,0.2817,0.818,0
.3884,0.2019,0.6719,0.4043,0.6187,0.1705,0.99,0.4795,0.1749,0.7572,0.6497,0.9624,0.97,0.9139,0.8264,0.7431,0.9164,0.
6797,0.9908,0.9575,0.9892,0.9977,0.9385,0.9827,0.9717,0.9826,0.9778,0.9967,0.1041,0.9169,0.8722,0.2361,0.5416,0.4304
,0.71,0.2428,0.9555,0.2189,0.2851,0.1496,0.6512,0.4743,0.5061,0.3488,0.334,0.3271,0.2891,0.3698,0.1345,0.7051,0.5001
,0.5825,0.385,0.3963,0.5247,0.1546,0.8724,0.8124,0.1165,0.7898,0.602,0.793)
> x15 <-
c(0.4759,0.8971,0.2731,0.3864,0.1455,0.69,0.4798,0.5633,0.3987,0.375,0.5281,0.1641,0.9436,0.9352,0.1657,0.8593,0.694
3,0.917,0.5192,0.9523,0.3204,0.3747,0.2015,0.7525,0.5214,0.6168,0.4221,0.4149,0.4683,0.1454,0.9289,0.9116,0.1389,0.8
29,0.6346,0.968,0.4736,0.9599,0.6866,0.6644,0.4256,0.8531,0.7197,0.8033,0.6964,0.6271,0.6559,0.2623,0.9535,0.935,0.2
591,0.8419,0.7162,0.1767,0.5397,0.9784,0.4104,0.4676,0.2122,0.7875,0.6236,0.6831,0.5706,0.4806,0.6484,0.1627,0.9021,
0.8275,0.1458,0.6886,0.518,0.947,0.3799,0.9448,0.1879,0.3267,0.1035,0.5597,0.3934,0.4447,0.2964,0.2858,0.4955,0.86,0
.8365,0.7038,0.844,0.5505,0.4005,0.51,0.2484,0.8436,0.2437,0.312,0.1466,0.6267,0.4533,0.4784,0.3831,0.3371,0.4259,0.
1934,0.9258,0.8777,0.1263,0.8261,0.6537,0.723,0.5334,0.9407,0.1003,0.8782,0.8282,0.561,0.7464,0.5309,0.431,0.3965,0.
9088,0.2291,0.3357,0.1191,0.6355,0.4873,0.5073,0.3542,0.3194,0.5124,0.1197,0.9086,0.8902,0.1276,0.7792,0.5924,0.733,
0.3977,0.9535,0.4352,0.977,0.9604,0.5105,0.862,0.9151,0.5193,0.8217,0.9935,0.344,0.9816,0.9634,0.4004,0.915,0.8262,0
.2748,0.7187,0.9855)
> x1 <- c(x10,x11,x12,x13,x14,x15)
> x2 <-
c(0.1264,0.1539,0.2924,0.1999,0.545,0.1188,0.1238,0.805,0.1177,0.919,0.207,0.142,0.1369,0.4978,0.4347,0.5066,0.6911,
0.2244,0.923,0.1485,0.1612,0.1771,0.1904,0.1772,0.1396,0.1227,0.1146,0.1482,0.3236,0.2173,0.2512,0.1701,0.1324,0.139
6,0.1318,0.174,0.797,0.2418,0.7731,0.1057,0.155,0.3023,0.3222,0.7062,0.7686,0.2802,0.8746,0.1504,0.1076,0.162,0.5027
,0.2199,0.778,0.6271,0.3252,0.1638,0.13,0.1546,0.1309,0.3525,0.4307,0.2376,0.5671,0.5414,0.3579,0.2057,0.1943,0.425,
0.1736,0.1551,0.911,0.1901,0.1256,0.38,0.1149,0.3487,0.1142,0.1035,0.1115,0.96,0.1161,0.1194,0.1008,0.3175,0.1337,0.
1669,0.2424,0.1618,0.1021,0.1286,0.1722,0.2726,0.1966,0.1018,0.1022,0.107,0.1305,0.1194,0.678,0.2979,0.6252,0.7152,0
.1347,0.505,0.811,0.3117,0.1074,0.1465,0.5248,0.338,0.8003,0.4122,0.2867,0.7881,0.1545,0.5291,0.1275,0.2887,0.5442,0
.3065,0.218,0.1719,0.1051,0.1478,0.2195,0.1031,0.3421,0.1735,0.1273,0.1472,0.1757,0.1677,0.5175,0.4429,0.827,0.6429,
0.7313,0.9037,0.9836,0.2676,0.1672,0.5139,0.9146,0.6344,0.137,0.2207,0.1289,0.1908,0.1464,0.9719,0.3092,0.2436,0.819
1,0.3242,0.6967,0.9976,0.9139,0.1068,0.103,0.878,0.3233,0.8847,0.9969,0.2762,0.874,0.1398,0.4429,0.1371,0.5518,0.139
2,0.4925,0.2046,0.5288,0.1826,0.3631,0.1235,0.2792,0.979,0.4921,0.4305,0.1296,0.4632,0.9777,0.7612)
> ks.test(x1, x2, alternative = "two.sided", exact=FALSE)

    Asymptotic two-sample Kolmogorov-Smirnov test

data:  x1 and x2
D = 0.35249, p-value < 2.2e-16
```

```
alternative hypothesis: two-sided

Warning message:
In ks.test.default(x1, x2, alternative = "two.sided", exact = FALSE) :
  p-value will be approximate in the presence of ties
> # Create data frames for plotting
> df_qty <- data.frame(AlphaMissenseScore = x1, Group = " Other Nonpolar")
> df_other <- data.frame(AlphaMissenseScore = x2, Group = " rQTY-code")
> df <- rbind(df_other, df_qty)
>
> # Density Plot
> ggplot(df, aes(x = AlphaMissenseScore, color = Group)) +
+   geom_density() +
+   labs(title = "Density Plot of AlphaMissense Scores",
+        x = "AlphaMissense Score",
+        y = "Density",
+        color = "Group") +
+   theme_minimal()
>
>
```