1. Output lines of preprocess.py:

Quotes removed from [8316] cells.

Standardized [5707] cells to lower case.

Value assigned for male in column gender: [1].

Value assigned for European/Caucasian-American in column race: [2].

Value assigned for Latino/Hispanic American in column race_o: [3].

Value assigned for law in column field: [121].

Mean of attractive_important:[0.22].

Mean of sincere_important:[0.17].

Mean of intelligence_important:[0.2].

Mean of funny_important:[0.17].

Mean of ambition_important:[0.11].

Mean of shared_interests_important:[0.12].

Mean of pref_o_attractive:[0.22].

Mean of pref_o_sincere:[0.17].

Mean of pref_o_intelligence:[0.2].

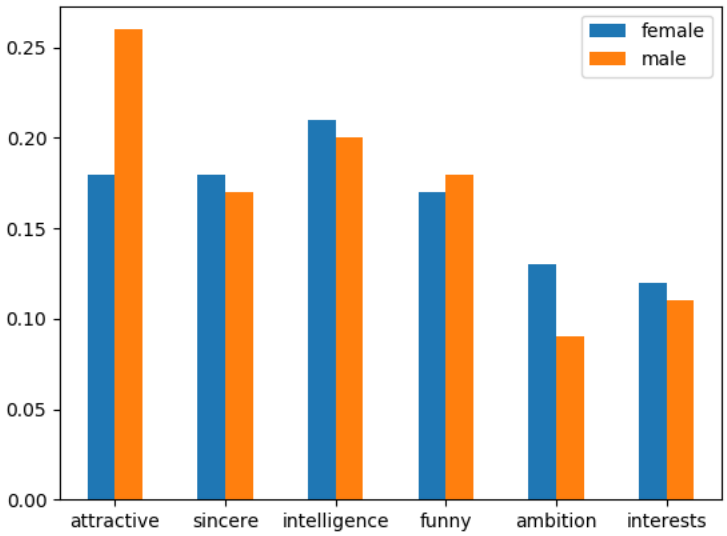
Mean of pref_o_funny:[0.17].

Mean of pref_o_ambitious:[0.11].

Mean of pref_o_shared_interests:[0.12].

2. Output of 2_1.py and 2_2.py:

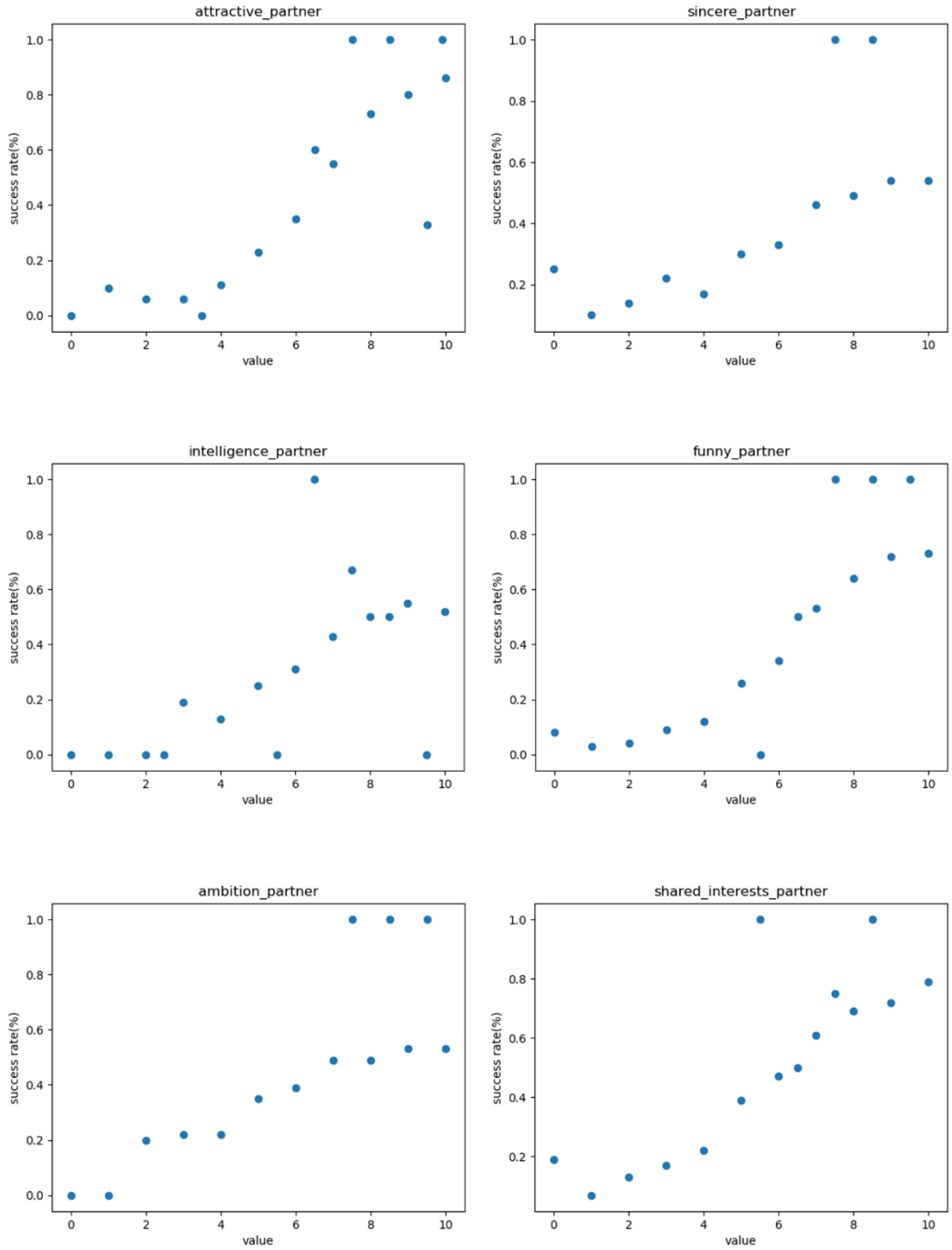
2_1.py:



In this figure, the differences among sincere, intelligence, funny, and shared

interests are little between females and males. However, males focus more on attractive appearance while females focus more on ambition.

2_2.py:



We can observe that: the larger values are, the success rates of them are higher.

3. Output of discretize.py:

age: [3710, 2932, 97, 0, 5]
age_o: [3704, 2899, 136, 0, 5]
importance_same_race: [2980, 1213, 977, 1013, 561]
importance_same_religion: [3203, 1188, 1110, 742, 501]
pref_o_attractive: [4333, 1987, 344, 51, 29]
pref_o_sincere: [5500, 1225, 19, 0, 0]
pref_o_intelligence: [4601, 2062, 81, 0, 0]
pref_o_funny: [5616, 1103, 25, 0, 0]
pref_o_ambitious: [6656, 88, 0, 0, 0]
pref_o_shared_interests: [6467, 277, 0, 0, 0]
attractive_important: [4323, 2017, 328, 57, 19]
sincere_important: [5495, 1235, 14, 0, 0]
intelligence_important: [4606, 2071, 67, 0, 0]
funny_important: [5588, 1128, 28, 0, 0]
ambition_important: [6644, 100, 0, 0, 0]
shared_interests_important: [6494, 250, 0, 0, 0]
attractive: [18, 276, 1462, 4122, 866]
sincere: [33, 117, 487, 2715, 3392]
intelligence: [34, 185, 1049, 3190, 2286]
funny: [0, 19, 221, 3191, 3313]
ambition: [84, 327, 1070, 2876, 2387]
attractive_partner: [284, 948, 2418, 2390, 704]
sincere_partner: [94, 353, 1627, 3282, 1388]
intelligence_partner: [36, 193, 1509, 3509, 1497]
funny_partner: [279, 733, 2296, 2600, 836]
ambition_partner: [119, 473, 2258, 2804, 1090]
shared_interests_partner: [701, 1269, 2536, 1774, 464]
sports: [650, 961, 1369, 2077, 1687]
tvsports: [2151, 1292, 1233, 1383, 685]
exercise: [619, 952, 1775, 2115, 1283]
dining: [39, 172, 1118, 2797, 2618]
museums: [117, 732, 1417, 2737, 1741]
art: [224, 946, 1557, 2500, 1517]
hiking: [963, 1386, 1575, 1855, 965]
gaming: [2565, 1522, 1435, 979, 243]
clubbing: [912, 1068, 1668, 2193, 903]
reading: [131, 398, 1071, 2317, 2827]

tv: [1188, 1216, 1999, 1642, 699]
theater: [288, 811, 1585, 2300, 1760]
movies: [45, 248, 843, 2783, 2825]
concerts: [222, 777, 1752, 2282, 1711]
music: [62, 196, 1106, 2583, 2797]
shopping: [1093, 1098, 1709, 1643, 1201]
yoga: [2285, 1392, 1369, 1056, 642]
interests_correlate: [18, 758, 2520, 2875, 573]
expected_happy_with_sd_people: [321, 1262, 3292, 1596, 273]
like: [273, 865, 2539, 2560, 507]

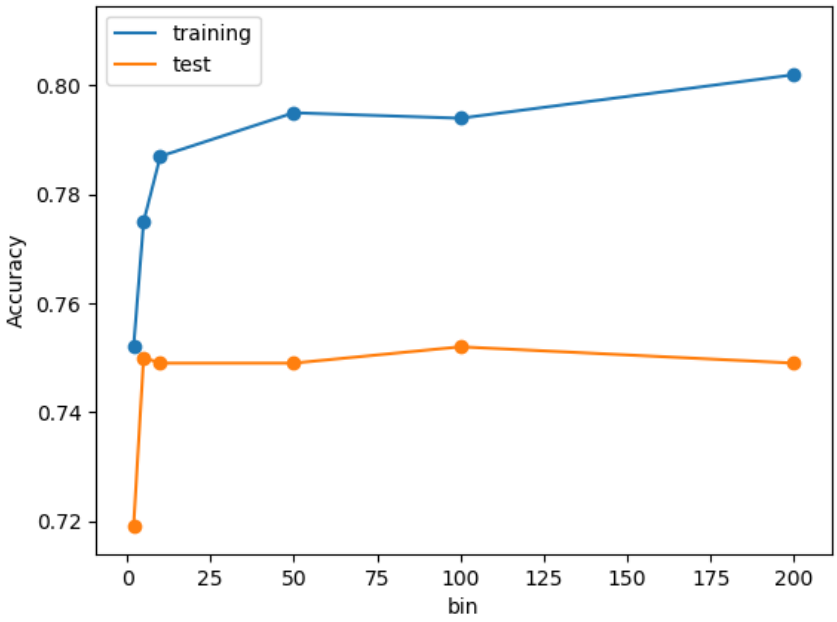
4. No output from spilt.py
5. Output of 5_1.py, 5_2.py, 5_3.py:

5_1.py:

Training Accuracy: 0.77
Testing Accuracy: 0.75

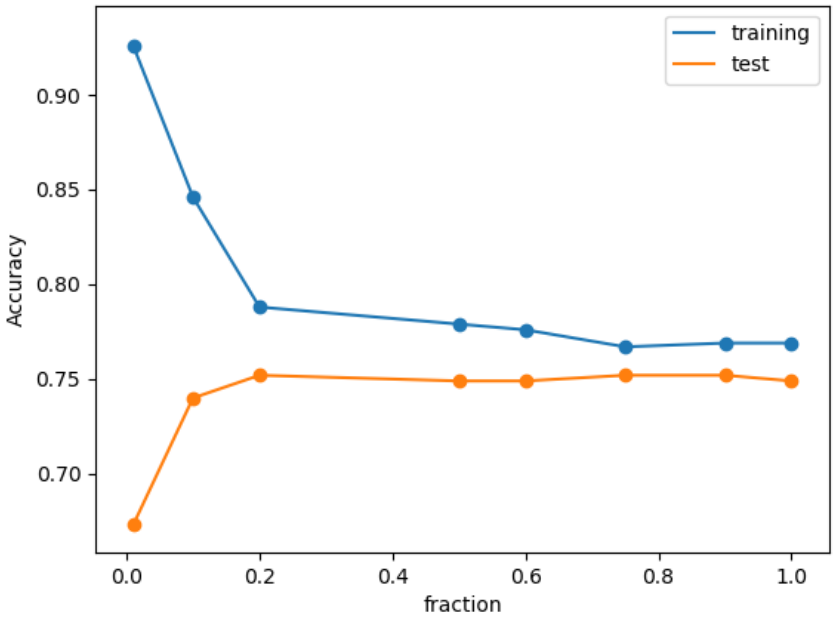
5_2.py:

Bin size: 2
Training Accuracy: 0.75
Testing Accuracy: 0.72
Bin size: 5
Training Accuracy: 0.77
Testing Accuracy: 0.75
Bin size: 10
Training Accuracy: 0.79
Testing Accuracy: 0.75
Bin size: 50
Training Accuracy: 0.8
Testing Accuracy: 0.75
Bin size: 100
Training Accuracy: 0.8
Testing Accuracy: 0.75
Bin size: 200
Training Accuracy: 0.8
Testing Accuracy: 0.75



In the beginning, the value of bin strongly affects the performance, but the influence get miner when the value of bin over 13.

5_3.py:



With the increasing of value of fraction, both training and test result in approaching the same accuracy.