

**Supplement for**  
**“A Novel Data Analytics Methodology for Discovering Behavioral Risk Profiles:**  
**The Case of Diners During a Pandemic”**

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## Appendix A. Survey Questions Analyzed in the Research

Question	QuestionPreText
A	To what extent are you concerned with the below?
B	In general, how often do you respect the following COVID 19 preventive Behavior?
C	How frequently do you behave as below?

Question	A. Worry Behavior
A_01	How concerned are you about yourself being affected by Coronavirus?
A_02	How concerned are you about your family members being affected by Coronavirus?
A_03	How concerned are you about your close relatives being affected by Coronavirus?
A_04	How concerned are you about your friends being affected by Coronavirus?
A_05	How concerned are you about getting hospitalized due to Coronavirus infection?
A_06	How concerned are you about dying from Coronavirus?
A_07	How concerned are you about death of close people from Coronavirus?
	<b>B. Risk Preventive Behavior</b>
B_01	How often are you maintaining a physical distance of 1.5-2 meters?
B_02	How often are you avoiding touching your face, eyes, mouth, and nose?
B_03	How often are you washing your hands with water and soap or sanitizers?
B_04	How often are you wearing facemask?
B_05	How often are you wearing gloves?
	<b>C. Risk Reduction Behavior</b>
C_01	I select dining outlets offering healthier food
C_02	I do not dine out in fast-food
C_03	I dine out in high end/high category dining outlets
C_04	I order food instead of going out to dine
C_05	I dine out in seated dining outlets
C_06	I dine out with my family members
C_07	I dine out with my close friends / work colleagues
C_08	I <i>do not</i> dine out with people that I do not know necessarily well <sup>1</sup>
C_09	I select dining outlets recommended by friends or relatives as COVID 19 safe
C_10	I select dining outlets recommended by social media as COVID 19 safe
C_11	I select dining outlets that are not crowded
C_12	I book a table only when the dining outlet is not at the full authorized capacity
C_13	I eat in dining outlets clearly displaying the required precautionary measures
C_14	I leave the dining outlet if I do not get the first impression that it is COVID 19 safe
C_15	I leave the dining outlet if I observe that it does not follow the precautionary measures
C_16	I complain if I observe that the dining outlet does not follow the precautionary measures
C_17	I request for a table that is located far from other clients
C_18	I ask the waiters to keep a reasonable social distance with me

<sup>1</sup> The direction of this question has been reversed, to obtain the same direction as the other questions. This way, *higher* values of the answer correspond to *<= risk behavior*. The original question was "I dine out with people that I do not know necessarily well."

C_19	I observe if the waiters are constantly wearing masks
C_20	I observe if the waiters are constantly washing their hands with sanitizers
C_21	I verify if the plate and the table cutlery are clean
C_22	I use digital menu (QR code menu) to order food
C_23	I ask questions about the dish ingredients
C_24	I ask questions about how the dish was prepared
C_25	I ask the waiters to wear gloves when they are serving me
C_26	I wear back my mask each time I finish eating
C_27	I use WiFi payment means
	<b>D. Demographic</b>
D_01	Are you resident in the UAE?
D_02	Did you travel outside UAE during the last 6 months?
D_03	Your Nationality
D_04	Your current location
D_05	Age
D_06	Gender
D_07	Marital status
D_08	Education

## Appendix B. Results of Summary Statistics

(Analysis results involving demographic questions have been removed for privacy and confidentiality concerns.)

### B1. Mean Values for Datasets A.NN and A.NC

QuestionID	QuestionText	Mean
A_07	How concerned are you about death of close people from Coronavirus?	3.61
A_02	How concerned are you about your family members being affected by Coronavirus?	3.60
A_03	How concerned are you about your close relatives being affected by Coronavirus?	3.59
A_04	How concerned are you about your friends being affected by Coronavirus?	3.37
A_05	How concerned are you about getting hospitalized due to Coronavirus infection?	3.37
A_06	How concerned are you about dying from Coronavirus?	3.18
A_01	How would you estimate the probability of you getting health issues if you contract Coronavirus?	3.08

### B2. Dispersion Values for Datasets A.NN and A.NC

QuestionID	QuestionText	Standard Deviation
A_06	How concerned are you about dying from Coronavirus?	0.44
A_01	How would you estimate the probability of you getting health issues if you contract Coronavirus?	0.42
A_05	How concerned are you about getting hospitalized due to Coronavirus infection?	0.39
A_07	How concerned are you about death of close people from Coronavirus?	0.37
A_04	How concerned are you about your friends being affected by Coronavirus?	0.36
A_02	How concerned are you about your family members being affected by Coronavirus?	0.35
A_03	How concerned are you about your close relatives being affected by Coronavirus?	0.34

**B3. Mean Values for Datasets B.NN and B.NC**

<b>QuestionID</b>	<b>QuestionText</b>	<b>Mean</b>
B_04	How often are you wearing facemask?	3.85
B_03	How often are you washing your hands with water and soap or sanitizers?	3.72
B_01	How often are you maintaining a physical distance of 1.5-2 meters?	3.46
B_02	How often are you avoiding touching your face, eyes, mouth, and nose?	3.27
B_05	How often are you wearing gloves?	2.51

**B4. Dispersion Values for Datasets B.NN and B.NC**

<b>QuestionID</b>	<b>QuestionText</b>	<b>Standard Deviation</b>
B_05	How often are you wearing gloves?	0.49
B_02	How often are you avoiding touching your face, eyes, mouth, and nose?	0.33
B_01	How often are you maintaining a physical distance of 1.5-2 meters?	0.31
B_04	How often are you wearing facemask?	0.30
B_03	How often are you washing your hands with water and soap or sanitizers?	0.30

**B5. Mean Values for Datasets D.CN and D.CC**

QuestionID	QuestionText	Mean
C_08	I dine out with people that I do not know necessarily well	3.78
C_21	I verify if the plate and the table cutlery are clean	3.66
C_19	I observe if the waiters are constantly wearing masks	3.38
C_27	I use WiFi payment means	3.35
C_11	I select dining outlets that are not crowded	3.34
...	...	...
C_10	I select dining outlets recommended by social media as COVID 19 safe	2.86
C_02	I do not dine out in fast-food	2.83
C_18	I ask the waiters to keep a reasonable social distance with me	2.74
C_24	I ask questions about how the dish was prepared	2.63
C_25	I ask the waiters to wear gloves when they are serving me	2.44

**(Table 2 in the paper)****B6. Dispersion Values for Datasets D.CN and D.CC**

QuestionID	QuestionText	Standard Deviation
C_25	I ask the waiters to wear gloves when they are serving me	0.51
C_18	I ask the waiters to keep a reasonable social distance with me	0.44
C_20	I observe if the waiters are constantly washing their hands with sanitizers	0.43
C_24	I ask questions about how the dish was prepared	0.42
C_26	I wear back my mask each time I finish eating	0.41
...	...	...
C_01	I select dining outlets offering healthier food	0.32
C_21	I verify if the plate and the table cutlery are clean	0.32
C_06	I dine out with my family members	0.32
C_08	I dine out with people that I do not know necessarily well	0.30
C_05	I dine out in seated dining outlets	0.29

**(Table 3 in the paper)**

## Appendix C. Results of Ranking Analysis

### C1. Ranking Values for Dataset A.NC

Rank	QuestionID	QuestionText	Gain ratio	Gini
1	A_04	How concerned are you about your friends being affected by Coronavirus?	0.031	0.026
2	A_01	How concerned are you about yourself being affected by Coronavirus?	0.025	0.021
3	A_02	How concerned are you about your family members being affected by Coronavirus?	0.024	0.020
4	A_03	How concerned are you about your close relatives being affected by Coronavirus?	0.018	0.014
5	A_05	How concerned are you about getting hospitalized due to Coronavirus infection?	0.019	0.013
6	A_06	How concerned are you about dying from Coronavirus?	0.013	0.010
7	A_07	How concerned are you about death of close people from Coronavirus?	0.006	0.004

### C2. Ranking Values for Dataset B.NC

Rank	QuestionID	QuestionText	Gain ratio	Gini
1	B_03	How often are you washing your hands with water and soap or sanitizers?	0.076	0.059
2	B_02	How often are you avoiding touching your face, eyes, mouth, and nose?	0.073	0.050
3	B_01	How often are you maintaining a physical distance of 1.5-2 meters?	0.054	0.040
4	B_05	How often are you washing your hands with water and soap or sanitizers?	0.045	0.037
5	B_04	How often are you wearing facemask?	0.041	0.032

**C3. Ranking Values for Dataset C.NC**

<b>Rank</b>	<b>QuestionID</b>	<b>QuestionText</b>	<b>Gain ratio</b>	<b>Gini</b>
1	C_13	I eat in dining outlets clearly displaying the required precautionary measures	0.153	0.111
2	C_16	I complain if I observe that the dining outlet does not follow the precautionary measures	0.152	0.104
3	C_14	I leave the dining outlet if I do not get the first impression that it is COVID 19 safe	0.140	0.096
4	C_17	I request for a table that is located far from other clients	0.123	0.090
5	C_12	I book a table only when the dining outlet is not at the full authorized capacity	0.112	0.090
...	...	...	...	...
16	C_04	I order food instead of going out to dine	0.055	0.041
17	C_03	I dine out in high end/high category dining outlets	0.044	0.034
18	C_05	How often are you wearing gloves?	0.039	0.032
19	C_02	I do not dine out in fast-food	0.041	0.032
20	C_08	I dine out with people that I do not know necessarily well	0.015	0.013

**(Table 4 in the paper)**



#### Appendix D. Full Database of Rules from One-Level Rule Discovery

(Tables 5 and 7 in the paper are filtered from the below database)

Note: Rules regarding demographic questions have been removed due to confidentiality.

ID	QuestionID	Relation	Value	Rows	CountBHV	BHV	p	k
1	A_01	>=	1	45	9	LowRisk	0.20	0.79
2	A_01	>=	2.33	150	33	LowRisk	0.22	0.87
3	A_01	>=	3.67	239	52	LowRisk	0.22	0.86
4	A_01	>=	5	301	76	LowRisk	0.25	1.00
5	A_02	>=	1	25	4	LowRisk	0.16	0.63
6	A_02	>=	2.33	96	22	LowRisk	0.23	0.91
7	A_02	>=	3.67	196	41	LowRisk	0.21	0.83
8	A_02	>=	5	301	76	LowRisk	0.25	1.00
9	A_03	>=	1	20	4	LowRisk	0.20	0.79
10	A_03	>=	2.33	96	17	LowRisk	0.18	0.70
11	A_03	>=	3.67	203	43	LowRisk	0.21	0.84
12	A_03	>=	5	301	76	LowRisk	0.25	1.00
13	A_04	>=	1	26	6	LowRisk	0.23	0.91
14	A_04	>=	2.33	112	22	LowRisk	0.20	0.78
15	A_04	>=	3.67	231	51	LowRisk	0.22	0.87
16	A_04	>=	5	301	76	LowRisk	0.25	1.00
17	A_05	>=	1	36	10	LowRisk	0.28	1.10
18	A_05	>=	2.33	114	25	LowRisk	0.22	0.87
19	A_05	>=	3.67	219	46	LowRisk	0.21	0.83
20	A_05	>=	5	301	76	LowRisk	0.25	1.00
21	A_06	>=	1	50	14	LowRisk	0.28	1.11
22	A_06	>=	2.33	139	29	LowRisk	0.21	0.83
23	A_06	>=	3.67	221	49	LowRisk	0.22	0.88
24	A_06	>=	5	301	76	LowRisk	0.25	1.00
25	A_07	>=	1	27	5	LowRisk	0.19	0.73
26	A_07	>=	2.33	101	19	LowRisk	0.19	0.75
27	A_07	>=	3.67	185	44	LowRisk	0.24	0.94
28	A_07	>=	5	301	76	LowRisk	0.25	1.00
29	B_01	>=	1	14	3	LowRisk	0.21	0.85
30	B_01	>=	2	52	11	LowRisk	0.21	0.84
31	B_01	>=	3	150	23	LowRisk	0.15	0.61
32	B_01	>=	4	248	49	LowRisk	0.20	0.78
33	B_01	>=	5	301	76	LowRisk	0.25	1.00
34	B_02	>=	1	15	2	LowRisk	0.13	0.53
35	B_02	>=	2	77	6	LowRisk	0.08	0.31
36	B_02	>=	3	169	30	LowRisk	0.18	0.70

37	B_02	>=	4	260	56	LowRisk	0.22	0.85
38	B_02	>=	5	301	76	LowRisk	0.25	1.00
39	B_03	>=	1	9	1	LowRisk	0.11	0.44
40	B_03	>=	2	50	5	LowRisk	0.10	0.40
41	B_03	>=	3	114	11	LowRisk	0.10	0.38
42	B_03	>=	4	211	32	LowRisk	0.15	0.60
43	B_03	>=	5	301	76	LowRisk	0.25	1.00
44	B_04	>=	1	9	0	LowRisk	0.00	0.00
45	B_04	>=	2	46	6	LowRisk	0.13	0.52
46	B_04	>=	3	106	14	LowRisk	0.13	0.52
47	B_04	>=	4	186	30	LowRisk	0.16	0.64
48	B_04	>=	5	301	76	LowRisk	0.25	1.00
49	B_05	>=	1	81	11	LowRisk	0.14	0.54
50	B_05	>=	2	153	33	LowRisk	0.22	0.85
51	B_05	>=	3	238	50	LowRisk	0.21	0.83
52	B_05	>=	4	278	63	LowRisk	0.23	0.90
53	B_05	>=	5	301	76	LowRisk	0.25	1.00
54	C_01	>=	1	16	2	LowRisk	0.13	0.50
55	C_01	>=	2	70	5	LowRisk	0.07	0.28
56	C_01	>=	3	189	25	LowRisk	0.13	0.52
57	C_01	>=	4	266	57	LowRisk	0.21	0.85
58	C_01	>=	5	301	76	LowRisk	0.25	1.00
59	C_02	>=	1	31	6	LowRisk	0.19	0.77
60	C_02	>=	2	109	18	LowRisk	0.17	0.65
61	C_02	>=	3	234	50	LowRisk	0.21	0.85
62	C_02	>=	4	279	62	LowRisk	0.22	0.88
63	C_02	>=	5	301	76	LowRisk	0.25	1.00
64	C_03	>=	1	19	3	LowRisk	0.16	0.63
65	C_03	>=	2	87	12	LowRisk	0.14	0.55
66	C_03	>=	3	214	42	LowRisk	0.20	0.78
67	C_03	>=	4	277	64	LowRisk	0.23	0.92
68	C_03	>=	5	301	76	LowRisk	0.25	1.00
69	C_04	>=	1	27	4	LowRisk	0.15	0.59
70	C_04	>=	2	94	17	LowRisk	0.18	0.72
71	C_04	>=	3	228	44	LowRisk	0.19	0.76
72	C_04	>=	4	288	67	LowRisk	0.23	0.92
73	C_04	>=	5	301	76	LowRisk	0.25	1.00
74	C_05	>=	1	8	0	LowRisk	0.00	0.00
75	C_05	>=	2	57	8	LowRisk	0.14	0.56
76	C_05	>=	3	190	33	LowRisk	0.17	0.69
77	C_05	>=	4	267	59	LowRisk	0.22	0.88
78	C_05	>=	5	301	76	LowRisk	0.25	1.00
79	C_06	>=	1	12	2	LowRisk	0.17	0.66

80	C_06	>=	2	70	11	LowRisk	0.16	0.62
81	C_06	>=	3	174	26	LowRisk	0.15	0.59
82	C_06	>=	4	264	53	LowRisk	0.20	0.80
83	C_06	>=	5	301	76	LowRisk	0.25	1.00
84	C_07	>=	1	19	1	LowRisk	0.05	0.21
85	C_07	>=	2	77	15	LowRisk	0.19	0.77
86	C_07	>=	3	191	35	LowRisk	0.18	0.73
87	C_07	>=	4	272	63	LowRisk	0.23	0.92
88	C_07	>=	5	301	76	LowRisk	0.25	1.00
89	C_08	>=	1	14	5	LowRisk	0.36	1.41
90	C_08	>=	2	38	14	LowRisk	0.37	1.46
91	C_08	>=	3	117	29	LowRisk	0.25	0.98
92	C_08	>=	4	197	45	LowRisk	0.23	0.90
93	C_08	>=	5	301	76	LowRisk	0.25	1.00
94	C_09	>=	1	34	3	LowRisk	0.09	0.35
95	C_09	>=	2	81	5	LowRisk	0.06	0.24
96	C_09	>=	3	202	29	LowRisk	0.14	0.57
97	C_09	>=	4	278	63	LowRisk	0.23	0.90
98	C_09	>=	5	301	76	LowRisk	0.25	1.00
99	C_10	>=	1	43	5	LowRisk	0.12	0.46
100	C_10	>=	2	107	14	LowRisk	0.13	0.52
101	C_10	>=	3	219	37	LowRisk	0.17	0.67
102	C_10	>=	4	276	59	LowRisk	0.21	0.85
103	C_10	>=	5	301	76	LowRisk	0.25	1.00
104	C_11	>=	1	15	1	LowRisk	0.07	0.26
105	C_11	>=	2	67	6	LowRisk	0.09	0.35
106	C_11	>=	3	165	14	LowRisk	0.08	0.34
107	C_11	>=	4	254	45	LowRisk	0.18	0.70
108	C_11	>=	5	301	76	LowRisk	0.25	1.00
109	C_12	>=	1	42	4	LowRisk	0.10	0.38
110	C_12	>=	2	102	10	LowRisk	0.10	0.39
111	C_12	>=	3	215	27	LowRisk	0.13	0.50
112	C_12	>=	4	269	53	LowRisk	0.20	0.78
113	C_12	>=	5	301	76	LowRisk	0.25	1.00
114	C_13	>=	1	27	1	LowRisk	0.04	0.15
115	C_13	>=	2	77	4	LowRisk	0.05	0.21
116	C_13	>=	3	179	13	LowRisk	0.07	0.29
117	C_13	>=	4	256	48	LowRisk	0.19	0.74
118	C_13	>=	5	301	76	LowRisk	0.25	1.00
119	C_14	>=	1	34	0	LowRisk	0.00	0.00
120	C_14	>=	2	95	2	LowRisk	0.02	0.08
121	C_14	>=	3	192	19	LowRisk	0.10	0.39
122	C_14	>=	4	251	46	LowRisk	0.18	0.73

123	C_14	>=	5	301	76	LowRisk	0.25	1.00
124	C_15	>=	1	35	3	LowRisk	0.09	0.34
125	C_15	>=	2	88	8	LowRisk	0.09	0.36
126	C_15	>=	3	193	23	LowRisk	0.12	0.47
127	C_15	>=	4	248	46	LowRisk	0.19	0.73
128	C_15	>=	5	301	76	LowRisk	0.25	1.00
129	C_16	>=	1	32	0	LowRisk	0.00	0.00
130	C_16	>=	2	97	3	LowRisk	0.03	0.12
131	C_16	>=	3	205	25	LowRisk	0.12	0.48
132	C_16	>=	4	270	53	LowRisk	0.20	0.78
133	C_16	>=	5	301	76	LowRisk	0.25	1.00
134	C_17	>=	1	40	2	LowRisk	0.05	0.20
135	C_17	>=	2	99	7	LowRisk	0.07	0.28
136	C_17	>=	3	200	27	LowRisk	0.14	0.53
137	C_17	>=	4	264	50	LowRisk	0.19	0.75
138	C_17	>=	5	301	76	LowRisk	0.25	1.00
139	C_18	>=	1	65	5	LowRisk	0.08	0.30
140	C_18	>=	2	118	8	LowRisk	0.07	0.27
141	C_18	>=	3	218	30	LowRisk	0.14	0.55
142	C_18	>=	4	279	59	LowRisk	0.21	0.84
143	C_18	>=	5	301	76	LowRisk	0.25	1.00
144	C_19	>=	1	29	0	LowRisk	0.00	0.00
145	C_19	>=	2	76	4	LowRisk	0.05	0.21
146	C_19	>=	3	154	15	LowRisk	0.10	0.39
147	C_19	>=	4	228	40	LowRisk	0.18	0.69
148	C_19	>=	5	301	76	LowRisk	0.25	1.00
149	C_20	>=	1	47	3	LowRisk	0.06	0.25
150	C_20	>=	2	114	11	LowRisk	0.10	0.38
151	C_20	>=	3	195	22	LowRisk	0.11	0.45
152	C_20	>=	4	259	50	LowRisk	0.19	0.76
153	C_20	>=	5	301	76	LowRisk	0.25	1.00
154	C_21	>=	1	13	0	LowRisk	0.00	0.00
155	C_21	>=	2	51	1	LowRisk	0.02	0.08
156	C_21	>=	3	136	9	LowRisk	0.07	0.26
157	C_21	>=	4	204	33	LowRisk	0.16	0.64
158	C_21	>=	5	301	76	LowRisk	0.25	1.00
159	C_22	>=	1	19	0	LowRisk	0.00	0.00
160	C_22	>=	2	63	6	LowRisk	0.10	0.38
161	C_22	>=	3	168	23	LowRisk	0.14	0.54
162	C_22	>=	4	258	50	LowRisk	0.19	0.77
163	C_22	>=	5	301	76	LowRisk	0.25	1.00
164	C_23	>=	1	27	2	LowRisk	0.07	0.29
165	C_23	>=	2	89	9	LowRisk	0.10	0.40

166	C_23	>=	3	205	33	LowRisk	0.16	0.64
167	C_23	>=	4	266	55	LowRisk	0.21	0.82
168	C_23	>=	5	301	76	LowRisk	0.25	1.00
169	C_24	>=	1	52	6	LowRisk	0.12	0.46
170	C_24	>=	2	135	24	LowRisk	0.18	0.70
171	C_24	>=	3	242	41	LowRisk	0.17	0.67
172	C_24	>=	4	283	60	LowRisk	0.21	0.84
173	C_24	>=	5	301	76	LowRisk	0.25	1.00
174	C_25	>=	1	92	11	LowRisk	0.12	0.47
175	C_25	>=	2	161	27	LowRisk	0.17	0.66
176	C_25	>=	3	238	44	LowRisk	0.18	0.73
177	C_25	>=	4	281	63	LowRisk	0.22	0.89
178	C_25	>=	5	301	76	LowRisk	0.25	1.00
179	C_26	>=	1	43	1	LowRisk	0.02	0.09
180	C_26	>=	2	86	6	LowRisk	0.07	0.28
181	C_26	>=	3	161	19	LowRisk	0.12	0.47
182	C_26	>=	4	236	47	LowRisk	0.20	0.79
183	C_26	>=	5	301	76	LowRisk	0.25	1.00
184	C_27	>=	1	33	3	LowRisk	0.09	0.36
185	C_27	>=	2	72	6	LowRisk	0.08	0.33
186	C_27	>=	3	160	22	LowRisk	0.14	0.54
187	C_27	>=	4	232	42	LowRisk	0.18	0.72
188	C_27	>=	5	301	76	LowRisk	0.25	1.00
189	A_01	>=	1	45	17	HighRisk	0.38	1.40
190	A_01	>=	2.33	150	55	HighRisk	0.37	1.36
191	A_01	>=	3.67	239	71	HighRisk	0.30	1.10
192	A_01	>=	5	301	81	HighRisk	0.27	1.00
193	A_02	>=	1	25	14	HighRisk	0.56	2.08
194	A_02	>=	2.33	96	36	HighRisk	0.38	1.39
195	A_02	>=	3.67	196	62	HighRisk	0.32	1.18
196	A_02	>=	5	301	81	HighRisk	0.27	1.00
197	A_03	>=	1	20	9	HighRisk	0.45	1.67
198	A_03	>=	2.33	96	37	HighRisk	0.39	1.43
199	A_03	>=	3.67	203	60	HighRisk	0.30	1.10
200	A_03	>=	5	301	81	HighRisk	0.27	1.00
201	A_04	>=	1	26	15	HighRisk	0.58	2.14
202	A_04	>=	2.33	112	44	HighRisk	0.39	1.46
203	A_04	>=	3.67	231	69	HighRisk	0.30	1.11
204	A_04	>=	5	301	81	HighRisk	0.27	1.00
205	A_05	>=	1	36	13	HighRisk	0.36	1.34
206	A_05	>=	2.33	114	36	HighRisk	0.32	1.17
207	A_05	>=	3.67	219	69	HighRisk	0.32	1.17
208	A_05	>=	5	301	81	HighRisk	0.27	1.00

209	A_06	>=	1	50	17	HighRisk	0.34	1.26
210	A_06	>=	2.33	139	46	HighRisk	0.33	1.23
211	A_06	>=	3.67	221	66	HighRisk	0.30	1.11
212	A_06	>=	5	301	81	HighRisk	0.27	1.00
213	A_07	>=	1	27	10	HighRisk	0.37	1.38
214	A_07	>=	2.33	101	31	HighRisk	0.31	1.14
215	A_07	>=	3.67	185	51	HighRisk	0.28	1.02
216	A_07	>=	5	301	81	HighRisk	0.27	1.00
217	B_01	>=	1	14	6	HighRisk	0.43	1.59
218	B_01	>=	2	52	24	HighRisk	0.46	1.72
219	B_01	>=	3	150	53	HighRisk	0.35	1.31
220	B_01	>=	4	248	78	HighRisk	0.31	1.17
221	B_01	>=	5	301	81	HighRisk	0.27	1.00
222	B_02	>=	1	15	11	HighRisk	0.73	2.73
223	B_02	>=	2	77	41	HighRisk	0.53	1.98
224	B_02	>=	3	169	66	HighRisk	0.39	1.45
225	B_02	>=	4	260	80	HighRisk	0.31	1.14
226	B_02	>=	5	301	81	HighRisk	0.27	1.00
227	B_03	>=	1	9	5	HighRisk	0.56	2.06
228	B_03	>=	2	50	26	HighRisk	0.52	1.93
229	B_03	>=	3	114	41	HighRisk	0.36	1.34
230	B_03	>=	4	211	73	HighRisk	0.35	1.29
231	B_03	>=	5	301	81	HighRisk	0.27	1.00
232	B_04	>=	1	9	6	HighRisk	0.67	2.48
233	B_04	>=	2	46	23	HighRisk	0.50	1.86
234	B_04	>=	3	106	39	HighRisk	0.37	1.37
235	B_04	>=	4	186	62	HighRisk	0.33	1.24
236	B_04	>=	5	301	81	HighRisk	0.27	1.00
237	B_05	>=	1	81	36	HighRisk	0.44	1.65
238	B_05	>=	2	153	59	HighRisk	0.39	1.43
239	B_05	>=	3	238	73	HighRisk	0.31	1.14
240	B_05	>=	4	278	76	HighRisk	0.27	1.02
241	B_05	>=	5	301	81	HighRisk	0.27	1.00
242	C_01	>=	1	16	13	HighRisk	0.81	3.02
243	C_01	>=	2	70	42	HighRisk	0.60	2.23
244	C_01	>=	3	189	67	HighRisk	0.35	1.32
245	C_01	>=	4	266	76	HighRisk	0.29	1.06
246	C_01	>=	5	301	81	HighRisk	0.27	1.00
247	C_02	>=	1	31	19	HighRisk	0.61	2.28
248	C_02	>=	2	109	44	HighRisk	0.40	1.50
249	C_02	>=	3	234	69	HighRisk	0.29	1.10
250	C_02	>=	4	279	78	HighRisk	0.28	1.04
251	C_02	>=	5	301	81	HighRisk	0.27	1.00

252	C_03	>=	1	19	9	HighRisk	0.47	1.76
253	C_03	>=	2	87	39	HighRisk	0.45	1.67
254	C_03	>=	3	214	61	HighRisk	0.29	1.06
255	C_03	>=	4	277	77	HighRisk	0.28	1.03
256	C_03	>=	5	301	81	HighRisk	0.27	1.00
257	C_04	>=	1	27	16	HighRisk	0.59	2.20
258	C_04	>=	2	94	42	HighRisk	0.45	1.66
259	C_04	>=	3	228	73	HighRisk	0.32	1.19
260	C_04	>=	4	288	80	HighRisk	0.28	1.03
261	C_04	>=	5	301	81	HighRisk	0.27	1.00
262	C_05	>=	1	8	6	HighRisk	0.75	2.79
263	C_05	>=	2	57	27	HighRisk	0.47	1.76
264	C_05	>=	3	190	58	HighRisk	0.31	1.13
265	C_05	>=	4	267	76	HighRisk	0.28	1.06
266	C_05	>=	5	301	81	HighRisk	0.27	1.00
267	C_06	>=	1	12	8	HighRisk	0.67	2.48
268	C_06	>=	2	70	34	HighRisk	0.49	1.80
269	C_06	>=	3	174	58	HighRisk	0.33	1.24
270	C_06	>=	4	264	77	HighRisk	0.29	1.08
271	C_06	>=	5	301	81	HighRisk	0.27	1.00
272	C_07	>=	1	19	13	HighRisk	0.68	2.54
273	C_07	>=	2	77	37	HighRisk	0.48	1.79
274	C_07	>=	3	191	56	HighRisk	0.29	1.09
275	C_07	>=	4	272	74	HighRisk	0.27	1.01
276	C_07	>=	5	301	81	HighRisk	0.27	1.00
277	C_08	>=	1	14	5	HighRisk	0.36	1.33
278	C_08	>=	2	38	11	HighRisk	0.29	1.08
279	C_08	>=	3	117	28	HighRisk	0.24	0.89
280	C_08	>=	4	197	56	HighRisk	0.28	1.06
281	C_08	>=	5	301	81	HighRisk	0.27	1.00
282	C_09	>=	1	34	21	HighRisk	0.62	2.30
283	C_09	>=	2	81	48	HighRisk	0.59	2.20
284	C_09	>=	3	202	73	HighRisk	0.36	1.34
285	C_09	>=	4	278	79	HighRisk	0.28	1.06
286	C_09	>=	5	301	81	HighRisk	0.27	1.00
287	C_10	>=	1	43	26	HighRisk	0.60	2.25
288	C_10	>=	2	107	52	HighRisk	0.49	1.81
289	C_10	>=	3	219	77	HighRisk	0.35	1.31
290	C_10	>=	4	276	80	HighRisk	0.29	1.08
291	C_10	>=	5	301	81	HighRisk	0.27	1.00
292	C_11	>=	1	15	11	HighRisk	0.73	2.73
293	C_11	>=	2	67	33	HighRisk	0.49	1.83
294	C_11	>=	3	165	64	HighRisk	0.39	1.44

295	C_11	>=	4	254	77	HighRisk	0.30	1.13
296	C_11	>=	5	301	81	HighRisk	0.27	1.00
297	C_12	>=	1	42	22	HighRisk	0.52	1.95
298	C_12	>=	2	102	49	HighRisk	0.48	1.79
299	C_12	>=	3	215	72	HighRisk	0.33	1.24
300	C_12	>=	4	269	79	HighRisk	0.29	1.09
301	C_12	>=	5	301	81	HighRisk	0.27	1.00
302	C_13	>=	1	27	18	HighRisk	0.67	2.48
303	C_13	>=	2	77	46	HighRisk	0.60	2.22
304	C_13	>=	3	179	74	HighRisk	0.41	1.54
305	C_13	>=	4	256	80	HighRisk	0.31	1.16
306	C_13	>=	5	301	81	HighRisk	0.27	1.00
307	C_14	>=	1	34	28	HighRisk	0.82	3.06
308	C_14	>=	2	95	52	HighRisk	0.55	2.03
309	C_14	>=	3	192	74	HighRisk	0.39	1.43
310	C_14	>=	4	251	78	HighRisk	0.31	1.15
311	C_14	>=	5	301	81	HighRisk	0.27	1.00
312	C_15	>=	1	35	23	HighRisk	0.66	2.44
313	C_15	>=	2	88	49	HighRisk	0.56	2.07
314	C_15	>=	3	193	71	HighRisk	0.37	1.37
315	C_15	>=	4	248	77	HighRisk	0.31	1.15
316	C_15	>=	5	301	81	HighRisk	0.27	1.00
317	C_16	>=	1	32	21	HighRisk	0.66	2.44
318	C_16	>=	2	97	53	HighRisk	0.55	2.03
319	C_16	>=	3	205	77	HighRisk	0.38	1.40
320	C_16	>=	4	270	79	HighRisk	0.29	1.09
321	C_16	>=	5	301	81	HighRisk	0.27	1.00
322	C_17	>=	1	40	28	HighRisk	0.70	2.60
323	C_17	>=	2	99	53	HighRisk	0.54	1.99
324	C_17	>=	3	200	72	HighRisk	0.36	1.34
325	C_17	>=	4	264	81	HighRisk	0.31	1.14
326	C_17	>=	5	301	81	HighRisk	0.27	1.00
327	C_18	>=	1	65	35	HighRisk	0.54	2.00
328	C_18	>=	2	118	57	HighRisk	0.48	1.80
329	C_18	>=	3	218	73	HighRisk	0.33	1.24
330	C_18	>=	4	279	80	HighRisk	0.29	1.07
331	C_18	>=	5	301	81	HighRisk	0.27	1.00
332	C_19	>=	1	29	23	HighRisk	0.79	2.95
333	C_19	>=	2	76	45	HighRisk	0.59	2.20
334	C_19	>=	3	154	62	HighRisk	0.40	1.50
335	C_19	>=	4	228	75	HighRisk	0.33	1.22
336	C_19	>=	5	301	81	HighRisk	0.27	1.00
337	C_20	>=	1	47	28	HighRisk	0.60	2.21



338	C_20	>=	2	114	55	HighRisk	0.48	1.79
339	C_20	>=	3	195	72	HighRisk	0.37	1.37
340	C_20	>=	4	259	78	HighRisk	0.30	1.12
341	C_20	>=	5	301	81	HighRisk	0.27	1.00
342	C_21	>=	1	13	10	HighRisk	0.77	2.86
343	C_21	>=	2	51	29	HighRisk	0.57	2.11
344	C_21	>=	3	136	57	HighRisk	0.42	1.56
345	C_21	>=	4	204	69	HighRisk	0.34	1.26
346	C_21	>=	5	301	81	HighRisk	0.27	1.00
347	C_22	>=	1	19	14	HighRisk	0.74	2.74
348	C_22	>=	2	63	33	HighRisk	0.52	1.95
349	C_22	>=	3	168	60	HighRisk	0.36	1.33
350	C_22	>=	4	258	78	HighRisk	0.30	1.12
351	C_22	>=	5	301	81	HighRisk	0.27	1.00
352	C_23	>=	1	27	18	HighRisk	0.67	2.48
353	C_23	>=	2	89	39	HighRisk	0.44	1.63
354	C_23	>=	3	205	69	HighRisk	0.34	1.25
355	C_23	>=	4	266	78	HighRisk	0.29	1.09
356	C_23	>=	5	301	81	HighRisk	0.27	1.00
357	C_24	>=	1	52	30	HighRisk	0.58	2.14
358	C_24	>=	2	135	55	HighRisk	0.41	1.51
359	C_24	>=	3	242	76	HighRisk	0.31	1.17
360	C_24	>=	4	283	81	HighRisk	0.29	1.06
361	C_24	>=	5	301	81	HighRisk	0.27	1.00
362	C_25	>=	1	92	49	HighRisk	0.53	1.98
363	C_25	>=	2	161	67	HighRisk	0.42	1.55
364	C_25	>=	3	238	75	HighRisk	0.32	1.17
365	C_25	>=	4	281	78	HighRisk	0.28	1.03
366	C_25	>=	5	301	81	HighRisk	0.27	1.00
367	C_26	>=	1	43	26	HighRisk	0.60	2.25
368	C_26	>=	2	86	47	HighRisk	0.55	2.03
369	C_26	>=	3	161	65	HighRisk	0.40	1.50
370	C_26	>=	4	236	76	HighRisk	0.32	1.20
371	C_26	>=	5	301	81	HighRisk	0.27	1.00
372	C_27	>=	1	33	20	HighRisk	0.61	2.25
373	C_27	>=	2	72	37	HighRisk	0.51	1.91
374	C_27	>=	3	160	55	HighRisk	0.34	1.28
375	C_27	>=	4	232	71	HighRisk	0.31	1.14
376	C_27	>=	5	301	81	HighRisk	0.27	1.00
377	A_01	<=	1	302	76	LowRisk	0.25	1.00
378	A_01	<=	2.33	257	67	LowRisk	0.26	1.03
379	A_01	<=	3.67	152	43	LowRisk	0.28	1.12
380	A_01	<=	5	63	24	LowRisk	0.38	1.51

381	A_02	<=	1	302	76	LowRisk	0.25	1.00
382	A_02	<=	2.33	277	72	LowRisk	0.26	1.03
383	A_02	<=	3.67	206	54	LowRisk	0.26	1.04
384	A_02	<=	5	106	35	LowRisk	0.33	1.31
385	A_03	<=	1	302	76	LowRisk	0.25	1.00
386	A_03	<=	2.33	282	72	LowRisk	0.26	1.01
387	A_03	<=	3.67	206	59	LowRisk	0.29	1.13
388	A_03	<=	5	99	33	LowRisk	0.33	1.32
389	A_04	<=	1	302	76	LowRisk	0.25	1.00
390	A_04	<=	2.33	276	70	LowRisk	0.25	1.00
391	A_04	<=	3.67	190	54	LowRisk	0.28	1.13
392	A_04	<=	5	71	25	LowRisk	0.35	1.39
393	A_05	<=	1	302	76	LowRisk	0.25	1.00
394	A_05	<=	2.33	266	66	LowRisk	0.25	0.98
395	A_05	<=	3.67	188	51	LowRisk	0.27	1.07
396	A_05	<=	5	83	30	LowRisk	0.36	1.43
397	A_06	<=	1	302	76	LowRisk	0.25	1.00
398	A_06	<=	2.33	252	62	LowRisk	0.25	0.97
399	A_06	<=	3.67	163	47	LowRisk	0.29	1.14
400	A_06	<=	5	81	27	LowRisk	0.33	1.32
401	A_07	<=	1	302	76	LowRisk	0.25	1.00
402	A_07	<=	2.33	275	71	LowRisk	0.26	1.02
403	A_07	<=	3.67	201	57	LowRisk	0.28	1.12
404	A_07	<=	5	117	32	LowRisk	0.27	1.08
405	B_01	<=	1	302	76	LowRisk	0.25	1.00
406	B_01	<=	2	288	73	LowRisk	0.25	1.00
407	B_01	<=	3	250	65	LowRisk	0.26	1.03
408	B_01	<=	4	152	53	LowRisk	0.35	1.38
409	B_01	<=	5	54	27	LowRisk	0.50	1.98
410	B_02	<=	1	302	76	LowRisk	0.25	1.00
411	B_02	<=	2	287	74	LowRisk	0.26	1.02
412	B_02	<=	3	225	70	LowRisk	0.31	1.23
413	B_02	<=	4	133	46	LowRisk	0.35	1.37
414	B_02	<=	5	42	20	LowRisk	0.48	1.89
415	B_03	<=	1	302	76	LowRisk	0.25	1.00
416	B_03	<=	2	293	75	LowRisk	0.26	1.01
417	B_03	<=	3	252	71	LowRisk	0.28	1.12
418	B_03	<=	4	188	65	LowRisk	0.35	1.37
419	B_03	<=	5	91	44	LowRisk	0.48	1.91
420	B_04	<=	1	302	76	LowRisk	0.25	1.00
421	B_04	<=	2	293	76	LowRisk	0.26	1.03
422	B_04	<=	3	256	70	LowRisk	0.27	1.08
423	B_04	<=	4	196	62	LowRisk	0.32	1.25

424	B_04	<=	5	116	46	LowRisk	0.40	1.57
425	B_05	<=	1	302	76	LowRisk	0.25	1.00
426	B_05	<=	2	221	65	LowRisk	0.29	1.16
427	B_05	<=	3	149	43	LowRisk	0.29	1.14
428	B_05	<=	4	64	26	LowRisk	0.41	1.61
429	B_05	<=	5	24	13	LowRisk	0.54	2.15
430	C_01	<=	1	302	76	LowRisk	0.25	1.00
431	C_01	<=	2	286	74	LowRisk	0.26	1.02
432	C_01	<=	3	232	71	LowRisk	0.31	1.21
433	C_01	<=	4	113	51	LowRisk	0.45	1.79
434	C_01	<=	5	36	19	LowRisk	0.53	2.09
435	C_02	<=	1	302	76	LowRisk	0.25	1.00
436	C_02	<=	2	271	70	LowRisk	0.26	1.02
437	C_02	<=	3	193	58	LowRisk	0.30	1.19
438	C_02	<=	4	68	26	LowRisk	0.38	1.51
439	C_02	<=	5	23	14	LowRisk	0.61	2.41
440	C_03	<=	1	302	76	LowRisk	0.25	1.00
441	C_03	<=	2	283	73	LowRisk	0.26	1.02
442	C_03	<=	3	215	64	LowRisk	0.30	1.18
443	C_03	<=	4	88	34	LowRisk	0.39	1.53
444	C_03	<=	5	25	12	LowRisk	0.48	1.90
445	C_04	<=	1	302	76	LowRisk	0.25	1.00
446	C_04	<=	2	275	72	LowRisk	0.26	1.04
447	C_04	<=	3	208	59	LowRisk	0.28	1.12
448	C_04	<=	4	74	32	LowRisk	0.43	1.71
449	C_04	<=	5	14	9	LowRisk	0.64	2.55
450	C_05	<=	1	302	76	LowRisk	0.25	1.00
451	C_05	<=	2	294	76	LowRisk	0.26	1.02
452	C_05	<=	3	245	68	LowRisk	0.28	1.10
453	C_05	<=	4	112	43	LowRisk	0.38	1.52
454	C_05	<=	5	35	17	LowRisk	0.49	1.92
455	C_06	<=	1	302	76	LowRisk	0.25	1.00
456	C_06	<=	2	290	74	LowRisk	0.26	1.01
457	C_06	<=	3	232	65	LowRisk	0.28	1.11
458	C_06	<=	4	128	50	LowRisk	0.39	1.55
459	C_06	<=	5	38	23	LowRisk	0.61	2.40
460	C_07	<=	1	302	76	LowRisk	0.25	1.00
461	C_07	<=	2	283	75	LowRisk	0.27	1.05
462	C_07	<=	3	225	61	LowRisk	0.27	1.07
463	C_07	<=	4	111	41	LowRisk	0.37	1.46
464	C_07	<=	5	30	13	LowRisk	0.43	1.72
465	C_08	<=	1	302	76	LowRisk	0.25	1.00
466	C_08	<=	2	288	71	LowRisk	0.25	0.98

467	C_08	<=	3	264	62	LowRisk	0.23	0.93
468	C_08	<=	4	185	47	LowRisk	0.25	1.01
469	C_08	<=	5	105	31	LowRisk	0.30	1.17
470	C_09	<=	1	302	76	LowRisk	0.25	1.00
471	C_09	<=	2	268	73	LowRisk	0.27	1.08
472	C_09	<=	3	221	71	LowRisk	0.32	1.27
473	C_09	<=	4	100	47	LowRisk	0.47	1.86
474	C_09	<=	5	24	13	LowRisk	0.54	2.15
475	C_10	<=	1	302	76	LowRisk	0.25	1.00
476	C_10	<=	2	259	71	LowRisk	0.27	1.09
477	C_10	<=	3	195	62	LowRisk	0.32	1.26
478	C_10	<=	4	83	39	LowRisk	0.47	1.86
479	C_10	<=	5	26	17	LowRisk	0.65	2.59
480	C_11	<=	1	302	76	LowRisk	0.25	1.00
481	C_11	<=	2	287	75	LowRisk	0.26	1.03
482	C_11	<=	3	235	70	LowRisk	0.30	1.18
483	C_11	<=	4	137	62	LowRisk	0.45	1.79
484	C_11	<=	5	48	31	LowRisk	0.65	2.56
485	C_12	<=	1	302	76	LowRisk	0.25	1.00
486	C_12	<=	2	260	72	LowRisk	0.28	1.10
487	C_12	<=	3	200	66	LowRisk	0.33	1.31
488	C_12	<=	4	87	49	LowRisk	0.56	2.23
489	C_12	<=	5	33	23	LowRisk	0.70	2.76
490	C_13	<=	1	302	76	LowRisk	0.25	1.00
491	C_13	<=	2	275	75	LowRisk	0.27	1.08
492	C_13	<=	3	225	72	LowRisk	0.32	1.27
493	C_13	<=	4	123	63	LowRisk	0.51	2.03
494	C_13	<=	5	46	28	LowRisk	0.61	2.41
495	C_14	<=	1	302	76	LowRisk	0.25	1.00
496	C_14	<=	2	268	76	LowRisk	0.28	1.12
497	C_14	<=	3	207	74	LowRisk	0.36	1.42
498	C_14	<=	4	110	57	LowRisk	0.52	2.05
499	C_14	<=	5	51	30	LowRisk	0.59	2.33
500	C_15	<=	1	302	76	LowRisk	0.25	1.00
501	C_15	<=	2	267	73	LowRisk	0.27	1.08
502	C_15	<=	3	214	68	LowRisk	0.32	1.26
503	C_15	<=	4	109	53	LowRisk	0.49	1.93
504	C_15	<=	5	54	30	LowRisk	0.56	2.20
505	C_16	<=	1	302	76	LowRisk	0.25	1.00
506	C_16	<=	2	270	76	LowRisk	0.28	1.11
507	C_16	<=	3	205	73	LowRisk	0.36	1.41
508	C_16	<=	4	97	51	LowRisk	0.53	2.08
509	C_16	<=	5	32	23	LowRisk	0.72	2.85

510	C_17	<=	1	302	76	LowRisk	0.25	1.00
511	C_17	<=	2	262	74	LowRisk	0.28	1.12
512	C_17	<=	3	203	69	LowRisk	0.34	1.35
513	C_17	<=	4	102	49	LowRisk	0.48	1.90
514	C_17	<=	5	38	26	LowRisk	0.68	2.71
515	C_18	<=	1	302	76	LowRisk	0.25	1.00
516	C_18	<=	2	237	71	LowRisk	0.30	1.19
517	C_18	<=	3	184	68	LowRisk	0.37	1.46
518	C_18	<=	4	84	46	LowRisk	0.55	2.17
519	C_18	<=	5	23	17	LowRisk	0.74	2.93
520	C_19	<=	1	302	76	LowRisk	0.25	1.00
521	C_19	<=	2	273	76	LowRisk	0.28	1.10
522	C_19	<=	3	226	72	LowRisk	0.32	1.26
523	C_19	<=	4	148	61	LowRisk	0.41	1.63
524	C_19	<=	5	74	36	LowRisk	0.49	1.93
525	C_20	<=	1	302	76	LowRisk	0.25	1.00
526	C_20	<=	2	255	73	LowRisk	0.29	1.13
527	C_20	<=	3	188	65	LowRisk	0.35	1.37
528	C_20	<=	4	107	54	LowRisk	0.50	2.00
529	C_20	<=	5	43	26	LowRisk	0.60	2.39
530	C_21	<=	1	302	76	LowRisk	0.25	1.00
531	C_21	<=	2	289	76	LowRisk	0.26	1.04
532	C_21	<=	3	251	75	LowRisk	0.30	1.18
533	C_21	<=	4	166	67	LowRisk	0.40	1.60
534	C_21	<=	5	98	43	LowRisk	0.44	1.74
535	C_22	<=	1	302	76	LowRisk	0.25	1.00
536	C_22	<=	2	283	76	LowRisk	0.27	1.06
537	C_22	<=	3	239	70	LowRisk	0.29	1.16
538	C_22	<=	4	134	53	LowRisk	0.40	1.57
539	C_22	<=	5	44	26	LowRisk	0.59	2.34
540	C_23	<=	1	302	76	LowRisk	0.25	1.00
541	C_23	<=	2	275	74	LowRisk	0.27	1.07
542	C_23	<=	3	213	67	LowRisk	0.31	1.25
543	C_23	<=	4	97	43	LowRisk	0.44	1.76
544	C_23	<=	5	36	21	LowRisk	0.58	2.31
545	C_24	<=	1	302	76	LowRisk	0.25	1.00
546	C_24	<=	2	250	70	LowRisk	0.28	1.11
547	C_24	<=	3	167	52	LowRisk	0.31	1.23
548	C_24	<=	4	60	35	LowRisk	0.58	2.31
549	C_24	<=	5	19	16	LowRisk	0.84	3.34
550	C_25	<=	1	302	76	LowRisk	0.25	1.00
551	C_25	<=	2	210	65	LowRisk	0.31	1.23
552	C_25	<=	3	141	49	LowRisk	0.35	1.38

553	C_25	<=	4	64	32	LowRisk	0.50	1.98
554	C_25	<=	5	21	13	LowRisk	0.62	2.45
555	C_26	<=	1	302	76	LowRisk	0.25	1.00
556	C_26	<=	2	259	75	LowRisk	0.29	1.15
557	C_26	<=	3	216	70	LowRisk	0.32	1.28
558	C_26	<=	4	141	57	LowRisk	0.40	1.60
559	C_26	<=	5	66	29	LowRisk	0.44	1.74
560	C_27	<=	1	302	76	LowRisk	0.25	1.00
561	C_27	<=	2	269	73	LowRisk	0.27	1.07
562	C_27	<=	3	230	70	LowRisk	0.30	1.21
563	C_27	<=	4	142	54	LowRisk	0.38	1.51
564	C_27	<=	5	70	34	LowRisk	0.49	1.92
565	A_01	<=	1	302	81	HighRisk	0.27	1.00
566	A_01	<=	2.33	257	64	HighRisk	0.25	0.93
567	A_01	<=	3.67	152	26	HighRisk	0.17	0.64
568	A_01	<=	5	63	10	HighRisk	0.16	0.59
569	A_02	<=	1	302	81	HighRisk	0.27	1.00
570	A_02	<=	2.33	277	67	HighRisk	0.24	0.90
571	A_02	<=	3.67	206	45	HighRisk	0.22	0.81
572	A_02	<=	5	106	19	HighRisk	0.18	0.67
573	A_03	<=	1	302	81	HighRisk	0.27	1.00
574	A_03	<=	2.33	282	72	HighRisk	0.26	0.95
575	A_03	<=	3.67	206	44	HighRisk	0.21	0.79
576	A_03	<=	5	99	21	HighRisk	0.21	0.79
577	A_04	<=	1	302	81	HighRisk	0.27	1.00
578	A_04	<=	2.33	276	66	HighRisk	0.24	0.89
579	A_04	<=	3.67	190	37	HighRisk	0.19	0.72
580	A_04	<=	5	71	12	HighRisk	0.17	0.63
581	A_05	<=	1	302	81	HighRisk	0.27	1.00
582	A_05	<=	2.33	266	68	HighRisk	0.26	0.95
583	A_05	<=	3.67	188	45	HighRisk	0.24	0.89
584	A_05	<=	5	83	12	HighRisk	0.14	0.54
585	A_06	<=	1	302	81	HighRisk	0.27	1.00
586	A_06	<=	2.33	252	64	HighRisk	0.25	0.94
587	A_06	<=	3.67	163	35	HighRisk	0.21	0.80
588	A_06	<=	5	81	15	HighRisk	0.19	0.69
589	A_07	<=	1	302	81	HighRisk	0.27	1.00
590	A_07	<=	2.33	275	71	HighRisk	0.26	0.96
591	A_07	<=	3.67	201	50	HighRisk	0.25	0.92
592	A_07	<=	5	117	30	HighRisk	0.26	0.95
593	B_01	<=	1	302	81	HighRisk	0.27	1.00
594	B_01	<=	2	288	75	HighRisk	0.26	0.97
595	B_01	<=	3	250	57	HighRisk	0.23	0.85

596	B_01	<=	4	152	28	HighRisk	0.18	0.68
597	B_01	<=	5	54	3	HighRisk	0.06	0.21
598	B_02	<=	1	302	81	HighRisk	0.27	1.00
599	B_02	<=	2	287	70	HighRisk	0.24	0.91
600	B_02	<=	3	225	40	HighRisk	0.18	0.66
601	B_02	<=	4	133	15	HighRisk	0.11	0.42
602	B_02	<=	5	42	1	HighRisk	0.02	0.09
603	B_03	<=	1	302	81	HighRisk	0.27	1.00
604	B_03	<=	2	293	76	HighRisk	0.26	0.96
605	B_03	<=	3	252	55	HighRisk	0.22	0.81
606	B_03	<=	4	188	40	HighRisk	0.21	0.79
607	B_03	<=	5	91	8	HighRisk	0.09	0.33
608	B_04	<=	1	302	81	HighRisk	0.27	1.00
609	B_04	<=	2	293	75	HighRisk	0.26	0.95
610	B_04	<=	3	256	58	HighRisk	0.23	0.84
611	B_04	<=	4	196	42	HighRisk	0.21	0.80
612	B_04	<=	5	116	19	HighRisk	0.16	0.61
613	B_05	<=	1	302	81	HighRisk	0.27	1.00
614	B_05	<=	2	221	45	HighRisk	0.20	0.76
615	B_05	<=	3	149	22	HighRisk	0.15	0.55
616	B_05	<=	4	64	8	HighRisk	0.13	0.46
617	B_05	<=	5	24	5	HighRisk	0.21	0.77
618	C_01	<=	1	302	81	HighRisk	0.27	1.00
619	C_01	<=	2	286	68	HighRisk	0.24	0.88
620	C_01	<=	3	232	39	HighRisk	0.17	0.62
621	C_01	<=	4	113	14	HighRisk	0.12	0.46
622	C_01	<=	5	36	5	HighRisk	0.14	0.52
623	C_02	<=	1	302	81	HighRisk	0.27	1.00
624	C_02	<=	2	271	62	HighRisk	0.23	0.85
625	C_02	<=	3	193	37	HighRisk	0.19	0.71
626	C_02	<=	4	68	12	HighRisk	0.18	0.66
627	C_02	<=	5	23	3	HighRisk	0.13	0.48
628	C_03	<=	1	302	81	HighRisk	0.27	1.00
629	C_03	<=	2	283	72	HighRisk	0.25	0.95
630	C_03	<=	3	215	42	HighRisk	0.20	0.73
631	C_03	<=	4	88	20	HighRisk	0.23	0.84
632	C_03	<=	5	25	4	HighRisk	0.16	0.59
633	C_04	<=	1	302	81	HighRisk	0.27	1.00
634	C_04	<=	2	275	65	HighRisk	0.24	0.88
635	C_04	<=	3	208	39	HighRisk	0.19	0.70
636	C_04	<=	4	74	8	HighRisk	0.11	0.40
637	C_04	<=	5	14	1	HighRisk	0.07	0.27
638	C_05	<=	1	302	81	HighRisk	0.27	1.00

639	C_05	<=	2	294	75	HighRisk	0.26	0.95
640	C_05	<=	3	245	54	HighRisk	0.22	0.82
641	C_05	<=	4	112	23	HighRisk	0.21	0.76
642	C_05	<=	5	35	5	HighRisk	0.14	0.53
643	C_06	<=	1	302	81	HighRisk	0.27	1.00
644	C_06	<=	2	290	73	HighRisk	0.25	0.94
645	C_06	<=	3	232	47	HighRisk	0.20	0.75
646	C_06	<=	4	128	23	HighRisk	0.18	0.67
647	C_06	<=	5	38	4	HighRisk	0.11	0.39
648	C_07	<=	1	302	81	HighRisk	0.27	1.00
649	C_07	<=	2	283	68	HighRisk	0.24	0.89
650	C_07	<=	3	225	44	HighRisk	0.20	0.73
651	C_07	<=	4	111	25	HighRisk	0.23	0.84
652	C_07	<=	5	30	7	HighRisk	0.23	0.87
653	C_08	<=	1	302	81	HighRisk	0.27	1.00
654	C_08	<=	2	288	76	HighRisk	0.26	0.98
655	C_08	<=	3	264	70	HighRisk	0.27	0.99
656	C_08	<=	4	185	53	HighRisk	0.29	1.06
657	C_08	<=	5	105	25	HighRisk	0.24	0.88
658	C_09	<=	1	302	81	HighRisk	0.27	1.00
659	C_09	<=	2	268	60	HighRisk	0.22	0.83
660	C_09	<=	3	221	33	HighRisk	0.15	0.55
661	C_09	<=	4	100	8	HighRisk	0.08	0.30
662	C_09	<=	5	24	2	HighRisk	0.08	0.31
663	C_10	<=	1	302	81	HighRisk	0.27	1.00
664	C_10	<=	2	259	55	HighRisk	0.21	0.79
665	C_10	<=	3	195	29	HighRisk	0.15	0.55
666	C_10	<=	4	83	4	HighRisk	0.05	0.18
667	C_10	<=	5	26	1	HighRisk	0.04	0.14
668	C_11	<=	1	302	81	HighRisk	0.27	1.00
669	C_11	<=	2	287	70	HighRisk	0.24	0.91
670	C_11	<=	3	235	48	HighRisk	0.20	0.76
671	C_11	<=	4	137	17	HighRisk	0.12	0.46
672	C_11	<=	5	48	4	HighRisk	0.08	0.31
673	C_12	<=	1	302	81	HighRisk	0.27	1.00
674	C_12	<=	2	260	59	HighRisk	0.23	0.84
675	C_12	<=	3	200	32	HighRisk	0.16	0.59
676	C_12	<=	4	87	9	HighRisk	0.10	0.38
677	C_12	<=	5	33	2	HighRisk	0.06	0.23
678	C_13	<=	1	302	81	HighRisk	0.27	1.00
679	C_13	<=	2	275	63	HighRisk	0.23	0.85
680	C_13	<=	3	225	35	HighRisk	0.16	0.58
681	C_13	<=	4	123	7	HighRisk	0.06	0.21



682	C_13	<=	5	46	1	HighRisk	0.02	0.08
683	C_14	<=	1	302	81	HighRisk	0.27	1.00
684	C_14	<=	2	268	53	HighRisk	0.20	0.73
685	C_14	<=	3	207	29	HighRisk	0.14	0.52
686	C_14	<=	4	110	7	HighRisk	0.06	0.24
687	C_14	<=	5	51	3	HighRisk	0.06	0.22
688	C_15	<=	1	302	81	HighRisk	0.27	1.00
689	C_15	<=	2	267	58	HighRisk	0.22	0.81
690	C_15	<=	3	214	32	HighRisk	0.15	0.56
691	C_15	<=	4	109	10	HighRisk	0.09	0.34
692	C_15	<=	5	54	4	HighRisk	0.07	0.28
693	C_16	<=	1	302	81	HighRisk	0.27	1.00
694	C_16	<=	2	270	60	HighRisk	0.22	0.83
695	C_16	<=	3	205	28	HighRisk	0.14	0.51
696	C_16	<=	4	97	4	HighRisk	0.04	0.15
697	C_16	<=	5	32	2	HighRisk	0.06	0.23
698	C_17	<=	1	302	81	HighRisk	0.27	1.00
699	C_17	<=	2	262	53	HighRisk	0.20	0.75
700	C_17	<=	3	203	28	HighRisk	0.14	0.51
701	C_17	<=	4	102	9	HighRisk	0.09	0.33
702	C_17	<=	5	38	0	HighRisk	0.00	0.00
703	C_18	<=	1	302	81	HighRisk	0.27	1.00
704	C_18	<=	2	237	46	HighRisk	0.19	0.72
705	C_18	<=	3	184	24	HighRisk	0.13	0.48
706	C_18	<=	4	84	8	HighRisk	0.10	0.35
707	C_18	<=	5	23	1	HighRisk	0.04	0.16
708	C_19	<=	1	302	81	HighRisk	0.27	1.00
709	C_19	<=	2	273	58	HighRisk	0.21	0.79
710	C_19	<=	3	226	36	HighRisk	0.16	0.59
711	C_19	<=	4	148	19	HighRisk	0.13	0.48
712	C_19	<=	5	74	6	HighRisk	0.08	0.30
713	C_20	<=	1	302	81	HighRisk	0.27	1.00
714	C_20	<=	2	255	53	HighRisk	0.21	0.77
715	C_20	<=	3	188	26	HighRisk	0.14	0.51
716	C_20	<=	4	107	9	HighRisk	0.08	0.31
717	C_20	<=	5	43	3	HighRisk	0.07	0.26
718	C_21	<=	1	302	81	HighRisk	0.27	1.00
719	C_21	<=	2	289	71	HighRisk	0.25	0.91
720	C_21	<=	3	251	52	HighRisk	0.21	0.77
721	C_21	<=	4	166	24	HighRisk	0.14	0.54
722	C_21	<=	5	98	12	HighRisk	0.12	0.46
723	C_22	<=	1	302	81	HighRisk	0.27	1.00
724	C_22	<=	2	283	67	HighRisk	0.24	0.88

725	C_22	<=	3	239	48	HighRisk	0.20	0.75
726	C_22	<=	4	134	21	HighRisk	0.16	0.58
727	C_22	<=	5	44	3	HighRisk	0.07	0.25
728	C_23	<=	1	302	81	HighRisk	0.27	1.00
729	C_23	<=	2	275	63	HighRisk	0.23	0.85
730	C_23	<=	3	213	42	HighRisk	0.20	0.73
731	C_23	<=	4	97	12	HighRisk	0.12	0.46
732	C_23	<=	5	36	3	HighRisk	0.08	0.31
733	C_24	<=	1	302	81	HighRisk	0.27	1.00
734	C_24	<=	2	250	51	HighRisk	0.20	0.76
735	C_24	<=	3	167	26	HighRisk	0.16	0.58
736	C_24	<=	4	60	5	HighRisk	0.08	0.31
737	C_24	<=	5	19	0	HighRisk	0.00	0.00
738	C_25	<=	1	302	81	HighRisk	0.27	1.00
739	C_25	<=	2	210	32	HighRisk	0.15	0.57
740	C_25	<=	3	141	14	HighRisk	0.10	0.37
741	C_25	<=	4	64	6	HighRisk	0.09	0.35
742	C_25	<=	5	21	3	HighRisk	0.14	0.53
743	C_26	<=	1	302	81	HighRisk	0.27	1.00
744	C_26	<=	2	259	55	HighRisk	0.21	0.79
745	C_26	<=	3	216	34	HighRisk	0.16	0.58
746	C_26	<=	4	141	16	HighRisk	0.11	0.42
747	C_26	<=	5	66	5	HighRisk	0.08	0.28
748	C_27	<=	1	302	81	HighRisk	0.27	1.00
749	C_27	<=	2	269	61	HighRisk	0.23	0.84
750	C_27	<=	3	230	44	HighRisk	0.19	0.71
751	C_27	<=	4	142	26	HighRisk	0.18	0.68
752	C_27	<=	5	70	10	HighRisk	0.14	0.53

(Tables 5 and 7 in the paper are filtered from the above database. Rules involving demographic questions have been removed for privacy and confidentiality concerns.)

## Appendix E. Full Database of Rules from Two-Level Rule Discovery

(Table 9 in the paper is filtered from the below database)

TreeID	Category	Node1	Relation	Value	Node2	Relation	Value	BHV_CLASS	NodeColor	p	k
T020	A	A_05	>	4.335	A_02	>	4.335	LowRisk	Blue	0.44	1.74
T018	A	A_03	<=	3	A_04	<=	3	HighRisk	Red	0.47	1.75
T002	A	A_01	<=	3	A_04	<=	3	HighRisk	Red	0.44	1.64
T014	A	A_01	<=	3	A_03	<=	3	HighRisk	Red	0.41	1.52
T006	A	A_01	<=	3	A_04	<=	3	HighRisk	Red	0.41	1.52
T004	A	A_01	<=	3	A_04	<=	3	HighRisk	Red	0.41	1.52
T012	A	A_01	<=	3	A_04	<=	3	HighRisk	Red	0.41	1.52
T010	A	A_04	<=	3	A_02	<=	3	HighRisk	Red	0.39	1.45
T016	A	A_01	<=	3	A_02	<=	3	HighRisk	Red	0.39	1.45
T008	A	A_03	<=	3	A_01	<=	3	HighRisk	Red	0.38	1.41
T101	B	B_03	>	4.5	B_05	>	4.5	LowRisk	Blue	0.44	1.74
T097	B	B_01	>	4.5	B_05	>	4.5	LowRisk	Blue	0.43	1.7
T103	B	B_03	>	4.5	B_05	>	4.5	LowRisk	Blue	0.43	1.7
T115	B	B_03	>	4.5	B_05	>	4.5	LowRisk	Blue	0.43	1.7
T085	B	B_03	>	4.5	B_01	>	4.5	LowRisk	Blue	0.44	1.74
T117	B	B_01	>	4.5	B_04	>	4.5	LowRisk	Blue	0.43	1.7
T128	B	B_03	>	4.5	B_05	>	4.5	LowRisk	Blue	0.42	1.66
T079	B	B_03	>	4.5	B_05	>	4.5	LowRisk	Blue	0.41	1.62
T111	B	B_03	>	4.5	B_05	>	4.5	LowRisk	Blue	0.41	1.62
T113	B	B_02	>	2.5	B_05	>	2.5	LowRisk	Blue	0.41	1.62
T119	B	B_01	>	4.5	B_04	>	4.5	LowRisk	Blue	0.40	1.58
T095	B	B_01	>	4.5	B_04	>	4.5	LowRisk	Blue	0.40	1.58
T121	B	B_03	>	4.5	B_05	>	4.5	LowRisk	Blue	0.40	1.58
T083	B	B_03	>	4.5	B_01	>	4.5	LowRisk	Blue	0.40	1.58
T089	B	B_05	>	2.5	B_05	>	4.5	LowRisk	Blue	0.40	1.58
T130	B	B_03	>	4.5	B_05	>	4.5	LowRisk	Blue	0.40	1.58
T105	B	B_03	>	4.5	B_05	>	4.5	LowRisk	Blue	0.39	1.54
T077	B	B_02	>	2.5	B_03	>	2.5	LowRisk	Blue	0.40	1.58
T122	B	B_02	>	3.5	B_05	>	3.5	LowRisk	Blue	0.38	1.5
T107	B	B_02	>	3.5	B_01	>	3.5	LowRisk	Blue	0.38	1.5
T081	B	B_01	>	3.5	B_03	>	3.5	LowRisk	Blue	0.39	1.54
T109	B	B_01	>	4.5	B_04	>	4.5	LowRisk	Blue	0.39	1.54
T091	B	B_02	>	2.5	B_03	>	2.5	LowRisk	Blue	0.38	1.5
T124	B	B_03	>	4.5	B_02	>	4.5	LowRisk	Blue	0.39	1.54
T099	B	B_03	>	4.5	B_05	>	4.5	LowRisk	Blue	0.38	1.5
T126	B	B_03	>	4.5	B_02	>	4.5	LowRisk	Blue	0.38	1.5
T093	B	B_03	>	4.5	B_02	>	4.5	LowRisk	Blue	0.38	1.5
T075	B	B_02	>	2.5	B_03	>	2.5	LowRisk	Blue	0.37	1.47
T087	B	B_02	>	2.5	B_01	>	2.5	LowRisk	Blue	0.22	0.87

T024	B	B_02	<=	2.5	B_03	<=	2.5	HighRisk	Red	0.45	1.67
T069	B	B_02	<=	2.5	B_02	<=	1.5	HighRisk	Red	0.45	1.67
T057	B	B_04	<=	4.5	B_02	<=	4.5	HighRisk	Red	0.44	1.64
T059	B	B_02	<=	3.5	B_03	<=	3.5	HighRisk	Red	0.42	1.56
T061	B	B_03	<=	2.5	B_02	<=	2.5	HighRisk	Red	0.41	1.52
T063	B	B_02	<=	2.5	B_05	<=	2.5	HighRisk	Red	0.42	1.56
T048	B	B_02	<=	2.5	B_03	<=	2.5	HighRisk	Red	0.42	1.56
T036	B	B_03	<=	4.5	B_05	<=	4.5	HighRisk	Red	0.42	1.56
T046	B	B_05	<=	2.5	B_02	<=	2.5	HighRisk	Red	0.40	1.49
T028	B	B_02	<=	2.5	B_05	<=	2.5	HighRisk	Red	0.39	1.45
T030	B	B_02	<=	2.5	B_05	<=	2.5	HighRisk	Red	0.40	1.49
T052	B	B_02	<=	2.5	B_03	<=	2.5	HighRisk	Red	0.39	1.45
T044	B	B_01	<=	4.5	B_04	<=	4.5	HighRisk	Red	0.39	1.45
T032	B	B_01	<=	3.5	B_02	<=	3.5	HighRisk	Red	0.39	1.45
T038	B	B_01	<=	3.5	B_05	<=	3.5	HighRisk	Red	0.38	1.41
T055	B	B_02	<=	2.5	B_03	<=	2.5	HighRisk	Red	0.39	1.45
T067	B	B_02	<=	3.5	B_05	<=	3.5	HighRisk	Red	0.39	1.45
T050	B	B_03	<=	4.5	B_05	<=	4.5	HighRisk	Red	0.39	1.45
T034	B	B_03	<=	3.5	B_02	<=	3.5	HighRisk	Red	0.38	1.41
T026	B	B_02	<=	2.5	B_03	<=	2.5	HighRisk	Red	0.38	1.41
T022	B	B_02	<=	2.5	B_01	<=	2.5	HighRisk	Red	0.38	1.41
T042	B	B_05	<=	2.5	B_04	<=	2.5	HighRisk	Red	0.38	1.41
T071	B	B_03	<=	4.5	B_05	<=	4.5	HighRisk	Red	0.37	1.37
T053	B	B_03	<=	4.5	B_05	<=	4.5	HighRisk	Red	0.38	1.41
T073	B	B_03	<=	4.5	B_04	<=	4.5	HighRisk	Red	0.37	1.37
T065	B	B_05	<=	2.5	B_02	<=	2.5	HighRisk	Red	0.37	1.37
T040	B	B_02	<=	2.5	B_01	<=	2.5	HighRisk	Red	0.37	1.37
T236	C	C_15	>	3.5	C_18	>	3.5	LowRisk	Blue	0.50	1.98
T268	C	C_20	>	3.5	C_02	>	3.5	LowRisk	Blue	0.48	1.9
T311	C	C_17	>	2.5	C_24	>	2.5	LowRisk	Blue	0.48	1.9
T278	C	C_12	>	3.5	C_17	>	3.5	LowRisk	Blue	0.48	1.9
T280	C	C_16	>	3.5	C_04	>	3.5	LowRisk	Blue	0.47	1.86
T276	C	C_17	>	4.5	C_26	>	4.5	LowRisk	Blue	0.48	1.9
T252	C	C_13	>	3.5	C_11	>	3.5	LowRisk	Blue	0.46	1.82
T244	C	C_14	>	3.5	C_06	>	3.5	LowRisk	Blue	0.46	1.82
T292	C	C_13	>	3.5	C_18	>	3.5	LowRisk	Blue	0.46	1.82
T234	C	C_16	>	2.5	C_22	>	2.5	LowRisk	Blue	0.45	1.78
T290	C	C_13	>	3.5	C_11	>	3.5	LowRisk	Blue	0.44	1.74
T248	C	C_15	>	3.5	C_25	>	3.5	LowRisk	Blue	0.44	1.74
T298	C	C_18	>	3.5	C_22	>	3.5	LowRisk	Blue	0.44	1.74
T256	C	C_14	>	3.5	C_01	>	3.5	LowRisk	Blue	0.44	1.74
T330	C	C_14	>	3.5	C_16	>	3.5	LowRisk	Blue	0.44	1.74
T238	C	C_16	>	3.5	C_24	>	3.5	LowRisk	Blue	0.43	1.7

T258	C	C_13	>	3.5	C_20	>	3.5	LowRisk	Blue	0.44	1.74
T284	C	C_13	>	3.5	C_26	>	3.5	LowRisk	Blue	0.43	1.7
T242	C	C_16	>	3.5	C_21	>	3.5	LowRisk	Blue	0.43	1.7
T300	C	C_18	>	3.5	C_09	>	3.5	LowRisk	Blue	0.43	1.7
T315	C	C_20	>	3.5	C_11	>	3.5	LowRisk	Blue	0.44	1.74
T262	C	C_14	>	3.5	C_18	>	3.5	LowRisk	Blue	0.43	1.7
T286	C	C_16	>	3.5	C_18	>	3.5	LowRisk	Blue	0.42	1.66
T240	C	C_12	>	3.5	C_18	>	3.5	LowRisk	Blue	0.42	1.66
T328	C	C_12	>	3.5	C_19	>	3.5	LowRisk	Blue	0.42	1.66
T264	C	C_15	>	3.5	C_12	>	3.5	LowRisk	Blue	0.42	1.66
T260	C	C_13	>	3.5	C_16	>	3.5	LowRisk	Blue	0.42	1.66
T307	C	C_15	>	2.5	C_12	>	2.5	LowRisk	Blue	0.42	1.66
T317	C	C_13	>	3.5	C_18	>	3.5	LowRisk	Blue	0.42	1.66
T274	C	C_18	>	2.5	C_13	>	2.5	LowRisk	Blue	0.41	1.62
T232	C	C_20	>	3.5	C_15	>	3.5	LowRisk	Blue	0.41	1.62
T272	C	C_11	>	3.5	C_09	>	3.5	LowRisk	Blue	0.41	1.62
T288	C	C_12	>	3.5	C_21	>	3.5	LowRisk	Blue	0.41	1.62
T322	C	C_16	>	2.5	C_13	>	2.5	LowRisk	Blue	0.41	1.62
T304	C	C_18	>	3.5	C_09	>	3.5	LowRisk	Blue	0.41	1.62
T266	C	C_20	>	2.5	C_12	>	2.5	LowRisk	Blue	0.40	1.58
T309	C	C_11	>	3.5	C_25	>	3.5	LowRisk	Blue	0.40	1.58
T246	C	C_12	>	3.5	C_14	>	3.5	LowRisk	Blue	0.41	1.62
T270	C	C_14	>	1.5	C_24	>	1.5	LowRisk	Blue	0.41	1.62
T326	C	C_16	>	2.5	C_15	>	2.5	LowRisk	Blue	0.41	1.62
T313	C	C_11	>	3.5	C_12	>	3.5	LowRisk	Blue	0.40	1.58
T319	C	C_11	>	3.5	C_16	>	3.5	LowRisk	Blue	0.40	1.58
T282	C	C_18	>	2.5	C_15	>	2.5	LowRisk	Blue	0.40	1.58
T294	C	C_17	>	2.5	C_13	>	2.5	LowRisk	Blue	0.39	1.54
T296	C	C_11	>	3.5	C_18	>	3.5	LowRisk	Blue	0.39	1.54
T250	C	C_18	>	2.5	C_14	>	2.5	LowRisk	Blue	0.39	1.54
T324	C	C_13	>	3.5	C_16	>	3.5	LowRisk	Blue	0.39	1.54
T302	C	C_18	>	2.5	C_13	>	2.5	LowRisk	Blue	0.39	1.54
T254	C	C_15	>	2.5	C_17	>	2.5	LowRisk	Blue	0.38	1.5
T321	C	C_13	>	3.5	C_18	>	3.5	LowRisk	Blue	0.38	1.5
T184	C	C_13	<=	3.5	C_14	<=	3.5	HighRisk	Red	0.50	1.86
T208	C	C_15	<=	2.5	C_27	<=	2.5	HighRisk	Red	0.50	1.86
T230	C	C_16	<=	2.5	C_17	<=	2.5	HighRisk	Red	0.48	1.78
T164	C	C_19	<=	2.5	C_02	<=	2.5	HighRisk	Red	0.48	1.78
T162	C	C_14	<=	3.5	C_27	<=	3.5	HighRisk	Red	0.48	1.78
T224	C	C_13	<=	3.5	C_27	<=	3.5	HighRisk	Red	0.46	1.71
T206	C	C_09	<=	2.5	C_02	<=	2.5	HighRisk	Red	0.47	1.75
T144	C	C_19	<=	2.5	C_12	<=	2.5	HighRisk	Red	0.46	1.71
T212	C	C_26	<=	2.5	C_22	<=	2.5	HighRisk	Red	0.46	1.71

T176	C	C_20	<=	3.5	C_23	<=	3.5	HighRisk	Red	0.47	1.75
T192	C	C_13	<=	3.5	C_10	<=	3.5	HighRisk	Red	0.45	1.67
T220	C	C_13	<=	3.5	C_25	<=	3.5	HighRisk	Red	0.46	1.71
T148	C	C_15	<=	2.5	C_20	<=	2.5	HighRisk	Red	0.46	1.71
T158	C	C_15	<=	2.5	C_19	<=	2.5	HighRisk	Red	0.46	1.71
T194	C	C_17	<=	2.5	C_25	<=	2.5	HighRisk	Red	0.45	1.67
T198	C	C_18	<=	3.5	C_14	<=	3.5	HighRisk	Red	0.45	1.67
T134	C	C_16	<=	2.5	C_25	<=	2.5	HighRisk	Red	0.45	1.67
T154	C	C_15	<=	2.5	C_17	<=	2.5	HighRisk	Red	0.45	1.67
T202	C	C_18	<=	2.5	C_13	<=	2.5	HighRisk	Red	0.45	1.67
T204	C	C_15	<=	3.5	C_07	<=	3.5	HighRisk	Red	0.44	1.64
T214	C	C_17	<=	2.5	C_14	<=	2.5	HighRisk	Red	0.43	1.6
T186	C	C_16	<=	3.5	C_07	<=	3.5	HighRisk	Red	0.43	1.6
T210	C	C_11	<=	3.5	C_16	<=	3.5	HighRisk	Red	0.43	1.6
T228	C	C_13	<=	3.5	C_10	<=	3.5	HighRisk	Red	0.43	1.6
T156	C	C_13	<=	3.5	C_25	<=	3.5	HighRisk	Red	0.42	1.56
T216	C	C_11	<=	3.5	C_01	<=	3.5	HighRisk	Red	0.43	1.6
T152	C	C_15	<=	3.5	C_25	<=	3.5	HighRisk	Red	0.42	1.56
T226	C	C_16	<=	2.5	C_13	<=	2.5	HighRisk	Red	0.42	1.56
T138	C	C_16	<=	3.5	C_13	<=	3.5	HighRisk	Red	0.42	1.56
T182	C	C_18	<=	2.5	C_20	<=	2.5	HighRisk	Red	0.42	1.56
T174	C	C_20	<=	2.5	C_13	<=	2.5	HighRisk	Red	0.41	1.52
T160	C	C_09	<=	2.5	C_10	<=	2.5	HighRisk	Red	0.41	1.52
T146	C	C_14	<=	3.5	C_25	<=	3.5	HighRisk	Red	0.41	1.52
T200	C	C_18	<=	3.5	C_01	<=	3.5	HighRisk	Red	0.41	1.52
T222	C	C_11	<=	3.5	C_15	<=	3.5	HighRisk	Red	0.40	1.49
T190	C	C_13	<=	3.5	C_16	<=	3.5	HighRisk	Red	0.40	1.49
T150	C	C_12	<=	3.5	C_13	<=	3.5	HighRisk	Red	0.40	1.49
T180	C	C_12	<=	3.5	C_15	<=	3.5	HighRisk	Red	0.40	1.49
T140	C	C_12	<=	3.5	C_15	<=	3.5	HighRisk	Red	0.40	1.49
T196	C	C_11	<=	3.5	C_15	<=	3.5	HighRisk	Red	0.39	1.45
T142	C	C_16	<=	3.5	C_19	<=	3.5	HighRisk	Red	0.39	1.45
T170	C	C_14	<=	3.5	C_16	<=	3.5	HighRisk	Red	0.39	1.45
T178	C	C_18	<=	2.5	C_26	<=	2.5	HighRisk	Red	0.39	1.45
T132	C	C_20	<=	3.5	C_13	<=	3.5	HighRisk	Red	0.39	1.45
T218	C	C_20	<=	3.5	C_14	<=	3.5	HighRisk	Red	0.39	1.45
T136	C	C_15	<=	3.5	C_18	<=	3.5	HighRisk	Red	0.39	1.45
T168	C	C_13	<=	3.5	C_25	<=	3.5	HighRisk	Red	0.39	1.45
T166	C	C_13	<=	3.5	C_20	<=	3.5	HighRisk	Red	0.38	1.41
T188	C	C_12	<=	3.5	C_15	<=	3.5	HighRisk	Red	0.38	1.41
T172	C	C_15	<=	3.5	C_17	<=	3.5	HighRisk	Red	0.38	1.41

(Table 9 in the paper is filtered from the above database. Rules involving demographic questions have been removed for privacy and confidentiality concerns.)

## **Appendix F. Prompts for Generating the VBA Codes<sup>2</sup>**

### *Prompt A*

“Hi ChatGPT. I have an excel workbook with rows and columns. The sheet "DATA" has the data. First row is the variable names. Except for the A, BV, and BW, I want to see all the possible values that each column takes, in the sheet titled "VALUES". In the "VALUES" sheet, each column title will be same as those in the "DATA" sheet, but the values, starting with the second row, will be the unique values for each variable. For example, if there were values of 3, 4, 4, 5, 5, 6 under a variable in the DATA sheet, there should be cells with values 3, 4, 5, 6, under the sheet VALUES. Can you please write a Visual Basic code to do this?”

### *Prompt B*

“Thank you so much. Now can you write another code please, to go through each column in the VALUES sheet, and after the first cell in the first row, consider the latter cells and the values, and sort them from smallest to largest.”

### *Prompt C*

“Now another code please, to go through columns C through BC, and then do the following for each column: For each column/variable, the first row cell value is the column title. Keep that as a text titled VariableName. Then,

LoopStart: For each value X for that variable,

Step 1. go to sheet DATA, and count how many of the rows that have a value of greater than or equal to X, keep that as NoOfRows,

Step 2. and then see how many of those rows (that have greater than or equal to X under that selected column) have the value LowRiskBHV under the column BU, and record that as NoOfLowRiskBHV. Step 3. Then print these results VariableName, X, NoOfRows, NoOfLowRiskBHV in the next empty row under the OUTPUT sheet, each value under a different column.

Step 4. If all values of VariableName are completed, stop, otherwise Go to the next value of that VariableName and run LoopStart”

---

<sup>2</sup> ChatGPT 4 was used in June 2023 to process the prompt. Some intermediate prompts were omitted for brevity.

## Appendix G. VBA Codes for Processing Data and Generating the One-Level Rules

### *Output for Prompt A*

```
Sub ExtractUniqueValues()  
  
    Dim srcSht As Worksheet  
    Dim desSht As Worksheet  
    Dim rng As Range  
    Dim col As Range  
    Dim uniqueValues As Object  
    Dim cell As Range  
    Dim i As Long  
    Dim colIndex As Long  
  
    ' Define the source and destination sheets  
    Set srcSht = ThisWorkbook.Sheets("DATA")  
    Set desSht = ThisWorkbook.Sheets("VALUES")  
  
    ' Clear the destination sheet  
    desSht.Cells.Clear  
  
    ' Define the range to process (all except columns A, BV, and BW)  
    ' Assuming the last column is Z. Change if required  
    Set rng = srcSht.Range("B1:BU" & srcSht.Cells(srcSht.Rows.Count, "B").End(xlUp).Row)  
  
    ' Copy column headers to the destination sheet  
    rng.Rows(1).Copy Destination:=desSht.Range("A1")  
  
    ' Loop through each column in the range  
    For Each col In rng.Columns  
  
        ' Create a new dictionary to hold unique values  
        Set uniqueValues = CreateObject("Scripting.Dictionary")  
  
        ' Loop through each cell in the column  
        For Each cell In col.Cells  
            ' If the cell is not empty and the value is not already in the dictionary, add it  
            If cell.Row > 1 And Not cell.Value = "" And Not uniqueValues.Exists(cell.Value) Then
```



```

        uniqueValues.Add cell.Value, cell.Value
    End If
Next cell

' Write the unique values to the destination sheet
colIndex = col.Column - 1
i = 2 ' start from row 2, since row 1 is for headers
For Each Key In uniqueValues.Keys
    desSht.Cells(i, colIndex).Value = Key
    i = i + 1
Next Key
Next col

End Sub

```

### *Output for Prompt B*

```

Sub SortValues()

    Dim sht As Worksheet
    Dim rng As Range
    Dim col As Range
    Dim lastRow As Long
    Dim lastCol As Long

    ' Define the sheet
    Set sht = ThisWorkbook.Sheets("VALUES")

    ' Find the last used column in the sheet
    lastCol = sht.Cells(1, sht.Columns.Count).End(xlToLeft).Column

    ' Loop through each column in the sheet
    For i = 1 To lastCol

        ' Find the last used row in the column
        lastRow = sht.Cells(sht.Rows.Count, i).End(xlUp).Row

        ' Define the range to sort
        Set rng = sht.Range(sht.Cells(2, i), sht.Cells(lastRow, i))
    
```

```

        ' Sort the range in ascending order
        rng.Sort Key1:=sht.Cells(2, i), Order1:=xlAscending, Header:=xlNo
    Next i

```

End Sub

### *Output for Prompt C*

```

Sub CountRowsAndValues()

    Dim srcSht As Worksheet, valSht As Worksheet, outSht As Worksheet
    Dim valRange As Range, cell As Range, srcRange As Range, row As Range
    Dim VariableName As String, X As Variant, NoOfRows As Long, NoOfLowRiskBHV As Long

    ' Define the sheets
    Set srcSht = ThisWorkbook.Sheets("DATA")
    Set valSht = ThisWorkbook.Sheets("VALUES")
    Set outSht = ThisWorkbook.Sheets("OUTPUT")

    ' Define the source range (all columns)
    Set srcRange = srcSht.UsedRange

    ' Go through columns C to BC in the VALUES sheet
    For i = 3 To 55 ' Columns C to BC
        ' Get the variable name
        VariableName = valSht.Cells(1, i).Value

        ' Define the range of unique values for this variable
        Set valRange = valSht.Range(valSht.Cells(2, i), valSht.Cells(valSht.Rows.Count, i).End(xlUp))

        ' Go through each unique value
        For Each cell In valRange.Cells
            ' Get the value
            X = cell.Value
            ' Reset the counters
            NoOfRows = 0
            NoOfLowRiskBHV = 0

            ' Go through each row in the DATA sheet
            For Each row In srcRange.Rows

```

```

        ' If the value in the current column is greater than or equal to X
        If row.Cells(1, i).Value >= X Then
            ' Increment the counter
            NoOfRows = NoOfRows + 1
            ' If the value in column BU is "LowRiskBHV", increment the other counter
            If row.Cells(1, "BU").Value = "LowRiskBHV" Then
                NoOfLowRiskBHV = NoOfLowRiskBHV + 1
            End If
        End If
    Next row

    ' Write the results to the OUTPUT sheet
    outSht.Cells(outSht.Rows.Count, "A").End(xlUp).Offset(1, 0).Value = VariableName
    outSht.Cells(outSht.Rows.Count, "B").End(xlUp).Offset(1, 0).Value = X
    outSht.Cells(outSht.Rows.Count, "C").End(xlUp).Offset(1, 0).Value = NoOfRows
    outSht.Cells(outSht.Rows.Count, "D").End(xlUp).Offset(1, 0).Value = NoOfLowRiskBHV
Next cell
Next i

End Sub

```