

# IS-655 Lab Week#14 Models Build & Comparison 00000034000

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Author: willi.brordus@student.umn.ac.id

IS-655 Lab Week#14 00000034000-WillibrordusBayu

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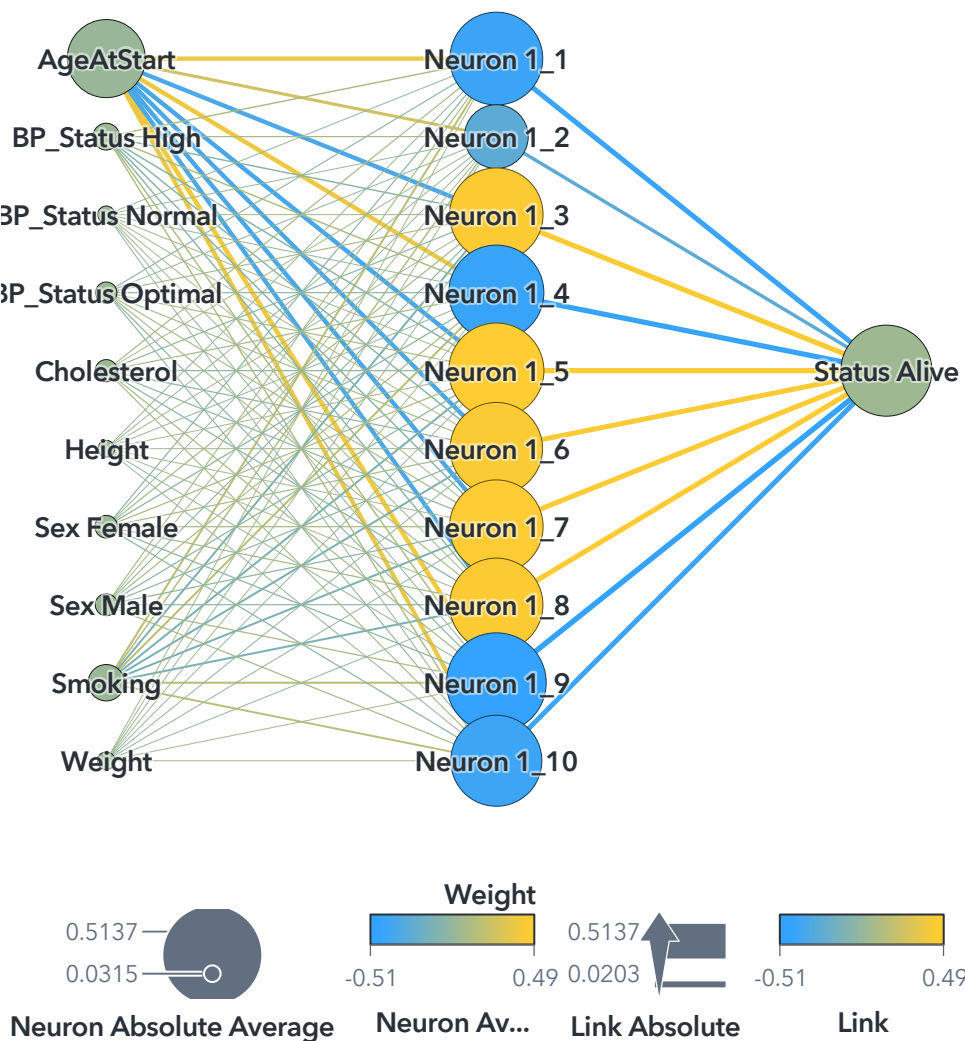
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Neural Network

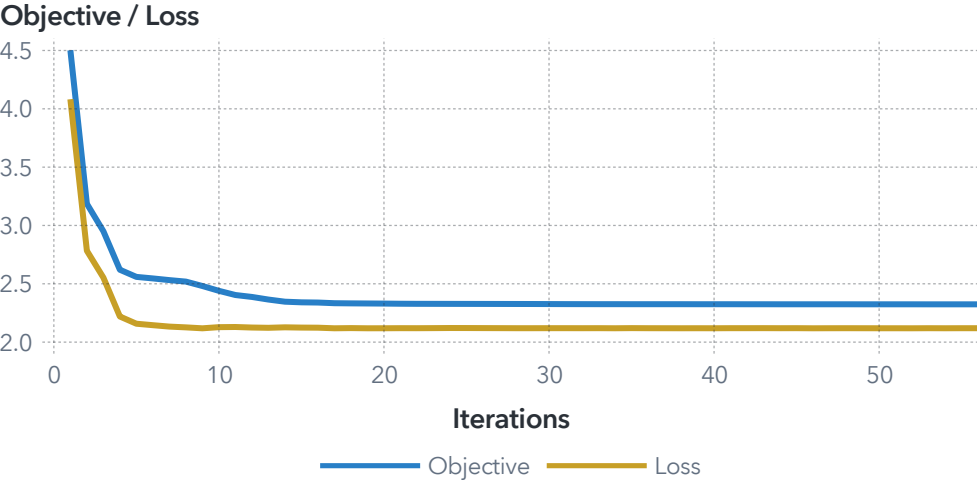


Neural Network **Status** (event=Dead) Misclassification Rate **0.2590** Observations Used **5,039** Unused **170**

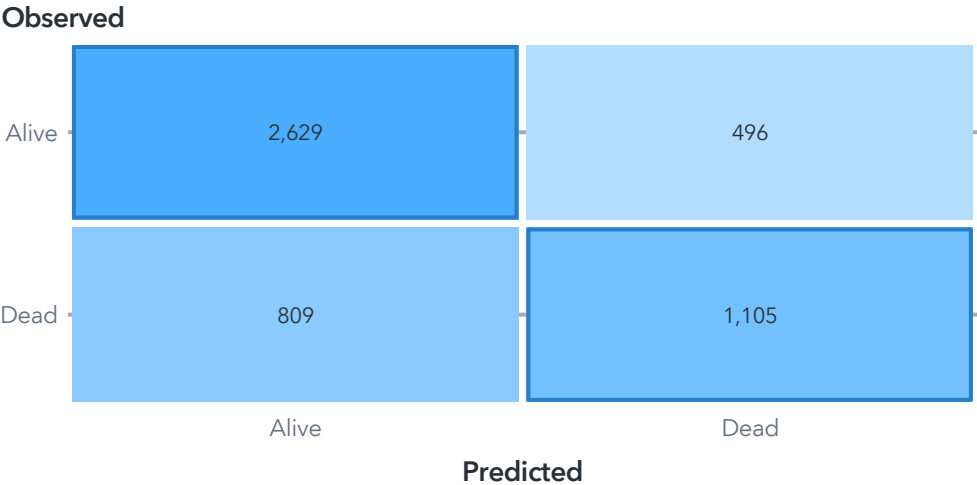
Network



Iteration Plot



Confusion Matrix



Description	Value	✕✕
Model	Neural Net	
Number of Observations Used	5,039	
Number of Observations Read	5,209	
Target/Response Variable	Status	
Number of Neurons	22	
Number of Input Neurons	10	
Number of Output Neurons	2	
Number of Hidden Neurons	10	
Number of Hidden Layers	1	
Number of Weight Parameters	110	
Number of Bias Parameters	12	
Architecture	MLP	
Number of Neural Nets	1	
Objective Value	2.323964	

Iterations	Objective	Loss
1	4.5023	4.0822
2	3.1859	2.7834
3	2.9506	2.5531
4	2.6207	2.2198
5	2.5592	2.1578
6	2.5461	2.1452
7	2.5317	2.1330
8	2.5187	2.1263
9	2.4810	2.1185
10	2.4397	2.1282
11	2.4037	2.1296
12	2.3872	2.1251
13	2.3648	2.1229
14	2.3467	2.1270
15	2.3411	2.1247
16	2.3393	2.1238
17	2.3337	2.1187
18	2.3321	2.1202
19	2.3313	2.1187
20	2.3304	2.1189
21	2.3289	2.1196
22	2.3282	2.1194
23	2.3280	2.1201
24	2.3279	2.1209
25	2.3277	2.1206
26	2.3274	2.1202
27	2.3272	2.1198
28	2.3269	2.1195
29	2.3266	2.1194
30	2.3262	2.1195
31	2.3259	2.1196
32	2.3256	2.1194
33	2.3254	2.1197
34	2.3253	2.1189
35	2.3252	2.1200
36	2.3252	2.1193
37	2.3251	2.1191
38	2.3251	2.1189
39	2.3250	2.1190
40	2.3249	2.1190
41	2.3248	2.1196
42	2.3247	2.1195
43	2.3246	2.1197
44	2.3245	2.1194
45	2.3245	2.1196
46	2.3244	2.1187
47	2.3244	2.1192
48	2.3244	2.1193
49	2.3243	2.1192
50	2.3243	2.1188
51	2.3242	2.1189
52	2.3241	2.1187
53	2.3240	2.1193
54	2.3240	2.1189
55	2.3240	2.1194
56	2.3240	2.1193

Neural network - Status 1 Supplement 3

**Reason**



The optimization achieved the desired objective value.

Neural network - Status 1 Supplement 4

Predicted	Observed	Frequency	Percentage
Alive	Alive	2,629	84.13%
Dead	Alive	496	15.87%
Alive	Dead	809	42.27%
Dead	Dead	1,105	57.73%

Percentile	Observations	Events	Model	Best	Cumulative Model	Cumulative Best
5.00	252	225	2.3511	2.6332	2.3511	2.6332
10.00	252	202	2.1108	2.6332	2.2309	2.6332
15.00	252	188	1.9645	2.6332	2.1421	2.6332
20.00	252	163	1.7032	2.6332	2.0324	2.6332
25.00	252	149	1.5569	2.6332	1.9373	2.6332
30.00	252	136	1.4211	2.6332	1.8513	2.6332
35.00	252	116	1.2121	2.6332	1.7600	2.6332
40.00	252	104	1.0867	1.5674	1.6758	2.5000
45.00	252	99	1.0345	0.0000	1.6046	2.2222
50.00	252	90	0.9404	0.0000	1.5381	2.0000
55.00	252	77	0.8046	0.0000	1.4715	1.8182
60.00	252	79	0.8255	0.0000	1.4176	1.6667
65.00	252	59	0.6165	0.0000	1.3560	1.5385
70.00	252	49	0.5120	0.0000	1.2957	1.4286
75.00	252	38	0.3971	0.0000	1.2358	1.3333
80.00	252	32	0.3344	0.0000	1.1795	1.2500
85.00	252	38	0.3971	0.0000	1.1334	1.1765
90.00	252	29	0.3030	0.0000	1.0873	1.1111
95.00	252	31	0.3239	0.0000	1.0471	1.0526
100.00	251	10	0.1045	0.0000	1.0000	1.0000



Cutoff	Sensitivity	1 - Specificity
0.00	1.0000	1.000
0.01	1.0000	1.000
0.02	1.0000	1.000
0.03	1.0000	1.000
0.04	1.0000	1.000
0.05	1.0000	1.000
0.06	1.0000	0.999
0.07	0.9984	0.988
0.08	0.9979	0.959
0.09	0.9953	0.928
0.10	0.9890	0.898
0.11	0.9817	0.866
0.12	0.9765	0.831
0.13	0.9692	0.800
0.14	0.9603	0.770
0.15	0.9525	0.740
0.16	0.9431	0.708
0.17	0.9347	0.683
0.18	0.9289	0.650
0.19	0.9216	0.625
0.20	0.9143	0.595
0.21	0.9054	0.572
0.22	0.8934	0.548
0.23	0.8892	0.524
0.24	0.8793	0.501
0.25	0.8689	0.481
0.26	0.8579	0.464
0.27	0.8495	0.445
0.28	0.8386	0.433
0.29	0.8297	0.419
0.30	0.8182	0.403
0.31	0.8067	0.389
0.32	0.7962	0.371
0.33	0.7847	0.356
0.34	0.7743	0.340
0.35	0.7659	0.329
0.36	0.7565	0.317
0.37	0.7429	0.305
0.38	0.7315	0.292
0.39	0.7210	0.281
0.40	0.7090	0.269
0.41	0.6991	0.259
0.42	0.6839	0.249
0.43	0.6745	0.237
0.44	0.6588	0.227
0.45	0.6452	0.216
0.46	0.6311	0.203
0.47	0.6176	0.188
0.48	0.6050	0.179
0.49	0.5920	0.168
0.50	0.5773	0.159
0.51	0.5585	0.148
0.52	0.5434	0.135
0.53	0.5329	0.129
0.54	0.5172	0.122
0.55	0.4995	0.112
0.56	0.4838	0.106
0.57	0.4671	0.098
0.58	0.4519	0.090
0.59	0.4331	0.086
0.60	0.4180	0.080
0.61	0.3971	0.072
0.62	0.3824	0.067
0.63	0.3668	0.059
0.64	0.3495	0.054
0.65	0.3281	0.049
0.66	0.3062	0.042
0.67	0.2847	0.036
0.68	0.2654	0.032
0.69	0.2461	0.028
0.70	0.2241	0.025
0.71	0.2053	0.020
0.72	0.1881	0.017
0.73	0.1719	0.014
0.74	0.1515	0.012
0.75	0.1353	0.010
0.76	0.1170	0.009
0.77	0.1050	0.006
0.78	0.0940	0.005
0.79	0.0768	0.004
0.80	0.0648	0.003
0.81	0.0522	0.002
0.82	0.0381	0.002
0.83	0.0293	0.002
0.84	0.0199	0.001
0.85	0.0146	0.001
0.86	0.0104	0.001
0.87	0.0052	0.001
0.88	0.0021	0.001
0.89	0.0010	0.000
0.90	0.0005	0.000
0.91	0.0000	0.000
0.92	0.0000	0.000
0.93	0.0000	0.000
0.94	0.0000	0.000
0.95	0.0000	0.000
0.96	0.0000	0.000
0.97	0.0000	0.000
0.98	0.0000	0.000
0.99	0.0000	0.000

Response	Event	Value	Frequency
Correct	Dead	True Positive	1,105
Incorrect	Dead	False Negative	809
Correct	Alive	True Negative	2,629
Incorrect	Alive	False Positive	496

Neural network - Status 1 Supplement 8

[illegible]