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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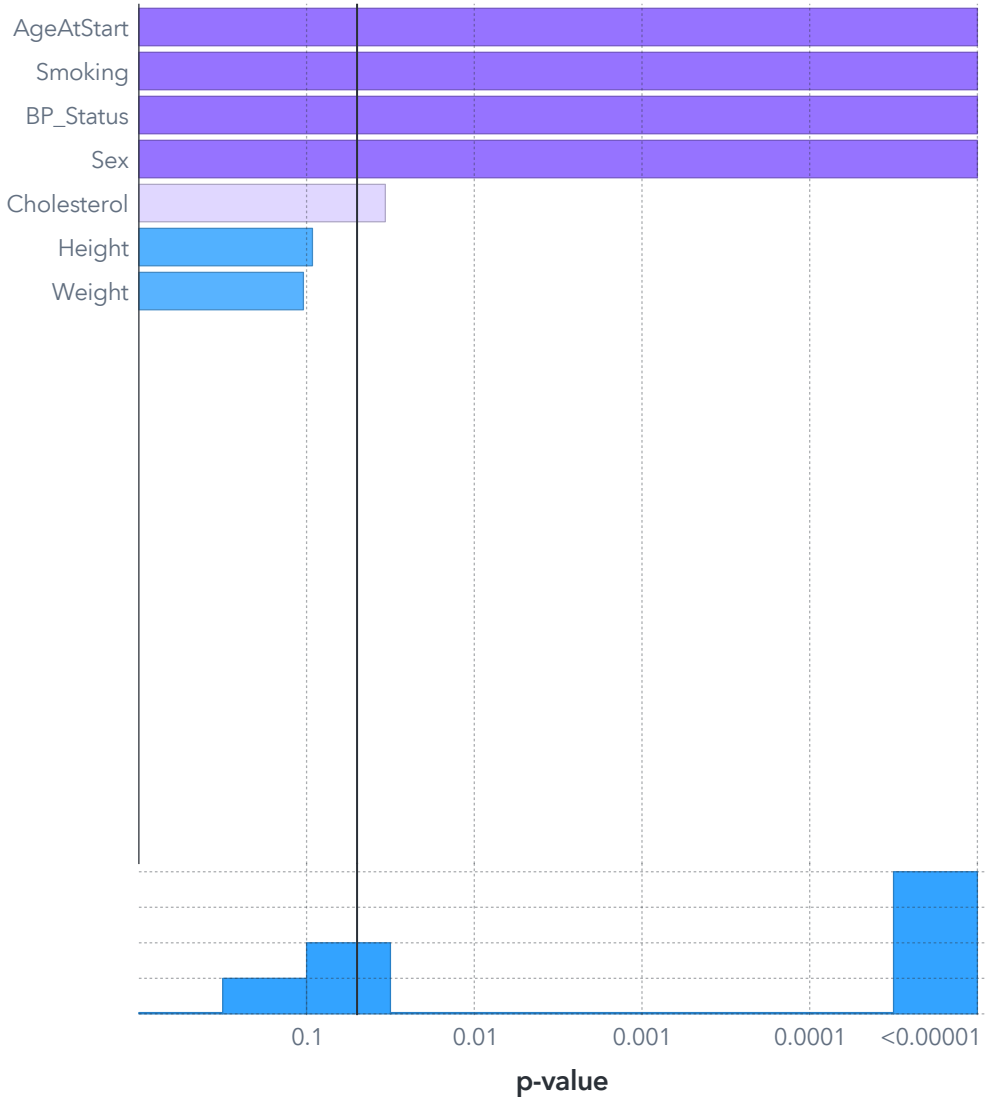
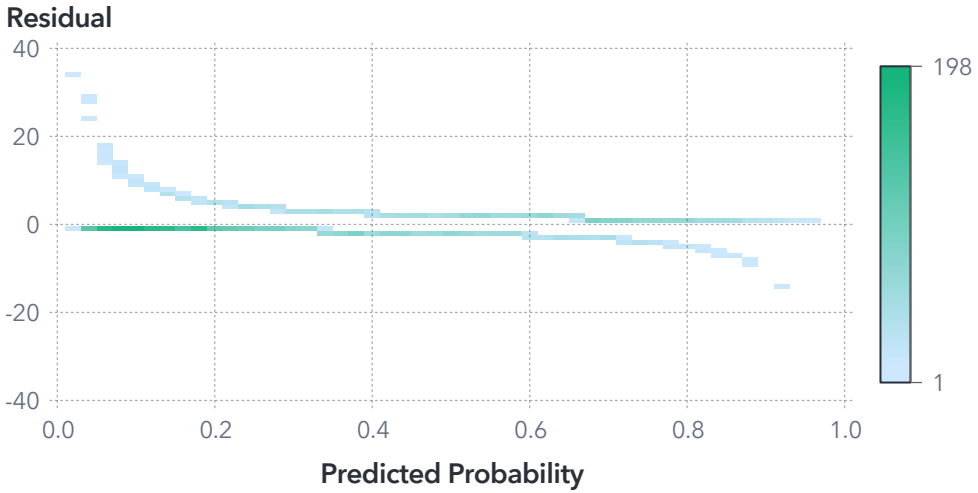
Logistic Regression **Status** (event=Dead) Misclassification Rate (Event) **0.2592** Observations Used **5,039** Unused **170**

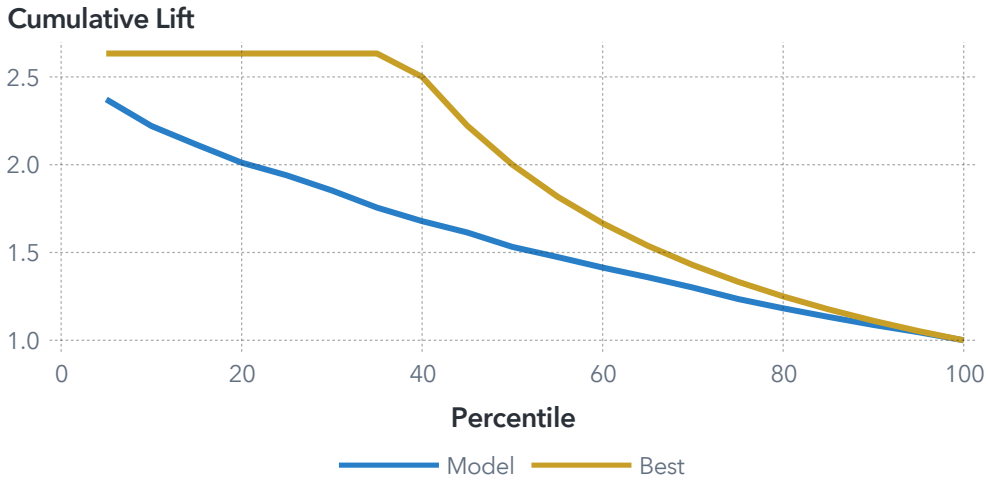
Fit Summary



Residual Plot



Lift



Description	Value
Data Source	CRVA83.HEART
Response Variable	Status
Distribution	Binary
Link Function	Logit
Optimization Technique	Newton-Raphson with Ridging
Predicted Response Level	I_Status

Description	Value
Number of Model Effects	8
Number of Classification Effects	2
Number of Columns in X	11
Rank of Cross-product Matrix	9
Number of Observations Read	5,209
Number of Observations Used	5,039

Logistic regression - Status 1 Supplement 3

Ordered Value	Count	Status
1	1914	Dead
2	3125	Alive

Logistic regression - Status 1 Supplement 4

Iteration	Evaluations	Objective	Change	Max Gradient
0	4	0.527931	.	0.090263
1	2	0.527354	0.000578	0.019202
2	2	0.527353	6.822E-7	0.00004
3	2	0.527353	1.21E-12	9.25E-11

Reason	Status
Convergence criterion (GCONV=1E-6) satisfied.	0

Logistic regression - Status 1 Supplement 6

Statistic	Value
-2 Log Likelihood	5314.663
AIC	5332.663
AICC	5332.699
BIC	5391.388
Max-rescaled R-Square	0.325323
R-Square	0.239107

Logistic regression - Status 1 Supplement 7

Parameter	Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept	-5.50993	0.97529	31.91722	<0.00001
BP_Status High	0.693459	0.115132	36.27848	<0.00001
BP_Status Normal	0.119678	0.113821	1.105577	0.29305
BP_Status Optimal	0	.	.	.
Sex Female	-0.62987	0.09854	40.85841	<0.00001
Sex Male	0	.	.	.
AgeAtStart	0.122224	0.004686	680.2707	<0.00001
Cholesterol	0.001631	0.000769	4.498559	0.03392
Height	-0.02407	0.014298	2.834459	0.09226
Smoking	0.030618	0.003089	98.26204	<0.00001
Weight	0.002361	0.001454	2.636396	0.10444

Logistic regression - Status 1 Supplement 8

Effect	DF	Chi-Square	Pr > ChiSq
BP_Status	2	71.9368	<0.00001
Sex	1	40.85841	<0.00001
AgeAtStart	1	680.2707	<0.00001
Cholesterol	1	4.498559	0.03392
Height	1	2.834459	0.09226
Smoking	1	98.26204	<0.00001
Weight	1	2.636396	0.10444

Logistic regression - Status 1 Supplement 9

Predicted	Observed	Frequency	Percentage
Alive	Alive	2,583	82.66%
Dead	Alive	542	17.34%
Alive	Dead	764	39.92%
Dead	Dead	1,150	60.08%

Percentile	Observations	Events	Model	Best	Cumulative Model	Cumulative Best
5.00	252	227	2.3720	2.6332	2.3720	2.6332
10.00	252	198	2.0690	2.6332	2.2205	2.6332
15.00	252	182	1.9018	2.6332	2.1142	2.6332
20.00	252	163	1.7032	2.6332	2.0115	2.6332
25.00	252	158	1.6510	2.6332	1.9394	2.6332
30.00	252	136	1.4211	2.6332	1.8530	2.6332
35.00	252	112	1.1703	2.6332	1.7555	2.6332
40.00	252	109	1.1390	1.5674	1.6784	2.5000
45.00	252	105	1.0972	0.0000	1.6138	2.2222
50.00	252	76	0.7941	0.0000	1.5319	2.0000
55.00	252	86	0.8986	0.0000	1.4743	1.8182
60.00	252	72	0.7524	0.0000	1.4141	1.6667
65.00	252	67	0.7001	0.0000	1.3592	1.5385
70.00	252	51	0.5329	0.0000	1.3002	1.4286
75.00	252	31	0.3239	0.0000	1.2351	1.3333
80.00	252	37	0.3866	0.0000	1.1821	1.2500
85.00	252	34	0.3553	0.0000	1.1334	1.1765
90.00	252	29	0.3030	0.0000	1.0873	1.1111
95.00	252	29	0.3030	0.0000	1.0460	1.0526
100.00	251	12	0.1254	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	0.9995	0.998
0.04	0.9984	0.987
0.05	0.9979	0.957
0.06	0.9948	0.928
0.07	0.9896	0.900
0.08	0.9817	0.867
0.09	0.9744	0.838
0.10	0.9702	0.803
0.11	0.9624	0.775
0.12	0.9566	0.748
0.13	0.9498	0.719
0.14	0.9404	0.691
0.15	0.9331	0.664
0.16	0.9263	0.640
0.17	0.9190	0.617
0.18	0.9143	0.590
0.19	0.9054	0.562
0.20	0.8981	0.544
0.21	0.8918	0.524
0.22	0.8830	0.504
0.23	0.8746	0.488
0.24	0.8631	0.470
0.25	0.8532	0.455
0.26	0.8433	0.439
0.27	0.8349	0.426
0.28	0.8271	0.411
0.29	0.8161	0.397
0.30	0.8083	0.384
0.31	0.7983	0.372
0.32	0.7905	0.356
0.33	0.7800	0.349
0.34	0.7659	0.338
0.35	0.7581	0.327
0.36	0.7513	0.315
0.37	0.7419	0.306
0.38	0.7309	0.292
0.39	0.7241	0.278
0.40	0.7126	0.271
0.41	0.7006	0.262
0.42	0.6897	0.251
0.43	0.6797	0.240
0.44	0.6672	0.228
0.45	0.6567	0.219
0.46	0.6437	0.211
0.47	0.6327	0.203
0.48	0.6228	0.193
0.49	0.6139	0.185
0.50	0.6008	0.173
0.51	0.5904	0.164
0.52	0.5742	0.154
0.53	0.5596	0.146
0.54	0.5428	0.137
0.55	0.5266	0.131
0.56	0.5115	0.124
0.57	0.5000	0.115
0.58	0.4901	0.107
0.59	0.4749	0.099
0.60	0.4598	0.093
0.61	0.4467	0.086
0.62	0.4289	0.083
0.63	0.4117	0.078
0.64	0.3950	0.074
0.65	0.3861	0.066
0.66	0.3730	0.059
0.67	0.3579	0.056
0.68	0.3333	0.050
0.69	0.3130	0.046
0.70	0.2921	0.039
0.71	0.2738	0.034
0.72	0.2508	0.030
0.73	0.2346	0.028
0.74	0.2205	0.024
0.75	0.2027	0.020
0.76	0.1876	0.015
0.77	0.1682	0.014
0.78	0.1510	0.013
0.79	0.1364	0.011
0.80	0.1207	0.008
0.81	0.1055	0.007
0.82	0.0930	0.006
0.83	0.0815	0.004
0.84	0.0664	0.004
0.85	0.0569	0.003
0.86	0.0439	0.002
0.87	0.0329	0.002
0.88	0.0261	0.002
0.89	0.0193	0.001
0.90	0.0141	0.001
0.91	0.0089	0.001
0.92	0.0042	0.001
0.93	0.0026	0.000
0.94	0.0010	0.000
0.95	0.0005	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

Logistic regression - Status 1 Supplement 12

Response	Event	Value	Frequency
Correct	Dead	True Positive	1,150
Incorrect	Dead	False Negative	764
Correct	Alive	True Negative	2,583
Incorrect	Alive	False Positive	542

Logistic regression - Status 1 Supplement 13

KS (Youden)	Misclassification Rate	Misclassification Rat...	C Statistic	FPR	FDR	F1 Score	Lift	Cumulative Lift	Cumulative % Events	Cumulative % Captu...	Gain	Gini	Gamma	Tau	Observations Used	Unused
0.4457	0.2592	0.2592	0.795	0.173	0.320	0.638	2.372	2.372	90.079	11.860	1.372	0.590	0.595	0.278	5,039	170