Classification Report

	precision	recall	f1-score	support
0	0.82	0.92	0.87	387
1	0.75	0.53	0.62	168
accuracy			0.80	555
macro avg	0.78	0.73	0.74	555
weighted avg	0.80	0.80	0.79	555

Accuracy
Accuracy: 0.8036036036036036

Optimal Win Ranges Summary

	feature	optimal_win_range_start	optimal_win_range_end
0	AWESOME	-1.029104	0.932934
1	MA_ENVELOPES_UPPER_percent_away	-2.480524	-2.178969
2	MA_ENVELOPES_UPPER_percent_away	-0.566810	0.952562
3	MA_ENVELOPES_UPPER_percent_away	4.130485	4.490032
4	ZIGZAG_LOW_percent_away	-0.845165	0.437999
5	ZIGZAG_LOW_percent_away	5.069608	5.240696
6	MA_ENVELOPES_LOWER_percent_away	-2.480017	-2.178434
7	MA_ENVELOPES_LOWER_percent_away	-0.566126	0.953388
8	MA_ENVELOPES_LOWER_percent_away	4.131609	4.491188
9	ZIGZAG_HIGH_percent_away	-9.732693	-8.413519
10	ZIGZAG_HIGH_percent_away	-8.137120	-6.415912
11	ZIGZAG_HIGH_percent_away	-0.146693	1.122227
12	ADX	-1.467355	-0.131227
13	MA_ENVELOPES_MID_percent_away	-2.481288	-2.179680
14	MA_ENVELOPES_MID_percent_away	-0.567235	0.952406
15	MA_ENVELOPES_MID_percent_away	4.130894	4.490503
16	MACD_AVG	-1.027276	0.903802
17	APZ_UP_percent_away	-2.723446	-1.993813
18	APZ_UP_percent_away	-0.584015	0.924716
19	APZ_UP_percent_away	2.520013	2.792080
20	APZ_UP_percent_away	4.276078	4.572877
21	LIN_REG_percent_away	-2.827463	-2.438028
22	LIN_REG_percent_away	-2.178405	-1.954185
23	LIN_REG_percent_away	-0.455450	0.984279
24	LIN_REG_percent_away	2.305997	2.612825
25	LIN_REG_percent_away	4.040752	4.335779

Loss Mitigation Analysis

	count	mean	std	min	25%	50%	75%	max
ACCUM_DIST	891.0	0.063917	9.238803e-01	-3.858756e+00	-4.200020e-16	-4.200020e-16	-4.200	
ADX	891.0	0.352723	1.080255e+00	-1.467355e+00	-4.801315e-01	1.423905e-01	1.017062e	
AROON DOWN	891.0	-0.135093	1.024984e+00	-1.402518e+00	-1.402518e+00	1.121756e-01	7.6	
AROON UP	891.0	0.030412	1.003816e+00	-1.475225e+00	-1.025294e+00	5.489907e-01	7.737	
ATR	891.0	-0.163947	9.950928e-01	-1.965443e+00	-1.014666e+00	-3.231913e-01	4.547176e	
AWESOME	891.0	0.117514	1.199634e+00	-1.917871e+00	-1.075950e+00	2.320717e-01	1.302	
CCI	891.0	-0.125522	1.105428e+00	-1.929347e+00	-1.314323e+00	-2.573079e-01	1.054337e	
CHAIKIN	891.0	-0.022477	1.025049e+00	-5.499844e+00	-5.436894e-01	1.088141e-02	5.03994	
CMO	891.0	-0.118417	8.988992e-01	-2.517524e+00	-8.529933e-01	-4.817050e-01	7.136240e	
DISPARITY_INDEX	891.0	-0.094066	8.125651e-01	-1.936125e+00	-7.029335e-01	-8.633797e-02	5.3	
DM_ADX_PLOT	891.0	0.352723	1.080255e+00	-1.467355e+00	-4.801315e-01	1.423905e-01	1.0	
DM_DI_MINUS	891.0	-0.057041	9.978458e-01	-2.751897e+00	-7.355735e-01	-1.227316e-02	6.24	
DM_DI_PLUS	891.0	-0.028666	9.712281e-01	-2.807351e+00	-6.424268e-01	-1.036852e-02	6.216	
DYNAMIC_MOMENTUM	891.0	-0.052995	8.768612e-01	-3.506666e+00	-7.226890e-01	-9.556748e-02		
FISHER_TRANSFORM	891.0	-0.083636	1.050579e+00	-1.537346e+00	-1.328498e+00	-4.930431e-02		
LIN_REG_SLOPE	891.0	-0.053096	9.336813e-01	-2.073675e+00	-9.191278e-01	-1.494297e-01	9.7	
MACD_AVG	891.0	0.104472	1.190258e+00	-2.200572e+00	-9.381956e-01	2.389401e-01	1.182	
MACD_DEFAULT	891.0	0.098280	1.176312e+00	-2.281100e+00	-9.404748e-01	2.042963e-01	1.	
MACD_DIFF	891.0	-0.114101	1.198506e+00	-2.343214e+00	-1.208496e+00	-2.293962e-01	9.247	
MFI	891.0	-0.012124	1.023687e+00	-2.617159e+00	-7.145281e-01	-6.881015e-02	7.399356e	
MOMENTUM	891.0	-0.107411	8.584032e-01	-2.711072e+00	-6.013073e-01	-6.013073e-01	4.535	
OBV	891.0	0.064631	9.283716e-01	-3.907453e+00	-2.268885e-16	-2.268885e-16	-2.268885e	
PFE	891.0	0.091494	1.097131e+00	-1.924185e+00	-1.008066e+00	1.899370e-01	1.176527e	
RIND	891.0	-0.148107	1.037276e+00	-2.033483e+00	-9.694674e-01	-1.243251e-01	6.156553e	
RSI_AVERAGE	891.0	-0.009860	8.603600e-01	-2.801898e+00	-5.956918e-01	1.527672e-02	5.50	
RSI_DEFAULT	891.0	-0.083030	8.044056e-01	-2.333340e+00	-6.223927e-01	-1.335505e-01	4.062	
RSS	891.0	-0.029047	1.013291e+00	-2.622787e+00	-7.943942e-01	-5.334776e-02	7.014550e	
RVI	891.0	0.103029	1.171801e+00	-2.288306e+00	-9.318078e-01	1.680130e-01	1.151812e	
R_SQUARED	891.0	0.222407	9.742765e-01	-1.718198e+00	-4.711241e-01	6.074267e-01	1.079	
STOCH_FAST_D	891.0	-0.102638	1.120682e+00	-1.977527e+00	-1.256080e+00	-1.668279e-01	9.	
STOCH_FAST_K	891.0	-0.139940	1.078975e+00	-1.649664e+00	-1.343114e+00	-4.595278e-01	9.	
TRIX_DEFAULT	891.0	-0.032898	1.388558e-17	-3.289758e-02	-3.289758e-02	-3.289758e-02	-3.28	
TRIX_SIGNAL	891.0	0.023780	1.620234e+00	-3.049942e-02	-3.049942e-02	-3.049942e-02	-3.049	
VOLUME	891.0	-0.041640	9.693109e-01	-5.887958e-01	-5.223562e-01	-4.268493e-01	-2.19830	
VOLUME_DOWN	891.0	0.049074	1.118808e+00	-3.841527e-01	-3.841527e-01	-3.550689e-01	-1.	
VOLUME_UP	891.0	-0.094173	8.229634e-01	-3.863490e-01	-3.863490e-01	-3.863490e-01	-2.333	
VORTEX_MINUS	891.0	-0.017014	9.328293e-01	-4.016403e+00	-6.346753e-01	8.998051e-02	8.1	
VORTEX_PLUS	891.0	0.041921	9.381455e-01	-3.013467e+00	-7.614881e-01	-1.082850e-02	7.39	
VROC	891.0	-0.074834	8.276113e-01	-6.507844e-01	-5.395453e-01	-3.686253e-01	7.457595e	
WILLIAMS_%R	891.0	-0.139940	1.078974e+00	-1.649663e+00	-1.343113e+00	-4.595267e-01	9.4	
144_SMA_percent_away	891.0	-0.035736	1.129122e+00	-3.619241e+00	-6.525986e-01	7.266080e-02		
500P_BOLL_LOWER_percent_away	891.0	-0.019663	1.068541e+00	-2.670985e+00	-6.923743e-01	-7.85050		
500P_BOLL_UPPER_percent_away	891.0	-0.051544	1.114472e+00	-4.267434e+00	-5.927795e-01	2.678261		
618_EMA_percent_away	891.0	-0.048562	1.072546e+00	-3.664322e+00	-6.690748e-01	6.338037e-02		
ACCUM_DIST_percent_away	891.0	-0.049800	1.004586e+00	-1.157283e+00	-6.954886e-01	-2.167982e-0		
APZ_LOW_percent_away	891.0	-0.237508	1.443617e+00	-7.701517e+00	-7.500864e-01	-2.811074e-01		
APZ_UP_percent_away	891.0	-0.196027	1.458338e+00	-7.781405e+00	-6.964722e-01	-2.319297e-01	7	
CP+_C_percent_away	891.0	-0.064793	1.007188e+00	-1.971912e+00	-1.050585e+00	1.082007e-01	6	
CP+_R1_percent_away	891.0	-0.067228	1.003957e+00	-2.076107e+00	-1.037413e+00	1.179943e-01		
CP+_R2_percent_away	891.0	-0.069356	1.000225e+00	-2.172002e+00	-1.017860e+00	9.657202e-02		
CP+_R3_percent_away	891.0	-0.071113	9.960887e-01	-2.256838e+00	-9.866830e-01	8.465814e-02	6	
CP+_R4_percent_away	891.0	-0.073636	9.827229e-01	-2.424276e+00	-8.561770e-01	4.330833e-02	6	
CP+_R5_percent_away	891.0	-0.069710	9.661790e-01	-2.415271e+00	-6.173753e-01	-1.736439e-01	5	
CP+_R6_percent_away	891.0	-0.058433	9.600595e-01	-2.141482e+00	-5.801514e-01	-1.342374e-01	2	
CP+_S1_percent_away	891.0	-0.062136	1.009877e+00	-1.862347e+00	-1.056662e+00	6.803843e-02		
CP+_S2_percent_away	891.0	-0.059341	1.012023e+00	-1.839234e+00	-1.063640e+00	3.462352e-02		
CP+_S3_percent_away	891.0	-0.056473	1.013651e+00	-1.837317e+00	-1.066321e+00	2.110981e-02		
CP+_S4_percent_away	891.0	-0.048015	1.015997e+00	-1.798040e+00	-1.016017e+00	-7.943051e-02		
CP+_S5_percent_away	891.0	-0.036205	1.015036e+00	-1.687533e+00	-9.275450e-01	-1.888799e-01	8	
CP+_S6_percent_away	891.0	-0.024778	1.010975e+00	-1.537768e+00	-1.009279e+00	-1.463564e-01		
LIN_REG_percent_away	891.0	-0.208658	1.416219e+00	-7.453477e+00	-7.012627e-01	-2.537719e-01		
LIN_REG_INTERCEPT_percent_away	891.0	-0.204170	1.344010e+00	-6.091900e+00	-9.885849e-01	-2.09054		
MA_ENVELOPES_LOWER_percent_away	891.0	-0.218238	1.420855e+00	-7.096556e+00	-8.628659e-01	-3.79		

MA_ENVELOPES_MID_percent_away   891.0 -0.218230 1.420946e+00 -7.098215e+00 -8.626462e-01 -3.7898

MA_ENVELOPES_UPPER_percent_away 891.0 -0.218204 1.420854e+00 -7.096632e+00 -8.628910e-01 -3.78

OBV_percent_away   891.0 -0.049261 1.001580e+00 -1.108437e+00 -6.931966e-01 -2.611862e-01 2.3

VROC_percent_away   891.0 0.048273 1.018328e+00 -9.713564e-15 -9.713564e-15 -9.713564e-15 -9.

VWAP_percent_away   891.0 -0.016305 9.937769e-01 -2.789857e+00 -4.933182e-01 2.103280e-01 5.

VWAP_CLOUD_HIGH_percent_away   891.0 -0.021259 9.871014e-01 -3.158506e+00 -3.866692e-01 4.62605

VWAP_CLOUD_LOW_percent_away   891.0 -0.012475 1.007258e+00 -1.515101e+00 -4.849047e-01 -4.51699

| VWAP_L1_percent_away | 891.0 | 0.008810 | 1.015801e+00 | -2.611110e+00 | -6.534476e-01 | -1.033654e-01 |

VWAP_U1_percent_away   891.0 -0.024801 9.827125e-01 -2.933863e+00 -3.387359e-01 1.568297e-01

VWAP_U2_percent_away   891.0 -0.029255 9.773439e-01 -2.977965e+00 -3.537382e-01 1.592885e-01

ZIGZAG_HIGH_percent_away   891.0 -0.277588 1.282495e+00 -5.937861e+00 -4.972689e-01 -1.861319e-0

ZIGZAG_LOW_percent_away   891.0 0.080437 1.466338e+00 -6.051142e+00 -4.693406e-01 2.454414e-0

ZLEMA_13_percent_away   891.0 -0.210403 1.465259e+00 -8.047752e+00 -6.243002e-01 -1.439191e-01

ZLEMA_233_percent_away   891.0 -0.021122 1.120561e+00 -3.348054e+00 -6.913492e-01 7.015444e-02

144_SMA_binary 891.0 0.025477 1.012797e+00 -1.012242e+00 -1.012242e+00 1.019863e+00 1.0

500P_BOLL_LOWER_binary   891.0 -0.003690 1.011292e+00 -1.603643e+00 -1.603643e+00 6.397779e-0

500P_BOLL_UPPER_binary   891.0 0.084833 1.047517e+00 -5.845364e-01 -5.845364e-01 -5.845364e-01

618_EMA_binary   891.0 -0.022773 1.003768e+00 -9.818034e-01 -9.818034e-01 -9.818034e-01 1.03

ACCUM_DIST_binary   891.0 -0.003978 1.007449e+00 -4.085756e-01 -4.085756e-01 -4.085756e-01 0.

APZ_LOW_binary   891.0 -0.148341 1.478491e+00 -8.338456e+00 1.564622e-01 1.564622e-01 1.5

APZ_UP_binary   891.0 -0.022943 9.558649e-01 -9.305861e-02 -9.305861e-02 -9.305861e-02 -9.305

CP+_C_binary   891.0 -0.063578 9.953704e-01 -8.922729e-01 -8.922729e-01 -8.922729e-01 1.1306

CP+_R1_binary   891.0 0.001099 1.003019e+00 -6.988134e-01 -6.988134e-01 -6.988134e-01 1.436

CP+_R2_binary   891.0 -0.038104 9.711956e-01 -5.156610e-01 -5.156610e-01 -5.156610e-01 -5.156

CP+_R3_binary   891.0 -0.036002 9.647849e-01 -4.209814e-01 -4.209814e-01 -4.209814e-01 -4.209

CP+_R4_binary   891.0 -0.051734 8.918936e-01 -2.346438e-01 -2.346438e-01 -2.346438e-01 -2.346

CP+_R5_binary   891.0 -0.007651 9.615331e-01 -9.912279e-02 -9.912279e-02 -9.912279e-02 -9.912

CP+_R6_binary   891.0 0.000000 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.00

CP+_S1_binary   891.0 -0.104151 1.004944e+00 -1.091762e+00 -1.091762e+00 -1.091762e+00 9.17

CP+_S2_binary   891.0 -0.102289 1.014284e+00 -1.207635e+00 -1.207635e+00 8.314202e-01 8.31

CP+_S3_binary   891.0 -0.112740 1.021692e+00 -1.291322e+00 -1.291322e+00 7.758363e-01 7.75

CP+_S4_binary   891.0 -0.043591 1.019424e+00 -1.544737e+00 -1.544737e+00 6.479203e-01 6.47

CP+_S5_binary   891.0 0.010947 9.866972e-01 -3.244471e+00 3.116110e-01 3.116110e-01 3.116

CP+_S6_binary   891.0 0.000000 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.00

LIN_REG_binary   891.0 -0.151507 1.056656e+00 -1.179694e+00 -1.179694e+00 -4.475876e-01 1.01

LIN_REG_INTERCEPT_binary   891.0 -0.106368 1.026751e+00 -1.058908e+00 -1.058908e+00 -9.337209e-

MA_ENVELOPES_LOWER_binary   891.0 0.000000 0.000000e+00 0.000000e+00 0.000000e+00 0.00000

MA_ENVELOPES_MID_binary 891.0 -0.163293 1.064536e+00 -1.157237e+00 -1.157237e+00 -1.076460e

MA_ENVELOPES_UPPER_binary   891.0 0.000000 0.000000e+00 0.000000e+00 0.000000e+00 0.000000

OBV_binary   891.0 -0.010504 9.988443e-01 -4.120212e-01 -4.120212e-01 -4.120212e-01 -4.87991

VROC_binary   891.0 0.000000 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000

VWAP_binary   891.0 -0.036876 9.960384e-01 -8.269965e-01 -8.269965e-01 -8.269965e-01 1.2244

VWAP_CLOUD_HIGH_binary   891.0 -0.017174 9.993859e-01 -5.120033e-01 -5.120033e-01 -5.120033e-0

VWAP_CLOUD_LOW_binary   891.0 -0.013489 1.006731e+00 -1.581553e+00 -1.444912e+00 6.989358e+

VWAP_L1_binary   891.0 -0.033512 1.031209e+00 -2.246854e+00 -7.946543e-01 6.575457e-01 6.57

VWAP_U1_binary   891.0 0.043610 1.044491e+00 -4.790301e-01 -4.790301e-01 -4.790301e-01 -4.79

VWAP_U2_binary   891.0 0.048490 1.120773e+00 -2.113771e-01 -2.113771e-01 -2.113771e-01 -2.11

ZIGZAG_HIGH_binary   891.0 0.070440 1.179440e+00 -2.360314e-01 -2.360314e-01 -2.360314e-01 -2.

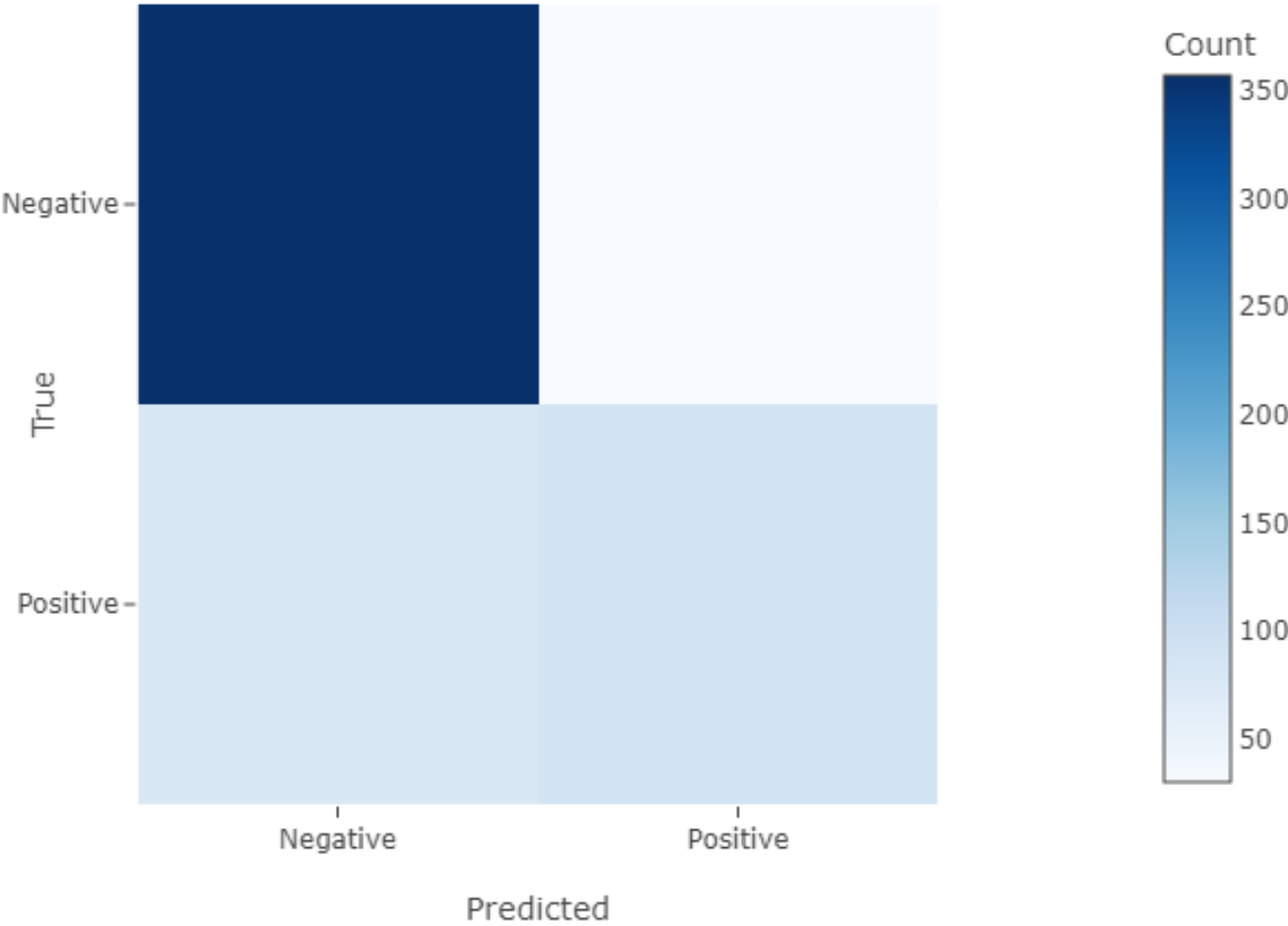ZIGZAG_LOW_binary   891.0 -0.181386 1.300693e+00 -4.508998e+00 2.761920e-01 2.761920e-01 2

ZLEMA_13_binary   891.0 -0.125468 1.077198e+00 -1.216330e+00 -1.216330e+00 -4.656908e-01 1.0
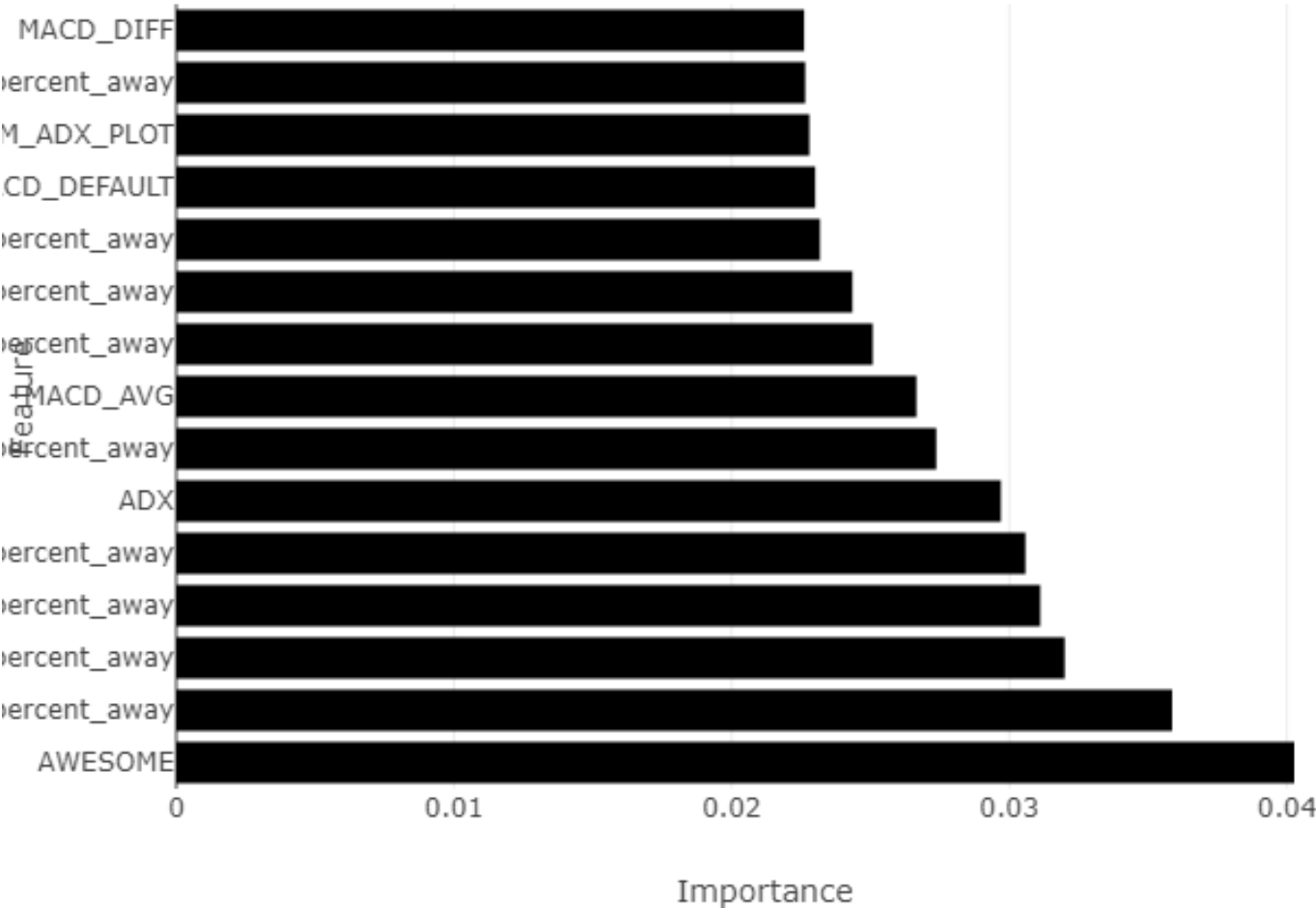
ZLEMA_233_binary   891.0 0.034821 1.011015e+00 -1.089866e+00 -1.089866e+00 9.624623e-01 9.6
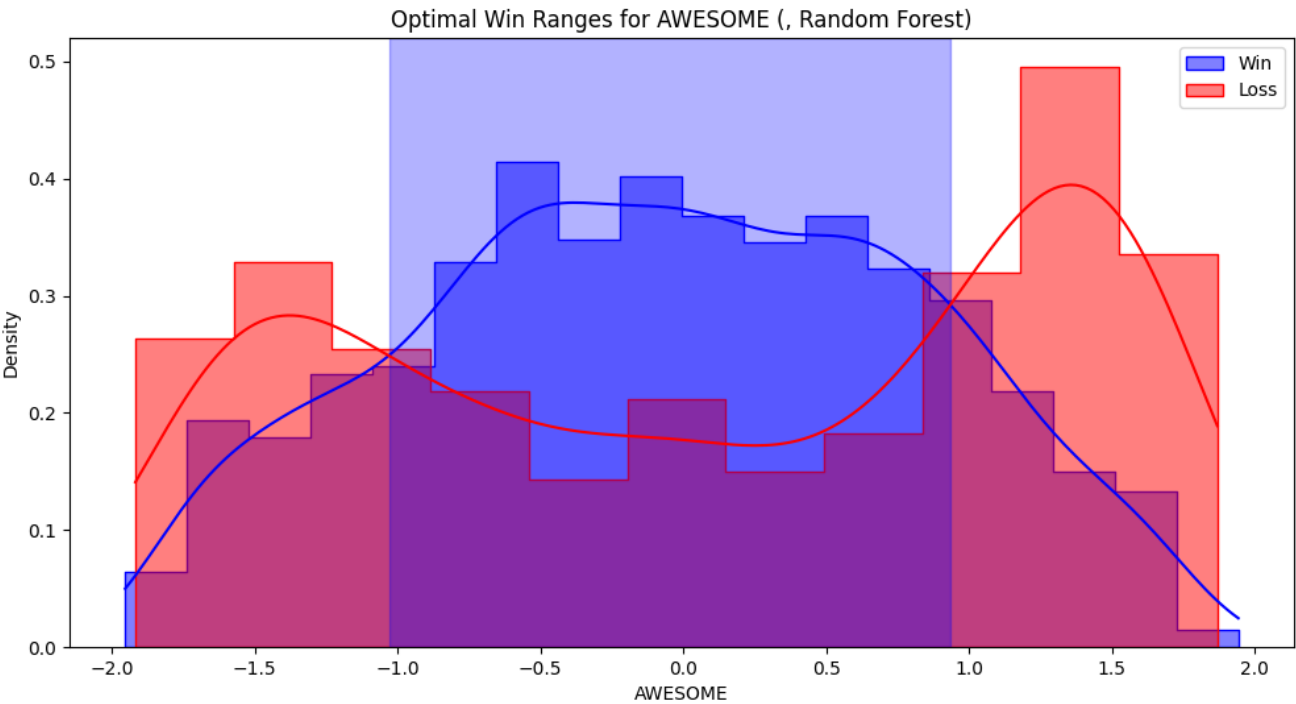
Confusion Matrix
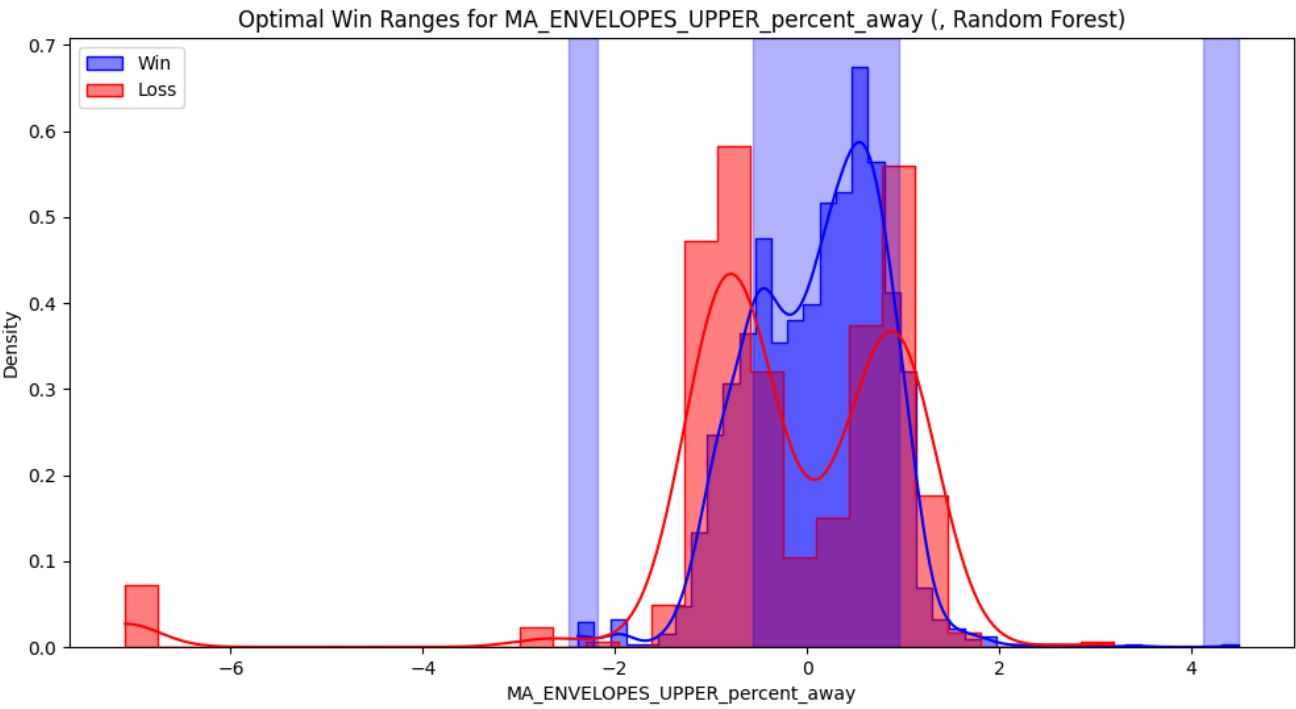
Feature Importance

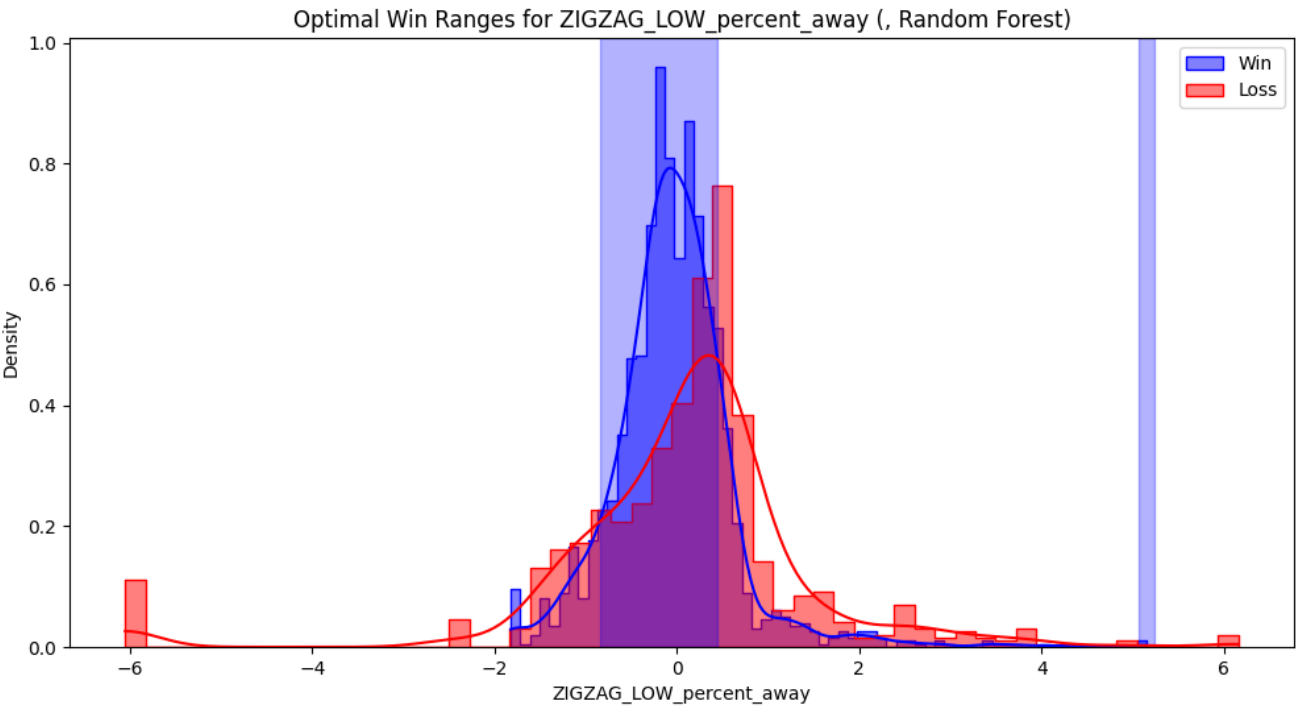# Optimal Win Ranges for AWESOME (, Random Forest)

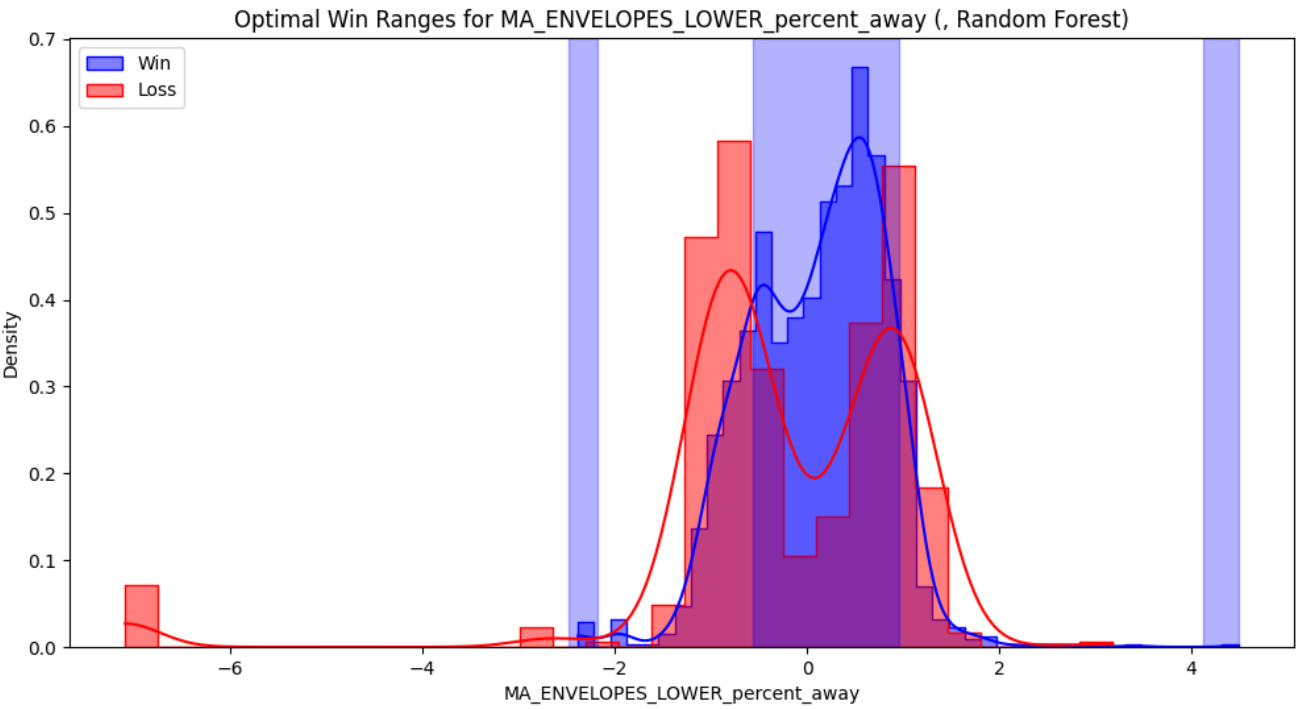Optimal Win Ranges for AWESOME (, Random Forest)

Optimal Win Ranges for MA_ENVELOPES_UPPER_percent_away (, Random Forest)
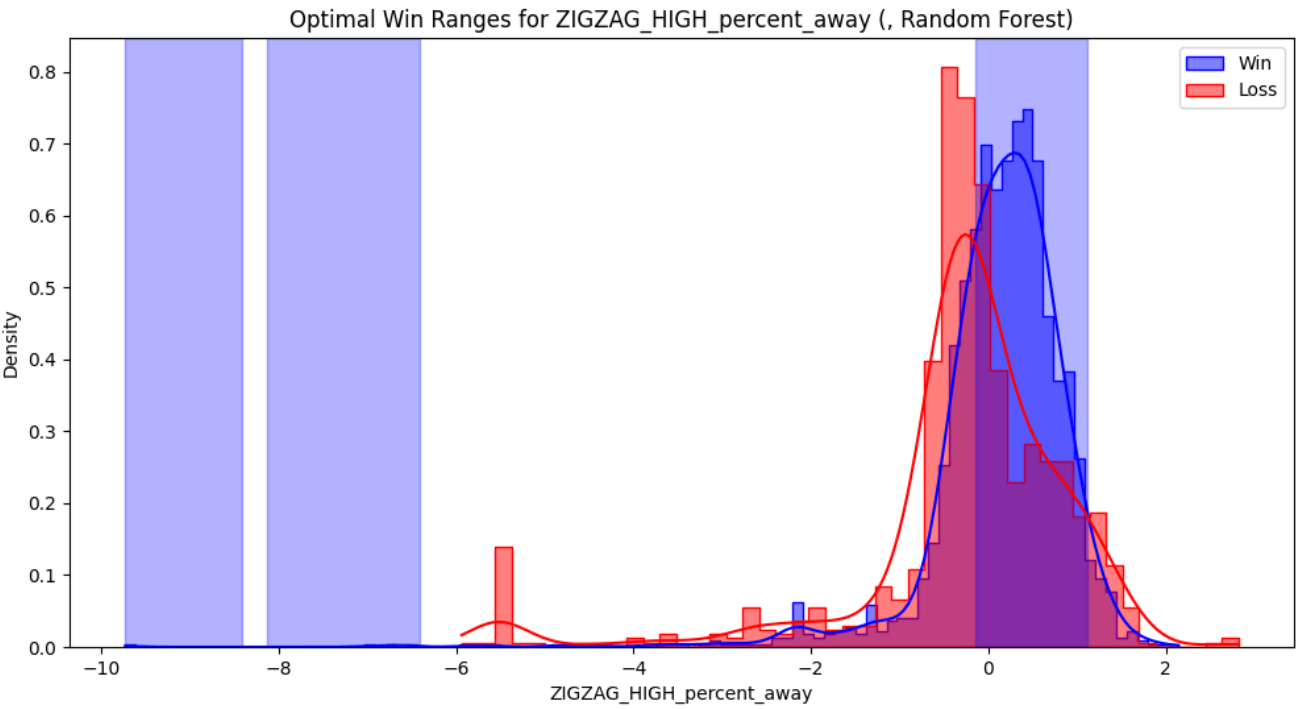
Optimal Win Ranges for ZIGZAG_LOW_percent_away (, Random Forest)

Optimal Win Ranges for MA_ENVELOPES_LOWER_percent_away (, Random Forest)

Optimal Win Ranges for ZIGZAG_HIGH_percent_away (, Random Forest)

Optimal Win Ranges for ZIGZAG_HIGH_percent_away (, Random Forest)

Optimal Win Ranges for ADX (, Random Forest)

Optimal Win Ranges for ADX (, Random Forest)

Optimal Win Ranges for MA_ENVELOPES_MID_percent_away (, Random Forest)

Optimal Win Ranges for MA_ENVELOPES_MID_percent_away (, Random Forest)

Optimal Win Ranges for MACD_AVG (, Random Forest)

Optimal Win Ranges for MACD_AVG (, Random Forest)

Optimal Win Ranges for APZ_UP_percent_away (, Random Forest)

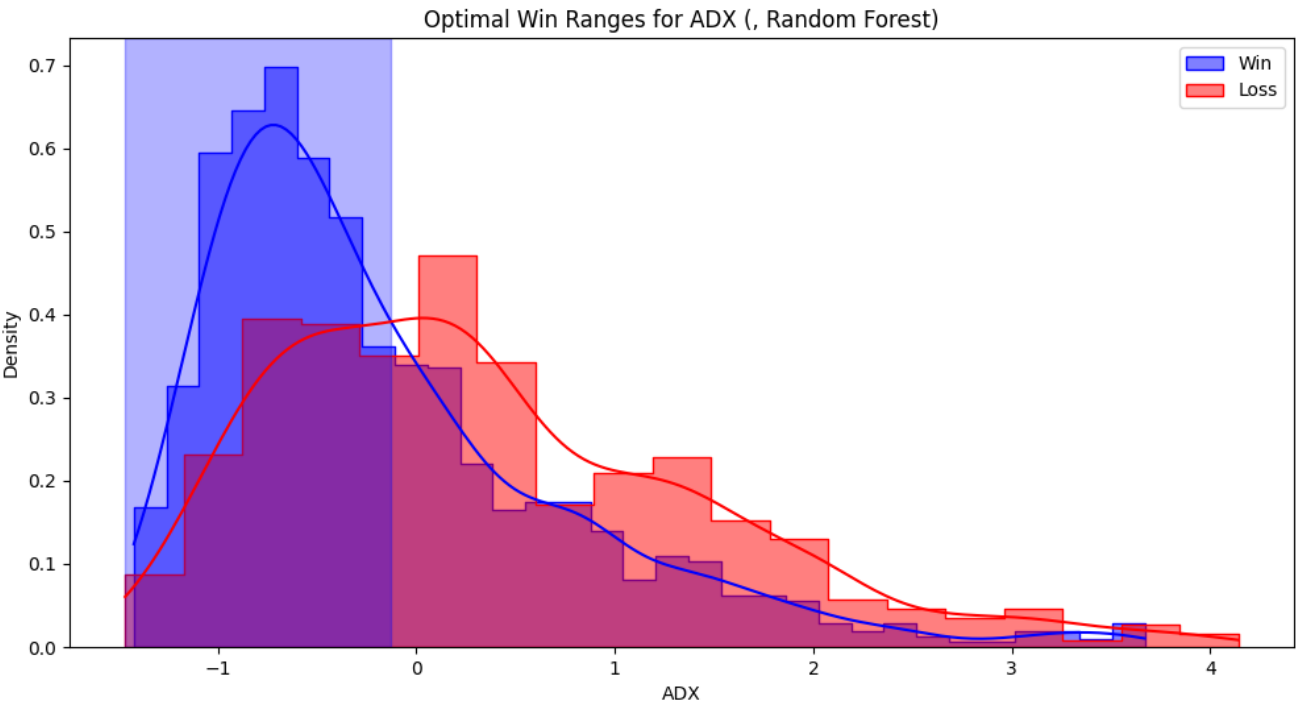# Optimal Win Ranges for LIN_REG_percent_away (, Random Forest)

Optimal Win Ranges for LIN_REG_percent_away (, Random Forest)

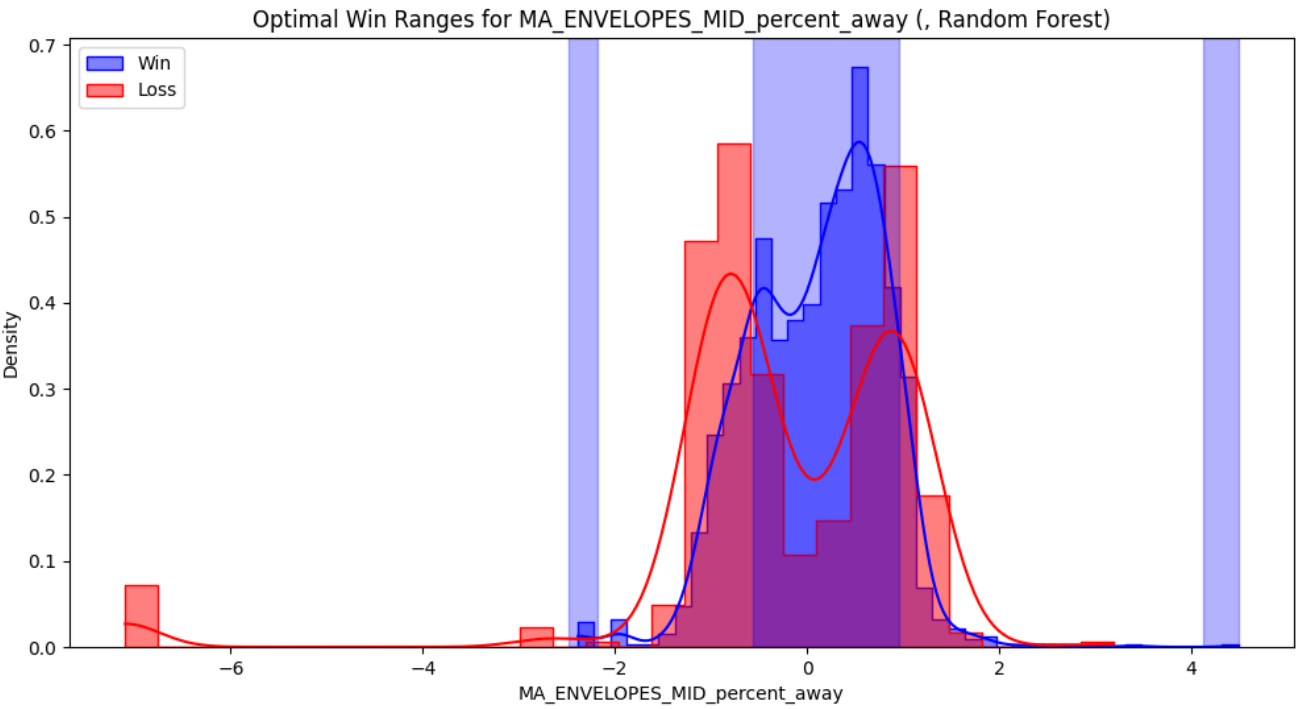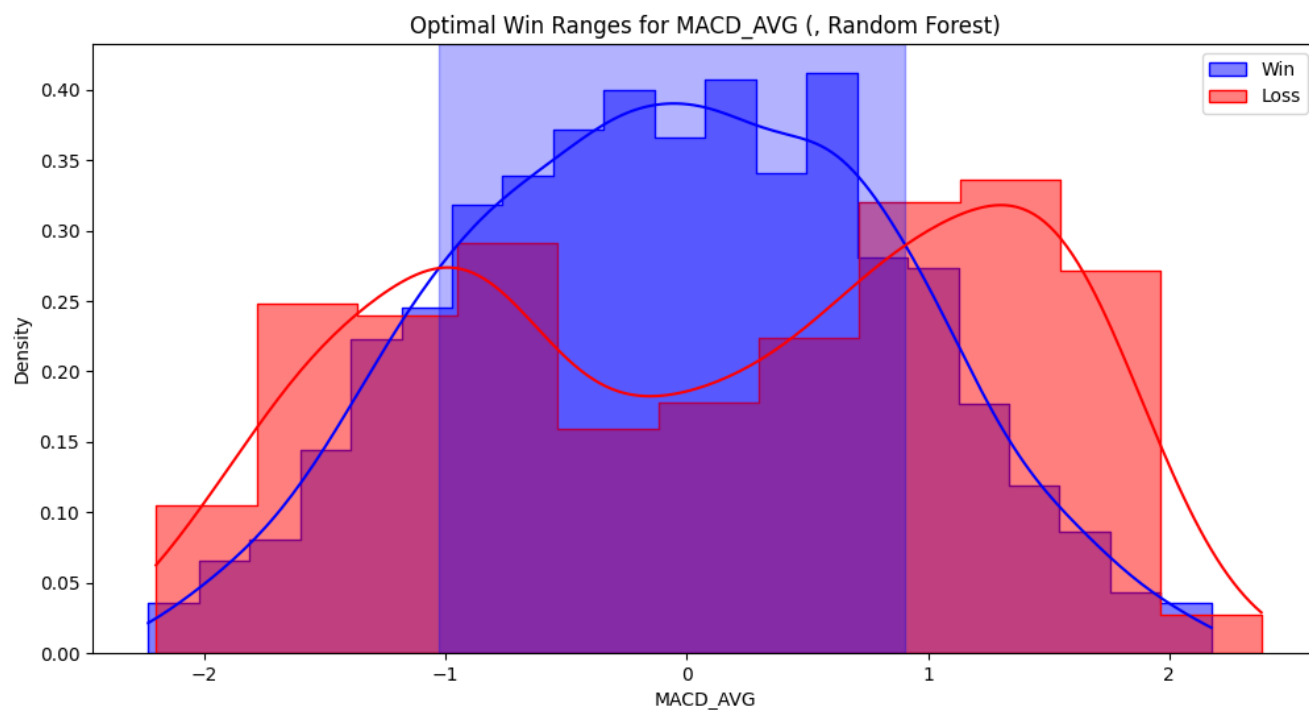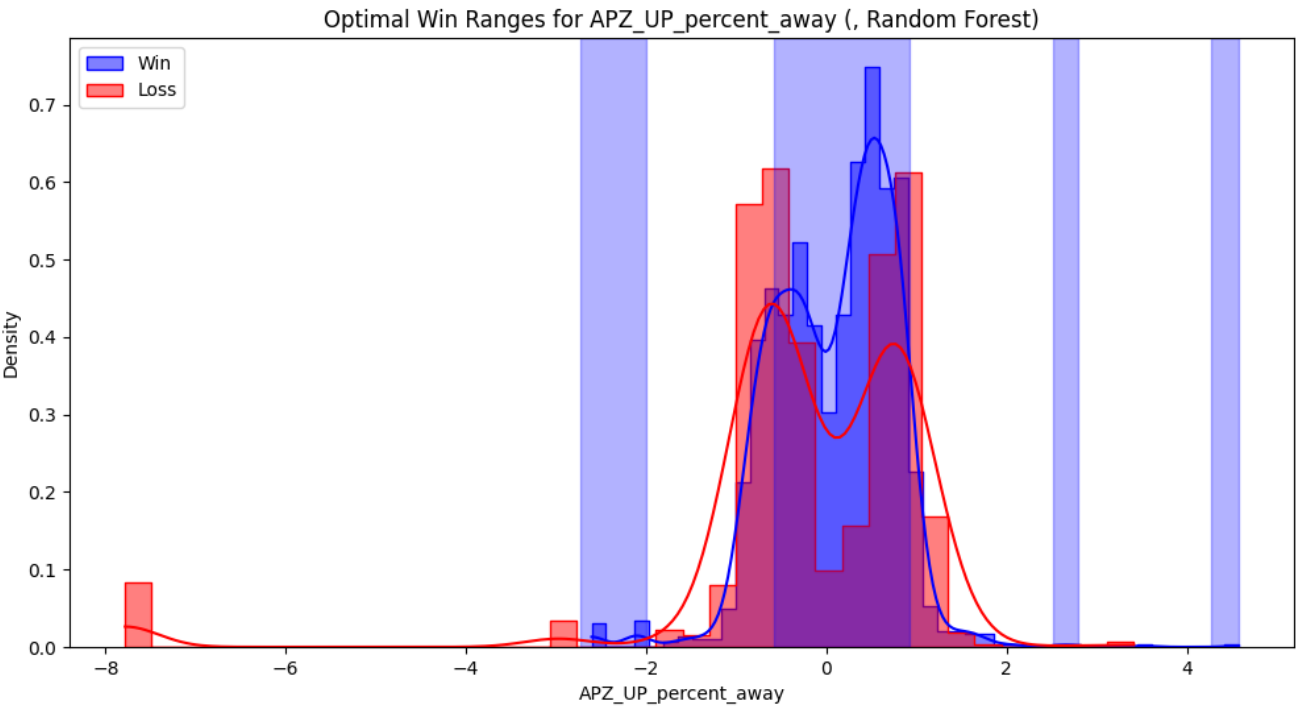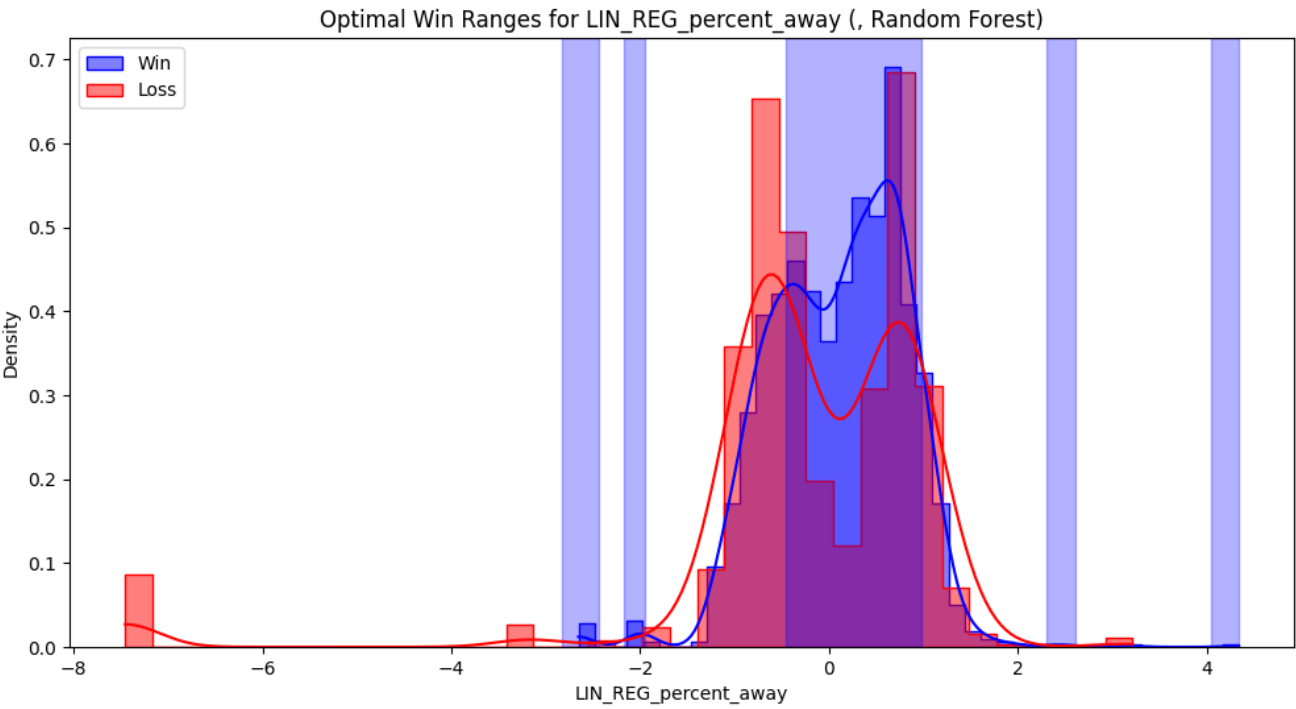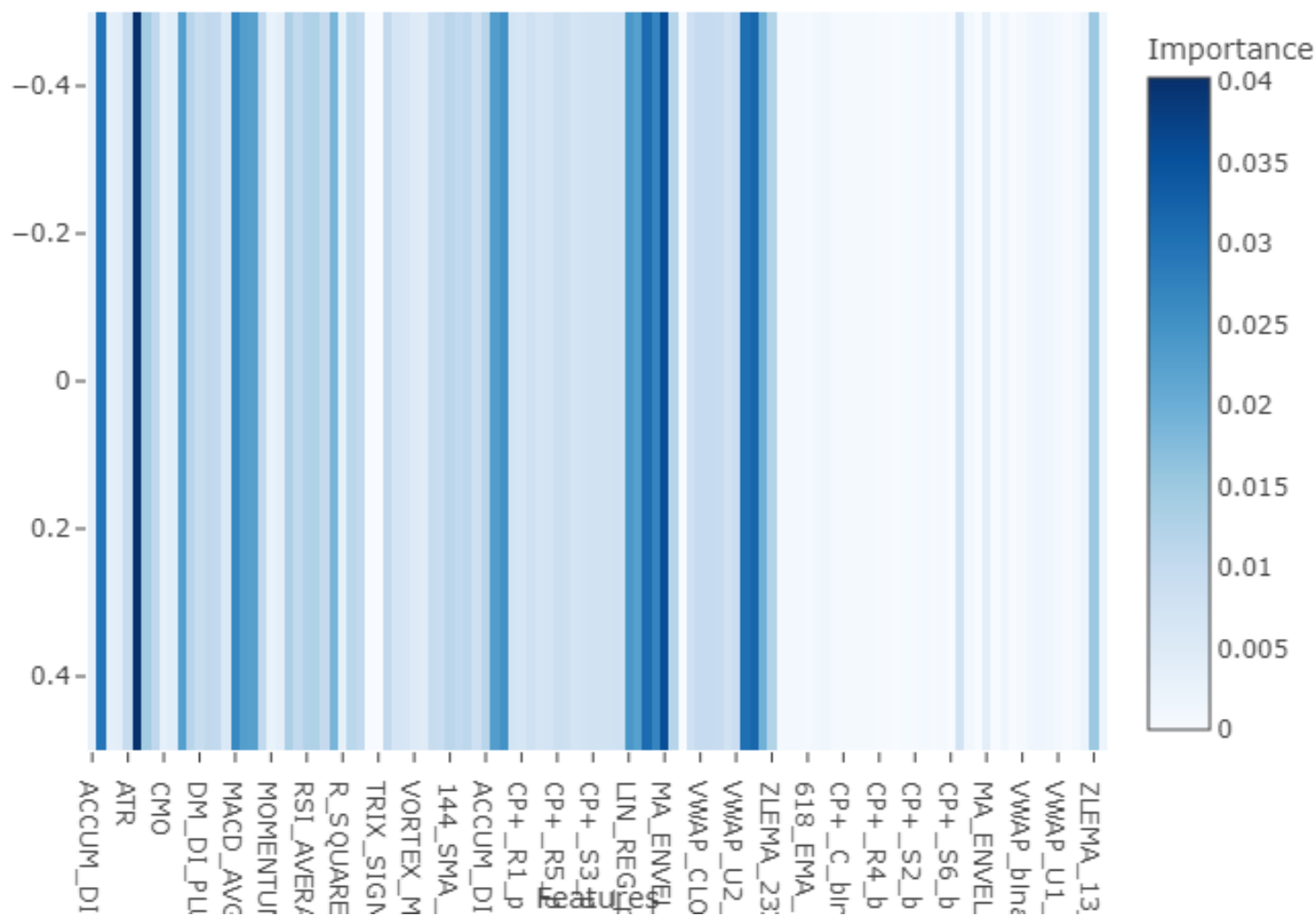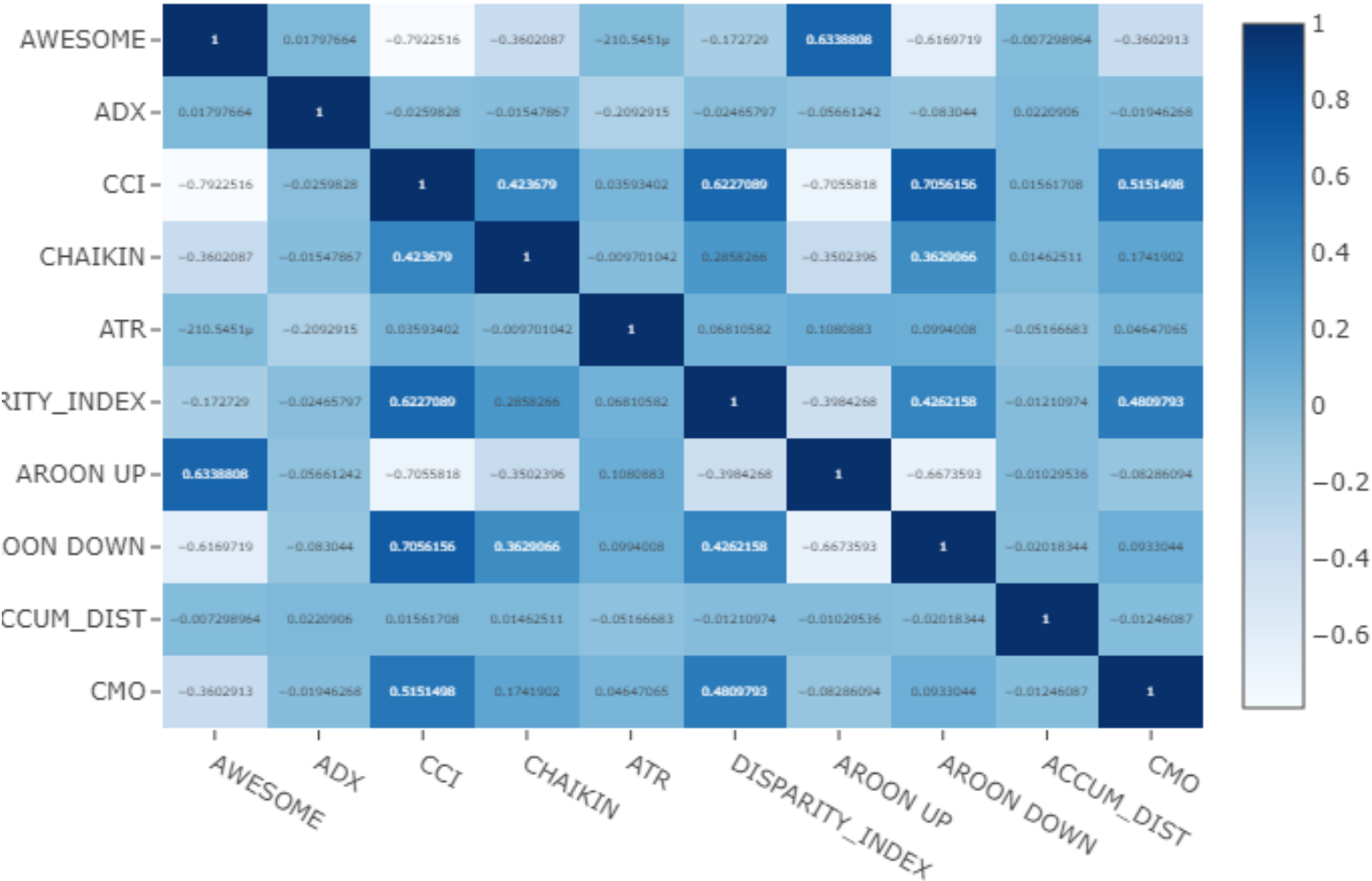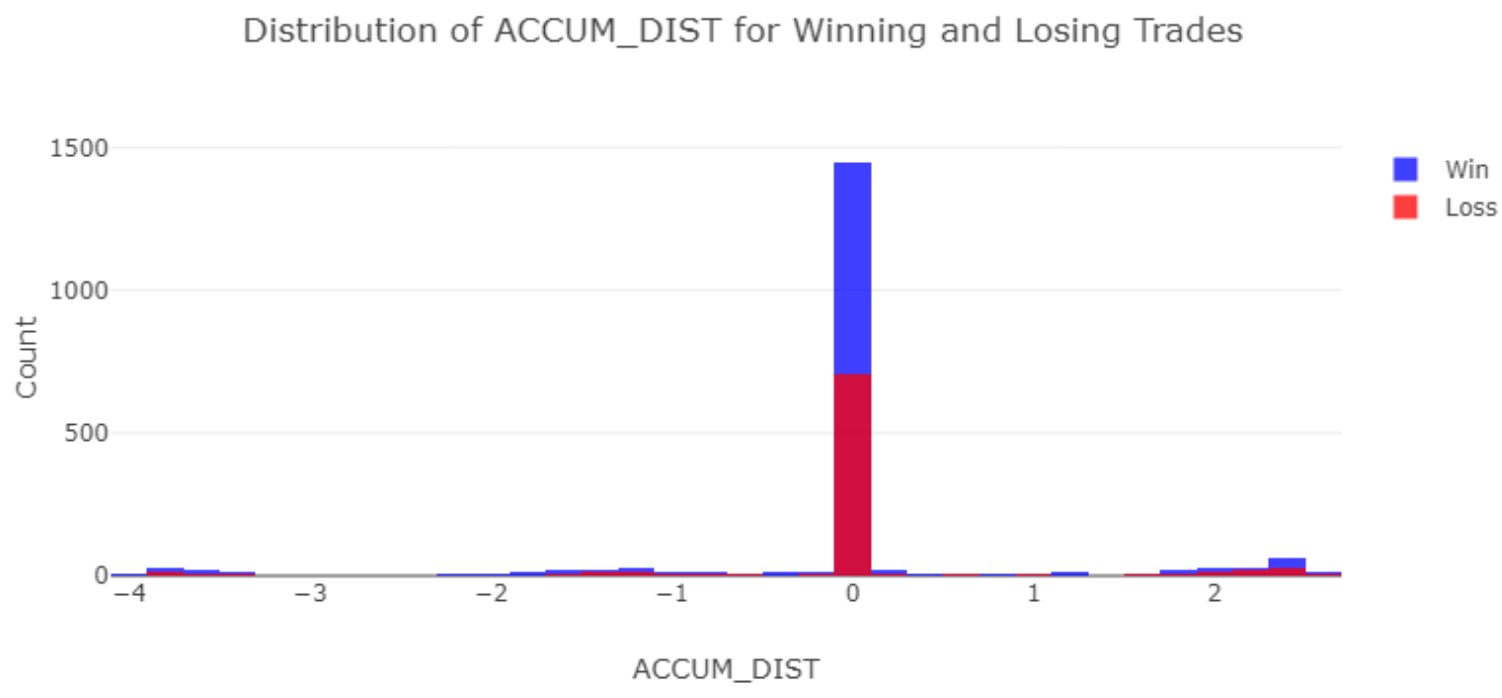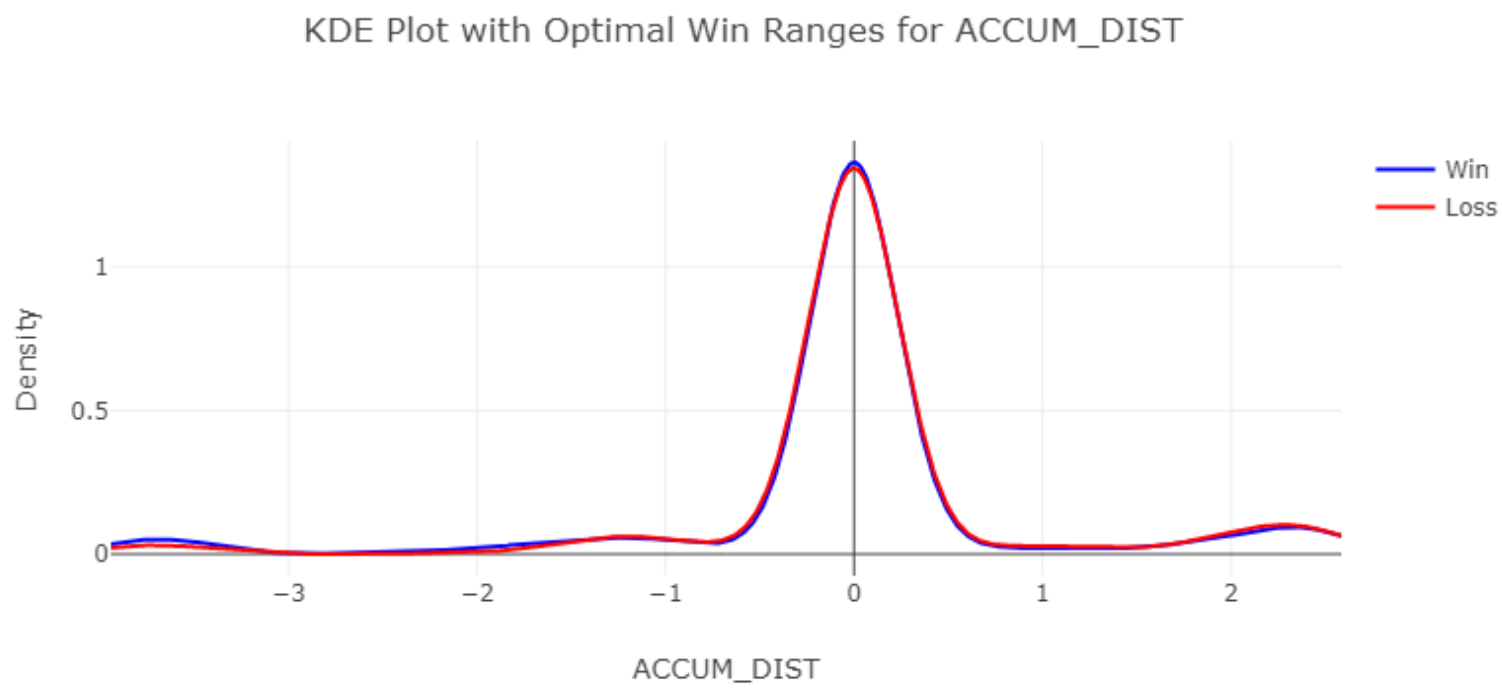# Feature Importance Heatmap

Correlation Matrix of Top Indicators

	AWESOME	ADX	CCI	CHAIKIN	ATR	DISPARITY_INDEX	AROON UP	AROON DOWN	ACCUM_DIST	CMO
AWESOME	1	0.01797664	−0.7922516	−0.3602087	−210.5451μ	−0.172729	0.6338808	−0.6169719	−0.007298964	−0.3602913
ADX	0.01797664	1	−0.0259828	−0.01547867	−0.2092915	−0.02465797	−0.05661242	−0.083044	0.0220906	−0.01946268
CCI	−0.7922516	−0.0259828	1	0.423679	0.03593402	0.6227089	−0.7055818	0.7056156	0.01561708	0.5151498
CHAIKIN	−0.3602087	−0.01547867	0.423679	1	−0.009701042	0.2858266	−0.3502396	0.3629066	0.01462511	0.1741902
ATR	−210.5451μ	−0.2092915	0.03593402	−0.009701042	1	0.06810582	0.1080883	0.0994008	−0.05166683	0.04647065
RITY_INDEX	−0.172729	−0.02465797	0.6227089	0.2858266	0.06810582	1	−0.3984268	0.4262158	−0.01210974	0.4809793
AROON UP	0.6338808	−0.05661242	−0.7055818	−0.3502396	0.1080883	−0.3984268	1	−0.6673593	−0.01029536	−0.08286094
OON DOWN	−0.6169719	−0.083044	0.7056156	0.3629066	0.0994008	0.4262158	−0.6673593	1	−0.02018344	0.0933044
CCUM_DIST	−0.007298964	0.0220906	0.01561708	0.01462511	−0.05166683	−0.01210974	−0.01029536	−0.02018344	1	−0.01246087
CMO	−0.3602913	−0.01946268	0.5151498	0.1741902	0.04647065	0.4809793	−0.08286094	0.0933044	−0.01246087	1

Distribution of ACCUM_DIST for Winning and Losing Trades

Distribution of ACCUM_DIST for Winning and Losing Trades

KDE Plot with Optimal Win Ranges for ACCUM_DIST

Mean Indicator Values for Losses