MAADSBML AutoML Report For FIERA CAPITAL

Generated On: 2024-04-24 19:12:01 (EDT)

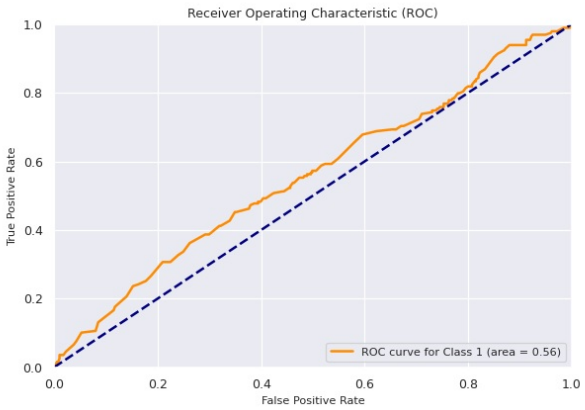
Best Model(s) Report For admin_creditcarddefaults2_csv

MODEL DESCRIPTION

Model Trained On: 2024/04/24
Training Start Time: 1909
Training End Time: 1912
Was Data Normalized: Yes
Was Data Shuffled: Yes
Deep Analysis: No
Total Training Data Set: 948
Training Data Percentage: 75%
Total Test Data Set: 314
Total # of Variables: 7
Adjusted for Seasonality: N
Total Algorithms Run: 900
Removed Outliers: N
ROC AUC: 0.556
Precision: 0.337 (0.684 For Class=0)
Recall: 0.749 (0.269 For Class=0)
F1-Score: 0.465 (0.386 For Class=0)
Best Distribution FOR ACTUAL Y: POWERLOGNORM
Dependent Variable: DEFAULTSCORE
Independent Variables: ['amountofcredit', 'Gender', 'Education', 'MaritalStatus', 'Age', 'LastPayment']

Receiver Operating Characteristic Curve (ROC)

Using VotingClassifier rfclassifier algorithm for allseason



IMPORTANT FILE PATHS FOR RAW AND OUTPUT DATA

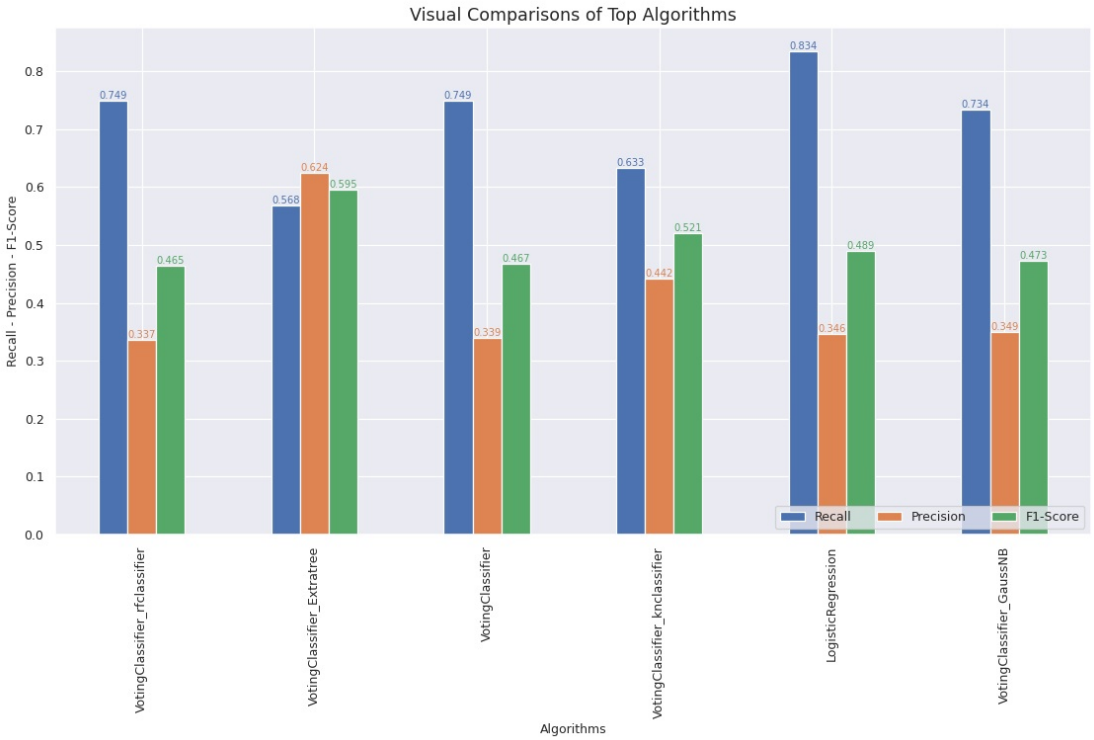
NOTE: These are DOCKER CONTAINER Paths. You can view these files inside the container by using the command: **docker exec -it {container id} bash If you have re-run the container, these files will be GONE but they exist on your HOST machine. The HOST MACHINE location is based on the volumes you mapped when you ran the Docker container. The Docker RUN Volume Mappings are :: (For example here is the docker run command (use multiple -v for multiple mappings):**

DOCKER RUN COMMAND: docker run -d -p 5595:5595 -p 5495:5495 -p 10000:10000 -v {HOST MACHINE FOLDER}:{CONTAINER FOLDER}:z --env TRAININGPORT=5595 --env PREDICTIONPORT=5495 --env ABORTPORT=10000 --env COMPANYNAME=MYCOMPANY --env MAXRUNTIME=20 --env MAINHOST=127.0.0.1 maadsdocker/maads-batch-automl-otics

Docker Volume Mappings:
1. {HOST MACHINE FOLDER}/csvuploads:/mnt/c/maads/agentfilesdocker/dist/maadsweb/csvuploads:z
2. {HOST MACHINE FOLDER}/pdfreports:/mnt/c/maads/agentfilesdocker/dist/maadsweb/pdfreports:z
3. {HOST MACHINE FOLDER}/autofeatures:/mnt/c/maads/agentfilesdocker/dist/maadsweb/autofeatures:z
4. {HOST MACHINE FOLDER}/outliers:/mnt/c/maads/agentfilesdocker/dist/maadsweb/outliers:z
5. {HOST MACHINE FOLDER}/sqlloads:/mnt/c/maads/agentfilesdocker/dist/maadsweb/sqlloads:z
6. {HOST MACHINE FOLDER}/networktemp:/mnt/c/maads/agentfilesdocker/dist/maadsweb/networktemp:z
7. {HOST MACHINE FOLDER}/networks:/mnt/c/maads/agentfilesdocker/networks:z
8. {HOST MACHINE FOLDER}/exception:/mnt/c/maads/agentfilesdocker/dist/maadsweb/exception:z
9. {HOST MACHINE FOLDER}/staging:/mnt/c/maads/agentfilesdocker/dist/staging:z

Path for Training Dataset File: /mnt/c/maads/agentfilesdocker/dist/maadsweb/csvuploads/creditcarddefaults2.csv
Path for PDF Report (i.e. this file): /mnt/c/maads/agentfilesdocker/dist/maadsweb/pdfreports/admin_creditcarddefaults2_csv_no_seasons.pdf
Path for AutoFeature File: /mnt/c/maads/agentfilesdocker/dist/maadsweb/autofeatures/admin_creditcarddefaults2_csv_.csv
Path for Outliers File: /mnt/c/maads/agentfilesdocker/dist/maadsweb/outliers/admin_creditcarddefaults2_csv.csv
Path for Algo JSON File: /mnt/c/maads/agentfilesdocker/dist/maadsweb/exception/admin_creditcarddefaults2_csv_trained_algo_no_seasons.json
Folder Path for MySQL Scripts: /mnt/c/maads/agentfilesdocker/dist/maadsweb/sqlloads/
Path for Detailed Prediction File: /mnt/c/maads/agentfilesdocker/dist/maadsweb/csvuploads/admin_creditcarddefaults2_csv_prediction_details.csv
Path for Algorithm Zip File (i.e pickle files): /mnt/c/maads/agentfilesdocker/dist/maadsweb/networktemp/admin_creditcarddefaults2_csv.zip
Path for Algorithm Pickle Files:
1. /mnt/c/maads/agentfilesdocker/networks/otics_ADMIN_CREDITCARDDEFAULTS2_CSVALLSEASON_AG1_4_VotingClassifier_rfclassifier_normal_948_ensemble_.pkl
2. /mnt/c/maads/agentfilesdocker/networks/otics_ADMIN_CREDITCARDDEFAULTS2_CSVALLSEASON_AG1_4_VotingClassifier_rfclassifier_normal_948_ensemble_scalerx_.pkl

TOP 10 ALGORITHMS FOR ALLSEASON

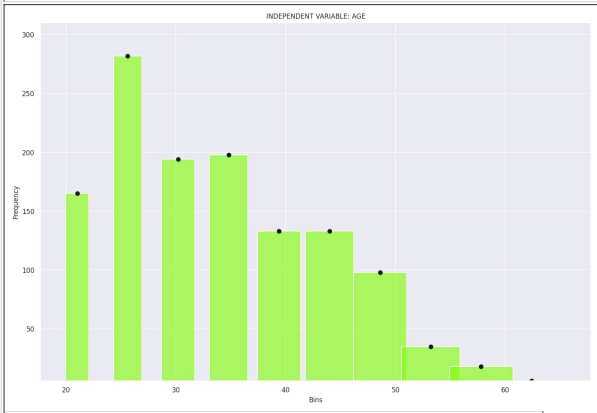


Num	Algorithm	Model ROC/AUC	Details	Season	Description
1	VotingClassifier_rfclassifier	0.7220	**Recall:** 0.749 (class 1) **Precision:** 0.337 (class 1) **F1 Score:** 0.465 (class 1) **Recall:** 0.269 (class 0) **Precision:** 0.684 (class 0) **F1 Score:** 0.386 (class 0) **False Negative Rate:** 8.3% **True Positive Rate:** 24.8% **False Positive Rate:** 48.8% **True Negaive Rate:** 48.8%	allseason	RANDOM FOREST CLASSIFIER: Random forest
2	VotingClassifier_Extratree	0.7050	**Recall:** 0.568 (class 1) **Precision:** 0.624 (class 1) **F1 Score:** 0.595 (class 1) **Recall:** 0.83 (class 0) **Precision:** 0.795 (class 0) **F1 Score:** 0.812 (class 0) **False Positive Rate:** 11.3% **True Negaive Rate:** 11.3% **False Negative Rate:** 14.3% **True Positive Rate:** 18.8%	allseason	EXTRA TREE CLASSIFIER: Extra tree classifier
3	VotingClassifier	0.7050	**Recall:** 0.749 (class 1) **Precision:** 0.339 (class 1) **F1 Score:** 0.467 (class 1) **Recall:** 0.277 (class 0) **Precision:** 0.689 (class 0) **F1 Score:** 0.395 (class 0) **False Negative Rate:** 8.3% **True Positive Rate:** 24.8% **False Positive Rate:** 48.3% **True Negaive Rate:** 48.3%	allseason	VOTING CLASSIFIER: Combination of different classifers (DecisionTree, RandomForest,K nearest neighbour,GaussNB,Extra tree,ADA boost, etc)
4	VotingClassifier_knclassifier	0.6600	**Recall:** 0.633 (class 1) **Precision:** 0.442 (class 1) **F1 Score:** 0.521 (class 1) **Recall:** 0.603 (class 0) **Precision:** 0.768 (class 0) **F1 Score:** 0.676 (class 0) **False Negative Rate:** 12.2% **True Positive Rate:** 21.0% **False Positive Rate:** 26.5% **True Negaive Rate:** 26.5%	allseason	K-NEAREST NEIGHBOUR: k-nearest neighbour
5	LogisticRegression	0.6540	**Recall:** 0.834 (class 1) **Precision:** 0.346 (class 1) **F1 Score:** 0.489 (class 1) **Recall:** 0.217 (class 0) **Precision:** 0.725 (class 0) **F1 Score:** 0.334 (class 0)	allseason	LOGISTIC REGRESSION:

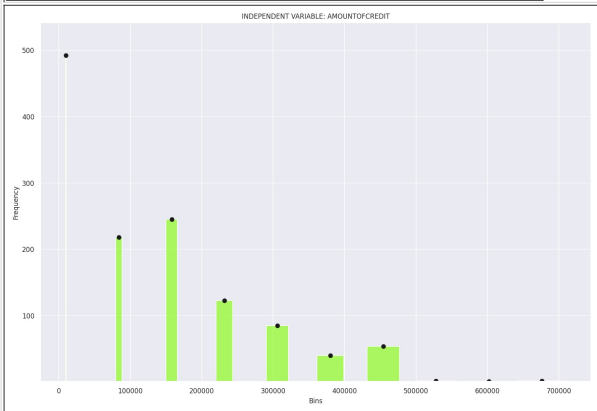
			False Negative Rate: 5.5% **True Positive Rate:** 27.7% **False Positive Rate:** 52.3% **True Negaive Rate:** 52.3%		
6	VotingClassifier_GaussNB	0.5800	**Recall:** 0.734 (class 1) **Precision:** 0.349 (class 1) **F1 Score:** 0.473 (class 1) **Recall:** 0.322 (class 0) **Precision:** 0.709 (class 0) **F1 Score:** 0.443 (class 0) **False Negative Rate:** 8.8% **True Positive Rate:** 24.3% **False Positive Rate:** 45.3% **True Negaive Rate:** 45.3%	allseason	GAUSSIAN NB: Gaussian

Detailed Histograms of Training and Test Data Sets

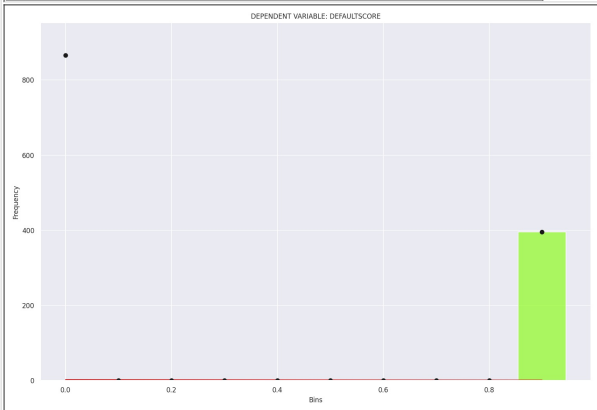
TRAINING VARIABLES



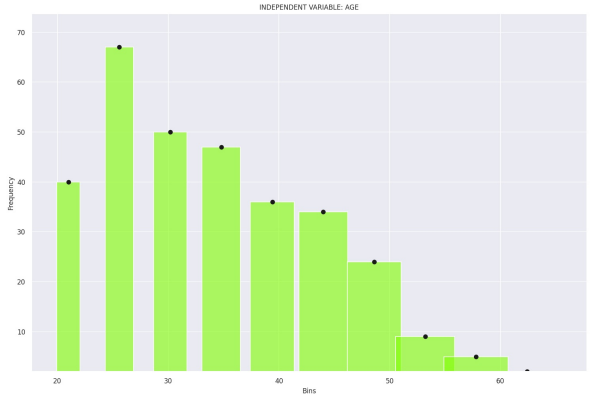
Bins	[2.10e+01, 2.56e+01]	[2.56e+01, 3.02e+01]	[3.02e+01, 3.48e+01]	[3.48e+01, 3.94e+01]	[3.94e+01, 4.40e+01]	[4.40e+01, 4.86e+01]
Count	165	282	194	198	133	133
Share	**13.0%**	**22.0%**	**15.0%**	**16.0%**	**11.0%**	**11.0%**
Total Rows	1262	1262	1262	1262	1262	1262
Min	2.10e+01	2.10e+01	2.10e+01	2.10e+01	2.10e+01	2.10e+01
Max	6.70e+01	6.70e+01	6.70e+01	6.70e+01	6.70e+01	6.70e+01
Number of Bins	6	6	6	6	6	6



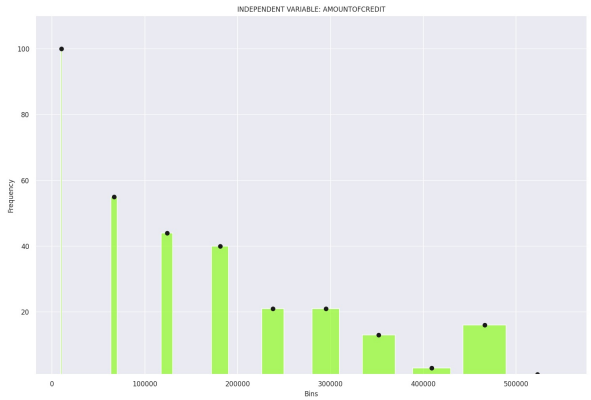
Bins	[1.00e+04, 8.40e+04]	[8.40e+04, 1.58e+05]	[1.58e+05, 2.32e+05]	[2.32e+05, 3.06e+05]	[3.06e+05, 3.80e+05]	[3.80e+05, 4.54e+05]
Count	492	218	245	123	85	40
Share	**39.0%**	**17.0%**	**19.0%**	**10.0%**	**7.0%**	**3.0%**
Total Rows	1262	1262	1262	1262	1262	1262
Min	1.00e+04	1.00e+04	1.00e+04	1.00e+04	1.00e+04	1.00e+04
Max	7.50e+05	7.50e+05	7.50e+05	7.50e+05	7.50e+05	7.50e+05
Number of Bins	6	6	6	6	6	6



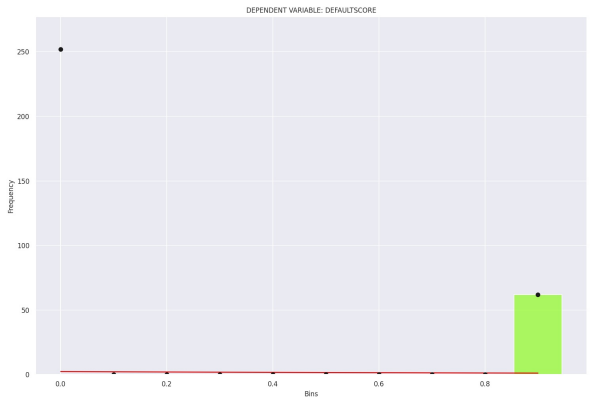
TEST VARIABLES



Bins	[2.10e+01, 2.56e+01]	[2.56e+01, 3.02e+01]	[3.02e+01, 3.48e+01]	[3.48e+01, 3.94e+01]	[3.94e+01, 4.40e+01]	[4.40e+01, 4.86e+01]
Count	40	67	50	47	36	34
Share	**13.0%**	**21.0%**	**16.0%**	**15.0%**	**11.0%**	**11.0%**
Total Rows	314	314	314	314	314	314
Min	2.10e+01	2.10e+01	2.10e+01	2.10e+01	2.10e+01	2.10e+01
Max	6.70e+01	6.70e+01	6.70e+01	6.70e+01	6.70e+01	6.70e+01
Number of Bins	6	6	6	6	6	6

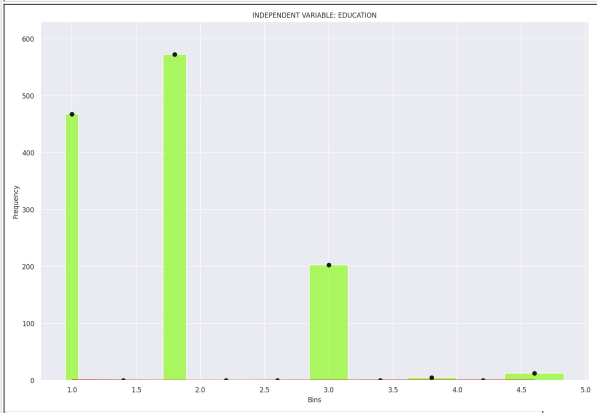


Bins	[1.00e+04, 6.70e+04]	[6.70e+04, 1.24e+05]	[1.24e+05, 1.81e+05]	[1.81e+05, 2.38e+05]	[2.38e+05, 2.95e+05]	[2.95e+05, 3.52e+05]
Count	100	55	44	40	21	21
Share	**32.0%**	**18.0%**	**14.0%**	**13.0%**	**7.0%**	**7.0%**
Total Rows	314	314	314	314	314	314
Min	1.00e+04	1.00e+04	1.00e+04	1.00e+04	1.00e+04	1.00e+04
Max	5.80e+05	5.80e+05	5.80e+05	5.80e+05	5.80e+05	5.80e+05
Number of Bins	6	6	6	6	6	6

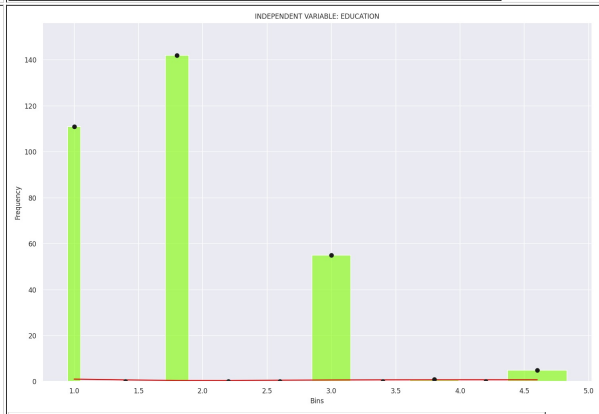


Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	866	0	0	0	0	0
Share	69.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1262	1262	1262	1262	1262	1262
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6

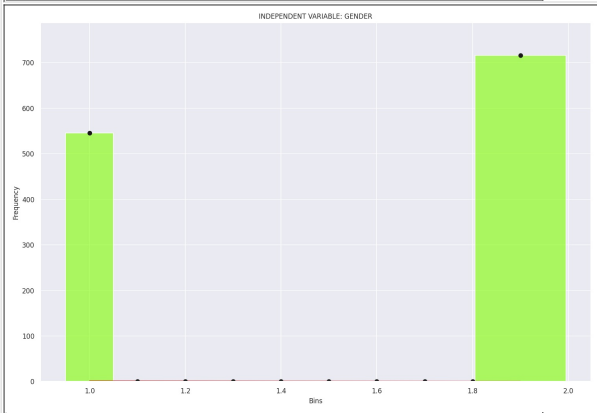
Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	252	0	0	0	0	0
Share	80.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	314	314	314	314	314	314
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



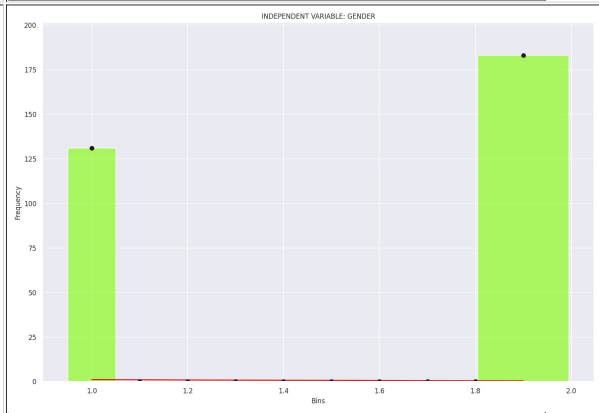
Bins	[1.00e+00, 1.40e+00]	[1.40e+00, 1.80e+00]	[1.80e+00, 2.20e+00]	[2.20e+00, 2.60e+00]	[2.60e+00, 3.00e+00]	[3.00e+00, 3.40e+00]
Count	468	0	573	0	0	203
Share	37.0%	0.0%	45.0%	0.0%	0.0%	16.0%
Total Rows	1262	1262	1262	1262	1262	1262
Min	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Max	5.00e+00	5.00e+00	5.00e+00	5.00e+00	5.00e+00	5.00e+00
Number of Bins	6	6	6	6	6	6



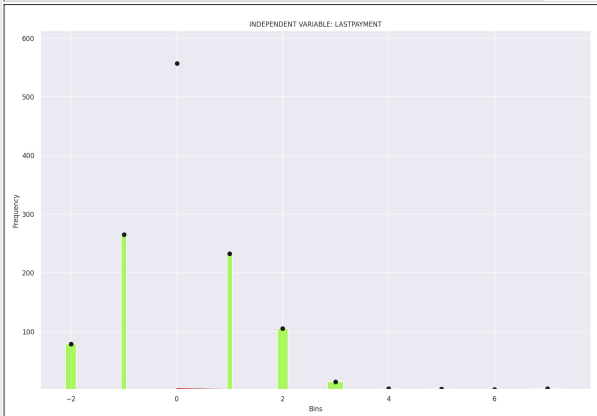
Bins	[1.00e+00, 1.40e+00]	[1.40e+00, 1.80e+00]	[1.80e+00, 2.20e+00]	[2.20e+00, 2.60e+00]	[2.60e+00, 3.00e+00]	[3.00e+00, 3.40e+00]
Count	111	0	142	0	0	55
Share	35.0%	0.0%	45.0%	0.0%	0.0%	18.0%
Total Rows	314	314	314	314	314	314
Min	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Max	5.00e+00	5.00e+00	5.00e+00	5.00e+00	5.00e+00	5.00e+00
Number of Bins	6	6	6	6	6	6

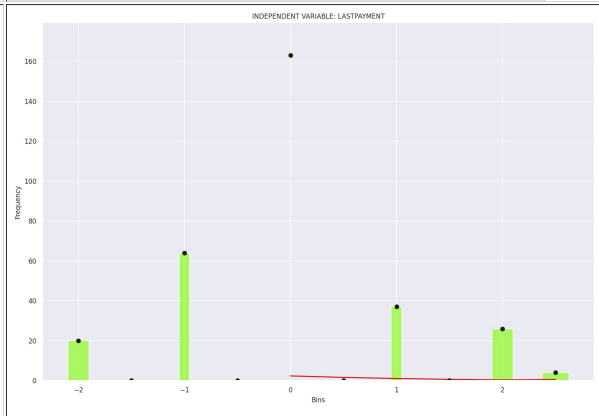


Bins	[1.00e+00, 1.10e+00]	[1.10e+00, 1.20e+00]	[1.20e+00, 1.30e+00]	[1.30e+00, 1.40e+00]	[1.40e+00, 1.50e+00]	[1.50e+00, 1.60e+00]
Count	546	0	0	0	0	0
Share	43.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1262	1262	1262	1262	1262	1262
Min	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Max	2.00e+00	2.00e+00	2.00e+00	2.00e+00	2.00e+00	2.00e+00
Number of Bins	6	6	6	6	6	6



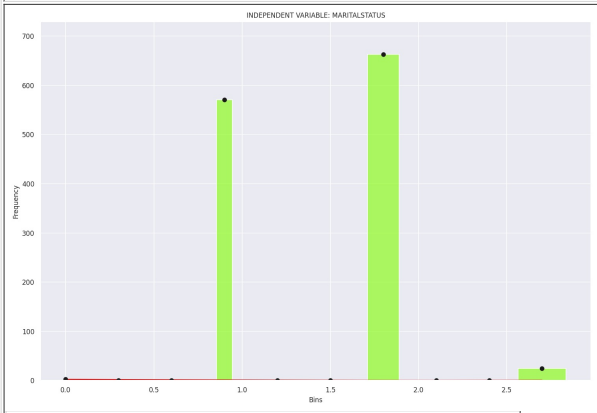
Bins	[1.00e+00, 1.10e+00]	[1.10e+00, 1.20e+00]	[1.20e+00, 1.30e+00]	[1.30e+00, 1.40e+00]	[1.40e+00, 1.50e+00]	[1.50e+00, 1.60e+00]
Count	131	0	0	0	0	0
Share	42.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	314	314	314	314	314	314
Min	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Max	2.00e+00	2.00e+00	2.00e+00	2.00e+00	2.00e+00	2.00e+00
Number of Bins	6	6	6	6	6	6



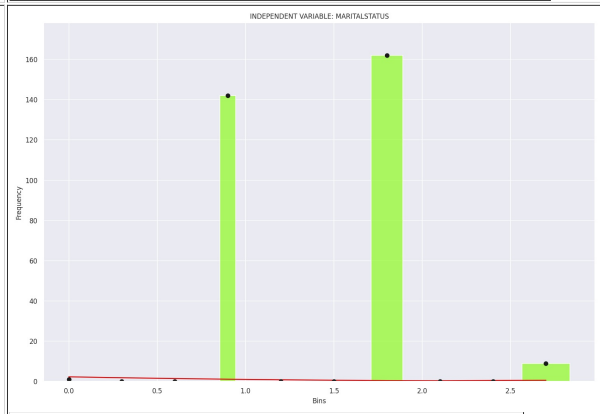


Bins	[-2.00e+00, -1.00e+00]	[-1.00e+00, 0.00e+00]	[0.00e+00, 1.00e+00]	[1.00e+00, 2.00e+00]	[2.00e+00, 3.00e+00]	[3.00e+00, 4.00e+00]
Count	79	265	557	233	105	14
Share	6.0%	21.0%	44.0%	18.0%	8.0%	1.0%
Total Rows	1262	1262	1262	1262	1262	1262
Min	-2.00e+00	-2.00e+00	-2.00e+00	-2.00e+00	-2.00e+00	-2.00e+00
Max	8.00e+00	8.00e+00	8.00e+00	8.00e+00	8.00e+00	8.00e+00
Number of Bins	6	6	6	6	6	6

Bins	[-2.00e+00, -1.50e+00]	[-1.50e+00, -1.00e+00]	[-1.00e+00, -5.00e-01]	[-5.00e-01, 0.00e+00]	[0.00e+00, 5.00e-01]	[5.00e-01, 1.00e+00]
Count	20	0	64	0	163	0
Share	6.0%	0.0%	20.0%	0.0%	52.0%	0.0%
Total Rows	314	314	314	314	314	314
Min	-2.00e+00	-2.00e+00	-2.00e+00	-2.00e+00	-2.00e+00	-2.00e+00
Max	3.00e+00	3.00e+00	3.00e+00	3.00e+00	3.00e+00	3.00e+00
Number of Bins	6	6	6	6	6	6

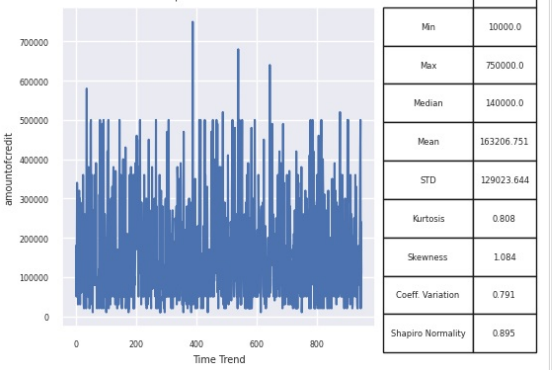


Bins	[0.00e+00, 3.00e-01]	[3.00e-01, 6.00e-01]	[6.00e-01, 9.00e-01]	[9.00e-01, 1.20e+00]	[1.20e+00, 1.50e+00]	[1.50e+00, 1.80e+00]
Count	3	0	0	571	0	0
Share	0.0%	0.0%	0.0%	45.0%	0.0%	0.0%
Total Rows	1262	1262	1262	1262	1262	1262
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	3.00e+00	3.00e+00	3.00e+00	3.00e+00	3.00e+00	3.00e+00
Number of Bins	6	6	6	6	6	6

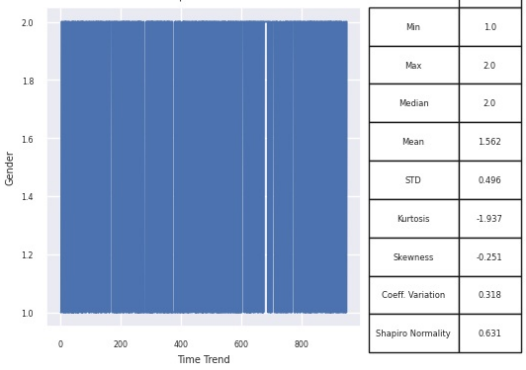


Bins	[0.00e+00, 3.00e-01]	[3.00e-01, 6.00e-01]	[6.00e-01, 9.00e-01]	[9.00e-01, 1.20e+00]	[1.20e+00, 1.50e+00]	[1.50e+00, 1.80e+00]
Count	1	0	0	142	0	0
Share	0.0%	0.0%	0.0%	45.0%	0.0%	0.0%
Total Rows	314	314	314	314	314	314
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	3.00e+00	3.00e+00	3.00e+00	3.00e+00	3.00e+00	3.00e+00
Number of Bins	6	6	6	6	6	6

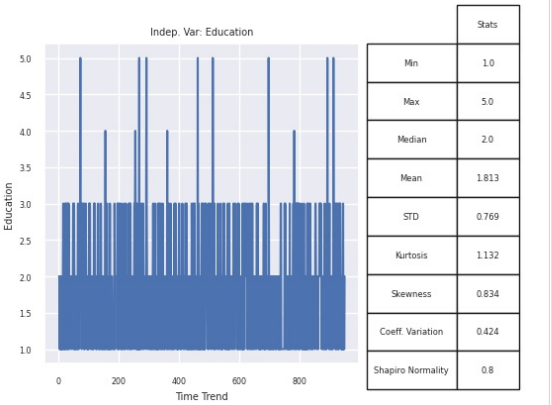
Detailed Graphs of Variables Against Time



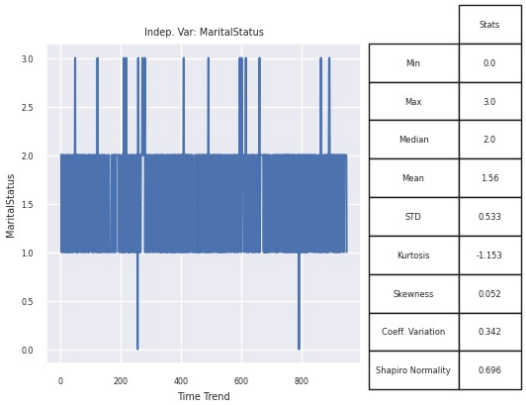
Stats	
Min	10000.0
Max	750000.0
Median	140000.0
Mean	163206.751
STD	129023.644
Kurtosis	0.808
Skewness	1.084
Coeff. Variation	0.791
Shapiro Normality	0.895



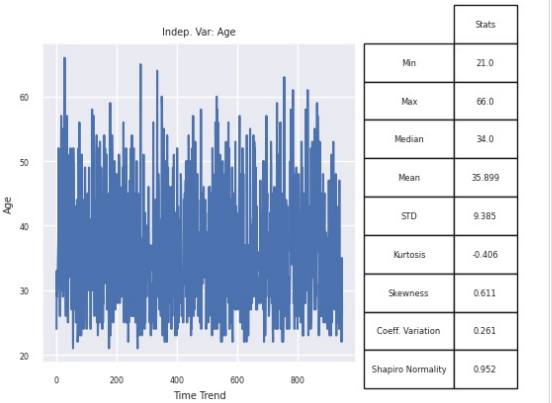
Stats	
Min	1.0
Max	2.0
Median	2.0
Mean	1.562
STD	0.496
Kurtosis	-1.937
Skewness	-0.251
Coeff. Variation	0.318
Shapiro Normality	0.631



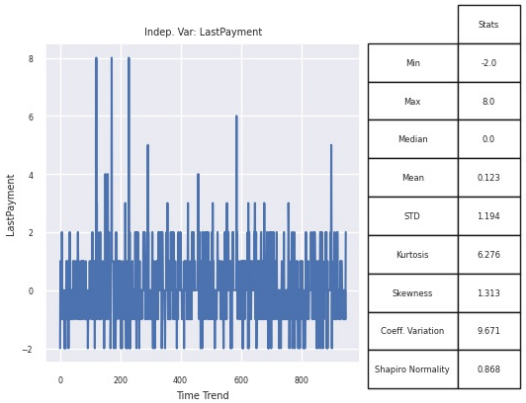
Stats	
Min	1.0
Max	5.0
Median	2.0
Mean	1.813
STD	0.769
Kurtosis	1.132
Skewness	0.834
Coeff. Variation	0.424
Shapiro Normality	0.8



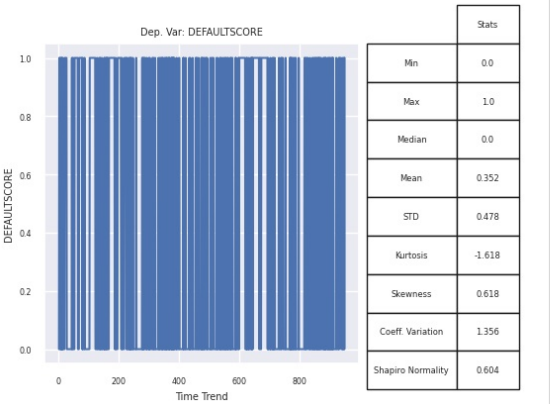
Stats	
Min	0.0
Max	3.0
Median	2.0
Mean	1.56
STD	0.533
Kurtosis	-1.153
Skewness	0.052
Coeff. Variation	0.342
Shapiro Normality	0.696



Stats	
Min	21.0
Max	66.0
Median	34.0
Mean	35.899
STD	9.385
Kurtosis	-0.406
Skewness	0.611
Coeff. Variation	0.261
Shapiro Normality	0.952

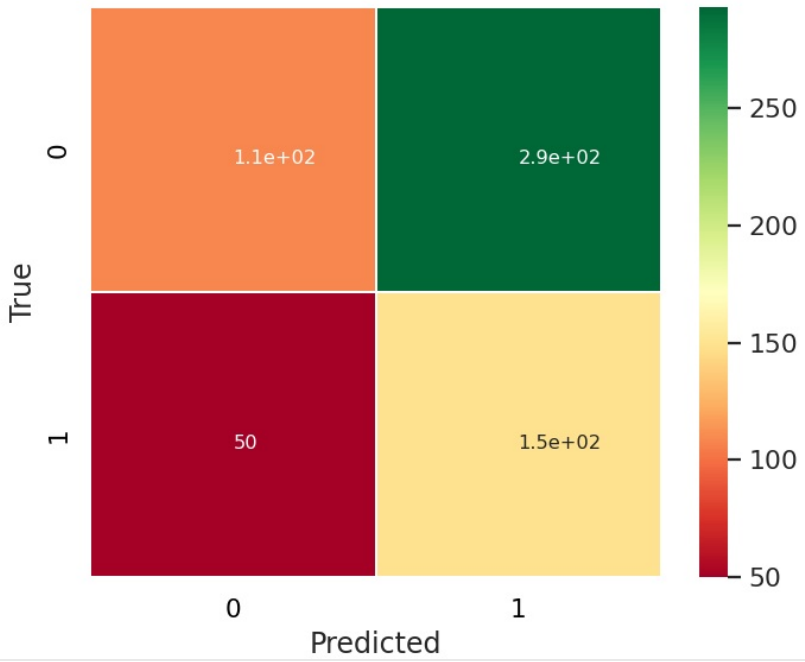


Stats	
Min	-2.0
Max	8.0
Median	0.0
Mean	0.123
STD	1.194
Kurtosis	6.276
Skewness	1.313
Coeff. Variation	9.671
Shapiro Normality	0.868



Stats	
Min	0.0
Max	1.0
Median	0.0
Mean	0.352
STD	0.478
Kurtosis	-1.618
Skewness	0.618
Coeff. Variation	1.356
Shapiro Normality	0.604

Confusion Matrix



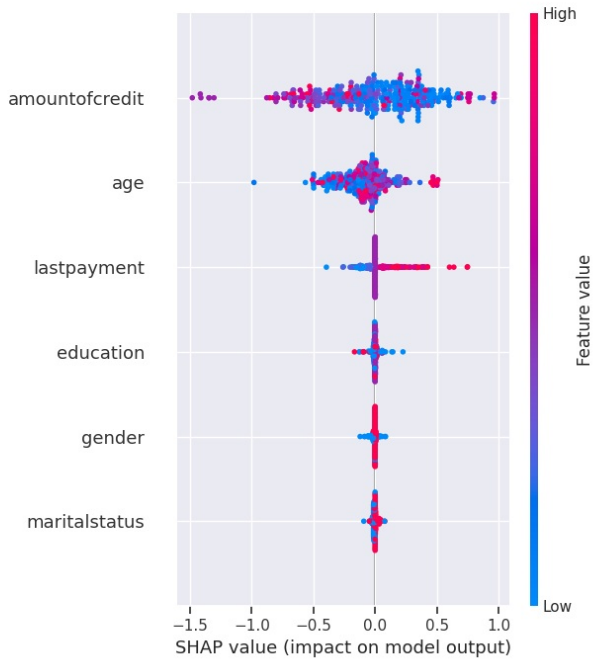
The confusion matrix shows the True Negatives (top left)/True Positives (bottom right) on the diagonals, and False Negatives (top right) and False Positives (bottom left).
True Positives: 293
False Positives: 108
True Negatives: 50
False Negatives: 50
Total Population: 600
The False Positve Rate(FPR) is: 48.83%
The False Negative Rate is: 8.33%
The True Positive Rate is: 24.83%
The True Negative Rate is: 18.0%
The Positive Likelihood Ratio (True Positive Rate/False Positive Rate)is: 0.51
The Negative Likelihood Ratio (False Negative Rate/True Negative Rate) is: 0.46
Accuracy: 0.722
Precision: 0.337
Recall: 0.749
F1 Score: 0.465

Precision Curve: [0.332, 0.331, 0.330, 0.331, 0.332, 0.333, 0.333, 0.334, 0.336, 0.335, 0.336, 0.337, 0.338, 0.339, 0.339, 0.341, 0.342, 0.342, 0.340, 0.341, 0.342, 0.338, 0.341, 0.344, 0.346, 0.346, 0.345, 0.346, 0.345, 0.342, 0.341, 0.341, 0.339, 0.338, 0.338, 0.337, 0.337, 0.337, 0.336, 0.335, 0.337, 0.337, 0.336, 0.335, 0.336, 0.337, 0.335, 0.335, 0.335, 0.335, 0.336, 0.335, 0.334, 0.335, 0.336, 0.336, 0.335, 0.333, 0.335, 0.336, 0.335, 0.336, 0.335, 0.336, 0.337, 0.336, 0.340, 0.337, 0.341, 0.342, 0.342, 0.344, 0.345, 0.354, 0.361, 0.359, 0.355, 0.354, 0.360, 0.361, 0.360, 0.361, 0.362, 0.363, 0.361, 0.362, 0.360, 0.361, 0.362, 0.364, 0.362, 0.364, 0.363, 0.365, 0.367, 0.365, 0.366, 0.366, 0.365, 0.362, 0.364, 0.364, 0.364, 0.366, 0.373, 0.374, 0.377, 0.375, 0.378, 0.375, 0.380, 0.382, 0.379, 0.390, 0.391, 0.385, 0.389, 0.390, 0.391, 0.395, 0.397, 0.407, 0.406, 0.401, 0.404, 0.404, 0.407, 0.421, 0.414, 0.413, 0.425, 0.435, 0.423, 0.427, 0.418, 0.433, 0.396, 0.488, 0.469, 0.464, 0.500, 0.500, 0.636, 0.556, 0.500, 0.600, 1.000]

Recall Curve: [1.000, 0.995, 0.990, 0.990, 0.990, 0.990, 0.980, 0.980, 0.980, 0.975, 0.970, 0.970, 0.970, 0.970, 0.970, 0.970, 0.970, 0.965, 0.955, 0.955, 0.955, 0.940, 0.940, 0.940, 0.940, 0.930, 0.925, 0.915, 0.905, 0.874, 0.869, 0.859, 0.849, 0.844, 0.839, 0.834, 0.834, 0.829, 0.824, 0.819, 0.819, 0.814, 0.809, 0.804, 0.799, 0.799, 0.789, 0.784, 0.784, 0.779, 0.779, 0.774, 0.769, 0.769, 0.769, 0.769, 0.764, 0.759, 0.759, 0.759, 0.754, 0.754, 0.749, 0.749, 0.749, 0.744, 0.739, 0.724, 0.704, 0.704, 0.693, 0.693, 0.693, 0.688, 0.678, 0.653, 0.608, 0.593, 0.593, 0.588, 0.573, 0.573, 0.573, 0.573, 0.568, 0.568, 0.563, 0.563, 0.563, 0.563, 0.558, 0.558, 0.553, 0.553, 0.553, 0.538, 0.538, 0.533, 0.528, 0.523, 0.523, 0.518, 0.513, 0.513, 0.508, 0.492, 0.492, 0.482, 0.482, 0.477, 0.477, 0.472, 0.462, 0.452, 0.452, 0.427, 0.412, 0.412, 0.387, 0.387, 0.387, 0.362, 0.357, 0.337, 0.327, 0.307, 0.307, 0.307, 0.266, 0.251, 0.241, 0.236, 0.206, 0.176, 0.166, 0.131, 0.106, 0.101, 0.075, 0.065, 0.045, 0.035, 0.035, 0.025, 0.015, 0.015, 0.000]

Thresholds: [0.366, 0.367, 0.369, 0.371, 0.374, 0.376, 0.382, 0.383, 0.384, 0.385, 0.386, 0.387, 0.388, 0.391, 0.392, 0.393, 0.394, 0.395, 0.396, 0.397, 0.398, 0.399, 0.400, 0.401, 0.402, 0.403, 0.404, 0.405, 0.406, 0.407, 0.409, 0.410, 0.413, 0.414, 0.415, 0.416, 0.419, 0.420, 0.421, 0.422, 0.423, 0.425, 0.426, 0.427, 0.428, 0.429, 0.430, 0.431, 0.432, 0.433, 0.434, 0.435, 0.436, 0.437, 0.438, 0.439, 0.440, 0.441, 0.443, 0.447, 0.448, 0.449, 0.460, 0.462, 0.543, 0.545, 0.556, 0.558, 0.559, 0.561, 0.562, 0.564, 0.565, 0.566, 0.567, 0.568, 0.569, 0.570, 0.571, 0.572, 0.574, 0.577, 0.588, 0.589, 0.590, 0.593, 0.596, 0.597, 0.598, 0.600, 0.601, 0.602, 0.603, 0.605, 0.606, 0.609, 0.610, 0.612, 0.616, 0.618, 0.619, 0.620, 0.621, 0.622, 0.623, 0.624, 0.626, 0.627, 0.628, 0.629, 0.631, 0.632, 0.633, 0.634, 0.635, 0.636, 0.637, 0.638, 0.639, 0.640, 0.641, 0.642, 0.643, 0.644, 0.645, 0.646, 0.647, 0.648, 0.649, 0.650, 0.651, 0.652, 0.653, 0.654, 0.655, 0.656, 0.657, 0.658, 0.659, 0.660, 0.661, 0.662, 0.663, 0.664, 0.665, 0.666]

MODEL EXPLANATION



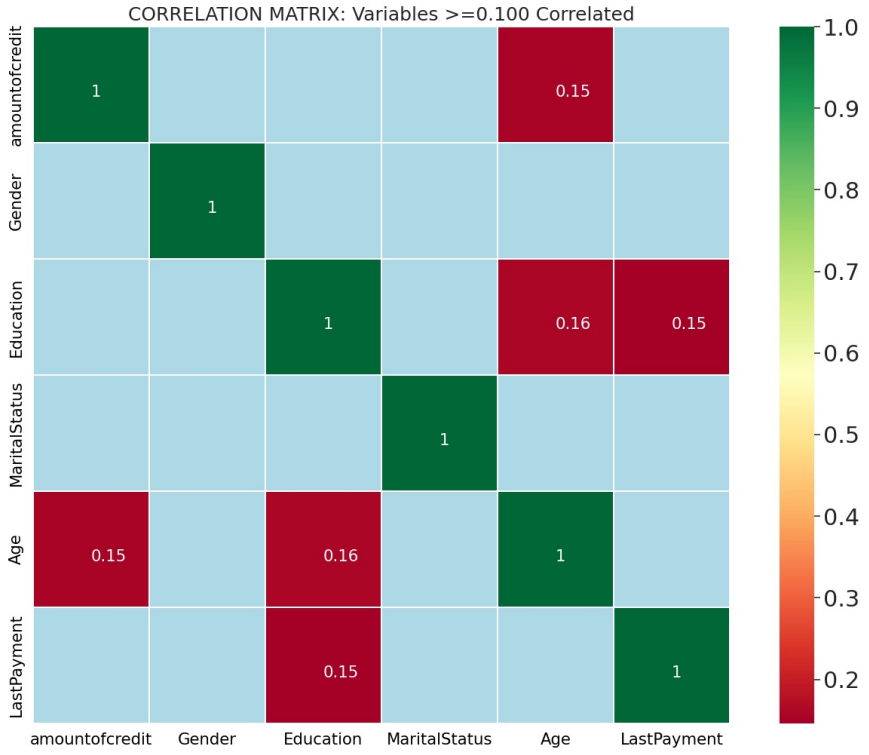
- The x-axis represents the model's output values of **DEFAULTSCORE**
- The plot is centered on the x-axis at explainer.expected_value.
- All values are relative to the model's expected value like a linear model's effects are relative to the intercept.
- The y-axis lists the model's features. By default, the features are ordered by descending importance.
- The importance is calculated over the observations plotted. _This is usually different than the importance ordering for the entire dataset.
- In addition to feature importance ordering, the decision plot also supports hierarchical cluster feature ordering and user-defined feature ordering.
- Each observation's prediction is represented by a colored line.
- At the top of the plot, each line strikes the x-axis at its corresponding observation's predicted value. This value determines the color of the line on a spectrum.
- Moving from the bottom of the plot to the top, SHAP values for each feature are added to the model's base value.
- This shows how each feature contributes to the overall prediction.
- At the bottom of the plot, the observations converge at explainer.expected_value.
- The points in the graph are the values of the feature in the training dataset.

FEATURE SELECTION

RFE Variable (Most important to Least Important)	**Value**
Defaultscore	0.953
LastPayment	0.028
amountofcredit	0.006
Age	0.005
MaritalStatus	0.003
Education	0.003
Gender	0.002
Best Variable(s) From Genetic Algorithm	
Defaultscore	
LastPayment	
Gender	
Excluded Variable(s)	
amountofcredit	
Age	
MaritalStatus	
Education	
PCA for Best Variable(s)	Value
Defaultscore_pca_1	0.691
Defaultscore_pca_2	-0.201
Defaultscore_pca_3	-0.694
Gender_pca_1	-0.155
Gender_pca_2	-0.979
Gender_pca_3	0.129
LastPayment_pca_1	0.706
LastPayment_pca_2	-0.018
LastPayment_pca_3	0.708
PCA Explained Variance	Value
PCA1	0.430
PCA2	0.333
PCA3	0.238

- Feature selection shows which variables were more influential than other variables
- It uses two core algorithms: Recursive Feature Elimination (RFE) and Genetic Algorithm to determine influence
- It also performs PCA (principal component analysis) analysis to determine the influence of the best variables in the model
- These results should be used in conjunction with other information as well as theory to establish relevance and confidence in the chosen model formulation

CORRELATION MATRIX



CORRELATED FEATURES

	Feature(s)	Feature(s)	Correlation >= 0.100
0	Education	LastPayment	0.146
1	amountofcredit	Age	0.155
2	Education	Age	0.157
3	amountofcredit	amountofcredit	NaN

SUGGESTED CORRELATED FEATURES TO DELETE

	3 Feature(s) to Delete	Correlation
0	Education	0.146
1	amountofcredit	0.155
2	Education	0.157

END OF REPORT

MAADSBML Python Library:https://pypi.org/project/maadsbml/
MAADSBML Docker Container For Windows: https://hub.docker.com/r/maadsdocker/maads-batch-automl-otics
MAADSBML Docker Container For MAC: https://hub.docker.com/r/maadsdocker/maads-batch-automl-otics-arm64
MAADSBML Sample Code and Setup: https://github.com/smaurice101/raspberrypi/tree/main/maadsbml

MAADSBML
Developed and Maintained by: Otics Advanced Analytics, Inc.
Toronto, Ontario, Canada
https://www.otics.ca
Email: support@otics.ca