

MAADSBML AutoML Report For OTICS ADVANCED ANALYTICS

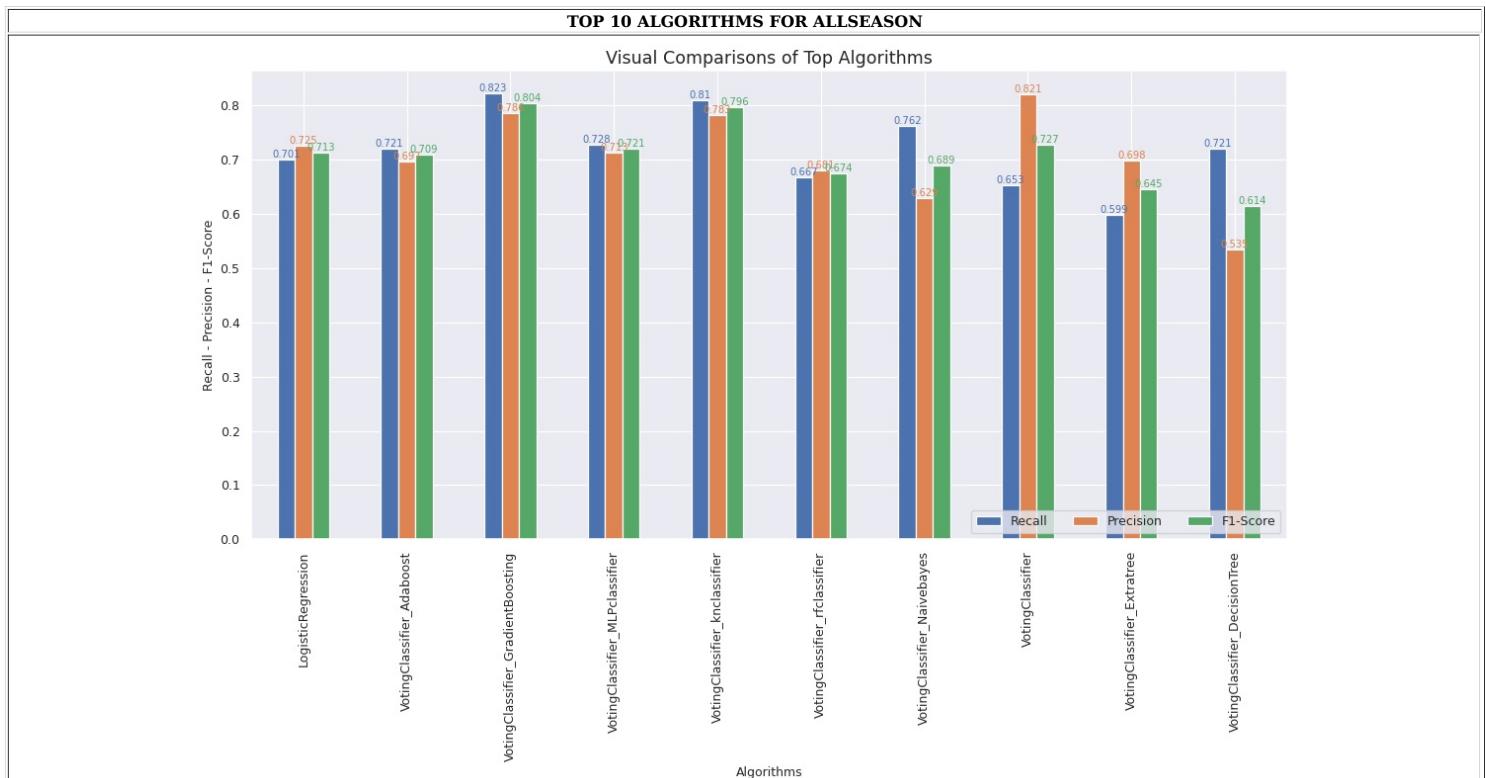
Generated On: 2024-07-20 20:21:26 (UTC)

Best Model(s) Report For admin_resamplesm_csv

MODEL DESCRIPTION		Receiver Operating Characteristic Curve (ROC)
Model Trained On: 2024/07/20		Using LogisticRegression algorithm for allseason
Training Start Time: 2019		
Training End Time: 2021		
Was Data Normalized: Yes		
Was Data Shuffled: Yes		
Deep Analysis: No		
Total Training Data Set: 1143		
Training Data Percentage: 75%		
Total Test Data Set: 379		
Total # of Variables: 28		
Adjusted for Seasonality: N		
Total Algorithms Run: 1650		
Removed Outliers: N		
ROC AUC: 0.849		
Precision: 0.725 (0.722 For Class=0)		
Recall: 0.701 (0.745 For Class=0)		
F1-Score: 0.713 (0.733 For Class=0)		
Best Distribution FOR ACTUAL Y: F		
Dependent Variable: BOOKING_STATUS_CANCELED		
Independent Variables: ['no_of_adults', 'no_of_children', 'no_of_weekend_nights', 'no_of_week_nights', 'required_car_parking_space', 'lead_time', 'repeated_guest', 'no_of_previous_cancellations', 'no_of_previous_bookings_not_canceled', 'avg_price_per_room', 'no_of_special_requests', 'type_of_meal_plan_meal_plan_one', 'type_of_meal_plan_meal_plan_two', 'type_of_meal_plan_meal_plan_three', 'type_of_meal_plan_not_selected', 'room_type_reserved_room_type_one', 'room_type_reserved_room_type_two', 'room_type_reserved_room_type_three', 'room_type_reserved_room_type_four', 'room_type_reserved_room_type_five', 'room_type_reserved_room_type_six', 'room_type_reserved_room_type_seven', 'market_segment_type_aviation', 'market_segment_type_complementary', 'market_segment_type_corporate', 'market_segment_type_offline', 'market_segment_type_online']		
IMPORTANT FILE PATHS FOR RAW AND OUTPUT DATA		
<p>NOTE: These are DOCKER CONTAINER Paths. You can view these files inside the container by using the command: <code>docker exec -it {container id} bash</code> 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.</p> <p>The Docker RUN Volume Mappings are :: (For example here is the docker run command (use multiple -v for multiple mappings):</p> <pre>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</pre> <p>Docker Volume Mappings:</p> <ol style="list-style-type: none"> {HOST MACHINE FOLDER}/csvuploads:/maads/agentfilesdocker/dist/maadsweb/csvuploads:z {HOST MACHINE FOLDER}/pdfreports:/maads/agentfilesdocker/dist/maadsweb/pdfreports:z {HOST MACHINE FOLDER}/autofeatures:/maads/agentfilesdocker/dist/maadsweb/autofeatures:z {HOST MACHINE FOLDER}/outliers:/maads/agentfilesdocker/dist/maadsweb/outliers:z {HOST MACHINE FOLDER}/sqlloads:/maads/agentfilesdocker/dist/maadsweb/sqlloads:z {HOST MACHINE FOLDER}/networktemp:/maads/agentfilesdocker/dist/maadsweb/networktemp:z {HOST MACHINE FOLDER}/networks:/maads/agentfilesdocker/networks:z {HOST MACHINE FOLDER}/exception:/maads/agentfilesdocker/dist/maadsweb/exception:z {HOST MACHINE FOLDER}/staging:/maads/agentfilesdocker/dist/staging:z <p>Path for Training Dataset File: /maads/agentfilesdocker/dist/maadsweb/csvuploads/resamplesm.csv</p> <p>Path for PDF Report (i.e. this file): /maads/agentfilesdocker/dist/maadsweb/pdfreports/admin_resamplesm_csv_no_seasons.pdf</p> <p>Path for AutoFeature File: /maads/agentfilesdocker/dist/maadsweb/autofeatures/admin_resamplesm_csv.csv</p> <p>Path for Outliers File: /maads/agentfilesdocker/dist/maadsweb/outliers/admin_resamplesm_csv.csv</p> <p>Path for Algo JSON File: /maads/agentfilesdocker/dist/maadsweb/exception/admin_resamplesm_csv_trained_algo_no_seasons.json</p> <p>Folder Path for MySQL Scripts: /maads/agentfilesdocker/dist/maadsweb/sqlloads/</p> <p>Path for Detailed Prediction File: /maads/agentfilesdocker/dist/maadsweb/csvuploads/admin_resamplesm_csv_prediction_details.csv</p> <p>Path for Algorithm Zip File (i.e. pickle files): /maads/agentfilesdocker/dist/maadsweb/networktemp/admin_resamplesm_csv.zip</p> <p>Path for Algorithm Pickle Files:</p> <ol style="list-style-type: none"> /maads/agentfilesdocker/networks/Otics_Advanced_Analytics_ADMIN_RESAMPLESM_CSALLSEASON_AG1_4_LogisticRegression_normal_1143_ensembleone_.pkl /maads/agentfilesdocker/networks/Otics_Advanced_Analytics_ADMIN_RESAMPLESM_CSALLSEASON_AG1_4_LogisticRegression_normal_1143_ensembleone_scalerx_.pkl 		

DESCRIPTIVE STATISTICS										
Variables	T-Statistic	Coefficients (alpha,beta)	Count	Mean	STD	MIN	25%	50%	75%	MAX
no_of_adults	3.9	0.483, 0.053	1143.0	0.044	-3.557	0.96	0.299	0.299	0.299	2.227
no_of_children	1.091	0.485, 0.013	1143.0	0.019	-0.261	1.03	-0.261	-0.261	-0.261	7.189
no_of_weekend_nights	3.734	0.484, 0.046	1143.0	0.0	-0.931	1.029	-0.931	0.217	1.366	5.96
no_of_week_nights	2.925	0.484, 0.034	1143.0	0.025	-1.562	1.096	-0.854	-0.145	0.564	10.487
required_car_parking_space	-3.779	0.484, -0.054	1143.0	-0.037	-0.179	0.893	-0.179	-0.179	-0.179	5.592
lead_time	18.622	0.456, 0.205	1143.0	0.145	-0.992	1.042	-0.713	-0.154	0.765	4.163
repeated_guest	-5.423	0.483, -0.078	1143.0	-0.04	-0.162	0.87	-0.162	-0.162	-0.162	6.165
no_of_previous_cancellations	-3.134	0.479, -0.154	1143.0	-0.044	-0.063	0.253	-0.063	-0.063	-0.063	5.367
no_of_previous_bookings_not_canceled	-3.519	0.475, -0.171	1143.0	-0.06	-0.087	0.295	-0.087	-0.087	-0.087	5.613
avg_price_per_room	6.495	0.482, 0.082	1143.0	0.041	-2.947	0.965	-0.614	-0.098	0.525	4.947
no_of_special_requests	-10.313	0.474, -0.136	1143.0	-0.078	-0.788	0.945	-0.788	-0.788	0.484	4.299
type_of_meal_plan_meal_plan_one	-3.571	0.565, -0.106	1143.0	0.757	0.0	0.429	1.0	1.0	1.0	1.0
type_of_meal_plan_meal_plan_two	4.033	0.468, 0.165	1143.0	0.103	0.0	0.304	0.0	0.0	0.0	1.0
type_of_meal_plan_meal_plan_three	nan	0.486, 0.0	1143.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
type_of_meal_plan_not_selected	0.823	0.481, 0.031	1143.0	0.14	0.0	0.347	0.0	0.0	0.0	1.0
room_type_reserved_room_type_one	-0.257	0.492, -0.008	1143.0	0.77	0.0	0.421	1.0	1.0	1.0	1.0
room_type_reserved_room_type_two	0.149	0.485, 0.015	1143.0	0.016	0.0	0.125	0.0	0.0	0.0	1.0
room_type_reserved_room_type_three	nan	0.486, 0.0	1143.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
room_type_reserved_room_type_four	0.243	0.484, 0.008	1143.0	0.175	0.0	0.38	0.0	0.0	0.0	1.0
room_type_reserved_room_type_five	-1.178	0.487, -0.187	1143.0	0.006	0.0	0.078	0.0	0.0	0.0	1.0
room_type_reserved_room_type_six	0.494	0.484, 0.035	1143.0	0.031	0.0	0.172	0.0	0.0	0.0	1.0
room_type_reserved_room_type_seven	0.058	0.486, 0.014	1143.0	0.003	0.0	0.051	0.0	0.0	0.0	1.0
market_segment_type_aviation	-0.627	0.486, -0.111	1143.0	0.005	0.0	0.072	0.0	0.0	0.0	1.0
market_segment_type_complementary	-2.929	0.488, -0.488	1143.0	0.006	0.0	0.078	0.0	0.0	0.0	1.0
market_segment_type_corporate	-3.606	0.495, -0.245	1143.0	0.038	0.0	0.19	0.0	0.0	0.0	1.0
market_segment_type_offline	-2.671	0.508, -0.074	1143.0	0.302	0.0	0.459	0.0	0.0	1.0	1.0
market_segment_type_online	4.579	0.406, 0.122	1143.0	0.649	0.0	0.477	0.0	1.0	1.0	1.0
BOOKING_STATUS_CANCELED	NA	NA	1143.0	0.493	0.0	0.5	0.0	0.0	1.0	1.0

BEST ALGORITHM FOUND FOR THIS DATASET										
(Note: This trained model will be used to predict BOOKING_STATUS_CANCELED)										
Algorithm	Description	Model Results	ROC/AUC	Precision	Recall	F1-Score	Forecast Months	Season		
LogisticRegression	Logistic Regression:	LogisticRegression(C=4.604008144815017, class_weight='balanced', fit_intercept=False, intercept_scaling=6.972303345573681, max_iter=660, random_state=27, solver='newton-cg') Coefficient: [[0.6944029155718061, 0.38634435525910193, 0.9648030093520765, 0.11049761102886758, -1.5191436003030991, 6.407280683513486, -2.1055918719065616, -0.30817128078175393, -0.39003855620979205, 3.448141541670241, -5.349194704690038, -1.1781749232726462, -0.880140021172287, 0.0, -1.0357824581064308, -0.7131908010206846, -0.6494980164361378, 0.0, -0.8129955589570926, -1.0186469480438163, -1.1131082468968123, 1.213342168803249, -0.1061571317667723, -0.729295994234908, -0.3358478427148395, -1.8420742288288205, -0.08072219981738127]]	0.849	0.725: (0.722: Class=1 Class=0)	0.701: (0.745: Class=1 Class=0)	0.713: (0.733: Class=1 Class=0)	1 - 12	allseason		

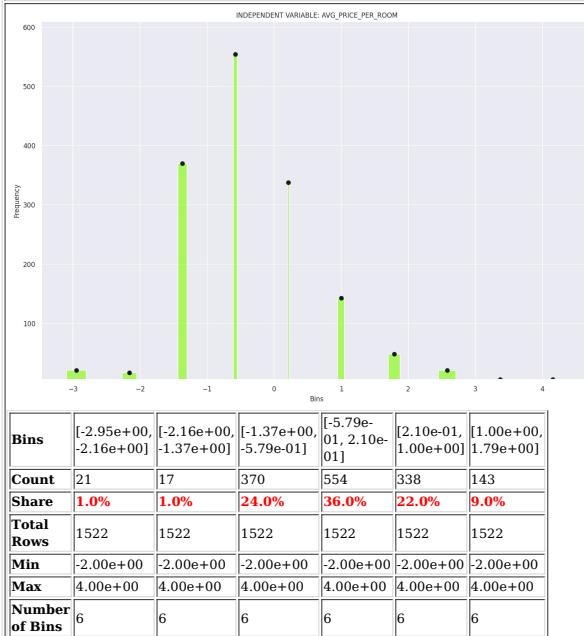


Num	Algorithm	Model ROC/AUC	Details	Season	Description
1	LogisticRegression	0.8490	Recall: 0.701 (class 1) Precision: 0.725 (class 1) F1 Score: 0.713 (class 1) Recall: 0.745 (class 0) Precision: 0.722 (class 0) F1 Score: 0.733 (class 0) False Positive Rate: 13.0% True Negative Rate: 13.0% False Negative Rate: 14.7% True Positive Rate: 34.3%	allseason	LOGISTIC REGRESSION:
2	VotingClassifier_Adaboost	0.8480	Recall: 0.721 (class 1) Precision: 0.697 (class 1) F1 Score: 0.709 (class 1) Recall: 0.699 (class 0) Precision: 0.723 (class 0) F1 Score: 0.711 (class 0) False Negative Rate: 13.7% False Positive Rate: 15.3% True Negative Rate: 15.3% True Positive Rate: 35.3%	allseason	ADA BOOST: ADA boost classifier
3	VotingClassifier_GradientBoosting	0.8470	Recall: 0.823 (class 1) Precision: 0.786 (class 1) F1 Score: 0.804 (class 1) Recall: 0.784 (class 0) Precision: 0.822 (class 0) F1 Score: 0.803 (class 0) False Negative Rate: 8.7% False Positive Rate: 11.0% True Negative Rate: 11.0% True Positive Rate: 40.3%	allseason	GRADIENT BOOSTING CLASSIFIER: Gradient Boosting Classifier
4	VotingClassifier_MLPclassifier	0.8460	Recall: 0.728 (class 1) Precision: 0.713 (class 1) F1 Score: 0.721 (class 1) Recall: 0.719 (class 0) Precision: 0.733 (class 0) F1 Score: 0.726 (class 0) False Negative Rate: 13.3% False Positive Rate: 14.3% True Negative Rate: 14.3% True Positive Rate: 35.7%	allseason	MULTIPLE LAYER PERCEPTRON CLASSIFIER: MLP Classifier
5	VotingClassifier_knnclassifier	0.8280	Recall: 0.81 (class 1) Precision: 0.783 (class 1) F1 Score: 0.796 (class 1) Recall: 0.784 (class 0) Precision: 0.811 (class 0) F1 Score: 0.797 (class 0)	allseason	K-NEAREST NEIGHBOUR: k-nearest neighbour

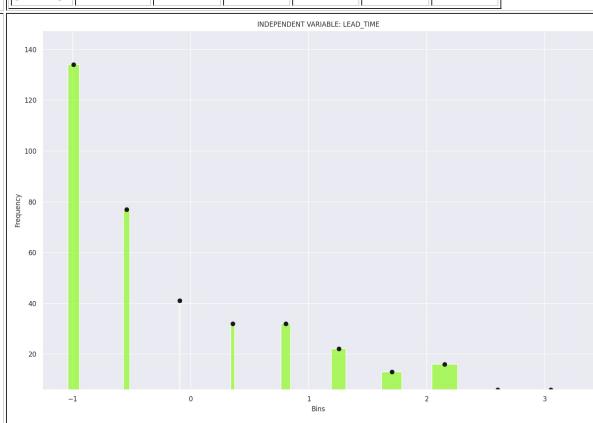
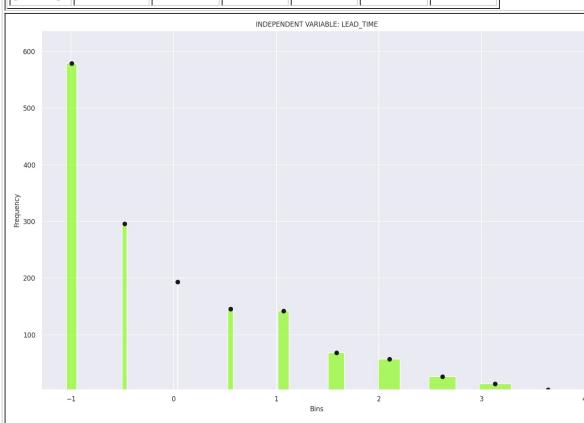
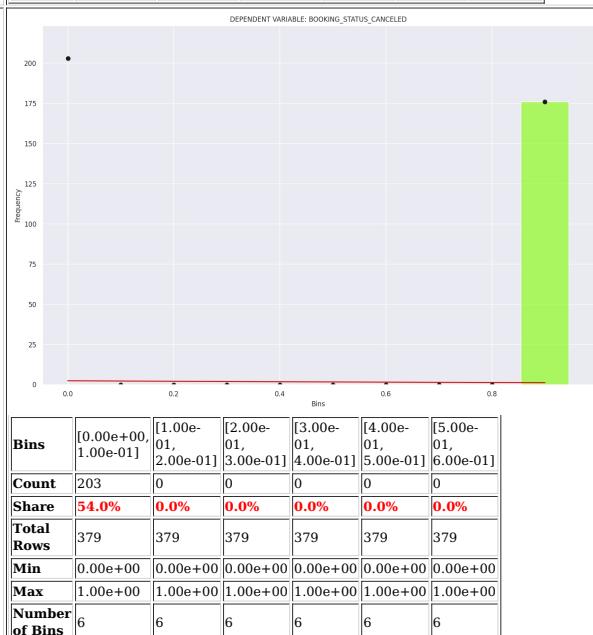
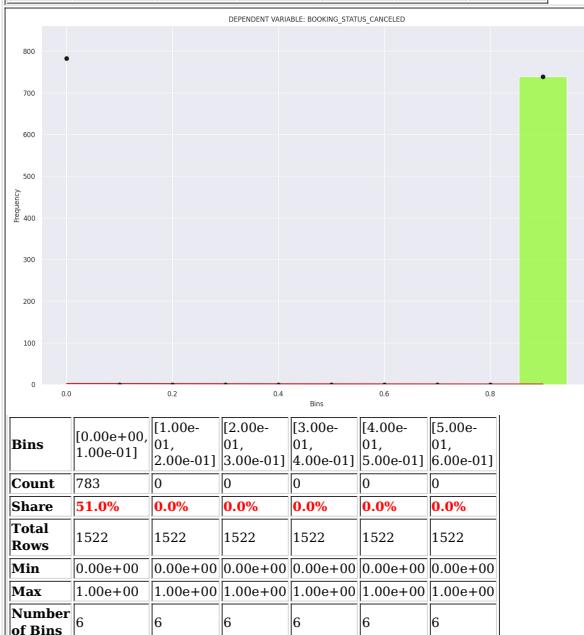
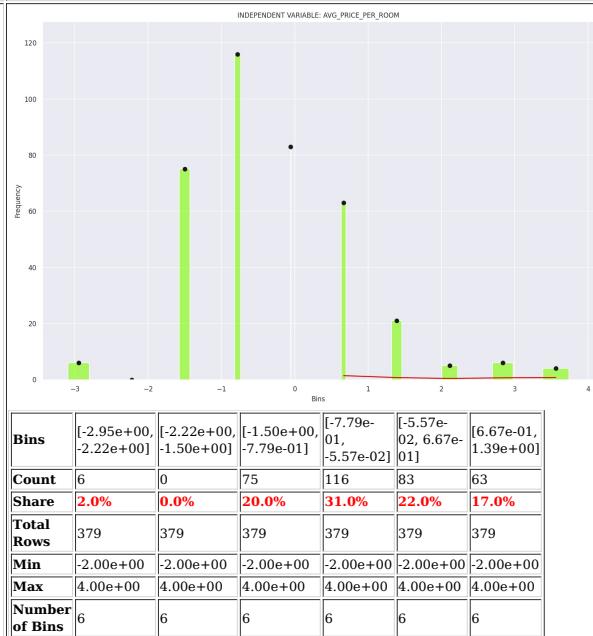
			False Negative Rate: 9.3% False Positive Rate: 11.0% True Negave Rate: 11.0% True Positive Rate: 39.7%		
6	VotingClassifier_rfclassifier	0.7820	Recall: 0.667 (class 1) Precision: 0.681 (class 1) F1 Score: 0.674 (class 1) Recall: 0.699 (class 0) Precision: 0.686 (class 0) F1 Score: 0.693 (class 0) False Positive Rate: 15.3% True Negave Rate: 15.3% False Negative Rate: 16.3% True Positive Rate: 32.7%	allseason	RANDOM FOREST CLASSIFIER: Random forest
7	VotingClassifier_Naivebayes	0.7780	Recall: 0.762 (class 1) Precision: 0.629 (class 1) F1 Score: 0.689 (class 1) Recall: 0.569 (class 0) Precision: 0.713 (class 0) F1 Score: 0.633 (class 0) False Negative Rate: 11.7% False Positive Rate: 22.0% True Negave Rate: 22.0% True Positive Rate: 37.3%	allseason	NAIVE BAYES CLASSIFIER: Naive Bayes Classifier
8	VotingClassifier	0.7490	Recall: 0.653 (class 1) Precision: 0.821 (class 1) F1 Score: 0.727 (class 1) Recall: 0.863 (class 0) Precision: 0.721 (class 0) F1 Score: 0.786 (class 0) False Positive Rate: 7.0% True Negave Rate: 7.0% False Negative Rate: 17.0% True Positive Rate: 32.0%	allseason	VOTING CLASSIFIER: Combination of different classifiers (DecisionTree, RandomForest,K nearest neighbour,GaussNB,Extra tree,ADA boost, etc)
9	VotingClassifier_Extartree	0.7170	Recall: 0.599 (class 1) Precision: 0.698 (class 1) F1 Score: 0.645 (class 1) Recall: 0.752 (class 0) Precision: 0.661 (class 0) F1 Score: 0.703 (class 0) False Positive Rate: 12.7% True Negave Rate: 12.7% False Negative Rate: 19.7% True Positive Rate: 29.3%	allseason	EXTRA TREE CLASSIFIER: Extra tree classifier
10	VotingClassifier_DecisionTree	0.5730	Recall: 0.721 (class 1) Precision: 0.535 (class 1) F1 Score: 0.614 (class 1) Recall: 0.399 (class 0) Precision: 0.598 (class 0) F1 Score: 0.478 (class 0) False Negative Rate: 13.7% False Positive Rate: 30.7% True Negave Rate: 30.7% True Positive Rate: 35.3%	allseason	DECISION TREE: Decision tree classifier

Detailed Histograms of Training and Test Data Sets

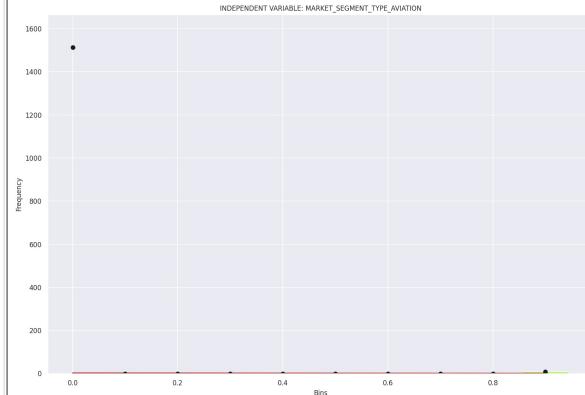
TRAINING VARIABLES



TEST VARIABLES

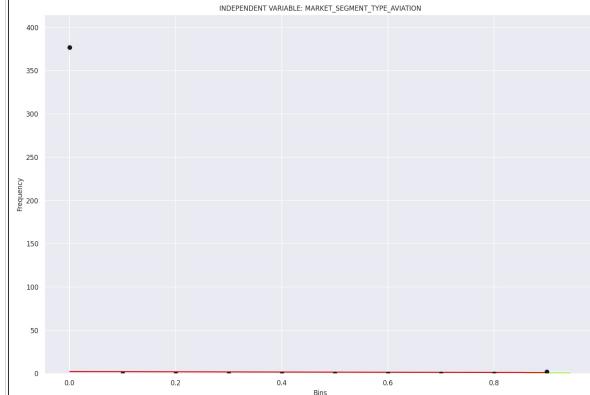


Bins	[-9.92e-01 , -4.76e-01]	[-4.76e-01 , 3.92e-02]	[3.92e-02 , 5.55e-01]	[5.55e-01 , 1.07e+00]	[1.07e+00 , 1.59e+00]	[1.59e+00 , 2.10e+00]
Count	579	296	193	145	142	68
Share	38.0%	19.0%	13.0%	10.0%	9.0%	4.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	4.00e+00	4.00e+00	4.00e+00	4.00e+00	4.00e+00	4.00e+00
Number of Bins	6	6	6	6	6	6

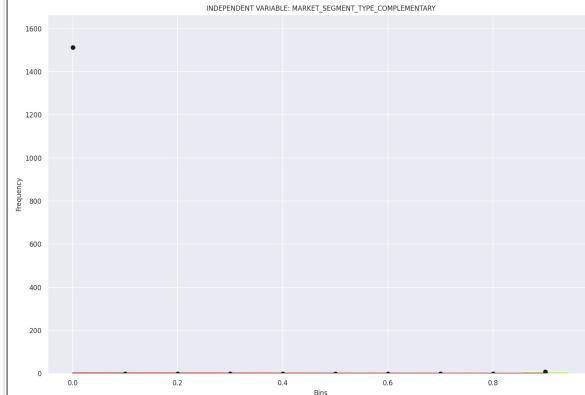


Bins	[0.00e+00 , 1.00e-01]	[1.00e-01 , 2.00e-01]	[2.00e-01 , 3.00e-01]	[3.00e-01 , 4.00e-01]	[4.00e-01 , 5.00e-01]	[5.00e-01 , 6.00e-01]
Count	1514	0	0	0	0	0
Share	99.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6

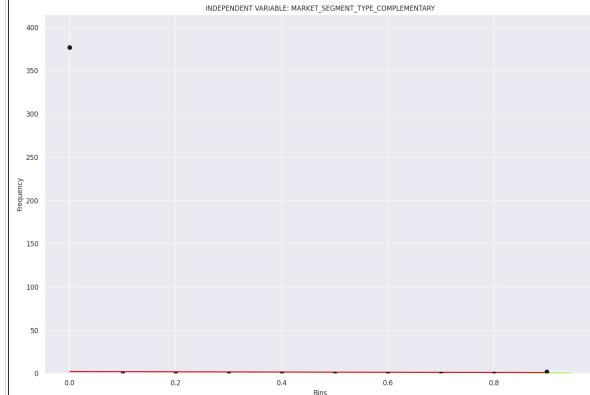
Bins	[-9.92e-01 , -5.43e-01]	[-5.43e-01 , -9.35e-02]	[-9.35e-02 , 3.56e-01]	[3.56e-01 , 8.05e-01]	[8.05e-01 , 1.25e+00]	[1.25e+00 , 1.70e+00]
Count	134	77	41	32	32	22
Share	35.0%	20.0%	11.0%	8.0%	8.0%	6.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	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



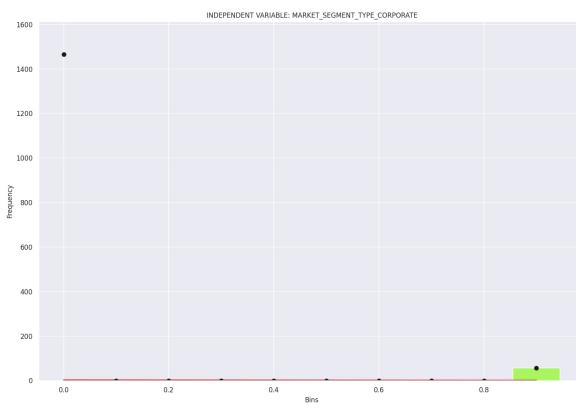
Bins	[0.00e+00 , 1.00e-01]	[1.00e-01 , 2.00e-01]	[2.00e-01 , 3.00e-01]	[3.00e-01 , 4.00e-01]	[4.00e-01 , 5.00e-01]	[5.00e-01 , 6.00e-01]
Count	377	0	0	0	0	0
Share	99.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



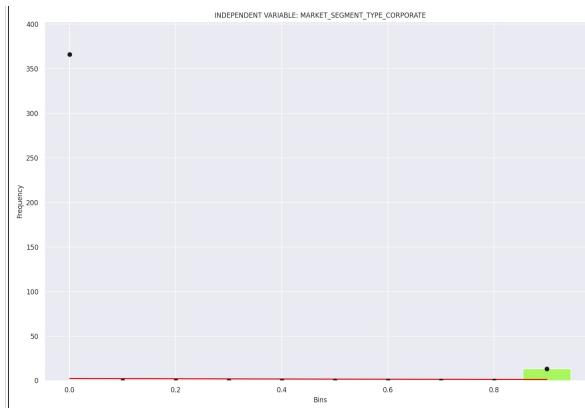
Bins	[0.00e+00 , 1.00e-01]	[1.00e-01 , 2.00e-01]	[2.00e-01 , 3.00e-01]	[3.00e-01 , 4.00e-01]	[4.00e-01 , 5.00e-01]	[5.00e-01 , 6.00e-01]
Count	1513	0	0	0	0	0
Share	99.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



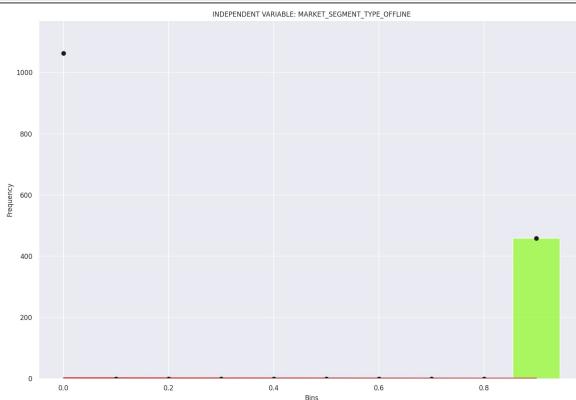
Bins	[0.00e+00 , 1.00e-01]	[1.00e-01 , 2.00e-01]	[2.00e-01 , 3.00e-01]	[3.00e-01 , 4.00e-01]	[4.00e-01 , 5.00e-01]	[5.00e-01 , 6.00e-01]
Count	377	0	0	0	0	0
Share	99.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



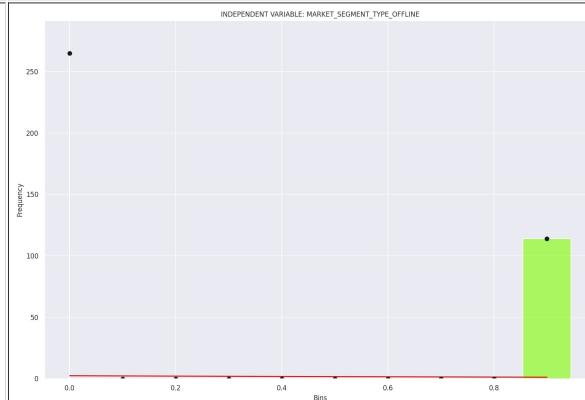
Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	1466	0	0	0	0	0
Share	96.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



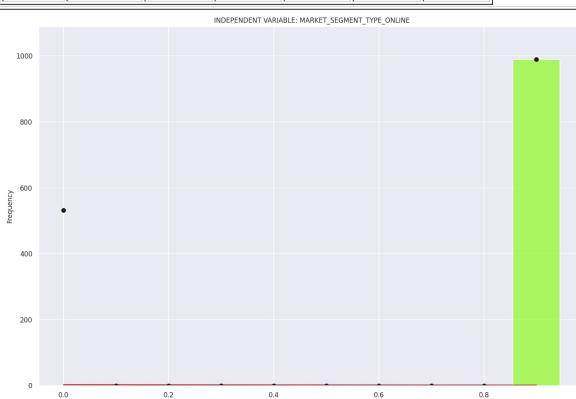
Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	366	0	0	0	0	0
Share	97.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



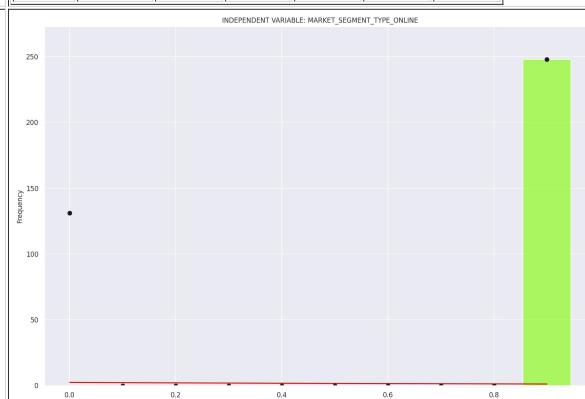
Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	1063	0	0	0	0	0
Share	70.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



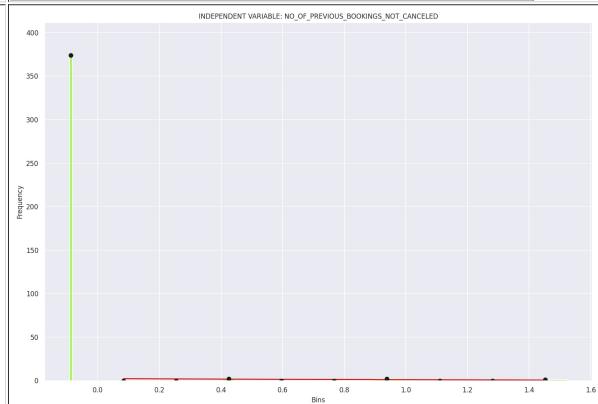
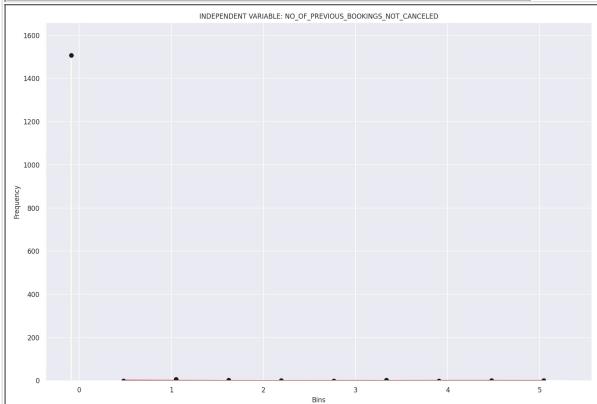
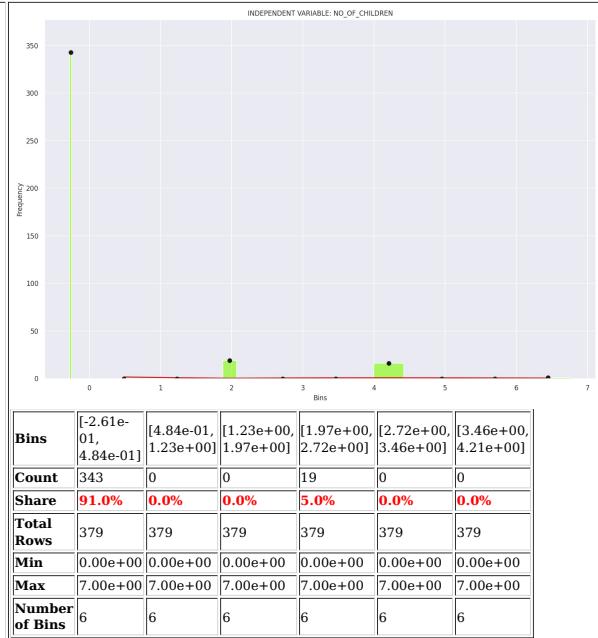
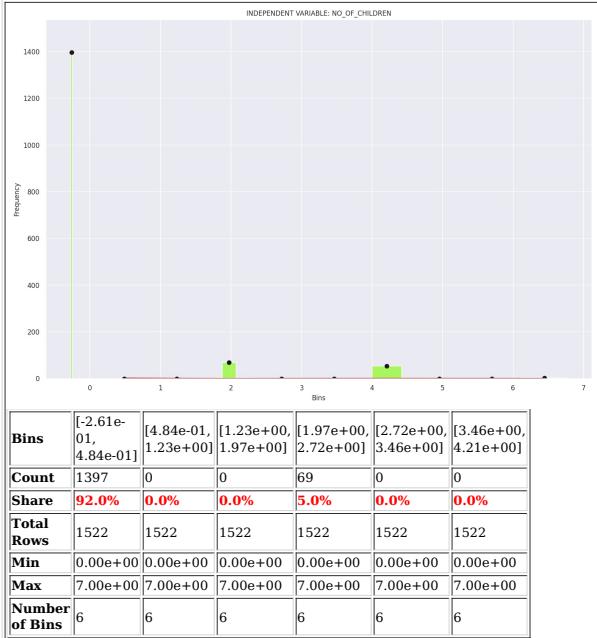
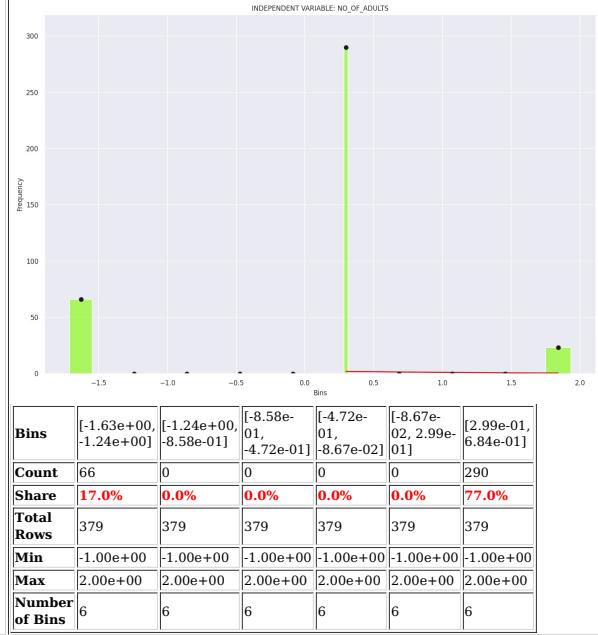
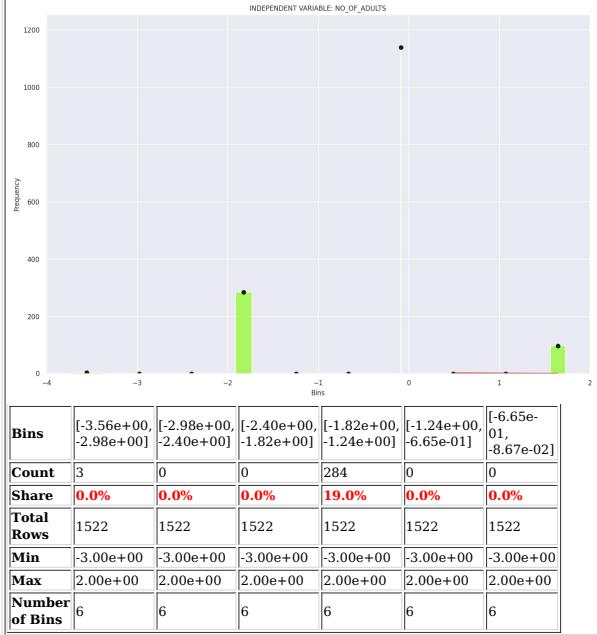
Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	265	0	0	0	0	0
Share	70.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



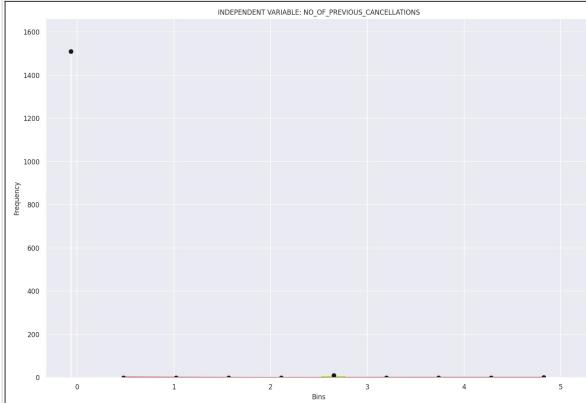
Bins						
Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	532	0	0	0	0	0
Share	35.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	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



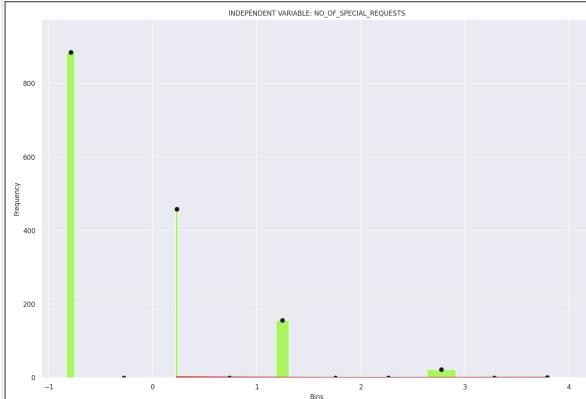
Bins						
Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	131	0	0	0	0	0
Share	35.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	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	[-8.75e-02, 4.83e-01]	[4.83e-01, 1.05e+00]	[1.05e+00, 1.62e+00]	[1.62e+00, 2.19e+00]	[2.19e+00, 2.76e+00]	[2.76e+00, 3.33e+00]
Count	1508	0	6	3	1	0
Share	99.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+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

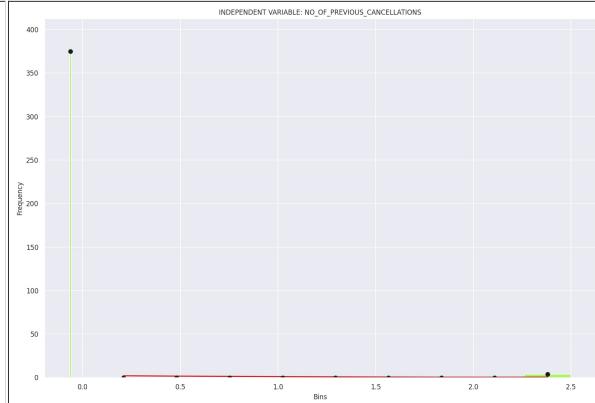


Bins	[-6.34e-02, 4.80e-01]	[4.80e-01, 1.02e+00]	[1.02e+00, 1.57e+00]	[1.57e+00, 2.11e+00]	[2.11e+00, 2.65e+00]	[2.65e+00, 3.19e+00]
Count	1511	0	0	0	0	10
Share	99.0%	0.0%	0.0%	0.0%	0.0%	1.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	5.00e+00	5.00e+00	5.00e+00	5.00e+00	5.00e+00	5.00e+00
Number of Bins	6	6	6	6	6	6

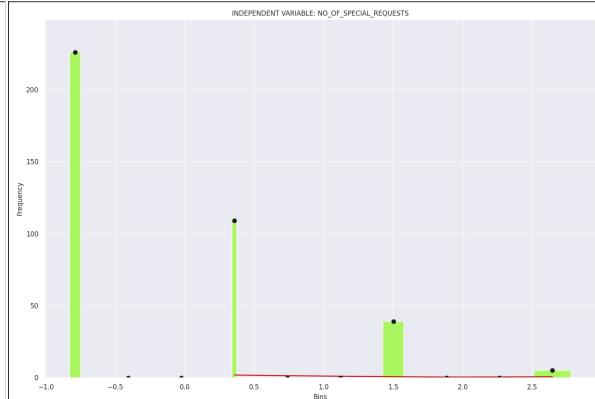


Bins	[-7.88e-01, -2.79e-01]	[-2.79e-01, 2.29e-01]	[2.29e-01, 7.38e-01]	[7.38e-01, 1.25e+00]	[1.25e+00, 1.76e+00]	[1.76e+00, 2.26e+00]
Count	885	0	458	0	156	0
Share	58.0%	0.0%	30.0%	0.0%	10.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	4.00e+00	4.00e+00	4.00e+00	4.00e+00	4.00e+00	4.00e+00
Number of Bins	6	6	6	6	6	6

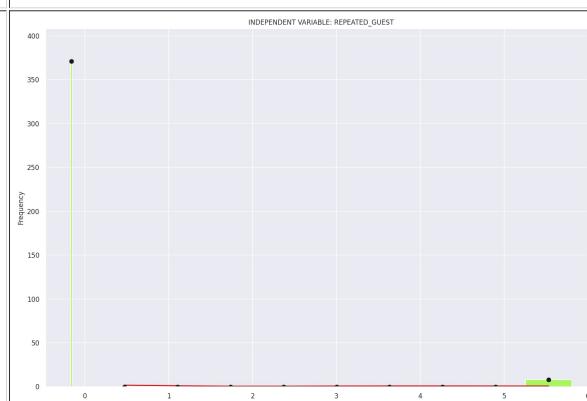
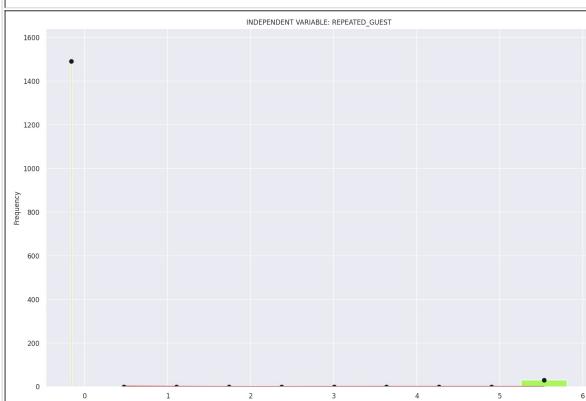
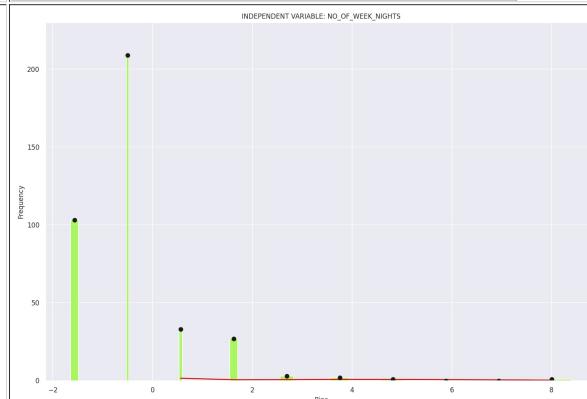
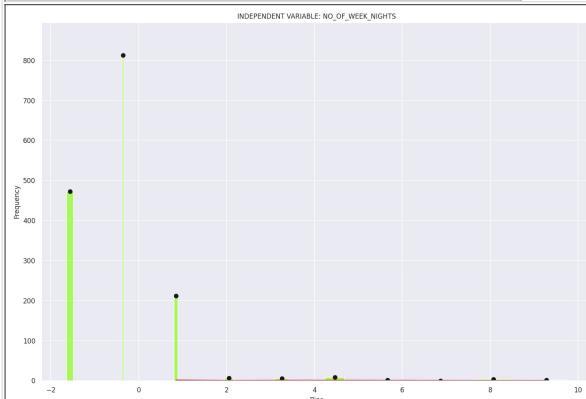
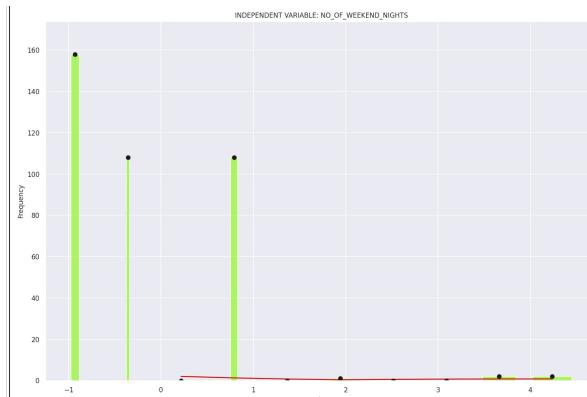
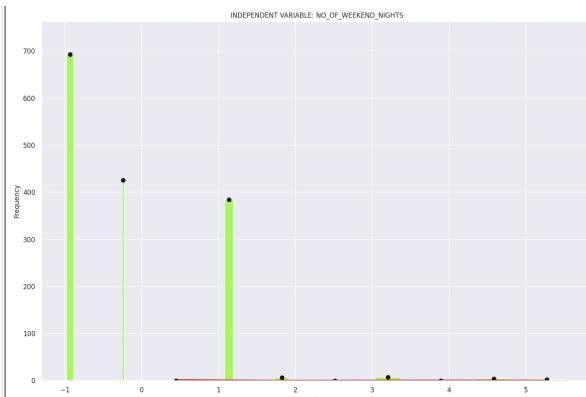
Bins	[-8.75e-02, 8.36e-02]	[8.36e-02, 2.55e-01]	[2.55e-01, 4.26e-01]	[4.26e-01, 5.97e-01]	[5.97e-01, 7.68e-01]	[7.68e-01, 9.39e-01]
Count	374	0	0	2	0	0
Share	99.0%	0.0%	0.0%	1.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



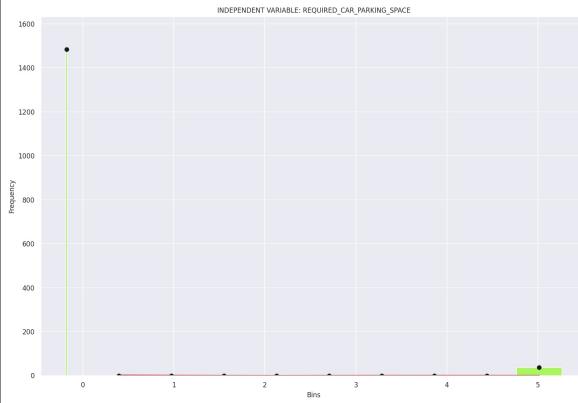
Bins	[-6.34e-02, 2.08e-01]	[2.08e-01, 4.80e-01]	[4.80e-01, 7.51e-01]	[7.51e-01, 1.02e+00]	[1.02e+00, 1.29e+00]	[1.29e+00, 1.57e+00]
Count	375	0	0	0	0	0
Share	99.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	2.00e+00	2.00e+00	2.00e+00	2.00e+00	2.00e+00	2.00e+00
Number of Bins	6	6	6	6	6	6



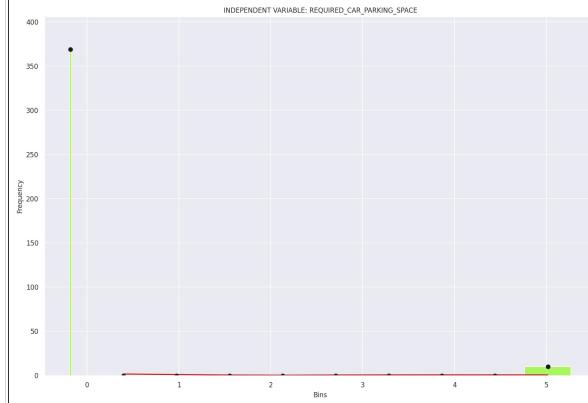
Bins	[-7.88e-01, -4.07e-01]	[-4.07e-01, -2.50e-02]	[-2.50e-02, 3.57e-01]	[3.57e-01, 7.38e-01]	[7.38e-01, 1.12e+00]	[1.12e+00, 1.50e+00]
Count	226	0	0	109	0	0
Share	60.0%	0.0%	0.0%	29.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	3.00e+00	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	[-1.62e-01 , 4.70e-01]	[4.70e-01 , 1.10e+00]	[1.10e+00 , 1.74e+00]	[1.74e+00 , 2.37e+00]	[2.37e+00 , 3.00e+00]	[3.00e+00 , 3.63e+00]
Count	1492	0	0	0	0	0
Share	98.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	6.00e+00	6.00e+00	6.00e+00	6.00e+00	6.00e+00	6.00e+00
Number of Bins	6	6	6	6	6	6

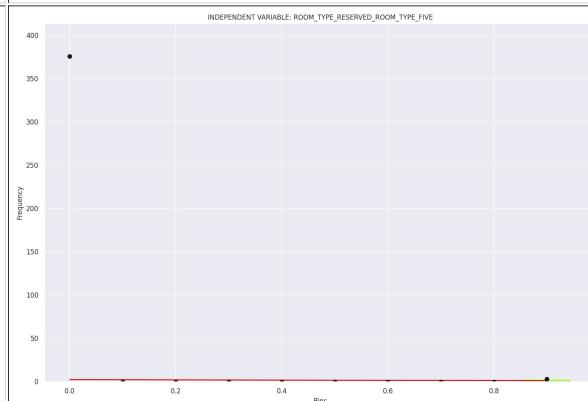
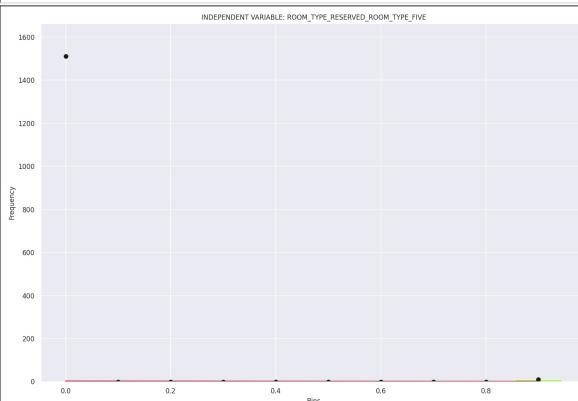


Bins	[-1.62e-01 , 4.70e-01]	[4.70e-01 , 1.10e+00]	[1.10e+00 , 1.74e+00]	[1.74e+00 , 2.37e+00]	[2.37e+00 , 3.00e+00]	[3.00e+00 , 3.63e+00]
Count	371	0	0	0	0	0
Share	98.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	6.00e+00	6.00e+00	6.00e+00	6.00e+00	6.00e+00	6.00e+00
Number of Bins	6	6	6	6	6	6



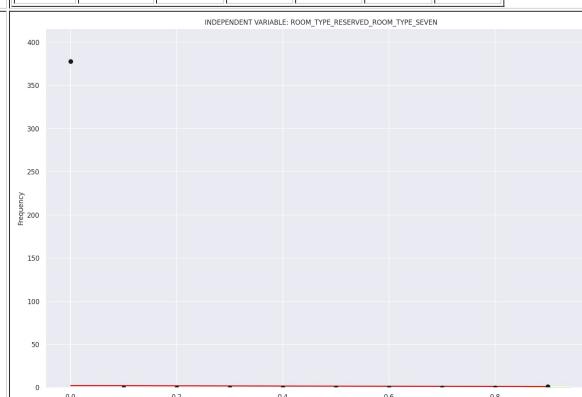
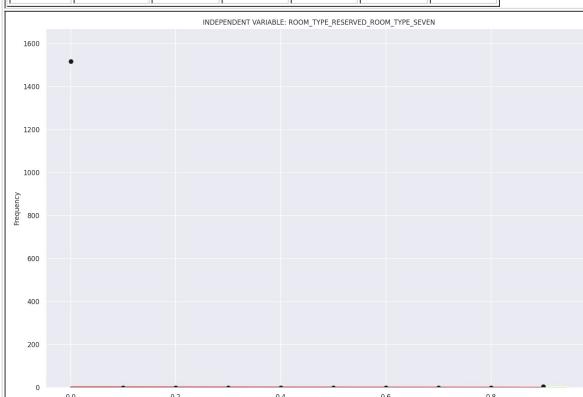
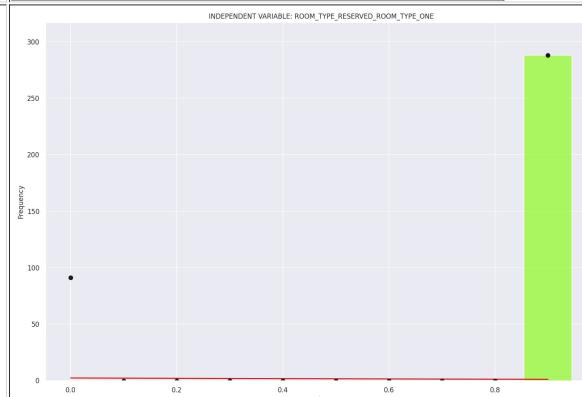
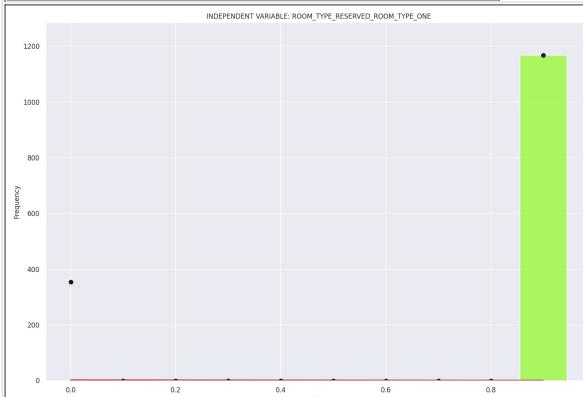
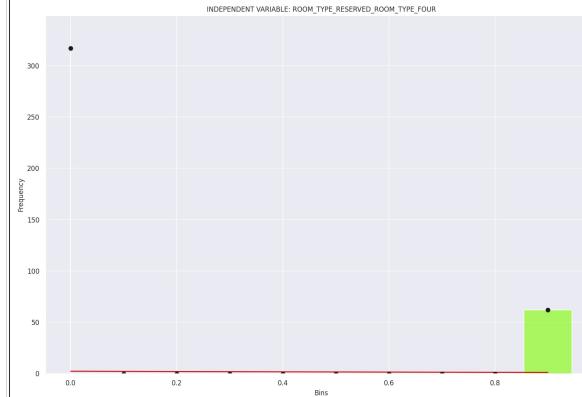
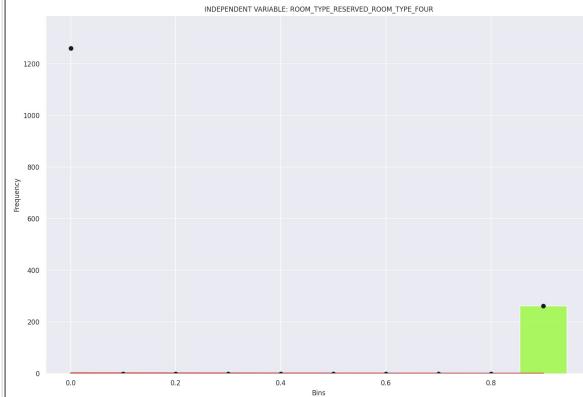
Bins	[-1.79e-01 , 3.98e-01]	[3.98e-01 , 9.75e-01]	[9.75e-01 , 1.55e+00]	[1.55e+00 , 2.13e+00]	[2.13e+00 , 2.71e+00]	[2.71e+00 , 3.28e+00]
Count	1484	0	0	0	0	0
Share	98.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	5.00e+00	5.00e+00	5.00e+00	5.00e+00	5.00e+00	5.00e+00
Number of Bins	6	6	6	6	6	6

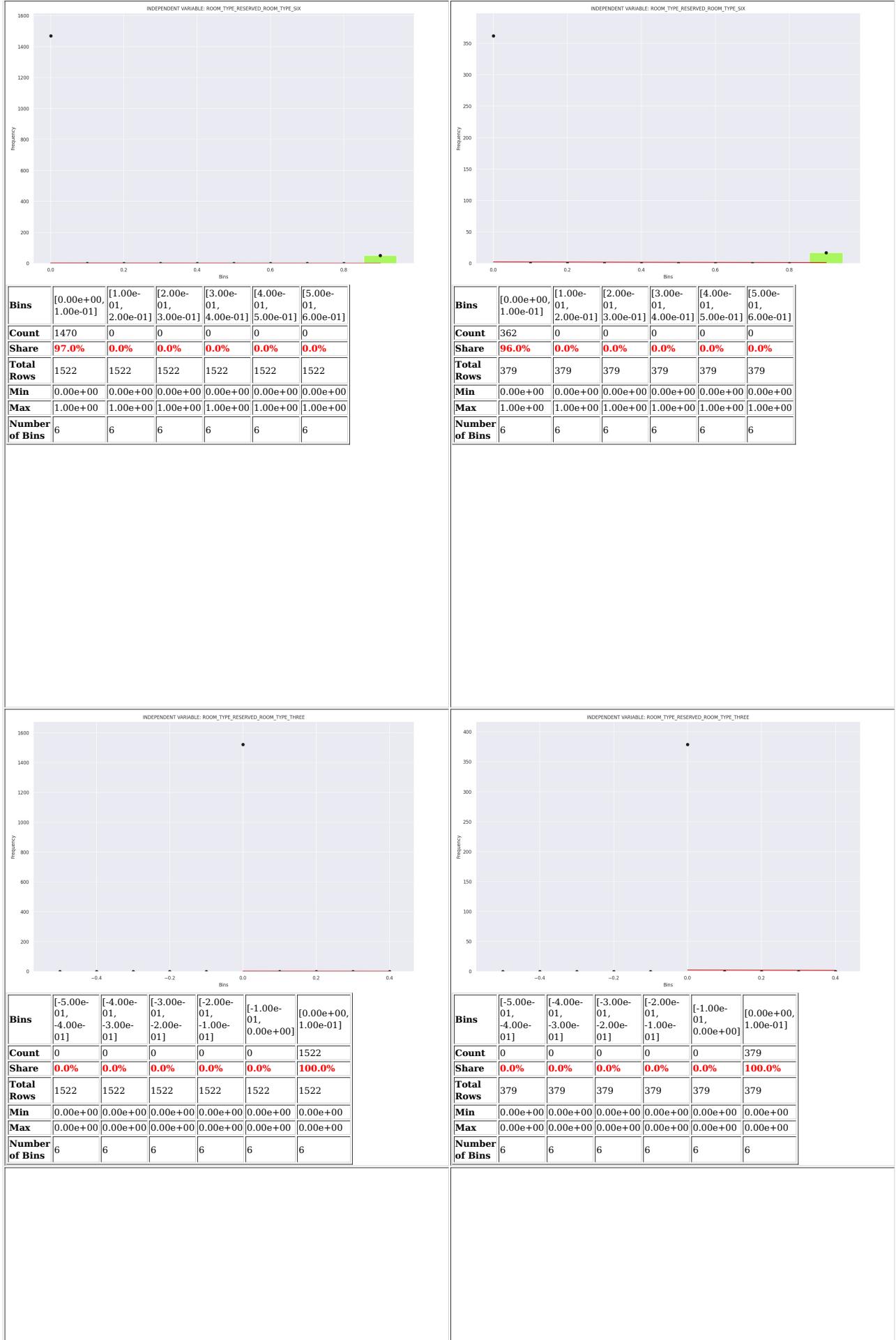
Bins	[-1.79e-01 , 3.98e-01]	[3.98e-01 , 9.75e-01]	[9.75e-01 , 1.55e+00]	[1.55e+00 , 2.13e+00]	[2.13e+00 , 2.71e+00]	[2.71e+00 , 3.28e+00]
Count	369	0	0	0	0	0
Share	97.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	5.00e+00	5.00e+00	5.00e+00	5.00e+00	5.00e+00	5.00e+00
Number of Bins	6	6	6	6	6	6

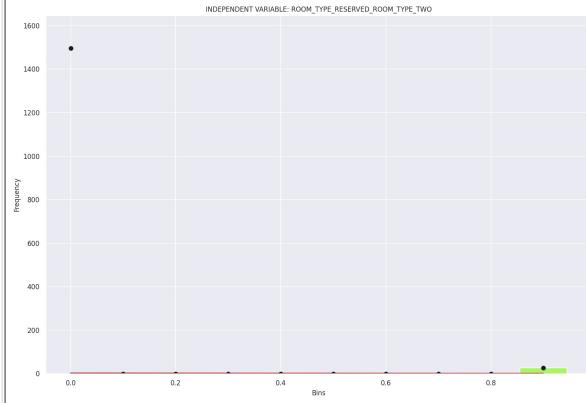


Bins	[0.00e+00 , 1.00e-01]	[1.00e-01 , 2.00e-01]	[2.00e-01 , 3.00e-01]	[3.00e-01 , 4.00e-01]	[4.00e-01 , 5.00e-01]	[5.00e-01 , 6.00e-01]
Count	1512	0	0	0	0	0
Share	99.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6

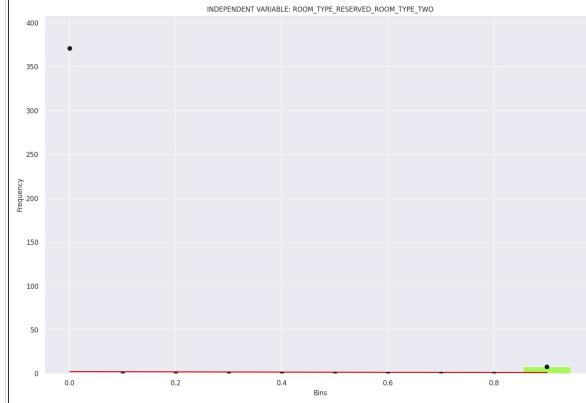
Bins	[0.00e+00 , 1.00e-01]	[1.00e-01 , 2.00e-01]	[2.00e-01 , 3.00e-01]	[3.00e-01 , 4.00e-01]	[4.00e-01 , 5.00e-01]	[5.00e-01 , 6.00e-01]
Count	376	0	0	0	0	0
Share	99.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



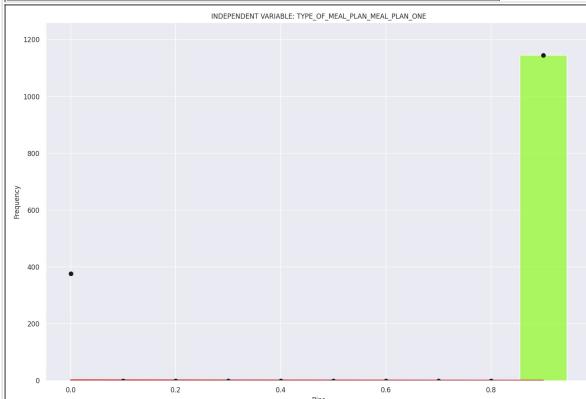




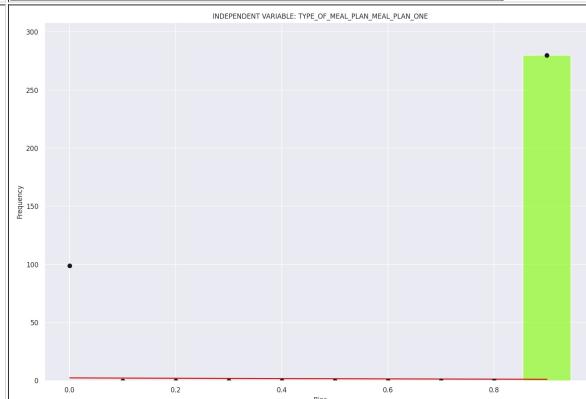
Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	1496	0	0	0	0	0
Share	98.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



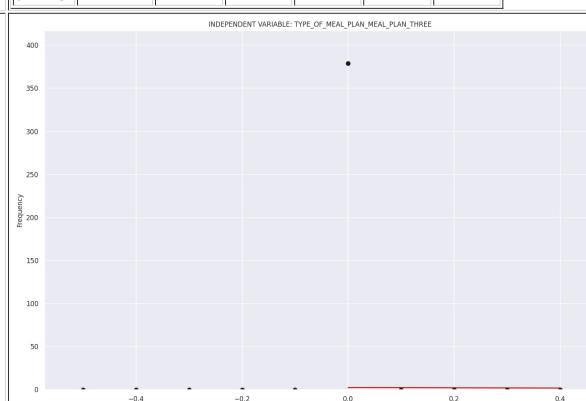
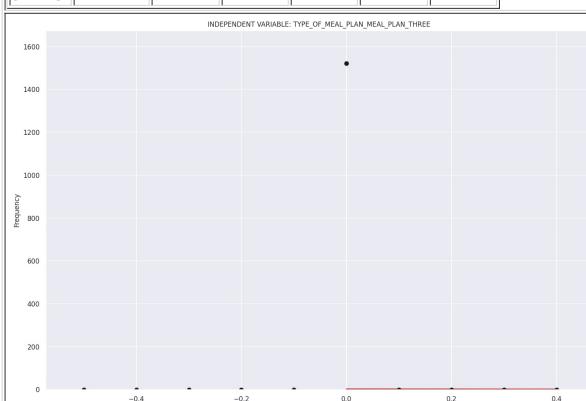
Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	371	0	0	0	0	0
Share	98.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00	1.00e+00
Number of Bins	6	6	6	6	6	6



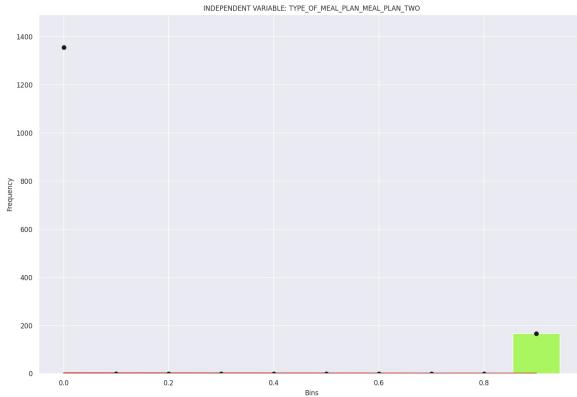
Bins	[0.00e+00, 1.00e-01]	[1.00e-01, 2.00e-01]	[2.00e-01, 3.00e-01]	[3.00e-01, 4.00e-01]	[4.00e-01, 5.00e-01]	[5.00e-01, 6.00e-01]
Count	377	0	0	0	0	0
Share	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
Max	1.00e+00	1.00e+00	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	99	0	0	0	0	0
Share	26.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
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

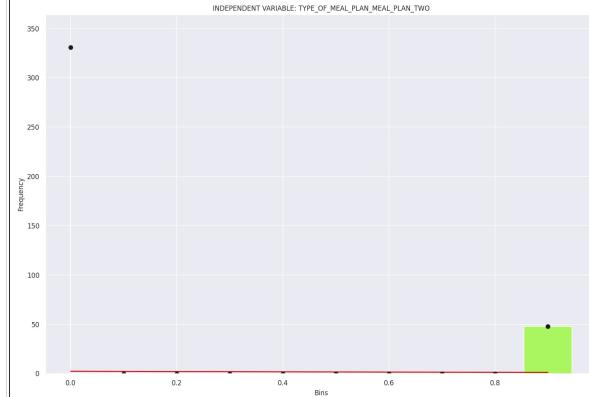


Bins	[$-5.00e-01$, $-4.00e-01$]	[$-4.00e-01$, $-3.00e-01$]	[$-3.00e-01$, $-2.00e-01$]	[$-2.00e-01$, $-1.00e-01$]	[$-1.00e-01$, $0.00e+00$]	[$0.00e+00$, $1.00e-01$]
Count	0	0	0	0	1522	
Share	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$
Max	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$
Number of Bins	6	6	6	6	6	6

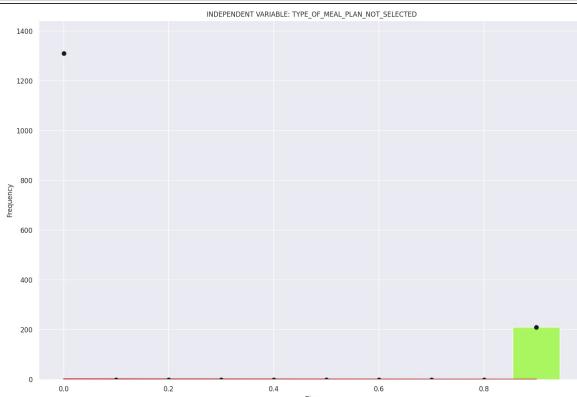


Bins	[$0.00e+00$, $1.00e-01$]	[$1.00e-01$, $2.00e-01$]	[$2.00e-01$, $3.00e-01$]	[$3.00e-01$, $4.00e-01$]	[$4.00e-01$, $5.00e-01$]	[$5.00e-01$, $6.00e-01$]
Count	1356	0	0	0	0	0
Share	89.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$
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

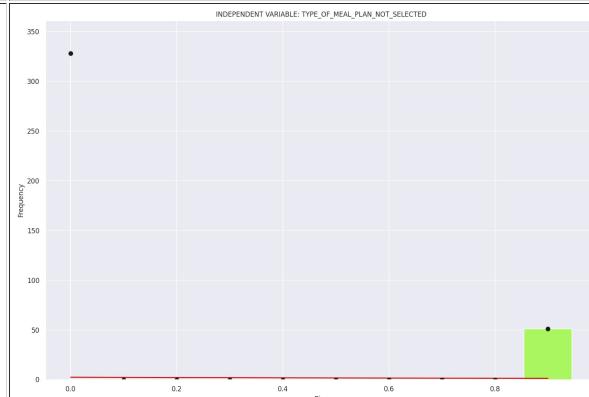
Bins	[$-5.00e-01$, $-4.00e-01$]	[$-4.00e-01$, $-3.00e-01$]	[$-3.00e-01$, $-2.00e-01$]	[$-2.00e-01$, $-1.00e-01$]	[$-1.00e-01$, $0.00e+00$]	[$0.00e+00$, $1.00e-01$]
Count	0	0	0	0	0	379
Share	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Total Rows	379	379	379	379	379	379
Min	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$
Max	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$
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	331	0	0	0	0	0
Share	87.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
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

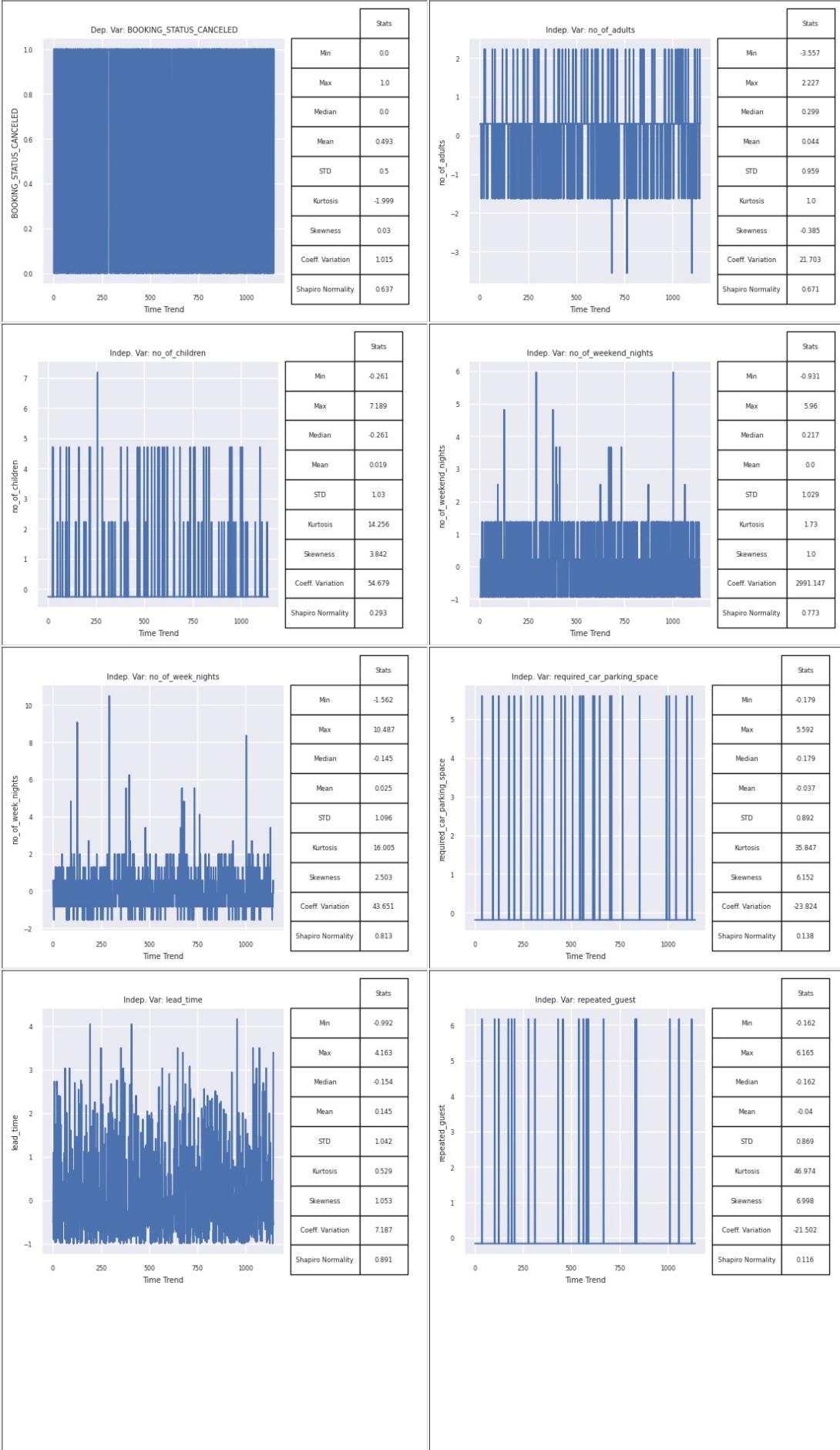


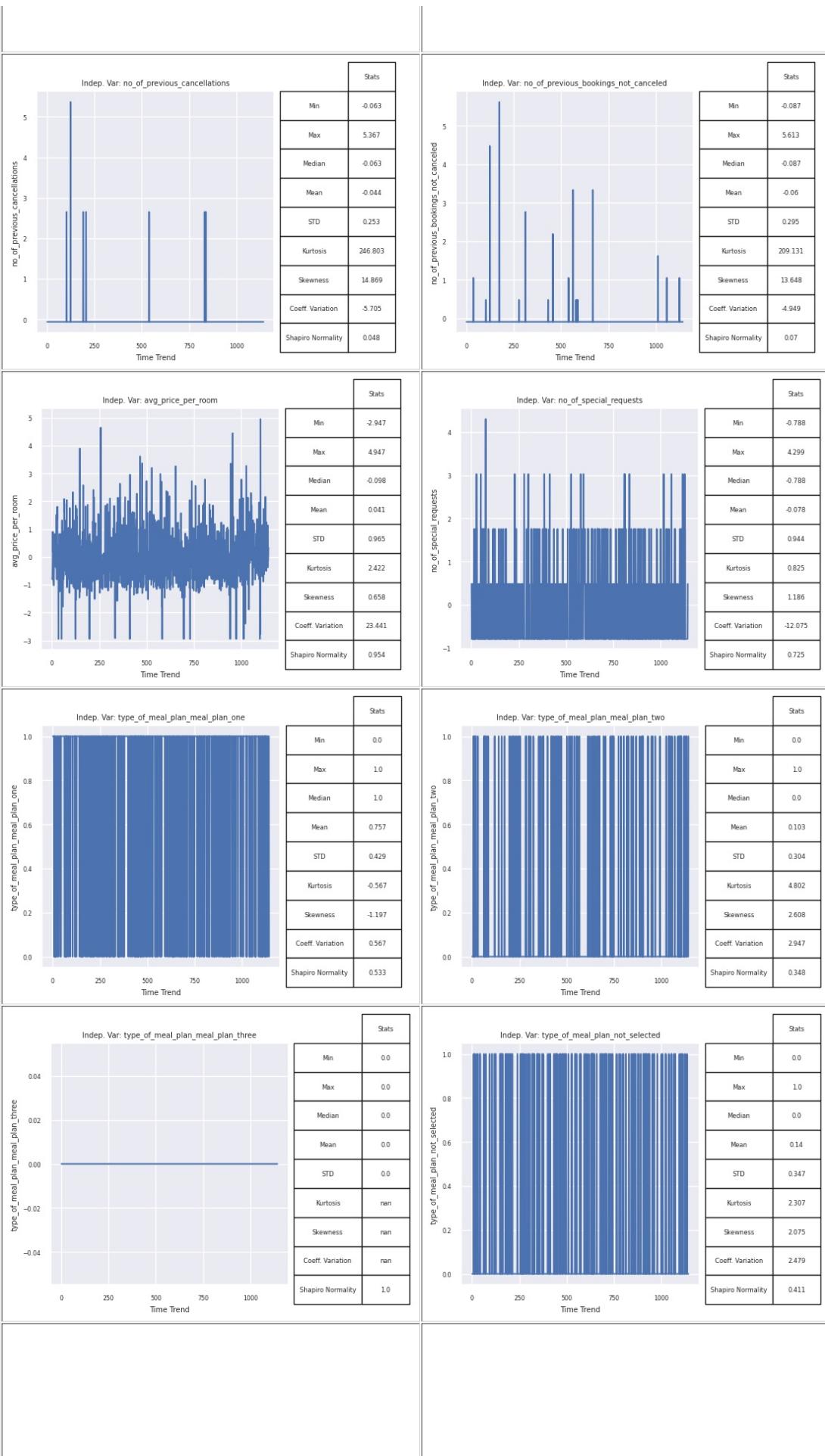
Bins	[$0.00e+00$, $1.00e-01$]	[$1.00e-01$, $2.00e-01$]	[$2.00e-01$, $3.00e-01$]	[$3.00e-01$, $4.00e-01$]	[$4.00e-01$, $5.00e-01$]	[$5.00e-01$, $6.00e-01$]
Count	1311	0	0	0	0	0
Share	86.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	1522	1522	1522	1522	1522	1522
Min	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$
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

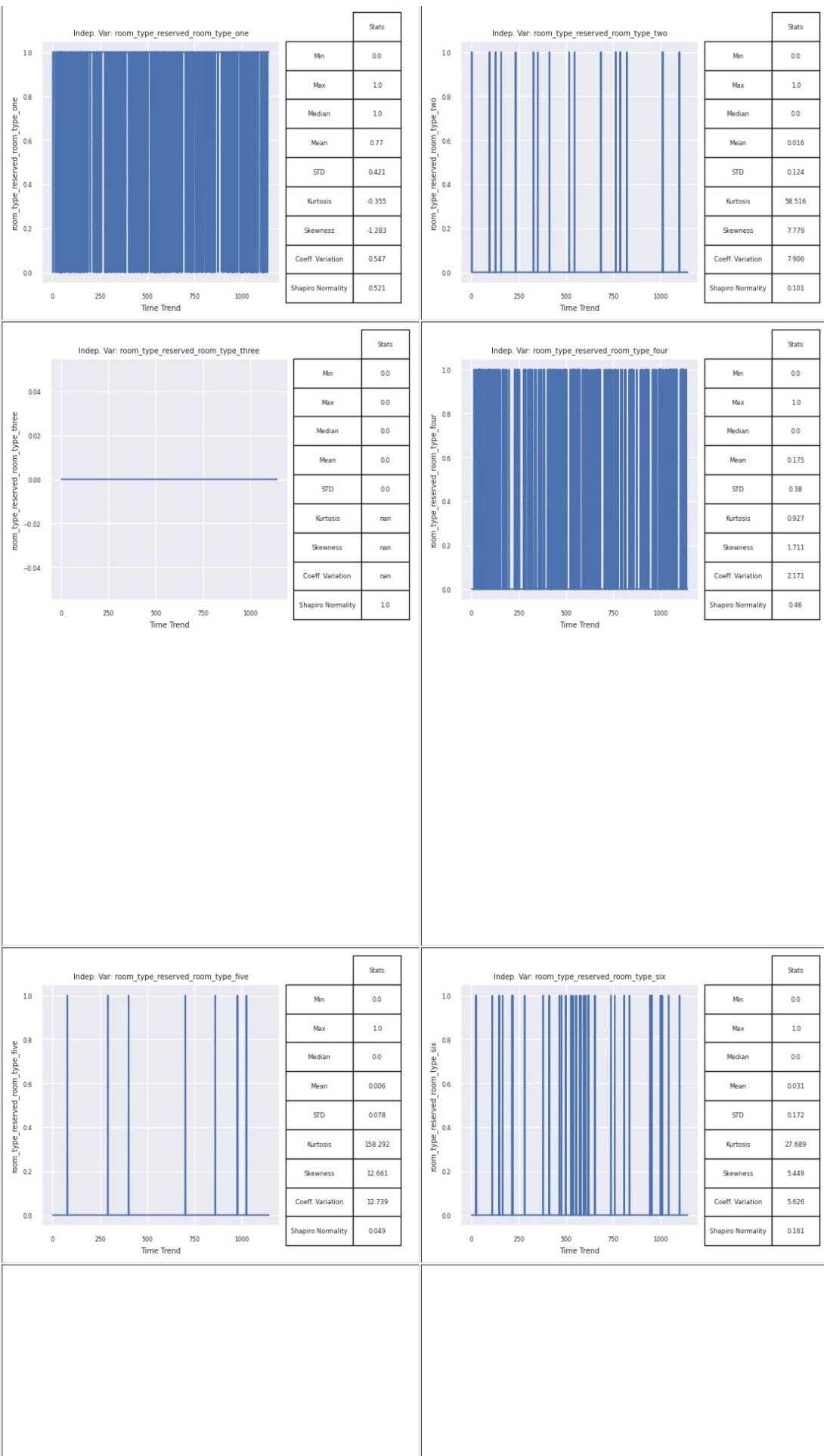


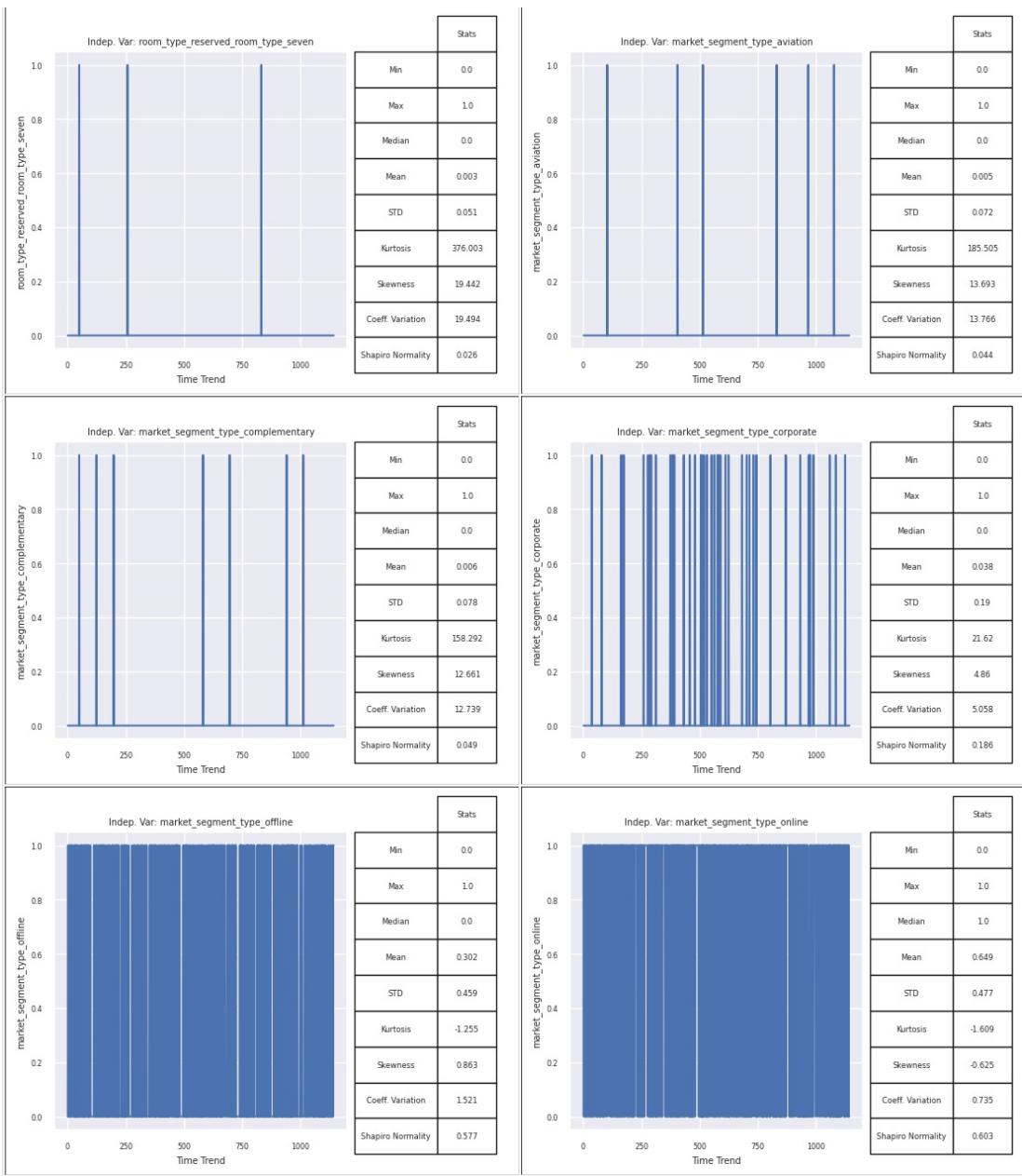
Bins	[$0.00e+00$, $1.00e-01$]	[$1.00e-01$, $2.00e-01$]	[$2.00e-01$, $3.00e-01$]	[$3.00e-01$, $4.00e-01$]	[$4.00e-01$, $5.00e-01$]	[$5.00e-01$, $6.00e-01$]
Count	328	0	0	0	0	0
Share	87.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Rows	379	379	379	379	379	379
Min	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$	$0.00e+00$
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

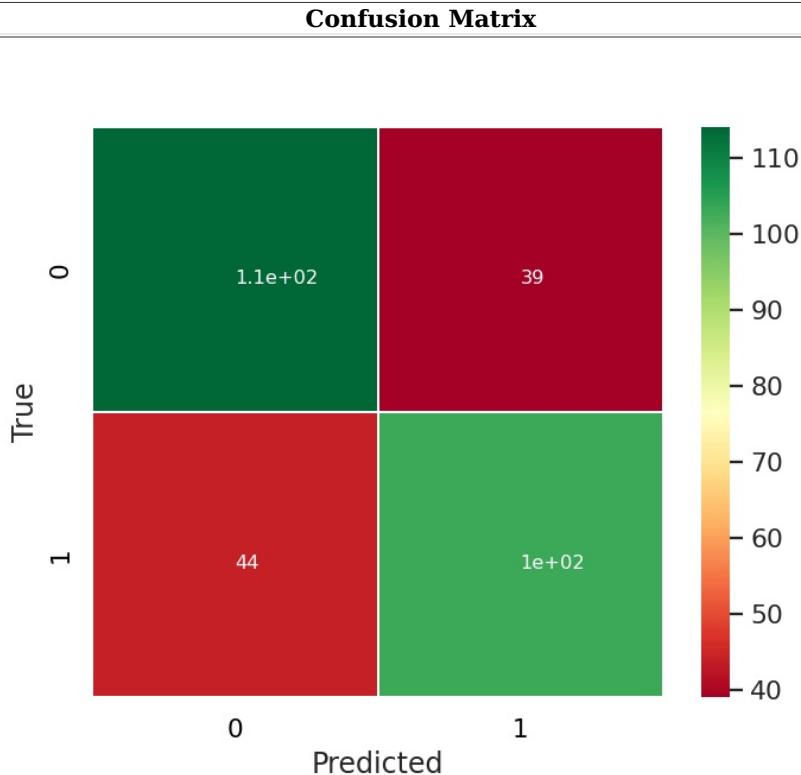
Detailed Graphs of Variables Against Time











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: 39

False Positives: 114

True Negatives: 44

False Negatives: 44

Total Population: 300

The False Positive Rate(FPR) is: 13.0%

The False Negative Rate is: 14.67%

The True Positive Rate is: 34.33%

The True Negative Rate is: 38.0%

The Positive Likelihood Ratio (True Positive Rate/False Positive Rate) is: 2.64

The Negative Likelihood Ratio (False Negative Rate/True Negative Rate) is: 0.39

Accuracy: 0.849

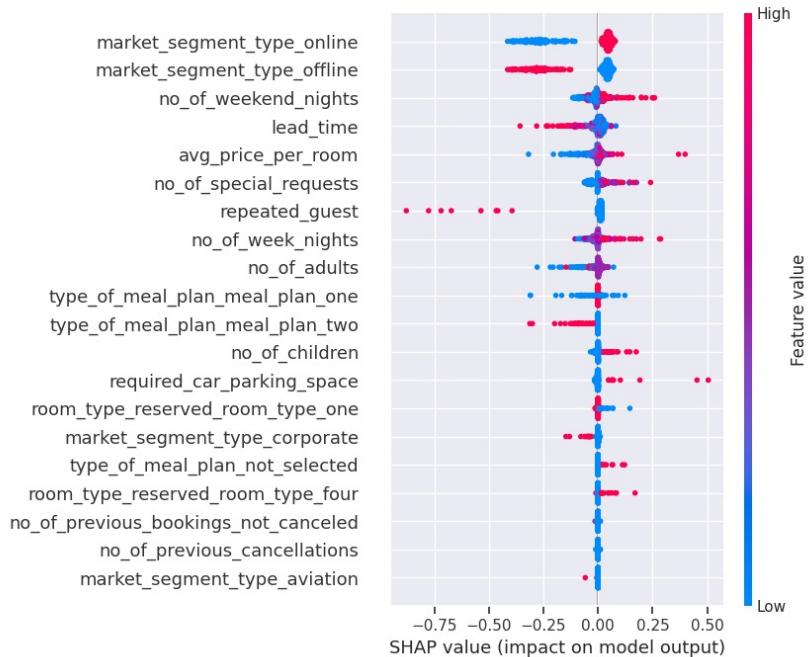
Precision: 0.725

Recall: 0.701

F1 Score: 0.713

Thresholds: [0.000, 0.002, 0.005, 0.006, 0.007, 0.009, 0.014, 0.017, 0.028, 0.037, 0.038, 0.041, 0.044, 0.045, 0.057, 0.058, 0.062, 0.063, 0.071, 0.074, 0.075, 0.081, 0.098, 0.099, 0.102, 0.106, 0.108, 0.109, 0.110, 0.111, 0.112, 0.114, 0.122, 0.124, 0.125, 0.126, 0.127, 0.129, 0.131, 0.132, 0.137, 0.140, 0.146, 0.150, 0.156, 0.158, 0.159, 0.163, 0.166, 0.167, 0.169, 0.170, 0.187, 0.190, 0.191, 0.194, 0.195, 0.196, 0.200, 0.201, 0.208, 0.210, 0.217, 0.219, 0.224, 0.227, 0.229, 0.232, 0.237, 0.239, 0.242, 0.243, 0.245, 0.246, 0.253, 0.256, 0.258, 0.262, 0.270, 0.278, 0.279, 0.280, 0.282, 0.283, 0.285, 0.289, 0.292, 0.308, 0.311, 0.321, 0.325, 0.328, 0.331, 0.332, 0.343, 0.345, 0.347, 0.350, 0.351, 0.354, 0.357, 0.365, 0.369, 0.373, 0.386, 0.389, 0.399, 0.400, 0.401, 0.410, 0.418, 0.423, 0.424, 0.432, 0.441, 0.448, 0.451, 0.452, 0.459, 0.462, 0.477, 0.488, 0.492, 0.494, 0.500, 0.503, 0.505, 0.511, 0.522, 0.557, 0.572, 0.575, 0.580, 0.582, 0.583, 0.584, 0.587, 0.588, 0.590, 0.594, 0.596, 0.600, 0.608, 0.609, 0.614, 0.616, 0.621, 0.622, 0.624, 0.626, 0.632, 0.638, 0.644, 0.647, 0.656, 0.658, 0.662, 0.663, 0.680, 0.681, 0.682, 0.693, 0.697, 0.706, 0.707, 0.708, 0.716, 0.721, 0.726, 0.728, 0.729, 0.740, 0.741, 0.743, 0.748, 0.749, 0.760, 0.763, 0.774, 0.790, 0.802, 0.804, 0.809, 0.814, 0.815, 0.816, 0.820, 0.826, 0.832, 0.835, 0.838, 0.851, 0.853, 0.857, 0.859, 0.860, 0.863, 0.870, 0.871, 0.883, 0.893, 0.897, 0.902, 0.903, 0.904, 0.911, 0.914, 0.917, 0.920, 0.921, 0.923, 0.929, 0.930, 0.932, 0.935, 0.936, 0.941, 0.942, 0.946, 0.947, 0.949, 0.950, 0.952, 0.954, 0.957, 0.958, 0.961, 0.964, 0.965, 0.966, 0.970, 0.971, 0.977, 0.978, 0.979, 0.981, 0.987, 0.988, 0.989, 0.990, 0.991, 0.998, 0.999]

MODEL EXPLANATION



- The x-axis represents the model's output values of **BOOKING_STATUS_CANCELED**.
- 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
lead_time		0.055
no_of_special_requests		0.028
avg_price_per_room		0.012
market_segment_type_online		0.008
no_of_week_nights		0.006
no_of_weekend_nights		0.006
repeated_guest		0.005
no_of_adults		0.005
market_segment_type_offline		0.004
type_of_meal_plan_meal_plan_two		0.004
required_car_parking_space		0.003
type_of_meal_plan_meal_plan_one		0.002
room_type_reserved_room_type_one		0.002
no_of_children		0.002
room_type_reserved_room_type_four		0.001
market_segment_type_corporate		0.001
type_of_meal_plan_not_selected		0.001
room_type_reserved_room_type_two		0.001
room_type_reserved_room_type_six		0.001
market_segment_type_complementary		0.001
no_of_previous_bookings_not_canceled		0.001
room_type_reserved_room_type_seven		0.000
no_of_previous_cancellations		0.000
room_type_reserved_room_type_five		0.000
market_segment_type_aviation		0.000
type_of_meal_plan_meal_plan_three		0.000
room_type_reserved_room_type_three		0.000
Best Variable(s) From Genetic Algorithm		
lead_time		
room_type_reserved_room_type_three		
Excluded Variable(s)		
no_of_special_requests		
required_car_parking_space		
type_of_meal_plan_meal_plan_one		
room_type_reserved_room_type_one		
no_of_children		
room_type_reserved_room_type_four		
market_segment_type_corporate		
type_of_meal_plan_not_selected		
room_type_reserved_room_type_two		
room_type_reserved_room_type_six		
market_segment_type_complementary		
avg_price_per_room		
no_of_previous_bookings_not_canceled		
room_type_reserved_room_type_seven		
no_of_previous_cancellations		
room_type_reserved_room_type_five		
market_segment_type_aviation		
type_of_meal_plan_meal_plan_three		
market_segment_type_online		
no_of_week_nights		
no_of_weekend_nights		
repeated_guest		
no_of_adults		
market_segment_type_offline		
type_of_meal_plan_meal_plan_two		
PCA for Best Variable(s)		Value
lead_time_pca_1		0.707
lead_time_pca_2		0.707
lead_time_pca_3		0.000
room_type_reserved_room_type_three_pca_1		0.000
room_type_reserved_room_type_three_pca_2		-0.000
room_type_reserved_room_type_three_pca_3		1.000
PCA Explained Variance		Value
PCA1		0.716
PCA2		0.284
PCA3		0.000

- 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

CLUSTER ANALYSIS: PCA and KMeans



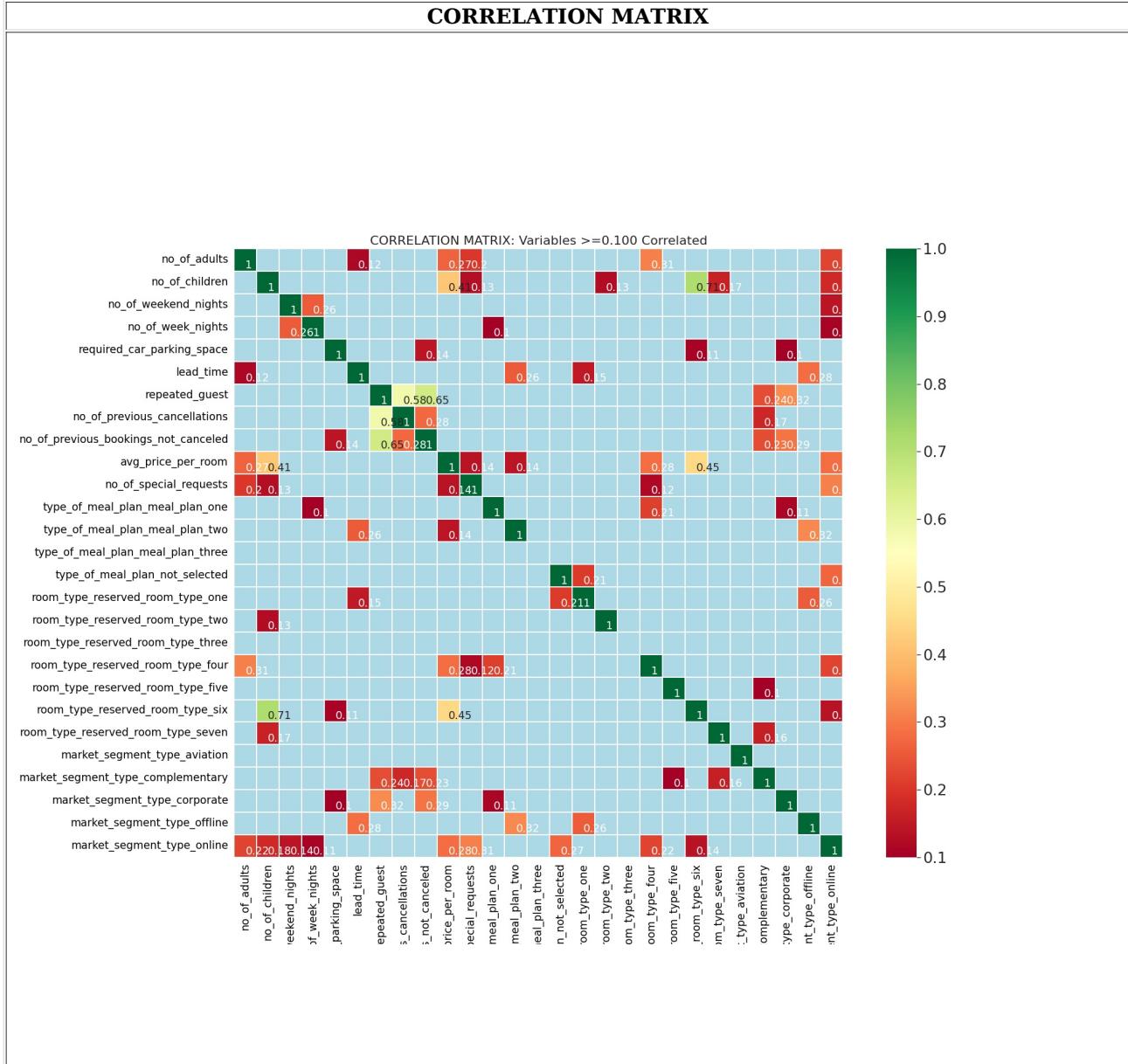
Over 80% of the variance in your data is explained by 14 principal components.

Optimal clusters are 18 with a silhouette score of 0.282 using euclidean distance.

NOTE: Only two principal components are shown in the 2D graph because your variables have been reduced by dimensionality reduction using PCA. However, the entire data set can be found here:

[/maads/agentfilesdocker/dist/maadsweb/csvuploads/admin_resamplesm_csv_clusters_pcakmeans.csv](#) for further analysis.

CORRELATION MATRIX



CORRELATED FEATURES

	Feature(s)	Feature(s)	Correlation >= 0.100	
0	market_segment_type_complementary	room_type_reserved_room_type_five	0.100	
1	type_of_meal_plan_meal_plan_one	no_of_week_nights	0.101	
2	market_segment_type_corporate	required_car_parking_space	0.103	
3	market_segment_type_online	no_of_week_nights	0.109	
4	market_segment_type_corporate	type_of_meal_plan_meal_plan_one	0.112	
5	no_of_adults	lead_time	0.117	
6	room_type_reserved_room_type_four	no_of_special_requests	0.121	
7	no_of_children	room_type_reserved_room_type_two	0.128	
8	no_of_children	no_of_special_requests	0.130	
9	no_of_special_requests	avg_price_per_room	0.136	
10	market_segment_type_online	room_type_reserved_room_type_six	0.138	
11	type_of_meal_plan_meal_plan_two	avg_price_per_room	0.140	
12	no_of_weekend_nights	market_segment_type_online	0.142	
13	room_type_reserved_room_type_one	lead_time	0.151	
14	room_type_reserved_room_type_seven	market_segment_type_complementary	0.163	
15	room_type_reserved_room_type_seven	no_of_children	0.165	
16	no_of_previous_cancellations	market_segment_type_complementary	0.173	
17	no_of_children	market_segment_type_online	0.179	
18	no_of_adults	no_of_special_requests	0.203	
19	type_of_meal_plan_not_selected	room_type_reserved_room_type_one	0.207	
20	type_of_meal_plan_meal_plan_one	room_type_reserved_room_type_four	0.213	
21	market_segment_type_online	room_type_reserved_room_type_four	0.221	
22	no_of_adults	market_segment_type_online	0.222	
23	no_of_previous_bookings_not_canceled	market_segment_type_complementary	0.234	
24	market_segment_type_complementary	repeated_guest	0.236	
25	type_of_meal_plan_meal_plan_two	lead_time	0.255	
26	no_of_week_nights	no_of_weekend_nights	0.256	
27	market_segment_type_offline	room_type_reserved_room_type_one	0.257	
28	no_of_adults	avg_price_per_room	0.268	
29	type_of_meal_plan_not_selected	market_segment_type_online	0.270	
30	no_of_previous_cancellations	no_of_previous_bookings_not_canceled	0.275	
31	market_segment_type_offline	lead_time	0.280	
32	avg_price_per_room	room_type_reserved_room_type_four	0.281	
33	market_segment_type_online	avg_price_per_room	0.282	
34	market_segment_type_corporate	no_of_previous_bookings_not_canceled	0.292	
35	market_segment_type_online	no_of_special_requests	0.309	
36	room_type_reserved_room_type_four	no_of_adults	0.310	
37	market_segment_type_offline	type_of_meal_plan_meal_plan_two	0.321	
38	market_segment_type_corporate	repeated_guest	0.324	
39	avg_price_per_room	no_of_children	0.413	
40	avg_price_per_room	room_type_reserved_room_type_six	0.451	
41	repeated_guest	no_of_previous_cancellations	0.582	
42	repeated_guest	no_of_previous_bookings_not_canceled	0.653	
43	no_of_children	room_type_reserved_room_type_six	0.713	
44	no_of_adults	no_of_adults	NaN	

SUGGESTED CORRELATED FEATURES TO DELETE

	10 Feature(s) to Delete	Correlation
0	market_segment_type_complementary	0.100
2	market_segment_type_corporate	0.103
5	no_of_adults	0.117
7	no_of_children	0.128
10	market_segment_type_online	0.138
13	room_type_reserved_room_type_one	0.151
25	type_of_meal_plan_meal_plan_two	0.255
31	market_segment_type_offline	0.280
40	avg_price_per_room	0.451
43	no_of_children	0.713

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