



EXEBIT 2018

PRESENTATION BY “wannabes”

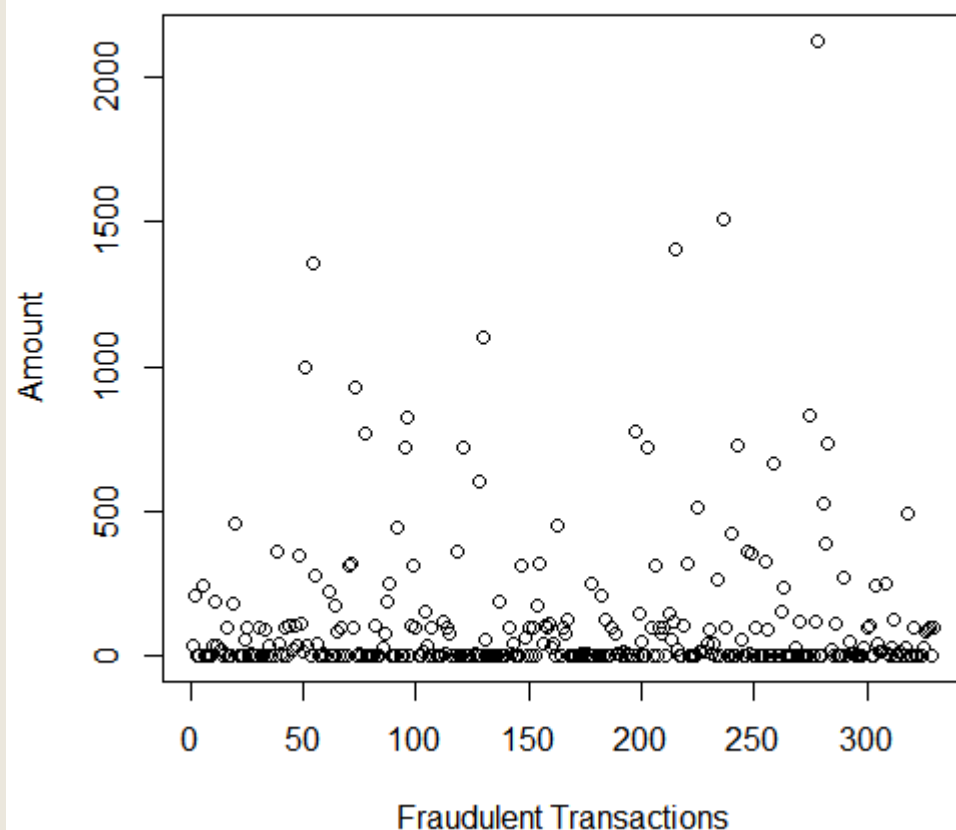


FEATURE ANALYSIS

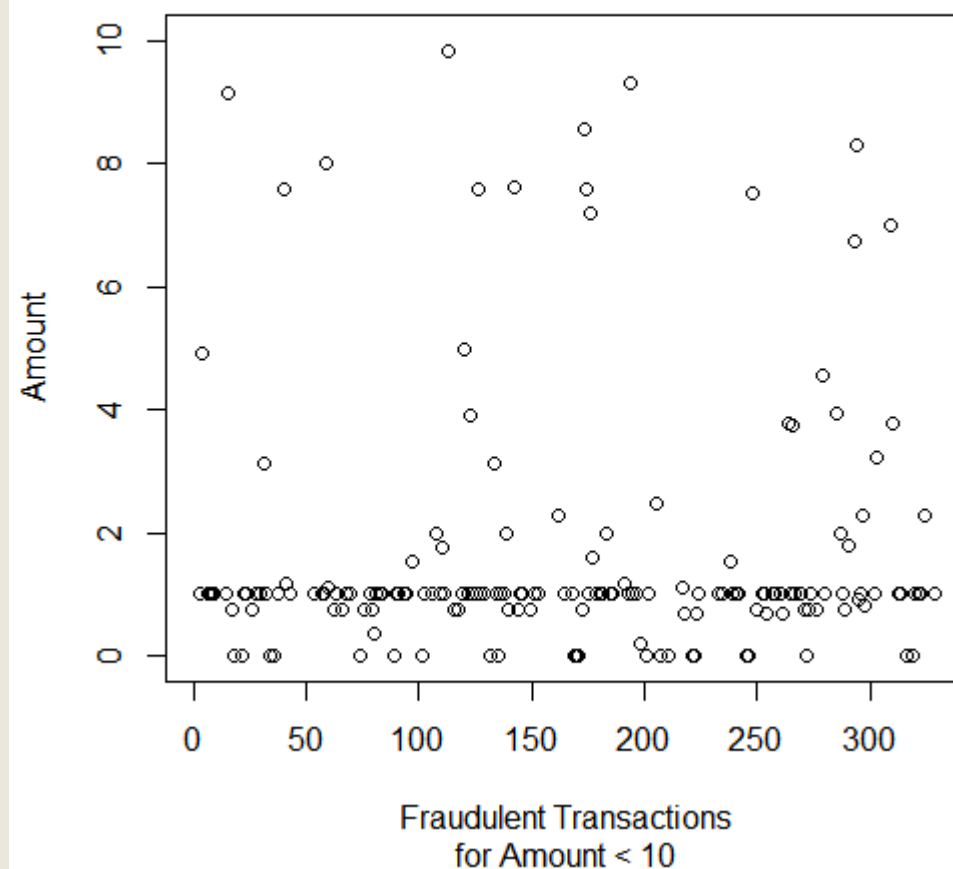
AMOUNT

Row Labels	Count of Amount	Max of Amount	Min of Amount	Average of Amount	StdDev of Amount
0	190490	12910.93	0	87.87246018	242.1304614
1	330	2125.87	0	112.7014545	247.8399153
Grand Total	190820	12910.93	0	87.91539891	242.1419845

Amount distribution for fraudulent transactions



Amount distribution for fraudulent transactions



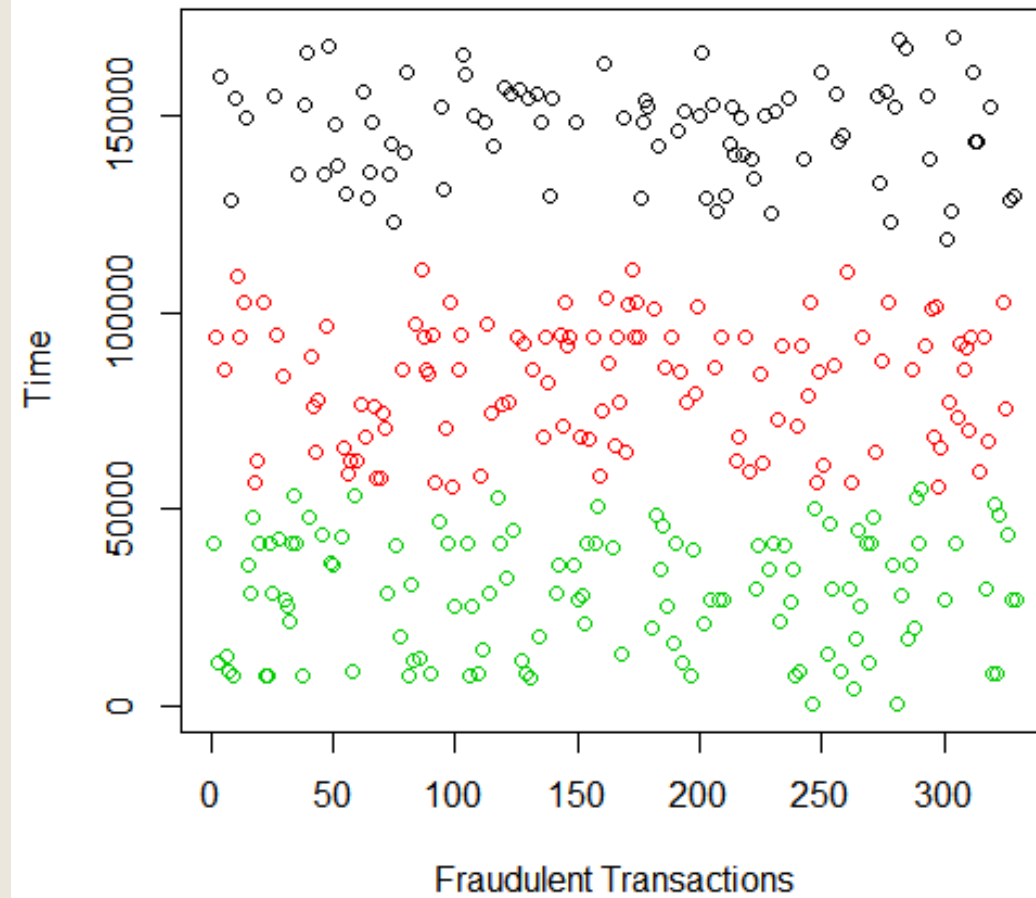
Adversarial ML - fraud transactions done to perturbate training data

A dark blue L-shaped frame is positioned on the left and bottom edges of the slide, framing the central text.

FEATURE ANALYSIS

TIME

Time distribution for fraudulent transactions



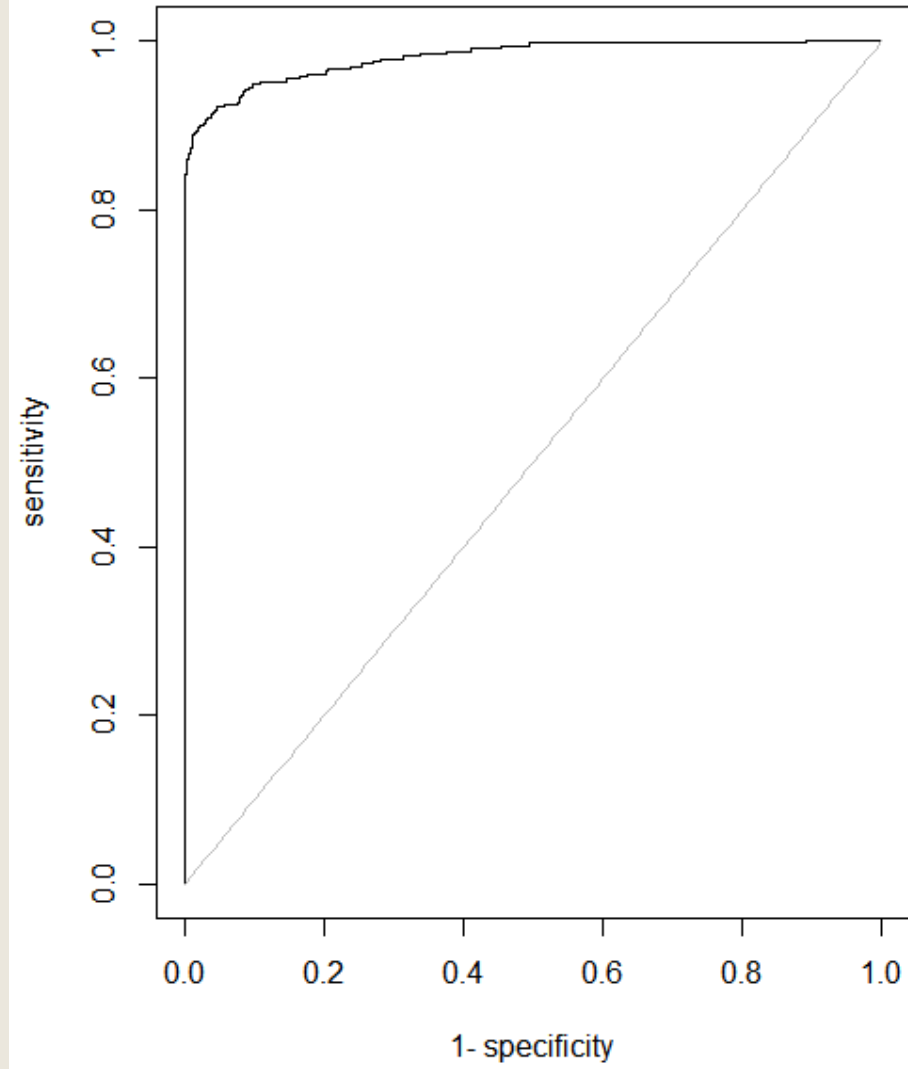
Row Labels	Min of Time	Max of Time	Average of Time	StdDev of Time
0	0	172792	94815.63093	47450.04922
1	406	169966	79322.58485	48367.57739
Grand Total	0	172792	94788.83759	47455.88842

Fraud txs. avoid extreme times



LOGISTIC REGRESSION

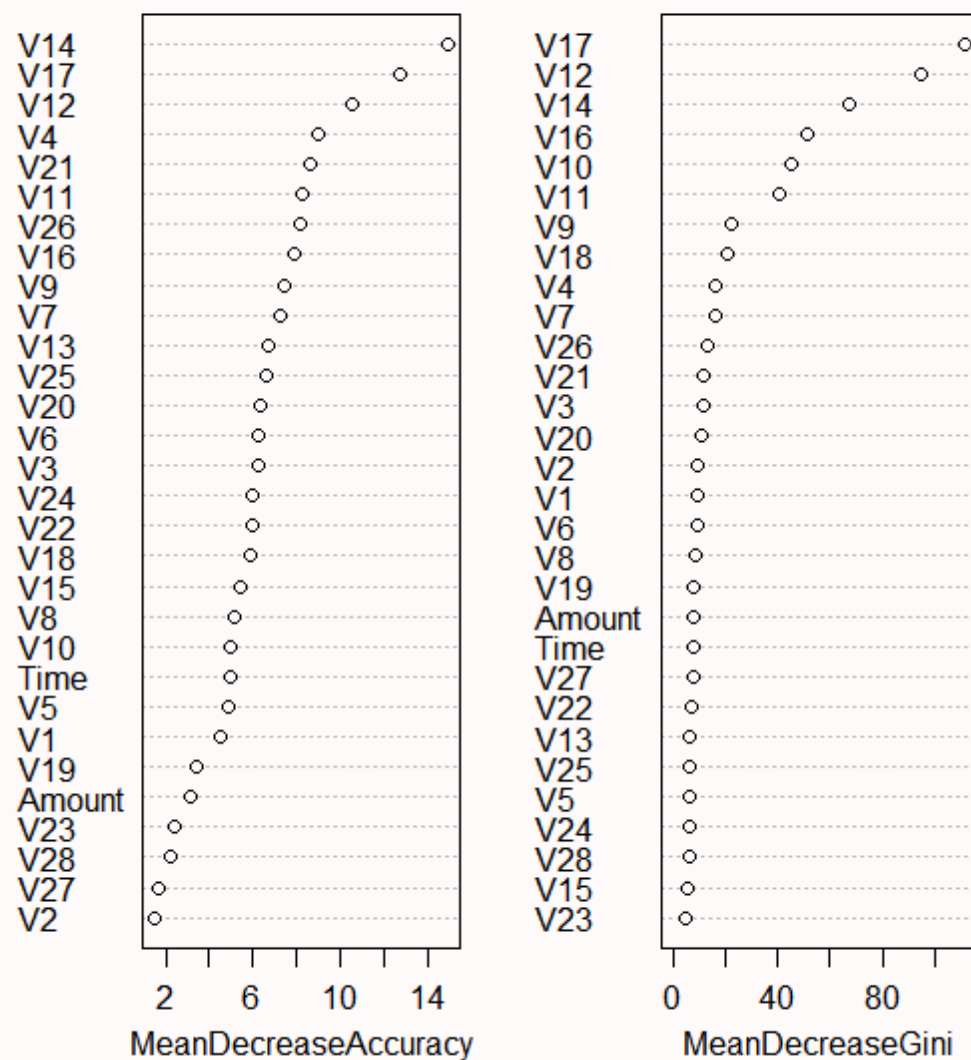
ROC



The image features a light blue background with two dark blue L-shaped brackets. One bracket is positioned on the left side, with its vertical line extending from the bottom and its horizontal line extending to the right. The other bracket is on the right side, with its vertical line extending from the top and its horizontal line extending to the left. These brackets frame the central text.

RANDOM FOREST

Variable Importance Plot



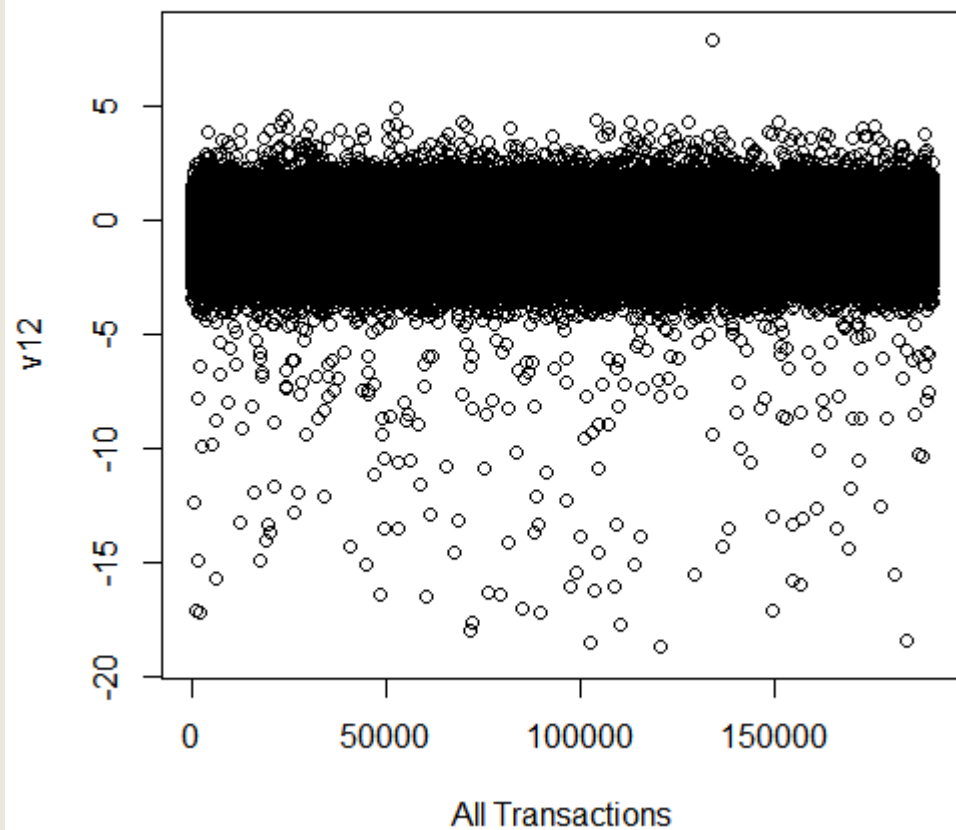
Three most important variables are V17, V14, V12



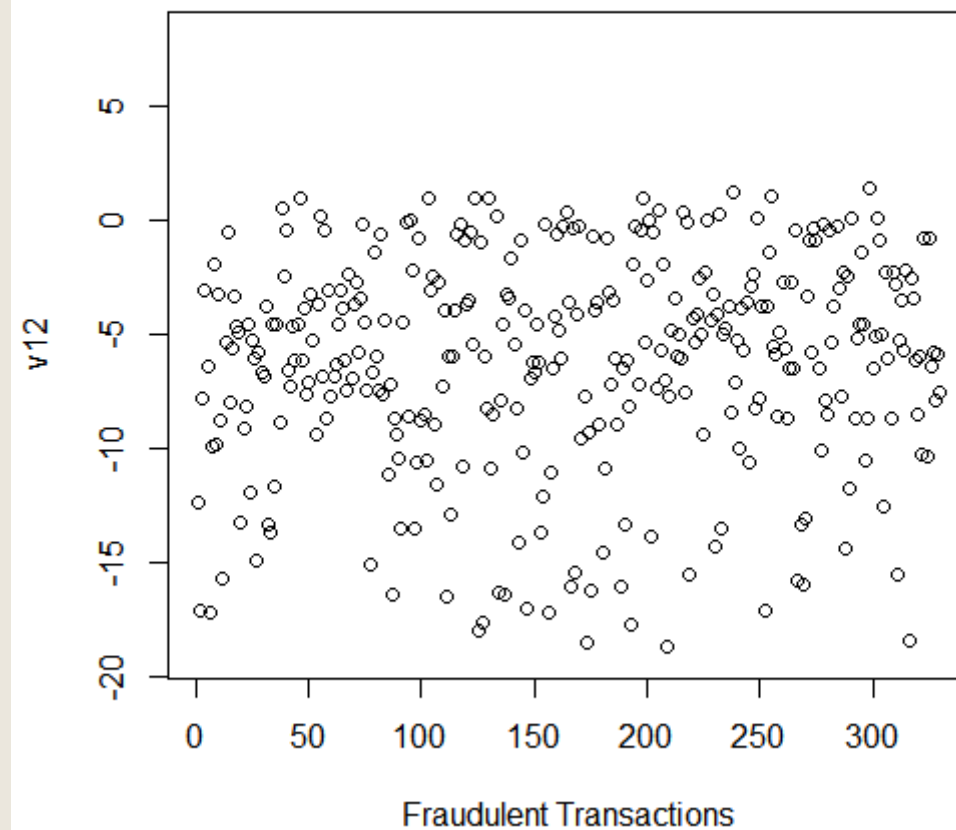
FEATURE ANALYSIS

Variable 12

v12 distribution for all transactions



v12 distribution for fraudulent transactions



Most Fraudulent txs. are outliers!

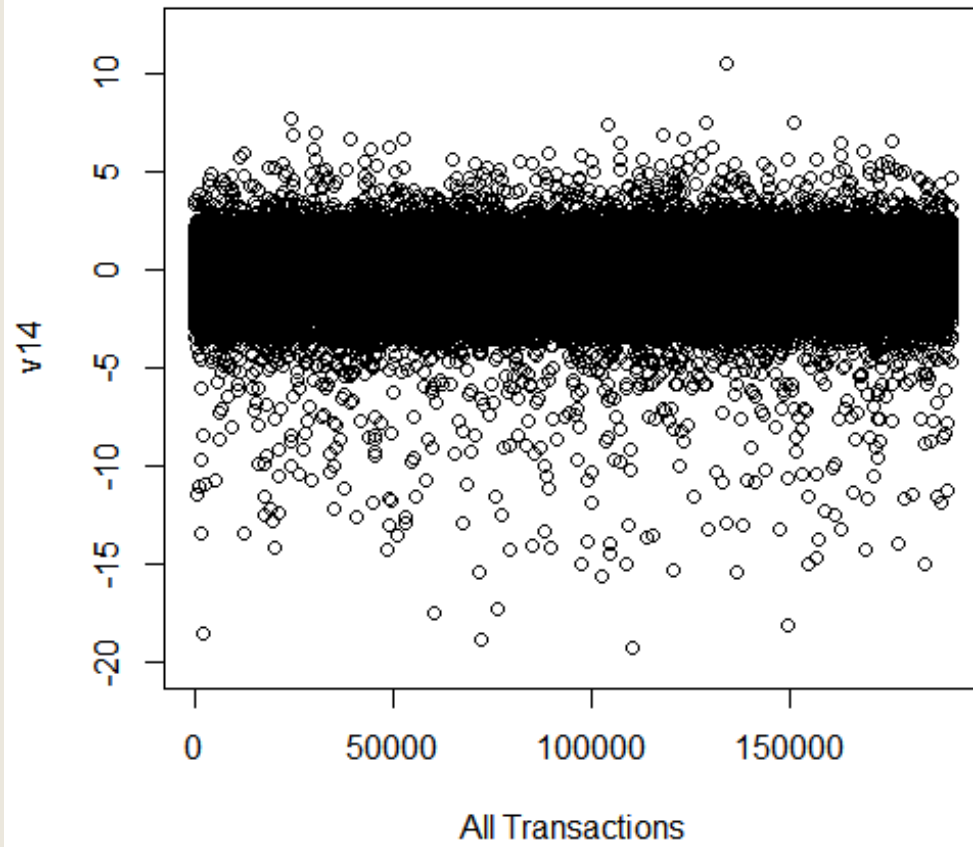


FEATURE ANALYSIS

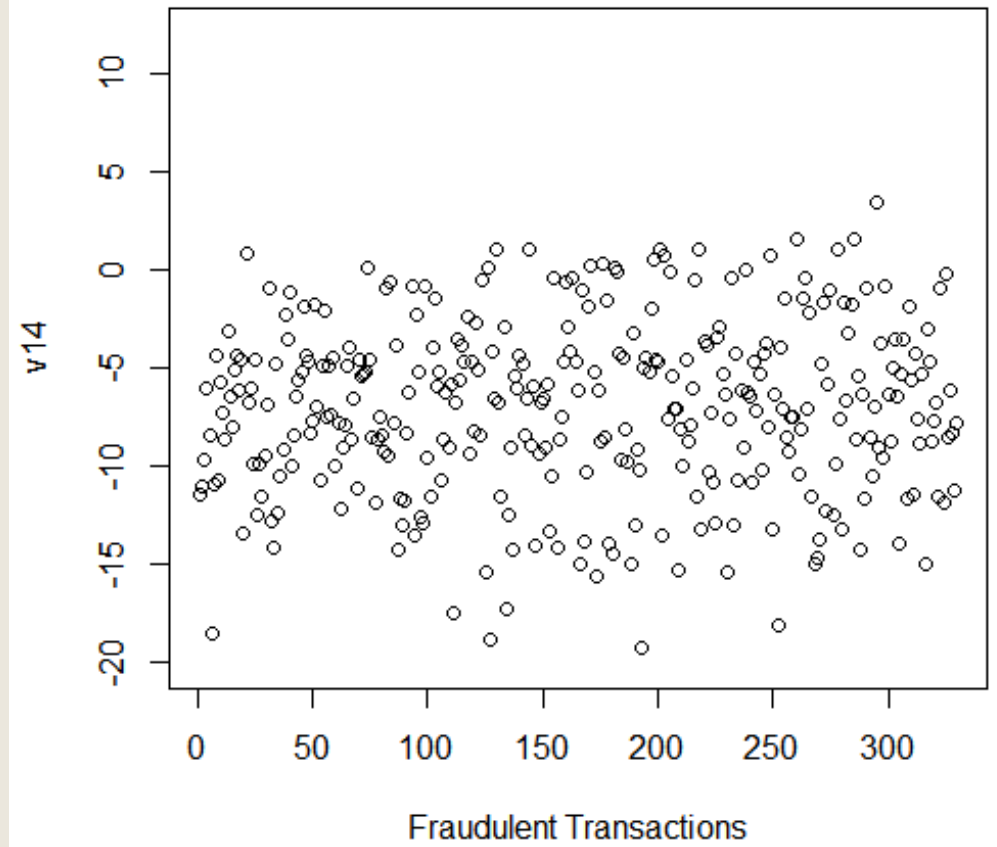
Variable 14



v14 distribution for all transactions



v14 distribution for fraudulent transactions



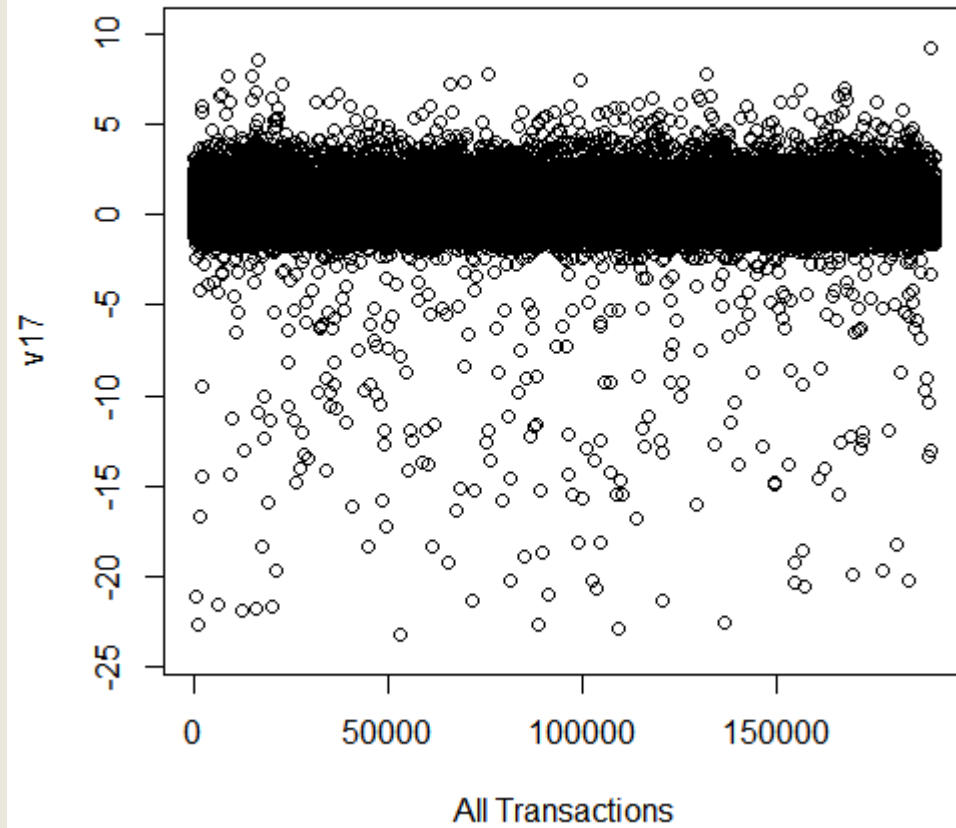
Most Fraudulent txs. are outliers!



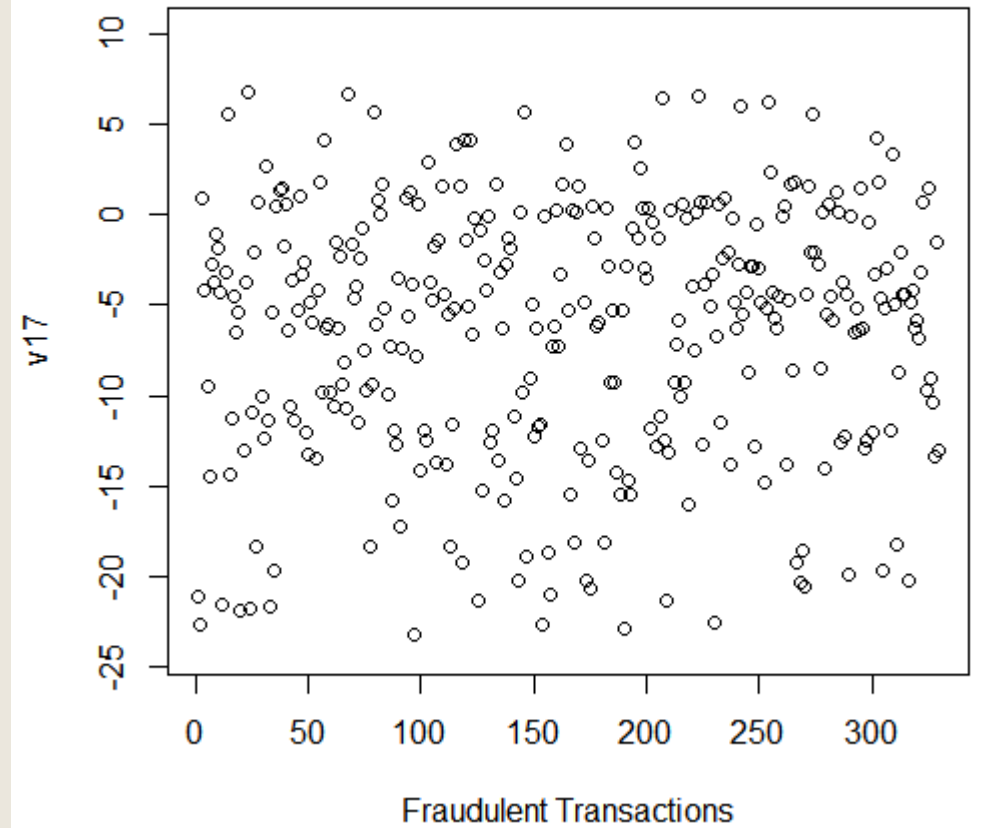
FEATURE ANALYSIS

Variable 17

v17 distribution for all transactions



v17 distribution for fraudulent transactions



Most Fraudulent txs. are outliers!

Thus outlier detection for v17, v12, v14
can be done for online predictions



THANK YOU!