1) ELI5
a) Global Interpretation-

- Explaining weights of features

Weight	Feature
0.0756	state_AP
0.0615	resid_type_O
0.0501	resid_type_R
0.0332	area_code_3030.0
0.0294	area_code_3008.0
0.0291	state_MH
0.0268	state_HP
0.0227	state_RJ
0.0223	state_TN
0.0222	area_code_3087.0
0.0211	area_code_3018.0
0.0210	state_KL
0.0210	area_code_3061.0
0.0209	area_code_3016.0
0.0203	area_code_3091.0
0.0174	area_code_3068.0
0.0161	area_code_3011.0
0.0149	area_code_3088.0
0.0148	area_code_3022.0
0.0145	area_code_3005.0
... 86 more ...	

b) Local Interpretation-

- Explaining weights of a non-fraudulent loan application

y=0 (probability **0.997**, score **-5.885**) top features

| Contribution?	Feature
+2.684	<BIAS>
+0.665	area_code_3078.0
+0.622	proc_fee
+0.577	roi
+0.524	age
+0.377	net_irr
+0.330	loan_amt
+0.313	asset_cost
+0.106	state_TN
+0.097	resid_type_O
+0.076	state_MH
+0.032	area_code_3009.0
+0.028	state_WB
+0.027	resid_type_R
+0.023	area_code_3000.0
+0.023	area_code_3008.0
+0.019	state_GJ
+0.018	area_code_3001.0
+0.015	area_code_3018.0
+0.011	area_code_3030.0
+0.009	state_HA

- Explaining weights of a fraudulent loan application

y=1 (probability **0.549**, score **0.195**) top features

Contribution?	Feature
+0.882	resid_type_O
+0.787	emi
+0.494	area_code_3000.0
+0.459	net_salary
+0.332	proc_fee
+0.275	resid_type_R
+0.194	state_AP
+0.170	state_TN
+0.027	state_RJ
+0.027	area_code_3004.0
+0.020	state_OR
+0.015	area_code_3078.0
+0.013	state_PB
+0.007	state_BR
+0.007	state_WB
+0.005	area_code_3003.0
+0.004	area_code_3072.0
+0.004	area_code_3007.0
+0.003	area_code_3068.0
+0.003	state_HP

2) Local Interpretation using Shapley Values

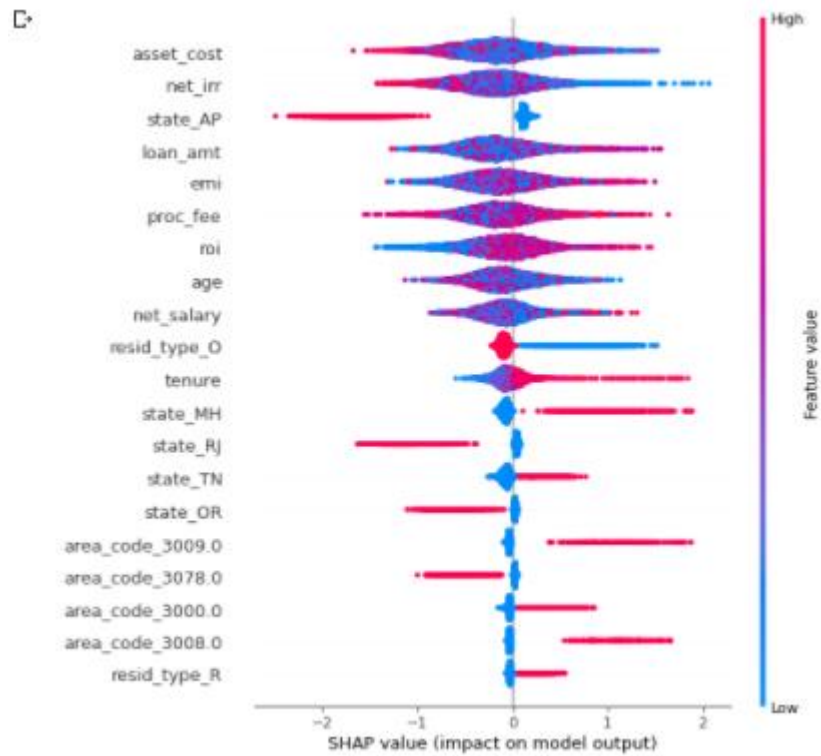- Explaining a case of Non-Fraudulent Loan application
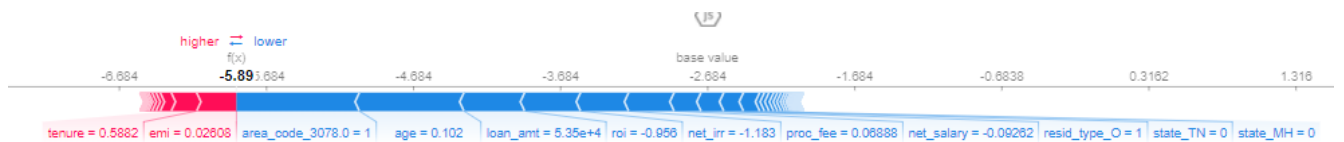
Observations from *Record no. 0 in Test data*

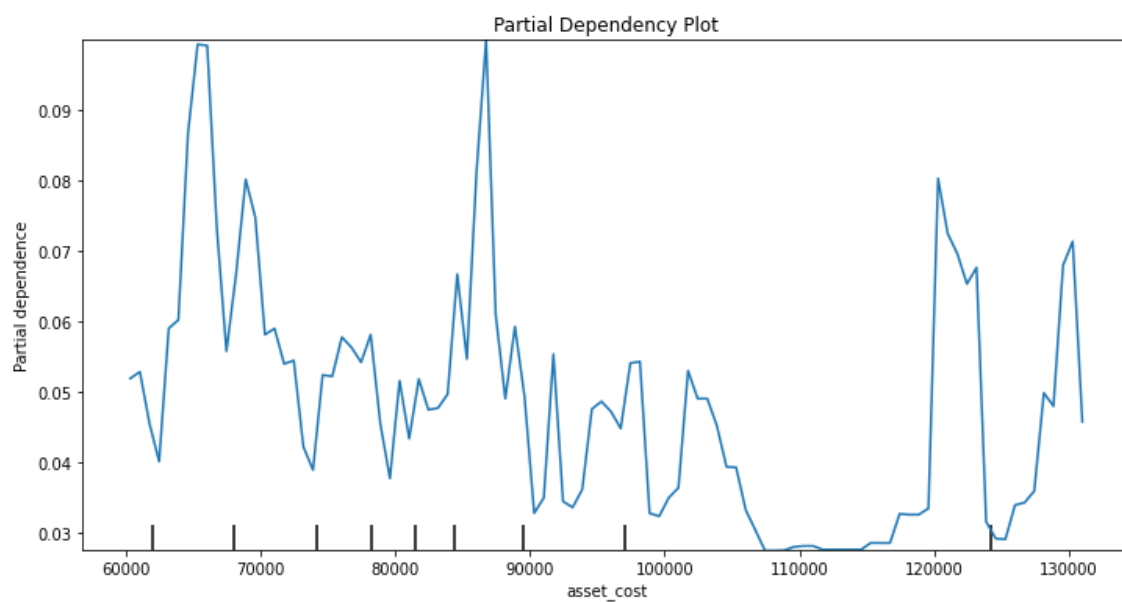- Explaining a case of Fraudulent Loan application

Observations from *Record no. 37 in Test data*
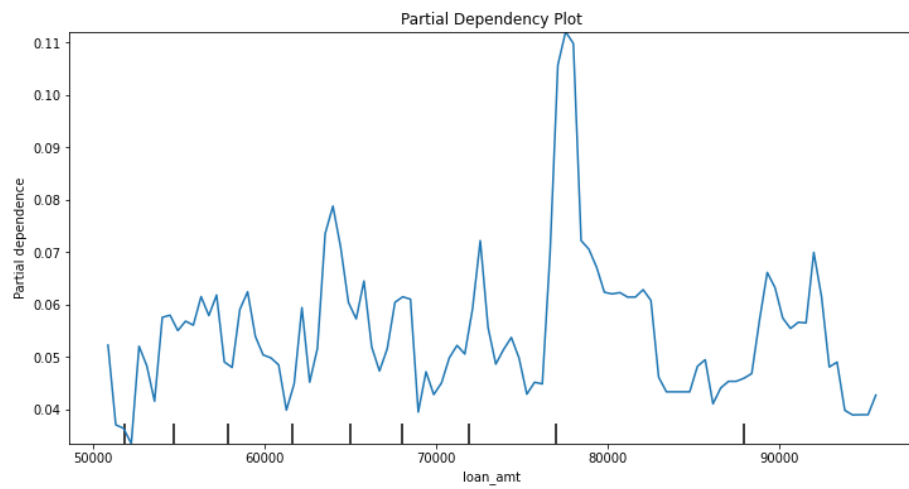
3) Global Explanation of SHAP

4) Global Interpretations using Partial Dependence Plots- PDP's

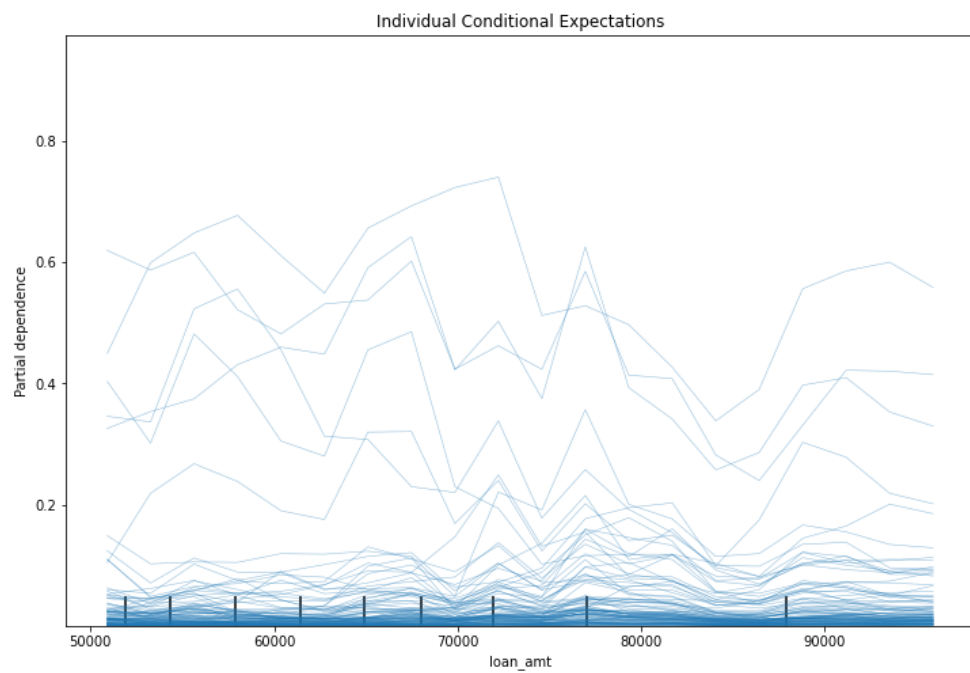- Effect of Asset cost on Fraud classification

- Effect of Loan amount on Fraud classification

5) Global Interpretations using Individual Conditional Expectations (ICE)

- Feature Name- loan_amt , kind- Individual

- Feature Name- loan_amt , kind- both

Individual Conditional Expectations