1) Dataset Overview

```
(284807, 31)
Class
0    284315
1       492
Name: count, dtype: int64
```

	Time	V1	V2	V3	V4	V5	V6	V7	V8	V9	...	V21	V22	V23	V24	V25	V26	V27	V28	Amount	Class
0	0.0	-1.359807	-0.072781	2.536347	1.378155	-0.338321	0.462388	0.239599	0.098698	0.363787	...	-0.018307	0.277838	-0.110474	0.066928	0.128539	-0.189115	0.133558	-0.021053	149.62	0
1	0.0	1.191857	0.266151	0.166480	0.448154	0.060018	-0.082361	-0.078803	0.085102	-0.255425	...	-0.225775	-0.638672	0.101288	-0.339846	0.167170	0.125895	-0.008983	0.014724	2.69	0
2	1.0	-1.358354	-1.340163	1.773209	0.379780	-0.503198	1.800499	0.791461	0.247676	-1.514654	...	0.247998	0.771679	0.909412	-0.689281	-0.327642	-0.139097	-0.055353	-0.059752	378.66	0
3	1.0	-0.966272	-0.185226	1.792993	-0.863291	-0.010309	1.247203	0.237609	0.377436	-1.387024	...	-0.108300	0.005274	-0.190321	-1.175575	0.647376	-0.221929	0.062723	0.061458	123.50	0
4	2.0	-1.158233	0.877737	1.548718	0.403034	-0.407193	0.095921	0.592941	-0.270533	0.817739	...	-0.009431	0.798278	-0.137458	0.141267	-0.206010	0.502292	0.219422	0.215153	69.99	0

5 rows × 31 columns

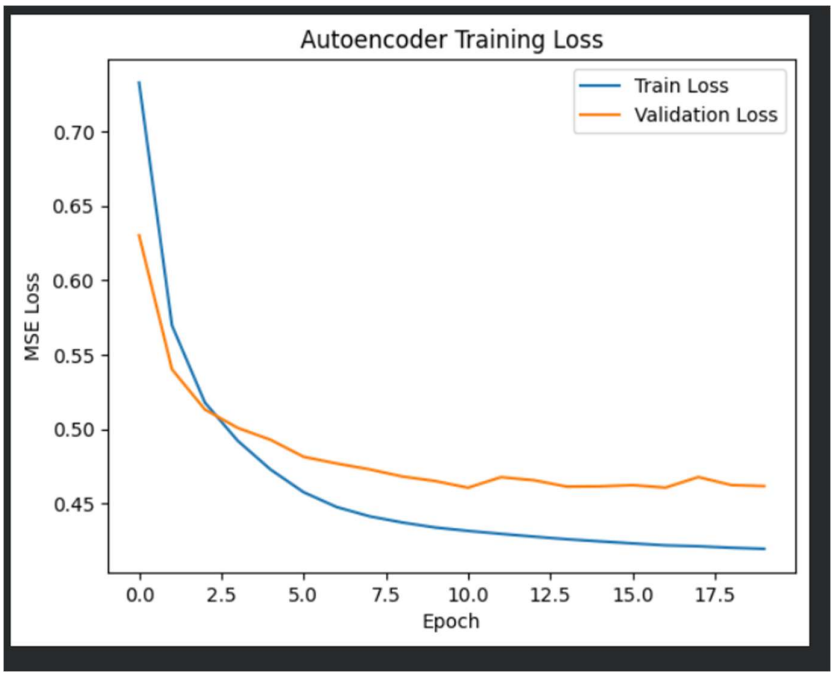
2) Autoencoder Model Architecture

Model: "functional_1"

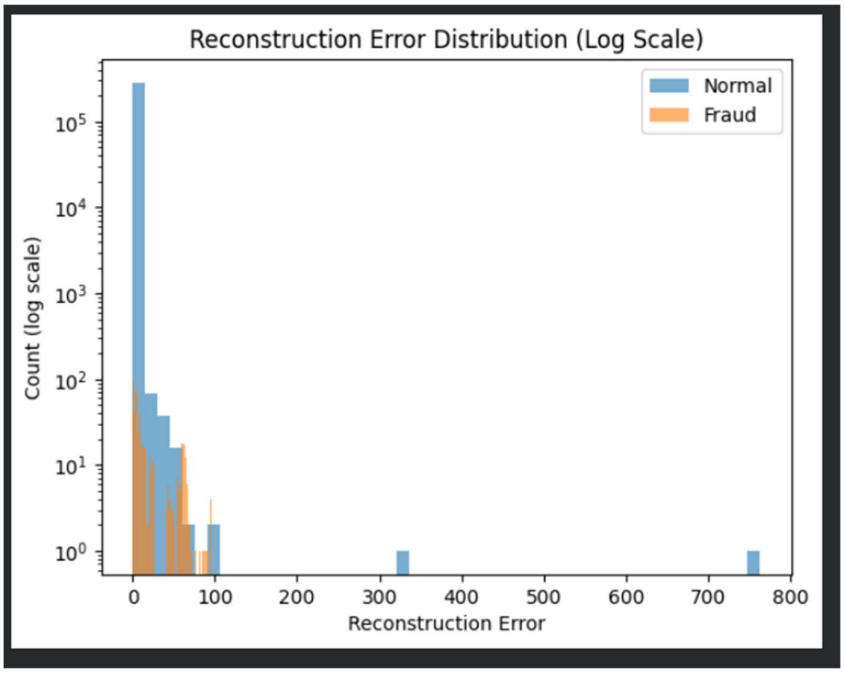
Layer (type)	Output Shape	Param #
input_layer_1 (InputLayer)	(None, 30)	0
dense_4 (Dense)	(None, 16)	496
dense_5 (Dense)	(None, 8)	136
dense_6 (Dense)	(None, 16)	144
dense_7 (Dense)	(None, 30)	510

Total params: 1,286 (5.02 KB)
Trainable params: 1,286 (5.02 KB)
Non-trainable params: 0 (0.00 B)

3) Training Loss



4) Reconstruction Error (Normal & Fraud)



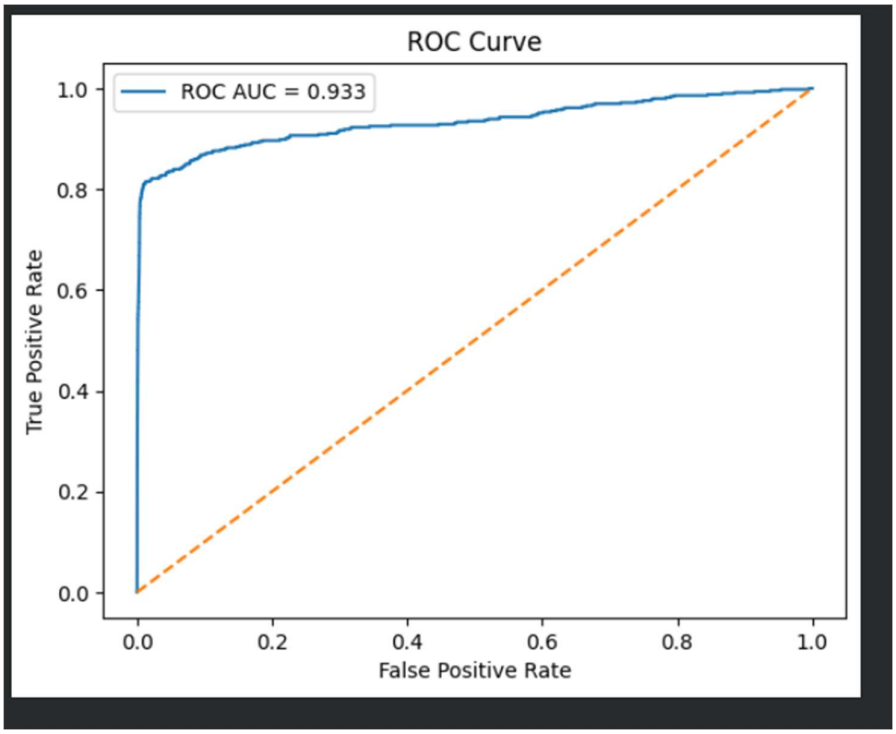
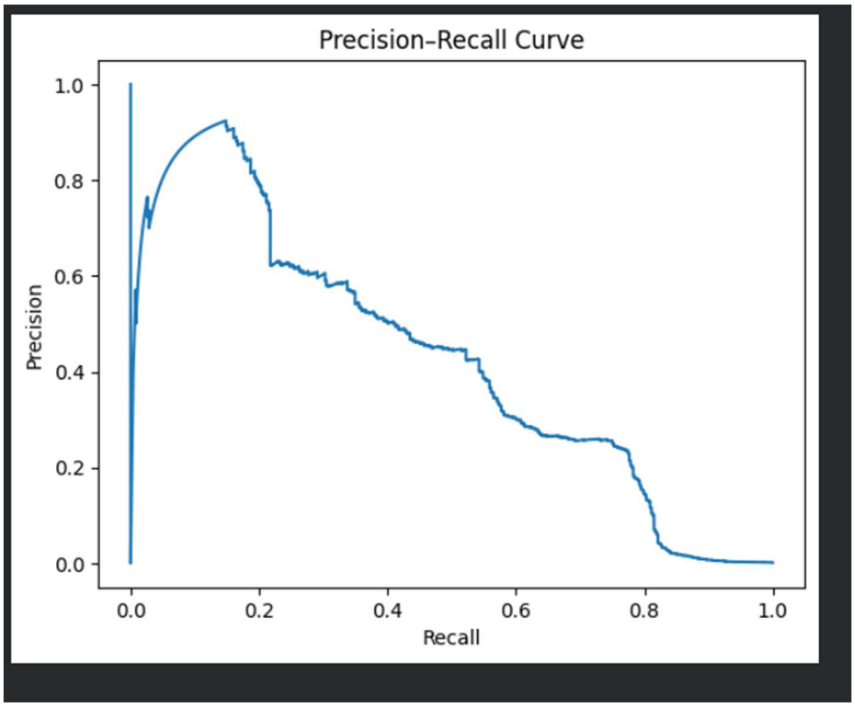
5) Confusion Matrix

```
Confusion Matrix:
 [[270099  14216]
 [    81    411]]
```

6) Classification Report

	precision	recall	f1-score	support
0	1.00	0.95	0.97	284315
1	0.03	0.84	0.05	492
accuracy			0.95	284807
macro avg	0.51	0.89	0.51	284807
weighted avg	1.00	0.95	0.97	284807

7) ROC Curve



8) Precision Recall Curve