Data Science Career Track
Model Metrics Exercise

1. Look at the table below. If the goal is to optimize the True Positives which model would you choose and why?
   Logistic: the higher the precision the more accurate the positive predictions are; it also has highest accuracy and F1 score.

Model	Recall	Precision	Accuracy	F1
Logistic	0.746	0.775	0.999	0.761
Logistic with auto threshold	0.891	0.061	0.976	0.114
Logistic with class weights	0.878	0.110	0.988	0.195
Hinge with auto threshold	0.905	0.014	0.890	0.028
Hinge with class weights	0.878	0.103	0.987	0.185

2. Calculate the F-1 scores for each model and identify the best model based on the F1 score.
   Deep NN has the highest F1 score

Model	Recall	Precision	F1	Auc/Roc
Deep NN	0.79	0.82	0.81	0.92
Logistic Regression	0.75	0.79	0.77	0.90
Random Forest	0.80	0.66	0.72	0.90
LinearSVC	0.74	0.75	0.74	0.82

3. Identify the best parameter values for 'alpha' and 'L1-ratio' based on the above comparison.
   Since the most important metric for a Regression model is R-squared (adjusted) and RMSE, having Alpha and L1-ratio both at 0 seems to be the best option.

Model	Parameter	Parameter	Metric	Metric	Metric
	Alpha	L1-ratio	MAE	R-squared	RMSE

Linear Regression	0.5	0.2	84.27	0.277	158.1
Linear Regression	0.2	0.5	84.08	0.264	159.6
Linear Regression	0.5	0.5	84.12	0.272	158.6
Linear Regression	0	0	84.49	0.249	161.2