	TYPE	NAME	DESCRIPTION	ADVANTAGES	DISADVANTAGES
Linear		**Linear Regression**	**The "best fit" line** through all data points. Predictions are numerical.	Easy to understand — you clearly see what the biggest drivers of the model are.	Sometimes too simple to capture complex relationships between variables. Does poorly with correlated features.
		**Logistic Regression**	The adaptation of **linear regression** to problems of classification (e.g., yes/no questions, groups, etc.	Also easy to understand.	Sometimes too simple to capture complex relationships between variables. Does poorly with correlated features.
Tree-Based		**Decision Tree**	**A series of yes/no rules based on the features,** forming a tree, to match all possible outcomes of a decision.	Easy to understand.	Not often used on its own for prediction because it's also often too simple and not powerful enough for complex data.
		**Random Forest**	Takes advantage of many decision trees, with rules created from subsamples of features. Each tree is weaker than a full decision tree, but **by combining them we get better overall performance.**	A sort of "wisdom of the crowd". Tends to result in very high quality models. Fast to train.	Models can get very large. Not easy to understand predictions.
		**Gradient Boosting**	Uses even weaker decision trees, that are increasingly **focused on "hard" examples.**	High-performing.	A small change in the feature set or training set can create radical changes in the model. Not easy to understand predictions.
Neural Networks		**Neural Networks**	Interconnected "neurons" that pass messages to each other. Deep learning uses several **layers of neural networks stacked on top of one another.**	Can handle extremely complex tasks — no other algorithm comes close in image recognition.	Very slow to train, because they often have a very complex architecture. Almost impossible to understand predictions.