Recall: Feature Engineering

X_1	X_2	X_3	X_4

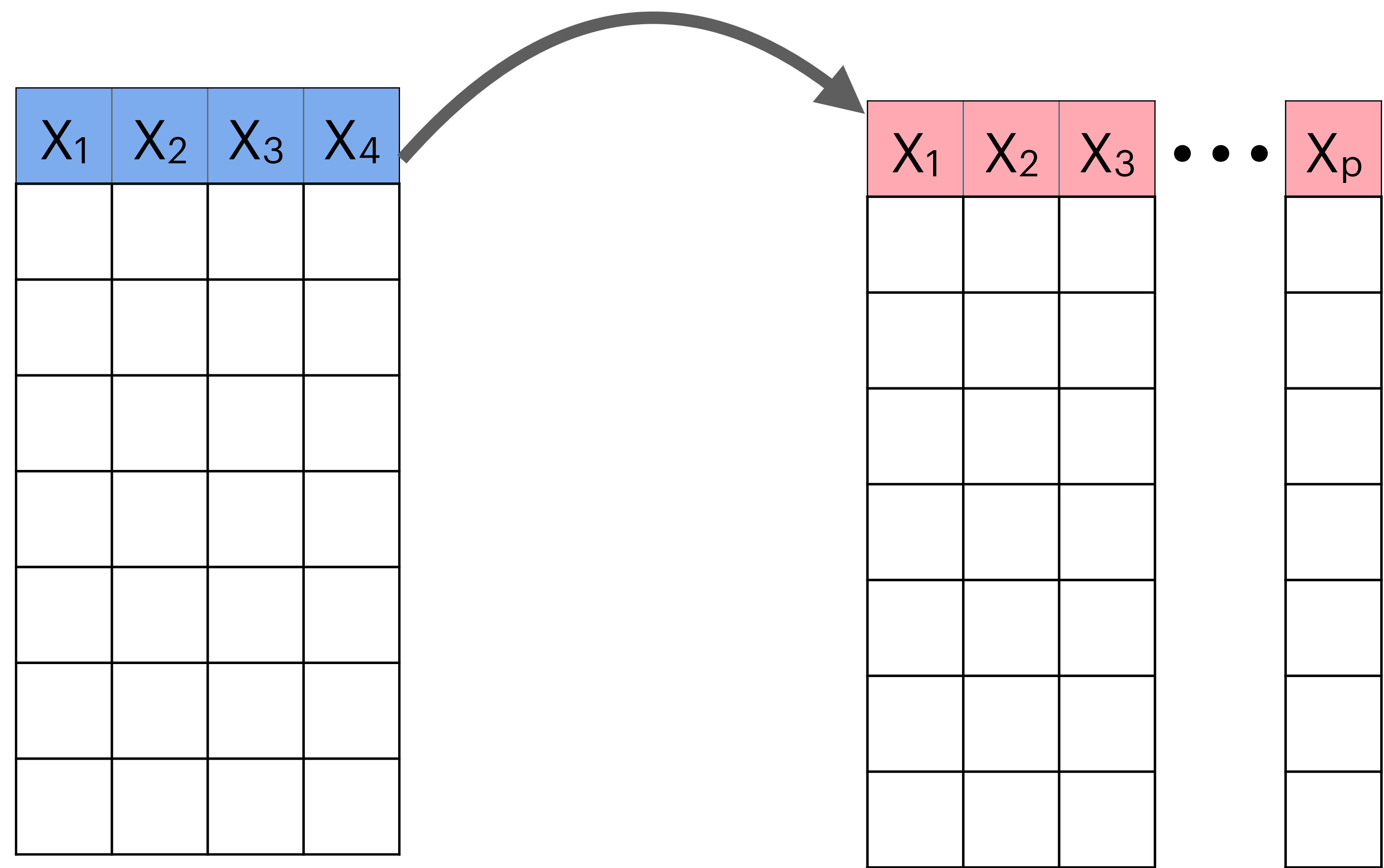| X_1	X_2	X_3	$\cdots$	X_p

when do we do this and why?

Basis Function

A family of functions/transformations that can be applied to a variable X: $f(X_1), f(X_2), f(X_3), \ldots$

$$Y = \beta_0 + \beta_1 f(X_1) + + \beta_2 f(X_2) + \beta_3 f(X_3) + \cdots + \beta_k f(X_k) + \epsilon$$