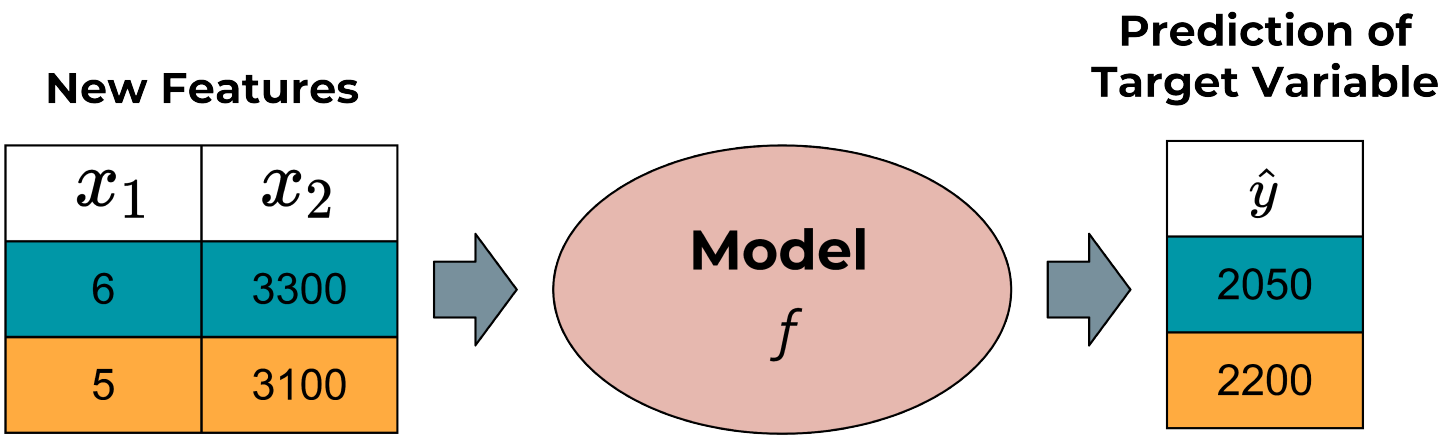
Introduction to Machine Learning

Introduction: Models & Learners

compstat-lmu.github.io/lecture_i2ml

WHAT IS A MODEL?

A **model** (or hypothesis) $f : \mathcal{X} \to \mathbb{R}^g$ is a function that maps feature vectors to predictions.
($g = 1$ in conventional regression, for classification see later.)
A hypothesis space $\mathcal{H}$ is a set of such functions and defines a model class.



WHAT IS A MODEL?

In supervised ML, we want to learn the function *f* **automatically from labeled data**, to apply it to new data.

WHAT IS A LEARNER?

A **learner** (also: *inducer*)

- takes a **training set** $\mathcal{D} \in \mathcal{X} \times \mathcal{Y}$ with features, target
- gives back a **model**: a function $f : \mathcal{X} \to \mathbb{R}^g$ from a given hypothesis space $\mathcal{H}$.