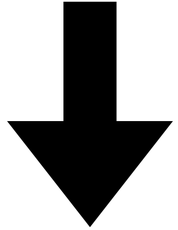
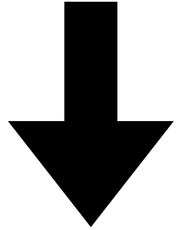
Generative vs. Discriminative Classification Methods

Generative	Discriminant
• Learns a “recipe” for each class • Calculate probability based on recipe of a new point belonging to each class • Example: Naive Bayes, LDA, QDA	• Focus directly on distinguishing classes and not the data generating process • Draw the best possible boundary to separate the classes based on the data • Example: Logistic regression, KNN



Model $P(Y)$ and $P(X \mid Y)$, derive $P(Y \mid X)$



Model $\Pr(Y \mid X)$ directly

Generative vs. Discriminative Classification Methods

Generative	Discriminant
• Learns a “recipe” for each class • Calculate probability based on recipe of a new point belonging to each class • Example: Naive Bayes, LDA, QDA	• Focus directly on distinguishing classes and not the data generating process • Draw the best possible boundary to separate the classes based on the data • Example: Logistic regression, KNN
Model $P(Y)$ and $P(X \mid Y)$, derive $P(Y \mid X)$	Model $\Pr(Y \mid X)$ directly

Naive Bayes