

TABULAR DATA

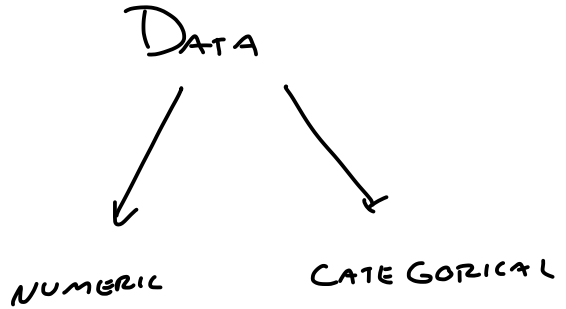
COLUMNS

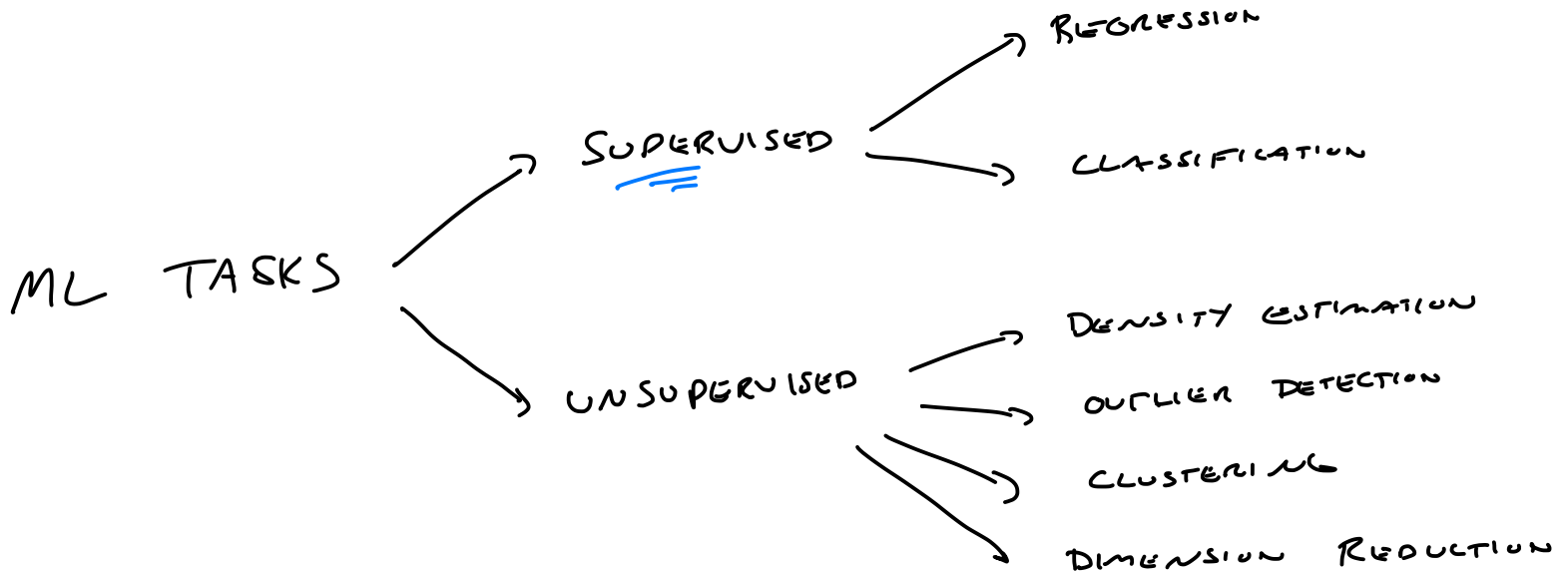
VARS

x_1	x_2	x_3	x_4	x_5
.
.
.
.
.
.
.
.
.

Rows

OBS





Supervised vs Unsup

x_1	x_2	x_n	y

UNSUPERVISED

↳ NO RESPONSE

SUPERVISED LEARNING

↳ RESPONSE!

REGRESSION → SUPERVISED

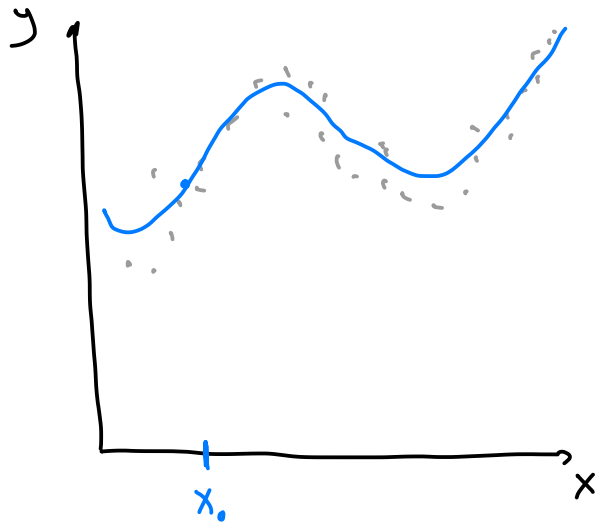
FEATURES

RESPONSE

NUMERIC!

OLD DATA

x_1	x_2	x_3	y
.	.	.	1.1
.	.	.	2.3
.	.	.	⋮
.	.	.	⋮



NEW DATA

x_1	x_2	x_3	?
			.

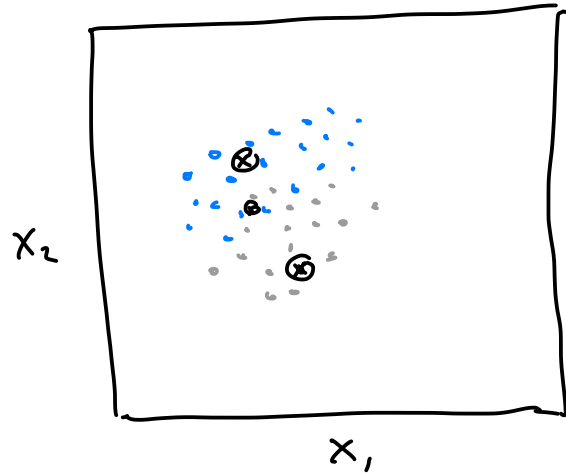
CLASSIFICATION → SUPERVISED

FEATURES

OLD DATA

x_1	x_2	x_3	y
.	.	.	A
.	.	.	C
.	.	.	B
.	.	.	A
.	.	.	⋮
.	.	.	.

RESPONSE CATEGORICAL!



NEW DATA

x_1	x_2	x_3	?
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DENSITY ESTIMATION → UNSUP

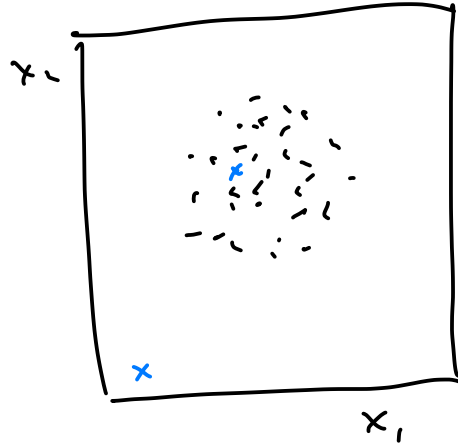
X_1	X_2	X_3	X_4
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

X_1, X_2, X_3, X_4

JOINT DISTRIBUTION

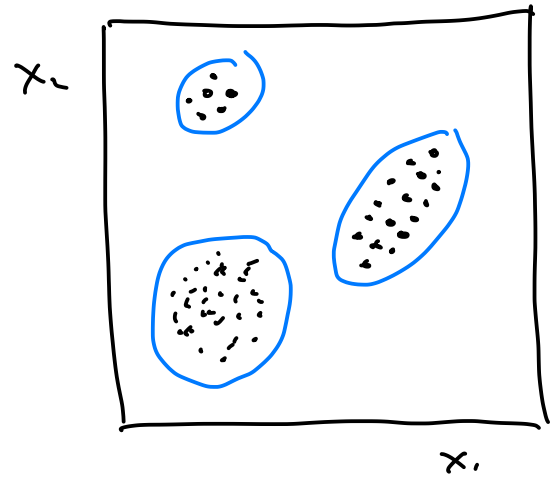
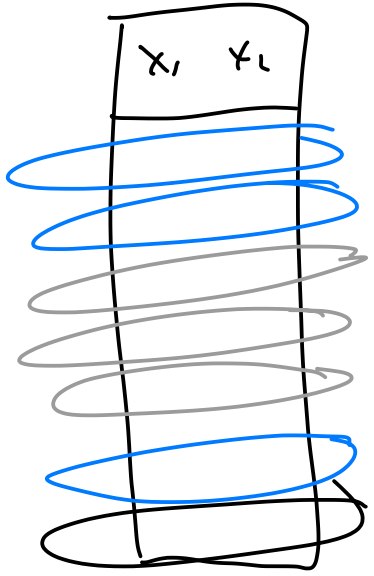
OUTLIER DETECTION

x_1	x_2
1.1	5.6
2.1	3.7
2.2	5.7
3.1	5.4
1.5	⋮
1.6	⋮
⋮	⋮



YES	→	2.3	5.4
NO	→	1.5	10.9

CLUSTERING → UNSUP



Dimension Reduction \rightarrow UNSUP

