and the same of	
20	
3	
5	2013013000
-9	true function
9	$Y = \{(2, 20, 23)$
0	
	Phenomenon true causal drivers
	pay back mortgage (1000)
-	Methodology to the property of
9	$y \in y = \{0,1\}$
	a molige out
3	2, has the money (1)
9	to: Unforces emergency (1)
9	23: Ps criminal (1)
9	N. C.
9	Next Best thing! find features that approximate the information" in 21, 22, 23.
9	
9	Quantidas el pubos ed : shiearec
	Here are 3 that are directly related.
9	X1; Salary at time of application (continous) GIK
9	Xo: Miss previous payment (binary) G (0,1) Xo: (Criminal intent) Do they have a record?
	X3: (criminal intent) Do they have a record?
-	(binary) @ (0,1)
-	100 Description of 1100 and 1200 and 12
-	X's are called "features", "characteristics",
9	"altributes", " regressors", " variable
3	covariates, independent variables
1000	
3	Let p denote the H's of features
3	
3	let Ri = XCI , Xip , , Xip J Gx input space
3	-> 11 1 th 46 1 1 99 4 1 1 79
9	Ro is called ith "observation", "subject"
9	Somoroupi of sub rous setting record record
43	soundiby of any joins out of the cold
	of dx ix buildings to had aldishubit toad out of
	"unit" sciminim

0000	
	eg RP
	Can 1 measure X3 better remorst crime
	X3 G [none, infraction, misdemeanor, felony]
	interior, insdemeerior, relongs
	categorical or factor variable with 12 = 4 levels
	Day book mortgage (loro)
	Mathematical models required numerical values.
	wildi do we do
	Two options
	all ill some sel end it
	1) Note: this is R factor validated with a monotonic
	Order code this verialia
	variable via X3 E (0,1,2,3)
sodt 3	variable via X3 E [0,1,2,3]
	The state of the s
B. C.	Downside; The coding is arbitrary
*	e.g loby not lost
C IR	X3 G E0,1,5,100J
	(10) Demond to my on the 'x'
a chi	1) Create multiple features
	X3 a G [0,1] is infraction?
	X36 G [0,1] is misdemeanor?
	X3C C [0,1] is folony?
Coldon	" " orone super " " equality "
Bayldynes	None is captured by X30 = X3b = X3c = 0.
	1-1 binary variables.
	and at the stand should be a first
	Consider X; G L Red, Green, Blue]
	unordered factors
	unordered factors
E 1	At hollow to
	$y = t(2, 20, 23) = t(x_1,, x_p) + $
	b-t in the error due de commence
	1:- is the best possible way of combining x, xp to
	minimize f

9	
3	How to get f?; Analytical solution? Wo,
9	Analytical solution for f. $f(x) = \int x dx = x^2 / 2$
	inner
9	The approach we will use is "learning from data" Use data to get on estimate of t
5	This procedure is also leimed "supervise learning".
5	There are three ingredients.
9	1) Training Data (Data)
	Notation; \mathbb{D} $\mathbb{D} = \{(\vec{x_1}, y_1), (\vec{x_2}, y_2), \dots, (\vec{x_n}, y_n)\}$
	n: Historical examples. (subject with response) v i.e It happened already. sample size
	X: Bob's features 4:1 (He paid it back) X: Bell's features 4:0 (He didn't pay back)
	Standard notation;
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	$D = \{x, y\}$

(D. H = a set of condidate function for f.
	Recall $f: x \to u$ e.g. $f: \mathbb{R}^p \to \mathbb{R}$
wy ym a land a	Recall fix -y e.g F: R -> R You need to simplify the set of possible function
	3 A: an algorithm; such that q = A(D, H) away
atala	3) A: an algorithm; such that $g = A(D, H)$ away to select Hearn a model. $g \in V$ using D
Course	at assumpt than at only on a submany will
	thousand and some
	(515C) who eagest (5)
1	T(paylotota)
	in the sound was maked with meanness
	Signific Series
	X Bells feetures 15:0 (He didn't pa
	gautotea bashaote
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
Heral	ration (a) = +
	x tylem q x o
	1 Fux t= all