1. Simulate R.V.s	
- Inverse CDF method	
- Accept - Rejection method	
generate realisations from a pdf. Lusing another pdf. 9 Lip find c?	
another pdf. 9	
Ly find c? 10	
	_
$\frac{f(x)}{x} < c \forall x$	_
g(x)	
	_
Find the maximum of the by using	
derivatives, i.e.	
$\frac{d}{d}\left(\frac{f(x)}{x}\right) = 0 \implies x^*$	_
$\int dx \left(\frac{g(x)}{x} \right)$	_
Then verify that it is a maximum with 2rd order derivative	_
with 2rd order derivative	_
$\frac{d^2}{dx} \left(\frac{b(x)}{x} \right)$	_
$\frac{dx^2}{dx^2} \left(\frac{g(x)}{g(x)} \right) = x^*$	_
Finally plug the maximum x in	
1(X)	
Q(x*)	

2. Classification
U
- Given features and observed classifications
V
(X_1, Y_1) , (X_n, Y_n) ,
find a rule h: X -> y that minimizes a certain virterion.
a certain Objetion.
- Generative or discriminative classifiers.
· ·
- Que sul suit
Layes duce with
$\mathbb{D}(V-u \mid X-x) = \int x \mid x = u \mid (x) \mid f(x-x)$
W () = 1 / ()
- Dx1x-8
Rei Urine
- Bayes rule with $P(y=y \mid X=x) = \frac{\int x \mid y=y \mid (x) \mid P(y=y)}{\sum_{k=1}^{K} \int x \mid y=k}$
- Multi-class lastin Randonia with
- Multi-class Logistic Regression with
w _y ^t x
D(V)
P(Y=Y X=X)=
K WAX
> p **
\mathcal{B}_{-1}
1 -'
$ \bigcirc$ \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc
- Gaussian Bayes Classifier with
, U
$X \mid_{Y=Y} \sim N(M_{X}, \Xi_{Y}).$
, , , , , , , , , , , , , , , , , , ,

	3. Expectation - Maximization Algorith
L	<u> </u>
	- (E-step) estimate latent variables given observations. - (M-step) maximize likelihood given latent variables.
	- (M-step) maximise likelihood given latent springles.
	1
	Example: K=3
	$X \mid_{V_{1}} \sim N \mid \left(\mu_{1}, 7 \mid_{S_{1}} S \mid_{S_{2}} S \mid_{S_{2}} \right)$
	Example: $K=3$ $X \mid_{Y=R} \sim N \left(\frac{M_1R}{M_2R} \right) \left(\frac{\sum_{12} R}{\sum_{12} R} \sum_{22} R \right)$
	[M2k] [S12k Z22k]
	•