(03)6) Naive Bayes apposithm is based on Bayes
theorem of Probability and statistics with an
cossumption that persues are all independent of each other. 36 one of the classes have a trainery examples men the frequency based publishing estimate of Name Baups will be O and its known of the Zero Frequency Problem. We will get a o when publicities are multiplied. If one feeture value is not associated with a class (det class 1) in query point contains mut peature value will always be predicted as Class 0. Solution to above publicm is to add I to me wount of every peature attribute value days combination so mat we don't get a o are more and at me same time not impact me owall of wined as smoothing smoothing by edding a number is called add true smooth ning or deplace smoothning

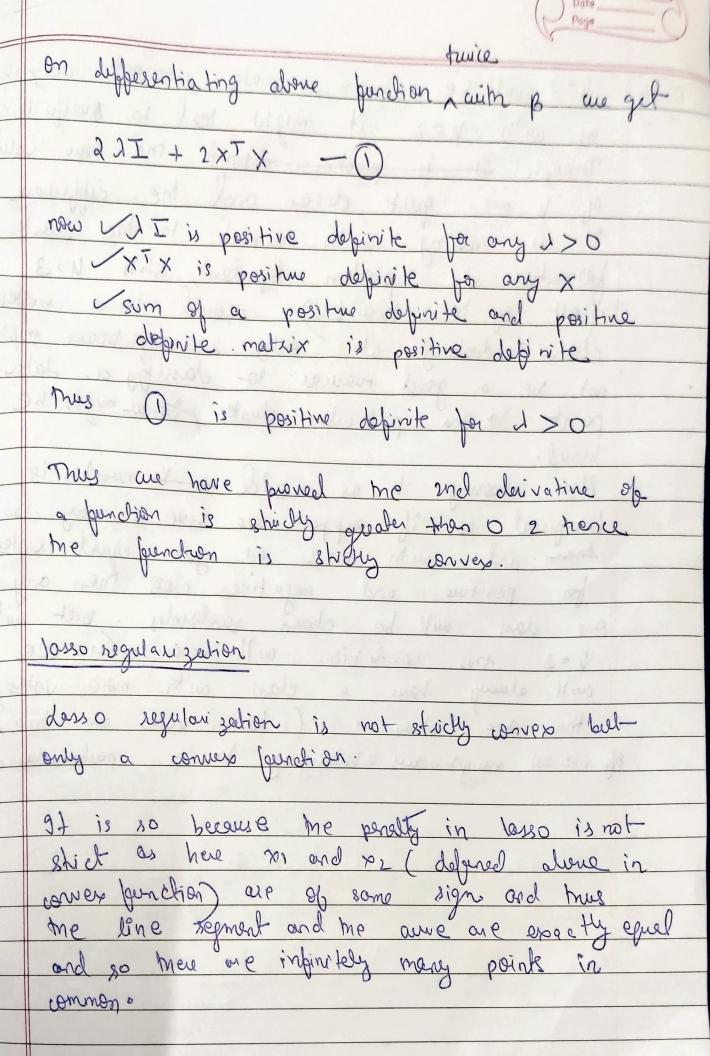
Naire bayes will be helpful because it another very bast best suitable for multi class problem

ib assumption of Independence of features holds it will perform bother man other models can't less fraincy duta best swited for calegorical singut variables I used in realtime application or it is very fast used in sentiment analysis ac (h-1) + xxl

Convex let it is a subsel- mot intersects every line into a single line regment (possibly empty). ten points up, on in a wonver set S, and h nannegative numbers 1, 2... In ever that 1, + 12+... Ih = 1, the appine combination I Ih Mu belongs to S. As the definition of a convey set is the case 9 22, his chare property characterizes the convey sets. Such an affine cambination is called a venues cambination of John John

	conver founction
(at the midpoint of every interval in its domain was not exceed the arithmetic mean of the values at the ends of the interval.
or po	alne matically, or a pure transfirm of the material [a,b], n,
	f[] x1 + (1-1) 72] < 1 f(x1) + (1-1) f(x2)
5	requality holds for is strict for all my no
ond ond ond on on	f flx) has a 2nd derivative men a necessary supplicient condition for it to be convex mut portional interval is me 2nd derivative it be greater than or equal to 0 for all in Pa, 5].
ુ	regularization idge regression
94	idge agression is strictly convex.
ds	bining sudge segression - minps 11y - xB112 + 211B112, 2 >> 0

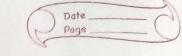
Date .



05) b) 1123 will be a more accurate nearest neighbour Though it is published depend the hus values

the u one quite dose and the difference it is making with respect to the cluster formation is problem dependent, still u=3 choice dooking at only 2 neighbours might not be a good member to dessify a date point to one particular duster, there might be biased. Also choosing has anodd is to number is beneficial as if suppose we have binary dansification there and with N=2 we get equal votes for positive and negative class then any one dans will be chosen randomly. but with N=3 this condition will never occur, we will always have a class with more votes man me other. (here votes are men of nearest neighbours belonging to a particular dans

Assuming our training set is D and it consist of N points (xi, yi) and it is sampled det the classifier be denoted as AT y = HD (n) ain mean 1/2 vourance now we made it models such that can wal On a subot of D . each has a subject ain mean u and variance to 2.



Average total locs = ExD[L(AD(x), y)]

8 guerd Joss -

Exp [Hn (x) -y)2]

=) Exp[(Hp(x) - Ep[Hp(n)] + F E (K) CM] 3

2) EXD [(HD(x) - ED[HD(x)] 2 + $\frac{(\text{Folder}(x)] - y)^{2}}{2 \text{Ho}(x)} - \text{End}(x)$ $\frac{2 \text{Ho}(x)}{2} - \text{End}(x)$ $\frac{2 \text{Ho}(x)}{2} - \frac{2}{2} + \frac{2}{2}$ $\frac{2 \text{Ho}(x)}{2} - \frac{2}{2} + \frac{2}{2}$ $\frac{2 \text{Ho}(x)}{2} - \frac{2}{2} + \frac{2}{2} + \frac{2}{2}$ $\frac{2 \text{Ho}(x)}{2} - \frac{2}{2} + \frac{2}{2} + \frac{2}{2}$ $\frac{2 \text{Ho}(x)}{2} - \frac{2}{2} + \frac{2}{2} + \frac{2}{2} + \frac{2}{2}$ $\frac{2 \text{Ho}(x)}{2} - \frac{2}{2} + \frac{2}{2$

EXD [(HD (X) - ED [HD (X)]2] + [5 p - [(x) d+] a =)] x =

& voui ance - bias

Hp(x) = 1 2 Hp; (n)

 $E(H_D(x)) = \frac{1}{k} E_D(H_D(x))$

= 1 x h le

so with ensembling, bias does not hange

