1	DATE: 1 1
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09/08/23	Fedure Engineering Assignment II
	Automont II man hamman
1 - 1	Maryanten as auch o to animal hatraginal (1)
College In Original	(anilder a vector M= (23, 29, 52, 31, 45, 19, 18, 27). Apply feature
Q)	Consider a vector $M = (23, 29, 52, 31, 45, 19, 18, 27)$. Apply feature
1 months of	Consider a vector $n = (23, 29, 52, 31, 43, 13, 13, 13, 13, 13, 13, 13, 13, 13, 1$
ed ruming is	inspired to her other will be suffered all
N	
n dimenindin	Formula = 21 - 21 min (nummax - nummin) + (num min)
-	formula = 21 - 7 min
141	2 max - 1 min
11111	(New maxy New min Min = 10 Co, 1) And agreed days
1 de	And date and
	Old Values New Values
	23 0.147 captions A
	hilling 291 of trades 0.324 a singer for each ft (1)
taining .	minute 19152 haly man white 000 miles of will restrain (1)
	45 0.734
	19 0.029
Aller marine	- Diffielt to maine annoon or appropriate to the first
The same of the sa	27 0.265 winish winish
	1 18 18 goulle ofto have by renow
darn rolly follow.	In very purch to good me their resupering and labelling the
	where name = 10; homex = 52; numin=0; numax=1
	the state of the s
(II)	1 7 Score Scould Walter on Branci barry in
nearth future	Supported finished the last to fine a british forther
with of a	Formula = 2 - M. Illia Italian III III III III III III III III III I
THE THE PROPERTY	and more motivale or

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where n = vector value; pr= mean ; 6 = standard	dwinking
M = 30.5	
M = 30.5 turbuing 6 = 11.35 manh and 10	
Old Values and New Values and and and	Cu)
23 -0.661	
29 -0.132 with all existinhand	1 den s
the of handers are destroy 512 from the sample 8 94/red offer enough off	(tr)
31 0.944 Disting tour differ	1.9
If the invertible of 87 steps is independentally of the variation of the	(m)
Contine this we will Etion 1 - and data electron with the mental	
18 -1.101 moltains	
27 2003000 3000 100 300 5001	(u)
	100.3
Companyo Winderlanda	2 141
Explain the procus of Principle Component Analysis (PCA)	11- DIEF.
A (7) Principal Component Analysis is an unsupervised learning algor	other that is used
(II add a semalate to a tracking the majorine is parning	(17)
on a small way to had the lower - dimensional survice to pr	oject high-
dimensional data motionarial doct altico	
dimensional data. Applications of PCA: image procusing, movie recommendation	system, power
allocation optimization.	(17)
Lording the Elean Mathin	
Show to of PCA the long contropies with the sale star	(II)
(1) getting the activat	hon cubbart 2
and Y, where X is the training dataset and airial it the val	lidation set.
and I while it in the age of patential of patential	(III)
To do so, see malhola but pe moins with 2. To the mallow	

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(II)	Representing data who a smuture
	May my spill grown our defunt into a structure. We will represent
1	Har has dimensional matrix of infunitality values
	(11) Here, and rais corresponds to the duta stems and me column collespond
-	to the data items features. The number of calumns is the dimension
	100.07
(III)	Standardizing the data . 1910
-	(1) The features with higher variance are more important as compared to feature with lower variance
	(11) If the importance of features is indipundent of the variana of the
	feature, thin we will divide each dates in a column with the standard
	dwigtion.
	(11) Here, we will name the matrix as Z.
-	
(II)	Calculating the Covariance of Z
	We take the matrix Z and transpose it. This multiply it by 7.
lactor hall	(11) The output matrix will be the covariance matrix of Z.
(T)	(alculating the Eigen Values and Figur Vectors.
- dud	1) Light vectors of the covariance making are the directions of the avel
	IDIM DIAD INFORMATION .
June 1	(11) Alaso, the coefficients of the eigenvectors are defined as the openvalues.
(-1)	Jorting the Eigen Vectors
(団)	tale bake all the committee to the
	(11) We fort the eigenvectors accordingly in major's to an econosistive.
K Anthu	The religion mains will be mind do px
400	and the state of t
(VII)	Calculating the NUU Hattitle or principal components
	To do so, we multiply the P* matrix with Z. In the resultant matrix

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73	Sach whitered that a 12 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
land Curker	Each column of the 2* matrix independent of one another.
1	maint of one another.
(III) R	amove his or unimportant features from the new dataset.
(1)	We have jet has occurred to use will duide him what he have a
	_ all Explain the type of wrapper method for familie some
(11)	We only keep the important or religion features in the new dataset.
Har Reit chunt	- A (5) realise religion in a real of idealing the rubit of
1 Intribute II	- Later Head of the engine colored to by remember of
03	ow to handle the missing values in a dataset that will be used for -
The same of	
A	Methods to handle miving values: world uggard (11)
F) 1	Tanne Hal Hinle
to wow a w	When the days label is missing; this technique is used. However, unless the
11 1	tuple contains numerous attributes with missing values, this approach is not
TANT BUTTERSON	particularly neful a souther speed of nother to the self (a)
The same of	You can replace all the mining values manually. This approach is
	Vou cap replace all the missing values manually. This approach is
,	effective on small adda.
	A CONTONION OF THE PARTY OF THE
(III)	ue a global constant to fill in the mining value
	Vou can replace all mining attribute values with a global constant with a label tike "Unknown" or +001.
1310	a label fike more unknown and to summing will some
The state of the s	Mean or mudian of the data can be used to fill in the musing value.
Tuh has	the determination methods make the contract of
	as mir fee.

1 CIL : Un meana wille
This can be diferented using regussion, Bayesian dasification or
chaisten hee induction.
- trade and real factor to the sound
a see of trade and which they were to request that the seed of the seed to have an
ay Explain the types of wrapper methods for feature selection.
Oy Explain the types of wrapper methods for feature selection.
17 (I) leature selection ix a way of selecting the subsect of the most remaint
features from the original hatures set by removing the redundant,
to irrelevant inter a notify features entire all allowed of and
(II) It to hups to avoid dimensionality and reduces training time
(III) Wrapper Methods : usaline variety allowed at abottom
1 Former Withon
(1) Forward reliction is an intrative practice heaven with an and
The state of the s
(10) Har total little last the
performance to check whither it is improving the performance or not the performance or not the performance of the model
(111) The procus continues until the addition of new features does not improve
In performance of the model
Backward Elimination
least clanificant features the
(11) The dimination process continues until removing. the features does not
Improve the performance of the model
the second leading to the second second
(3) EXMINATIVE RAUTE Michan
It is one of the mit scherion methods which evaluates each feature ut
as brute-force.

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dua.n	Cul	At means this multipart have been to the state of the sta
1011	od o	and which the head archaeolic Cach possible combination of katures
-		and the bast pulpitrning kourse het.
4		It means this method hies and makes each possible combination of kotures and neturn the best performing feature set. Recurring Feature Elementers
()		The reality of the re
316 31	(1)	Recursive feature dimination is a recursive greedy optimization approach, where features are related by recursively taking amaller judgets.
	C-3	while features are routed by nawively taking amaller jubjets.
	(1)	Thew are estimated is reduced with each jet of reduces having its
CALLED SOLL	3010	Importance defined wing weefs attribute.
1970 13	1 10	a alebany to county forago. Juca consists are often
4.5		recognifier or fedure analysis.
05		Explain Local Binary Pattern (LISP) feature extraction technique with
		suitable example.
A		
(I)		Local Dinary Atturn (113P) is a very efficient kature operator which
		Local Dinary Patturn (1.3P) is a very efficient texture operator which labels the pixels of an image by thresholding the neighbourhood of each image pixel and considers the result as a binary number.
		each tmage pixel and considers the result as a binary number.
(I)		LBP feature & vector:
		1 2 2 Threshold 0 0 0 B(nary : 000 1001)
		9 5 6 1 1 Decimal: 19
		5 3 1 1 0 0
	W	Divide the examined window into alls (eg 16 x 16 pixels for each all)
	(11)	The said aire in a cold , compare the att niville to each of 10 d
		mighbours. Follow the pixels along a circle 1.e. clockwise or coupling clockwise
	(111)	mighbours. Follow the pixels along a circle 1.e. clockwise or continuouse The nughbours considered can be changed by varying the radius of the circle around the pixel R and the quantization of the angular space P.
		around the pixel R and the quantization of the angular space P.
	(iv)	To the center pixel's value is greater than the number value, which
		Else, write !. This gives can & digit binary number.
	(v)	Else, write 1. This gives can of digit binary number. Compute the histogram over the cell, of the frequency of each number.
F		

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outering (1.e. each combination of which pixely are maller and which are greater than the centre). This histogram can be seen as a 256 climentional feature vector. (vi) Optionally normalized the histograms of all alls. This will give the feature for rector for the intervindence. (III) The feature vector now can be procured using time machine against the classify images. Jach classifiers are often used for face analysis.	tansin
Label the part of an house by the ball the state of the best of th	
House County of	
(Marker to compare the old makers become all should co	

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