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Support Vector Machines-2 quiz

8 out of 8 correct

]	l.	Which	of	the	follo	owing	is c	ı kerne	l functi	on u	sed ir	ı SVI	M?

Linear kerne

- Polynomial kernel
- Radial basis function kernel
- All of the above

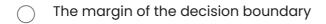
Explanation: SVM can use a variety of kernel functions, including the linear kernel, polynomial kernel, and radial basis function kernel.

- 2. The parameter "p" in the polynomial kernel controls:
- The width of the kernel

The degree of the polynomial



The regularization parameter



Explanation: The parameter "p" in the polynomial kernel controls the degree of the polynomial. A higher value of "p" results in a higher degree polynomial and a more complex decision boundary.

3. The Gaussian/RBF kernel is prone to overfitting when:



The value of "y" is too small

	The value of "γ" is too large						
\bigcirc	The dataset is not properly normalized						
\bigcirc	Both a) and b)						
4. Data leakage can occur in SVM when:							
\bigcirc	The test set is used for model training						
\bigcirc	The training set is not representative of the entire population						
\bigcirc	The same data is used for feature selection and model training						
	All of the above						
Explanation: Data leakage can occur in SVM when the test set is used for mode training, the training set is not representative of the entire population, or the same data is used for feature selection and model training. Data leakage can result in overestimating the performance of the model and can lead to poor generalization to new data.							
5. W	hich of the following is a technique to prevent data leakage in SVM?						
\bigcirc	Stratified sampling						
	Cross-validation						
\bigcirc	Feature scaling						
\bigcirc	Regularization						

Explanation: Cross-validation is a technique to prevent data leakage in SVM and other machine learning models. It involves splitting the data into training and validation sets multiple times and using the validation set to evaluate the performance of the model. This helps to ensure that the model does not overfit the training data and can generalize well to new data.

6. Which of the following is the correct formula to calculate accuracy from a confusion matrix?

- \bigcirc (TP + TN) / (TP + TN + FP + FN)
- \bigcirc TP / (TP + TN + FP + FN)
- \bigcirc TP / (TP + TN + FP + FN)
- $\bigcap (TP + TN) / (P + N)$
- 7. Which of the following is the correct interpretation of the false positive rate (FPR) in a confusion matrix?
- The proportion of actual positive instances that are correctly identified by the model
- The proportion of actual negative instances that are incorrectly identified as positive by the model
- The proportion of actual negative instances that are correctly identified by the model
- The proportion of actual positive instances that are incorrectly identified as negative by the model

Explanation: The false positive rate (FPR) is calculated as the number of false positive predictions divided by the total number of actual negative instances in the data, which is equal to FP / (FP + TN). FPR measures the rate at which the model incorrectly identifies negative instances as positive.

8. Which of the following is the correct formula to calculate F1 Score from true positive (TP), false positive (FP), and false negative (FN) values?

- 2 * TP / (2 * TP + FP + FN)
- \bigcirc TP / (TP + TN)
- \bigcap TN / (TP + TN + FP + FN)

$$\bigcirc$$
 TP / (TP + FN)

Explanation: F1 Score is the harmonic mean of precision and recall, and is calculated as 2 * precision * recall / (precision + recall), which can be simplified to 2 * TP / (2 * TP + FP + FN).

Submit