Support Vector Model (SVM) in voice dataset

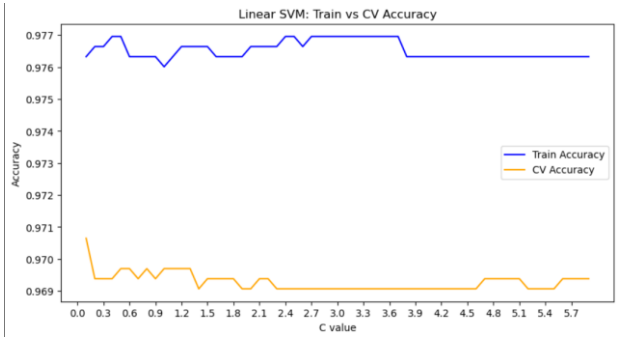
Running SVM with default hyperparameter.	Accuracy Score
SVC (default)	97.63%
Linear kernal	97.79%
RBF kernal	97.63%
Polynomial kernal	95.90%
Sigmoid Kernal	79.33%

Accuracy Scores			
Kernals	**With CV only**	**Param with CV with it's best param**	**Only Param**
Linear	96.86%	97.06% with C value = 0.1	97.79% with best C value = 1
RBF	96.59%	96.81% with gamma value = 0.01	98.11% with best gamma value = 0.03
Polynomial	94.50%	94.51% with best degree = 3	95.90% with best degree = 3

Kernals		Train Score	Test score	Overfitting	IS it overfitting?	Generalizes well?
Linear	With Param only	97.79%	97.79%	0.000	No	Yes
	Param + CV	97.63%	97.06%	0.006	No	Yes
	Only CV	97.60%	96.88%	0.007	No	Yes
RBF	With Param only	98.42%	98.11%	0.003	No	Yes
	Param + CV	97.66%	96.81%	0.009	No	Yes
	Only CV	98.48%	96.59%	0.019	No	Yes
Polynomial	With Param only	96.69%	95.90%	0.008	No	Yes
	Param + CV	97.06%	94.51%	0.026	No	Yes
	Only CV	97.06%	94.51%	0.026	No	Yes

To check overfitting for only CV case	
Scenario	**Conclusion**
Train ≫ CV	✗ Overfitting
Train ≈ CV	☑ Good fit
Both low	✗ Underfitting

By using Grid search technique we found the best parameter	C': 0.9, 'degree': 3, 'gamma': 0.05, 'kernel': 'poly'



Github: explain all the steps

In excel table: Add the c values respectively.

Only one in other two models

Notes

Train accuracy → "Did I memorize?"

Test accuracy → "Can I generalize?"

CV accuracy → "Am I consistent?"