

GITHUB:<https://github.com/Shivasr15/Machine-Learning>

Linear Kernel: On the Iris dataset, the Support Vector Machine (SVM) utilizing a linear kernel demonstrated strong performance.

Confusion Matrix: The confusion matrix revealed that, aside from a few misclassifications, mostly between Versicolor and Virginica, most of the predictions were correct.

Classification Report: All classes exhibited high levels of precision, recall, and F1-score.

Polynomial Kernel:

Reliability: The SVM with a polynomial kernel demonstrated respectable performance.

Confusion Matrix: A few people were incorrectly classified, particularly Setosa and Versicolor.

Classification Report: Recall, F1-score, and precision were all marginally lower than with the linear kernel.

RBF (Radial Basis Function) Kernel:

Out of all the kernels, the SVM with an RBF kernel performed the best.

Confusion Matrix: There were very few incorrect classifications in the extremely accurate forecasts.

Classification Report: All classes had high precision, recall, and F1-score values, suggesting a strong model.

Sigmoid Kernel: Out of all the kernels, the SVM with a sigmoid kernel had the worst performance.

Confusion Matrix: Some significant misclassifications occurred, especially in the case of Setosa and Versicolor.

Classification Report: In comparison to other kernels, precision, recall, and F1-score were the lowest.

The linear kernel and RBF kernel had the best performances, respectively.

While still performing reasonably well, the polynomial kernel outperformed the RBF and linear kernels.

The sigmoid kernel performed the worst, with observable misclassifications.

Setosa's unique features probably contributed to its overall good classification across all kernels.

Occasionally, especially when their features overlapped, Versicolor and Virginica were misclassified.

The SVM model's performance is greatly impacted by the kernel selection.

In general, RBF and linear kernels perform well on a variety of datasets.

When applied to the proper degree, polynomial kernels can function well, but they are susceptible to overfitting.

Because sigmoid kernels are non-linear, they might not be appropriate for large, complicated datasets like Iris.

In conclusion, the SVM classifier with an RBF kernel is advised for the best accuracy and robustness based on the tests done on the Iris dataset. However, the choice of kernel may differ based on the requirements and features of the dataset.