

# MACHINE LEARNING

## MINI-PROJECT

**Titanic dataset:titanic\_train.csv**

To conclude the evaluation of the algorithm

1. **Performance Variation:** There is a noticeable variation in the performance metrics across the different algorithms tested. Some algorithms, such as Random Forest and Naive Bayes, demonstrate higher accuracy and precision, while others like Linear Regression and KNN Regressor perform relatively lower in terms of these metrics.
2. **Suitability for Task:** Based on the performance metrics, certain algorithms stand out as potentially more suitable for the task of classification and regression on the Titanic dataset. Random Forest shows consistent high performance across multiple metrics, suggesting its robustness and effectiveness in this context.
3. **Trade-offs:** While some algorithms excel in certain metrics, they may have drawbacks in others. For example, Decision Tree and Logistic Regression perform well in terms of precision and recall, but their accuracy may be comparatively lower. This highlights the importance of considering trade-offs between different metrics when selecting an algorithm.
4. **Consideration of Requirements:** The choice of algorithm should be driven by the specific requirements and constraints of the problem at hand. Factors such as interpretability, computational efficiency, and scalability should also be taken into account alongside performance metrics.

**Further Exploration:** It may be beneficial to further explore and fine-tune the top-performing algorithms to optimize their performance even further. Techniques such as hyperparameter tuning and ensemble methods could be employed to enhance the predictive capabilities of the models.

*In conclusion, after evaluating multiple supervised learning algorithms on the Titanic dataset, we found that KNN Classifier achieved the highest accuracy of 0.815(82%) among all algorithms tested. While accuracy is an important metric, it's essential to consider other factors such as interpretability, computational efficiency, and scalability when selecting the best algorithm for a specific task. Overall, KNN Classifier showed promising performance and may be a suitable choice for further exploration or deployment in real-world applications.*