* In adults with varying health indicators, how does hyperparameter tuning applied to machine learning models, compared to models without hyperparameter tuning, improve the accuracy, precision, recall, and F1 score in predicting the risk of developing diabetes, using the CDC Diabetes Health Indicators dataset?
* In adults with varying health indicators, how does the use of Grid Search for hyperparameter tuning, compared to Random Search, affect the accuracy and computational efficiency of machine learning models in predicting diabetes risk, in the CDC Diabetes Health Indicators dataset?
* In adults with varying health indicators, how does the inclusion of demographic factors in machine learning models, compared to models that exclude demographic factors, improve the accuracy of predicting the risk of developing diabetes, using the CDC Diabetes Health Indicators dataset?
* In adults with varying health indicators, how does the exclusion of redundant or highly correlated features, compared to models that include all features, improve the computational efficiency and predictive performance of machine learning models in diabetes risk prediction, using the CDC Diabetes Health Indicators dataset?
* In adults with varying health indicators, how does the use of advanced evaluation metrics (e.g., AUC-ROC, precision-recall), compared to using only accuracy as the evaluation metric, provide a more comprehensive understanding of model performance in predicting diabetes risk, using the CDC Diabetes Health Indicators dataset?
* In adults with varying health indicators, how does the use of machine learning models trained on demographic, lifestyle, and health history features, compared to traditional risk assessment methods, improve the accuracy of predicting the risk of developing diabetes, using the CDC Diabetes Health Indicators dataset?
* In adults with varying health indicators, how does the use of Synthetic Minority Oversampling Technique (SMOTE) to address class imbalance, compared to models trained on the original imbalanced dataset, improve the recall and F1 score of machine learning models in predicting diabetes risk, using the CDC Diabetes Health Indicators dataset?