* The management of water resources depends heavily on hydrological prediction and advances in machine learning (ML) present prospects for improving predictive modelling capabilities.
* This study investigates the use of a variety of widely used machine learning algorithms such as CatBoost, ElasticNet, k-Nearest Neighbors (KNN), Lasso, Light Gradient Boosting Machine Regressor (LGBM), Linear Regression (LR), Multilayer Perceptron (MLP), Random Forest (RF), Ridge, Stochastic Gradient Descent (SGD), and the Extreme Gradient Boosting Regression Model (XGBoost)
* The study concludes that the CatBoost method demonstrated remarkable performance across various metrics, including Mean Absolute Error (MAE), Root Mean Square Error (RMSE), and R-squared (R2) values, for both training and testing datasets. This was accomplished by an in-depth investigation and model comparison.
* In contrast to CatBoost , XGBoost and LGBM demonstrated a higher percentage of data points with prediction errors exceeding 35% for moderate inflow numbers above 10,000.