# Regression:

## Telecom:

XGBoost Best hyperparameters:  {'colsample\_bytree': 0.9, 'gamma': 1, 'learning\_rate': 0.1, 'max\_depth': 3, 'n\_estimators': 100, 'subsample': 0.8}

Gradient Boosting Best hyperparameters:  {'learning\_rate': 0.1, 'max\_depth': 3, 'max\_features': 'log2', 'n\_estimators': 100, 'subsample': 1.0}

Random forest Best hyperparameters:  {'max\_depth': 5, 'max\_features': 'auto', 'min\_samples\_leaf': 3, 'min\_samples\_split': 4, 'n\_estimators': 300}

XGBoost Regressor MSE:  0.12855680814891754

XGBoost Regressor RMSE:  0.35854819501556207

XGBoost Regressor R-squared:  0.3395370194740259

Gradient Boosting Regressor MSE:  0.1273058111475247

Gradient Boosting Regressor RMSE:  0.3567993990290969

Gradient Boosting Regressor R-squared:  0.34596403971562895

Random Forest Regressor MSE:  0.12997569158415878

Random Forest Regressor RMSE:  0.36052141626283285

Random Forest Regressor R-squared:  0.3322474795721576

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| Algorithms | Mean Squared Error | Root Mean Squared Error | R -squared |
| Linear Regression | 0.13 | 0.37 | 0.29 |
| Multiple Linear Regression | 0.137 | 0.3704 | 0.295 |
| Ridge Regression | 0.137 | 0.375 | 0.295 |
| Lasso Regression | 0.168 | 0.41 | 0.136 |
| Elastic Regression | 0.1389 | 0.372 | 0.286 |
| SVR with linear kernel | 0.138 | 0.372 | 0.289 |
| SVR with RBF kernel | 0.1388 | 0.3726 | 0.286 |
| SGD Regression | 0.1375 | 0.37 | 0.2933 |
| Polynomial Regression | 0.131 | 0.362 | 0.323 |
| XGBoost Regressor | 0.128 | 0.358 | 0.339 |
| Random Forest Regressor | 0.1299 | 0.3605 | 0.3322 |
| Gradient Boosting Regression | 0.127 | 0.356 | 0.345 |