Insurance Charges Prediction

1.AdaBoosting Regression (**R2-Value= 0.8447)**

**2. Gradient Boosting**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.no** | **criterion** | **loss** | **max\_features** | **n\_estimators** | **R2-Value** |
| **1** | **-----** | **-----** | **-----** | **100** | **0.8800** |
| **2** | **MSE** | **Squared error** | **Sqrt** | **100** | **0.8900** |
| **3** | **MSE** | **Squared error** | **Log2** | **100** | **0.8900** |
| **4** | **MSE** | **Absolute**  **error** | **sqrt** | **100** | **0.8767** |
| **5** | **MSE** | **Absolute**  **error** | **Log2** | **100** | **0.8767** |
| **6** | **MSE** | ***huber*** | **sqrt** | **100** | **0.8904** |
| **7** | **MSE** | ***huber*** | **Log2** | **100** | **0.8904** |
| **8** | **MSE** | ***quantile*** | **sqrt** | **100** | **0.6600** |
| **9** | **MSE** | ***quantile*** | **Log2** | **100** | **0.6600** |
| **10** | ***squared error*** | ***quantile*** | **sqrt** | **100** | **0.6597** |
| **11** | ***squared error*** | ***quantile*** | **Log2** | **100** | **0.6597** |
| **12** | ***squared error*** | ***huber*** | **sqrt** | **100** | **0.8904** |
| **13** | ***squared error*** | ***huber*** | **Log2** | **100** | **0.8904** |
| **14** | ***squared error*** | ***Absolute***  ***error*** | **sqrt** | **100** | **0.8767** |
| **15** | ***squared error*** | ***Absolute error*** | **Log2** | **100** | **0.8767** |
| **16** | ***squared error*** | ***squared\_error*** | **sqrt** | **100** | **0.8900** |
| **17** | ***squared\_error*** | ***squared\_error*** | **Log2** | **100** | **0.8900** |

The **Gradient Boosting** use **R2-Value**(criterion(MSE),max\_features(sqrt),loss(huber),n\_estimator=100) =0.8904

**3.XGBoosting**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No** | **criterion** | **loss** | **max\_features** | **n\_estimators** | **R2-Value** |
| **1** | **mse** | **squared\_error** | **sqrt** | **100** | **0.8900** |
| **2** | **mse** | ***absolute\_error*** | **sqrt** | **100** | **0.8767** |
| **3** | **mse** | ***huber*** | **sqrt** | **100** | **0.8904** |
| **4** | **mse** | ***quantile*** | **sqrt** | **100** | **0.6600** |
| **5** | **mse** | **quantile** | **Log2** | **100** | **0.6600** |
| **6** | **mse** | **huber** | **Log2** | **100** | **0.8904** |

The **XGBoosting** Regression use **R2-Value**(criterion(MSE),max\_features(sqrt),loss(huber),n\_estimator=100) =0.8904

4.LGBoosting

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |