**Hope Artificial Intelligence**

**Assignment-Regression Algorithms**

To Find the R2 Score using Boosting Algorithms

1. **Adaboost Algorithms**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No** | **Loss** | **N\_Estimators** | **R Score** |
| 1. | Linear | 10 | 0.8447 |
| 2. | Linear | 50 | 0.8447 |
| 3. | Linear | 100 | 0.8447 |
| 4. | Square | 10 | 0.7306 |
| 5. | Square | 50 | 0.5185 |
| 6. | Square | 100 | 0.4661 |
| 7. | Exponential | 10 | 0.8266 |
| 8. | Exponential | 50 | 0.6292 |
| 9. | Exponential | 100 | 0.5385 |

Get ***R2*** score near to 1 when Loss is Linear and N\_Estimators is 10/50/100 = 0.8447

1. **XGBoost Algorithms**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No** | **Criterion** | **N\_Estimators** | **Max\_Features** | **R Score** |
| 1. | Friedman\_mse | 10 | sqrt | 0.6165 |
| 2. | Friedman\_mse | 100 | sqrt | 0.8900 |
| 3. | Friedman\_mse | 10 | log2 | 0.6165 |
| 4. | Friedman\_mse | 100 | log2 | 0.8900 |
| 5. | Squared\_error | 10 | sqrt | 0.6165 |
| 6. | Squared\_error | 100 | sqrt | 0.8900 |
| 7. | Squared\_error | 10 | log2 | 0.6165 |
| 8. | Squared\_error | 100 | log2 | 0.8900 |

Get ***R2*** score near to 1 when

Criterion is Friedman\_mse/Squared\_error,N\_Estimators is 100, Max\_Featuresis ‘sqrt/log2’= 0.8900

1. Light GBM Algorithms ***R2*** score is 0.8858