Decision Tree Regression

R\_Score Value ,without passing any Parameters=0.892244086161341

Finding the Best model by using Hyper Tuning Parameters

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| S.No | **Criterion** | **Splitter** | **max\_features** | **R\_score** |
| 1 | **squared\_error** | **Best** | **None** | 0.9180385283715554 |
| 2 | **squared\_error** | **random** | **None** | 0.8614820434977498 |
| 3 | **squared\_error** | **Best** | **Sqrt** | 0.6703085001634554 |
| 4 | **squared\_error** | **random** | **Sqrt** | 0.7537726589714354 |
| 5 | **squared\_error** | **Best** | **log2** | -1.053686478748633 |
| 6 | **squared\_error** | **Random** | **log2** | 0.20933749393648682 |
| 7 | **friedman\_mse** | **best** | **None** | 0.9085584119282362 |
| 8 | **friedman\_mse** | **random** | **None** | 0.3216274072017573 |
| 9 | **friedman\_mse** | **best** | **Sqrt** | 0.4668104196367773 |
| 10 | **friedman\_mse** | **random** | **Sqrt** | 0.2820893798777261 |
| 11 | **friedman\_mse** | **best** | **log2** | 0.5909661049411575 |
| 12 | **friedman\_mse** | **random** | **log2** | 0.630216563700077 |
| 13 | **absolute\_error** | **best** | **None** | 0.9504352545181723 |
| 14 | **absolute\_error** | **random** | **None** | 0.9388478971705179 |
| 15 | **absolute\_error** | **best** | **sqrt** | 0.6456008350832478 |
| 16 | **absolute\_error** | **random** | **sqrt** | -0.30245271926401296 |
| 17 | **absolute\_error** | **best** | **log2** | 0.489313824563937 |
| 18 | **absolute\_error** | **random** | **log2** | 0.9236659127388278 |
| 19 | **Poisson** | **best** | **None** | 0.9173047388218473 |
| 20 | **Poisson** | **random** | **None** | 0.7609699466050168 |
| 21 | **Poisson** | **best** | **sqrt** | 0.7157790581541874 |
| 22 | **Poisson** | **random** | **sqrt** | 0.6982636274853082 |
| 23 | **Poisson** | **best** | **log2** | -0.6734118162209781 |
| 24 | **Poisson** | **random** | **log2** | 0.33083746403189185 |

**The Best model in Decision Tree Regression is Criterion =absolute\_error and Splitter =best**

**R\_score value is**  0.9504352545181723