**PROJECT:50\_Startups.csv**

**1.Multiple Linear Regression:**

R2value for the Model= 0.935868097004624

**2.Support Vector Machine:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No** | **Hyper Tunning Parameter** | **Linear** | **rbf** | **Poly** | **Sigmoid** |
| 1 | C=10 | -0.03964494678192798 | -0.05680759285862336 | -0.05366720512712608 | -0.05471958332940319 |
| 2 | C=100 | 0.10646819600577351 | -0.05072602278128757 | -0.019802139315272305 | -0.03045351486430925 |
| 3 | C=1000 | 0.7802839882154124 | 0.0067683444800727965 | 0.26616370931646915 | 0.18506861974160804 |
| 4 | C=10000 | 0.9239983428118113 | 0.37189506360095503 | 0.8129628367020232 | 0.8535311196368867 |
| 5 | C=100000 | 0.9301248443968438 | 0.7085607228922324 | 0.40021053406577534 | -0.8433748760326125 |

**3.Find the Best Model for Decision Tree using different Parameter to get different R2 Value: (Hyper Tunning Parameter)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.NO** | **Criterion** | **Splitter** | **Max\_Features** | **R2 Value** |
| **1** | squared\_error | best | none | 0.9076717066241262 |
| **2** | friedman\_mse | best | none | 0.8936978680031819 |
| **3** | absolute\_error | best | none | 0.9369410164658964 |
| **4** | Poisson | best | none | 0.7190517819588039 |
| **5** | squared\_error | random | none | 0.7914703801187859 |
| **6** | friedman\_mse | random | none | 0.767412445862373 |
| **7** | absolute\_error | random | none | 0.9039518533656619 |
| **8** | Poisson | random | none | 0.3924631091236538 |
| **9** | squared\_error | best | auto | 0.9262472434774368 |
| **10** | friedman\_mse | best | auto | 0.9314541730614512 |
| **11** | absolute\_error | best | auto | 0.9404085922270555 |
| **12** | Poisson | best | auto | 0.6665820008900332 |
| **13** | squared\_error | random | sqrt | 0.8699287027012186 |
| **14** | friedman\_mse | random | sqrt | 0.8434776740196048 |
| **15** | absolute\_error | random | sqrt | 0.7475601812524102 |
| **16** | Poisson | random | sqrt | 0.09827544295512858 |
| **17** | squared\_error | best | log2 | 0.5617843348418428 |
| **18** | friedman\_mse | best | log2 | 0.7859901685362861 |
| **19** | absolute\_error | best | log2 | 0.7476903226435991 |
| **20** | Poisson | best | log2 | 0.5659218176581129 |
| **21** | squared\_error | random | log2 | 0.802444872030254 |
| **22** | friedman\_mse | random | log2 | 0.46711206450030895 |
| **23** | absolute\_error | random | log2 | 0.4199192881694003 |
| **24** | Poisson | random | log2 | 0.3513022907727046 |