**Machine Learning-Regression-R\_Score Values**

**Dataset: 50\_Stratup**

**1.Multiple Linear Regression** (R\_Score) = 0.9358680970046241

**2.Support Vector Machine-Regression**

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| **SVM\_Regression (STD)** | | | | | |
| **SI.NO.** | **HYPER PARAMETER** | **LINEAR** | **RBF** | **POLY** | **SIGMOID** |
| 1 | C=1.0 | -0.05569157 | -0.057418394 | -0.057103875 | -0.057209359 |
| 2 | C=10 | -0.039644947 | -0.056807593 | -0.053667205 | -0.054719583 |
| 3 | C=100 | 0.106468196 | -0.050726023 | -0.019802139 | -0.030453515 |
| 4 | C=1000 | 0.780283988 | 0.006768344 | 0.266163709 | 0.18506862 |
| 5 | C=2000 | 0.876772169 | 0.067515543 | 0.481002816 | 0.397065287 |
| 6 | C=3000 | 0.895674469 | 0.123227566 | 0.637006422 | 0.591363021 |
| 7 | C=5000 | 0.900376243 | 0.212428394 | 0.793655544 | 0.730656264 |

The SVM-Regression use Linear and C=5000 (hyper parameter)  
R\_score = **0.900376243**

**3.Decision Tree-Regression**

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| **Decision\_Tree\_Regression** | | | | |
| **SI.NO.** | **criterion** | **splitter** | **max\_features** | **R2\_Score** |
| 1 | friedman\_mse | best | None | 0.9356237 |
| 2 | friedman\_mse | random | None | 0.9035227 |
| 3 | friedman\_mse | best | sqrt | 0.8901793 |
| 4 | friedman\_mse | random | sqrt | 0.7007923 |
| 5 | friedman\_mse | best | log2 | 0.6720543 |
| 6 | friedman\_mse | random | log2 | 0.3279704 |
| 7 | squared\_error | best | None | 0.8822109 |
| 8 | squared\_error | random | None | 0.9182863 |
| 9 | squared\_error | best | sqrt | 0.1317758 |
| 10 | squared\_error | random | sqrt | 0.6871392 |
| 11 | squared\_error | best | log2 | -0.659004 |
| 12 | squared\_error | random | log2 | 0.6979472 |
| 13 | absolute\_error | best | None | 0.9481613 |
| 14 | absolute\_error | random | None | 0.9698339 |
| 15 | absolute\_error | best | sqrt | 0.5546528 |
| 16 | absolute\_error | random | sqrt | 0.664704 |
| 17 | absolute\_error | best | log2 | 0.9261821 |
| 18 | absolute\_error | random | log2 | -0.405498 |
| 19 | poisson | best | None | 0.9351325 |
| 20 | poisson | random | None | 0.8928236 |
| 21 | poisson | best | sqrt | 0.6158724 |
| 22 | poisson | random | sqrt | 0.4669582 |
| 23 | poisson | best | log2 | 0.7511497 |
| 24 | poisson | random | log2 | 0.5471846 |
|  |  |  |  |  |

The Decision Tree use **criterion=** absolute\_error, **splitter=**random, **max\_features**= None

R\_score =0.9698339

**4.Random Forest**

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| **Random\_Forest** | | | | |
| **SI.NO.** | **criterion** | ***n\_estimators*** | **max\_features** | **R2\_Score** |
| 1 | squared\_error | 10 | sqrt | 0.519141672 |
| 2 | squared\_error | 50 | sqrt | 0.683002237 |
| 3 | squared\_error | 100 | sqrt | 0.75915045 |
| 4 | squared\_error | 10 | log2 | 0.519141672 |
| 5 | squared\_error | 50 | log2 | 0.683002237 |
| 6 | squared\_error | 100 | log2 | 0.75915045 |
| 7 | squared\_error | 10 | None | 0.925277279 |
| 8 | squared\_error | 50 | None | 0.944633639 |
| 9 | squared\_error | 100 | None | 0.946004355 |
| 10 | absolute\_error | 10 | sqrt | 0.721083996 |
| 11 | absolute\_error | 50 | sqrt | 0.722235187 |
| 12 | absolute\_error | 100 | sqrt | 0.785748335 |
| 13 | absolute\_error | 10 | log2 | 0.721083996 |
| 14 | absolute\_error | 50 | log2 | 0.722235187 |
| 15 | absolute\_error | 100 | log2 | 0.785748335 |
| 16 | absolute\_error | 10 | None | 0.928182284 |
| 17 | absolute\_error | 50 | None | 0.940193525 |
| 18 | absolute\_error | 100 | None | 0.945909746 |
| 19 | friedman\_mse | 10 | sqrt | 0.527283 |
| 20 | friedman\_mse | 50 | sqrt | 0.688918213 |
| 21 | friedman\_mse | 100 | sqrt | 0.760859221 |
| 22 | friedman\_mse | 10 | log2 | 0.527283 |
| 23 | friedman\_mse | 50 | log2 | 0.688918213 |
| 24 | friedman\_mse | 100 | log2 | 0.760859221 |
| 25 | friedman\_mse | 10 | None | 0.920668118 |
| 26 | friedman\_mse | 50 | None | 0.938895763 |
| 27 | friedman\_mse | 100 | None | 0.941270197 |
| 28 | poisson | 10 | sqrt | 0.752059569 |
| 29 | poisson | 50 | sqrt | 0.720862467 |
| 30 | poisson | 100 | sqrt | 0.771764207 |
| 31 | poisson | 10 | log2 | 0.752059569 |
| 32 | poisson | 50 | log2 | 0.720862467 |
| 33 | poisson | 100 | log2 | 0.771764207 |
| 34 | poisson | 10 | None | 0.930486613 |
| 35 | **poisson** | **50** | **None** | **0.946354971** |
| 36 | poisson | 100 | None | 0.941388942 |

The Random Forest use **criterion=** poissson, **n\_estimators**=50, **max\_features**= None

R\_score =**0.946354971**