**Machine Learning Regression method using r2 value are as follows**

1. **Support Vector Machine (SVM)**

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| **S. No** | **Hyper Parameter** | **Linear**  **(r2 Value)** | **Non Linear (rbf)**  **(r2 Value)** | **poly**  **(r2 Value)** | **Sigmoid**  **(r2 Value)** |
| 1 | C=10 | 0.4624 | -0.0322 | 0.0387 | 0.0393 |
| 2 | C=100 | 0.6288 | 0.3200 | 0.6179 | 0.5276 |
| 3 | C=500 | 0.7631 | 0.6642 | 0.8263 | 0.4446 |
| 4 | C=1000 | 0.7649 | 0.8102 | 0.8566 | 0.2874 |
| 5 | C=2000 | 0.7440 | 0.8547 | 0.8605 | -0.5939 |
| 6 | C=3000 | 0.7414 | 0.8663 | 0.8598 | -2.1244 |

The SVM regression using r2 for the parameters Non Linear r2 value = 0.8663 and the hyper parameter C=3000

1. **Decision Tree**

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| **S. No** | **Criterion** | **max\_features** | **splitter** | **R2 Value** |
| 1 | *squared\_error (auto)* | sqrt | best (Auto) | 0.7498 |
| 2 | *friedman\_mse* | sqrt | best (Auto) | 0.6887 |
| 3 | *absolute\_error* | sqrt | best (Auto) | 0.7203 |
| 4 | *poisson* | sqrt | best (Auto) | 0.6252 |
| 5 | *squared\_error (auto)* | sqrt | random | 0.6287 |
| 6 | *friedman\_mse* | sqrt | random | 0.6890 |
| 7 | *absolute\_error* | sqrt | random | 0.7053 |
| 8 | *poisson* | sqrt | random | 0.7168 |
| 9 | *squared\_error (auto)* | *log2* | random | 0.7559 |
| 10 | *friedman\_mse* | *log2* | random | 0.7147 |
| 11 | *absolute\_error* | *log2* | random | 0.6197 |
| 12 | *poisson* | *log2* | random | 0.7100 |
| 13 | *squared\_error (auto)* | *log2* | best (Auto) | 0.7078 |
| 14 | *friedman\_mse* | *log2* | best (Auto) | 0.7335 |
| 15 | *absolute\_error* | *log2* | best (Auto) | 0.7451 |
| 16 | *poisson* | *log2* | best (Auto) | 0.7375 |
| 17 | *squared\_error (auto)* | *None(Auto)* | random | 0.6370 |
| 18 | *friedman\_mse* | *None(Auto)* | random | 0.6486 |
| 19 | *absolute\_error* | *None(Auto)* | random | 0.6872 |
| 20 | *poisson* | *None(Auto)* | random | 0.6976 |
| 21 | *squared\_error (auto)* | *None(Auto)* | best (Auto) | 0.6916 |
| 22 | *friedman\_mse* | *None(Auto)* | best (Auto) | 0.6873 |
| 23 | *absolute\_error* | *None(Auto)* | best (Auto) | 0.6777 |
| 24 | *poisson* | *None(Auto)* | best (Auto) | 0.73074 |
| 25 | *squared\_error (auto)* | sqrt | *None* | 0.6928 |
| 26 | *friedman\_mse* | sqrt | *None* | 0.7161 |
| 27 | *absolute\_error* | sqrt | *None* | 0.6122 |
| 28 | *poisson* | sqrt | *None* | 0.6469 |
| 29 | *squared\_error (auto)* | *log2* | *None* | 0.6774 |
| 30 | *friedman\_mse* | *log2* | *None* | 0.6838 |
| 32 | *absolute\_error* | *log2* | *None* | 0.7533 |
| 33 | *poisson* | *log2* | *None* | 0.6826 |
| 34 | *squared\_error (auto)* |  |  | 0.6940 |
| 35 | *friedman\_mse* |  |  | 0.7014 |
| 36 | *absolute\_error* |  |  | 0.6977 |
| 37 | *poisson* |  |  | 0.7130 |
| 38 |  | sqrt |  | 0.7417 |
| 39 |  | *log2* |  | 0.6809 |
| 40 |  |  | random | 0.7329 |
| 41 |  |  | best (Auto) | 0.6974 |

The Decision Tree regression using r2 for the parameter **Criterion***is* ***poisson*** , r2 value = 0.9486 and the splitter is “random”

1. Random Forest

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| **S. No** | **Criterion** | **n\_estimators** | **R2 Value** |
| 1 | *squared\_error (auto)* | 10 | 0.8325 |
| 2 | *friedman\_mse* | 10 | 0.8367 |
| 3 | *absolute\_error* | 10 | 0.8399 |
| 4 | *poisson* | 10 | 0.8545 |
| 5 | *squared\_error (auto)* | 100 | 0.8552 |
| 6 | *friedman\_mse* | 100 | 0.8555 |
| 7 | *absolute\_error* | 100 | 0.8559 |
| 8 | *poisson* | 100 | 0.8509 |
| 9 | *squared\_error (auto)* | 150 | 0.8534 |
| 10 | *friedman\_mse* | 150 | 0.8570 |
| 11 | *absolute\_error* | 150 | 0.8546 |
| 12 | *poisson* | 150 | 0.8563 |

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| **S. No** | *max\_depth* | random\_state |  |
| 1 | 4 | 0 | 0.8897 |

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| **S. No** | **Criterion** | **n\_estimators** | **max\_depth** | **random\_state** | **R2 Value** |
| 1 | *squared\_error (auto)* | 300 | 4 | 0 | 0.8887 |
| 2 | *friedman\_mse* | 300 | 4 | 0 | 0.8887 |
| 3 | *absolute\_error* | 300 | 4 | 0 | 0.8855 |
| 4 | *poisson* | 100 | 4 | 0 | 0.8885 |

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| **S. No** | **Criterion** | **max\_depth** | **R2 Value** |
| 1 | *squared\_error (auto)* | 4 | 0.8885 |
| 2 | *friedman\_mse* | 4 | 0.8856 |
| 3 | *absolute\_error* | 4 | 0.8858 |
| 4 | *poisson* | 4 | 0.8896 |

The Random Forest Regression using r2 for the parameter Criterion is poisson, r2 value = 0.8897, max\_depth = 4, random\_state=0