To find the following Machine learning regression method using r2 value

1. Multiple Linear Regression (R2 value) =0.9358.

2. Support Vector Machine

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| **S.No** | **Hyper Parameter** | **Linear**  **R Value** | **RBF Non Linear r Value** | **Poly r value** | **Sigmoid**  **R Value** |
| 1 | C10 | -0.0377 | -0.0559 | -0.0473 | -0.0529 |
| 2 | C100 | 0.1143 | -0.0389 | 0.04108 | -0.0041 |
| 3 | C500 | 0.6032 | 0.0340 | 0.3506 | 0.1561 |
| 4 | C1000 | 0.8032 | 0.1082 | 0.5616 | 0.3522 |
| 5 | C2000 | 0.8790 | 0.2637 | 0.6862 | 0.5751 |
| 6 | C3000 | 0.9061 | 0.3591 | 0.7585 | 0.6070 |
| 7 | C10000 | 0.9140 | 0.6161 | 0.8101 | 0.8211 |

**The SVM Regression use R2 value linear and hyper parameter (C3000)=0.9061**

3. Decision Tree default value=0.9398.

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| **S.No** | **CRITERION** | **MAX FEATURES** | **SPLITTER** | **R VALUE** |
| 1 | Friedman\_mse | Sqrt | Best | 0.3572 |
| 2 | Friedman\_mse | Log2 | Best | 0.3666 |
| 3 | Friedman\_mse | Sqrt | Random | 0.1953 |
| 4 | Friedman\_mse | Log2 | Random | -0.3144 |
| 5 | Friedman\_mse | Auto | Random | 0.9204 |
| 6 | Friedman\_mse | Auto | Best | 0.9292 |
| 7 | Mae | Auto | Best | 0.9582 |
| 8 | Mae | Auto | random | 0.6877 |
| 9 | Mae | Log2 | Random | -0.5415 |
| 10 | Mae | Sqrt | Random | 0.6317 |
| 11 | Mae | Sqrt | Best | 0.7480 |
| 12 | Mae | Log2 | Best | 0.91.35 |
| 13 | Mse | Log2 | Best | 0.8086 |
| 14 | Mse | Sqrt | Best | 0.6081 |
| 15 | Mse | Auto | Best | 0.9262 |
| 16 | Mse | Auto | Random | 0.8766 |
| 17 | Mse | Log2 | Random | 0.6638 |
| 18 | Mse | Sqrt | Random | 0.4450 |
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**Decision Tree is best value criterion=mae, Max\_features=auto, Splitter=best R value=0.9582**

Random Forest.

Random forest default n\_estimators value=0.9457

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| **S.No** | **Criterion** | **Max Features** | **N-Estimators** | **R Value** |
| 1 | Mse | auto | 100 | 0.9449 |
| 2 | Mse | Auto | 50 | 0.9457 |
| 3 | Mse | Auto | 500 | 0.9415 |
| 4 | Mse | Log2 | 50 | 0.7194 |
| 5 | Mse | Log2 | 100 | 0.7674 |
| 6 | Mse | sqrt | 100 | 0.7674 |
| 7 | Mse | sqrt | 50 | 0.8016 |
| 8 | mae | Sqrt | 50 | 0.7498 |
| 9 | mae | sqrt | 100 | 0.7595 |
| 10 | mae | Log2 | 100 | 0.7595 |
| 11 | mae | Log2 | 50 | 0.7496 |
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**Best RandomForest is Criterion=mse,Max\_features=auto, n\_estimators=50 R value=0.9457**