**📊 Machine Learning Regression Methods and Their R² Scores**

**Reference: https://scikit-learn.org/stable/modules/generated/sklearn.tree.DecisionTreeRegressor.html**

**1. 🔵 Multiple Linear Regression:**

**R² Value: 0.9359**

**2. 🟠 Support Vector Machine (SVM Regression)**

Type: Non-Linear Regression  
 Kernel Used: RBF (Radial Basis Function)

**R² Value: -0.0574**

**3. 🟢 Decision Tree Regression**

| **S.No** | **CRITERION** | **SPLITTER** | **MAX FEATURE** | **R VALUE** | **Remarks** |
| --- | --- | --- | --- | --- | --- |
| 1 | squared\_error | best | None | 0.9155 |  |
| 2 | squared\_error | best | Int - 6 | 0.9209 |  |
| 3 | squared\_error | best | Float -0.80 | 0.8982 |  |
| 4 | squared\_error | best | sqrt | 0.7887 |  |
| 5 | squared\_error | best | log2 | -0.2611 |  |
| 6 | squared\_error | random | None | 0.8883 |  |
| 7 | squared\_error | random | Int - 6 | 0.8025 |  |
| 8 | squared\_error | random | Float - 0.80 | 0.9095 |  |
| 9 | squared\_error | random | sqrt | 0.8029 |  |
| 10 | squared\_error | random | log2 | -0.2741 |  |
| 11 | friedman\_mse | best | None | 0.9051 |  |
| 12 | friedman\_mse | best | int | 0.9330 |  |
| 13 | friedman\_mse | best | float | 0.9183 |  |
| 14 | friedman\_mse | best | sqrt | 0.7549 |  |
| 15 | friedman\_mse | best | log2 | 0.2355 |  |
| 16 | friedman\_mse | random | None | 0.8470 |  |
| 17 | friedman\_mse | random | int | 0.9596 |  |
| 18 | friedman\_mse | random | float | 0.6220 |  |
| 19 | friedman\_mse | random | sqrt | 0.6940 |  |
| 20 | friedman\_mse | random | log2 | -0.0886 |  |
| 21 | absolute\_error | best | None | 0.9500 |  |
| 22 | absolute\_error | best | int | 0.9439 |  |
| 23 | absolute\_error | best | float | 0.9312 |  |
| 24 | absolute\_error | best | sqrt | 0.9220 |  |
| 25 | absolute\_error | best | log2 | 0.9701 | Highest score |
| 26 | absolute\_error | random | None | 0.8780 |  |
| 27 | absolute\_error | random | int | 0.8756 |  |
| 28 | absolute\_error | random | float | 0.8392 |  |
| 29 | absolute\_error | random | sqrt | 0.8733 |  |
| 30 | absolute\_error | random | log2 | 0.7330 |  |
| 31 | poisson | best | None | 0.9271 |  |
| 32 | poisson | best | int | 0.9306 |  |
| 33 | poisson | best | float | 0.9276 |  |
| 34 | poisson | best | sqrt | 0.7770 |  |
| 35 | poisson | best | log2 | 0.7785 |  |
| 36 | poisson | random | None | 0.9100 |  |
| 37 | poisson | random | int | 0.7795 |  |
| 38 | poisson | random | float | 0.9302 |  |
| 39 | poisson | random | sqrt | 0.8185 |  |
| 40 | poisson | random | log2 | 0.6115 |  |