To find the following the machine learning regression using in r2 value

1. Multiple Linear Regression : 0.7894
2. Support Vector Machine :

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| --- | --- | --- | --- | --- | --- |
| **S.No** | **HyperParameter** | **Linear (R2 Value)** | **RBF(Non Linear) (R2 Value)** | **Poly (R2 Value)** | **Sigmoid (R2 Value)** |
| 1 | c= 1 | -0.1116 | -0.1257 | -0.0642 | -0.0931 |
| 2 | c= 10 | -0.0016 | -0.1254 | -0.1258 | -0.0907 |
| 3 | c=1000 | 0.6340 | -0.1172 | -0.0555 | -1.6659 |

1. Decision Tree

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No** | **Criterion** | **Max Features** | **Splitter** | **R2 Value** |
| 1 | ***squared\_error*** | auto | random | ***0.7572*** |
| 2 | ***squared\_error*** | ***sqrt*** | random | ***0.6101*** |
| 3 | ***squared\_error*** | ***log2*** | random | ***0.6876*** |
| 4 | ***squared\_error*** | auto | best | ***0.7064*** |
| 5 | ***squared\_error*** | ***sqrt*** | best | ***0.6473*** |
| 6 | ***squared\_error*** | ***log2*** | best | ***0.7082*** |
| 7 | ***friedman\_mse*** | auto | random | ***0.6819*** |
| 8 | ***friedman\_mse*** | ***sqrt*** | random | ***0.6545*** |
| 9 | ***friedman\_mse*** | ***log2*** | random | ***0.6426*** |
| 10 | ***friedman\_mse*** | auto | best | ***0.6984*** |
| 11 | ***friedman\_mse*** | ***sqrt*** | best | ***0.6669*** |
| 12 | ***friedman\_mse*** | ***log2*** | best | ***0.6627*** |
| 13 | ***absolute\_error*** | auto | random | ***0.7712*** |
| 14 | ***absolute\_error*** | ***sqrt*** | random | ***0.7380*** |
| 15 | ***absolute\_error*** | ***log2*** | random | ***0.7521*** |
| 16 | ***absolute\_error*** | auto | best | ***0.6565*** |
| 17 | ***absolute\_error*** | ***sqrt*** | best | ***0.6909*** |
| 18 | ***absolute\_error*** | ***log2*** | best | ***0.6896*** |
| 19 | ***poisson*** | auto | random | ***0.6938*** |
| 20 | ***poisson*** | ***sqrt*** | random | ***0.6235*** |
| 21 | ***poisson*** | ***log2*** | random | ***0.7263*** |
| 22 | ***poisson*** | auto | best | ***0.7194*** |
| 23 | ***poisson*** | ***sqrt*** | best | ***0.6985*** |
| 24 | ***poisson*** | ***log2*** | best | ***0.7597*** |

1. Random Forest.

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| --- | --- | --- | --- | --- | --- |
| **S.No** | **n\_estimators** | **Criterion** | **Max Features** | **Random\_state** | **R2 Value** |
| 1 | 50 | squared\_error | auto | 0 | 0.8498 |
| 2 | 50 | squared\_error | sqrt | 0 | 0.8695 |
| 3 | 50 | squared\_error | log2 | 0 | 0.8695 |
| 4 | 50 | squared\_error | auto | 1 | 0.8551 |
| 5 | 50 | squared\_error | sqrt | 1 | 0.8678 |
| 6 | 50 | squared\_error | log2 | 1 | 0.8678 |
| 7 | 50 | friedman\_mse | auto | 0 | 0.8500 |
| 8 | 50 | friedman\_mse | sqrt | 0 | 0.8702 |
| 9 | 50 | friedman\_mse | log2 | 0 | 0.8702 |
| 10 | 50 | friedman\_mse | auto | 1 | 0.8547 |
| 11 | 50 | friedman\_mse | sqrt | 1 | 0.8686 |
| 12 | 50 | friedman\_mse | log2 | 1 | 0.8686 |
| 13 | 50 | absolute\_error | auto | 0 | 0.8526 |
| 14 | 50 | absolute\_error | sqrt | 0 | 0.8708 |
| 15 | 50 | absolute\_error | log2 | 0 | 0.8708 |
| 16 | 50 | absolute\_error | auto | 1 | 0.8549 |
| 17 | 50 | absolute\_error | sqrt | 1 | 0.8696 |
| 18 | 50 | absolute\_error | log2 | 1 | 0.8696 |
| 19 | 50 | poisson | auto | 0 | 0.8491 |
| 20 | 50 | poisson | sqrt | 0 | 0.8632 |
| 21 | 50 | poisson | log2 | 0 | 0.8632 |
| 22 | 50 | poisson | auto | 1 | 0.8524 |
| 23 | 50 | poisson | sqrt | 1 | 0.8655 |
| 24 | 50 | poisson | log2 | 1 | 0.8655 |