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Course :AI

Topic : Machine Learning Regression

To find the following the machine learning regression method using in r2 Value

1.MULIPLE LINEAR REGRESSION:

R2value=0.9358680970046241

2.SUPPORT VECTOR MACHINE :

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.NO** | **HYPER PARAMETER** | **LINEAR**  **(r value)** | **RBF(non linear)(r value)** | **POLY**  **(r value)** | | **SIGMOD**  **(r value)** |
| 1 | **C=10** | -0.03964494678192798 | -0.05680759285862336 | -0.05366720512712608  I | -0.05471958332940319 | |
| 2 | **C=100** | 0.10646819600577351 | -0.05072602278128757 | -0.019802139315272305 | -0.03045351486430925 | |
| 3 | **C=500** | 0.5928977271145746 | -0.024323348197438532 | 0.11468480742657639 | -0.03045351486430925 | |
| 4 | **C=1000** | 0.7802839882154126 | 0.0067683444800727965 | 0.26616370931646915 | 0.18506861974160804 | |
| 5 | **c=2000** | 0.8767721687716039 | 0.06751554270553017 | 0.4810028155606567 | 0.39706528684272135 | |
| 6 | **C=3000** | 0.8956744694334916 | 0.12322756620227582 | 0.6370064223754034 | 0.5913630209426106 | |

R2 Value=0.8956744694334916

3.**Decision tree**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sno** | **CRITERION** | **MAX FEATURES** | **SPLITTER** | **R VALUE** |
| **1** | **Friedman\_mse** | **none** | **best** | 0.9273950230630971 |
| **2** | **Friedman\_mse** | **none** | **random** | 0.7998118439543401 |
| **3** | **Friedman\_mse** | **sqrt** | **best** | 0.9257754276890482 |
| **4** | **Friedman\_mse** | **sqrt** | **random** | 0.4917695428550063 |
| **5** | **Friedman\_mse** | **Log2** | **best** | 0.40897231875300233 |
| **6** | **Friedman\_mse** | **Log2** | **random** | 0.08744098887450535 |
| **7** | **Squared\_error** | **none** | **best** | 0.9009386747781134 |
| **8** | **Squared\_error** | **none** | **random** | 0.9235836230840148 |
| **9** | **Squared\_error** | **sqrt** | **best** | 0.7031223183887176 |
| **10** | **Squared\_error** | **sqrt** | **random** | 0.6859723338454835 |
| **11** | **Squared\_error** | **Log2** | **best** | 0.5481744032843123 |
| **12** | **Squared\_error** | **Log2** | **random** | 0.8350170088555551 |
| **13** | ***absolute\_error*** | **none** | **best** | 0.9337160065981798 |
| **14** | ***absolute\_error*** | **none** | **random** | 0.8292161566402854 |
| **15** | ***absolute\_error*** | **sqrt** | **best** | 0.5206120721712157 |
| **16** | ***absolute\_error*** | **sqrt** | **random** | 0.6838822794802573 |
| **17** | ***absolute\_error*** | **Log2** | **best** | 0.4023843454048437 |
| **18** | ***absolute\_error*** | **Log2** | **random** | 0.7350761448965257 |
| **19** | **poission** | **none** | **best** | 0.9430650019984365 |
| **20** | **poission** | **none** | **random** | 0.8104999840877802 |
| **21** | **poission** | **sqrt** | **best** | -0.9730974498453977 |
| **22** | **poission** | **sqrt** | **random** | 0.3118241964880881 |
| **23** | **poission** | **Log2** | **best** | 0.22607433186715942 |
| **24** | **poission** | **Log2** | **random** | -0.022024668595250096 |
|  |  |  |  |  |
|  |  |  |  |  |

R2 value=0.9430650019984365