**HOPE LEARNING**

**Machine Learning Assignment - Dr. N. Dilip Raja**

**Multilinear Regression model**

R2 = 93.58%

**SVM Regression model**

|  |  |  |
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| **Kernal type** | **C value** | **R2** |
| Linear | 0.01 | -0.057 |
| 0.1 | -0.057 |
| 1 | -0.055 |
| 10 | -0.039 |
| 100 | 0.106 |
| 1000 | 0.78 |
| Poly | 0.01 | -0.057 |
| 0.1 | -0.057 |
| 1 | -0.057 |
| 10 | -0.053 |
| 100 | 0.199 |
| 1000 | 0.266 |
| rbf | 0.01 | -0.057 |
| 0.1 | -0.057 |
| 1 | -0.057 |
| 10 | -0.056 |
| 100 | -0.05 |
| 1000 | 0.006 |
| sigmoid | 0.01 | -0.057 |
| 0.1 | -0.057 |
| 1 | -0.057 |
| 10 | -0.054 |
| 100 | -0.03 |
| 1000 | 0.185 |
| *precomputed* | 0.01 | Not computed because of technical problem |

**DT Regression model**

|  |  |  |
| --- | --- | --- |
| **Criterion** | **Splitter** | **R2 (%)** |
| Squared Error | Best | 88.29 |
|  | Random | 75.9 |
| Friedman\_mse | Best | 90.3 |
|  | Random | 68.49 |
| Absolute\_error | Best | 94.06 |
|  | Random | 86.99 |
|  | Best | 93.25 |
|  | Random | 91.98 |

**Bagging and Boosting**

|  |  |  |
| --- | --- | --- |
| **Criterion** | **Type** | **R2 (%)** |
| Bagging | Random Forest | 98.967 |
| Boosting | Adaboost | 98.808 |
|  | Gradient boost | 99.879 |
|  | Light GB | 74.094 |
|  | Xtream GB | 99.614 |