Machine Learning Classification



Best Model – 1. Random Forest, over All Accuracy = **91%**

Overall percentage = t(a)+t(o) / t(a)+f(a)+f(o)+t(o)

= 77+45 / 77+8+4+45

= 122 / 134

**= 0.91**

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| --- | --- |
| Recall of A = t(a) / t(a)+f(a)  = 77 / 85  Recall of A = 0.90 | Recall of O = t(o) / f(o) + t (a)  = 45 / 49  Recall of O = 0.91 |
| Precision of A =t(a) / t(a)+f(a)  = 77 / 81  Precision of A = 0.95 | Precision of O =t(o) / t(o)+f(o)  = 45 / 81  Precision of O = 0.84 |

|  |  |
| --- | --- |
| F1 score for A = 2(re(a)\*pr(a / re(a)+pr(a))  = 0.85 / 1.85  =0.46\*2  = 0.92 | F1 score for O = 2(re(o)\*pr(o) / re(o)+pr(o))  = 0.76 / 1.85  =0.43\*2  = 0.86 |

Macro average

|  |  |  |
| --- | --- | --- |
| Macro average of Recall | Macro average of precision | Macro average of f1 score |
| Recall = recall(a)+recall(o)/2  = 1.81 /2  = 0.90 | precision = pre(a)+pre(o)/2  =1.75 / 2  = 0.87 | F1score = F1(a)+F1(o)/2  = 0.89 / 2  = 0.44 |

|  |  |  |
| --- | --- | --- |
| Weighted average of Recall | Weighted average of precision | Weighted average of f1 score |
| Recall = recall(a)\*(77/134)+ recall(o)\*(77/134    = 0.82 | precision = pre(a)\*(45/134)+ pre(o)\*(45/134)    = 0.82 | F1score = F1(a)\*(77/134)+ F1(0)\*(77/134)    = 0.40 |