|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | One Step | | | Two Step | | |
|  | | | Precision | Recall | F-measure | Precision | Recall | F-measure |
| PEV2 | J48 | Past | 0.5677 | 0.7900 | 0.66 | 0.3138 | 0.7438 | 0.44 |
| Present | 0.8723 | 0.6923 | 0.77 | 0.3636 | 0.0600 | 0.10 |
| Future | 0.1823 | 0.1823 | 0.18 | 0.0968 | 0.1428 | 0.12 |
| MNB | Past | 0.5890 | 0.1530 | 0.24 | 0.4431 | 0.5266 | 0.48 |
| Present | 0.8030 | 0.2983 | 0.44 | 0.5384 | 0.0262 | 0.05 |
| Future | 0.1539 | 0.8174 | 0.26 | 0.1241 | 0.5714 | 0.20 |
| SVM | Past | 0.3634 | 0.7437 | 0.49 | 0.6183 | 0.5765 | 0.60 |
| Present | 0.7549 | 0.2138 | 0.33 | 0.7782 | 0.7504 | 0.76 |
| Future | 0.2803 | 0.4761 | 0.35 | 0.3414 | 0.4444 | 0.39 |
| WEBE | J48 | Past | 0.6215 | 0.3914 | 0.48 | 0.6439 | 0.3025 | 0.41 |
| Present | 0.8394 | 0.3433 | 0.49 | 0.7065 | 0.4878 | 0.58 |
| Future | 0.1467 | 0.6349 | 0.24 | 0.1568 | 0.5476 | 0.24 |
| MNB | Past | 0.6645 | 0.3665 | 0.47 | 0.6636 | 0.7722 | 0.71 |
| Present | 0.9126 | 0.3921 | 0.55 | 0.8780 | 0.7429 | 0.80 |
| Future | 0.1924 | 0.8492 | 0.31 | 0.4074 | 0.5238 | 0.46 |
| SVM | Past | 0.7187 | 0.0818 | 0.15 | 0.7143 | 0.5338 | 0.61 |
| Present | 0.6281 | 0.5609 | 0.59 | 0.7772 | 0.6285 | 0.69 |
| Future | 0.2314 | 0.7936 | 0.36 | 0.2475 | 0.5873 | 0.35 |
| WEFB | J48 | Past | 0.6390 | 0.5480 | 0.59 | 0.5471 | 0.3096 | 0.40 |
| Present | 0.8485 | 0.4202 | 0.56 | 0.8303 | 0.7898 | 0.81 |
| Future | 0.1908 | 0.6587 | 0.30 | 0.1970 | 0.4285 | 0.27 |
| MNB | Past | 0.6176 | 0.1494 | 0.24 | 0.5737 | 0.6227 | 0.60 |
| Present | 0.6323 | 0.7486 | 0.69 | 0.8636 | 0.6416 | 0.74 |
| Future | 0.1701 | 0.3254 | 0.22 | 0.2468 | 0.4682 | 0.32 |
| SVM | Past | 0.6842 | 0.0462 | 0.09 | 0.7453 | 0.4270 | 0.54 |
| Present | 0.6714 | 0.1763 | 0.28 | 0.7888 | 0.5047 | 0.62 |
| Future | 0.1523 | 0.9444 | 0.26 | 0.2260 | 0.7857 | 0.35 |

Table 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | One Step | | | Two Step | | |
|  | | Average  Precision | Average  Recall | Average  F-measure | Average  Precision | Average  Recall | Average  F-measure |
| PEV2 | J48 | 0.5407 | 0.5548 | 0.55 | 0.2580 | 0.3155 | 0.28 |
| MNB | 0.5153 | 0.4229 | 0.46 | 0.3685 | 0.3747 | 0.37 |
| SVM | 0.4662 | 0.4778 | 0.47 | 0.5793 | 0.5904 | 0.58 |
| WEBE | J48 | 0.5358 | 0.4565 | 0.49 | 0.5024 | 0.4459 | 0.47 |
| MNB | 0.5898 | 0.5359 | 0.56 | 0.6496 | 0.6796 | 0.66 |
| SVM | 0.5260 | 0.4787 | 0.50 | 0.5796 | 0.5832 | 0.58 |
| WEFB | J48 | 0.5594 | 0.5423 | 0.55 | 0.5248 | 0.5093 | 0.52 |
| MNB | 0.4733 | 0.4078 | 0.44 | 0.5613 | 0.5775 | 0.57 |
| SVM | 0.5026 | 0.3889 | 0.44 | 0.5867 | 0.5724 | 0.58 |

Table 2