Tabel 1. Hasil ekstraksi fitur arial

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No** | **Huruf Hasil Thinning** | **Posisi** | **Fitur** | | |
| **Jumlah Titik** | **Posisi Titik** | **Chain code Ter-Normalisasi** |
| 1 | Ain | Terisolasi | 0 | 0 | 1, 8, 6, 5, 4, 8, 6, 6, 4, 4 |
| 2 | Ain | Di awal | 0 | 0 | 1, 8, 8, 6, 4, 4, 8, 8, 8, 8 |
| 3 | Ain | Di tengah | 0 | 0 | 4, 1, 4, 6, 5, 8, 3, 8, 7, 5 |
| 4 | Ain | Di akhir | 0 | 0 | 8, 3, 8, 5, 5, 8, 1, 1, 4, 7 |
| 5 | Alif | Terisolasi | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 6, 6 |
| 6 | Alif | Di akhir | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 5, 4 |
| 7 | Ba | Terisolasi | 1 | 2 | 6, 6, 6, 5, 4, 4, 4, 4, 3, 2 |
| 8 | Ba | Di awal | 1 | 2 | 6, 6, 6, 6, 6, 6, 6, 8, 8, 8 |
| 9 | Ba | Di tengah | 1 | 2 | 6, 6, 6, 6, 4, 4, 8, 8, 8, 8 |
| 10 | Ba | Di akhir | 1 | 2 | 6, 6, 4, 4, 4, 3, 2, 6, 5, 4 |
| 11 | Dal | Terisolasi | 0 | 0 | 5, 5, 5, 6, 6, 7, 8, 8, 8, 8 |
| 12 | Dal | Di akhir | 0 | 0 | 6, 6, 6, 6, 5, 4, 1, 1, 8, 8 |
| 13 | Dhad | Terisolasi | 1 | 0 | 6, 3, 6, 8, 4, 2, 7, 6, 8, 2 |
| 14 | Dhad | Di awal | 1 | 0 | 6, 3, 4, 6, 8, 4, 3, 8, 7, 8 |
| 15 | Dhad | Di tengah | 1 | 0 | 6, 2, 4, 5, 8, 4, 8, 1, 7, 8 |
| 16 | Dhad | Di akhir | 1 | 0 | 6, 3, 6, 8, 4, 8, 8, 8, 8, 2 |
| 17 | Dzal | Terisolasi | 1 | 0 | 5, 5, 5, 6, 6, 7, 8, 8, 8, 8 |
| 18 | Dzal | Di akhir | 1 | 0 | 6, 6, 6, 6, 5, 4, 1, 1, 8, 8 |
| 19 | Dzo | Terisolasi | 1 | 0 | 6, 6, 3, 5, 8, 8, 6, 3, 8, 7 |
| 20 | Dzo | Di awal | 1 | 0 | 6, 6, 3, 5, 8, 8, 6, 4, 8, 8 |
| 21 | Dzo | Di tengah | 1 | 0 | 6, 6, 3, 6, 8, 8, 4, 8, 8, 8 |
| 22 | Dzo | Di akhir | 1 | 0 | 6, 6, 3, 6, 8, 8, 4, 8, 1, 8 |
| 23 | Fa | Terisolasi | 1 | 0 | 6, 5, 4, 8, 2, 5, 6, 1, 6, 4 |
| 24 | Fa | Di awal | 1 | 0 | 4, 3, 8, 2, 4, 6, 2, 8, 6, 4 |
| 25 | Fa | Di tengah | 1 | 0 | 4, 1, 4, 6, 4, 4, 1, 1, 7, 6 |
| 26 | Fa | Di akhir | 1 | 0 | 6, 4, 4, 2, 5, 4, 8, 2, 8, 5 |
| 27 | Ghoin | Terisolasi | 1 | 0 | 1, 8, 6, 5, 4, 8, 6, 6, 4, 4 |
| 28 | Ghoin | Di awal | 1 | 0 | 1, 8, 8, 6, 4, 4, 8, 8, 8, 8 |
| 29 | Ghoin | Di tengah | 1 | 0 | 4, 1, 4, 5, 5, 8, 4, 8, 7, 5 |
| 30 | Ghoin | Di akhir | 1 | 0 | 8, 1, 8, 5, 5, 4, 8, 1, 4, 7 |
| 31 | Habesar | Terisolasi | 0 | 0 | 5, 6, 8, 2, 3, 7, 6, 4, 2, 1 |
| 32 | Habesar | Di awal | 0 | 0 | 4, 4, 6, 2, 7, 4, 4, 8, 4, 6 |
| 33 | Habesar | Di tengah | 0 | 0 | 4, 3, 4, 6, 2, 6, 2, 8, 1, 6 |
| 34 | Habesar | Di akhir | 0 | 0 | 6, 6, 8, 2, 3, 7, 6, 4, 2, 2 |
| 35 | Hamzah | Terisolasi | 0 | 0 | 8, 8, 7, 6, 5, 4, 4, 8, 8, 8 |
| 36 | Ha | Terisolasi | 0 | 0 | 4, 4, 7, 7, 6, 6, 5, 4, 4, 4 |
| 37 | Ha | Di awal | 0 | 0 | 4, 4, 4, 4, 5, 8, 8, 8, 8, 8 |
| 38 | Ha | Di tengah | 0 | 0 | 4, 4, 7, 5, 4, 8, 1, 8, 8, 8 |
| 39 | Ha | Di akhir | 0 | 0 | 4, 7, 6, 4, 5, 8, 8, 8, 2, 4 |
| 40 | Jim | Terisolasi | 1 | 1 | 4, 4, 7, 7, 6, 6, 5, 4, 4, 4 |
| 41 | Jim | Di awal | 1 | 1 | 4, 4, 4, 4, 5, 8, 8, 8, 8, 8 |
| 42 | Jim | Di tengah | 1 | 1 | 4, 4, 7, 5, 4, 8, 1, 8, 8, 8 |
| 43 | Jim | Di akhir | 1 | 1 | 4, 7, 6, 4, 5, 8, 1, 8, 2, 4 |
| 44 | Kaf | Terisolasi | 1 | 0 | 6, 6, 6, 6, 6, 7, 8, 8, 1, 2 |
| 45 | Kaf | Di awal | 1 | 0 | 8, 7, 6, 5, 5, 6, 6, 8, 8, 8 |
| 46 | Kaf | Di tengah | 1 | 0 | 8, 7, 6, 5, 6, 4, 8, 4, 8, 1 |
| 47 | Kaf | Di akhir | 1 | 0 | 6, 6, 6, 6, 5, 1, 8, 8, 1, 2 |
| 48 | Kha | Terisolasi | 1 | 0 | 4, 4, 7, 7, 6, 6, 5, 4, 4, 4 |
| 49 | Kha | Di awal | 1 | 0 | 4, 4, 4, 5, 5, 8, 8, 8, 8, 8 |
| 50 | Kha | Di tengah | 1 | 0 | 4, 4, 7, 5, 4, 8, 1, 8, 8, 8 |
| 51 | Kha | Di akhir | 1 | 0 | 4, 7, 6, 4, 5, 8, 1, 8, 2, 4 |
| 52 | Lamalif | Terisolasi | 0 | 0 | 6, 6, 6, 6, 6, 1, 8, 4, 2, 5 |
| 53 | Lamalif | Di akhir | 0 | 0 | 6, 6, 6, 6, 6, 8, 8, 5, 8, 8 |
| 54 | Lam | Terisolasi | 0 | 0 | 6, 6, 6, 6, 6, 6, 8, 8, 2, 2 |
| 55 | Lam | Di awal | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 8, 8 |
| 56 | Lam | Di tengah | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 4, 8, 8 |
| 57 | Lam | Di akhir | 0 | 0 | 6, 6, 6, 6, 4, 8, 7, 8, 1, 2 |
| 58 | Mim | Terisolasi | 0 | 0 | 2, 2, 2, 4, 6, 8, 3, 2, 7, 6 |
| 59 | Mim | Di awal | 0 | 0 | 4, 2, 3, 5, 8, 4, 2, 8, 7, 6 |
| 60 | Mim | Di tengah | 0 | 0 | 4, 2, 5, 5, 7, 4, 8, 2, 7, 6 |
| 61 | Mim | Di akhir | 0 | 0 | 8, 1, 6, 3, 6, 2, 4, 8, 4, 6 |
| 62 | Nun | Terisolasi | 1 | 0 | 6, 6, 6, 5, 4, 4, 3, 2, 2, 2 |
| 63 | Nun | Di awal | 1 | 0 | 6, 6, 6, 6, 6, 7, 7, 8, 8, 8 |
| 64 | Nun | Di tengah | 1 | 0 | 6, 6, 6, 6, 4, 4, 8, 8, 8, 8 |
| 65 | Nun | Di akhir | 1 | 0 | 6, 6, 6, 4, 4, 4, 3, 2, 6, 4 |
| 66 | Qaf | Terisolasi | 2 | 0 | 6, 5, 4, 2, 2, 5, 6, 1, 6, 4 |
| 67 | Qaf | Di awal | 2 | 0 | 4, 2, 2, 3, 5, 6, 1, 7, 6, 4 |
| 68 | Qaf | Di tengah | 2 | 0 | 4, 2, 4, 6, 4, 4, 1, 1, 7, 6 |
| 69 | Qaf | Di akhir | 2 | 0 | 6, 4, 3, 1, 3, 6, 8, 1, 6, 4 |
| 70 | Ra | Terisolasi | 0 | 0 | 6, 6, 6, 6, 6, 6, 7, 8, 8, 8 |
| 71 | Ra | Di akhir | 0 | 0 | 6, 6, 4, 4, 8, 7, 6, 8, 8, 8 |
| 72 | Sad | Terisolasi | 0 | 0 | 6, 3, 6, 8, 4, 2, 7, 6, 8, 2 |
| 73 | Sad | Di awal | 0 | 0 | 6, 3, 4, 6, 8, 4, 3, 8, 7, 8 |
| 74 | Sad | Di tengah | 0 | 0 | 6, 2, 4, 5, 8, 4, 8, 1, 7, 8 |
| 75 | Sad | Di akhir | 0 | 0 | 6, 3, 6, 8, 4, 8, 8, 8, 8, 2 |
| 76 | Sheen | Terisolasi | 3 | 0 | 6, 8, 2, 7, 2, 6, 6, 8, 1, 2 |
| 77 | Sheen | Di awal | 3 | 0 | 6, 6, 8, 2, 6, 8, 1, 2, 6, 8 |
| 78 | Sheen | Di tengah | 3 | 0 | 6, 6, 8, 8, 2, 6, 2, 2, 6, 8 |
| 79 | Sheen | Di akhir | 3 | 0 | 6, 5, 8, 2, 7, 2, 6, 7, 8, 2 |
| 80 | Sin | Terisolasi | 0 | 0 | 6, 8, 2, 7, 2, 6, 6, 8, 1, 2 |
| 81 | Sin | Di awal | 0 | 0 | 6, 6, 8, 2, 6, 6, 1, 2, 6, 8 |
| 82 | Sin | Di tengah | 0 | 0 | 6, 6, 8, 2, 6, 7, 2, 2, 6, 8 |
| 83 | Sin | Di akhir | 0 | 0 | 6, 5, 7, 2, 6, 2, 6, 7, 8, 2 |
| 84 | Tamarbuto | Terisolasi | 2 | 0 | 5, 6, 8, 1, 2, 6, 5, 4, 2, 1 |
| 85 | Tamarbuto | Di akhir | 2 | 0 | 6, 6, 8, 2, 3, 7, 6, 4, 2, 2 |
| 86 | Ta | Terisolasi | 2 | 0 | 6, 6, 6, 5, 4, 4, 4, 4, 3, 2 |
| 87 | Ta | Di awal | 2 | 0 | 6, 6, 6, 6, 6, 6, 6, 8, 8, 8 |
| 88 | Ta | Di tengah | 2 | 0 | 6, 6, 6, 6, 4, 4, 8, 8, 8, 8 |
| 89 | Ta | Di akhir | 2 | 0 | 6, 6, 4, 4, 4, 3, 2, 6, 5, 4 |
| 90 | Tho | Terisolasi | 0 | 0 | 6, 6, 3, 5, 8, 8, 4, 4, 8, 8 |
| 91 | Tho | Di awal | 0 | 0 | 6, 6, 3, 5, 8, 8, 4, 4, 8, 8 |
| 92 | Tho | Di tengah | 0 | 0 | 6, 6, 3, 6, 8, 2, 4, 8, 1, 7 |
| 93 | Tho | Di akhir | 0 | 0 | 6, 6, 3, 6, 8, 8, 4, 8, 1, 8 |
| 94 | Tsa | Terisolasi | 3 | 0 | 6, 6, 6, 5, 4, 4, 4, 4, 3, 2 |
| 95 | Tsa | Di awal | 3 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 8, 8 |
| 96 | Tsa | Di tengah | 3 | 0 | 6, 6, 6, 6, 4, 4, 8, 8, 8, 8 |
| 97 | Tsa | Di akhir | 3 | 0 | 6, 6, 4, 4, 4, 3, 2, 6, 5, 4 |
| 98 | Waw | Terisolasi | 0 | 0 | 4, 4, 2, 1, 7, 4, 8, 2, 5, 6 |
| 99 | Waw | Di akhir | 0 | 0 | 8, 1, 6, 4, 8, 4, 3, 2, 5, 6 |
| 100 | Ya | Terisolasi | 2 | 2 | 1, 8, 7, 5, 5, 7, 8, 8, 1, 2 |
| 101 | Ya | Di awal | 2 | 2 | 6, 6, 6, 6, 6, 7, 7, 8, 8, 8 |
| 102 | Ya | Di tengah | 2 | 2 | 6, 6, 6, 6, 4, 4, 8, 8, 8, 8 |
| 103 | Ya | Di akhir | 2 | 2 | 6, 6, 4, 4, 4, 4, 4, 2, 4, 4 |
| 104 | Za | Terisolasi | 1 | 0 | 6, 6, 6, 6, 6, 6, 7, 8, 8, 8 |
| 105 | Za | Di akhir | 1 | 0 | 6, 6, 4, 4, 8, 7, 6, 8, 8, 8 |

Tabel 2. Hasil ekstraksi fitur tahoma

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No** | **Huruf Hasil Thinning** | **Posisi** | **Fitur** | | |
| **Jumlah Titik** | **Posisi Titik** | **Chain code Ter-Normalisasi** |
| 1 | Ain | Terisolasi | 0 | 0 | 8, 7, 6, 4, 8, 7, 6, 4, 4, 2 |
| 2 | Ain | Di awal | 0 | 0 | 8, 8, 7, 5, 4, 4, 8, 8, 8, 8 |
| 3 | Ain | Di tengah | 0 | 0 | 4, 1, 4, 6, 5, 4, 1, 2, 8, 5 |
| 4 | Ain | Di akhir | 0 | 0 | 8, 1, 8, 6, 5, 4, 8, 3, 4, 7 |
| 5 | Alif | Terisolasi | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 6, 6 |
| 6 | Alif | Di akhir | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 5, 4 |
| 7 | Ba | Terisolasi | 1 | 2 | 6, 6, 7, 8, 8, 8, 8, 1, 2, 2 |
| 8 | Ba | Di awal | 1 | 2 | 6, 6, 6, 6, 6, 6, 6, 8, 8, 8 |
| 9 | Ba | Di tengah | 1 | 2 | 6, 6, 6, 6, 4, 4, 8, 8, 8, 8 |
| 10 | Ba | Di akhir | 1 | 2 | 6, 6, 4, 4, 4, 4, 4, 2, 6, 4 |
| 11 | Dal | Terisolasi | 0 | 0 | 5, 5, 5, 5, 6, 6, 8, 8, 8, 8 |
| 12 | Dal | Di akhir | 0 | 0 | 6, 6, 6, 5, 4, 1, 7, 8, 8, 8 |
| 13 | Dhad | Terisolasi | 1 | 0 | 6, 5, 2, 4, 3, 8, 8, 4, 8, 6 |
| 14 | Dhad | Di awal | 1 | 0 | 6, 3, 4, 7, 8, 4, 4, 1, 7, 8 |
| 15 | Dhad | Di tengah | 1 | 0 | 6, 3, 5, 4, 8, 4, 4, 2, 7, 8 |
| 16 | Dhad | Di akhir | 1 | 0 | 6, 4, 2, 3, 6, 8, 4, 4, 1, 6 |
| 17 | Dzal | Terisolasi | 1 | 0 | 5, 5, 5, 5, 6, 6, 8, 8, 8, 8 |
| 18 | Dzal | Di akhir | 1 | 0 | 6, 6, 6, 5, 4, 1, 7, 8, 8, 8 |
| 19 | Dzo | Terisolasi | 1 | 0 | 6, 6, 3, 6, 8, 8, 6, 4, 1, 8 |
| 20 | Dzo | Di awal | 1 | 0 | 6, 6, 4, 5, 8, 2, 6, 4, 1, 8 |
| 21 | Dzo | Di tengah | 1 | 0 | 6, 6, 3, 6, 8, 2, 6, 4, 2, 8 |
| 22 | Dzo | Di akhir | 1 | 0 | 6, 6, 3, 6, 8, 8, 4, 4, 1, 8 |
| 23 | Fa | Terisolasi | 1 | 0 | 6, 5, 4, 4, 1, 6, 4, 8, 4, 6 |
| 24 | Fa | Di awal | 1 | 0 | 4, 4, 2, 1, 6, 4, 8, 2, 4, 6 |
| 25 | Fa | Di tengah | 1 | 0 | 4, 1, 4, 6, 4, 4, 1, 2, 7, 5 |
| 26 | Fa | Di akhir | 1 | 0 | 6, 4, 4, 2, 6, 4, 4, 3, 8, 5 |
| 27 | Ghoin | Terisolasi | 1 | 0 | 8, 7, 6, 4, 8, 7, 6, 4, 4, 2 |
| 28 | Ghoin | Di awal | 1 | 0 | 8, 8, 7, 5, 4, 4, 8, 8, 8, 8 |
| 29 | Ghoin | Di tengah | 1 | 0 | 4, 1, 4, 6, 5, 4, 1, 2, 8, 5 |
| 30 | Ghoin | Di akhir | 1 | 0 | 8, 1, 8, 6, 5, 4, 8, 3, 4, 7 |
| 31 | Habesar | Terisolasi | 0 | 0 | 4, 5, 6, 1, 2, 7, 6, 4, 2, 1 |
| 32 | Habesar | Di awal | 0 | 0 | 4, 5, 8, 1, 6, 4, 4, 2, 4, 6 |
| 33 | Habesar | Di tengah | 0 | 0 | 4, 2, 5, 7, 2, 7, 7, 3, 8, 6 |
| 34 | Habesar | Di akhir | 0 | 0 | 8, 2, 2, 8, 5, 4, 1, 4, 6, 6 |
| 35 | Hamzah | Terisolasi | 0 | 0 | 8, 8, 7, 6, 5, 4, 4, 8, 8, 8 |
| 36 | Ha | Terisolasi | 0 | 0 | 4, 4, 8, 6, 4, 4, 8, 1, 3, 8 |
| 37 | Ha | Di awal | 0 | 0 | 4, 4, 5, 2, 8, 8, 4, 4, 3, 8 |
| 38 | Ha | Di tengah | 0 | 0 | 4, 4, 2, 4, 8, 8, 4, 8, 3, 8 |
| 39 | Ha | Di akhir | 0 | 0 | 4, 4, 5, 7, 4, 7, 8, 3, 2, 8 |
| 40 | Jim | Terisolasi | 1 | 1 | 4, 4, 8, 6, 4, 4, 8, 1, 3, 8 |
| 41 | Jim | Di awal | 1 | 1 | 4, 4, 4, 7, 8, 8, 4, 4, 3, 8 |
| 42 | Jim | Di tengah | 1 | 1 | 4, 4, 2, 4, 8, 8, 4, 8, 1, 8 |
| 43 | Jim | Di akhir | 1 | 1 | 4, 4, 5, 7, 4, 7, 8, 3, 2, 8 |
| 44 | Kaf | Terisolasi | 1 | 0 | 6, 6, 6, 6, 6, 8, 8, 8, 8, 2 |
| 45 | Kaf | Di awal | 1 | 0 | 7, 6, 5, 5, 6, 6, 8, 8, 8, 8 |
| 46 | Kaf | Di tengah | 1 | 0 | 7, 6, 5, 5, 6, 4, 8, 8, 8, 8 |
| 47 | Kaf | Di akhir | 1 | 0 | 6, 6, 6, 6, 6, 8, 8, 8, 8, 2 |
| 48 | Kha | Terisolasi | 1 | 0 | 4, 4, 8, 6, 4, 4, 8, 1, 3, 8 |
| 49 | Kha | Di awal | 1 | 0 | 4, 4, 4, 7, 8, 8, 4, 4, 3, 8 |
| 50 | Kha | Di tengah | 1 | 0 | 4, 4, 2, 4, 8, 8, 4, 8, 1, 8 |
| 51 | Kha | Di akhir | 1 | 0 | 4, 4, 6, 7, 4, 7, 8, 3, 2, 8 |
| 52 | Lamalif | Terisolasi | 0 | 0 | 6, 6, 6, 6, 6, 8, 2, 6, 7, 8 |
| 53 | Lamalif | Di akhir | 0 | 0 | 6, 6, 6, 6, 4, 1, 2, 2, 6, 8 |
| 54 | Lam | Terisolasi | 0 | 0 | 6, 6, 6, 6, 6, 6, 8, 8, 2, 2 |
| 55 | Lam | Di awal | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 6, 8 |
| 56 | Lam | Di tengah | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 5, 1, 8 |
| 57 | Lam | Di akhir | 0 | 0 | 6, 6, 6, 6, 6, 8, 7, 8, 2, 2 |
| 58 | Mim | Terisolasi | 0 | 0 | 4, 3, 3, 5, 8, 1, 4, 2, 7, 6 |
| 59 | Mim | Di awal | 0 | 0 | 4, 2, 4, 6, 8, 5, 4, 2, 7, 6 |
| 60 | Mim | Di tengah | 0 | 0 | 4, 2, 5, 5, 8, 5, 2, 2, 7, 6 |
| 61 | Mim | Di akhir | 0 | 0 | 8, 1, 6, 4, 7, 3, 7, 1, 4, 6 |
| 62 | Nun | Terisolasi | 1 | 0 | 6, 6, 6, 5, 4, 4, 4, 2, 2, 2 |
| 63 | Nun | Di awal | 1 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 8, 8 |
| 64 | Nun | Di tengah | 1 | 0 | 6, 6, 6, 6, 6, 4, 4, 8, 8, 8 |
| 65 | Nun | Di akhir | 1 | 0 | 6, 6, 5, 4, 4, 4, 2, 2, 5, 4 |
| 66 | Qaf | Terisolasi | 2 | 0 | 6, 4, 4, 2, 2, 6, 4, 1, 4, 6 |
| 67 | Qaf | Di awal | 2 | 0 | 4, 4, 2, 1, 6, 4, 8, 2, 4, 6 |
| 68 | Qaf | Di tengah | 2 | 0 | 4, 2, 4, 6, 4, 4, 3, 2, 7, 5 |
| 69 | Qaf | Di akhir | 2 | 0 | 6, 4, 4, 2, 8, 5, 4, 8, 3, 6 |
| 70 | Ra | Terisolasi | 0 | 0 | 5, 6, 6, 6, 6, 6, 7, 8, 8, 8 |
| 71 | Ra | Di akhir | 0 | 0 | 5, 6, 6, 4, 8, 8, 6, 7, 8, 8 |
| 72 | Sad | Terisolasi | 0 | 0 | 6, 5, 2, 4, 3, 8, 8, 4, 8, 6 |
| 73 | Sad | Di awal | 0 | 0 | 6, 3, 4, 7, 8, 4, 4, 1, 7, 8 |
| 74 | Sad | Di tengah | 0 | 0 | 6, 3, 6, 4, 8, 4, 4, 2, 7, 8 |
| 75 | Sad | Di akhir | 0 | 0 | 6, 4, 2, 3, 6, 8, 4, 4, 1, 6 |
| 76 | Sheen | Terisolasi | 3 | 0 | 6, 7, 2, 6, 8, 2, 6, 8, 2, 2 |
| 77 | Sheen | Di awal | 3 | 0 | 6, 6, 8, 2, 6, 8, 2, 7, 3, 6 |
| 78 | Sheen | Di tengah | 3 | 0 | 6, 6, 4, 7, 1, 2, 8, 1, 6, 8 |
| 79 | Sheen | Di akhir | 3 | 0 | 6, 5, 7, 2, 6, 2, 6, 8, 1, 2 |
| 80 | Sin | Terisolasi | 0 | 0 | 6, 7, 2, 6, 8, 2, 6, 8, 2, 2 |
| 81 | Sin | Di awal | 0 | 0 | 6, 6, 8, 2, 6, 8, 1, 2, 3, 6 |
| 82 | Sin | Di tengah | 0 | 0 | 6, 6, 4, 7, 1, 2, 8, 1, 6, 8 |
| 83 | Sin | Di akhir | 0 | 0 | 6, 5, 7, 2, 6, 2, 6, 8, 1, 2 |
| 84 | Tamarbuto | Terisolasi | 2 | 0 | 5, 6, 8, 1, 3, 7, 6, 4, 2, 1 |
| 85 | Tamarbuto | Di akhir | 2 | 0 | 1, 2, 8, 7, 5, 8, 1, 4, 6, 6 |
| 86 | Ta | Terisolasi | 2 | 0 | 6, 6, 6, 6, 4, 4, 8, 8, 8, 8 |
| 87 | Ta | Di awal | 2 | 0 | 6, 6, 6, 6, 6, 6, 6, 8, 8, 8 |
| 88 | Ta | Di tengah | 2 | 0 | 6, 6, 6, 6, 4, 4, 8, 8, 8, 8 |
| 89 | Ta | Di akhir | 2 | 0 | 6, 6, 5, 4, 4, 4, 4, 2, 6, 4 |
| 90 | Tho | Terisolasi | 0 | 0 | 6, 6, 3, 6, 8, 8, 6, 4, 1, 8 |
| 91 | Tho | Di awal | 0 | 0 | 6, 6, 4, 5, 8, 2, 6, 4, 1, 8 |
| 92 | Tho | Di tengah | 0 | 0 | 6, 6, 3, 6, 8, 2, 4, 4, 2, 8 |
| 93 | Tho | Di akhir | 0 | 0 | 6, 6, 3, 6, 8, 8, 6, 4, 1, 8 |
| 94 | Tsa | Terisolasi | 3 | 0 | 6, 6, 7, 8, 8, 8, 8, 1, 2, 2 |
| 95 | Tsa | Di awal | 3 | 0 | 6, 6, 6, 6, 6, 6, 8, 8, 8, 8 |
| 96 | Tsa | Di tengah | 3 | 0 | 6, 6, 6, 6, 4, 4, 8, 8, 8, 8 |
| 97 | Tsa | Di akhir | 3 | 0 | 6, 6, 5, 4, 4, 4, 4, 2, 6, 4 |
| 98 | Waw | Terisolasi | 0 | 0 | 4, 3, 2, 8, 6, 4, 8, 2, 4, 6 |
| 99 | Waw | Di akhir | 0 | 0 | 8, 2, 7, 5, 7, 4, 8, 2, 5, 6 |
| 100 | Ya | Terisolasi | 2 | 2 | 8, 7, 5, 6, 8, 8, 8, 8, 2, 2 |
| 101 | Ya | Di awal | 2 | 2 | 6, 6, 6, 6, 6, 6, 6, 8, 8, 8 |
| 102 | Ya | Di tengah | 2 | 2 | 6, 6, 6, 4, 4, 8, 1, 7, 8, 8 |
| 103 | Ya | Di akhir | 2 | 2 | 6, 5, 4, 4, 4, 2, 2, 4, 5, 4 |
| 104 | Za | Terisolasi | 1 | 0 | 5, 6, 6, 6, 6, 6, 7, 8, 8, 8 |
| 105 | Za | Di akhir | 1 | 0 | 5, 6, 6, 4, 8, 8, 6, 7, 8, 8 |

Tabel 2. Hasil ekstraksi fitur times new roman

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No** | **Huruf Hasil Thinning** | **Posisi** | **Fitur** | | |
| **Jumlah Titik** | **Posisi Titik** | **Chain code Ter-Normalisasi** |
| 1 | Ain | Terisolasi | 0 | 0 | 8, 5, 3, 6, 4, 4, 8, 1, 3, 8 |
| 2 | Ain | Di awal | 0 | 0 | 8, 8, 6, 6, 4, 4, 7, 8, 8, 8 |
| 3 | Ain | Di tengah | 0 | 0 | 8, 8, 4, 4, 6, 5, 8, 1, 7, 8 |
| 4 | Ain | Di akhir | 0 | 0 | 4, 5, 4, 6, 4, 8, 1, 3, 8, 8 |
| 5 | Alif | Terisolasi | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 6, 6 |
| 6 | Alif | Di akhir | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 4, 4 |
| 7 | Ba | Terisolasi | 1 | 2 | 6, 6, 5, 4, 4, 4, 4, 4, 2, 2 |
| 8 | Ba | Di awal | 1 | 2 | 6, 6, 6, 6, 6, 6, 8, 8, 8, 8 |
| 9 | Ba | Di tengah | 1 | 2 | 6, 6, 6, 6, 6, 6, 8, 8, 8, 8 |
| 10 | Ba | Di akhir | 1 | 2 | 6, 5, 4, 4, 4, 4, 2, 2, 6, 4 |
| 11 | Dal | Terisolasi | 0 | 0 | 5, 5, 6, 6, 8, 8, 8, 8, 1, 2 |
| 12 | Dal | Di akhir | 0 | 0 | 5, 5, 6, 6, 4, 8, 8, 8, 8, 2 |
| 13 | Dhad | Terisolasi | 1 | 0 | 6, 4, 6, 8, 4, 2, 7, 7, 1, 2 |
| 14 | Dhad | Di awal | 1 | 0 | 6, 4, 3, 8, 8, 4, 4, 8, 8, 8 |
| 15 | Dhad | Di tengah | 1 | 0 | 6, 4, 4, 4, 8, 4, 4, 1, 8, 8 |
| 16 | Dhad | Di akhir | 1 | 0 | 6, 4, 6, 8, 4, 8, 7, 6, 1, 2 |
| 17 | Dzal | Terisolasi | 1 | 0 | 5, 5, 6, 6, 8, 8, 8, 8, 1, 2 |
| 18 | Dzal | Di akhir | 1 | 0 | 5, 5, 6, 6, 8, 8, 8, 8, 1, 2 |
| 19 | Dzo | Terisolasi | 1 | 0 | 6, 6, 4, 8, 8, 8, 7, 4, 2, 8 |
| 20 | Dzo | Di awal | 1 | 0 | 6, 6, 4, 6, 8, 8, 4, 4, 1, 8 |
| 21 | Dzo | Di tengah | 1 | 0 | 6, 6, 4, 4, 8, 8, 4, 4, 1, 8 |
| 22 | Dzo | Di akhir | 1 | 0 | 6, 6, 4, 8, 8, 8, 7, 4, 2, 8 |
| 23 | Fa | Terisolasi | 1 | 0 | 6, 5, 4, 4, 4, 1, 4, 2, 7, 5 |
| 24 | Fa | Di awal | 1 | 0 | 4, 4, 2, 2, 8, 5, 4, 1, 4, 6 |
| 25 | Fa | Di tengah | 1 | 0 | 4, 4, 2, 1, 6, 4, 1, 4, 6, 4 |
| 26 | Fa | Di akhir | 1 | 0 | 6, 5, 4, 4, 4, 2, 6, 2, 6, 4 |
| 27 | Ghoin | Terisolasi | 1 | 0 | 8, 5, 3, 6, 4, 4, 8, 1, 3, 8 |
| 28 | Ghoin | Di awal | 1 | 0 | 8, 8, 6, 6, 4, 4, 7, 8, 8, 8 |
| 29 | Ghoin | Di tengah | 1 | 0 | 8, 8, 4, 6, 5, 4, 8, 8, 1, 8 |
| 30 | Ghoin | Di akhir | 1 | 0 | 4, 5, 4, 6, 4, 8, 1, 3, 8, 8 |
| 31 | Habesar | Terisolasi | 0 | 0 | 6, 5, 7, 8, 2, 7, 5, 4, 2, 8 |
| 32 | Habesar | Di awal | 0 | 0 | 6, 5, 8, 3, 3, 4, 6, 5, 2, 1 |
| 33 | Habesar | Di tengah | 0 | 0 | 8, 2, 7, 6, 3, 5, 8, 2, 3, 5 |
| 34 | Habesar | Di akhir | 0 | 0 | 6, 5, 6, 4, 8, 7, 4, 8, 2, 1 |
| 35 | Hamzah | Terisolasi | 0 | 0 | 8, 8, 7, 5, 4, 4, 6, 2, 8, 8 |
| 36 | Ha | Terisolasi | 0 | 0 | 8, 8, 7, 6, 4, 8, 8, 2, 3, 4 |
| 37 | Ha | Di awal | 0 | 0 | 4, 4, 5, 4, 8, 8, 8, 8, 8, 8 |
| 38 | Ha | Di tengah | 0 | 0 | 4, 5, 4, 4, 8, 8, 8, 8, 8, 8 |
| 39 | Ha | Di akhir | 0 | 0 | 8, 8, 6, 4, 4, 8, 2, 4, 6, 4 |
| 40 | Jim | Terisolasi | 1 | 1 | 8, 8, 7, 6, 4, 8, 8, 2, 3, 4 |
| 41 | Jim | Di awal | 1 | 1 | 4, 4, 5, 4, 8, 8, 8, 8, 8, 8 |
| 42 | Jim | Di tengah | 1 | 1 | 4, 4, 6, 4, 8, 8, 8, 8, 8, 8 |
| 43 | Jim | Di akhir | 1 | 1 | 8, 8, 6, 4, 4, 8, 2, 4, 6, 4 |
| 44 | Kaf | Terisolasi | 1 | 0 | 6, 6, 6, 6, 8, 8, 8, 8, 2, 2 |
| 45 | Kaf | Di awal | 1 | 0 | 8, 7, 6, 5, 5, 5, 8, 8, 8, 8 |
| 46 | Kaf | Di tengah | 1 | 0 | 8, 7, 6, 4, 5, 6, 8, 8, 8, 8 |
| 47 | Kaf | Di akhir | 1 | 0 | 6, 6, 6, 6, 8, 8, 8, 8, 2, 2 |
| 48 | Kha | Terisolasi | 1 | 0 | 8, 8, 7, 6, 4, 8, 8, 2, 3, 4 |
| 49 | Kha | Di awal | 1 | 0 | 4, 4, 5, 4, 8, 8, 8, 8, 8, 8 |
| 50 | Kha | Di tengah | 1 | 0 | 4, 4, 6, 4, 8, 8, 8, 8, 8, 8 |
| 51 | Kha | Di akhir | 1 | 0 | 8, 8, 6, 4, 4, 8, 2, 4, 6, 4 |
| 52 | Lamalif | Terisolasi | 0 | 0 | 6, 6, 7, 1, 6, 2, 7, 2, 5, 5 |
| 53 | Lamalif | Di akhir | 0 | 0 | 6, 6, 6, 6, 5, 2, 7, 7, 8, 8 |
| 54 | Lam | Terisolasi | 0 | 0 | 6, 6, 6, 6, 6, 8, 8, 1, 2, 2 |
| 55 | Lam | Di awal | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 6, 8, 8 |
| 56 | Lam | Di tengah | 0 | 0 | 6, 6, 6, 6, 6, 6, 6, 4, 8, 8 |
| 57 | Lam | Di akhir | 0 | 0 | 6, 6, 6, 6, 4, 7, 8, 1, 2, 2 |
| 58 | Mim | Terisolasi | 0 | 0 | 4, 5, 6, 8, 8, 7, 6, 6, 6, 6 |
| 59 | Mim | Di awal | 0 | 0 | 4, 3, 3, 5, 6, 8, 2, 1, 7, 6 |
| 60 | Mim | Di tengah | 0 | 0 | 4, 2, 3, 6, 4, 8, 8, 2, 7, 6 |
| 61 | Mim | Di akhir | 0 | 0 | 4, 5, 4, 4, 8, 8, 8, 6, 6, 6 |
| 62 | Nun | Terisolasi | 1 | 0 | 6, 6, 6, 7, 8, 8, 8, 1, 2, 2 |
| 63 | Nun | Di awal | 1 | 0 | 6, 6, 6, 6, 6, 8, 8, 8, 8, 8 |
| 64 | Nun | Di tengah | 1 | 0 | 6, 6, 6, 6, 6, 4, 8, 8, 8, 8 |
| 65 | Nun | Di akhir | 1 | 0 | 6, 6, 4, 6, 7, 8, 8, 1, 2, 2 |
| 66 | Qaf | Terisolasi | 2 | 0 | 6, 6, 4, 4, 2, 2, 8, 8, 4, 6 |
| 67 | Qaf | Di awal | 2 | 0 | 4, 4, 2, 2, 8, 5, 4, 1, 4, 6 |
| 68 | Qaf | Di tengah | 2 | 0 | 4, 4, 2, 1, 6, 4, 1, 4, 6, 4 |
| 69 | Qaf | Di akhir | 2 | 0 | 6, 6, 4, 4, 2, 2, 5, 8, 5, 4 |
| 70 | Ra | Terisolasi | 0 | 0 | 6, 6, 6, 6, 7, 7, 7, 8, 8, 8 |
| 71 | Ra | Di akhir | 0 | 0 | 6, 6, 6, 4, 7, 7, 7, 8, 8, 8 |
| 72 | Sad | Terisolasi | 0 | 0 | 6, 4, 6, 8, 4, 2, 7, 7, 1, 2 |
| 73 | Sad | Di awal | 0 | 0 | 6, 4, 3, 8, 8, 4, 4, 8, 8, 8 |
| 74 | Sad | Di tengah | 0 | 0 | 6, 4, 4, 4, 8, 4, 4, 1, 8, 8 |
| 75 | Sad | Di akhir | 0 | 0 | 6, 4, 6, 8, 4, 8, 7, 6, 8, 2 |
| 76 | Sheen | Terisolasi | 3 | 0 | 6, 5, 2, 2, 6, 6, 6, 8, 2, 2 |
| 77 | Sheen | Di awal | 3 | 0 | 6, 6, 8, 2, 6, 8, 8, 2, 6, 8 |
| 78 | Sheen | Di tengah | 3 | 0 | 6, 6, 8, 2, 6, 7, 8, 2, 6, 8 |
| 79 | Sheen | Di akhir | 3 | 0 | 6, 4, 2, 2, 6, 6, 7, 8, 1, 2 |
| 80 | Sin | Terisolasi | 0 | 0 | 6, 5, 2, 2, 6, 6, 6, 8, 2, 2 |
| 81 | Sin | Di awal | 0 | 0 | 6, 6, 8, 2, 6, 8, 8, 2, 6, 8 |
| 82 | Sin | Di tengah | 0 | 0 | 6, 6, 8, 2, 6, 7, 8, 2, 6, 8 |
| 83 | Sin | Di akhir | 0 | 0 | 6, 4, 2, 2, 6, 6, 7, 8, 1, 2 |
| 84 | Tamarbuto | Terisolasi | 2 | 0 | 6, 5, 6, 8, 8, 6, 4, 3, 2, 8 |
| 85 | Tamarbuto | Di akhir | 2 | 0 | 6, 5, 6, 4, 8, 3, 4, 8, 2, 1 |
| 86 | Ta | Terisolasi | 2 | 0 | 6, 6, 5, 4, 4, 4, 4, 4, 2, 2 |
| 87 | Ta | Di awal | 2 | 0 | 6, 6, 6, 6, 6, 8, 8, 8, 8, 8 |
| 88 | Ta | Di tengah | 2 | 0 | 6, 6, 6, 6, 4, 8, 8, 8, 8, 8 |
| 89 | Ta | Di akhir | 2 | 0 | 6, 5, 4, 4, 4, 4, 2, 2, 6, 4 |
| 90 | Tho | Terisolasi | 0 | 0 | 6, 6, 4, 8, 8, 8, 7, 4, 2, 8 |
| 91 | Tho | Di awal | 0 | 0 | 6, 6, 4, 6, 8, 8, 4, 4, 1, 8 |
| 92 | Tho | Di tengah | 0 | 0 | 6, 6, 4, 6, 8, 8, 4, 4, 1, 8 |
| 93 | Tho | Di akhir | 0 | 0 | 6, 6, 4, 8, 8, 8, 7, 4, 2, 8 |
| 94 | Tsa | Terisolasi | 3 | 0 | 6, 6, 5, 4, 4, 4, 4, 4, 2, 2 |
| 95 | Tsa | Di awal | 3 | 0 | 6, 6, 6, 6, 6, 6, 8, 8, 8, 8 |
| 96 | Tsa | Di tengah | 3 | 0 | 6, 6, 6, 6, 6, 8, 8, 8, 8, 8 |
| 97 | Tsa | Di akhir | 3 | 0 | 6, 5, 4, 4, 4, 4, 2, 2, 6, 4 |
| 98 | Waw | Terisolasi | 0 | 0 | 4, 4, 3, 2, 1, 6, 4, 1, 4, 6 |
| 99 | Waw | Di akhir | 0 | 0 | 8, 1, 5, 6, 8, 4, 3, 8, 3, 6 |
| 100 | Ya | Terisolasi | 2 | 2 | 1, 7, 6, 4, 7, 8, 8, 1, 2, 2 |
| 101 | Ya | Di awal | 2 | 2 | 6, 6, 6, 6, 6, 8, 8, 8, 8, 8 |
| 102 | Ya | Di tengah | 2 | 2 | 6, 6, 6, 6, 6, 8, 8, 8, 8, 8 |
| 103 | Ya | Di akhir | 2 | 2 | 6, 5, 4, 4, 4, 2, 8, 4, 4, 4 |
| 104 | Za | Terisolasi | 1 | 0 | 6, 6, 6, 6, 7, 7, 7, 8, 8, 8 |
| 105 | Za | Di akhir | 1 | 0 | 6, 6, 6, 5, 7, 7, 7, 8, 8, 8 |