# GELENEKSEL YÖNTEMLER

**BASİC FALSE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Feature** | **Num Attributes** | **Classifier** | **Test F1-Score** |
| bow + tf-idf | 5270 | MNB | 0,605022925 |
| bow + tf-idf | 5270 | LR | 0,57116076 |
| bow + tf-idf | 5270 | SVM | 0,565058693 |
| bow + tf-idf | 5270 | DT | 0,545357412 |
| bow + tf-idf | 5270 | KNN | 0,572598006 |
| bow + tf-idf | 5270 | RF | 0,544114637 |
| bow-tf | 5270 | MNB | 0,5955735 |
| bow-tf | 5270 | LR | 0,562815395 |
| bow-tf | 5270 | SVM | 0,562488609 |
| bow-tf | 5270 | DT | 0,553624138 |
| bow-tf | 5270 | KNN | 0,415428442 |
| bow-tf | 5270 | RF | 0,557121779 |
| bow + binary | 5270 | MNB | 0,592034179 |
| bow + binary | 5270 | LR | 0,560150192 |
| bow + binary | 5270 | SVM | 0,562605163 |
| bow + binary | 5270 | DT | 0,563079485 |
| bow + binary | 5270 | KNN | 0,418635296 |
| bow + binary | 5270 | RF | 0,560794424 |
| 3-grams + binary | 12581 | MNB | 0,584086645 |
| 3-grams + binary | 12581 | LR | 0,571518099 |
| 3-grams + binary | 12581 | SVM | 0,55828292 |
| 3-grams + binary | 12581 | DT | 0,523195563 |
| 3-grams + binary | 12581 | KNN | 0,546119712 |
| 3-grams + binary | 12581 | RF | 0,557869346 |
| 3-grams + tf | 12581 | MNB | 0,584357691 |
| 3-grams + tf | 12581 | LR | 0,569681189 |
| 3-grams + tf | 12581 | SVM | 0,556536696 |
| 3-grams + tf | 12581 | DT | 0,513646342 |
| 3-grams + tf | 12581 | KNN | 0,637413113 |
| 3-grams + tf | 12581 | RF | 0,565611375 |
| 3-grams + tf-idf | 12581 | MNB | 0,584889549 |
| 3-grams + tf-idf | 12581 | LR | 0,586936141 |
| 3-grams + tf-idf | 12581 | SVM | 0,578441041 |
| 3-grams + tf-idf | 12581 | DT | 0,515001526 |
| 3-grams + tf-idf | 12581 | KNN | 0,574362583 |
| 3-grams + tf-idf | 12581 | RF | 0,566265791 |

**BASİC TRUE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Feature** | **Num Attributes** | **Classifier** | **Test F1-Score** |
| bow + tf-idf | 5971 | MNB | 0,622507752 |
| bow + tf-idf | 5971 | LR | 0,594265618 |
| bow + tf-idf | 5971 | SVM | 0,592705716 |
| bow + tf-idf | 5971 | DT | 0,526811303 |
| bow + tf-idf | 5971 | KNN | 0,576258579 |
| bow + tf-idf | 5971 | RF | 0,566507274 |
| bow-tf | 5971 | MNB | 0,615594311 |
| bow-tf | 5971 | LR | 0,581720831 |
| bow-tf | 5971 | SVM | 0,569228397 |
| bow-tf | 5971 | DT | 0,524420788 |
| bow-tf | 5971 | KNN | 0,466959056 |
| bow-tf | 5971 | RF | 0,561456401 |
| bow + binary | 5971 | MNB | 0,617043606 |
| bow + binary | 5971 | LR | 0,585722411 |
| bow + binary | 5971 | SVM | 0,568579077 |
| bow + binary | 5971 | DT | 0,528915521 |
| bow + binary | 5971 | KNN | 0,482279799 |
| bow + binary | 5971 | RF | 0,564443548 |
| 3-grams + binary | 6688 | MNB | 0,603879995 |
| 3-grams + binary | 6688 | LR | 0,56272703 |
| 3-grams + binary | 6688 | SVM | 0,545534111 |
| 3-grams + binary | 6688 | DT | 0,519727185 |
| 3-grams + binary | 6688 | KNN | 0,606970127 |
| 3-grams + binary | 6688 | RF | 0,55959532 |
| 3-grams + tf | 6688 | MNB | 0,598371332 |
| 3-grams + tf | 6688 | LR | 0,573636293 |
| 3-grams + tf | 6688 | SVM | 0,559401672 |
| 3-grams + tf | 6688 | DT | 0,527603198 |
| 3-grams + tf | 6688 | KNN | 0,618432872 |
| 3-grams + tf | 6688 | RF | 0,561651813 |
| 3-grams + tf-idf | 6688 | MNB | 0,607869271 |
| 3-grams + tf-idf | 6688 | LR | 0,588716599 |
| 3-grams + tf-idf | 6688 | SVM | 0,583305906 |
| 3-grams + tf-idf | 6688 | DT | 0,516954704 |
| 3-grams + tf-idf | 6688 | KNN | 0,574294869 |
| 3-grams + tf-idf | 6688 | RF | 0,565598556 |

**WORD EMBEDİNG** - **BASİC FALSE**

# MODEL: glove

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 |
| KNN | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 |
| LR | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 |
| MNB | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 |
| RF | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 |
| SVM | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 |
| Birch | DT | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 |
| KNN | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 |
| LR | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 |
| MNB | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 |
| RF | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 |
| SVM | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 |
| Hierarchical | DT | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 |
| KNN | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 |
| LR | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 |
| MNB | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 |
| RF | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 |
| SVM | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 |
| KMEANS | DT | 0.443 | 0.459 | 0.460 | 0.485 | 0.489 | 0.475 | 0.481 | 0.490 | 0.488 | 0.521 |
| KNN | 0.639 | 0.628 | 0.595 | 0.597 | 0.587 | 0.569 | 0.581 | 0.575 | 0.558 | 0.554 |
| LR | 0.522 | 0.500 | 0.495 | 0.488 | 0.520 | 0.493 | 0.517 | 0.508 | 0.526 | 0.560 |
| MNB | 0.517 | 0.502 | 0.503 | 0.492 | 0.525 | 0.492 | 0.521 | 0.508 | 0.530 | 0.564 |
| RF | 0.460 | 0.484 | 0.490 | 0.509 | 0.525 | 0.502 | 0.517 | 0.515 | 0.503 | 0.534 |
| SVM | 0.604 | 0.343 | 0.323 | 0.322 | 0.530 | 0.386 | 0.501 | 0.492 | 0.537 | 0.603 |
| MiniBatchKMeans | DT | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 | 0.449 |
| KNN | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 |
| LR | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 | 0.532 |
| MNB | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 | 0.267 |
| RF | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 |
| SVM | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 |

# MODEL: fasttext

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.418 | 0.435 | 0.442 | 0.463 | 0.472 | 0.469 | 0.477 | 0.461 | 0.488 | 0.518 |
| KNN | 0.659 | 0.612 | 0.613 | 0.570 | 0.573 | 0.559 | 0.592 | 0.566 | 0.537 | 0.539 |
| LR | 0.517 | 0.518 | 0.516 | 0.529 | 0.527 | 0.532 | 0.511 | 0.528 | 0.520 | 0.555 |
| MNB | 0.498 | 0.497 | 0.493 | 0.524 | 0.520 | 0.529 | 0.479 | 0.528 | 0.507 | 0.556 |
| RF | 0.431 | 0.470 | 0.475 | 0.499 | 0.517 | 0.500 | 0.506 | 0.503 | 0.509 | 0.534 |
| SVM | 0.476 | 0.509 | 0.506 | 0.559 | 0.545 | 0.542 | 0.497 | 0.542 | 0.523 | 0.570 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: wor2vec

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 |
| KNN | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 |
| LR | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 |
| MNB | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 |
| RF | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 |
| SVM | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 |
| Birch | DT | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 |
| KNN | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 |
| LR | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 |
| MNB | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 |
| RF | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 |
| SVM | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 |
| Hierarchical | DT | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 |
| KNN | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 |
| LR | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 |
| MNB | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 |
| RF | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 |
| SVM | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 |
| KMEANS | DT | 0.467 | 0.495 | 0.457 | 0.462 | 0.477 | 0.471 | 0.460 | 0.453 | 0.494 | 0.514 |
| KNN | 0.648 | 0.623 | 0.593 | 0.603 | 0.586 | 0.580 | 0.573 | 0.577 | 0.572 | 0.577 |
| LR | 0.503 | 0.519 | 0.498 | 0.497 | 0.501 | 0.509 | 0.500 | 0.494 | 0.513 | 0.551 |
| MNB | 0.506 | 0.526 | 0.500 | 0.500 | 0.502 | 0.506 | 0.495 | 0.492 | 0.514 | 0.548 |
| RF | 0.483 | 0.505 | 0.495 | 0.495 | 0.509 | 0.507 | 0.493 | 0.487 | 0.520 | 0.528 |
| SVM | 0.451 | 0.586 | 0.349 | 0.335 | 0.359 | 0.433 | 0.407 | 0.407 | 0.455 | 0.528 |
| MiniBatchKMeans | DT | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 |
| KNN | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 |
| LR | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 | 0.482 |
| MNB | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 | 0.400 |
| RF | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 | 0.461 |
| SVM | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 | 0.479 |

**WORD EMBEDİNG** - **BASİC TRUE**

# MODEL: glove

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 |
| KNN | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 |
| LR | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 |
| SVM | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 |
| Birch | DT | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 |
| KNN | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 |
| LR | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 |
| SVM | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 |
| Hierarchical | DT | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 |
| KNN | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 |
| LR | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 |
| SVM | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 |
| KMEANS | DT | 0.465 | 0.493 | 0.472 | 0.483 | 0.490 | 0.498 | 0.497 | 0.506 | 0.524 | 0.543 |
| KNN | 0.644 | 0.596 | 0.585 | 0.565 | 0.554 | 0.561 | 0.535 | 0.544 | 0.536 | 0.566 |
| LR | 0.518 | 0.527 | 0.506 | 0.504 | 0.525 | 0.535 | 0.515 | 0.549 | 0.550 | 0.591 |
| MNB | 0.514 | 0.520 | 0.510 | 0.501 | 0.517 | 0.539 | 0.504 | 0.550 | 0.561 | 0.592 |
| RF | 0.481 | 0.524 | 0.501 | 0.517 | 0.514 | 0.509 | 0.511 | 0.531 | 0.527 | 0.564 |
| SVM | 0.576 | 0.484 | 0.374 | 0.443 | 0.444 | 0.518 | 0.461 | 0.533 | 0.519 | 0.611 |
| MiniBatchKMeans | DT | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 | 0.432 |
| KNN | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 | 0.665 |
| LR | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 | 0.525 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 | 0.441 |
| SVM | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 | 0.513 |

# MODEL: fasttext

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.474 | 0.470 | 0.476 | 0.474 | 0.472 | 0.504 | 0.504 | 0.502 | 0.506 | 0.528 |
| KNN | 0.647 | 0.600 | 0.580 | 0.587 | 0.538 | 0.547 | 0.524 | 0.535 | 0.527 | 0.540 |
| LR | 0.516 | 0.542 | 0.539 | 0.539 | 0.538 | 0.534 | 0.536 | 0.532 | 0.549 | 0.569 |
| MNB | 0.499 | 0.530 | 0.527 | 0.523 | 0.527 | 0.526 | 0.533 | 0.530 | 0.537 | 0.560 |
| RF | 0.493 | 0.506 | 0.513 | 0.510 | 0.497 | 0.520 | 0.517 | 0.513 | 0.515 | 0.538 |
| SVM | 0.508 | 0.536 | 0.536 | 0.534 | 0.525 | 0.531 | 0.537 | 0.535 | 0.549 | 0.565 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: wor2vec

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 |
| KNN | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 |
| LR | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 |
| MNB | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 |
| RF | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 |
| SVM | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 |
| Birch | DT | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 |
| KNN | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 |
| LR | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 |
| MNB | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 |
| RF | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 |
| SVM | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 |
| Hierarchical | DT | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 |
| KNN | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 |
| LR | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 |
| MNB | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 |
| RF | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 |
| SVM | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 |
| KMEANS | DT | 0.513 | 0.459 | 0.472 | 0.457 | 0.482 | 0.512 | 0.512 | 0.509 | 0.511 | 0.533 |
| KNN | 0.628 | 0.597 | 0.594 | 0.559 | 0.565 | 0.545 | 0.531 | 0.545 | 0.546 | 0.554 |
| LR | 0.548 | 0.545 | 0.545 | 0.546 | 0.552 | 0.541 | 0.542 | 0.564 | 0.562 | 0.588 |
| MNB | 0.551 | 0.542 | 0.545 | 0.544 | 0.547 | 0.530 | 0.550 | 0.556 | 0.556 | 0.585 |
| RF | 0.525 | 0.505 | 0.523 | 0.508 | 0.520 | 0.534 | 0.520 | 0.524 | 0.525 | 0.567 |
| SVM | 0.527 | 0.559 | 0.509 | 0.519 | 0.521 | 0.495 | 0.507 | 0.537 | 0.541 | 0.584 |
| MiniBatchKMeans | DT | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 | 0.445 |
| KNN | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 | 0.664 |
| LR | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 | 0.483 |
| MNB | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 | 0.667 |
| RF | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 | 0.446 |
| SVM | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 | 0.414 |

**BERT MODELLER** - **BASİC FALSE**

# MODEL: bert

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.459 | 0.442 | 0.453 | 0.448 | 0.479 | 0.483 | 0.492 | 0.496 | 0.507 | 0.534 |
| KNN | 0.657 | 0.645 | 0.588 | 0.565 | 0.561 | 0.541 | 0.543 | 0.553 | 0.551 | 0.549 |
| LR | 0.506 | 0.477 | 0.475 | 0.545 | 0.525 | 0.541 | 0.546 | 0.560 | 0.555 | 0.560 |
| MNB | 0.455 | 0.428 | 0.433 | 0.544 | 0.516 | 0.525 | 0.531 | 0.546 | 0.548 | 0.550 |
| RF | 0.480 | 0.454 | 0.482 | 0.501 | 0.523 | 0.507 | 0.521 | 0.522 | 0.513 | 0.552 |
| SVM | 0.519 | 0.386 | 0.386 | 0.528 | 0.499 | 0.504 | 0.568 | 0.567 | 0.555 | 0.560 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: MarianMT

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.478 | 0.449 | 0.442 | 0.483 | 0.495 | 0.498 | 0.518 | 0.515 | 0.516 | 0.520 |
| KNN | 0.656 | 0.599 | 0.586 | 0.578 | 0.567 | 0.546 | 0.550 | 0.542 | 0.538 | 0.554 |
| LR | 0.516 | 0.512 | 0.490 | 0.486 | 0.538 | 0.535 | 0.542 | 0.535 | 0.543 | 0.563 |
| MNB | 0.483 | 0.488 | 0.464 | 0.463 | 0.536 | 0.529 | 0.533 | 0.538 | 0.539 | 0.556 |
| RF | 0.491 | 0.469 | 0.481 | 0.521 | 0.539 | 0.513 | 0.527 | 0.524 | 0.514 | 0.533 |
| SVM | 0.546 | 0.488 | 0.397 | 0.403 | 0.553 | 0.526 | 0.542 | 0.545 | 0.561 | 0.585 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: t5

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.434 | 0.471 | 0.446 | 0.461 | 0.480 | 0.490 | 0.495 | 0.509 | 0.489 | 0.521 |
| KNN | 0.645 | 0.601 | 0.582 | 0.559 | 0.563 | 0.558 | 0.537 | 0.538 | 0.526 | 0.533 |
| LR | 0.509 | 0.533 | 0.523 | 0.523 | 0.519 | 0.506 | 0.524 | 0.524 | 0.523 | 0.565 |
| MNB | 0.502 | 0.521 | 0.525 | 0.517 | 0.527 | 0.502 | 0.516 | 0.517 | 0.512 | 0.557 |
| RF | 0.447 | 0.498 | 0.489 | 0.510 | 0.503 | 0.523 | 0.511 | 0.510 | 0.495 | 0.536 |
| SVM | 0.524 | 0.564 | 0.560 | 0.553 | 0.522 | 0.438 | 0.510 | 0.526 | 0.518 | 0.580 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: CamemBERT

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.481 | 0.477 | 0.487 | 0.441 | 0.465 | 0.480 | 0.473 | 0.493 | 0.497 | 0.521 |
| KNN | 0.650 | 0.607 | 0.602 | 0.572 | 0.557 | 0.534 | 0.547 | 0.528 | 0.518 | 0.532 |
| LR | 0.540 | 0.525 | 0.516 | 0.538 | 0.522 | 0.515 | 0.513 | 0.519 | 0.531 | 0.551 |
| MNB | 0.525 | 0.510 | 0.517 | 0.536 | 0.524 | 0.503 | 0.505 | 0.515 | 0.525 | 0.544 |
| RF | 0.487 | 0.501 | 0.516 | 0.495 | 0.501 | 0.505 | 0.499 | 0.493 | 0.491 | 0.520 |
| SVM | 0.580 | 0.566 | 0.457 | 0.573 | 0.536 | 0.444 | 0.444 | 0.471 | 0.520 | 0.574 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: ctrl

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.451 | 0.448 | 0.447 | 0.454 | 0.462 | 0.484 | 0.493 | 0.513 | 0.492 | 0.530 |
| KNN | 0.657 | 0.638 | 0.594 | 0.590 | 0.574 | 0.577 | 0.535 | 0.537 | 0.537 | 0.547 |
| LR | 0.499 | 0.484 | 0.503 | 0.494 | 0.500 | 0.547 | 0.539 | 0.534 | 0.537 | 0.553 |
| MNB | 0.455 | 0.343 | 0.453 | 0.455 | 0.480 | 0.525 | 0.519 | 0.517 | 0.533 | 0.546 |
| RF | 0.437 | 0.467 | 0.484 | 0.492 | 0.502 | 0.536 | 0.517 | 0.523 | 0.516 | 0.527 |
| SVM | 0.514 | 0.429 | 0.501 | 0.398 | 0.429 | 0.542 | 0.520 | 0.515 | 0.530 | 0.556 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: reformer

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.485 | 0.470 | 0.471 | 0.478 | 0.479 | 0.480 | 0.467 | 0.494 | 0.510 | 0.511 |
| KNN | 0.643 | 0.626 | 0.599 | 0.578 | 0.581 | 0.559 | 0.553 | 0.546 | 0.552 | 0.536 |
| LR | 0.521 | 0.521 | 0.506 | 0.499 | 0.512 | 0.496 | 0.517 | 0.512 | 0.513 | 0.531 |
| MNB | 0.482 | 0.485 | 0.472 | 0.473 | 0.499 | 0.479 | 0.504 | 0.490 | 0.486 | 0.533 |
| RF | 0.501 | 0.481 | 0.493 | 0.511 | 0.506 | 0.501 | 0.494 | 0.506 | 0.510 | 0.504 |
| SVM | 0.540 | 0.549 | 0.530 | 0.527 | 0.548 | 0.446 | 0.551 | 0.546 | 0.543 | 0.553 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: xlnet

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.474 | 0.468 | 0.448 | 0.442 | 0.475 | 0.477 | 0.501 | 0.501 | 0.495 | 0.519 |
| KNN | 0.639 | 0.592 | 0.571 | 0.545 | 0.540 | 0.537 | 0.545 | 0.523 | 0.546 | 0.542 |
| LR | 0.515 | 0.515 | 0.520 | 0.512 | 0.522 | 0.525 | 0.534 | 0.531 | 0.521 | 0.544 |
| MNB | 0.505 | 0.499 | 0.493 | 0.501 | 0.509 | 0.511 | 0.518 | 0.522 | 0.513 | 0.543 |
| RF | 0.494 | 0.489 | 0.495 | 0.479 | 0.491 | 0.497 | 0.510 | 0.496 | 0.511 | 0.527 |
| SVM | 0.541 | 0.537 | 0.549 | 0.529 | 0.536 | 0.533 | 0.550 | 0.548 | 0.533 | 0.560 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: albert

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.428 | 0.499 | 0.465 | 0.472 | 0.483 | 0.484 | 0.502 | 0.519 | 0.518 | 0.533 |
| KNN | 0.648 | 0.609 | 0.589 | 0.566 | 0.569 | 0.560 | 0.548 | 0.555 | 0.548 | 0.557 |
| LR | 0.515 | 0.530 | 0.524 | 0.560 | 0.558 | 0.527 | 0.527 | 0.526 | 0.519 | 0.570 |
| MNB | 0.507 | 0.511 | 0.505 | 0.554 | 0.557 | 0.517 | 0.514 | 0.523 | 0.513 | 0.570 |
| RF | 0.466 | 0.516 | 0.501 | 0.511 | 0.515 | 0.532 | 0.509 | 0.514 | 0.529 | 0.545 |
| SVM | 0.545 | 0.544 | 0.538 | 0.586 | 0.575 | 0.506 | 0.490 | 0.520 | 0.498 | 0.568 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: ernie

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.460 | 0.459 | 0.479 | 0.467 | 0.475 | 0.499 | 0.505 | 0.526 | 0.526 | 0.534 |
| KNN | 0.632 | 0.596 | 0.583 | 0.571 | 0.560 | 0.556 | 0.544 | 0.536 | 0.541 | 0.563 |
| LR | 0.510 | 0.518 | 0.558 | 0.559 | 0.559 | 0.557 | 0.556 | 0.556 | 0.556 | 0.564 |
| MNB | 0.496 | 0.484 | 0.555 | 0.558 | 0.560 | 0.558 | 0.556 | 0.553 | 0.555 | 0.563 |
| RF | 0.476 | 0.487 | 0.513 | 0.512 | 0.500 | 0.528 | 0.520 | 0.527 | 0.533 | 0.547 |
| SVM | 0.532 | 0.532 | 0.615 | 0.597 | 0.578 | 0.576 | 0.571 | 0.559 | 0.558 | 0.574 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: flaubert

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.480 | 0.490 | 0.473 | 0.486 | 0.497 | 0.489 | 0.503 | 0.497 | 0.496 | 0.517 |
| KNN | 0.645 | 0.604 | 0.576 | 0.552 | 0.544 | 0.525 | 0.538 | 0.516 | 0.521 | 0.535 |
| LR | 0.516 | 0.523 | 0.517 | 0.520 | 0.510 | 0.503 | 0.518 | 0.516 | 0.514 | 0.520 |
| MNB | 0.497 | 0.504 | 0.511 | 0.516 | 0.493 | 0.487 | 0.507 | 0.524 | 0.518 | 0.523 |
| RF | 0.493 | 0.529 | 0.524 | 0.507 | 0.509 | 0.488 | 0.499 | 0.499 | 0.501 | 0.506 |
| SVM | 0.541 | 0.534 | 0.524 | 0.559 | 0.536 | 0.514 | 0.543 | 0.559 | 0.554 | 0.551 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: electra

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.479 | 0.481 | 0.460 | 0.461 | 0.472 | 0.496 | 0.494 | 0.510 | 0.506 | 0.519 |
| KNN | 0.648 | 0.599 | 0.576 | 0.564 | 0.551 | 0.536 | 0.533 | 0.541 | 0.524 | 0.538 |
| LR | 0.500 | 0.519 | 0.524 | 0.531 | 0.522 | 0.515 | 0.520 | 0.525 | 0.519 | 0.553 |
| MNB | 0.480 | 0.501 | 0.512 | 0.521 | 0.516 | 0.505 | 0.503 | 0.507 | 0.511 | 0.542 |
| RF | 0.494 | 0.505 | 0.499 | 0.495 | 0.503 | 0.501 | 0.507 | 0.519 | 0.509 | 0.530 |
| SVM | 0.534 | 0.544 | 0.565 | 0.569 | 0.541 | 0.535 | 0.539 | 0.544 | 0.545 | 0.569 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

# MODEL: roberta

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Birch | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| Hierarchical | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |
| KMEANS | DT | 0.493 | 0.489 | 0.492 | 0.456 | 0.479 | 0.480 | 0.468 | 0.482 | 0.490 | 0.521 |
| KNN | 0.652 | 0.639 | 0.622 | 0.582 | 0.552 | 0.561 | 0.555 | 0.538 | 0.543 | 0.553 |
| LR | 0.503 | 0.499 | 0.530 | 0.518 | 0.511 | 0.528 | 0.507 | 0.521 | 0.517 | 0.549 |
| MNB | 0.461 | 0.511 | 0.535 | 0.527 | 0.529 | 0.503 | 0.514 | 0.499 | 0.498 | 0.534 |
| RF | 0.505 | 0.498 | 0.507 | 0.496 | 0.502 | 0.500 | 0.491 | 0.499 | 0.495 | 0.539 |
| SVM | 0.543 | 0.389 | 0.470 | 0.404 | 0.387 | 0.489 | 0.449 | 0.446 | 0.463 | 0.526 |
| MiniBatchKMeans | DT | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 | 0.453 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 | 0.495 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 |
| SVM | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 | 0.551 |

**BERT MODELLER** - **BASİC TRUE**

# MODEL: bert

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.461 | 0.460 | 0.470 | 0.464 | 0.506 | 0.486 | 0.501 | 0.498 | 0.520 | 0.520 |
| KNN | 0.650 | 0.611 | 0.595 | 0.582 | 0.552 | 0.548 | 0.554 | 0.542 | 0.559 | 0.553 |
| LR | 0.516 | 0.545 | 0.538 | 0.537 | 0.552 | 0.552 | 0.549 | 0.558 | 0.562 | 0.576 |
| MNB | 0.524 | 0.537 | 0.529 | 0.534 | 0.552 | 0.554 | 0.551 | 0.556 | 0.553 | 0.572 |
| RF | 0.473 | 0.487 | 0.503 | 0.516 | 0.524 | 0.500 | 0.514 | 0.495 | 0.516 | 0.536 |
| SVM | 0.564 | 0.616 | 0.574 | 0.569 | 0.566 | 0.565 | 0.560 | 0.564 | 0.572 | 0.577 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: MarianMT

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.518 | 0.484 | 0.459 | 0.472 | 0.470 | 0.494 | 0.519 | 0.514 | 0.489 | 0.521 |
| KNN | 0.643 | 0.590 | 0.575 | 0.559 | 0.548 | 0.534 | 0.541 | 0.555 | 0.553 | 0.550 |
| LR | 0.544 | 0.540 | 0.540 | 0.551 | 0.550 | 0.546 | 0.552 | 0.550 | 0.555 | 0.554 |
| MNB | 0.555 | 0.537 | 0.534 | 0.545 | 0.545 | 0.550 | 0.554 | 0.554 | 0.553 | 0.550 |
| RF | 0.526 | 0.505 | 0.509 | 0.504 | 0.496 | 0.499 | 0.504 | 0.512 | 0.503 | 0.523 |
| SVM | 0.603 | 0.601 | 0.590 | 0.585 | 0.583 | 0.585 | 0.601 | 0.597 | 0.596 | 0.608 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: t5

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.493 | 0.485 | 0.455 | 0.475 | 0.482 | 0.478 | 0.511 | 0.506 | 0.502 | 0.523 |
| KNN | 0.623 | 0.595 | 0.550 | 0.538 | 0.526 | 0.524 | 0.538 | 0.528 | 0.516 | 0.544 |
| LR | 0.522 | 0.534 | 0.526 | 0.514 | 0.509 | 0.513 | 0.503 | 0.516 | 0.533 | 0.552 |
| MNB | 0.520 | 0.532 | 0.520 | 0.511 | 0.495 | 0.518 | 0.502 | 0.502 | 0.531 | 0.555 |
| RF | 0.504 | 0.519 | 0.501 | 0.492 | 0.479 | 0.503 | 0.509 | 0.495 | 0.523 | 0.529 |
| SVM | 0.513 | 0.550 | 0.494 | 0.496 | 0.442 | 0.502 | 0.474 | 0.502 | 0.538 | 0.556 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: CamemBERT

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.465 | 0.471 | 0.460 | 0.497 | 0.499 | 0.518 | 0.498 | 0.493 | 0.487 | 0.520 |
| KNN | 0.626 | 0.590 | 0.553 | 0.539 | 0.530 | 0.526 | 0.528 | 0.522 | 0.518 | 0.529 |
| LR | 0.517 | 0.514 | 0.518 | 0.522 | 0.527 | 0.527 | 0.525 | 0.526 | 0.525 | 0.538 |
| MNB | 0.517 | 0.497 | 0.518 | 0.522 | 0.529 | 0.526 | 0.523 | 0.524 | 0.523 | 0.542 |
| RF | 0.485 | 0.494 | 0.508 | 0.500 | 0.500 | 0.506 | 0.497 | 0.487 | 0.487 | 0.507 |
| SVM | 0.551 | 0.528 | 0.538 | 0.549 | 0.539 | 0.545 | 0.547 | 0.560 | 0.555 | 0.571 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: ctrl

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.467 | 0.472 | 0.468 | 0.472 | 0.471 | 0.503 | 0.514 | 0.504 | 0.495 | 0.525 |
| KNN | 0.624 | 0.622 | 0.585 | 0.578 | 0.556 | 0.557 | 0.544 | 0.560 | 0.536 | 0.546 |
| LR | 0.517 | 0.539 | 0.522 | 0.512 | 0.551 | 0.551 | 0.568 | 0.560 | 0.563 | 0.572 |
| MNB | 0.483 | 0.555 | 0.521 | 0.507 | 0.552 | 0.547 | 0.564 | 0.562 | 0.565 | 0.569 |
| RF | 0.482 | 0.486 | 0.503 | 0.503 | 0.517 | 0.526 | 0.525 | 0.508 | 0.499 | 0.542 |
| SVM | 0.524 | 0.552 | 0.526 | 0.523 | 0.579 | 0.561 | 0.591 | 0.579 | 0.590 | 0.596 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: reformer

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.485 | 0.454 | 0.454 | 0.470 | 0.491 | 0.498 | 0.508 | 0.500 | 0.513 | 0.515 |
| KNN | 0.634 | 0.597 | 0.578 | 0.555 | 0.561 | 0.549 | 0.563 | 0.538 | 0.537 | 0.548 |
| LR | 0.522 | 0.523 | 0.524 | 0.546 | 0.548 | 0.535 | 0.531 | 0.532 | 0.531 | 0.550 |
| MNB | 0.524 | 0.509 | 0.520 | 0.550 | 0.545 | 0.533 | 0.525 | 0.525 | 0.519 | 0.543 |
| RF | 0.506 | 0.481 | 0.490 | 0.501 | 0.518 | 0.508 | 0.506 | 0.510 | 0.505 | 0.530 |
| SVM | 0.533 | 0.543 | 0.542 | 0.568 | 0.559 | 0.555 | 0.563 | 0.563 | 0.555 | 0.563 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: xlnet

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.485 | 0.462 | 0.496 | 0.487 | 0.482 | 0.505 | 0.510 | 0.498 | 0.508 | 0.533 |
| KNN | 0.630 | 0.584 | 0.583 | 0.539 | 0.532 | 0.538 | 0.524 | 0.543 | 0.516 | 0.540 |
| LR | 0.506 | 0.506 | 0.539 | 0.550 | 0.550 | 0.549 | 0.548 | 0.551 | 0.546 | 0.563 |
| MNB | 0.504 | 0.493 | 0.535 | 0.543 | 0.549 | 0.540 | 0.537 | 0.538 | 0.544 | 0.563 |
| RF | 0.500 | 0.491 | 0.538 | 0.512 | 0.505 | 0.516 | 0.516 | 0.513 | 0.524 | 0.537 |
| SVM | 0.476 | 0.503 | 0.552 | 0.568 | 0.580 | 0.553 | 0.563 | 0.558 | 0.571 | 0.570 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: albert

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.495 | 0.484 | 0.482 | 0.482 | 0.504 | 0.513 | 0.510 | 0.502 | 0.514 | 0.530 |
| KNN | 0.645 | 0.603 | 0.588 | 0.574 | 0.556 | 0.562 | 0.564 | 0.538 | 0.547 | 0.553 |
| LR | 0.522 | 0.579 | 0.571 | 0.576 | 0.579 | 0.576 | 0.576 | 0.582 | 0.579 | 0.581 |
| MNB | 0.533 | 0.575 | 0.571 | 0.572 | 0.569 | 0.577 | 0.570 | 0.573 | 0.574 | 0.579 |
| RF | 0.502 | 0.515 | 0.522 | 0.534 | 0.537 | 0.532 | 0.528 | 0.524 | 0.527 | 0.552 |
| SVM | 0.561 | 0.599 | 0.589 | 0.585 | 0.577 | 0.578 | 0.578 | 0.579 | 0.580 | 0.589 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: ernie

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.449 | 0.497 | 0.484 | 0.480 | 0.496 | 0.495 | 0.511 | 0.505 | 0.505 | 0.525 |
| KNN | 0.638 | 0.599 | 0.575 | 0.557 | 0.531 | 0.539 | 0.544 | 0.519 | 0.528 | 0.536 |
| LR | 0.516 | 0.559 | 0.554 | 0.554 | 0.554 | 0.562 | 0.564 | 0.555 | 0.553 | 0.577 |
| MNB | 0.523 | 0.558 | 0.546 | 0.547 | 0.552 | 0.550 | 0.555 | 0.551 | 0.547 | 0.571 |
| RF | 0.460 | 0.517 | 0.517 | 0.508 | 0.510 | 0.511 | 0.525 | 0.513 | 0.510 | 0.536 |
| SVM | 0.579 | 0.577 | 0.570 | 0.569 | 0.578 | 0.574 | 0.588 | 0.578 | 0.570 | 0.591 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: flaubert

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.457 | 0.480 | 0.467 | 0.492 | 0.494 | 0.504 | 0.517 | 0.497 | 0.509 | 0.520 |
| KNN | 0.624 | 0.578 | 0.547 | 0.536 | 0.528 | 0.526 | 0.548 | 0.534 | 0.523 | 0.536 |
| LR | 0.518 | 0.517 | 0.535 | 0.523 | 0.520 | 0.544 | 0.528 | 0.532 | 0.536 | 0.548 |
| MNB | 0.513 | 0.509 | 0.525 | 0.527 | 0.518 | 0.536 | 0.524 | 0.525 | 0.528 | 0.546 |
| RF | 0.480 | 0.509 | 0.507 | 0.510 | 0.495 | 0.506 | 0.512 | 0.515 | 0.514 | 0.523 |
| SVM | 0.546 | 0.538 | 0.544 | 0.545 | 0.550 | 0.558 | 0.554 | 0.557 | 0.541 | 0.579 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: electra

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.466 | 0.476 | 0.462 | 0.474 | 0.492 | 0.510 | 0.497 | 0.508 | 0.507 | 0.517 |
| KNN | 0.635 | 0.598 | 0.551 | 0.555 | 0.527 | 0.522 | 0.517 | 0.531 | 0.521 | 0.529 |
| LR | 0.512 | 0.518 | 0.507 | 0.508 | 0.507 | 0.539 | 0.543 | 0.541 | 0.531 | 0.548 |
| MNB | 0.522 | 0.512 | 0.509 | 0.504 | 0.502 | 0.532 | 0.542 | 0.539 | 0.536 | 0.549 |
| RF | 0.483 | 0.506 | 0.508 | 0.510 | 0.498 | 0.486 | 0.497 | 0.503 | 0.508 | 0.525 |
| SVM | 0.567 | 0.542 | 0.531 | 0.534 | 0.543 | 0.594 | 0.591 | 0.581 | 0.560 | 0.575 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |

# MODEL: roberta

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kümeleme Alg. | Classifier | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | En İyi [11-30] |
| Agglomerative | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Birch | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| Hierarchical | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |
| KMEANS | DT | 0.473 | 0.469 | 0.481 | 0.469 | 0.475 | 0.483 | 0.476 | 0.489 | 0.507 | 0.526 |
| KNN | 0.646 | 0.607 | 0.582 | 0.570 | 0.580 | 0.562 | 0.566 | 0.564 | 0.566 | 0.569 |
| LR | 0.521 | 0.529 | 0.527 | 0.524 | 0.527 | 0.532 | 0.550 | 0.544 | 0.551 | 0.556 |
| MNB | 0.527 | 0.530 | 0.524 | 0.531 | 0.528 | 0.526 | 0.533 | 0.548 | 0.546 | 0.555 |
| RF | 0.488 | 0.491 | 0.512 | 0.496 | 0.522 | 0.521 | 0.512 | 0.511 | 0.523 | 0.524 |
| SVM | 0.601 | 0.562 | 0.557 | 0.556 | 0.548 | 0.569 | 0.581 | 0.581 | 0.582 | 0.595 |
| MiniBatchKMeans | DT | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 | 0.425 |
| KNN | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 | 0.666 |
| LR | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 | 0.531 |
| MNB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RF | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 |
| SVM | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 | 0.491 |