**Original data (No feature selection):**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Kmean | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 7849 | 611 | 2597 | 74 | 1352 |
| B.1.351 | | 534 | 153 | 573 | 29 | 264 |
| B.1.427 | | 7083 | 586 | 2858 | 169 | 852 |
| B.1.617.2 | | 2358 | 778 | 1209 | 29 | 2426 |
| P.1 | | 19947 | 666 | 2729 | 43 | 623 |
| Clustering Time in seconds => 66.43101382255554 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| KMode | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 9215 | 162 | 7 | 1316 | 1875 |
| B.1.351 | | 5 | 575 | 6 | 957 | 25 |
| B.1.427 | | 1 | 7800 | 0 | 186 | 3509 |
| B.1.617.2 | | 0 | 2677 | 0 | 449 | 3676 |
| P.1 | | 6 | 6 | 22768 | 1094 | 77 |
| Clustering Time in seconds => 17580.254826545715 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fuzzy | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 74 | 2684 | 594 | 7872 | 1363 |
| B.1.351 | | 28 | 544 | 151 | 541 | 268 |
| B.1.427 | | 168 | 2895 | 575 | 7101 | 825 |
| B.1.617.2 | | 25 | 1217 | 752 | 2337 | 2442 |
| P.1 | | 43 | 2712 | 666 | 19905 | 610 |
| Clustering Time in seconds => 2358.8431310653687 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Hierarchy | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 1757 | 3249 | 490 | 7035 | 32 |
| B.1.351 | | 464 | 463 | 143 | 483 | 10 |
| B.1.427 | | 1125 | 3597 | 508 | 6098 | 156 |
| B.1.617.2 | | 3100 | 1246 | 340 | 2066 | 9 |
| P.1 | | 867 | 3297 | 604 | 19232 | 21 |
| Clustering Time in seconds => 9934.573358297348 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| HDBSCAN | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | |  |  |  |  |  |
| B.1.351 | |  |  |  |  |  |
| B.1.427 | |  |  |  |  |  |
| B.1.617.2 | |  |  |  |  |  |
| P.1 | |  |  |  |  |  |
| Clustering Time in seconds => | | | | | | |

**Random Fourier Transform:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Kmean | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 0 | 0 | 10718 | 1228 | 695 |
| B.1.351 | | 0 | 0 | 1533 | 0 | 0 |
| B.1.427 | | 0 | 2197 | 8456 | 0 | 849 |
| B.1.617.2 | | 0 | 0 | 6212 | 572 | 0 |
| P.1 | | 11772 | 0 | 10788 | 487 | 885 |
| Clustering Time in seconds => 8.651967525482178 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| KMode | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 11338 | 0 | 0 | 1206 | 0 |
| B.1.351 | | 1555 | 0 | 0 | 0 | 0 |
| B.1.427 | | 9302 | 0 | 2191 | 0 | 0 |
| B.1.617.2 | | 6841 | 0 | 0 | 0 | 0 |
| P.1 | | 23064 | 9 | 0 | 0 | 886 |
| Clustering Time in seconds => 794.5634217262268 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fuzzy | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 0 | 0 | 12571 | 0 | 0 |
| B.1.351 | | 0 | 0 | 1566 | 0 | 0 |
| B.1.427 | | 0 | 0 | 11450 | 0 | 0 |
| B.1.617.2 | | 0 | 0 | 6800 | 0 | 0 |
| P.1 | | 0 | 0 | 12171 | 0 | 11834 |
| Clustering Time in seconds => 460.82256054878235 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Hierarchy | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 11345 | 0 | 0 | 1228 | 0 |
| B.1.351 | | 1554 | 0 | 0 | 0 | 0 |
| B.1.427 | | 9282 | 0 | 2192 | 0 | 0 |
| B.1.617.2 | | 6771 | 0 | 0 | 0 | 0 |
| P.1 | | 11324 | 11801 | 0 | 0 | 895 |
| Clustering Time in seconds => 1236.3443443775177 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| HDBSCAN | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | |  |  |  |  |  |
| B.1.351 | |  |  |  |  |  |
| B.1.427 | |  |  |  |  |  |
| B.1.617.2 | |  |  |  |  |  |
| P.1 | |  |  |  |  |  |
| Clustering Time in seconds => 1616.248199224472 | | | | | | |

**Lasso:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Kmean | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 7877 | 1345 | 608 | 2644 | 73 |
| B.1.351 | | 541 | 256 | 155 | 552 | 28 |
| B.1.427 | | 7089 | 849 | 583 | 2877 | 163 |
| B.1.617.2 | | 2314 | 2444 | 775 | 1203 | 28 |
| P.1 | | 19929 | 612 | 660 | 2739 | 48 |
| Clustering Time in seconds => 9.56950831413269 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| KMode | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 5 | 202 | 12242 | 49 | 28 |
| B.1.351 | | 0 | 89 | 3 | 8 | 1469 |
| B.1.427 | | 0 | 10982 | 1 | 523 | 4 |
| B.1.617.2 | | 0 | 432 | 0 | 6332 | 8 |
| P.1 | | 23989 | 6 | 7 | 4 | 9 |
| Clustering Time in seconds => 784.2091240882874 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fuzzy | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 7884 | 2624 | 1355 | 602 | 76 |
| B.1.351 | | 554 | 555 | 263 | 149 | 29 |
| B.1.427 | | 7048 | 2869 | 869 | 558 | 164 |
| B.1.617.2 | | 2369 | 1222 | 2459 | 753 | 28 |
| P.1 | | 19928 | 2737 | 595 | 659 | 43 |
| Clustering Time in seconds => 94.36776328086853 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Hierarchy | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 2064 | 2958 | 522 | 7023 | 51 |
| B.1.351 | | 522 | 373 | 128 | 495 | 21 |
| B.1.427 | | 1208 | 3573 | 516 | 6063 | 164 |
| B.1.617.2 | | 3356 | 981 | 351 | 2100 | 17 |
| P.1 | | 1004 | 3092 | 604 | 19167 | 39 |
| Clustering Time in seconds => 1174.9317457675934 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| HDBSCAN | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | |  |  |  |  |  |
| B.1.351 | |  |  |  |  |  |
| B.1.427 | |  |  |  |  |  |
| B.1.617.2 | |  |  |  |  |  |
| P.1 | |  |  |  |  |  |
| Clustering Time in seconds => 1435.3073394298553 | | | | | | |

**Boruta Transform:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Kmean | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 0 | 0 | 10718 | 1228 | 695 |
| B.1.351 | | 0 | 0 | 1533 | 0 | 0 |
| B.1.427 | | 0 | 2197 | 8456 | 0 | 849 |
| B.1.617.2 | | 0 | 0 | 6212 | 572 | 0 |
| P.1 | | 11772 | 0 | 10788 | 487 | 885 |
| Clustering Time in seconds => 15.773199558258057 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| kMode | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 6 | 172 | 492 | 1640 | 10242 |
| B.1.351 | | 6 | 577 | 14 | 939 | 6 |
| B.1.427 | | 0 | 10040 | 601 | 853 | 1 |
| B.1.617.2 | | 0 | 2628 | 3582 | 617 | 0 |
| P.1 | | 22885 | 5 | 56 | 1024 | 6 |
| Clustering Time in seconds => 2965.0350489616394 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fuzzy | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 7875 | 1366 | 590 | 2646 | 71 |
| B.1.351 | | 528 | 270 | 153 | 575 | 27 |
| B.1.427 | | 7048 | 832 | 589 | 2856 | 170 |
| B.1.617.2 | | 2352 | 2459 | 753 | 1210 | 27 |
| P.1 | | 19953 | 607 | 659 | 2731 | 45 |
| Clustering Time in seconds => 230.17193269729614 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Hierarchy | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | | 8372 | 582 | 2494 | 1097 | 57 |
| B.1.351 | | 735 | 146 | 409 | 224 | 21 |
| B.1.427 | | 7453 | 569 | 2786 | 544 | 161 |
| B.1.617.2 | | 2547 | 772 | 1336 | 2112 | 21 |
| P.1 | | 20716 | 663 | 2024 | 509 | 42 |
| Clustering Time in seconds => 1908.7511222362518 | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| HDBSCAN | Class ids | 1 | 2 | 3 | 4 | 5 |
| Variants |
| B.1.1.7 | |  |  |  |  |  |
| B.1.351 | |  |  |  |  |  |
| B.1.427 | |  |  |  |  |  |
| B.1.617.2 | |  |  |  |  |  |
| P.1 | |  |  |  |  |  |
| Clustering Time in seconds => | | | | | | |