Challenge-4

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Questions

Load the "CommQuest2023.csv" dataset using the `read_csv()` command and assign it to a variable named "comm_data."

```r
# Enter code here
install.packages("tidyverse")

library(tidyverse)
```

```
## -- Attaching core tidyverse packages ----------------------- tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.4.4     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.0
## v purrr     1.0.2
## -- Conflicts ------------------------------------------- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```r
read.csv("CommQuest2023_Larger.csv")
```

```
##            date channel        sender        message     sentiment
## 1    2023-08-11 Twitter  dave@example    Fun weekend!  0.824099663
## 2    2023-08-11   Email   @bob_tweets Hello everyone!  0.662486946
## 3    2023-08-11   Slack   @frank_chat Hello everyone! -0.143450806
## 4    2023-08-18   Email   @frank_chat    Fun weekend!  0.380196611
## 5    2023-08-14   Slack   @frank_chat Need assistance  0.187954018
## 6    2023-08-04   Email  @erin_tweets Need assistance -0.108376242
## 7    2023-08-10 Twitter   @frank_chat Hello everyone! -0.740855453
## 8    2023-08-04   Slack alice@example Hello everyone! -0.187917918
## 9    2023-08-20   Email  dave@example    Team meeting  0.617879979
## 10   2023-08-09   Slack  @erin_tweets Hello everyone! -0.932525445
## 11   2023-08-06   Email   @frank_chat    Team meeting  0.819675826
## 12   2023-08-16 Twitter  @erin_tweets     Great work!  0.150156671
## 13   2023-08-01 Twitter alice@example Need assistance  0.676776995
## 14   2023-08-16   Slack alice@example  Exciting news!  0.320830711
## 15   2023-08-16 Twitter alice@example  Exciting news!  0.927110374
## 16   2023-08-07   Email   @bob_tweets     Great work!  0.642848774
```

```
## 17    2023-08-01 Twitter    @bob_tweets Need assistance  0.148395223
## 18    2023-08-20    Email    carol_slack    Team meeting  0.909817838
## 19    2023-08-08    Slack   @erin_tweets Need assistance -0.879413284
## 20    2023-08-06    Slack   dave@example Hello everyone!  0.968081689
## 21    2023-08-11 Twitter    @bob_tweets     Great work! -0.751736611
## 22    2023-08-12 Twitter   dave@example    Team meeting -0.786887704
## 23    2023-08-12    Slack   @frank_chat    Fun weekend!  0.519153008
## 24    2023-08-11    Email   @frank_chat    Fun weekend!  0.874191639
## 25    2023-08-04    Email   @bob_tweets    Fun weekend! -0.539049788
## 26    2023-08-13    Email alice@example Hello everyone!  0.433930994
## 27    2023-08-16 Twitter   @bob_tweets   Exciting news! -0.141741692
## 28    2023-08-09 Twitter alice@example Need assistance  0.083300223
## 29    2023-08-14 Twitter   dave@example     Great work!  0.866824818
## 30    2023-08-17 Twitter alice@example    Team meeting -0.189370414
## 31    2023-08-17 Twitter    @bob_tweets Need assistance -0.493062959
## 32    2023-08-15    Email   @bob_tweets     Great work!  0.468266435
## 33    2023-08-01 Twitter   @frank_chat Need assistance  0.599045397
## 34    2023-08-16 Twitter alice@example     Great work! -0.179680133
## 35    2023-08-10 Twitter  @erin_tweets     Great work!  0.199771451
## 36    2023-08-07    Email  dave@example    Team meeting  0.327507946
## 37    2023-08-02    Email  dave@example     Great work!  0.973676749
## 38    2023-08-13    Email   @bob_tweets    Team meeting -0.092784007
## 39    2023-08-11    Slack   @bob_tweets    Team meeting -0.955364774
## 40    2023-08-05    Email   carol_slack  Exciting news!  0.468174768
## 41    2023-08-19 Twitter   @frank_chat Need assistance  0.481529109
## 42    2023-08-10    Slack  @erin_tweets Need assistance -0.766245456
## 43    2023-08-11    Email   carol_slack Need assistance -0.547700667
## 44    2023-08-06 Twitter  @erin_tweets  Exciting news! -0.415566467
## 45    2023-08-06    Email   carol_slack     Great work! -0.579760317
## 46    2023-08-18    Email alice@example    Fun weekend!  0.233402089
## 47    2023-08-07    Email   @frank_chat    Fun weekend!  0.387379609
## 48    2023-08-20    Email alice@example     Great work!  0.062977130
## 49    2023-08-16    Slack  @erin_tweets  Exciting news! -0.290788232
## 50    2023-08-02 Twitter alice@example    Team meeting  0.210089974
## 51    2023-08-12    Email  dave@example Need assistance  0.091942075
## 52    2023-08-10 Twitter  @erin_tweets Need assistance -0.340010146
## 53    2023-08-13    Slack   carol_slack Hello everyone!  0.675182751
## 54    2023-08-13    Slack   @bob_tweets     Great work! -0.443448592
## 55    2023-08-16    Slack   @bob_tweets    Team meeting -0.774452816
## 56    2023-08-13    Slack alice@example     Great work!  0.480868685
## 57    2023-08-07    Slack   @frank_chat Need assistance  0.914976185
## 58    2023-08-13 Twitter   dave@example    Fun weekend!  0.986894567
## 59    2023-08-06 Twitter alice@example Hello everyone! -0.882707532
## 60    2023-08-15    Slack  @erin_tweets Hello everyone! -0.689319659
## 61    2023-08-17    Email   @frank_chat    Team meeting  0.932789830
## 62    2023-08-12    Slack   @frank_chat Hello everyone! -0.219064676
## 63    2023-08-18 Twitter   @frank_chat    Team meeting -0.004460444
## 64    2023-08-20 Twitter alice@example Hello everyone!  0.482187657
## 65    2023-08-14 Twitter   @frank_chat    Team meeting -0.935610580
## 66    2023-08-03    Email  @erin_tweets    Fun weekend!  0.924321534
## 67    2023-08-06    Slack   @bob_tweets Hello everyone! -0.452905738
## 68    2023-08-14 Twitter alice@example  Exciting news!  0.415267176
## 69    2023-08-16    Email   @frank_chat Hello everyone!  0.997601895
## 70    2023-08-13 Twitter alice@example Need assistance  0.119616441
```

```
## 71  2023-08-13    Email   dave@example Need assistance -0.834047724
## 72  2023-08-05    Slack   @erin_tweets Need assistance -0.195926677
## 73  2023-08-12    Slack   dave@example    Fun weekend! -0.285561244
## 74  2023-08-16    Slack    carol_slack Hello everyone!  0.529127310
## 75  2023-08-10    Email   @bob_tweets    Team meeting -0.060755176
## 76  2023-08-12  Twitter    carol_slack     Great work!  0.407506729
## 77  2023-08-18    Email   @frank_chat    Fun weekend! -0.569811309
## 78  2023-08-17    Email   @bob_tweets    Fun weekend!  0.825692308
## 79  2023-08-09    Email   @erin_tweets   Exciting news! -0.018193701
## 80  2023-08-10    Email   @bob_tweets     Great work!  0.924440826
## 81  2023-08-04  Twitter   @bob_tweets    Fun weekend!  0.185009266
## 82  2023-08-19    Email   dave@example   Exciting news!  0.821827833
## 83  2023-08-04    Slack alice@example Need assistance  0.534302738
## 84  2023-08-17    Slack alice@example   Exciting news! -0.301641050
## 85  2023-08-15  Twitter   @erin_tweets     Great work! -0.244326655
## 86  2023-08-15  Twitter    carol_slack Hello everyone! -0.761104998
## 87  2023-08-03  Twitter   @bob_tweets   Exciting news! -0.408464086
## 88  2023-08-16    Email   @frank_chat    Fun weekend! -0.584208118
## 89  2023-08-04    Slack   @bob_tweets    Fun weekend!  0.866016825
## 90  2023-08-15  Twitter alice@example    Team meeting -0.178657859
## 91  2023-08-07    Email alice@example     Great work! -0.329095908
## 92  2023-08-15  Twitter alice@example    Fun weekend! -0.707901944
## 93  2023-08-20    Email alice@example Hello everyone! -0.166448134
## 94  2023-08-19    Email   dave@example   Exciting news! -0.533024813
## 95  2023-08-07    Slack   @bob_tweets Need assistance -0.356371285
## 96  2023-08-17    Email   @bob_tweets    Team meeting -0.467768930
## 97  2023-08-09  Twitter    carol_slack    Fun weekend! -0.056202481
## 98  2023-08-19    Email   @erin_tweets    Team meeting -0.757670477
## 99  2023-08-16  Twitter   @erin_tweets   Exciting news! -0.265161676
## 100 2023-08-01  Twitter   @frank_chat   Exciting news! -0.822780307
## 101 2023-08-10    Email   @frank_chat Hello everyone!  0.535708998
## 102 2023-08-17  Twitter   @bob_tweets   Exciting news!  0.953910344
## 103 2023-08-14    Email   @erin_tweets     Great work!  0.891589128
## 104 2023-08-08    Email   @bob_tweets Need assistance  0.115187556
## 105 2023-08-03  Twitter   @erin_tweets Need assistance -0.680233249
## 106 2023-08-14  Twitter   @erin_tweets Hello everyone! -0.647561021
## 107 2023-08-20    Email   @bob_tweets   Exciting news!  0.931368547
## 108 2023-08-13  Twitter   @bob_tweets     Great work! -0.705626460
## 109 2023-08-06    Slack   @frank_chat Hello everyone! -0.050532605
## 110 2023-08-20    Slack alice@example     Great work! -0.459148118
## 111 2023-08-20    Slack   dave@example   Exciting news!  0.617734990
## 112 2023-08-11    Email alice@example    Fun weekend! -0.034278538
## 113 2023-08-09  Twitter alice@example     Great work! -0.013945965
## 114 2023-08-10    Slack   dave@example    Team meeting -0.934943126
## 115 2023-08-16    Slack alice@example Need assistance  0.669039086
## 116 2023-08-02    Slack   @erin_tweets    Fun weekend! -0.474169046
## 117 2023-08-14    Email   @bob_tweets    Team meeting -0.815906889
## 118 2023-08-07    Slack   @frank_chat   Exciting news!  0.993148146
## 119 2023-08-04    Email alice@example   Exciting news! -0.200843529
## 120 2023-08-13  Twitter alice@example    Fun weekend! -0.958858334
## 121 2023-08-08    Email    carol_slack    Team meeting  0.213498762
## 122 2023-08-18    Slack   @bob_tweets    Fun weekend! -0.558302570
## 123 2023-08-12  Twitter    carol_slack Need assistance -0.435741366
## 124 2023-08-18    Email   dave@example Need assistance -0.770186925
```

```
## 125  2023-08-11    Slack   @frank_chat  Exciting news! -0.871460078
## 126  2023-08-18 Twitter    @bob_tweets Need assistance  0.083397951
## 127  2023-08-11    Slack   dave@example Hello everyone! -0.843954970
## 128  2023-08-15    Email   @erin_tweets    Fun weekend! -0.576360519
## 129  2023-08-09 Twitter  alice@example      Great work!  0.432502551
## 130  2023-08-11 Twitter   @erin_tweets Need assistance -0.462980804
## 131  2023-08-15    Email    carol_slack  Exciting news! -0.745493084
## 132  2023-08-15 Twitter   dave@example    Fun weekend!  0.469535301
## 133  2023-08-02 Twitter   @erin_tweets  Exciting news!  0.750492542
## 134  2023-08-16    Email  alice@example   Team meeting  0.858062949
## 135  2023-08-07    Email  alice@example  Exciting news!  0.773558143
## 136  2023-08-19    Email  alice@example  Exciting news!  0.401543677
## 137  2023-08-17 Twitter   @frank_chat Hello everyone!  0.951721462
## 138  2023-08-20 Twitter  alice@example  Exciting news!  0.310656996
## 139  2023-08-20 Twitter   carol_slack      Great work!  0.544291852
## 140  2023-08-10    Slack   @bob_tweets Hello everyone! -0.075317414
## 141  2023-08-04    Email   @erin_tweets Need assistance  0.689327837
## 142  2023-08-15 Twitter   @bob_tweets    Team meeting  0.853966497
## 143  2023-08-10    Email  alice@example Need assistance -0.815106571
## 144  2023-08-03 Twitter  alice@example Hello everyone!  0.530733542
## 145  2023-08-19    Slack   dave@example      Great work! -0.526421044
## 146  2023-08-12 Twitter   dave@example Hello everyone!  0.278570379
## 147  2023-08-01    Slack   @frank_chat    Team meeting -0.202094683
## 148  2023-08-11    Email   dave@example      Great work!  0.509797142
## 149  2023-08-17 Twitter   carol_slack    Fun weekend!  0.172285239
## 150  2023-08-01    Slack   @bob_tweets  Exciting news!  0.146396939
## 151  2023-08-07 Twitter   @bob_tweets    Fun weekend! -0.390309056
## 152  2023-08-20    Slack   @bob_tweets      Great work!  0.203791809
## 153  2023-08-12    Slack   carol_slack      Great work! -0.733910211
## 154  2023-08-17    Email   @erin_tweets      Great work!  0.709753431
## 155  2023-08-10 Twitter   @erin_tweets    Fun weekend! -0.496555788
## 156  2023-08-14 Twitter  alice@example Hello everyone! -0.892831107
## 157  2023-08-11    Slack   @frank_chat Hello everyone! -0.108963726
## 158  2023-08-11    Slack  alice@example    Fun weekend! -0.799520459
## 159  2023-08-03 Twitter   carol_slack  Exciting news!  0.044649603
## 160  2023-08-18    Email   @bob_tweets    Fun weekend! -0.558283084
## 161  2023-08-12 Twitter   @bob_tweets  Exciting news! -0.608554570
## 162  2023-08-17    Email   dave@example    Fun weekend!  0.420022254
## 163  2023-08-16    Slack  alice@example Need assistance  0.445466304
## 164  2023-08-01    Slack   @erin_tweets      Great work!  0.244422906
## 165  2023-08-01 Twitter   @frank_chat    Team meeting -0.526283488
## 166  2023-08-04 Twitter   dave@example Need assistance -0.635092593
## 167  2023-08-07    Email   @erin_tweets      Great work! -0.446627778
## 168  2023-08-06 Twitter   @bob_tweets    Fun weekend! -0.149422837
## 169  2023-08-15    Slack  alice@example    Fun weekend!  0.271711212
## 170  2023-08-13 Twitter  alice@example Hello everyone!  0.752351641
## 171  2023-08-05 Twitter  alice@example      Great work! -0.630844017
## 172  2023-08-10    Slack   @frank_chat Hello everyone!  0.142070077
## 173  2023-08-16 Twitter   @bob_tweets    Fun weekend! -0.533522750
## 174  2023-08-06    Email   @bob_tweets    Fun weekend!  0.201027735
## 175  2023-08-13    Slack   @frank_chat  Exciting news!  0.443950114
## 176  2023-08-01 Twitter   @frank_chat  Exciting news! -0.398672424
## 177  2023-08-07    Slack  alice@example  Exciting news! -0.686074989
## 178  2023-08-13    Slack   @erin_tweets Need assistance -0.514785561
```

```
## 179  2023-08-18 Twitter    @frank_chat   Exciting news! -0.445320373
## 180  2023-08-14 Twitter alice@example     Great work!  0.346799491
## 181  2023-08-06 Twitter  dave@example   Exciting news! -0.433124611
## 182  2023-08-13 Twitter    @frank_chat Hello everyone! -0.369747002
## 183  2023-08-07    Email alice@example Hello everyone!  0.917979236
## 184  2023-08-14 Twitter    @frank_chat     Great work! -0.912142744
## 185  2023-08-09    Email  @erin_tweets   Exciting news!  0.020394353
## 186  2023-08-15    Slack    carol_slack    Fun weekend! -0.760701751
## 187  2023-08-09    Slack   @bob_tweets     Team meeting  0.500293179
## 188  2023-08-03 Twitter    @bob_tweets Hello everyone! -0.243440011
## 189  2023-08-16    Slack   @bob_tweets     Team meeting  0.120248223
## 190  2023-08-06    Email   @bob_tweets    Fun weekend! -0.159573650
## 191  2023-08-07    Email    carol_slack   Exciting news!  0.785684678
## 192  2023-08-12    Email  @erin_tweets   Exciting news! -0.260005387
## 193  2023-08-13    Slack    carol_slack   Exciting news!  0.474910577
## 194  2023-08-01    Slack    @frank_chat Need assistance  0.601800072
## 195  2023-08-07    Slack alice@example Need assistance  0.877496709
## 196  2023-08-10    Slack alice@example Need assistance -0.356432681
## 197  2023-08-18 Twitter  dave@example Need assistance -0.577738499
## 198  2023-08-07    Email   @bob_tweets     Team meeting -0.767587414
## 199  2023-08-12    Slack alice@example     Fun weekend!  0.226010282
## 200  2023-08-14    Slack  @erin_tweets Hello everyone!  0.987832270
## 201  2023-08-06    Slack    @frank_chat Need assistance  0.746888391
## 202  2023-08-14 Twitter alice@example     Team meeting  0.024089097
## 203  2023-08-07 Twitter  dave@example     Team meeting -0.014527882
## 204  2023-08-02    Slack  @erin_tweets   Exciting news!  0.900116188
## 205  2023-08-09 Twitter alice@example     Fun weekend! -0.391704335
## 206  2023-08-07    Slack  @erin_tweets Hello everyone!  0.079340591
## 207  2023-08-16    Email    carol_slack     Great work!  0.306993762
## 208  2023-08-10    Email    @frank_chat Need assistance -0.857863282
## 209  2023-08-09    Slack  @erin_tweets    Fun weekend!  0.542777083
## 210  2023-08-03    Email  dave@example Hello everyone!  0.575844854
## 211  2023-08-03 Twitter  dave@example     Team meeting -0.024207670
## 212  2023-08-05 Twitter   @bob_tweets Need assistance  0.089429019
## 213  2023-08-19    Slack   @bob_tweets Hello everyone!  0.679174718
## 214  2023-08-03    Email  @erin_tweets     Team meeting  0.100578078
## 215  2023-08-04    Slack    @frank_chat Need assistance  0.691338675
## 216  2023-08-07    Slack   @bob_tweets Need assistance -0.611560303
## 217  2023-08-11    Slack   @bob_tweets Need assistance -0.542398809
## 218  2023-08-05    Slack   @bob_tweets Hello everyone! -0.940684421
## 219  2023-08-20    Slack alice@example   Exciting news!  0.685212519
## 220  2023-08-14    Email  @erin_tweets Need assistance  0.867801995
## 221  2023-08-20 Twitter  @erin_tweets     Great work! -0.404516522
## 222  2023-08-20    Slack  dave@example   Exciting news! -0.476039052
## 223  2023-08-16 Twitter  dave@example     Great work!  0.827052074
## 224  2023-08-16    Email    carol_slack     Great work! -0.045373839
## 225  2023-08-11    Slack    carol_slack   Exciting news!  0.062969209
## 226  2023-08-12    Email   @bob_tweets Need assistance -0.042491458
## 227  2023-08-18    Email alice@example Hello everyone! -0.024430894
## 228  2023-08-03 Twitter   @bob_tweets Need assistance  0.115823371
## 229  2023-08-20    Email   @bob_tweets Need assistance -0.299717092
## 230  2023-08-19    Slack   @bob_tweets Hello everyone! -0.558468956
## 231  2023-08-19 Twitter   @bob_tweets     Great work!  0.521462946
## 232  2023-08-05    Slack   @bob_tweets     Team meeting -0.386754569
```

```
## 233  2023-08-08 Twitter    @frank_chat Hello everyone! -0.081353148
## 234  2023-08-16 Twitter    dave@example Need assistance -0.194268964
## 235  2023-08-07    Slack    carol_slack Hello everyone!  0.973429719
## 236  2023-08-03 Twitter    carol_slack     Great work!  0.646422371
## 237  2023-08-11    Email    dave@example    Team meeting  0.146319367
## 238  2023-08-01    Slack    carol_slack Hello everyone!  0.802523659
## 239  2023-08-08    Email    carol_slack     Fun weekend!  0.670605208
## 240  2023-08-16    Email    @frank_chat    Exciting news!  0.305391626
## 241  2023-08-06    Slack    @bob_tweets     Fun weekend! -0.927836751
## 242  2023-08-14    Slack    @erin_tweets     Great work! -0.518683678
## 243  2023-08-05    Email    @erin_tweets    Exciting news!  0.549038415
## 244  2023-08-13    Email    carol_slack    Exciting news!  0.991050147
## 245  2023-08-18    Email    @erin_tweets Need assistance -0.240649289
## 246  2023-08-20 Twitter    @erin_tweets     Great work! -0.743658878
## 247  2023-08-11 Twitter    @frank_chat    Team meeting  0.629940747
## 248  2023-08-18    Email    carol_slack    Team meeting  0.343653605
## 249  2023-08-01    Slack    dave@example    Team meeting -0.176315426
## 250  2023-08-05    Slack    carol_slack    Team meeting -0.320228465
## 251  2023-08-08    Email    dave@example Need assistance  0.084778340
## 252  2023-08-19    Email    dave@example    Exciting news!  0.324592507
## 253  2023-08-15    Slack    @frank_chat    Exciting news! -0.582243779
## 254  2023-08-18    Email    @bob_tweets    Exciting news!  0.497974098
## 255  2023-08-14    Slack    @frank_chat Need assistance -0.384110797
## 256  2023-08-10    Slack alice@example     Great work!  0.804542714
## 257  2023-08-10    Slack    @erin_tweets     Team meeting  0.862134462
## 258  2023-08-11 Twitter    dave@example    Exciting news!  0.018387399
## 259  2023-08-15    Email    carol_slack Need assistance  0.414960733
## 260  2023-08-20 Twitter    @frank_chat     Team meeting  0.659773430
## 261  2023-08-12 Twitter alice@example Hello everyone!  0.532433989
## 262  2023-08-20    Slack alice@example    Exciting news! -0.415822029
## 263  2023-08-18 Twitter    @frank_chat    Exciting news!  0.784590872
## 264  2023-08-14 Twitter    @bob_tweets     Great work! -0.970631612
## 265  2023-08-02 Twitter    dave@example    Exciting news!  0.817105632
## 266  2023-08-19    Email    @erin_tweets     Team meeting -0.823923888
## 267  2023-08-02 Twitter    @erin_tweets    Exciting news!  0.581556937
## 268  2023-08-05 Twitter    carol_slack     Fun weekend!  0.706561523
## 269  2023-08-12    Slack    @frank_chat Need assistance -0.611636332
## 270  2023-08-08    Slack    carol_slack    Exciting news! -0.388513986
## 271  2023-08-19    Slack    @erin_tweets     Great work!  0.037533612
## 272  2023-08-01    Email    carol_slack     Fun weekend!  0.757286296
## 273  2023-08-04    Slack    carol_slack     Fun weekend! -0.049394990
## 274  2023-08-03 Twitter    carol_slack     Great work!  0.049291416
## 275  2023-08-16    Slack    @frank_chat     Team meeting -0.143542713
## 276  2023-08-06 Twitter    carol_slack     Team meeting -0.385177557
## 277  2023-08-06    Email    dave@example Need assistance -0.438415068
## 278  2023-08-06 Twitter    @bob_tweets     Team meeting -0.549432104
## 279  2023-08-14    Email    carol_slack     Fun weekend!  0.446355308
## 280  2023-08-04    Email alice@example     Great work! -0.769964864
## 281  2023-08-05    Slack    @erin_tweets Need assistance  0.519475343
## 282  2023-08-06    Slack alice@example     Fun weekend! -0.103599444
## 283  2023-08-04    Email    @frank_chat Need assistance  0.063336529
## 284  2023-08-15    Slack    @bob_tweets    Exciting news!  0.423514269
## 285  2023-08-16    Slack    carol_slack Hello everyone! -0.321912185
## 286  2023-08-03    Slack alice@example     Great work! -0.150377708
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## 287 2023-08-18   Slack  @erin_tweets    Team meeting  0.353438236
## 288 2023-08-03 Twitter   dave@example Hello everyone!  0.902683333
## 289 2023-08-20 Twitter alice@example    Fun weekend!  0.280627117
## 290 2023-08-15 Twitter    @frank_chat Need assistance -0.639425840
## 291 2023-08-05 Twitter alice@example    Team meeting  0.824948560
## 292 2023-08-09   Slack  @erin_tweets    Team meeting  0.268132484
## 293 2023-08-04   Email   @bob_tweets Need assistance  0.017915569
## 294 2023-08-18 Twitter   carol_slack  Exciting news!  0.222249684
## 295 2023-08-20   Email   @bob_tweets    Team meeting -0.801527123
## 296 2023-08-12 Twitter   dave@example     Great work!  0.195303030
## 297 2023-08-14 Twitter   dave@example    Fun weekend!  0.474564350
## 298 2023-08-20   Slack  @erin_tweets    Team meeting -0.134665603
## 299 2023-08-20   Email   carol_slack    Team meeting  0.078007510
## 300 2023-08-02 Twitter  @erin_tweets  Exciting news! -0.525143623
## 301 2023-08-09   Slack alice@example Need assistance  0.665302936
## 302 2023-08-17 Twitter  @erin_tweets    Fun weekend! -0.417790642
## 303 2023-08-08   Slack  @erin_tweets     Great work! -0.410223121
## 304 2023-08-05   Slack  @erin_tweets  Exciting news! -0.302134784
## 305 2023-08-19   Email   dave@example    Team meeting  0.087382621
## 306 2023-08-19   Slack alice@example    Team meeting -0.249497572
## 307 2023-08-03   Slack  dave@example     Great work! -0.488912587
## 308 2023-08-15   Slack   @bob_tweets    Team meeting -0.271451744
## 309 2023-08-10 Twitter  @erin_tweets    Team meeting  0.384202328
## 310 2023-08-06   Email   carol_slack     Great work!  0.766328182
## 311 2023-08-08   Email alice@example  Exciting news! -0.007040349
## 312 2023-08-07   Slack   @bob_tweets  Exciting news!  0.370947586
## 313 2023-08-03 Twitter alice@example Hello everyone! -0.893453151
## 314 2023-08-01   Email    @frank_chat    Team meeting -0.670432338
## 315 2023-08-18   Email alice@example  Exciting news!  0.422912350
## 316 2023-08-03   Email    @frank_chat Need assistance -0.345415825
## 317 2023-08-04   Slack  dave@example    Fun weekend! -0.848228461
## 318 2023-08-15   Email    @frank_chat Need assistance  0.385732211
## 319 2023-08-06   Slack alice@example    Fun weekend! -0.143456620
## 320 2023-08-11   Slack  dave@example Hello everyone!  0.879992486
## 321 2023-08-05 Twitter   carol_slack    Team meeting  0.364639959
## 322 2023-08-20   Slack  dave@example     Great work!  0.814900840
## 323 2023-08-20   Email  @erin_tweets  Exciting news! -0.195798854
## 324 2023-08-09   Slack  dave@example    Fun weekend! -0.358376735
## 325 2023-08-13   Email   carol_slack  Exciting news! -0.930242309
## 326 2023-08-20   Slack  @erin_tweets    Fun weekend!  0.604609676
## 327 2023-08-15   Email  @erin_tweets Hello everyone! -0.598425182
## 328 2023-08-16   Slack  dave@example  Exciting news!  0.461496073
## 329 2023-08-02 Twitter alice@example    Team meeting  0.964958043
## 330 2023-08-16 Twitter   carol_slack  Exciting news! -0.875286373
## 331 2023-08-19   Email    @frank_chat Hello everyone!  0.179850068
## 332 2023-08-14   Slack  @erin_tweets  Exciting news!  0.336964048
## 333 2023-08-07   Slack  @erin_tweets     Great work! -0.643276188
## 334 2023-08-01 Twitter   @bob_tweets  Exciting news! -0.452694423
## 335 2023-08-11 Twitter   @bob_tweets  Exciting news!  0.260118117
## 336 2023-08-18   Slack   @bob_tweets Need assistance -0.754348847
## 337 2023-08-14   Email   dave@example Need assistance -0.829999507
## 338 2023-08-14   Email alice@example Need assistance  0.043240849
## 339 2023-08-01   Slack   carol_slack    Fun weekend! -0.877705400
## 340 2023-08-12 Twitter   @bob_tweets    Team meeting  0.265132846
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## 341 2023-08-04   Slack alice@example   Team meeting -0.111247493
## 342 2023-08-05   Email   carol_slack   Fun weekend!  0.451752027
## 343 2023-08-04   Email   @frank_chat    Great work! -0.317266905
## 344 2023-08-08 Twitter alice@example Hello everyone!  0.223401716
## 345 2023-08-07 Twitter  dave@example  Exciting news!  0.466239469
## 346 2023-08-14   Slack  dave@example Hello everyone!  0.491653796
## 347 2023-08-04 Twitter   @bob_tweets   Fun weekend!  0.163814227
## 348 2023-08-04   Email  @erin_tweets   Fun weekend! -0.415885320
## 349 2023-08-18   Slack  @erin_tweets  Exciting news! -0.537696546
## 350 2023-08-01   Email   carol_slack Need assistance -0.130674560
## 351 2023-08-10   Slack   @bob_tweets Need assistance  0.279333149
## 352 2023-08-16 Twitter   carol_slack Need assistance -0.375053814
## 353 2023-08-18   Email   carol_slack  Exciting news! -0.978982675
## 354 2023-08-14   Email  @erin_tweets Need assistance -0.220039924
## 355 2023-08-14   Email alice@example Need assistance  0.041204039
## 356 2023-08-20 Twitter   @bob_tweets   Fun weekend!  0.236553716
## 357 2023-08-08   Email alice@example    Great work!  0.222402995
## 358 2023-08-19   Email alice@example    Great work!  0.301563812
## 359 2023-08-17   Email  dave@example Hello everyone!  0.976894801
## 360 2023-08-07   Slack   carol_slack   Team meeting  0.190247875
## 361 2023-08-07 Twitter   carol_slack Need assistance  0.895823483
## 362 2023-08-01   Slack  dave@example   Team meeting  0.093826082
## 363 2023-08-17   Slack alice@example    Great work!  0.652192219
## 364 2023-08-04   Slack   carol_slack Need assistance  0.088740259
## 365 2023-08-08   Slack   @bob_tweets Hello everyone!  0.740663246
## 366 2023-08-17 Twitter  dave@example   Fun weekend!  0.775130778
## 367 2023-08-11 Twitter  dave@example   Fun weekend!  0.124404418
## 368 2023-08-19   Slack   @bob_tweets Hello everyone!  0.487545231
## 369 2023-08-18 Twitter  dave@example Need assistance -0.613432584
## 370 2023-08-17   Email   @frank_chat    Great work! -0.951084716
## 371 2023-08-10   Email  @erin_tweets  Exciting news!  0.679597112
## 372 2023-08-12   Email alice@example   Team meeting  0.774573303
## 373 2023-08-02   Email  dave@example  Exciting news!  0.717076284
## 374 2023-08-18   Email   @frank_chat   Fun weekend!  0.061621126
## 375 2023-08-14   Slack   @frank_chat Need assistance -0.920249034
## 376 2023-08-08 Twitter   @frank_chat   Fun weekend!  0.484796492
## 377 2023-08-18 Twitter  dave@example  Exciting news! -0.209318373
## 378 2023-08-17 Twitter   carol_slack Need assistance -0.806338225
## 379 2023-08-12   Email   @bob_tweets  Exciting news! -0.597888714
## 380 2023-08-04   Email alice@example  Exciting news!  0.308247630
## 381 2023-08-04 Twitter   @bob_tweets  Exciting news! -0.122806889
## 382 2023-08-17 Twitter  @erin_tweets Hello everyone!  0.299843722
## 383 2023-08-10 Twitter  @erin_tweets  Exciting news!  0.275836162
## 384 2023-08-10 Twitter   @frank_chat   Team meeting -0.976236885
## 385 2023-08-16   Email alice@example  Exciting news! -0.858994203
## 386 2023-08-12   Slack   carol_slack   Fun weekend!  0.608656868
## 387 2023-08-11 Twitter   @frank_chat   Fun weekend! -0.926554946
## 388 2023-08-12   Email  dave@example   Fun weekend!  0.043927317
## 389 2023-08-15 Twitter  dave@example    Great work!  0.435108419
## 390 2023-08-18   Slack  dave@example   Team meeting -0.718652172
## 391 2023-08-08   Slack   @frank_chat Need assistance  0.963640937
## 392 2023-08-07 Twitter   carol_slack    Great work!  0.805481421
## 393 2023-08-16   Email  @erin_tweets   Fun weekend! -0.928850479
## 394 2023-08-14   Slack  dave@example  Exciting news! -0.298691060
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## 395 2023-08-02    Slack alice@example    Fun weekend!  0.823352248
## 396 2023-08-03    Email  @erin_tweets     Great work! -0.900102365
## 397 2023-08-19 Twitter   @frank_chat    Fun weekend! -0.371842024
## 398 2023-08-18 Twitter  dave@example    Team meeting -0.012694929
## 399 2023-08-12 Twitter  @erin_tweets    Team meeting  0.650313874
## 400 2023-08-02    Email  dave@example    Fun weekend! -0.357268680
## 401 2023-08-14    Slack  @erin_tweets Need assistance  0.141076977
## 402 2023-08-15 Twitter   @bob_tweets Need assistance  0.373691486
## 403 2023-08-11    Slack  dave@example Need assistance  0.930096855
## 404 2023-08-18    Slack  dave@example    Fun weekend! -0.566594298
## 405 2023-08-19 Twitter  dave@example    Team meeting -0.284638313
## 406 2023-08-19    Email   carol_slack    Fun weekend!  0.892766985
## 407 2023-08-07    Email   @bob_tweets    Team meeting -0.150205611
## 408 2023-08-05    Email   @bob_tweets Hello everyone!  0.616259416
## 409 2023-08-10    Email   @frank_chat     Great work!  0.533465849
## 410 2023-08-02 Twitter  dave@example     Great work!  0.516138048
## 411 2023-08-18 Twitter  @erin_tweets Need assistance  0.116931847
## 412 2023-08-15    Slack   carol_slack Need assistance  0.674294885
## 413 2023-08-06    Email   @frank_chat  Exciting news!  0.696377364
## 414 2023-08-20    Email  dave@example    Team meeting  0.985037738
## 415 2023-08-10    Slack  @erin_tweets Need assistance -0.904224418
## 416 2023-08-11    Email alice@example  Exciting news! -0.901918261
## 417 2023-08-14    Slack  @erin_tweets    Fun weekend! -0.259928443
## 418 2023-08-20    Slack   carol_slack  Exciting news!  0.221250645
## 419 2023-08-13 Twitter alice@example    Team meeting  0.892404643
## 420 2023-08-06    Slack alice@example     Great work! -0.545365768
## 421 2023-08-12    Email   @frank_chat Need assistance -0.104900640
## 422 2023-08-20 Twitter  dave@example    Fun weekend! -0.818538250
## 423 2023-08-20 Twitter  @erin_tweets     Great work! -0.349391197
## 424 2023-08-02    Email  dave@example  Exciting news! -0.212464974
## 425 2023-08-19 Twitter   carol_slack    Team meeting  0.317846402
## 426 2023-08-09    Slack alice@example    Fun weekend!  0.690391378
## 427 2023-08-11    Email   @bob_tweets Hello everyone!  0.576369455
## 428 2023-08-14 Twitter  @erin_tweets Need assistance -0.543064435
## 429 2023-08-09    Slack  dave@example    Fun weekend!  0.229193896
## 430 2023-08-16 Twitter  dave@example    Fun weekend! -0.286604216
## 431 2023-08-05 Twitter   @bob_tweets Hello everyone! -0.038818533
## 432 2023-08-01 Twitter   @frank_chat     Great work!  0.473425272
## 433 2023-08-10 Twitter   @bob_tweets    Fun weekend!  0.346377916
## 434 2023-08-04    Slack   @frank_chat Need assistance  0.933738099
## 435 2023-08-20    Email   carol_slack     Great work!  0.680826971
## 436 2023-08-20    Slack   carol_slack     Great work! -0.574539005
## 437 2023-08-10    Slack  dave@example  Exciting news! -0.762122771
## 438 2023-08-12    Email  dave@example     Great work!  0.480317921
## 439 2023-08-09    Email  @erin_tweets    Team meeting -0.956999032
## 440 2023-08-07    Slack alice@example    Fun weekend!  0.397376804
## 441 2023-08-04    Email   @frank_chat     Great work!  0.263225980
## 442 2023-08-06    Email   @frank_chat    Fun weekend!  0.791513952
## 443 2023-08-08    Email   @frank_chat  Exciting news! -0.050068120
## 444 2023-08-07 Twitter   carol_slack Hello everyone! -0.355751095
## 445 2023-08-09 Twitter alice@example Hello everyone!  0.184942272
## 446 2023-08-14 Twitter  @erin_tweets     Great work!  0.468599080
## 447 2023-08-14 Twitter alice@example  Exciting news!  0.157755047
## 448 2023-08-10    Email alice@example     Great work!  0.693037350
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## 449  2023-08-16    Email  alice@example    Great work!  0.360768258
## 450  2023-08-10  Twitter    @frank_chat    Great work!  0.214199054
## 451  2023-08-08    Email   dave@example Need assistance -0.998774239
## 452  2023-08-10    Email    carol_slack  Team meeting -0.970338997
## 453  2023-08-08  Twitter    carol_slack   Fun weekend!  0.232626481
## 454  2023-08-11    Slack   @bob_tweets Exciting news! -0.033773244
## 455  2023-08-20  Twitter    @frank_chat   Team meeting -0.476500273
## 456  2023-08-17    Email  @erin_tweets   Team meeting  0.863822790
## 457  2023-08-18    Slack  @erin_tweets Exciting news! -0.719712700
## 458  2023-08-13  Twitter    @bob_tweets Need assistance  0.408644735
## 459  2023-08-11  Twitter    carol_slack    Great work!  0.910158344
## 460  2023-08-06  Twitter   dave@example Need assistance -0.064178423
## 461  2023-08-03  Twitter  alice@example Hello everyone! -0.567197050
## 462  2023-08-15    Slack   dave@example Hello everyone! -0.510870771
## 463  2023-08-13    Email  @erin_tweets Hello everyone! -0.939573104
## 464  2023-08-16    Email   dave@example Need assistance -0.014521594
## 465  2023-08-16    Email    @frank_chat   Team meeting -0.287118956
## 466  2023-08-05    Email    carol_slack Need assistance  0.558824511
## 467  2023-08-16    Email    @frank_chat Need assistance  0.343977793
## 468  2023-08-15    Email   dave@example Hello everyone!  0.282330315
## 469  2023-08-06  Twitter    @bob_tweets Hello everyone!  0.116596443
## 470  2023-08-13  Twitter    @frank_chat Exciting news!  0.368110256
## 471  2023-08-10  Twitter  alice@example    Great work!  0.266619468
## 472  2023-08-18  Twitter    @bob_tweets Exciting news!  0.290797958
## 473  2023-08-20  Twitter  @erin_tweets   Team meeting  0.341763970
## 474  2023-08-13  Twitter    @bob_tweets Need assistance -0.883181106
## 475  2023-08-20    Slack  alice@example Hello everyone! -0.863882122
## 476  2023-08-04  Twitter   dave@example   Fun weekend!  0.463157478
## 477  2023-08-05    Email    @frank_chat Exciting news!  0.567230823
## 478  2023-08-17  Twitter  alice@example    Great work! -0.641657173
## 479  2023-08-08    Email  @erin_tweets Exciting news! -0.847681918
## 480  2023-08-05    Email    @frank_chat   Team meeting -0.094959955
## 481  2023-08-08  Twitter    @bob_tweets   Team meeting -0.024243061
## 482  2023-08-18    Email  @erin_tweets Need assistance  0.171319252
## 483  2023-08-17    Slack    carol_slack Need assistance -0.750471560
## 484  2023-08-07    Email   dave@example Hello everyone! -0.526591262
## 485  2023-08-16  Twitter  @erin_tweets Hello everyone!  0.806540163
## 486  2023-08-05    Email    carol_slack Need assistance  0.300882405
## 487  2023-08-03  Twitter  @erin_tweets   Fun weekend! -0.345988781
## 488  2023-08-02    Email  alice@example    Great work! -0.784876938
## 489  2023-08-13    Slack    carol_slack    Great work! -0.947211589
## 490  2023-08-09    Email  @erin_tweets   Fun weekend!  0.513564137
## 491  2023-08-04    Email    @bob_tweets   Team meeting -0.235653992
## 492  2023-08-04    Email  alice@example Hello everyone!  0.161035733
## 493  2023-08-16    Email    @frank_chat   Fun weekend!  0.402509230
## 494  2023-08-13  Twitter    @frank_chat Hello everyone! -0.426096413
## 495  2023-08-04  Twitter    @bob_tweets Hello everyone! -0.774547359
## 496  2023-08-16  Twitter  @erin_tweets   Team meeting -0.674190784
## 497  2023-08-11    Slack    @frank_chat Need assistance  0.235724795
## 498  2023-08-15    Slack    @frank_chat Hello everyone!  0.058449768
## 499  2023-08-20    Email    @frank_chat   Team meeting -0.993759494
## 500  2023-08-06    Slack   dave@example   Team meeting -0.536957865
## 501  2023-08-05  Twitter   dave@example   Team meeting  0.779166287
## 502  2023-08-07    Slack  alice@example   Team meeting  0.569526526
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## 503  2023-08-06   Email   @erin_tweets Need assistance  0.664381829
## 504  2023-08-07   Slack    dave@example Need assistance -0.718395420
## 505  2023-08-09 Twitter    @bob_tweets    Team meeting  0.526457346
## 506  2023-08-06   Email    @bob_tweets     Great work! -0.400677142
## 507  2023-08-17 Twitter    @frank_chat    Team meeting -0.232014328
## 508  2023-08-15 Twitter alice@example  Exciting news!  0.153143482
## 509  2023-08-01 Twitter    @bob_tweets Hello everyone! -0.918783627
## 510  2023-08-09   Email    @bob_tweets    Fun weekend! -0.375794835
## 511  2023-08-05 Twitter  dave@example    Fun weekend! -0.021554315
## 512  2023-08-10   Slack   @erin_tweets Need assistance  0.086844633
## 513  2023-08-16   Slack    dave@example Need assistance  0.484403751
## 514  2023-08-07   Email    @bob_tweets    Team meeting -0.423585835
## 515  2023-08-07   Email    dave@example  Exciting news! -0.184577833
## 516  2023-08-18   Email    dave@example Hello everyone!  0.978220029
## 517  2023-08-17 Twitter    @frank_chat    Fun weekend! -0.624432764
## 518  2023-08-15 Twitter     carol_slack    Team meeting  0.498292263
## 519  2023-08-13 Twitter     carol_slack  Exciting news!  0.771407587
## 520  2023-08-12   Email    dave@example    Fun weekend!  0.650773503
## 521  2023-08-19 Twitter alice@example Need assistance  0.143810244
## 522  2023-08-19 Twitter   @erin_tweets    Team meeting  0.945942261
## 523  2023-08-12   Slack    dave@example  Exciting news!  0.563268560
## 524  2023-08-17   Email    dave@example    Fun weekend! -0.173903828
## 525  2023-08-07   Email    @frank_chat    Team meeting  0.192018484
## 526  2023-08-16   Email     carol_slack Hello everyone! -0.029610693
## 527  2023-08-08   Email alice@example  Exciting news!  0.723251828
## 528  2023-08-07   Email    @bob_tweets  Exciting news! -0.616928389
## 529  2023-08-01 Twitter   @erin_tweets Hello everyone!  0.524320859
## 530  2023-08-07   Email    dave@example     Great work! -0.359934055
## 531  2023-08-11   Slack    @frank_chat     Great work!  0.431652104
## 532  2023-08-04 Twitter     carol_slack  Exciting news! -0.615862965
## 533  2023-08-11   Email   @erin_tweets     Great work! -0.049498704
## 534  2023-08-19 Twitter alice@example    Fun weekend! -0.111042333
## 535  2023-08-03   Email     carol_slack Need assistance  0.247236022
## 536  2023-08-09   Email   @erin_tweets    Fun weekend!  0.237909144
## 537  2023-08-19   Email    @frank_chat    Team meeting -0.943049938
## 538  2023-08-08   Email    @frank_chat     Great work!  0.362224979
## 539  2023-08-14   Slack    dave@example     Great work!  0.538406652
## 540  2023-08-19   Email    dave@example     Great work! -0.336303487
## 541  2023-08-12   Slack alice@example Need assistance  0.454688824
## 542  2023-08-11   Slack    @frank_chat    Team meeting -0.642315470
## 543  2023-08-14 Twitter    @bob_tweets  Exciting news!  0.754322437
## 544  2023-08-10   Slack alice@example Need assistance -0.236316590
## 545  2023-08-19   Email   @erin_tweets    Fun weekend!  0.149510738
## 546  2023-08-09 Twitter alice@example Hello everyone!  0.762754925
## 547  2023-08-14 Twitter    @bob_tweets Hello everyone!  0.250149151
## 548  2023-08-08   Email    @bob_tweets Need assistance -0.249764988
## 549  2023-08-04   Slack    @bob_tweets Hello everyone! -0.161284721
## 550  2023-08-05 Twitter alice@example    Team meeting  0.082249742
## 551  2023-08-13 Twitter   @erin_tweets     Great work! -0.956337988
## 552  2023-08-15   Email    @frank_chat     Great work!  0.120376800
## 553  2023-08-08 Twitter    @frank_chat    Fun weekend! -0.673607849
## 554  2023-08-15   Slack   @erin_tweets    Team meeting  0.457860831
## 555  2023-08-08   Email   @erin_tweets Need assistance -0.775436828
## 556  2023-08-10   Slack    dave@example  Exciting news!  0.532747218
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## 557  2023-08-18   Slack   @frank_chat    Team meeting -0.134102609
## 558  2023-08-20 Twitter alice@example    Fun weekend! -0.436848105
## 559  2023-08-18   Email alice@example Need assistance  0.275121063
## 560  2023-08-12   Email  @erin_tweets Need assistance  0.866607873
## 561  2023-08-10   Slack   @bob_tweets   Exciting news!  0.027252671
## 562  2023-08-07   Slack  dave@example   Exciting news! -0.823877914
## 563  2023-08-19 Twitter alice@example    Team meeting -0.299451457
## 564  2023-08-20 Twitter  dave@example   Exciting news! -0.542942689
## 565  2023-08-04   Slack  dave@example    Fun weekend!  0.796501584
## 566  2023-08-20   Slack   @bob_tweets    Team meeting -0.118006961
## 567  2023-08-04   Email  @erin_tweets Need assistance -0.070094255
## 568  2023-08-18 Twitter   @bob_tweets    Fun weekend!  0.590919483
## 569  2023-08-01 Twitter  dave@example Hello everyone!  0.530999278
## 570  2023-08-17 Twitter alice@example Hello everyone!  0.582868762
## 571  2023-08-12   Slack   carol_slack Need assistance -0.919222645
## 572  2023-08-18 Twitter   @frank_chat    Team meeting  0.818109252
## 573  2023-08-10   Email   @bob_tweets   Exciting news!  0.664575256
## 574  2023-08-18   Email  dave@example   Exciting news! -0.768564025
## 575  2023-08-20   Slack   carol_slack     Great work! -0.595158034
## 576  2023-08-06   Slack alice@example Need assistance  0.037042340
## 577  2023-08-14 Twitter  dave@example    Fun weekend! -0.064443091
## 578  2023-08-13   Email  @erin_tweets    Fun weekend!  0.496487776
## 579  2023-08-14 Twitter   @frank_chat    Team meeting  0.499737595
## 580  2023-08-17 Twitter alice@example Hello everyone! -0.605858998
## 581  2023-08-03   Email   @frank_chat Hello everyone!  0.488557915
## 582  2023-08-07 Twitter   @frank_chat     Great work! -0.823533585
## 583  2023-08-15 Twitter   @frank_chat Hello everyone!  0.384222084
## 584  2023-08-15   Email alice@example    Team meeting  0.176413531
## 585  2023-08-10   Email   @frank_chat Hello everyone!  0.051583528
## 586  2023-08-02   Slack alice@example    Fun weekend! -0.485003887
## 587  2023-08-01   Slack  @erin_tweets    Team meeting  0.031597136
## 588  2023-08-15   Email   @frank_chat Need assistance -0.438784983
## 589  2023-08-09   Email   @bob_tweets Hello everyone!  0.703965933
## 590  2023-08-16   Slack  dave@example    Fun weekend!  0.438361928
## 591  2023-08-14   Email   @bob_tweets Hello everyone!  0.498191035
## 592  2023-08-04 Twitter  dave@example    Fun weekend! -0.495438306
## 593  2023-08-20   Slack   @frank_chat     Great work!  0.606102686
## 594  2023-08-07   Email   @frank_chat Hello everyone! -0.143556185
## 595  2023-08-02 Twitter   carol_slack Hello everyone!  0.450987421
## 596  2023-08-05   Slack   carol_slack     Great work!  0.470731148
## 597  2023-08-07   Email  dave@example    Fun weekend! -0.735883705
## 598  2023-08-15   Slack   @frank_chat     Great work!  0.960373470
## 599  2023-08-19   Email   @bob_tweets    Team meeting  0.855612874
## 600  2023-08-02   Slack   @bob_tweets   Exciting news!  0.365244868
## 601  2023-08-01   Slack   @bob_tweets   Exciting news! -0.024743940
## 602  2023-08-01   Email   @frank_chat    Fun weekend! -0.797102704
## 603  2023-08-07 Twitter alice@example    Team meeting -0.365139902
## 604  2023-08-15   Email alice@example Need assistance -0.264464825
## 605  2023-08-08   Slack  @erin_tweets Need assistance -0.461871512
## 606  2023-08-18 Twitter   carol_slack Need assistance -0.107154121
## 607  2023-08-17   Email   @frank_chat    Team meeting -0.229243480
## 608  2023-08-17 Twitter  dave@example Need assistance -0.035525655
## 609  2023-08-10   Email   @bob_tweets    Team meeting  0.253805156
## 610  2023-08-15 Twitter   @frank_chat Need assistance  0.344264537
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## 611  2023-08-12 Twitter   @bob_tweets      Great work! -0.405934577
## 612  2023-08-13 Twitter   @erin_tweets     Great work!  0.515643027
## 613  2023-08-17 Twitter   @erin_tweets Hello everyone! -0.606922586
## 614  2023-08-02 Twitter    carol_slack Hello everyone!  0.173851238
## 615  2023-08-10   Slack    @frank_chat   Exciting news!  0.769946682
## 616  2023-08-06   Email    @erin_tweets Hello everyone! -0.172054263
## 617  2023-08-04   Email     carol_slack Need assistance  0.188933107
## 618  2023-08-06   Email    dave@example Hello everyone! -0.987261285
## 619  2023-08-03 Twitter alice@example Need assistance  0.747163485
## 620  2023-08-14 Twitter   @frank_chat     Fun weekend! -0.672147054
## 621  2023-08-09 Twitter alice@example   Exciting news! -0.792284821
## 622  2023-08-12   Email alice@example   Exciting news!  0.063475272
## 623  2023-08-13 Twitter alice@example      Great work! -0.026141260
## 624  2023-08-05   Email   @erin_tweets     Great work!  0.830162693
## 625  2023-08-15   Email    carol_slack    Fun weekend! -0.141636565
## 626  2023-08-12 Twitter   @erin_tweets    Fun weekend!  0.038330505
## 627  2023-08-04 Twitter alice@example    Fun weekend! -0.693275109
## 628  2023-08-05   Slack   @bob_tweets Need assistance  0.291605130
## 629  2023-08-19 Twitter   dave@example Need assistance -0.115035673
## 630  2023-08-02 Twitter    carol_slack Need assistance  0.215954025
## 631  2023-08-08   Email alice@example      Great work! -0.068923920
## 632  2023-08-10 Twitter   @frank_chat    Team meeting -0.289186294
## 633  2023-08-10 Twitter    carol_slack   Exciting news!  0.030849482
## 634  2023-08-15 Twitter   dave@example    Fun weekend!  0.345517721
## 635  2023-08-14   Email    @bob_tweets Need assistance  0.330107941
## 636  2023-08-13   Email alice@example Hello everyone!  0.042741961
## 637  2023-08-06   Slack    carol_slack   Exciting news! -0.633368273
## 638  2023-08-19   Slack   @erin_tweets      Great work! -0.725357866
## 639  2023-08-03   Slack   @erin_tweets    Team meeting -0.812502595
## 640  2023-08-08 Twitter   @bob_tweets      Great work!  0.564973874
## 641  2023-08-13 Twitter   dave@example    Fun weekend! -0.042934414
## 642  2023-08-17   Slack    carol_slack    Fun weekend!  0.169502832
## 643  2023-08-12   Email alice@example      Great work!  0.383860287
## 644  2023-08-06   Slack    @bob_tweets    Fun weekend! -0.895003283
## 645  2023-08-06 Twitter   dave@example    Fun weekend!  0.005671109
## 646  2023-08-08   Email    @frank_chat Need assistance -0.992002849
## 647  2023-08-06   Email   @erin_tweets Hello everyone!  0.905330024
## 648  2023-08-16   Email    @frank_chat    Fun weekend! -0.552409418
## 649  2023-08-07   Slack   @erin_tweets    Team meeting -0.780283807
## 650  2023-08-14   Email   @erin_tweets    Fun weekend! -0.835450725
## 651  2023-08-08 Twitter alice@example      Great work! -0.236779108
## 652  2023-08-09 Twitter   dave@example      Great work! -0.495721815
## 653  2023-08-01 Twitter    carol_slack      Great work!  0.406890230
## 654  2023-08-08 Twitter alice@example    Team meeting  0.870818266
## 655  2023-08-14   Email   dave@example    Fun weekend!  0.304697359
## 656  2023-08-03   Slack    @frank_chat   Exciting news!  0.591279314
## 657  2023-08-15   Slack    @frank_chat    Fun weekend!  0.816346027
## 658  2023-08-14   Email   @erin_tweets Hello everyone! -0.446434771
## 659  2023-08-05   Email alice@example    Fun weekend!  0.347548683
## 660  2023-08-18   Slack    @bob_tweets    Fun weekend!  0.567603516
## 661  2023-08-19 Twitter   @frank_chat   Exciting news!  0.388266448
## 662  2023-08-15 Twitter   @bob_tweets    Team meeting -0.144443278
## 663  2023-08-01   Email    @bob_tweets Hello everyone!  0.902623749
## 664  2023-08-13 Twitter   @frank_chat    Team meeting -0.877922161
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## 665  2023-08-06   Slack alice@example Hello everyone!  0.710270591
## 666  2023-08-09   Email   @bob_tweets Hello everyone! -0.725457437
## 667  2023-08-07   Email   @bob_tweets   Team meeting -0.232356975
## 668  2023-08-05 Twitter   dave@example     Great work!  0.245927144
## 669  2023-08-02 Twitter   @frank_chat Need assistance -0.115179492
## 670  2023-08-08   Slack alice@example Hello everyone! -0.812013249
## 671  2023-08-02   Slack   carol_slack Hello everyone!  0.805289558
## 672  2023-08-10   Email   @frank_chat   Team meeting -0.320194449
## 673  2023-08-14   Slack   @bob_tweets Hello everyone!  0.450289166
## 674  2023-08-18   Email   carol_slack  Exciting news! -0.546088908
## 675  2023-08-14 Twitter   @bob_tweets     Great work! -0.018533767
## 676  2023-08-03   Slack   carol_slack     Great work! -0.777630202
## 677  2023-08-04   Email   @bob_tweets     Fun weekend!  0.419715998
## 678  2023-08-11 Twitter   @erin_tweets   Team meeting -0.351081788
## 679  2023-08-04 Twitter   @erin_tweets Hello everyone! -0.217646003
## 680  2023-08-10   Slack alice@example   Team meeting  0.425960287
## 681  2023-08-11   Slack   @frank_chat   Team meeting -0.203160496
## 682  2023-08-13   Slack alice@example Need assistance -0.100954488
## 683  2023-08-13   Slack   carol_slack Need assistance  0.886342321
## 684  2023-08-18   Email   carol_slack Need assistance  0.121493359
## 685  2023-08-09   Slack   carol_slack Hello everyone!  0.902016178
## 686  2023-08-02 Twitter alice@example Need assistance  0.157653404
## 687  2023-08-13   Slack alice@example   Team meeting -0.493501368
## 688  2023-08-09   Email   dave@example   Team meeting  0.746085706
## 689  2023-08-12 Twitter alice@example  Exciting news! -0.487793705
## 690  2023-08-06   Email   carol_slack Hello everyone!  0.076276061
## 691  2023-08-08 Twitter alice@example    Fun weekend! -0.329790550
## 692  2023-08-10 Twitter   @frank_chat  Exciting news! -0.149807401
## 693  2023-08-15 Twitter   @erin_tweets Need assistance  0.599532404
## 694  2023-08-03   Email   @frank_chat     Great work! -0.022698464
## 695  2023-08-05   Email   @erin_tweets  Exciting news! -0.283369262
## 696  2023-08-16   Slack   @frank_chat   Team meeting -0.933677876
## 697  2023-08-16   Slack   @frank_chat Hello everyone! -0.878399170
## 698  2023-08-11   Slack   @bob_tweets     Great work!  0.041871845
## 699  2023-08-07   Slack   @bob_tweets     Great work! -0.311243319
## 700  2023-08-12   Email   @frank_chat  Exciting news!  0.777389107
## 701  2023-08-01   Slack   @frank_chat Hello everyone! -0.572465386
## 702  2023-08-09   Email   @frank_chat    Fun weekend! -0.372473280
## 703  2023-08-12 Twitter   dave@example Need assistance -0.713639749
## 704  2023-08-12   Slack   carol_slack     Great work!  0.874556832
## 705  2023-08-17   Slack   @frank_chat     Great work! -0.700269639
## 706  2023-08-13   Email   @frank_chat Need assistance  0.935812009
## 707  2023-08-08   Slack   carol_slack  Exciting news!  0.055117640
## 708  2023-08-10   Slack   @bob_tweets    Fun weekend!  0.957983019
## 709  2023-08-09   Slack alice@example  Exciting news! -0.539138246
## 710  2023-08-05 Twitter alice@example  Exciting news!  0.722319741
## 711  2023-08-15 Twitter   @erin_tweets Hello everyone!  0.768580468
## 712  2023-08-14   Slack   @frank_chat  Exciting news! -0.054910814
## 713  2023-08-05 Twitter   dave@example     Great work!  0.544805384
## 714  2023-08-02 Twitter   carol_slack  Exciting news! -0.693217811
## 715  2023-08-18   Slack   @bob_tweets Hello everyone! -0.164491392
## 716  2023-08-08   Email   @erin_tweets    Fun weekend!  0.378708432
## 717  2023-08-12   Email   @frank_chat Need assistance  0.544408341
## 718  2023-08-09 Twitter   @bob_tweets  Exciting news!  0.605349668
```

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## 719  2023-08-16 Twitter alice@example  Exciting news!  0.696509592
## 720  2023-08-13 Twitter   @frank_chat Hello everyone! -0.694118693
## 721  2023-08-08   Email  @erin_tweets    Fun weekend!  0.734125260
## 722  2023-08-03   Email   @frank_chat     Great work! -0.222633559
## 723  2023-08-14   Email alice@example     Great work! -0.111933967
## 724  2023-08-06   Email   @bob_tweets     Great work! -0.417041691
## 725  2023-08-12   Email  dave@example     Great work! -0.841218561
## 726  2023-08-03   Slack  @erin_tweets Need assistance -0.173975688
## 727  2023-08-12   Email   @frank_chat    Fun weekend! -0.102208237
## 728  2023-08-15   Email  dave@example Need assistance  0.773382573
## 729  2023-08-14   Slack  @erin_tweets Hello everyone!  0.605556316
## 730  2023-08-20   Email alice@example    Fun weekend!  0.851679420
## 731  2023-08-07   Email   @bob_tweets  Exciting news!  0.244900235
## 732  2023-08-10 Twitter  dave@example     Great work! -0.505026447
## 733  2023-08-13   Slack  @erin_tweets Need assistance -0.544543609
## 734  2023-08-12   Slack   @bob_tweets    Fun weekend!  0.990166281
## 735  2023-08-20   Email   @frank_chat    Team meeting  0.560076173
## 736  2023-08-09   Slack   carol_slack Hello everyone! -0.289897254
## 737  2023-08-03   Email alice@example Hello everyone!  0.713812393
## 738  2023-08-08 Twitter  @erin_tweets    Fun weekend!  0.191519982
## 739  2023-08-13   Slack   carol_slack     Great work!  0.460303653
## 740  2023-08-10   Slack  @erin_tweets Need assistance  0.037588875
## 741  2023-08-05 Twitter   carol_slack Hello everyone!  0.130742100
## 742  2023-08-15   Email   @bob_tweets    Team meeting -0.801572199
## 743  2023-08-14   Slack  @erin_tweets  Exciting news! -0.736287751
## 744  2023-08-18   Slack   @bob_tweets    Team meeting  0.403409261
## 745  2023-08-07   Slack alice@example     Great work!  0.580541194
## 746  2023-08-13   Email  dave@example     Great work!  0.550955762
## 747  2023-08-11 Twitter   @frank_chat    Team meeting -0.303564250
## 748  2023-08-14   Email   carol_slack  Exciting news!  0.596924395
## 749  2023-08-02 Twitter   @bob_tweets Need assistance -0.281915764
## 750  2023-08-19 Twitter   carol_slack    Team meeting  0.578111817
## 751  2023-08-14 Twitter  dave@example Need assistance -0.273263505
## 752  2023-08-13   Email   @frank_chat     Great work! -0.693289580
## 753  2023-08-18   Slack  @erin_tweets Hello everyone! -0.395961934
## 754  2023-08-15 Twitter  @erin_tweets Need assistance  0.787741330
## 755  2023-08-01 Twitter   @frank_chat Need assistance -0.970480603
## 756  2023-08-03   Slack alice@example    Fun weekend!  0.542070733
## 757  2023-08-07   Slack   @bob_tweets Need assistance  0.251102221
## 758  2023-08-01   Slack   @frank_chat    Team meeting -0.113114946
## 759  2023-08-08   Email alice@example Hello everyone! -0.666331347
## 760  2023-08-01   Email   @bob_tweets    Team meeting  0.783531986
## 761  2023-08-05   Slack  dave@example     Great work!  0.018169560
## 762  2023-08-02   Email   @frank_chat    Fun weekend!  0.129630754
## 763  2023-08-08   Slack  @erin_tweets    Team meeting  0.849549761
## 764  2023-08-11 Twitter   carol_slack     Great work!  0.782265475
## 765  2023-08-12   Email alice@example  Exciting news! -0.995861550
## 766  2023-08-11   Slack   @bob_tweets     Great work! -0.549234209
## 767  2023-08-03   Email   @frank_chat    Fun weekend!  0.992682932
## 768  2023-08-08 Twitter   carol_slack  Exciting news!  0.614791796
## 769  2023-08-01 Twitter  @erin_tweets Hello everyone! -0.325806037
## 770  2023-08-10   Slack   @bob_tweets  Exciting news! -0.873230109
## 771  2023-08-12   Email alice@example    Team meeting  0.255163795
## 772  2023-08-16   Email   carol_slack Hello everyone! -0.851052538
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## 773  2023-08-10 Twitter   @erin_tweets     Great work!  0.181200765
## 774  2023-08-09   Email     @frank_chat Hello everyone! -0.633588556
## 775  2023-08-01 Twitter     @frank_chat     Great work!  0.159243134
## 776  2023-08-15   Slack     dave@example     Great work! -0.481857921
## 777  2023-08-19 Twitter  alice@example Hello everyone! -0.378329881
## 778  2023-08-04 Twitter     @frank_chat  Exciting news!  0.795437461
## 779  2023-08-16 Twitter     @bob_tweets     Great work! -0.674055766
## 780  2023-08-07   Slack     dave@example Hello everyone!  0.747580624
## 781  2023-08-14 Twitter     carol_slack Need assistance  0.739025190
## 782  2023-08-15   Slack     @frank_chat Hello everyone! -0.508614742
## 783  2023-08-14 Twitter     @bob_tweets  Exciting news!  0.671785708
## 784  2023-08-10   Slack  alice@example Need assistance -0.917325706
## 785  2023-08-09 Twitter   @erin_tweets Need assistance -0.600080754
## 786  2023-08-11   Email     @bob_tweets     Great work! -0.539260621
## 787  2023-08-02   Slack     carol_slack     Great work!  0.066785066
## 788  2023-08-15 Twitter     carol_slack    Team meeting -0.074092148
## 789  2023-08-06 Twitter     @bob_tweets  Exciting news!  0.979591473
## 790  2023-08-07   Slack     @bob_tweets Need assistance -0.846264025
## 791  2023-08-15   Slack   @erin_tweets Hello everyone! -0.562214842
## 792  2023-08-15   Email     @frank_chat    Fun weekend!  0.535877908
## 793  2023-08-13   Slack     dave@example Hello everyone! -0.945477226
## 794  2023-08-12 Twitter   @erin_tweets Need assistance -0.329706852
## 795  2023-08-19 Twitter     @bob_tweets Hello everyone!  0.420571170
## 796  2023-08-19 Twitter     @frank_chat  Exciting news!  0.221380584
## 797  2023-08-06 Twitter     carol_slack    Fun weekend!  0.394200163
## 798  2023-08-11   Slack     carol_slack    Team meeting  0.921573296
## 799  2023-08-12   Slack     carol_slack    Team meeting  0.504667453
## 800  2023-08-13   Slack  alice@example    Team meeting -0.927027794
## 801  2023-08-14   Email     @bob_tweets    Team meeting -0.996662613
## 802  2023-08-09   Slack   @erin_tweets    Fun weekend!  0.525517232
## 803  2023-08-17   Slack  alice@example     Great work! -0.853163924
## 804  2023-08-09   Slack     carol_slack Hello everyone!  0.346090994
## 805  2023-08-06   Slack   @erin_tweets  Exciting news!  0.063273371
## 806  2023-08-19   Slack     @frank_chat    Team meeting -0.887928675
## 807  2023-08-17 Twitter     @frank_chat    Team meeting -0.608078998
## 808  2023-08-10   Email   @erin_tweets Hello everyone!  0.063933458
## 809  2023-08-12 Twitter     @bob_tweets    Fun weekend!  0.226440192
## 810  2023-08-18   Slack  alice@example     Great work! -0.114574431
## 811  2023-08-17 Twitter     carol_slack Need assistance -0.065970336
## 812  2023-08-10   Slack     @frank_chat Hello everyone!  0.672468295
## 813  2023-08-12   Email  alice@example  Exciting news! -0.616592484
## 814  2023-08-04   Slack     @frank_chat Need assistance  0.165087673
## 815  2023-08-13   Email     @bob_tweets  Exciting news!  0.553149406
## 816  2023-08-04   Email     @bob_tweets    Fun weekend! -0.953222217
## 817  2023-08-09   Email  alice@example    Fun weekend!  0.893210486
## 818  2023-08-11 Twitter  alice@example Hello everyone! -0.120084892
## 819  2023-08-08   Slack   @erin_tweets Hello everyone! -0.568787924
## 820  2023-08-11   Email  alice@example    Team meeting -0.641849058
## 821  2023-08-18 Twitter  alice@example    Fun weekend!  0.977650215
## 822  2023-08-16   Slack     @frank_chat    Fun weekend!  0.269629325
## 823  2023-08-06   Slack     carol_slack Need assistance  0.572155187
## 824  2023-08-04   Slack     @frank_chat    Fun weekend! -0.530567507
## 825  2023-08-14 Twitter     dave@example    Fun weekend! -0.998980226
## 826  2023-08-09 Twitter     @frank_chat Hello everyone!  0.649366590
```

```
## 827  2023-08-12    Email    carol_slack    Team meeting -0.492082868
## 828  2023-08-03    Slack  alice@example Need assistance  0.135939530
## 829  2023-08-07    Slack   dave@example Hello everyone!  0.593321668
## 830  2023-08-18 Twitter   dave@example     Great work! -0.160749977
## 831  2023-08-20    Slack    carol_slack    Fun weekend!  0.231915887
## 832  2023-08-03    Email  alice@example    Fun weekend!  0.312383833
## 833  2023-08-14    Slack    @bob_tweets    Team meeting -0.709024122
## 834  2023-08-18 Twitter    @bob_tweets    Fun weekend!  0.866654206
## 835  2023-08-03    Email  alice@example Hello everyone! -0.440484574
## 836  2023-08-12 Twitter    carol_slack    Team meeting  0.704733795
## 837  2023-08-10 Twitter    carol_slack     Great work!  0.268422757
## 838  2023-08-18    Slack    @bob_tweets    Fun weekend! -0.898072343
## 839  2023-08-19    Email    @frank_chat     Great work!  0.463513046
## 840  2023-08-03    Email    carol_slack Need assistance -0.161143415
## 841  2023-08-19    Email  alice@example Hello everyone! -0.040838550
## 842  2023-08-11    Slack    @frank_chat    Fun weekend!  0.312006338
## 843  2023-08-20    Slack    @bob_tweets Hello everyone!  0.520647362
## 844  2023-08-05 Twitter    @bob_tweets   Exciting news! -0.798021044
## 845  2023-08-14 Twitter  alice@example     Great work! -0.652119522
## 846  2023-08-10    Email    @bob_tweets   Exciting news! -0.286527871
## 847  2023-08-10 Twitter   @erin_tweets     Great work!  0.282790715
## 848  2023-08-07 Twitter   @erin_tweets     Great work! -0.597466531
## 849  2023-08-03    Slack    @frank_chat Hello everyone!  0.368215033
## 850  2023-08-08    Slack   @erin_tweets Need assistance  0.593302410
## 851  2023-08-16    Slack   @erin_tweets  Exciting news! -0.113282133
## 852  2023-08-12    Email    carol_slack Need assistance  0.937844194
## 853  2023-08-10    Email    @frank_chat    Fun weekend! -0.520876877
## 854  2023-08-19    Email   @erin_tweets     Great work!  0.570171806
## 855  2023-08-19    Email   dave@example    Team meeting -0.528815492
## 856  2023-08-05    Email    @bob_tweets Hello everyone!  0.725036937
## 857  2023-08-05 Twitter    carol_slack Hello everyone! -0.279889458
## 858  2023-08-12 Twitter    carol_slack    Fun weekend! -0.455487390
## 859  2023-08-03 Twitter    @bob_tweets Hello everyone!  0.401231622
## 860  2023-08-19 Twitter   @erin_tweets  Exciting news!  0.638825124
## 861  2023-08-05    Email  alice@example Hello everyone! -0.822144668
## 862  2023-08-07    Slack    @bob_tweets Hello everyone! -0.160779689
## 863  2023-08-14 Twitter    @bob_tweets    Fun weekend!  0.567614020
## 864  2023-08-11 Twitter   @erin_tweets Need assistance -0.102778860
## 865  2023-08-04 Twitter    @bob_tweets  Exciting news!  0.053784013
## 866  2023-08-07    Slack    @bob_tweets    Fun weekend! -0.511013610
## 867  2023-08-10 Twitter   dave@example    Team meeting -0.879799920
## 868  2023-08-06    Slack   @erin_tweets     Great work! -0.387922954
## 869  2023-08-10    Slack   dave@example  Exciting news! -0.750027833
## 870  2023-08-01    Slack    @bob_tweets Need assistance -0.614020258
## 871  2023-08-17    Email    @frank_chat  Exciting news! -0.770805090
## 872  2023-08-15 Twitter    carol_slack Hello everyone! -0.638266036
## 873  2023-08-16 Twitter   dave@example    Team meeting  0.796688539
## 874  2023-08-13    Slack    carol_slack Hello everyone! -0.416070993
## 875  2023-08-03    Slack    @bob_tweets     Great work!  0.884830707
## 876  2023-08-14 Twitter  alice@example     Great work! -0.232635738
## 877  2023-08-01 Twitter   @erin_tweets  Exciting news!  0.423581860
## 878  2023-08-05    Email  alice@example Need assistance  0.694902051
## 879  2023-08-14    Slack  alice@example Hello everyone! -0.798660460
## 880  2023-08-07 Twitter    @bob_tweets     Great work! -0.389785778
```

```
## 881  2023-08-12    Email alice@example Need assistance  0.120129855
## 882  2023-08-14    Slack alice@example Hello everyone! -0.691606675
## 883  2023-08-07    Slack   @bob_tweets     Great work!  0.872962321
## 884  2023-08-05  Twitter  @erin_tweets    Fun weekend!  0.619198539
## 885  2023-08-01    Email   carol_slack     Great work!  0.605523043
## 886  2023-08-14    Email  dave@example Hello everyone! -0.359136123
## 887  2023-08-16    Email   @bob_tweets     Great work! -0.351176404
## 888  2023-08-08  Twitter  dave@example Need assistance  0.911442756
## 889  2023-08-13    Email alice@example Need assistance  0.596431601
## 890  2023-08-01  Twitter   carol_slack     Great work! -0.311684015
## 891  2023-08-09    Email   @frank_chat    Fun weekend! -0.789119672
## 892  2023-08-19    Slack   @frank_chat    Team meeting -0.472906698
## 893  2023-08-19    Slack  dave@example    Team meeting -0.789976987
## 894  2023-08-06    Slack   @bob_tweets Need assistance  0.743181323
## 895  2023-08-01    Email   @frank_chat    Team meeting -0.307752223
## 896  2023-08-01    Email  dave@example     Great work! -0.948017055
## 897  2023-08-05    Email   @frank_chat    Team meeting  0.611721705
## 898  2023-08-06    Email  @erin_tweets Hello everyone! -0.318016798
## 899  2023-08-11    Slack  @erin_tweets    Team meeting -0.893834382
## 900  2023-08-20    Email   carol_slack    Team meeting  0.082343857
## 901  2023-08-03    Slack  @erin_tweets Need assistance -0.600851388
## 902  2023-08-18    Slack   @bob_tweets    Team meeting  0.192284770
## 903  2023-08-10    Email  dave@example Need assistance  0.834841503
## 904  2023-08-17  Twitter   @bob_tweets     Great work!  0.401612313
## 905  2023-08-08    Slack  @erin_tweets    Team meeting  0.068864945
## 906  2023-08-20  Twitter   @frank_chat   Exciting news!  0.307898677
## 907  2023-08-07  Twitter   @bob_tweets     Great work! -0.548428072
## 908  2023-08-15    Slack alice@example Need assistance  0.899728119
## 909  2023-08-08    Email   carol_slack     Great work!  0.710615378
## 910  2023-08-14    Email  @erin_tweets    Fun weekend!  0.035476264
## 911  2023-08-01  Twitter   @frank_chat Need assistance -0.003094339
## 912  2023-08-10  Twitter   @frank_chat    Fun weekend! -0.528116655
## 913  2023-08-20  Twitter  dave@example     Great work! -0.124954135
## 914  2023-08-10    Slack   @frank_chat Need assistance  0.626154714
## 915  2023-08-02    Slack   carol_slack    Fun weekend!  0.045978463
## 916  2023-08-09    Email  dave@example    Fun weekend!  0.698494015
## 917  2023-08-10    Slack   @frank_chat Need assistance -0.198273231
## 918  2023-08-13    Email   @bob_tweets Hello everyone!  0.264306294
## 919  2023-08-05    Slack  @erin_tweets    Fun weekend! -0.240693055
## 920  2023-08-20    Email  dave@example    Team meeting -0.075425136
## 921  2023-08-15  Twitter alice@example     Great work!  0.798867194
## 922  2023-08-18    Slack alice@example    Fun weekend! -0.088887415
## 923  2023-08-12  Twitter  @erin_tweets Need assistance  0.298994374
## 924  2023-08-17  Twitter alice@example   Exciting news!  0.968932204
## 925  2023-08-10    Slack  dave@example     Great work!  0.746216161
## 926  2023-08-10    Slack alice@example    Team meeting -0.939407335
## 927  2023-08-02    Slack   @bob_tweets     Great work! -0.666475324
## 928  2023-08-10  Twitter   carol_slack Need assistance  0.809991531
## 929  2023-08-09    Slack  dave@example Need assistance  0.662048494
## 930  2023-08-18  Twitter alice@example Hello everyone! -0.936083395
## 931  2023-08-01    Email   carol_slack     Great work! -0.389590032
## 932  2023-08-11    Email   carol_slack    Fun weekend!  0.355941510
## 933  2023-08-03    Slack  @erin_tweets Need assistance  0.896539724
## 934  2023-08-20    Email alice@example Hello everyone! -0.555095884
```

```
## 935 2023-08-17    Email   dave@example    Team meeting -0.047711935
## 936 2023-08-13 Twitter   dave@example   Exciting news! -0.618614707
## 937 2023-08-13 Twitter    carol_slack     Fun weekend! -0.412842807
## 938 2023-08-04    Email    @bob_tweets       Great work! -0.251496902
## 939 2023-08-16    Email    @bob_tweets Need assistance -0.459899545
## 940 2023-08-17 Twitter    carol_slack Need assistance -0.101536875
## 941 2023-08-06 Twitter    carol_slack   Exciting news! -0.329569053
## 942 2023-08-01    Slack  alice@example   Exciting news!  0.350437745
## 943 2023-08-08    Email  alice@example   Exciting news!  0.529548995
## 944 2023-08-13 Twitter  alice@example       Great work! -0.806566573
## 945 2023-08-06    Slack    carol_slack   Exciting news! -0.249575844
## 946 2023-08-08    Email   @erin_tweets Hello everyone! -0.064463819
## 947 2023-08-20    Slack   @erin_tweets Hello everyone! -0.357717138
## 948 2023-08-01 Twitter    @frank_chat Need assistance -0.696885624
## 949 2023-08-02    Slack   dave@example   Exciting news! -0.662697271
## 950 2023-08-11    Email   dave@example Need assistance  0.060486035
## 951 2023-08-11    Slack   @erin_tweets       Great work! -0.704862314
## 952 2023-08-05    Slack    @frank_chat Need assistance -0.129298556
## 953 2023-08-07    Email    @bob_tweets     Fun weekend!  0.079245736
## 954 2023-08-20 Twitter    carol_slack Hello everyone!  0.640248996
## 955 2023-08-01    Slack   dave@example Need assistance -0.988749139
## 956 2023-08-09    Email   @erin_tweets Need assistance  0.953375103
## 957 2023-08-12    Slack    carol_slack Need assistance -0.044029484
## 958 2023-08-19    Slack  alice@example   Exciting news!  0.502961815
## 959 2023-08-17 Twitter    carol_slack   Exciting news! -0.237763272
## 960 2023-08-11 Twitter    @frank_chat Hello everyone!  0.807257727
## 961 2023-08-17 Twitter   @erin_tweets    Team meeting -0.666378770
## 962 2023-08-06    Email   dave@example Need assistance  0.492307736
## 963 2023-08-10    Email    @frank_chat   Exciting news! -0.010767524
## 964 2023-08-18    Email    @bob_tweets Need assistance  0.453627230
## 965 2023-08-07    Slack    carol_slack       Great work!  0.937586371
## 966 2023-08-09    Email    @frank_chat    Team meeting -0.712716471
## 967 2023-08-18 Twitter    @bob_tweets       Great work! -0.839583620
## 968 2023-08-06 Twitter   dave@example    Team meeting  0.165403601
## 969 2023-08-02    Slack   @erin_tweets       Great work! -0.887057793
## 970 2023-08-17    Email    @frank_chat Need assistance -0.837423526
## 971 2023-08-08    Email    @frank_chat    Team meeting  0.778342899
## 972 2023-08-20 Twitter   @erin_tweets   Exciting news!  0.131818828
## 973 2023-08-02 Twitter   @erin_tweets Need assistance  0.821079701
## 974 2023-08-08    Slack   @erin_tweets   Exciting news!  0.085280708
## 975 2023-08-01    Email   @erin_tweets     Fun weekend!  0.203746784
## 976 2023-08-12 Twitter   dave@example       Great work! -0.462906254
## 977 2023-08-19 Twitter  alice@example Hello everyone!  0.857508211
## 978 2023-08-12 Twitter  alice@example    Team meeting  0.582250814
## 979 2023-08-07    Slack    @bob_tweets       Great work!  0.170066014
## 980 2023-08-08 Twitter  alice@example       Great work!  0.552484959
## 981 2023-08-14    Email   @erin_tweets       Great work! -0.129584252
## 982 2023-08-13    Email   @erin_tweets     Fun weekend!  0.418006041
## 983 2023-08-18    Email  alice@example    Team meeting -0.377541550
## 984 2023-08-10 Twitter   dave@example     Fun weekend! -0.363247766
## 985 2023-08-03    Slack    @bob_tweets Need assistance  0.496275815
## 986 2023-08-08 Twitter    @bob_tweets Need assistance -0.716619523
## 987 2023-08-05    Email    @bob_tweets    Team meeting  0.243233590
## 988 2023-08-17    Slack   @erin_tweets Hello everyone!  0.937329018
```

```
## 989  2023-08-03   Slack  dave@example     Great work!  0.675534202
## 990  2023-08-07   Slack alice@example    Fun weekend!  0.844455994
## 991  2023-08-18   Slack   @frank_chat     Great work! -0.071027102
## 992  2023-08-12   Slack  @erin_tweets Hello everyone! -0.360894154
## 993  2023-08-10   Email   @bob_tweets Need assistance -0.316063035
## 994  2023-08-14   Slack  dave@example  Exciting news! -0.531753783
## 995  2023-08-04 Twitter  dave@example    Team meeting -0.785379849
## 996  2023-08-05 Twitter   @frank_chat Hello everyone!  0.599585856
## 997  2023-08-12 Twitter alice@example  Exciting news!  0.874988238
## 998  2023-08-07   Slack   carol_slack  Exciting news!  0.186763622
## 999  2023-08-08   Slack  @erin_tweets    Fun weekend!  0.172925062
## 1000 2023-08-03   Email   @frank_chat Hello everyone!  0.583445542
```

```r
comm_data <- read_csv("CommQuest2023_Larger.csv")
```

```
## Rows: 1000 Columns: 5
## -- Column specification -------------------------------------------------
## Delimiter: ","
## chr  (3): channel, sender, message
## dbl  (1): sentiment
## date (1): date
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

Question-1: Communication Chronicles   Using the select command, create a new dataframe containing only the "date," "channel," and "message" columns from the "comm_data" dataset.

Solution:

```r
# Enter code here
select(comm_data, date, channel, message)
```

```
## # A tibble: 1,000 x 3
##    date       channel message
##    <date>     <chr>   <chr>
##  1 2023-08-11 Twitter Fun weekend!
##  2 2023-08-11 Email   Hello everyone!
##  3 2023-08-11 Slack   Hello everyone!
##  4 2023-08-18 Email   Fun weekend!
##  5 2023-08-14 Slack   Need assistance
##  6 2023-08-04 Email   Need assistance
##  7 2023-08-10 Twitter Hello everyone!
##  8 2023-08-04 Slack   Hello everyone!
##  9 2023-08-20 Email   Team meeting
## 10 2023-08-09 Slack   Hello everyone!
## # i 990 more rows
```

Question-2: Channel Selection   Use the filter command to create a new dataframe that includes messages sent through the "Twitter" channel on August 2nd.

Solution:

```
# Enter code here
comm_data %>% filter(channel == "Twitter", date == "2023-08-02") %>% select(date, channel, message)
```

```
## # A tibble: 15 x 3
##    date       channel message
##    <date>     <chr>   <chr>
##  1 2023-08-02 Twitter Team meeting
##  2 2023-08-02 Twitter Exciting news!
##  3 2023-08-02 Twitter Exciting news!
##  4 2023-08-02 Twitter Exciting news!
##  5 2023-08-02 Twitter Exciting news!
##  6 2023-08-02 Twitter Team meeting
##  7 2023-08-02 Twitter Great work!
##  8 2023-08-02 Twitter Hello everyone!
##  9 2023-08-02 Twitter Hello everyone!
## 10 2023-08-02 Twitter Need assistance
## 11 2023-08-02 Twitter Need assistance
## 12 2023-08-02 Twitter Need assistance
## 13 2023-08-02 Twitter Exciting news!
## 14 2023-08-02 Twitter Need assistance
## 15 2023-08-02 Twitter Need assistance
```

Question-3: Chronological Order Utilizing the arrange command, arrange the "comm_data" dataframe in ascending order based on the "date" column.

Solution:

```
# Enter code here
arrange(comm_data, date)
```

```
## # A tibble: 1,000 x 5
##    date       channel sender       message         sentiment
##    <date>     <chr>   <chr>        <chr>               <dbl>
##  1 2023-08-01 Twitter alice@example Need assistance     0.677
##  2 2023-08-01 Twitter @bob_tweets   Need assistance     0.148
##  3 2023-08-01 Twitter @frank_chat   Need assistance     0.599
##  4 2023-08-01 Twitter @frank_chat   Exciting news!     -0.823
##  5 2023-08-01 Slack   @frank_chat   Team meeting       -0.202
##  6 2023-08-01 Slack   @bob_tweets   Exciting news!      0.146
##  7 2023-08-01 Slack   @erin_tweets  Great work!         0.244
##  8 2023-08-01 Twitter @frank_chat   Team meeting       -0.526
##  9 2023-08-01 Twitter @frank_chat   Exciting news!     -0.399
## 10 2023-08-01 Slack   @frank_chat   Need assistance     0.602
## # i 990 more rows
```

Question-4: Distinct Discovery Apply the distinct command to find the unique senders in the "comm_data" dataframe.

Solution:

```
# Enter code here
comm_data %>% distinct(sender)
```

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```
## # A tibble: 6 x 1
##   sender
##   <chr>
## 1 dave@example
## 2 @bob_tweets
## 3 @frank_chat
## 4 @erin_tweets
## 5 alice@example
## 6 carol_slack
```

Question-5: Sender Stats   Employ the count and group_by commands to generate a summary table that shows the count of messages sent by each sender in the "comm_data" dataframe.

Solution:

```
# Enter code here
comm_data %>% group_by(sender) %>% summarise(count = n())
```

```
## # A tibble: 6 x 2
##   sender         count
##   <chr>          <int>
## 1 @bob_tweets      179
## 2 @erin_tweets     171
## 3 @frank_chat      174
## 4 alice@example    180
## 5 carol_slack      141
## 6 dave@example     155
```

Question-6: Channel Chatter Insights   Using the group_by and count commands, create a summary table that displays the count of messages sent through each communication channel in the "comm_data" dataframe.

Solution:

```
# Enter code here
comm_data %>% group_by(channel) %>% summarise(count = n())
```

```
## # A tibble: 3 x 2
##   channel count
##   <chr>   <int>
## 1 Email     331
## 2 Slack     320
## 3 Twitter   349
```

Question-7: Positive Pioneers   Utilize the filter, select, and arrange commands to identify the top three senders with the highest average positive sentiment scores. Display their usernames and corresponding sentiment averages.

Solution:

```
# Enter code here
positive_scores <- comm_data %>% filter(sentiment > 0)
average_scores <- positive_scores%>% group_by(sender) %>% summarise(average_sentiment = mean(sentiment))
sorted_scores <- average_scores %>% arrange(desc(average_sentiment))
top_three_senders <- sorted_scores %>% head(3) %>% select(sender, average_sentiment)
print(top_three_senders)
```

```
## # A tibble: 3 x 2
##   sender        average_sentiment
##   <chr>                     <dbl>
## 1 dave@example              0.541
## 2 @frank_chat               0.528
## 3 alice@example             0.493
```

Question-8: Message Mood Over Time With the group_by, summarise, and arrange commands, calculate the average sentiment score for each day in the "comm_data" dataframe.

Solution:

```
# Enter code here
average_sentiment <- comm_data %>% group_by(date) %>% summarise(average_sentiment = mean(sentiment))
score_for_each_day <- arrange(average_sentiment, date)
print(score_for_each_day)
```

```
## # A tibble: 20 x 2
##    date       average_sentiment
##    <date>                 <dbl>
##  1 2023-08-01           -0.0616
##  2 2023-08-02            0.136
##  3 2023-08-03            0.107
##  4 2023-08-04           -0.0510
##  5 2023-08-05            0.193
##  6 2023-08-06           -0.0144
##  7 2023-08-07            0.0364
##  8 2023-08-08            0.0666
##  9 2023-08-09            0.0997
## 10 2023-08-10           -0.0254
## 11 2023-08-11           -0.0340
## 12 2023-08-12            0.0668
## 13 2023-08-13           -0.0604
## 14 2023-08-14           -0.0692
## 15 2023-08-15            0.0617
## 16 2023-08-16           -0.0220
## 17 2023-08-17           -0.0191
## 18 2023-08-18           -0.0760
## 19 2023-08-19            0.0551
## 20 2023-08-20            0.0608
```

Question-9: Selective Sentiments Use the filter and select commands to extract messages with a negative sentiment score (less than 0) and create a new dataframe.

Solution:

```
# Enter code here
comm_data %>% mutate(sentiment) %>% filter(sentiment < 0) %>% select(message, sentiment)
```

```
## # A tibble: 487 x 2
##    message          sentiment
##    <chr>                <dbl>
##  1 Hello everyone!     -0.143
##  2 Need assistance     -0.108
##  3 Hello everyone!     -0.741
##  4 Hello everyone!     -0.188
##  5 Hello everyone!     -0.933
##  6 Need assistance     -0.879
##  7 Great work!         -0.752
##  8 Team meeting        -0.787
##  9 Fun weekend!        -0.539
## 10 Exciting news!      -0.142
## # i 477 more rows
```

Question-10: Enhancing Engagement Apply the mutate command to add a new column to the "comm_data" dataframe, representing a sentiment label: "Positive," "Neutral," or "Negative," based on the sentiment score.

Solution:

```
# Enter code here
comm_data %>% mutate(sentiment = case_when(sentiment > 0 ~ "Positive", sentiment < 0 ~ "Negative", TRUE
```

```
## # A tibble: 1,000 x 5
##    date       channel sender       message         sentiment
##    <date>     <chr>   <chr>        <chr>           <chr>
##  1 2023-08-11 Twitter dave@example Fun weekend!    Positive
##  2 2023-08-11 Email   @bob_tweets  Hello everyone! Positive
##  3 2023-08-11 Slack   @frank_chat  Hello everyone! Negative
##  4 2023-08-18 Email   @frank_chat  Fun weekend!    Positive
##  5 2023-08-14 Slack   @frank_chat  Need assistance Positive
##  6 2023-08-04 Email   @erin_tweets Need assistance Negative
##  7 2023-08-10 Twitter @frank_chat  Hello everyone! Negative
##  8 2023-08-04 Slack   alice@example Hello everyone! Negative
##  9 2023-08-20 Email   dave@example Team meeting    Positive
## 10 2023-08-09 Slack   @erin_tweets Hello everyone! Negative
## # i 990 more rows
```

Question-11: Message Impact Create a new dataframe using the mutate and arrange commands that calculates the product of the sentiment score and the length of each message. Arrange the results in descending order.

Solution:

```
# Enter code here
comm_data %>% mutate(message_length = nchar(message), product = sentiment * message_length) %>% arrange
```

```
## # A tibble: 1,000 x 7
##    date       channel sender      message       sentiment message_length product
##    <date>     <chr>   <chr>       <chr>             <dbl>          <int>   <dbl>
##  1 2023-08-16 Email   @frank_chat Hello every~      0.998             15    15.0
##  2 2023-08-14 Slack   @erin_tweets Hello every~     0.988             15    14.8
##  3 2023-08-18 Email   dave@example Hello every~     0.978             15    14.7
##  4 2023-08-17 Email   dave@example Hello every~     0.977             15    14.7
##  5 2023-08-07 Slack   carol_slack Hello every~      0.973             15    14.6
##  6 2023-08-06 Slack   dave@example Hello every~     0.968             15    14.5
##  7 2023-08-08 Slack   @frank_chat Need assist~      0.964             15    14.5
##  8 2023-08-09 Email   @erin_tweets Need assist~     0.953             15    14.3
##  9 2023-08-17 Twitter @frank_chat Hello every~      0.952             15    14.3
## 10 2023-08-12 Email   carol_slack Need assist~      0.938             15    14.1
## # i 990 more rows
```

Question-12: Daily Message Challenge   Use the group_by, summarise, and arrange commands to find the day with the highest total number of characters sent across all messages in the "comm_data" dataframe.

Solution:

```r
# Enter code here
comm_data %>% group_by(date) %>% summarise(total_characters = sum(nchar(message))) %>% arrange(desc(tota
```

```
## # A tibble: 1 x 2
##   date       total_characters
##   <date>                <int>
## 1 2023-08-10              875
```

Question-13: Untidy data   Can you list at least two reasons why the dataset illustrated in slide 10 is non-tidy? How can it be made Tidy?

Solution: Firstly, the dataset illustrated in slide 10 is non-tidy as there are multiple variables in the "subject" column. Secondly, the dataset contains the same variable in different format under the "Percent" column. It can be tidied using functions such as 'select' and 'arrange'.