Challenge-4

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4/09/23

Questions

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

```
# Enter code here
comm_data <-read.csv('CommQuest2023_Larger.csv')</pre>
head(comm data)
```

```
##
          date channel
                            sender
                                          message sentiment
## 1 2023-08-11 Twitter dave@example Fun weekend! 0.8240997
## 2 2023-08-11 Email @bob_tweets Hello everyone! 0.6624869
## 3 2023-08-11 Slack @frank_chat Hello everyone! -0.1434508
## 4 2023-08-18 Email @frank chat
                                     Fun weekend! 0.3801966
## 5 2023-08-14 Slack @frank_chat Need assistance 0.1879540
## 6 2023-08-04 Email @erin_tweets Need assistance -0.1083762
```

Question-1: Communication Chronicles

Warning: package 'purrr' was built under R version 4.2.3

Using the select command, create a new dataframe containing only the "date," "channel," and "message" columns from the "comm_data" dataset.

Solution:

```
# Enter code here
#comm data
library(tidyverse)
## Warning: package 'tidyverse' was built under R version 4.2.3
## Warning: package 'ggplot2' was built under R version 4.2.3
## Warning: package 'tibble' was built under R version 4.2.3
## Warning: package 'tidyr' was built under R version 4.2.3
## Warning: package 'readr' was built under R version 4.2.3
```

```
## Warning: package 'dplyr' was built under R version 4.2.3
## Warning: package 'stringr' was built under R version 4.2.2
## Warning: package 'forcats' was built under R version 4.2.3
## Warning: package 'lubridate' was built under R version 4.2.3
## — Attaching core tidyverse packages —
                                                         ----- tidyverse 2.0.0 --
## √ dplyr 1.1.2 √ readr
                                     2.1.4
## √ forcats 1.0.0 √ stringr
                                     1.5.0
## √ ggplot2 3.4.3 √ tibble 3.2.1
## ✓ lubridate 1.9.2 ✓ tidyr
                                     1.3.0
## √ purrr
              1.0.2
                                               ------ tidyverse_conflicts() —
## — Conflicts —
## X dplyr::filter() masks stats::filter()
## X dplyr::lag() masks stats::lag()
## i Use the conflicted package (<a href="http://conflicted.r-lib.org/">http://conflicted.r-lib.org/</a>) to force all conflicts to be
```

```
library(dplyr)
select(comm_data, date, channel, message)
```

come errors

```
##
              date channel
                                    message
        2023-08-11 Twitter
## 1
                               Fun weekend!
## 2
        2023-08-11
                     Email Hello everyone!
## 3
        2023-08-11
                     Slack Hello everyone!
        2023-08-18
                               Fun weekend!
## 4
                     Email
## 5
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## 6
        2023-08-04
                     Email Need assistance
## 7
        2023-08-10 Twitter Hello everyone!
                     Slack Hello everyone!
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        2023-08-05 Twitter
## 711
        2023-08-15 Twitter Hello everyone!
## 712
        2023-08-14
                      Slack
                             Exciting news!
## 713
        2023-08-05 Twitter
                                Great work!
## 714
        2023-08-02 Twitter
                             Exciting news!
## 715
        2023-08-18
                      Slack Hello everyone!
## 716
        2023-08-08
                      Email
                               Fun weekend!
## 717
                      Email Need assistance
        2023-08-12
## 718
        2023-08-09 Twitter
                             Exciting news!
## 719
        2023-08-16 Twitter
                             Exciting news!
## 720
        2023-08-13 Twitter Hello everyone!
## 721
        2023-08-08
                      Email
                               Fun weekend!
## 722
        2023-08-03
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## 723
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## 724
        2023-08-06
                      Email
                                Great work!
## 725
                                Great work!
        2023-08-12
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## 726
        2023-08-03
                      Slack Need assistance
```

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## 727
        2023-08-12
                      Email
                               Fun weekend!
                      Email Need assistance
## 728
        2023-08-15
## 729
        2023-08-14
                      Slack Hello everyone!
## 730
        2023-08-20
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                               Fun weekend!
## 731
        2023-08-07
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## 732
        2023-08-10 Twitter
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## 735
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## 745
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## 746
        2023-08-13
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        2023-08-11 Twitter
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## 749
        2023-08-02 Twitter Need assistance
## 750
        2023-08-19 Twitter
                               Team meeting
## 751
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## 752
        2023-08-13
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                                Great work!
## 753
        2023-08-18
                      Slack Hello everyone!
## 754
        2023-08-15 Twitter Need assistance
## 755
        2023-08-01 Twitter Need assistance
## 756
        2023-08-03
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## 757
        2023-08-07
                     Slack Need assistance
## 758
        2023-08-01
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## 759
        2023-08-08
                     Email Hello everyone!
## 760
        2023-08-01
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## 761
        2023-08-05
                               Great work!
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        2023-08-02
                               Fun weekend!
## 762
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## 763
        2023-08-08
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        2023-08-01 Twitter Hello everyone!
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## 771
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## 772
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## 773
        2023-08-10 Twitter
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## 774
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                      Email Hello everyone!
## 775
        2023-08-01 Twitter
                                Great work!
## 776
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                                Great work!
                      Slack
## 777
        2023-08-19 Twitter Hello everyone!
## 778
        2023-08-04 Twitter
                             Exciting news!
## 779
        2023-08-16 Twitter
                                Great work!
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  780
        2023-08-07
                      Slack Hello everyone!
## 781
        2023-08-14 Twitter Need assistance
## 782
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## 783
        2023-08-14 Twitter Exciting news!
                      Slack Need assistance
## 784
        2023-08-10
## 785
        2023-08-09 Twitter Need assistance
## 786
        2023-08-11
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                                Great work!
## 787
        2023-08-02
                      Slack
                                Great work!
## 788
        2023-08-15 Twitter
                               Team meeting
                            Exciting news!
## 789
        2023-08-06 Twitter
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        2023-08-07
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## 791
        2023-08-15
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## 792
        2023-08-15
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                               Fun weekend!
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        2023-08-06 Twitter
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## 798
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## 800
        2023-08-13
                      Slack
                               Team meeting
## 801
        2023-08-14
                      Email
                               Team meeting
## 802
        2023-08-09
                      Slack
                               Fun weekend!
## 803
        2023-08-17
                      Slack
                                Great work!
## 804
        2023-08-09
                      Slack Hello everyone!
## 805
        2023-08-06
                      Slack
                            Exciting news!
## 806
        2023-08-19
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                               Team meeting
## 807
        2023-08-17 Twitter
                               Team meeting
## 808
        2023-08-10
                      Email Hello everyone!
## 809
        2023-08-12 Twitter
                               Fun weekend!
## 810
        2023-08-18
                      Slack
                                Great work!
## 811
        2023-08-17 Twitter Need assistance
## 812
        2023-08-10
                     Slack Hello everyone!
## 813
        2023-08-12
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## 814
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        2023-08-13
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        2023-08-04
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## 817
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## 820
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                      Email
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## 821
        2023-08-18 Twitter
                               Fun weekend!
## 822
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                               Fun weekend!
                      Slack
## 823
        2023-08-06
                      Slack Need assistance
## 824
        2023-08-04
                      Slack
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## 825
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## 826
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## 827
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        2023-08-03
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## 831
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                               Fun weekend!
## 832
        2023-08-03
                               Fun weekend!
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        2023-08-14
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                               Team meeting
## 834
        2023-08-18 Twitter
                               Fun weekend!
## 835
        2023-08-03
                      Email Hello everyone!
## 836
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## 837
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        2023-08-10 Twitter
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                      Slack
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```
## 839
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                      Email Need assistance
## 840
        2023-08-03
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        2023-08-19
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## 842
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## 843
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        2023-08-10 Twitter
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## 857
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## 858
        2023-08-12 Twitter
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## 859
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## 880
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                     Email Need assistance
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## 883
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## 886
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## 887
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                                Great work!
## 888
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## 889
        2023-08-13
                      Email Need assistance
## 890
        2023-08-01 Twitter
                                Great work!
## 891
        2023-08-09
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                               Fun weekend!
## 892
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                               Team meeting
## 893
        2023-08-19
                      Slack
                               Team meeting
## 894
        2023-08-06
                     Slack Need assistance
```

```
## 895
                      Email
                               Team meeting
        2023-08-01
## 896
        2023-08-01
                      Email
                                Great work!
## 897
        2023-08-05
                      Email
                               Team meeting
## 898
        2023-08-06
                      Email Hello everyone!
## 899
        2023-08-11
                      Slack
                               Team meeting
## 900
        2023-08-20
                      Email
                               Team meeting
## 901
        2023-08-03
                     Slack Need assistance
## 902
        2023-08-18
                     Slack
                               Team meeting
## 903
        2023-08-10
                      Email Need assistance
## 904
        2023-08-17 Twitter
                                Great work!
        2023-08-08
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## 906
        2023-08-20 Twitter
                             Exciting news!
## 907
        2023-08-07 Twitter
                                Great work!
## 908
        2023-08-15
                      Slack Need assistance
## 909
        2023-08-08
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                                Great work!
## 910
        2023-08-14
                      Email
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## 911
        2023-08-01 Twitter Need assistance
## 912
        2023-08-10 Twitter
                               Fun weekend!
## 913
        2023-08-20 Twitter
                                Great work!
## 914
        2023-08-10
                     Slack Need assistance
## 915
        2023-08-02
                     Slack
                               Fun weekend!
## 916
        2023-08-09
                      Email
                               Fun weekend!
## 917
        2023-08-10
                     Slack Need assistance
## 918
        2023-08-13
                      Email Hello everyone!
## 919
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                               Fun weekend!
## 920
        2023-08-20
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                               Team meeting
        2023-08-15 Twitter
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                                Great work!
## 922
        2023-08-18
                      Slack
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## 923
        2023-08-12 Twitter Need assistance
## 924
        2023-08-17 Twitter Exciting news!
## 925
        2023-08-10
                     Slack
                                Great work!
## 926
        2023-08-10
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## 927
        2023-08-02
                     Slack
                                Great work!
## 928
        2023-08-10 Twitter Need assistance
## 929
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        2023-08-09
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## 930
## 931
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## 932
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                               Fun weekend!
## 933
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## 934
        2023-08-20
                      Email Hello everyone!
## 935
        2023-08-17
                      Email
                               Team meeting
## 936
        2023-08-13 Twitter
                             Exciting news!
## 937
        2023-08-13 Twitter
                               Fun weekend!
## 938
        2023-08-04
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                                Great work!
## 939
        2023-08-16
                      Email Need assistance
        2023-08-17 Twitter Need assistance
## 940
## 941
        2023-08-06 Twitter
                             Exciting news!
                            Exciting news!
## 942
        2023-08-01
                      Slack
## 943
        2023-08-08
                      Email
                             Exciting news!
## 944
        2023-08-13 Twitter
                                Great work!
## 945
        2023-08-06
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                            Exciting news!
## 946
        2023-08-08
                      Email Hello everyone!
## 947
        2023-08-20
                      Slack Hello everyone!
## 948
        2023-08-01 Twitter Need assistance
## 949
        2023-08-02
                      Slack
                            Exciting news!
## 950
        2023-08-11
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```

```
## 951
        2023-08-11
                      Slack
                                Great work!
## 952
        2023-08-05
                      Slack Need assistance
## 953
        2023-08-07
                      Email
                               Fun weekend!
## 954
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## 955
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                     Email Need assistance
## 956
        2023-08-09
## 957
        2023-08-12
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## 958
        2023-08-19
                     Slack Exciting news!
## 959
        2023-08-17 Twitter Exciting news!
## 960
        2023-08-11 Twitter Hello everyone!
## 961
        2023-08-17 Twitter
                               Team meeting
## 962
        2023-08-06
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## 963
        2023-08-10
                     Email Exciting news!
## 964
        2023-08-18
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## 965
        2023-08-07
                     Slack
                                Great work!
## 966
        2023-08-09
                     Email
                               Team meeting
## 967
        2023-08-18 Twitter
                               Great work!
## 968
        2023-08-06 Twitter
                               Team meeting
## 969
        2023-08-02
                                Great work!
                     Slack
## 970
        2023-08-17
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## 971
        2023-08-08
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## 972
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                           Exciting news!
## 973
        2023-08-02 Twitter Need assistance
## 974
        2023-08-08
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                           Exciting news!
## 975
        2023-08-01
                      Email
                               Fun weekend!
## 976
        2023-08-12 Twitter
                                Great work!
## 977
        2023-08-19 Twitter Hello everyone!
## 978
        2023-08-12 Twitter
                               Team meeting
## 979
        2023-08-07
                               Great work!
                      Slack
## 980
        2023-08-08 Twitter
                               Great work!
## 981
        2023-08-14
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                               Great work!
## 982
        2023-08-13
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## 983
        2023-08-18
                               Team meeting
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## 984
        2023-08-10 Twitter
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## 985
                     Slack Need assistance
        2023-08-03
## 986
        2023-08-08 Twitter Need assistance
## 987
        2023-08-05
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                               Team meeting
## 988
        2023-08-17
                     Slack Hello everyone!
## 989
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                                Great work!
        2023-08-03
## 990
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## 991
        2023-08-18
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                                Great work!
## 992
        2023-08-12
                     Slack Hello everyone!
## 993
        2023-08-10
                     Email Need assistance
## 994
        2023-08-14
                      Slack
                            Exciting news!
## 995
        2023-08-04 Twitter
                               Team meeting
## 996
        2023-08-05 Twitter Hello everyone!
## 997
        2023-08-12 Twitter
                            Exciting news!
## 998
        2023-08-07
                     Slack
                            Exciting news!
## 999
        2023-08-08
                     Slack
                               Fun weekend!
## 1000 2023-08-03
                     Email Hello everyone!
```

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

Solution:

```
# Enter code here
library(dplyr)
comm_data%>%mutate(channel_selection='channel+date+message')%>%
filter(channel=='Twitter',date=='2023-08-02')
```

```
##
           date channel
                             sender
                                           message sentiment
## 2 2023-08-02 Twitter @erin_tweets Exciting news! 0.7504925
## 3 2023-08-02 Twitter dave@example Exciting news! 0.8171056
## 4 2023-08-02 Twitter @erin tweets Exciting news! 0.5815569
## 5 2023-08-02 Twitter @erin_tweets Exciting news! -0.5251436
## 6 2023-08-02 Twitter alice@example Team meeting 0.9649580
## 7 2023-08-02 Twitter dave@example
                                       Great work! 0.5161380
## 8 2023-08-02 Twitter carol_slack Hello everyone! 0.4509874
## 9 2023-08-02 Twitter carol_slack Hello everyone! 0.1738512
## 10 2023-08-02 Twitter carol_slack Need assistance 0.2159540
## 11 2023-08-02 Twitter    @frank_chat Need assistance -0.1151795
## 12 2023-08-02 Twitter alice@example Need assistance 0.1576534
## 13 2023-08-02 Twitter carol_slack Exciting news! -0.6932178
## 14 2023-08-02 Twitter
                         @bob_tweets Need assistance -0.2819158
## 15 2023-08-02 Twitter @erin_tweets Need assistance 0.8210797
        channel_selection
##
## 1 channel+date+message
## 2 channel+date+message
## 3 channel+date+message
## 4 channel+date+message
## 5 channel+date+message
## 6 channel+date+message
## 7 channel+date+message
## 8 channel+date+message
## 9 channel+date+message
## 10 channel+date+message
## 11 channel+date+message
## 12 channel+date+message
## 13 channel+date+message
## 14 channel+date+message
## 15 channel+date+message
```

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)
```

```
##
              date channel
                                  sender
                                                 message
                                                            sentiment
## 1
        2023-08-01 Twitter alice@example Need assistance 0.676776995
## 2
        2023-08-01 Twitter
                             @bob_tweets Need assistance
                                                          0.148395223
## 3
        2023-08-01 Twitter
                             @frank_chat Need assistance 0.599045397
## 4
        2023-08-01 Twitter
                             @frank_chat
                                         Exciting news! -0.822780307
## 5
        2023-08-01
                     Slack
                             @frank_chat
                                            Team meeting -0.202094683
## 6
        2023-08-01
                     Slack
                             @bob_tweets Exciting news! 0.146396939
## 7
        2023-08-01
                     Slack
                            @erin_tweets
                                             Great work! 0.244422906
## 8
        2023-08-01 Twitter
                                            Team meeting -0.526283488
                             @frank_chat
## 9
        2023-08-01 Twitter
                             @frank_chat
                                         Exciting news! -0.398672424
## 10
        2023-08-01
                     Slack
                             @frank_chat Need assistance 0.601800072
## 11
        2023-08-01
                     Slack
                             carol_slack Hello everyone! 0.802523659
## 12
        2023-08-01
                     Slack dave@example
                                            Team meeting -0.176315426
## 13
        2023-08-01
                     Email
                             carol_slack
                                            Fun weekend! 0.757286296
## 14
        2023-08-01
                     Email
                             @frank_chat
                                            Team meeting -0.670432338
## 15
        2023-08-01 Twitter
                             @bob_tweets Exciting news! -0.452694423
## 16
        2023-08-01
                     Slack
                             carol_slack
                                            Fun weekend! -0.877705400
## 17
        2023-08-01
                     Email
                             carol slack Need assistance -0.130674560
## 18
        2023-08-01
                     Slack
                            dave@example
                                            Team meeting 0.093826082
## 19
                                             Great work! 0.473425272
        2023-08-01 Twitter
                             @frank_chat
## 20
        2023-08-01 Twitter
                             @bob_tweets Hello everyone! -0.918783627
## 21
        2023-08-01 Twitter
                            @erin_tweets Hello everyone! 0.524320859
## 22
        2023-08-01 Twitter
                            dave@example Hello everyone! 0.530999278
## 23
                            @erin_tweets
        2023-08-01
                     Slack
                                            Team meeting 0.031597136
## 24
        2023-08-01
                     Slack
                             @bob_tweets Exciting news! -0.024743940
## 25
        2023-08-01
                     Email
                             @frank_chat
                                            Fun weekend! -0.797102704
## 26
        2023-08-01 Twitter
                             carol_slack
                                             Great work! 0.406890230
## 27
        2023-08-01
                     Email
                             @bob_tweets Hello everyone! 0.902623749
## 28
        2023-08-01
                             @frank_chat Hello everyone! -0.572465386
                     Slack
## 29
        2023-08-01 Twitter
                             @frank_chat Need assistance -0.970480603
## 30
        2023-08-01
                     Slack
                             @frank_chat
                                            Team meeting -0.113114946
## 31
        2023-08-01
                                            Team meeting 0.783531986
                     Email
                             @bob_tweets
## 32
        2023-08-01 Twitter
                            @erin_tweets Hello everyone! -0.325806037
## 33
        2023-08-01 Twitter
                             @frank_chat
                                             Great work! 0.159243134
## 34
        2023-08-01
                     Slack
                             @bob_tweets Need assistance -0.614020258
## 35
        2023-08-01 Twitter @erin_tweets Exciting news! 0.423581860
## 36
        2023-08-01
                     Email
                             carol_slack
                                             Great work! 0.605523043
## 37
        2023-08-01 Twitter
                             carol_slack
                                             Great work! -0.311684015
## 38
        2023-08-01
                     Email
                             @frank_chat
                                            Team meeting -0.307752223
## 39
        2023-08-01
                     Email
                            dave@example
                                             Great work! -0.948017055
## 40
        2023-08-01 Twitter
                             @frank chat Need assistance -0.003094339
## 41
        2023-08-01
                     Email
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                                             Great work! -0.389590032
## 42
        2023-08-01
                     Slack alice@example
                                          Exciting news! 0.350437745
## 43
                             @frank chat Need assistance -0.696885624
        2023-08-01 Twitter
## 44
        2023-08-01
                     Slack
                            dave@example Need assistance -0.988749139
## 45
        2023-08-01
                     Email
                            @erin_tweets
                                            Fun weekend!
                                                          0.203746784
## 46
        2023-08-02
                     Email
                            dave@example
                                             Great work!
                                                          0.973676749
## 47
        2023-08-02 Twitter alice@example
                                            Team meeting 0.210089974
## 48
        2023-08-02
                     Slack
                            @erin tweets
                                            Fun weekend! -0.474169046
## 49
                                          Exciting news!
        2023-08-02 Twitter
                            @erin_tweets
                                                          0.750492542
## 50
        2023-08-02
                     Slack
                            @erin tweets
                                          Exciting news!
                                                          0.900116188
## 51
        2023-08-02 Twitter
                            dave@example
                                          Exciting news!
                                                          0.817105632
## 52
        2023-08-02 Twitter
                            @erin_tweets
                                          Exciting news!
                                                          0.581556937
## 53
        2023-08-02 Twitter
                            @erin_tweets
                                          Exciting news! -0.525143623
## 54
        2023-08-02 Twitter alice@example
                                            Team meeting 0.964958043
```

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## 55
                             dave@example
                                           Exciting news!
        2023-08-02
                     Email
                                                           0.717076284
## 56
        2023-08-02
                     Slack alice@example
                                             Fun weekend!
                                                           0.823352248
## 57
        2023-08-02
                     Email
                             dave@example
                                             Fun weekend! -0.357268680
## 58
        2023-08-02 Twitter
                             dave@example
                                              Great work! 0.516138048
## 59
        2023-08-02
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                             dave@example
                                          Exciting news! -0.212464974
## 60
        2023-08-02
                     Email alice@example
                                              Great work! -0.784876938
## 61
        2023-08-02
                     Slack alice@example
                                             Fun weekend! -0.485003887
## 62
        2023-08-02 Twitter
                             carol_slack Hello everyone! 0.450987421
## 63
                             @bob_tweets Exciting news!
        2023-08-02
                     Slack
                                                           0.365244868
## 64
        2023-08-02 Twitter
                             carol_slack Hello everyone!
                                                           0.173851238
## 65
        2023-08-02 Twitter
                              carol_slack Need assistance 0.215954025
## 66
        2023-08-02 Twitter
                             @frank_chat Need assistance -0.115179492
## 67
                              carol_slack Hello everyone!
        2023-08-02
                     Slack
                                                           0.805289558
## 68
        2023-08-02 Twitter alice@example Need assistance
                                                           0.157653404
## 69
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                              carol_slack Exciting news! -0.693217811
## 70
        2023-08-02 Twitter
                             @bob_tweets Need assistance -0.281915764
## 71
        2023-08-02
                     Email
                             @frank chat
                                             Fun weekend!
                                                           0.129630754
## 72
        2023-08-02
                     Slack
                             carol_slack
                                              Great work!
                                                           0.066785066
## 73
        2023-08-02
                     Slack
                                                           0.045978463
                             carol_slack
                                             Fun weekend!
## 74
                                              Great work! -0.666475324
        2023-08-02
                     Slack
                             @bob_tweets
## 75
        2023-08-02
                     Slack
                            dave@example
                                          Exciting news! -0.662697271
## 76
        2023-08-02
                                              Great work! -0.887057793
                     Slack
                            @erin tweets
## 77
        2023-08-02 Twitter
                             @erin_tweets Need assistance 0.821079701
## 78
        2023-08-03
                     Email
                             @erin_tweets
                                             Fun weekend!
                                                           0.924321534
## 79
        2023-08-03 Twitter
                             @bob tweets
                                           Exciting news! -0.408464086
## 80
        2023-08-03 Twitter
                             @erin_tweets Need assistance -0.680233249
## 81
        2023-08-03 Twitter alice@example Hello everyone!
                                                           0.530733542
## 82
        2023-08-03 Twitter
                              carol_slack Exciting news!
                                                           0.044649603
## 83
        2023-08-03 Twitter
                             @bob_tweets Hello everyone! -0.243440011
## 84
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        2023-08-03
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## 85
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                                             Team meeting -0.024207670
## 86
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                            @erin_tweets
                                             Team meeting 0.100578078
## 87
        2023-08-03 Twitter
                             @bob_tweets Need assistance
                                                           0.115823371
## 88
                             carol_slack
        2023-08-03 Twitter
                                              Great work!
                                                           0.646422371
## 89
        2023-08-03 Twitter
                             carol_slack
                                              Great work!
                                                           0.049291416
## 90
                     Slack alice@example
        2023-08-03
                                              Great work! -0.150377708
## 91
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## 92
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        2023-08-03
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                                              Great work! -0.488912587
## 93
        2023-08-03 Twitter alice@example Hello everyone! -0.893453151
## 94
        2023-08-03
                     Email
                             @frank chat Need assistance -0.345415825
## 95
        2023-08-03
                     Email
                            @erin_tweets
                                              Great work! -0.900102365
        2023-08-03 Twitter alice@example Hello everyone! -0.567197050
## 96
## 97
        2023-08-03 Twitter
                            @erin tweets
                                             Fun weekend! -0.345988781
## 98
        2023-08-03
                     Email
                              carol slack Need assistance 0.247236022
## 99
        2023-08-03
                     Email
                             @frank_chat Hello everyone!
                                                           0.488557915
## 100
        2023-08-03 Twitter alice@example Need assistance
                                                           0.747163485
## 101
        2023-08-03
                     Slack
                            @erin tweets
                                             Team meeting -0.812502595
                             @frank_chat
## 102
        2023-08-03
                     Slack
                                           Exciting news!
                                                           0.591279314
## 103
        2023-08-03
                     Slack
                             carol_slack
                                              Great work! -0.777630202
## 104
                     Email
        2023-08-03
                             @frank chat
                                              Great work! -0.022698464
## 105
        2023-08-03
                     Email
                             @frank chat
                                              Great work! -0.222633559
## 106
        2023-08-03
                     Slack
                            @erin tweets Need assistance -0.173975688
## 107
        2023-08-03
                     Email alice@example Hello everyone!
                                                            0.713812393
##
   108
        2023-08-03
                     Slack alice@example
                                             Fun weekend!
                                                            0.542070733
## 109
        2023-08-03
                     Email
                             @frank chat
                                             Fun weekend!
                                                            0.992682932
## 110
        2023-08-03
                     Slack alice@example Need assistance 0.135939530
```

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## 111
                     Email alice@example
        2023-08-03
                                             Fun weekend!
                                                            0.312383833
## 112
        2023-08-03
                     Email alice@example Hello everyone! -0.440484574
## 113
        2023-08-03
                     Email
                              carol slack Need assistance -0.161143415
                     Slack
## 114
        2023-08-03
                              @frank chat Hello everyone!
                                                            0.368215033
## 115
        2023-08-03 Twitter
                              @bob_tweets Hello everyone!
                                                            0.401231622
## 116
        2023-08-03
                     Slack
                              @bob tweets
                                              Great work!
                                                            0.884830707
                     Slack
## 117
        2023-08-03
                            @erin_tweets Need assistance -0.600851388
## 118
        2023-08-03
                     Slack
                            @erin_tweets Need assistance
                                                           0.896539724
## 119
        2023-08-03
                                                            0.496275815
                     Slack
                              @bob_tweets Need assistance
## 120
        2023-08-03
                     Slack
                            dave@example
                                                            0.675534202
                                              Great work!
## 121
        2023-08-03
                     Email
                              @frank_chat Hello everyone!
                                                            0.583445542
                            @erin_tweets Need assistance -0.108376242
## 122
        2023-08-04
                     Email
        2023-08-04
                     Slack alice@example Hello everyone! -0.187917918
## 123
## 124
        2023-08-04
                     Email
                              @bob_tweets
                                             Fun weekend! -0.539049788
## 125
        2023-08-04 Twitter
                              @bob_tweets
                                             Fun weekend!
                                                           0.185009266
## 126
        2023-08-04
                     Slack alice@example Need assistance 0.534302738
## 127
        2023-08-04
                     Slack
                              @bob tweets
                                             Fun weekend!
                                                           0.866016825
## 128
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## 129
        2023-08-04
                     Email
                             @erin_tweets Need assistance 0.689327837
## 130
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## 131
        2023-08-04
                     Slack
                              @frank chat Need assistance 0.691338675
## 132
        2023-08-04
                     Slack
                              carol slack
                                             Fun weekend! -0.049394990
## 133
        2023-08-04
                     Email alice@example
                                              Great work! -0.769964864
## 134
        2023-08-04
                     Email
                              @frank_chat Need assistance 0.063336529
## 135
        2023-08-04
                     Email
                              @bob tweets Need assistance 0.017915569
## 136
        2023-08-04
                     Slack
                            dave@example
                                             Fun weekend! -0.848228461
## 137
        2023-08-04
                     Slack alice@example
                                             Team meeting -0.111247493
## 138
        2023-08-04
                     Email
                              @frank chat
                                              Great work! -0.317266905
## 139
        2023-08-04 Twitter
                              @bob_tweets
                                             Fun weekend! 0.163814227
## 140
                                             Fun weekend! -0.415885320
        2023-08-04
                     Email
                            @erin_tweets
## 141
        2023-08-04
                     Slack
                              carol_slack Need assistance 0.088740259
## 142
        2023-08-04
                     Email alice@example
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                                                           0.308247630
## 143
        2023-08-04 Twitter
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                                           Exciting news! -0.122806889
## 144
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                     Slack
                              @frank_chat Need assistance
                                                           0.933738099
## 145
        2023-08-04
                     Email
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                                              Great work!
                                                           0.263225980
        2023-08-04 Twitter
                             dave@example
## 146
                                             Fun weekend!
                                                           0.463157478
## 147
        2023-08-04
                              @bob_tweets
                     Email
                                             Team meeting -0.235653992
## 148
                     Email alice@example Hello everyone!
        2023-08-04
                                                           0.161035733
## 149
        2023-08-04 Twitter
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## 150
        2023-08-04 Twitter
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## 151
        2023-08-04
                              @bob_tweets Hello everyone! -0.161284721
                     Slack
## 152
        2023-08-04
                     Slack
                             dave@example
                                             Fun weekend! 0.796501584
## 153
                             @erin_tweets Need assistance -0.070094255
        2023-08-04
                     Email
## 154
        2023-08-04 Twitter
                             dave@example
                                             Fun weekend! -0.495438306
## 155
        2023-08-04
                     Email
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##
  156
        2023-08-04 Twitter alice@example
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## 157
        2023-08-04
                     Email
                              @bob tweets
                                             Fun weekend!
                                                            0.419715998
## 158
        2023-08-04 Twitter
                            @erin tweets Hello everyone! -0.217646003
## 159
        2023-08-04 Twitter
                              @frank_chat
                                           Exciting news!
                                                            0.795437461
##
  160
        2023-08-04
                     Slack
                              @frank chat Need assistance
                                                           0.165087673
## 161
        2023-08-04
                     Email
                              @bob tweets
                                             Fun weekend! -0.953222217
  162
        2023-08-04
                     Slack
                              @frank_chat
                                             Fun weekend! -0.530567507
##
## 163
        2023-08-04 Twitter
                              @bob_tweets
                                           Exciting news!
                                                           0.053784013
##
   164
        2023-08-04
                     Email
                              @bob tweets
                                              Great work! -0.251496902
## 165
        2023-08-04 Twitter
                             dave@example
                                             Team meeting -0.785379849
## 166
        2023-08-05
                     Email
                              carol_slack Exciting news! 0.468174768
```

```
## 167
        2023-08-05
                      Slack
                             @erin tweets Need assistance -0.195926677
##
  168
        2023-08-05 Twitter alice@example
                                               Great work! -0.630844017
## 169
        2023-08-05 Twitter
                              @bob tweets Need assistance 0.089429019
## 170
        2023-08-05
                      Slack
                              @bob tweets Hello everyone! -0.940684421
## 171
        2023-08-05
                      Slack
                              @bob_tweets
                                              Team meeting -0.386754569
        2023-08-05
## 172
                      Email
                             @erin tweets
                                           Exciting news!
                                                            0.549038415
        2023-08-05
## 173
                      Slack
                              carol_slack
                                              Team meeting -0.320228465
## 174
        2023-08-05 Twitter
                              carol_slack
                                              Fun weekend!
                                                            0.706561523
## 175
        2023-08-05
                      Slack
                             @erin_tweets Need assistance 0.519475343
## 176
        2023-08-05 Twitter alice@example
                                              Team meeting 0.824948560
## 177
        2023-08-05
                      Slack
                             @erin_tweets
                                           Exciting news! -0.302134784
## 178
        2023-08-05 Twitter
                              carol_slack
                                              Team meeting
                                                            0.364639959
        2023-08-05
## 179
                      Fmail
                              carol_slack
                                              Fun weekend!
                                                            0.451752027
## 180
        2023-08-05
                      Email
                              @bob_tweets Hello everyone!
                                                            0.616259416
## 181
        2023-08-05 Twitter
                              @bob_tweets Hello everyone! -0.038818533
## 182
        2023-08-05
                      Email
                              carol_slack Need assistance
                                                            0.558824511
## 183
        2023-08-05
                      Email
                              @frank chat
                                           Exciting news!
                                                            0.567230823
## 184
        2023-08-05
                      Email
                              @frank chat
                                              Team meeting -0.094959955
## 185
        2023-08-05
                      Email
                              carol_slack Need assistance
                                                            0.300882405
## 186
        2023-08-05 Twitter
                             dave@example
                                              Team meeting 0.779166287
##
  187
        2023-08-05 Twitter
                             dave@example
                                              Fun weekend! -0.021554315
## 188
        2023-08-05 Twitter alice@example
                                              Team meeting
                                                            0.082249742
## 189
        2023-08-05
                      Slack
                              carol_slack
                                              Great work!
                                                            0.470731148
## 190
        2023-08-05
                      Email
                             @erin_tweets
                                              Great work!
                                                            0.830162693
##
  191
        2023-08-05
                      Slack
                              @bob tweets Need assistance
                                                            0.291605130
## 192
        2023-08-05
                      Email alice@example
                                              Fun weekend!
                                                            0.347548683
## 193
        2023-08-05 Twitter
                             dave@example
                                               Great work!
                                                            0.245927144
## 194
        2023-08-05
                      Email
                             @erin_tweets
                                           Exciting news! -0.283369262
## 195
        2023-08-05 Twitter alice@example
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                                                            0.722319741
                             dave@example
## 196
        2023-08-05 Twitter
                                               Great work!
                                                            0.544805384
## 197
        2023-08-05 Twitter
                              carol_slack Hello everyone!
                                                            0.130742100
## 198
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                      Slack
                             dave@example
                                               Great work!
                                                            0.018169560
## 199
        2023-08-05 Twitter
                              @bob_tweets
                                          Exciting news! -0.798021044
## 200
        2023-08-05
                      Fmail
                              @bob_tweets Hello everyone!
                                                            0.725036937
## 201
        2023-08-05 Twitter
                              carol_slack Hello everyone! -0.279889458
## 202
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                      Email alice@example Hello everyone! -0.822144668
##
   203
        2023-08-05
                      Email alice@example Need assistance
                                                            0.694902051
##
  204
                             @erin_tweets
        2023-08-05 Twitter
                                              Fun weekend!
                                                            0.619198539
## 205
        2023-08-05
                      Email
                              @frank_chat
                                              Team meeting
                                                            0.611721705
## 206
        2023-08-05
                      Slack
                             @erin_tweets
                                              Fun weekend! -0.240693055
                              @frank_chat Need assistance -0.129298556
##
   207
        2023-08-05
                      Slack
##
   208
        2023-08-05
                      Email
                              @bob_tweets
                                              Team meeting
                                                           0.243233590
##
   209
        2023-08-05 Twitter
                              @frank chat Hello everyone!
                                                            0.599585856
##
  210
        2023-08-06
                      Email
                              @frank chat
                                              Team meeting
                                                            0.819675826
##
  211
        2023-08-06
                      Slack
                             dave@example Hello everyone!
                                                            0.968081689
   212
##
        2023-08-06 Twitter
                             @erin tweets
                                           Exciting news! -0.415566467
## 213
        2023-08-06
                      Email
                              carol slack
                                               Great work! -0.579760317
##
  214
        2023-08-06 Twitter alice@example Hello everyone! -0.882707532
## 215
        2023-08-06
                      Slack
                              @bob_tweets Hello everyone! -0.452905738
##
   216
        2023-08-06
                      Slack
                              @frank chat Hello everyone! -0.050532605
## 217
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                                              Fun weekend! -0.149422837
                              @bob tweets
  218
        2023-08-06
                      Email
                              @bob tweets
                                              Fun weekend!
                                                           0.201027735
##
## 219
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                             dave@example
                                           Exciting news! -0.433124611
##
   220
        2023-08-06
                      Email
                              @bob tweets
                                              Fun weekend! -0.159573650
  221
##
        2023-08-06
                      Slack
                              @frank chat Need assistance 0.746888391
## 222
        2023-08-06
                      Slack
                              @bob_tweets
                                              Fun weekend! -0.927836751
```

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## 223
        2023-08-06 Twitter
                              carol_slack
                                              Team meeting -0.385177557
## 224
        2023-08-06
                      Email
                             dave@example Need assistance -0.438415068
## 225
        2023-08-06 Twitter
                              @bob tweets
                                              Team meeting -0.549432104
        2023-08-06
##
  226
                      Slack alice@example
                                              Fun weekend! -0.103599444
## 227
        2023-08-06
                      Email
                              carol_slack
                                               Great work! 0.766328182
        2023-08-06
## 228
                      Slack alice@example
                                              Fun weekend! -0.143456620
                      Email
## 229
        2023-08-06
                              @frank_chat
                                           Exciting news!
                                                            0.696377364
        2023-08-06
## 230
                      Slack alice@example
                                               Great work! -0.545365768
## 231
        2023-08-06
                      Email
                              @frank_chat
                                              Fun weekend!
                                                            0.791513952
## 232
        2023-08-06 Twitter
                             dave@example Need assistance -0.064178423
## 233
        2023-08-06 Twitter
                              @bob_tweets Hello everyone!
                                                            0.116596443
## 234
        2023-08-06
                      Slack
                             dave@example
                                              Team meeting -0.536957865
## 235
        2023-08-06
                      Email
                             @erin_tweets Need assistance 0.664381829
                                               Great work! -0.400677142
## 236
        2023-08-06
                      Email
                              @bob_tweets
## 237
        2023-08-06
                      Slack alice@example Need assistance 0.037042340
## 238
        2023-08-06
                      Email
                             @erin_tweets Hello everyone! -0.172054263
## 239
        2023-08-06
                      Email
                             dave@example Hello everyone! -0.987261285
## 240
        2023-08-06
                      Slack
                              carol slack Exciting news! -0.633368273
## 241
        2023-08-06
                                              Fun weekend! -0.895003283
                      Slack
                              @bob_tweets
## 242
        2023-08-06 Twitter
                             dave@example
                                              Fun weekend!
                                                            0.005671109
##
   243
        2023-08-06
                      Email
                             @erin tweets Hello everyone!
                                                            0.905330024
## 244
        2023-08-06
                      Slack alice@example Hello everyone!
                                                            0.710270591
## 245
        2023-08-06
                      Email
                              carol_slack Hello everyone!
                                                            0.076276061
## 246
        2023-08-06
                      Email
                              @bob_tweets
                                               Great work! -0.417041691
##
   247
        2023-08-06 Twitter
                              @bob tweets
                                           Exciting news!
                                                            0.979591473
## 248
        2023-08-06 Twitter
                              carol_slack
                                              Fun weekend!
                                                            0.394200163
## 249
        2023-08-06
                      Slack
                             @erin_tweets
                                           Exciting news!
                                                            0.063273371
## 250
        2023-08-06
                      Slack
                              carol slack Need assistance
                                                            0.572155187
   251
        2023-08-06
                             @erin tweets
##
                      Slack
                                               Great work! -0.387922954
## 252
        2023-08-06
                      Slack
                              @bob_tweets Need assistance
                                                            0.743181323
## 253
        2023-08-06
                      Email
                             @erin_tweets Hello everyone! -0.318016798
## 254
        2023-08-06 Twitter
                              carol_slack Exciting news! -0.329569053
        2023-08-06
##
  255
                      Slack
                              carol_slack
                                           Exciting news! -0.249575844
  256
##
        2023-08-06
                      Email
                             dave@example Need assistance
                                                            0.492307736
##
  257
        2023-08-06 Twitter
                             dave@example
                                              Team meeting
                                                            0.165403601
## 258
        2023-08-07
                              @bob tweets
                      Email
                                               Great work!
                                                            0.642848774
##
   259
        2023-08-07
                             dave@example
                      Email
                                              Team meeting
                                                            0.327507946
  260
##
        2023-08-07
                      Email
                              @frank_chat
                                              Fun weekend!
                                                            0.387379609
##
  261
        2023-08-07
                      Slack
                              @frank chat Need assistance
                                                            0.914976185
## 262
        2023-08-07
                      Email alice@example
                                               Great work! -0.329095908
##
   263
        2023-08-07
                              @bob_tweets Need assistance -0.356371285
                      Slack
##
   264
        2023-08-07
                      Slack
                              @frank_chat
                                            Exciting news!
                                                            0.993148146
##
   265
        2023-08-07
                      Email alice@example
                                           Exciting news!
                                                            0.773558143
##
   266
        2023-08-07 Twitter
                              @bob_tweets
                                              Fun weekend! -0.390309056
##
   267
        2023-08-07
                      Email
                             @erin_tweets
                                               Great work! -0.446627778
   268
##
        2023-08-07
                      Slack alice@example
                                            Exciting news! -0.686074989
##
   269
        2023-08-07
                      Email alice@example Hello everyone!
                                                            0.917979236
##
   270
        2023-08-07
                      Email
                                           Exciting news!
                                                            0.785684678
                              carol slack
## 271
        2023-08-07
                      Slack alice@example Need assistance
                                                            0.877496709
   272
##
        2023-08-07
                      Email
                              @bob tweets
                                              Team meeting -0.767587414
## 273
        2023-08-07 Twitter
                             dave@example
                                              Team meeting -0.014527882
   274
        2023-08-07
                             @erin tweets Hello everyone!
                                                            0.079340591
##
                      Slack
## 275
        2023-08-07
                      Slack
                              @bob_tweets Need assistance -0.611560303
##
   276
        2023-08-07
                      Slack
                              carol slack Hello everyone!
                                                            0.973429719
   277
##
        2023-08-07
                      Slack
                              @bob tweets
                                            Exciting news!
                                                            0.370947586
## 278
        2023-08-07
                      Slack
                             @erin_tweets
                                               Great work! -0.643276188
```

```
Exciting news!
## 279
        2023-08-07 Twitter
                             dave@example
                                                            0.466239469
##
   280
        2023-08-07
                      Slack
                              carol slack
                                              Team meeting
                                                            0.190247875
## 281
        2023-08-07 Twitter
                              carol slack Need assistance
                                                            0.895823483
##
   282
        2023-08-07 Twitter
                              carol slack
                                               Great work!
                                                            0.805481421
## 283
        2023-08-07
                      Email
                              @bob_tweets
                                              Team meeting -0.150205611
  284
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                      Slack alice@example
                                              Fun weekend!
                                                            0.397376804
##
## 285
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                              carol_slack Hello everyone! -0.355751095
##
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                      Email
                             dave@example Hello everyone! -0.526591262
## 287
                      Slack alice@example
        2023-08-07
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## 288
        2023-08-07
                      Slack
                             dave@example Need assistance -0.718395420
## 289
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                                              Team meeting -0.423585835
##
  290
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                             dave@example
                                           Exciting news! -0.184577833
## 291
        2023-08-07
                      Email
                              @frank_chat
                                              Team meeting 0.192018484
## 292
        2023-08-07
                      Email
                              @bob_tweets
                                            Exciting news! -0.616928389
## 293
        2023-08-07
                      Email
                             dave@example
                                               Great work! -0.359934055
## 294
        2023-08-07
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                             dave@example
                                            Exciting news! -0.823877914
## 295
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                              @frank_chat
                                               Great work! -0.823533585
## 296
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                                              Fun weekend! -0.735883705
## 297
        2023-08-07
                      Email
                             dave@example
## 298
        2023-08-07 Twitter alice@example
                                              Team meeting -0.365139902
##
   299
        2023-08-07
                      Slack
                             @erin tweets
                                              Team meeting -0.780283807
##
  300
        2023-08-07
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                              @bob tweets
                                              Team meeting -0.232356975
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                              @bob_tweets
                                               Great work! -0.311243319
##
  302
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                                           Exciting news!
                                                            0.244900235
##
   303
        2023-08-07
                      Slack alice@example
                                               Great work!
                                                            0.580541194
## 304
        2023-08-07
                      Slack
                              @bob_tweets Need assistance
                                                            0.251102221
## 305
        2023-08-07
                      Slack
                             dave@example Hello everyone!
                                                            0.747580624
## 306
        2023-08-07
                      Slack
                              @bob tweets Need assistance -0.846264025
  307
##
        2023-08-07
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                             dave@example Hello everyone!
                                                            0.593321668
   308
##
        2023-08-07 Twitter
                             @erin_tweets
                                               Great work! -0.597466531
## 309
        2023-08-07
                      Slack
                              @bob_tweets Hello everyone! -0.160779689
## 310
        2023-08-07
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                                              Fun weekend! -0.511013610
                              @bob_tweets
## 311
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                                               Great work! -0.389785778
                              @bob_tweets
## 312
                      Slack
                                               Great work!
        2023-08-07
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## 313
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                              @bob_tweets
                                               Great work! -0.548428072
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                                              Fun weekend!
                                                            0.079245736
## 315
        2023-08-07
                      Slack
                              carol_slack
                                               Great work!
                                                            0.937586371
## 316
                              @bob_tweets
        2023-08-07
                      Slack
                                               Great work!
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## 317
        2023-08-07
                      Slack alice@example
                                              Fun weekend!
                                                            0.844455994
## 318
        2023-08-07
                      Slack
                              carol slack
                                           Exciting news!
                                                            0.186763622
##
   319
        2023-08-08
                             @erin_tweets Need assistance -0.879413284
                      Slack
##
  320
        2023-08-08
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                              @bob_tweets Need assistance
                                                            0.115187556
## 321
        2023-08-08
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                              carol slack
                                              Team meeting
                                                            0.213498762
## 322
        2023-08-08 Twitter
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## 323
        2023-08-08
                      Email
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                                              Fun weekend!
                                                            0.670605208
  324
##
        2023-08-08
                      Email
                             dave@example Need assistance
                                                            0.084778340
## 325
        2023-08-08
                      Slack
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                                            Exciting news! -0.388513986
## 326
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                                               Great work! -0.410223121
                      Slack
## 327
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                                           Exciting news! -0.007040349
   328
##
        2023-08-08 Twitter alice@example Hello everyone!
                                                            0.223401716
##
  329
        2023-08-08
                      Email alice@example
                                               Great work!
                                                            0.222402995
  330
        2023-08-08
                      Slack
                              @bob tweets Hello everyone!
                                                            0.740663246
##
## 331
        2023-08-08 Twitter
                              @frank_chat
                                              Fun weekend!
                                                            0.484796492
##
   332
        2023-08-08
                      Slack
                              @frank chat Need assistance
                                                            0.963640937
  333
##
        2023-08-08
                      Email
                              @frank chat
                                           Exciting news! -0.050068120
## 334
        2023-08-08
                      Email
                             dave@example Need assistance -0.998774239
```

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## 335
        2023-08-08 Twitter
                              carol slack
                                              Fun weekend!
                                                            0.232626481
## 336
        2023-08-08
                      Email
                             @erin tweets
                                           Exciting news! -0.847681918
## 337
        2023-08-08 Twitter
                              @bob tweets
                                              Team meeting -0.024243061
## 338
        2023-08-08
                      Email alice@example
                                           Exciting news!
                                                            0.723251828
## 339
        2023-08-08
                      Email
                              @frank_chat
                                               Great work!
                                                            0.362224979
## 340
        2023-08-08
                      Email
                              @bob tweets Need assistance -0.249764988
                                              Fun weekend! -0.673607849
## 341
        2023-08-08 Twitter
                              @frank_chat
## 342
        2023-08-08
                      Email
                             @erin_tweets Need assistance -0.775436828
## 343
        2023-08-08
                      Slack
                             @erin_tweets Need assistance -0.461871512
## 344
        2023-08-08
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                                               Great work! -0.068923920
## 345
        2023-08-08 Twitter
                              @bob_tweets
                                               Great work! 0.564973874
## 346
        2023-08-08
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                              @frank_chat Need assistance -0.992002849
        2023-08-08 Twitter alice@example
##
   347
                                               Great work! -0.236779108
## 348
        2023-08-08 Twitter alice@example
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## 349
        2023-08-08
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## 350
        2023-08-08 Twitter alice@example
                                              Fun weekend! -0.329790550
## 351
        2023-08-08
                      Slack
                              carol slack
                                           Exciting news!
                                                            0.055117640
## 352
        2023-08-08
                      Email
                             @erin tweets
                                              Fun weekend!
                                                            0.378708432
## 353
        2023-08-08
                      Email
                             @erin_tweets
                                              Fun weekend!
                                                            0.734125260
## 354
        2023-08-08 Twitter
                             @erin_tweets
                                              Fun weekend!
                                                            0.191519982
##
   355
        2023-08-08
                      Email alice@example Hello everyone! -0.666331347
  356
        2023-08-08
                                              Team meeting
##
                      Slack
                             @erin tweets
                                                            0.849549761
##
  357
        2023-08-08 Twitter
                              carol_slack Exciting news!
                                                            0.614791796
##
  358
        2023-08-08
                      Slack
                             @erin_tweets Hello everyone! -0.568787924
##
   359
        2023-08-08
                      Slack
                             @erin tweets Need assistance
                                                            0.593302410
## 360
        2023-08-08 Twitter
                             dave@example Need assistance
                                                            0.911442756
## 361
        2023-08-08
                      Slack
                             @erin_tweets
                                              Team meeting
                                                            0.068864945
## 362
        2023-08-08
                      Email
                              carol slack
                                               Great work!
                                                            0.710615378
##
  363
        2023-08-08
                      Email alice@example
                                           Exciting news!
                                                            0.529548995
##
  364
        2023-08-08
                      Email
                             @erin_tweets Hello everyone! -0.064463819
## 365
        2023-08-08
                      Email
                              @frank_chat
                                              Team meeting
                                                            0.778342899
##
   366
        2023-08-08
                      Slack @erin_tweets
                                           Exciting news!
                                                            0.085280708
   367
        2023-08-08 Twitter alice@example
##
                                               Great work!
                                                            0.552484959
##
   368
        2023-08-08 Twitter
                              @bob_tweets Need assistance -0.716619523
##
  369
        2023-08-08
                      Slack @erin_tweets
                                              Fun weekend!
                                                            0.172925062
                             @erin tweets Hello everyone! -0.932525445
## 370
        2023-08-09
                      Slack
##
   371
                   Twitter alice@example Need assistance
        2023-08-09
                                                           0.083300223
                             @erin_tweets
##
   372
        2023-08-09
                      Email
                                           Exciting news! -0.018193701
## 373
        2023-08-09 Twitter
                              carol slack
                                              Fun weekend! -0.056202481
## 374
        2023-08-09 Twitter alice@example
                                               Great work! -0.013945965
   375
##
        2023-08-09
                   Twitter alice@example
                                                            0.432502551
                                               Great work!
##
   376
        2023-08-09
                      Email
                             @erin_tweets
                                           Exciting news!
                                                            0.020394353
## 377
        2023-08-09
                      Slack
                              @bob_tweets
                                              Team meeting
                                                            0.500293179
## 378
        2023-08-09 Twitter alice@example
                                              Fun weekend! -0.391704335
## 379
        2023-08-09
                      Slack
                             @erin_tweets
                                              Fun weekend!
                                                            0.542777083
   380
##
        2023-08-09
                      Slack
                             @erin tweets
                                              Team meeting
                                                            0.268132484
## 381
        2023-08-09
                      Slack alice@example Need assistance
                                                            0.665302936
##
   382
        2023-08-09
                             dave@example
                                              Fun weekend! -0.358376735
                      Slack
##
  383
        2023-08-09
                      Slack alice@example
                                              Fun weekend!
                                                            0.690391378
   384
##
        2023-08-09
                      Slack
                             dave@example
                                              Fun weekend!
                                                            0.229193896
##
   385
        2023-08-09
                             @erin tweets
                                              Team meeting -0.956999032
                      Email
   386
        2023-08-09 Twitter alice@example Hello everyone!
                                                            0.184942272
##
##
  387
        2023-08-09
                      Email
                             @erin_tweets
                                              Fun weekend!
                                                            0.513564137
##
   388
        2023-08-09 Twitter
                              @bob tweets
                                              Team meeting
                                                            0.526457346
   389
##
        2023-08-09
                      Email
                              @bob_tweets
                                              Fun weekend! -0.375794835
## 390
        2023-08-09
                      Email
                             @erin_tweets
                                              Fun weekend! 0.237909144
```

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## 391
        2023-08-09 Twitter alice@example Hello everyone!
                                                            0.762754925
## 392
        2023-08-09
                      Email
                              @bob tweets Hello everyone!
                                                            0.703965933
## 393
        2023-08-09 Twitter alice@example
                                           Exciting news! -0.792284821
##
  394
        2023-08-09
                   Twitter
                             dave@example
                                               Great work! -0.495721815
## 395
        2023-08-09
                      Email
                              @bob_tweets Hello everyone! -0.725457437
## 396
        2023-08-09
                      Slack
                              carol slack Hello everyone!
                                                            0.902016178
## 397
        2023-08-09
                      Email
                             dave@example
                                              Team meeting
                                                            0.746085706
## 398
        2023-08-09
                      Email
                              @frank_chat
                                              Fun weekend! -0.372473280
## 399
                                          Exciting news! -0.539138246
        2023-08-09
                      Slack alice@example
## 400
        2023-08-09 Twitter
                              @bob_tweets
                                           Exciting news!
                                                            0.605349668
## 401
        2023-08-09
                      Slack
                              carol_slack Hello everyone! -0.289897254
## 402
        2023-08-09
                      Fmail
                              @frank_chat Hello everyone! -0.633588556
## 403
        2023-08-09 Twitter
                             @erin_tweets Need assistance -0.600080754
## 404
        2023-08-09
                      Slack
                             @erin_tweets
                                              Fun weekend!
                                                            0.525517232
## 405
        2023-08-09
                      Slack
                              carol_slack Hello everyone!
                                                            0.346090994
## 406
        2023-08-09
                      Email alice@example
                                              Fun weekend!
                                                            0.893210486
## 407
        2023-08-09 Twitter
                              @frank chat Hello everyone!
                                                            0.649366590
## 408
        2023-08-09
                      Email
                              @frank chat
                                              Fun weekend! -0.789119672
## 409
        2023-08-09
                      Email
                             dave@example
                                              Fun weekend!
                                                            0.698494015
## 410
        2023-08-09
                      Slack
                             dave@example Need assistance
                                                            0.662048494
## 411
        2023-08-09
                      Email
                             @erin tweets Need assistance
                                                            0.953375103
## 412
        2023-08-09
                      Email
                              @frank chat
                                              Team meeting -0.712716471
## 413
        2023-08-10 Twitter
                              @frank_chat Hello everyone! -0.740855453
## 414
        2023-08-10 Twitter
                             @erin_tweets
                                               Great work! 0.199771451
## 415
        2023-08-10
                      Slack
                             @erin tweets Need assistance -0.766245456
## 416
        2023-08-10 Twitter
                             @erin_tweets Need assistance -0.340010146
## 417
        2023-08-10
                      Email
                              @bob_tweets
                                              Team meeting -0.060755176
## 418
        2023-08-10
                      Email
                              @bob tweets
                                               Great work!
                                                            0.924440826
## 419
        2023-08-10
                      Email
                              @frank_chat Hello everyone!
                                                            0.535708998
## 420
        2023-08-10
                      Slack
                             dave@example
                                              Team meeting -0.934943126
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                              @bob_tweets Hello everyone! -0.075317414
## 422
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                      Email alice@example Need assistance -0.815106571
## 423
        2023-08-10 Twitter
                             @erin_tweets
                                              Fun weekend! -0.496555788
## 424
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                              @frank_chat Hello everyone!
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## 425
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## 427
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## 428
                             @erin_tweets
        2023-08-10
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                                              Team meeting
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## 429
        2023-08-10 Twitter
                             @erin_tweets
                                              Team meeting
                                                            0.384202328
## 430
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                      Slack
                              @bob_tweets Need assistance
                                                            0.279333149
## 431
        2023-08-10
                             @erin_tweets
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                                           Exciting news!
                                                            0.679597112
## 432
        2023-08-10 Twitter
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                                                            0.275836162
## 433
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                                                            0.533465849
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                             @erin_tweets Need assistance -0.904224418
## 436
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                                              Fun weekend!
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## 437
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                                           Exciting news! -0.762122771
## 438
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## 439
        2023-08-10 Twitter
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## 441
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## 443
        2023-08-10
                      Slack alice@example Need assistance -0.236316590
## 444
        2023-08-10
                      Slack
                             dave@example
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                                                            0.532747218
## 445
        2023-08-10
                      Slack
                              @bob tweets
                                            Exciting news!
                                                            0.027252671
## 446
        2023-08-10
                      Email
                              @bob_tweets
                                           Exciting news!
                                                            0.664575256
```

```
## 447
        2023-08-10
                      Email
                              @frank_chat Hello everyone!
                                                            0.051583528
## 448
        2023-08-10
                      Email
                              @bob tweets
                                              Team meeting
                                                            0.253805156
## 449
        2023-08-10
                      Slack
                              @frank_chat
                                           Exciting news!
                                                            0.769946682
## 450
        2023-08-10 Twitter
                              @frank chat
                                              Team meeting -0.289186294
## 451
        2023-08-10 Twitter
                              carol_slack
                                           Exciting news!
                                                            0.030849482
## 452
        2023-08-10
                              @frank chat
                                              Team meeting -0.320194449
                      Email
## 453
        2023-08-10
                      Slack alice@example
                                              Team meeting 0.425960287
## 454
        2023-08-10 Twitter
                              @frank_chat
                                           Exciting news! -0.149807401
## 455
                              @bob_tweets
        2023-08-10
                      Slack
                                              Fun weekend!
                                                            0.957983019
## 456
        2023-08-10 Twitter
                             dave@example
                                               Great work! -0.505026447
        2023-08-10
## 457
                      Slack
                             @erin_tweets Need assistance 0.037588875
## 458
        2023-08-10
                      Slack 

                              @bob_tweets
                                           Exciting news! -0.873230109
## 459
        2023-08-10 Twitter
                             @erin_tweets
                                               Great work!
                                                            0.181200765
## 460
        2023-08-10
                      Slack alice@example Need assistance -0.917325706
                      Email
## 461
        2023-08-10
                             @erin_tweets Hello everyone!
                                                            0.063933458
## 462
        2023-08-10
                      Slack
                              @frank_chat Hello everyone!
                                                            0.672468295
## 463
        2023-08-10 Twitter
                              carol slack
                                               Great work!
                                                            0.268422757
## 464
        2023-08-10
                      Email
                              @bob_tweets
                                           Exciting news! -0.286527871
## 465
        2023-08-10 Twitter
                             @erin_tweets
                                               Great work!
                                                            0.282790715
## 466
        2023-08-10
                      Email
                              @frank_chat
                                              Fun weekend! -0.520876877
## 467
        2023-08-10 Twitter
                             dave@example
                                              Team meeting -0.879799920
## 468
        2023-08-10
                             dave@example
                                           Exciting news! -0.750027833
                      Slack
## 469
        2023-08-10
                      Email
                             dave@example Need assistance 0.834841503
## 470
        2023-08-10 Twitter
                              @frank_chat
                                              Fun weekend! -0.528116655
## 471
        2023-08-10
                      Slack
                              @frank chat Need assistance 0.626154714
## 472
        2023-08-10
                      Slack
                              @frank_chat Need assistance -0.198273231
## 473
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                      Slack
                             dave@example
                                               Great work!
                                                            0.746216161
## 474
        2023-08-10
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                                              Team meeting -0.939407335
## 475
        2023-08-10 Twitter
                              carol slack Need assistance
                                                            0.809991531
## 476
        2023-08-10
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                              @frank_chat
                                           Exciting news! -0.010767524
## 477
        2023-08-10 Twitter
                             dave@example
                                              Fun weekend! -0.363247766
## 478
        2023-08-10
                      Email
                              @bob_tweets Need assistance -0.316063035
## 479
        2023-08-11 Twitter
                             dave@example
                                              Fun weekend! 0.824099663
## 480
        2023-08-11
                      Email
                              @bob_tweets Hello everyone!
                                                            0.662486946
## 481
        2023-08-11
                      Slack
                              @frank_chat Hello everyone! -0.143450806
## 482
        2023-08-11 Twitter
                              @bob tweets
                                               Great work! -0.751736611
## 483
        2023-08-11
                                              Fun weekend!
                      Email
                              @frank_chat
                                                            0.874191639
## 484
        2023-08-11
                      Slack
                              @bob_tweets
                                              Team meeting -0.955364774
## 485
        2023-08-11
                      Email
                              carol slack Need assistance -0.547700667
## 486
        2023-08-11
                      Email alice@example
                                              Fun weekend! -0.034278538
## 487
                              @frank_chat
        2023-08-11
                                           Exciting news! -0.871460078
                      Slack
##
  488
        2023-08-11
                      Slack
                             dave@example Hello everyone! -0.843954970
## 489
        2023-08-11 Twitter
                             @erin tweets Need assistance -0.462980804
## 490
        2023-08-11
                      Email
                             dave@example
                                               Great work!
                                                            0.509797142
## 491
        2023-08-11
                      Slack
                              @frank_chat Hello everyone! -0.108963726
## 492
        2023-08-11
                      Slack alice@example
                                              Fun weekend! -0.799520459
## 493
        2023-08-11
                      Slack
                              @bob tweets Need assistance -0.542398809
## 494
        2023-08-11
                      Slack
                                           Exciting news!
                              carol slack
                                                            0.062969209
## 495
        2023-08-11
                      Email
                             dave@example
                                              Team meeting
                                                            0.146319367
## 496
        2023-08-11 Twitter
                              @frank chat
                                              Team meeting
                                                            0.629940747
## 497
        2023-08-11 Twitter
                             dave@example
                                            Exciting news!
                                                            0.018387399
## 498
        2023-08-11
                             dave@example Hello everyone!
                      Slack
                                                            0.879992486
## 499
        2023-08-11 Twitter
                              @bob_tweets
                                            Exciting news!
                                                            0.260118117
##
   500
        2023-08-11 Twitter
                             dave@example
                                              Fun weekend!
                                                            0.124404418
   501
##
        2023-08-11 Twitter
                              @frank_chat
                                              Fun weekend! -0.926554946
## 502
        2023-08-11
                      Slack
                             dave@example Need assistance 0.930096855
```

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## 503
                      Email alice@example Exciting news! -0.901918261
        2023-08-11
## 504
        2023-08-11
                      Email
                              @bob tweets Hello everyone!
                                                            0.576369455
## 505
        2023-08-11
                      Slack
                              @bob tweets
                                           Exciting news! -0.033773244
##
   506
        2023-08-11 Twitter
                              carol slack
                                               Great work!
                                                            0.910158344
  507
        2023-08-11
                      Slack
                              @frank_chat Need assistance
                                                            0.235724795
##
## 508
        2023-08-11
                      Slack
                              @frank chat
                                                            0.431652104
                                              Great work!
## 509
        2023-08-11
                      Email
                             @erin_tweets
                                              Great work! -0.049498704
## 510
        2023-08-11
                      Slack
                              @frank_chat
                                             Team meeting -0.642315470
## 511
                             @erin_tweets
        2023-08-11 Twitter
                                             Team meeting -0.351081788
## 512
        2023-08-11
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                              @frank_chat
                                             Team meeting -0.203160496
## 513
        2023-08-11
                      Slack
                              @bob_tweets
                                              Great work! 0.041871845
## 514
                                             Team meeting -0.303564250
        2023-08-11 Twitter
                              @frank_chat
## 515
        2023-08-11 Twitter
                              carol_slack
                                              Great work! 0.782265475
## 516
        2023-08-11
                      Slack
                              @bob_tweets
                                              Great work! -0.549234209
## 517
        2023-08-11
                      Email
                              @bob_tweets
                                              Great work! -0.539260621
## 518
        2023-08-11
                      Slack
                              carol_slack
                                             Team meeting 0.921573296
## 519
        2023-08-11 Twitter alice@example Hello everyone! -0.120084892
## 520
        2023-08-11
                      Email alice@example
                                             Team meeting -0.641849058
## 521
        2023-08-11
                                             Fun weekend! 0.312006338
                      Slack
                              @frank_chat
## 522
        2023-08-11 Twitter
                             @erin_tweets Need assistance -0.102778860
## 523
        2023-08-11
                      Slack
                             @erin_tweets
                                             Team meeting -0.893834382
## 524
        2023-08-11
                      Email
                              carol slack
                                             Fun weekend! 0.355941510
## 525
        2023-08-11
                      Email
                             dave@example Need assistance 0.060486035
## 526
        2023-08-11
                      Slack
                             @erin_tweets
                                              Great work! -0.704862314
## 527
        2023-08-11 Twitter
                              @frank chat Hello everyone!
                                                            0.807257727
## 528
        2023-08-12 Twitter
                             dave@example
                                             Team meeting -0.786887704
## 529
        2023-08-12
                      Slack
                              @frank_chat
                                             Fun weekend!
                                                            0.519153008
## 530
        2023-08-12
                      Email
                             dave@example Need assistance 0.091942075
        2023-08-12
## 531
                      Slack
                              @frank_chat Hello everyone! -0.219064676
## 532
        2023-08-12
                      Slack
                             dave@example
                                             Fun weekend! -0.285561244
## 533
        2023-08-12 Twitter
                              carol_slack
                                              Great work! 0.407506729
## 534
        2023-08-12 Twitter
                              carol_slack Need assistance -0.435741366
## 535
        2023-08-12 Twitter
                             dave@example Hello everyone! 0.278570379
## 536
                              carol_slack
        2023-08-12
                      Slack
                                               Great work! -0.733910211
## 537
        2023-08-12 Twitter
                              @bob_tweets
                                           Exciting news! -0.608554570
## 538
        2023-08-12
                                           Exciting news! -0.260005387
                      Email
                             @erin tweets
##
  539
        2023-08-12
                      Slack alice@example
                                             Fun weekend! 0.226010282
   540
##
        2023-08-12
                      Email
                              @bob_tweets Need assistance -0.042491458
## 541
        2023-08-12 Twitter alice@example Hello everyone!
                                                            0.532433989
## 542
        2023-08-12
                      Slack
                              @frank_chat Need assistance -0.611636332
##
  543
        2023-08-12 Twitter
                             dave@example
                                              Great work!
                                                            0.195303030
##
   544
        2023-08-12 Twitter
                              @bob_tweets
                                             Team meeting
                                                            0.265132846
## 545
        2023-08-12
                      Email alice@example
                                             Team meeting
                                                            0.774573303
## 546
        2023-08-12
                      Email
                              @bob_tweets
                                           Exciting news! -0.597888714
## 547
        2023-08-12
                      Slack
                              carol_slack
                                             Fun weekend!
                                                            0.608656868
   548
##
        2023-08-12
                      Email
                             dave@example
                                             Fun weekend!
                                                            0.043927317
  549
##
        2023-08-12 Twitter
                             @erin tweets
                                             Team meeting
                                                            0.650313874
## 550
        2023-08-12
                      Email
                              @frank_chat Need assistance -0.104900640
## 551
        2023-08-12
                      Email
                             dave@example
                                              Great work!
                                                            0.480317921
   552
##
        2023-08-12
                      Email
                             dave@example
                                             Fun weekend!
                                                            0.650773503
##
   553
        2023-08-12
                      Slack
                             dave@example
                                           Exciting news!
                                                            0.563268560
   554
        2023-08-12
                      Slack alice@example Need assistance
                                                            0.454688824
##
## 555
        2023-08-12
                      Email
                             @erin_tweets Need assistance
                                                            0.866607873
##
   556
        2023-08-12
                      Slack
                              carol slack Need assistance -0.919222645
   557
##
        2023-08-12 Twitter
                              @bob tweets
                                               Great work! -0.405934577
## 558
        2023-08-12
                      Email alice@example Exciting news! 0.063475272
```

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## 559
        2023-08-12 Twitter
                            @erin tweets
                                             Fun weekend!
                                                            0.038330505
## 560
        2023-08-12
                     Email alice@example
                                              Great work!
                                                            0.383860287
## 561
        2023-08-12 Twitter alice@example
                                           Exciting news! -0.487793705
        2023-08-12
##
  562
                     Email
                              @frank chat
                                           Exciting news!
                                                            0.777389107
  563
        2023-08-12 Twitter
                             dave@example Need assistance -0.713639749
##
## 564
        2023-08-12
                     Slack
                              carol slack
                                                            0.874556832
                                              Great work!
                              @frank_chat Need assistance 0.544408341
## 565
        2023-08-12
                     Email
        2023-08-12
## 566
                     Email
                             dave@example
                                              Great work! -0.841218561
   567
                              @frank_chat
##
        2023-08-12
                     Email
                                             Fun weekend! -0.102208237
## 568
        2023-08-12
                     Slack
                              @bob_tweets
                                             Fun weekend! 0.990166281
##
  569
        2023-08-12
                     Email alice@example
                                           Exciting news! -0.995861550
## 570
        2023-08-12
                     Email alice@example
                                             Team meeting 0.255163795
## 571
                             @erin_tweets Need assistance -0.329706852
        2023-08-12 Twitter
## 572
        2023-08-12
                     Slack
                              carol_slack
                                             Team meeting 0.504667453
## 573
        2023-08-12 Twitter
                              @bob_tweets
                                             Fun weekend! 0.226440192
## 574
        2023-08-12
                     Email alice@example
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## 575
        2023-08-12
                     Email
                              carol slack
                                             Team meeting -0.492082868
## 576
        2023-08-12 Twitter
                              carol slack
                                             Team meeting 0.704733795
## 577
        2023-08-12
                     Email
                              carol_slack Need assistance 0.937844194
## 578
        2023-08-12 Twitter
                              carol_slack
                                             Fun weekend! -0.455487390
##
  579
        2023-08-12
                     Email alice@example Need assistance 0.120129855
        2023-08-12 Twitter
## 580
                             @erin tweets Need assistance 0.298994374
## 581
        2023-08-12
                     Slack
                              carol_slack Need assistance -0.044029484
##
  582
        2023-08-12 Twitter
                             dave@example
                                              Great work! -0.462906254
##
   583
        2023-08-12 Twitter alice@example
                                             Team meeting 0.582250814
## 584
        2023-08-12
                             @erin_tweets Hello everyone! -0.360894154
## 585
        2023-08-12 Twitter alice@example
                                           Exciting news!
                                                            0.874988238
## 586
        2023-08-13
                     Email alice@example Hello everyone!
                                                            0.433930994
  587
        2023-08-13
                              @bob tweets
##
                     Email
                                             Team meeting -0.092784007
  588
##
        2023-08-13
                     Slack
                              carol_slack Hello everyone!
                                                            0.675182751
## 589
        2023-08-13
                     Slack
                              @bob_tweets
                                              Great work! -0.443448592
## 590
        2023-08-13
                     Slack alice@example
                                              Great work!
                                                            0.480868685
## 591
                                                            0.986894567
        2023-08-13 Twitter
                             dave@example
                                             Fun weekend!
   592
        2023-08-13 Twitter alice@example Need assistance
##
                                                            0.119616441
## 593
        2023-08-13
                     Email
                             dave@example Need assistance -0.834047724
                                              Great work! -0.705626460
                              @bob tweets
## 594
        2023-08-13 Twitter
##
  595
        2023-08-13 Twitter alice@example
                                             Fun weekend! -0.958858334
##
   596
        2023-08-13 Twitter alice@example Hello everyone!
                                                            0.752351641
## 597
        2023-08-13
                     Slack
                              @frank_chat Exciting news!
                                                            0.443950114
## 598
        2023-08-13
                     Slack
                             @erin tweets Need assistance -0.514785561
##
   599
        2023-08-13 Twitter
                              @frank_chat Hello everyone! -0.369747002
##
   600
        2023-08-13
                     Slack
                              carol_slack
                                           Exciting news!
                                                            0.474910577
## 601
        2023-08-13
                     Fmail
                              carol slack
                                           Exciting news!
                                                            0.991050147
## 602
        2023-08-13
                     Email
                              carol slack
                                           Exciting news! -0.930242309
##
  603
        2023-08-13 Twitter alice@example
                                             Team meeting
                                                            0.892404643
   604
##
        2023-08-13 Twitter
                              @bob tweets Need assistance
                                                            0.408644735
## 605
        2023-08-13
                     Email
                             @erin tweets Hello everyone! -0.939573104
  606
        2023-08-13 Twitter
                                           Exciting news!
##
                              @frank chat
                                                            0.368110256
##
  607
        2023-08-13 Twitter
                              @bob tweets Need assistance -0.883181106
   608
##
        2023-08-13
                     Slack
                              carol slack
                                              Great work! -0.947211589
        2023-08-13 Twitter
## 609
                              @frank chat Hello everyone! -0.426096413
## 610
        2023-08-13 Twitter
                                          Exciting news!
                                                            0.771407587
                              carol slack
## 611
        2023-08-13 Twitter
                             @erin_tweets
                                              Great work! -0.956337988
## 612
        2023-08-13
                     Email
                             @erin tweets
                                             Fun weekend!
                                                            0.496487776
## 613
        2023-08-13 Twitter
                             @erin tweets
                                              Great work!
                                                            0.515643027
## 614
        2023-08-13 Twitter alice@example
                                              Great work! -0.026141260
```

```
## 615
                     Email alice@example Hello everyone!
        2023-08-13
                                                            0.042741961
## 616
        2023-08-13 Twitter
                             dave@example
                                             Fun weekend! -0.042934414
## 617
        2023-08-13 Twitter
                              @frank chat
                                             Team meeting -0.877922161
## 618
        2023-08-13
                     Slack alice@example Need assistance -0.100954488
                     Slack
## 619
        2023-08-13
                              carol_slack Need assistance 0.886342321
        2023-08-13
                     Slack alice@example
                                             Team meeting -0.493501368
## 620
## 621
        2023-08-13
                     Email
                              @frank_chat Need assistance 0.935812009
## 622
        2023-08-13 Twitter
                              @frank_chat Hello everyone! -0.694118693
        2023-08-13
                             @erin_tweets Need assistance -0.544543609
## 623
                     Slack
## 624
        2023-08-13
                     Slack
                              carol_slack
                                              Great work! 0.460303653
## 625
        2023-08-13
                     Email
                             dave@example
                                              Great work!
                                                           0.550955762
        2023-08-13
                                              Great work! -0.693289580
## 626
                     Email
                              @frank_chat
        2023-08-13
                             dave@example Hello everyone! -0.945477226
## 627
                     Slack
## 628
        2023-08-13
                     Slack alice@example
                                             Team meeting -0.927027794
## 629
        2023-08-13
                     Email
                              @bob_tweets
                                           Exciting news! 0.553149406
## 630
        2023-08-13
                     Slack
                              carol_slack Hello everyone! -0.416070993
## 631
        2023-08-13
                     Email alice@example Need assistance 0.596431601
## 632
        2023-08-13
                     Email
                              @bob_tweets Hello everyone!
                                                            0.264306294
## 633
        2023-08-13 Twitter
                             dave@example
                                           Exciting news! -0.618614707
## 634
        2023-08-13 Twitter
                              carol_slack
                                             Fun weekend! -0.412842807
## 635
        2023-08-13 Twitter alice@example
                                              Great work! -0.806566573
## 636
        2023-08-13
                     Email
                             @erin tweets
                                             Fun weekend! 0.418006041
## 637
        2023-08-14
                     Slack
                              @frank_chat Need assistance
                                                            0.187954018
## 638
        2023-08-14 Twitter
                             dave@example
                                              Great work!
                                                            0.866824818
## 639
        2023-08-14 Twitter
                              @frank chat
                                             Team meeting -0.935610580
## 640
        2023-08-14 Twitter alice@example
                                           Exciting news!
                                                            0.415267176
## 641
        2023-08-14
                     Email
                             @erin_tweets
                                              Great work!
                                                            0.891589128
## 642
        2023-08-14 Twitter
                             @erin tweets Hello everyone! -0.647561021
                              @bob tweets
## 643
        2023-08-14
                     Email
                                             Team meeting -0.815906889
        2023-08-14 Twitter alice@example Hello everyone! -0.892831107
## 644
## 645
        2023-08-14 Twitter alice@example
                                              Great work! 0.346799491
## 646
        2023-08-14 Twitter
                              @frank_chat
                                              Great work! -0.912142744
## 647
        2023-08-14
                            @erin_tweets Hello everyone!
                     Slack
                                                            0.987832270
        2023-08-14 Twitter alice@example
## 648
                                             Team meeting
                                                            0.024089097
## 649
        2023-08-14
                     Email
                            @erin_tweets Need assistance 0.867801995
                                              Great work! -0.518683678
## 650
        2023-08-14
                     Slack
                             @erin tweets
                              @frank_chat Need assistance -0.384110797
## 651
        2023-08-14
                     Slack
## 652
                              @bob_tweets
                                              Great work! -0.970631612
        2023-08-14 Twitter
                              carol_slack
## 653
        2023-08-14
                     Email
                                             Fun weekend!
                                                            0.446355308
## 654
        2023-08-14 Twitter
                             dave@example
                                             Fun weekend!
                                                            0.474564350
        2023-08-14
## 655
                             @erin_tweets
                                          Exciting news!
                     Slack
                                                            0.336964048
##
  656
        2023-08-14
                     Email
                             dave@example Need assistance -0.829999507
## 657
        2023-08-14
                     Email alice@example Need assistance
                                                            0.043240849
                                                            0.491653796
## 658
        2023-08-14
                     Slack
                             dave@example Hello everyone!
## 659
        2023-08-14
                     Email
                             @erin_tweets Need assistance -0.220039924
  660
##
        2023-08-14
                     Email alice@example Need assistance
                                                            0.041204039
## 661
        2023-08-14
                     Slack
                              @frank chat Need assistance -0.920249034
                                           Exciting news! -0.298691060
## 662
        2023-08-14
                     Slack
                             dave@example
## 663
        2023-08-14
                     Slack
                             @erin tweets Need assistance
                                                           0.141076977
  664
##
        2023-08-14
                     Slack
                             @erin tweets
                                             Fun weekend! -0.259928443
## 665
        2023-08-14 Twitter
                             @erin tweets Need assistance -0.543064435
## 666
        2023-08-14 Twitter
                             @erin tweets
                                              Great work!
                                                            0.468599080
## 667
        2023-08-14 Twitter alice@example
                                           Exciting news!
                                                            0.157755047
##
   668
        2023-08-14
                     Slack
                             dave@example
                                              Great work!
                                                            0.538406652
## 669
        2023-08-14 Twitter
                              @bob tweets
                                           Exciting news!
                                                            0.754322437
## 670
        2023-08-14 Twitter
                              @bob_tweets Hello everyone!
                                                            0.250149151
```

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## 671
        2023-08-14 Twitter
                             dave@example
                                             Fun weekend! -0.064443091
## 672
        2023-08-14 Twitter
                              @frank chat
                                             Team meeting 0.499737595
## 673
        2023-08-14
                              @bob tweets Hello everyone!
                                                            0.498191035
                     Email
## 674
        2023-08-14 Twitter
                              @frank chat
                                             Fun weekend! -0.672147054
## 675
        2023-08-14
                     Email
                              @bob_tweets Need assistance 0.330107941
## 676
        2023-08-14
                     Email
                             @erin tweets
                                             Fun weekend! -0.835450725
## 677
        2023-08-14
                     Email
                             dave@example
                                             Fun weekend! 0.304697359
## 678
        2023-08-14
                     Email
                             @erin_tweets Hello everyone! -0.446434771
        2023-08-14
                              @bob_tweets Hello everyone!
## 679
                     Slack
                                                            0.450289166
## 680
        2023-08-14 Twitter
                                              Great work! -0.018533767
                              @bob_tweets
## 681
        2023-08-14
                     Slack
                              @frank_chat
                                           Exciting news! -0.054910814
## 682
        2023-08-14
                                              Great work! -0.111933967
                     Email alice@example
        2023-08-14
                             @erin_tweets Hello everyone! 0.605556316
## 683
                     Slack
## 684
        2023-08-14
                     Slack
                             @erin_tweets
                                           Exciting news! -0.736287751
                                           Exciting news!
## 685
        2023-08-14
                     Email
                              carol slack
                                                            0.596924395
## 686
        2023-08-14 Twitter
                             dave@example Need assistance -0.273263505
## 687
        2023-08-14 Twitter
                              carol slack Need assistance 0.739025190
## 688
        2023-08-14 Twitter
                              @bob tweets
                                           Exciting news!
                                                           0.671785708
## 689
        2023-08-14
                     Email
                              @bob_tweets
                                             Team meeting -0.996662613
## 690
        2023-08-14 Twitter
                             dave@example
                                             Fun weekend! -0.998980226
## 691
        2023-08-14
                     Slack 

                              @bob_tweets
                                             Team meeting -0.709024122
## 692
        2023-08-14 Twitter alice@example
                                              Great work! -0.652119522
## 693
        2023-08-14 Twitter
                              @bob_tweets
                                             Fun weekend! 0.567614020
## 694
        2023-08-14 Twitter alice@example
                                              Great work! -0.232635738
##
  695
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                     Slack alice@example Hello everyone! -0.798660460
                     Slack alice@example Hello everyone! -0.691606675
## 696
        2023-08-14
## 697
        2023-08-14
                     Email
                             dave@example Hello everyone! -0.359136123
## 698
        2023-08-14
                     Email
                             @erin tweets
                                             Fun weekend!
                                                           0.035476264
## 699
        2023-08-14
                                               Great work! -0.129584252
                     Email
                             @erin_tweets
## 700
        2023-08-14
                     Slack
                             dave@example
                                           Exciting news! -0.531753783
## 701
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                                               Great work! 0.468266435
## 702
        2023-08-15
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                             @erin_tweets Hello everyone! -0.689319659
## 703
        2023-08-15 Twitter
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                                              Great work! -0.244326655
                              carol_slack Hello everyone! -0.761104998
## 704
        2023-08-15 Twitter
## 705
        2023-08-15 Twitter alice@example
                                             Team meeting -0.178657859
                                             Fun weekend! -0.707901944
        2023-08-15 Twitter alice@example
## 706
##
   707
        2023-08-15
                             @erin_tweets
                                             Fun weekend! -0.576360519
                     Email
  708
                                          Exciting news! -0.745493084
##
        2023-08-15
                     Email
                              carol_slack
## 709
                             dave@example
        2023-08-15 Twitter
                                             Fun weekend!
                                                            0.469535301
                              @bob_tweets
## 710
        2023-08-15 Twitter
                                             Team meeting
                                                            0.853966497
##
  711
        2023-08-15
                     Slack alice@example
                                             Fun weekend!
                                                            0.271711212
## 712
        2023-08-15
                     Slack
                              carol_slack
                                             Fun weekend! -0.760701751
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                     Slack
                              @frank chat
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## 714
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                     Email
                              carol slack Need assistance
                                                           0.414960733
## 715
        2023-08-15
                     Slack
                              @bob_tweets
                                           Exciting news!
                                                            0.423514269
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##
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## 717
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                              @bob tweets
                                             Team meeting -0.271451744
## 718
        2023-08-15
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                              @frank chat Need assistance
                                                            0.385732211
## 719
        2023-08-15
                     Email
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##
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                             dave@example
                                               Great work!
                                                            0.435108419
## 721
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                              @bob tweets Need assistance
                                                            0.373691486
## 722
        2023-08-15
                     Slack
                              carol slack Need assistance
                                                            0.674294885
## 723
        2023-08-15
                     Slack
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##
  724
        2023-08-15
                     Email
                             dave@example Hello everyone!
                                                            0.282330315
## 725
        2023-08-15
                     Slack
                              @frank_chat Hello everyone!
                                                            0.058449768
## 726
        2023-08-15 Twitter alice@example Exciting news!
                                                            0.153143482
```

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## 727
        2023-08-15 Twitter
                              carol slack
                                              Team meeting
                                                            0.498292263
## 728
        2023-08-15
                      Email
                              @frank chat
                                               Great work!
                                                            0.120376800
## 729
        2023-08-15
                      Slack
                             @erin tweets
                                              Team meeting
                                                            0.457860831
## 730
        2023-08-15 Twitter
                              @frank chat Hello everyone!
                                                            0.384222084
## 731
        2023-08-15
                      Email alice@example
                                              Team meeting
                                                            0.176413531
## 732
        2023-08-15
                      Email
                              @frank chat Need assistance -0.438784983
## 733
        2023-08-15
                      Slack
                              @frank_chat
                                               Great work!
                                                            0.960373470
## 734
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## 735
                              @frank_chat Need assistance
        2023-08-15 Twitter
                                                            0.344264537
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## 736
        2023-08-15
                     Email
                                              Fun weekend! -0.141636565
## 737
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                             dave@example
                                              Fun weekend!
                                                            0.345517721
## 738
        2023-08-15
                      Slack 

                              @frank_chat
                                              Fun weekend!
                                                            0.816346027
## 739
        2023-08-15 Twitter
                              @bob_tweets
                                              Team meeting -0.144443278
## 740
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                             @erin_tweets Need assistance
                                                            0.599532404
## 741
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                             @erin_tweets Hello everyone!
                                                            0.768580468
## 742
        2023-08-15
                      Email
                             dave@example Need assistance
                                                            0.773382573
## 743
        2023-08-15
                      Email
                              @bob tweets
                                              Team meeting -0.801572199
## 744
        2023-08-15 Twitter
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## 745
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                      Slack
                             dave@example
                                               Great work! -0.481857921
## 746
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##
  747
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                                              Team meeting -0.074092148
## 748
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                             @erin tweets Hello everyone! -0.562214842
                      Slack
## 749
        2023-08-15
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                                              Fun weekend!
                                                            0.535877908
## 750
        2023-08-15 Twitter
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##
   751
        2023-08-15
                      Slack alice@example Need assistance
                                                            0.899728119
        2023-08-15 Twitter alice@example
## 752
                                               Great work!
                                                            0.798867194
## 753
        2023-08-16 Twitter
                             @erin_tweets
                                               Great work!
                                                            0.150156671
## 754
        2023-08-16
                      Slack alice@example
                                           Exciting news!
                                                            0.320830711
  755
        2023-08-16 Twitter alice@example
                                                            0.927110374
##
                                           Exciting news!
        2023-08-16 Twitter
                              @bob_tweets
## 756
                                           Exciting news! -0.141741692
## 757
        2023-08-16 Twitter alice@example
                                               Great work! -0.179680133
## 758
        2023-08-16
                      Slack
                             @erin_tweets
                                           Exciting news! -0.290788232
                     Slack
## 759
        2023-08-16
                                              Team meeting -0.774452816
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        2023-08-16
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## 760
                      Email
                                                            0.997601895
## 761
        2023-08-16
                      Slack
                              carol_slack Hello everyone!
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        2023-08-16
## 762
                      Email
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                                              Fun weekend! -0.584208118
##
  763
        2023-08-16 Twitter
                             @erin_tweets
                                           Exciting news! -0.265161676
## 764
                      Slack alice@example Need assistance
        2023-08-16
                                                            0.669039086
## 765
                      Email alice@example
        2023-08-16
                                              Team meeting
                                                            0.858062949
                      Slack alice@example Need assistance
## 766
        2023-08-16
                                                            0.445466304
##
   767
        2023-08-16 Twitter
                              @bob_tweets
                                              Fun weekend! -0.533522750
##
   768
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                      Slack
                              @bob_tweets
                                              Team meeting
                                                            0.120248223
##
  769
                              carol_slack
        2023-08-16
                      Email
                                               Great work!
                                                            0.306993762
## 770
        2023-08-16 Twitter
                             dave@example
                                               Great work!
                                                            0.827052074
## 771
        2023-08-16
                      Email
                              carol_slack
                                               Great work! -0.045373839
   772
##
        2023-08-16 Twitter
                             dave@example Need assistance -0.194268964
## 773
        2023-08-16
                      Email
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                                           Exciting news!
                                                            0.305391626
##
  774
        2023-08-16
                      Slack
                              @frank chat
                                              Team meeting -0.143542713
## 775
        2023-08-16
                      Slack
                              carol slack Hello everyone! -0.321912185
   776
##
        2023-08-16
                      Slack
                             dave@example
                                            Exciting news!
                                                            0.461496073
## 777
        2023-08-16 Twitter
                              carol slack
                                            Exciting news! -0.875286373
  778
        2023-08-16 Twitter
                              carol slack Need assistance -0.375053814
##
## 779
        2023-08-16
                      Email alice@example
                                           Exciting news! -0.858994203
##
   780
        2023-08-16
                      Email
                             @erin tweets
                                              Fun weekend! -0.928850479
## 781
        2023-08-16 Twitter
                             dave@example
                                              Fun weekend! -0.286604216
## 782
        2023-08-16
                      Email alice@example
                                               Great work! 0.360768258
```

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## 783
        2023-08-16
                      Email
                             dave@example Need assistance -0.014521594
##
  784
        2023-08-16
                      Email
                              @frank chat
                                              Team meeting -0.287118956
## 785
        2023-08-16
                      Email
                              @frank chat Need assistance
                                                            0.343977793
   786
##
        2023-08-16
                   Twitter
                             @erin tweets Hello everyone!
                                                            0.806540163
## 787
        2023-08-16
                      Email
                              @frank_chat
                                              Fun weekend!
                                                            0.402509230
## 788
        2023-08-16 Twitter
                             @erin tweets
                                              Team meeting -0.674190784
## 789
        2023-08-16
                      Slack
                             dave@example Need assistance 0.484403751
        2023-08-16
## 790
                      Email
                              carol_slack Hello everyone! -0.029610693
## 791
                                              Fun weekend!
        2023-08-16
                      Slack
                             dave@example
                                                            0.438361928
## 792
        2023-08-16
                      Email
                              @frank_chat
                                              Fun weekend! -0.552409418
## 793
        2023-08-16
                      Slack
                              @frank_chat
                                              Team meeting -0.933677876
## 794
        2023-08-16
                      Slack 

                              @frank_chat Hello everyone! -0.878399170
## 795
                                           Exciting news! 0.696509592
        2023-08-16 Twitter alice@example
## 796
        2023-08-16
                      Email
                              carol_slack Hello everyone! -0.851052538
## 797
        2023-08-16 Twitter
                              @bob_tweets
                                               Great work! -0.674055766
## 798
        2023-08-16
                      Slack
                              @frank_chat
                                              Fun weekend! 0.269629325
## 799
        2023-08-16
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                             @erin_tweets
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## 800
        2023-08-16 Twitter
                             dave@example
                                              Team meeting 0.796688539
## 801
        2023-08-16
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                              @bob_tweets
                                               Great work! -0.351176404
## 802
        2023-08-16
                      Email
                              @bob_tweets Need assistance -0.459899545
##
  803
        2023-08-17 Twitter alice@example
                                              Team meeting -0.189370414
        2023-08-17 Twitter
## 804
                              @bob tweets Need assistance -0.493062959
## 805
        2023-08-17
                      Email
                              @frank_chat
                                              Team meeting 0.932789830
## 806
        2023-08-17
                      Email
                              @bob_tweets
                                              Fun weekend!
                                                            0.825692308
##
   807
        2023-08-17
                      Slack alice@example
                                           Exciting news! -0.301641050
## 808
        2023-08-17
                      Email
                              @bob_tweets
                                              Team meeting -0.467768930
## 809
        2023-08-17 Twitter
                              @bob_tweets
                                           Exciting news!
                                                            0.953910344
## 810
        2023-08-17 Twitter
                              @frank chat Hello everyone!
                                                            0.951721462
        2023-08-17 Twitter
                                                            0.172285239
## 811
                              carol_slack
                                              Fun weekend!
## 812
                             @erin_tweets
                                                            0.709753431
        2023-08-17
                      Email
                                               Great work!
## 813
        2023-08-17
                      Email
                             dave@example
                                              Fun weekend!
                                                            0.420022254
## 814
        2023-08-17 Twitter
                             @erin_tweets
                                              Fun weekend! -0.417790642
## 815
        2023-08-17
                      Email
                             dave@example Hello everyone!
                                                            0.976894801
                      Slack alice@example
## 816
        2023-08-17
                                               Great work!
                                                            0.652192219
## 817
        2023-08-17 Twitter
                             dave@example
                                              Fun weekend!
                                                            0.775130778
        2023-08-17
                                               Great work! -0.951084716
## 818
                      Fmail
                              @frank chat
## 819
        2023-08-17 Twitter
                              carol_slack Need assistance -0.806338225
## 820
        2023-08-17 Twitter
                             @erin_tweets Hello everyone!
                                                            0.299843722
## 821
        2023-08-17
                      Email
                             @erin_tweets
                                              Team meeting
                                                            0.863822790
## 822
        2023-08-17 Twitter alice@example
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## 823
                      Slack
                              carol_slack Need assistance -0.750471560
## 824
        2023-08-17 Twitter
                              @frank_chat
                                              Team meeting -0.232014328
## 825
                                              Fun weekend! -0.624432764
        2023-08-17 Twitter
                              @frank_chat
## 826
        2023-08-17
                      Email
                             dave@example
                                              Fun weekend! -0.173903828
## 827
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        2023-08-17 Twitter alice@example Hello everyone! -0.605858998
## 828
## 829
        2023-08-17
                      Email
                              @frank chat
                                              Team meeting -0.229243480
## 830
        2023-08-17 Twitter
                             dave@example Need assistance -0.035525655
## 831
        2023-08-17 Twitter
                             @erin_tweets Hello everyone! -0.606922586
## 832
        2023-08-17
                      Slack
                              carol slack
                                              Fun weekend!
                                                            0.169502832
## 833
        2023-08-17
                              @frank chat
                                               Great work! -0.700269639
                      Slack
        2023-08-17
## 834
                      Slack alice@example
                                               Great work! -0.853163924
## 835
        2023-08-17 Twitter
                              @frank_chat
                                              Team meeting -0.608078998
##
  836
        2023-08-17 Twitter
                              carol slack Need assistance -0.065970336
## 837
        2023-08-17
                      Email
                              @frank_chat
                                           Exciting news! -0.770805090
## 838
        2023-08-17 Twitter
                              @bob_tweets
                                               Great work! 0.401612313
```

```
2023-08-17 Twitter alice@example
                                           Exciting news!
## 839
                                                            0.968932204
## 840
        2023-08-17
                      Email
                             dave@example
                                              Team meeting -0.047711935
## 841
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                              carol slack Need assistance -0.101536875
## 842
        2023-08-17 Twitter
                              carol slack
                                           Exciting news! -0.237763272
## 843
        2023-08-17 Twitter
                             @erin_tweets
                                              Team meeting -0.666378770
## 844
        2023-08-17
                              @frank chat Need assistance -0.837423526
                      Email
## 845
        2023-08-17
                      Slack
                             @erin_tweets Hello everyone!
                                                            0.937329018
        2023-08-18
## 846
                      Email
                              @frank_chat
                                              Fun weekend!
                                                            0.380196611
## 847
        2023-08-18
                      Email alice@example
                                              Fun weekend!
                                                            0.233402089
## 848
        2023-08-18 Twitter
                              @frank_chat
                                              Team meeting -0.004460444
        2023-08-18
## 849
                      Fmail
                              @frank_chat
                                              Fun weekend! -0.569811309
## 850
                                              Fun weekend! -0.558302570
        2023-08-18
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                              @bob_tweets
## 851
        2023-08-18
                      Email
                             dave@example Need assistance -0.770186925
## 852
        2023-08-18 Twitter
                              @bob_tweets Need assistance 0.083397951
## 853
        2023-08-18
                      Email
                              @bob_tweets
                                              Fun weekend! -0.558283084
## 854
        2023-08-18 Twitter
                              @frank_chat Exciting news! -0.445320373
## 855
        2023-08-18 Twitter
                             dave@example Need assistance -0.577738499
## 856
        2023-08-18
                      Email alice@example Hello everyone! -0.024430894
                             @erin_tweets Need assistance -0.240649289
## 857
        2023-08-18
                      Email
## 858
        2023-08-18
                      Email
                              carol_slack
                                              Team meeting 0.343653605
##
  859
        2023-08-18
                      Email
                              @bob tweets
                                           Exciting news!
                                                            0.497974098
## 860
        2023-08-18 Twitter
                                           Exciting news!
                              @frank chat
                                                            0.784590872
## 861
        2023-08-18
                      Slack
                             @erin_tweets
                                              Team meeting
                                                            0.353438236
## 862
        2023-08-18 Twitter
                              carol_slack
                                           Exciting news!
                                                            0.222249684
##
  863
        2023-08-18
                      Email alice@example
                                           Exciting news!
                                                            0.422912350
## 864
        2023-08-18
                      Slack
                              @bob_tweets Need assistance -0.754348847
## 865
        2023-08-18
                      Slack
                             @erin_tweets
                                            Exciting news! -0.537696546
## 866
        2023-08-18
                      Email
                              carol slack
                                           Exciting news! -0.978982675
## 867
        2023-08-18 Twitter
                             dave@example Need assistance -0.613432584
## 868
        2023-08-18
                      Email
                              @frank_chat
                                              Fun weekend!
                                                           0.061621126
## 869
        2023-08-18 Twitter
                             dave@example
                                           Exciting news! -0.209318373
## 870
        2023-08-18
                      Slack
                             dave@example
                                              Team meeting -0.718652172
## 871
                                              Team meeting -0.012694929
        2023-08-18 Twitter
                             dave@example
                      Slack
## 872
        2023-08-18
                             dave@example
                                              Fun weekend! -0.566594298
## 873
        2023-08-18 Twitter
                             @erin_tweets Need assistance 0.116931847
        2023-08-18
## 874
                      Slack
                             @erin tweets
                                            Exciting news! -0.719712700
## 875
        2023-08-18 Twitter
                              @bob_tweets
                                           Exciting news!
                                                            0.290797958
## 876
        2023-08-18
                      Email
                             @erin_tweets Need assistance
                                                            0.171319252
## 877
        2023-08-18
                      Email
                             dave@example Hello everyone!
                                                            0.978220029
## 878
        2023-08-18
                      Slack
                              @frank chat
                                              Team meeting -0.134102609
## 879
        2023-08-18
                      Email alice@example Need assistance
                                                            0.275121063
##
  880
        2023-08-18 Twitter
                              @bob_tweets
                                              Fun weekend!
                                                            0.590919483
## 881
        2023-08-18 Twitter
                              @frank chat
                                              Team meeting
                                                            0.818109252
## 882
        2023-08-18
                      Email
                             dave@example
                                           Exciting news! -0.768564025
## 883
        2023-08-18 Twitter
                              carol_slack Need assistance -0.107154121
  884
##
        2023-08-18
                      Slack
                              @bob tweets
                                              Fun weekend!
                                                            0.567603516
## 885
                              carol_slack
        2023-08-18
                      Email
                                           Exciting news! -0.546088908
## 886
        2023-08-18
                      Email
                              carol slack Need assistance
                                                            0.121493359
## 887
        2023-08-18
                      Slack
                              @bob_tweets Hello everyone! -0.164491392
  888
##
        2023-08-18
                      Slack
                              @bob tweets
                                              Team meeting
                                                           0.403409261
## 889
        2023-08-18
                             @erin tweets Hello everyone! -0.395961934
                      Slack
##
  890
        2023-08-18
                      Slack alice@example
                                               Great work! -0.114574431
## 891
        2023-08-18 Twitter alice@example
                                              Fun weekend!
                                                            0.977650215
##
  892
        2023-08-18 Twitter
                             dave@example
                                              Great work! -0.160749977
## 893
        2023-08-18 Twitter
                              @bob_tweets
                                              Fun weekend!
                                                            0.866654206
## 894
        2023-08-18
                      Slack
                              @bob_tweets
                                              Fun weekend! -0.898072343
```

```
## 895
        2023-08-18
                      Slack
                              @bob_tweets
                                              Team meeting 0.192284770
## 896
        2023-08-18
                      Slack alice@example
                                              Fun weekend! -0.088887415
## 897
        2023-08-18 Twitter alice@example Hello everyone! -0.936083395
## 898
        2023-08-18
                      Email
                              @bob tweets Need assistance
                                                           0.453627230
## 899
        2023-08-18 Twitter
                              @bob_tweets
                                               Great work! -0.839583620
## 900
                      Email alice@example
                                              Team meeting -0.377541550
        2023-08-18
## 901
        2023-08-18
                      Slack
                              @frank_chat
                                               Great work! -0.071027102
## 902
        2023-08-19 Twitter
                              @frank_chat Need assistance 0.481529109
## 903
        2023-08-19
                      Email
                             dave@example
                                            Exciting news!
                                                            0.821827833
## 904
        2023-08-19
                      Email
                             dave@example
                                            Exciting news! -0.533024813
## 905
        2023-08-19
                      Email
                             @erin_tweets
                                              Team meeting -0.757670477
## 906
        2023-08-19
                      Email alice@example
                                           Exciting news!
                                                            0.401543677
## 907
                             dave@example
                                               Great work! -0.526421044
        2023-08-19
                      Slack
## 908
        2023-08-19
                      Slack
                              @bob_tweets Hello everyone!
                                                            0.679174718
## 909
        2023-08-19
                      Slack
                              @bob_tweets Hello everyone! -0.558468956
## 910
        2023-08-19 Twitter
                              @bob_tweets
                                               Great work!
                                                            0.521462946
## 911
        2023-08-19
                      Email
                             dave@example
                                           Exciting news!
                                                            0.324592507
## 912
        2023-08-19
                      Email
                             @erin_tweets
                                              Team meeting -0.823923888
## 913
        2023-08-19
                                               Great work!
                      Slack
                             @erin_tweets
                                                            0.037533612
## 914
        2023-08-19
                      Email
                             dave@example
                                              Team meeting
                                                            0.087382621
## 915
        2023-08-19
                      Slack alice@example
                                              Team meeting -0.249497572
## 916
        2023-08-19
                      Email
                              @frank chat Hello everyone!
                                                             0.179850068
## 917
        2023-08-19
                      Email alice@example
                                               Great work!
                                                             0.301563812
## 918
        2023-08-19
                      Slack
                              @bob_tweets Hello everyone!
                                                             0.487545231
## 919
        2023-08-19 Twitter
                              @frank chat
                                              Fun weekend! -0.371842024
## 920
        2023-08-19 Twitter
                             dave@example
                                              Team meeting -0.284638313
## 921
        2023-08-19
                      Email
                              carol_slack
                                              Fun weekend!
                                                            0.892766985
## 922
        2023-08-19 Twitter
                              carol slack
                                              Team meeting
                                                            0.317846402
## 923
        2023-08-19 Twitter alice@example Need assistance
                                                            0.143810244
                             @erin_tweets
## 924
        2023-08-19 Twitter
                                              Team meeting
                                                            0.945942261
## 925
        2023-08-19 Twitter alice@example
                                              Fun weekend! -0.111042333
## 926
        2023-08-19
                      Email
                              @frank_chat
                                              Team meeting -0.943049938
                                               Great work! -0.336303487
## 927
        2023-08-19
                             dave@example
                      Email
                             @erin_tweets
## 928
        2023-08-19
                      Email
                                              Fun weekend! 0.149510738
## 929
        2023-08-19 Twitter alice@example
                                              Team meeting -0.299451457
## 930
        2023-08-19
                              @bob tweets
                      Email
                                              Team meeting 0.855612874
## 931
        2023-08-19
                   Twitter
                             dave@example Need assistance -0.115035673
## 932
                             @erin_tweets
        2023-08-19
                      Slack
                                               Great work! -0.725357866
## 933
                              @frank_chat
        2023-08-19 Twitter
                                            Exciting news!
                                                            0.388266448
## 934
        2023-08-19 Twitter
                              carol slack
                                              Team meeting
                                                            0.578111817
## 935
        2023-08-19 Twitter alice@example Hello everyone! -0.378329881
##
  936
        2023-08-19 Twitter
                              @bob_tweets Hello everyone!
                                                             0.420571170
## 937
        2023-08-19 Twitter
                              @frank_chat
                                           Exciting news!
                                                             0.221380584
## 938
        2023-08-19
                      Slack
                              @frank_chat
                                              Team meeting -0.887928675
## 939
        2023-08-19
                      Email
                              @frank_chat
                                               Great work!
                                                             0.463513046
## 940
        2023-08-19
                      Email alice@example Hello everyone! -0.040838550
## 941
        2023-08-19
                      Email
                             @erin tweets
                                               Great work!
                                                             0.570171806
## 942
        2023-08-19
                      Email
                             dave@example
                                              Team meeting -0.528815492
## 943
        2023-08-19 Twitter
                             @erin_tweets
                                           Exciting news!
                                                             0.638825124
  944
##
        2023-08-19
                      Slack
                              @frank chat
                                              Team meeting -0.472906698
## 945
        2023-08-19
                      Slack
                             dave@example
                                              Team meeting -0.789976987
## 946
        2023-08-19
                      Slack alice@example
                                            Exciting news!
                                                             0.502961815
## 947
        2023-08-19 Twitter alice@example Hello everyone!
                                                             0.857508211
## 948
        2023-08-20
                      Email
                             dave@example
                                              Team meeting
                                                             0.617879979
## 949
        2023-08-20
                      Email
                              carol_slack
                                              Team meeting
                                                             0.909817838
## 950
        2023-08-20
                      Email alice@example
                                               Great work!
                                                            0.062977130
```

```
## 951
        2023-08-20 Twitter alice@example Hello everyone!
                                                            0.482187657
                     Email alice@example Hello everyone! -0.166448134
## 952
        2023-08-20
## 953
        2023-08-20
                     Email
                              @bob tweets
                                           Exciting news!
                                                            0.931368547
## 954
        2023-08-20
                     Slack alice@example
                                              Great work! -0.459148118
## 955
        2023-08-20
                     Slack
                             dave@example
                                           Exciting news!
                                                            0.617734990
## 956
        2023-08-20 Twitter alice@example
                                           Exciting news!
                                                            0.310656996
## 957
        2023-08-20 Twitter
                              carol_slack
                                              Great work!
                                                            0.544291852
## 958
                              @bob_tweets
        2023-08-20
                     Slack
                                              Great work!
                                                            0.203791809
## 959
                     Slack alice@example
                                           Exciting news!
        2023-08-20
                                                            0.685212519
## 960
        2023-08-20 Twitter
                             @erin_tweets
                                              Great work! -0.404516522
## 961
        2023-08-20
                     Slack
                             dave@example
                                           Exciting news! -0.476039052
## 962
        2023-08-20
                              @bob_tweets Need assistance -0.299717092
                     Fmail
                             @erin_tweets
                                              Great work! -0.743658878
## 963
        2023-08-20 Twitter
## 964
        2023-08-20 Twitter
                              @frank_chat
                                             Team meeting 0.659773430
## 965
        2023-08-20
                     Slack alice@example
                                           Exciting news! -0.415822029
## 966
        2023-08-20 Twitter alice@example
                                             Fun weekend! 0.280627117
## 967
        2023-08-20
                     Email
                              @bob tweets
                                             Team meeting -0.801527123
## 968
        2023-08-20
                     Slack
                            @erin_tweets
                                             Team meeting -0.134665603
## 969
        2023-08-20
                     Email
                              carol_slack
                                             Team meeting 0.078007510
## 970
                             dave@example
                                              Great work!
        2023-08-20
                     Slack
                                                            0.814900840
## 971
        2023-08-20
                     Email
                             @erin_tweets
                                           Exciting news! -0.195798854
## 972
        2023-08-20
                             @erin tweets
                                             Fun weekend!
                                                            0.604609676
                     Slack
## 973
        2023-08-20 Twitter
                              @bob_tweets
                                             Fun weekend!
                                                            0.236553716
## 974
        2023-08-20
                     Email
                             dave@example
                                             Team meeting 0.985037738
## 975
        2023-08-20
                     Slack
                              carol slack
                                          Exciting news!
                                                            0.221250645
## 976
        2023-08-20 Twitter
                             dave@example
                                             Fun weekend! -0.818538250
## 977
        2023-08-20 Twitter
                             @erin_tweets
                                              Great work! -0.349391197
## 978
        2023-08-20
                     Email
                              carol slack
                                              Great work! 0.680826971
## 979
        2023-08-20
                              carol_slack
                                              Great work! -0.574539005
                     Slack
## 980
                                             Team meeting -0.476500273
        2023-08-20 Twitter
                              @frank_chat
## 981
        2023-08-20 Twitter
                             @erin_tweets
                                             Team meeting 0.341763970
## 982
        2023-08-20
                     Slack alice@example Hello everyone! -0.863882122
## 983
        2023-08-20
                              @frank_chat
                                             Team meeting -0.993759494
                     Email
                                             Fun weekend! -0.436848105
## 984
        2023-08-20 Twitter alice@example
## 985
        2023-08-20 Twitter
                             dave@example
                                           Exciting news! -0.542942689
## 986
        2023-08-20
                     Slack
                              @bob_tweets
                                             Team meeting -0.118006961
## 987
        2023-08-20
                     Slack
                              carol_slack
                                              Great work! -0.595158034
## 988
                              @frank_chat
        2023-08-20
                     Slack
                                              Great work!
                                                            0.606102686
## 989
        2023-08-20
                     Email alice@example
                                             Fun weekend!
                                                            0.851679420
## 990
        2023-08-20
                     Email
                              @frank_chat
                                             Team meeting
                                                            0.560076173
                     Slack
## 991
        2023-08-20
                              carol_slack
                                             Fun weekend!
                                                            0.231915887
## 992
        2023-08-20
                     Slack
                              @bob_tweets Hello everyone!
                                                            0.520647362
## 993
        2023-08-20
                     Email
                              carol slack
                                             Team meeting
                                                            0.082343857
## 994
        2023-08-20 Twitter
                              @frank_chat
                                          Exciting news!
                                                            0.307898677
## 995
        2023-08-20 Twitter
                             dave@example
                                              Great work! -0.124954135
## 996
        2023-08-20
                     Email
                             dave@example
                                             Team meeting -0.075425136
## 997
                     Email alice@example Hello everyone! -0.555095884
        2023-08-20
## 998
        2023-08-20
                             @erin_tweets Hello everyone! -0.357717138
                     Slack
## 999
        2023-08-20 Twitter
                              carol slack Hello everyone!
                                                            0.640248996
## 1000 2023-08-20 Twitter
                             @erin tweets Exciting news! 0.131818828
```

Apply the distinct command to find the unique senders in the "comm_data" dataframe.

Solution:

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

```
## sender
## 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)%>%count()
```

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.

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

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
#comm_data%>%filter(sentiment>0)
sentiment<-comm_data%>%group_by(sender)%>%summarise(average_sentiment=mean(sentiment))%>%arra
nge(desc(average_sentiment))
topthree<-head(sentiment,3)
topthree</pre>
```

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.

```
# Enter code here
#comm_data

newdataavg<-comm_data%>%group_by(date)%>%summarise(average_sentiment= mean(sentiment))
newdataavg
```

```
## # A tibble: 20 \times 2
     date average_sentiment
##
##
     <chr>
                            <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.

```
# Enter code here
library(dplyr)

comm_data %>%
filter(sentiment < 0) %>%
select(message, sentiment)
```

```
##
               message
                          sentiment
## 1
       Hello everyone! -0.143450806
## 2
       Need assistance -0.108376242
## 3
       Hello everyone! -0.740855453
## 4
       Hello everyone! -0.187917918
## 5
       Hello everyone! -0.932525445
## 6
       Need assistance -0.879413284
## 7
           Great work! -0.751736611
## 8
          Team meeting -0.786887704
## 9
          Fun weekend! -0.539049788
## 10
        Exciting news! -0.141741692
## 11
          Team meeting -0.189370414
## 12
       Need assistance -0.493062959
## 13
           Great work! -0.179680133
## 14
          Team meeting -0.092784007
## 15
          Team meeting -0.955364774
## 16
       Need assistance -0.766245456
## 17
       Need assistance -0.547700667
## 18
        Exciting news! -0.415566467
## 19
           Great work! -0.579760317
## 20
        Exciting news! -0.290788232
## 21
       Need assistance -0.340010146
## 22
           Great work! -0.443448592
## 23
          Team meeting -0.774452816
      Hello everyone! -0.882707532
## 24
## 25
       Hello everyone! -0.689319659
## 26
       Hello everyone! -0.219064676
## 27
          Team meeting -0.004460444
## 28
          Team meeting -0.935610580
## 29
       Hello everyone! -0.452905738
## 30
       Need assistance -0.834047724
## 31
       Need assistance -0.195926677
## 32
          Fun weekend! -0.285561244
## 33
          Team meeting -0.060755176
## 34
          Fun weekend! -0.569811309
## 35
        Exciting news! -0.018193701
## 36
        Exciting news! -0.301641050
## 37
           Great work! -0.244326655
## 38
       Hello everyone! -0.761104998
## 39
        Exciting news! -0.408464086
## 40
          Fun weekend! -0.584208118
## 41
          Team meeting -0.178657859
## 42
           Great work! -0.329095908
## 43
          Fun weekend! -0.707901944
## 44
       Hello everyone! -0.166448134
## 45
        Exciting news! -0.533024813
## 46
       Need assistance -0.356371285
## 47
          Team meeting -0.467768930
## 48
          Fun weekend! -0.056202481
## 49
          Team meeting -0.757670477
## 50
        Exciting news! -0.265161676
## 51
        Exciting news! -0.822780307
## 52
       Need assistance -0.680233249
## 53
       Hello everyone! -0.647561021
## 54
           Great work! -0.705626460
```

```
Hello everyone! -0.050532605
## 55
## 56
           Great work! -0.459148118
## 57
          Fun weekend! -0.034278538
## 58
           Great work! -0.013945965
## 59
          Team meeting -0.934943126
## 60
          Fun weekend! -0.474169046
## 61
          Team meeting -0.815906889
## 62
        Exciting news! -0.200843529
## 63
          Fun weekend! -0.958858334
## 64
          Fun weekend! -0.558302570
## 65
       Need assistance -0.435741366
## 66
       Need assistance -0.770186925
## 67
        Exciting news! -0.871460078
## 68
       Hello everyone! -0.843954970
## 69
          Fun weekend! -0.576360519
## 70
       Need assistance -0.462980804
## 71
        Exciting news! -0.745493084
## 72
       Hello everyone! -0.075317414
## 73
       Need assistance -0.815106571
## 74
           Great work! -0.526421044
## 75
          Team meeting -0.202094683
## 76
          Fun weekend! -0.390309056
## 77
           Great work! -0.733910211
## 78
          Fun weekend! -0.496555788
## 79
       Hello everyone! -0.892831107
## 80
       Hello everyone! -0.108963726
## 81
          Fun weekend! -0.799520459
## 82
          Fun weekend! -0.558283084
## 83
        Exciting news! -0.608554570
## 84
          Team meeting -0.526283488
## 85
       Need assistance -0.635092593
## 86
           Great work! -0.446627778
## 87
          Fun weekend! -0.149422837
## 88
           Great work! -0.630844017
## 89
          Fun weekend! -0.533522750
## 90
        Exciting news! -0.398672424
## 91
        Exciting news! -0.686074989
## 92
       Need assistance -0.514785561
## 93
        Exciting news! -0.445320373
## 94
        Exciting news! -0.433124611
## 95
       Hello everyone! -0.369747002
## 96
           Great work! -0.912142744
## 97
          Fun weekend! -0.760701751
## 98
       Hello everyone! -0.243440011
## 99
          Fun weekend! -0.159573650
        Exciting news! -0.260005387
## 100
## 101 Need assistance -0.356432681
## 102 Need assistance -0.577738499
## 103
          Team meeting -0.767587414
## 104
          Team meeting -0.014527882
## 105
          Fun weekend! -0.391704335
## 106 Need assistance -0.857863282
## 107
          Team meeting -0.024207670
## 108 Need assistance -0.611560303
## 109 Need assistance -0.542398809
## 110 Hello everyone! -0.940684421
```

```
## 111
           Great work! -0.404516522
## 112 Exciting news! -0.476039052
## 113
           Great work! -0.045373839
## 114 Need assistance -0.042491458
## 115 Hello everyone! -0.024430894
## 116 Need assistance -0.299717092
## 117 Hello everyone! -0.558468956
## 118
          Team meeting -0.386754569
## 119 Hello everyone! -0.081353148
## 120 Need assistance -0.194268964
## 121
          Fun weekend! -0.927836751
## 122
          Great work! -0.518683678
## 123 Need assistance -0.240649289
## 124
          Great work! -0.743658878
## 125
          Team meeting -0.176315426
## 126
         Team meeting -0.320228465
## 127
       Exciting news! -0.582243779
## 128 Need assistance -0.384110797
        Exciting news! -0.415822029
## 129
## 130
           Great work! -0.970631612
## 131
          Team meeting -0.823923888
## 132 Need assistance -0.611636332
## 133
       Exciting news! -0.388513986
## 134
          Fun weekend! -0.049394990
## 135
          Team meeting -0.143542713
## 136
          Team meeting -0.385177557
## 137 Need assistance -0.438415068
## 138
         Team meeting -0.549432104
## 139
          Great work! -0.769964864
          Fun weekend! -0.103599444
## 140
## 141 Hello everyone! -0.321912185
## 142
           Great work! -0.150377708
## 143 Need assistance -0.639425840
## 144
          Team meeting -0.801527123
## 145
          Team meeting -0.134665603
## 146
       Exciting news! -0.525143623
## 147
          Fun weekend! -0.417790642
## 148
           Great work! -0.410223121
## 149
       Exciting news! -0.302134784
## 150
          Team meeting -0.249497572
## 151
          Great work! -0.488912587
## 152
          Team meeting -0.271451744
## 153
       Exciting news! -0.007040349
## 154 Hello everyone! -0.893453151
## 155
          Team meeting -0.670432338
## 156 Need assistance -0.345415825
## 157
          Fun weekend! -0.848228461
## 158
          Fun weekend! -0.143456620
## 159
       Exciting news! -0.195798854
          Fun weekend! -0.358376735
## 160
## 161
       Exciting news! -0.930242309
## 162 Hello everyone! -0.598425182
## 163
       Exciting news! -0.875286373
## 164
           Great work! -0.643276188
## 165
       Exciting news! -0.452694423
## 166 Need assistance -0.754348847
```

```
## 167 Need assistance -0.829999507
         Fun weekend! -0.877705400
## 168
## 169
         Team meeting -0.111247493
## 170
          Great work! -0.317266905
## 171
          Fun weekend! -0.415885320
## 172 Exciting news! -0.537696546
## 173 Need assistance -0.130674560
## 174 Need assistance -0.375053814
## 175 Exciting news! -0.978982675
## 176 Need assistance -0.220039924
## 177 Need assistance -0.613432584
## 178
          Great work! -0.951084716
## 179 Need assistance -0.920249034
## 180 Exciting news! -0.209318373
## 181 Need assistance -0.806338225
## 182
       Exciting news! -0.597888714
## 183
       Exciting news! -0.122806889
## 184
          Team meeting -0.976236885
## 185
       Exciting news! -0.858994203
## 186
          Fun weekend! -0.926554946
## 187
          Team meeting -0.718652172
## 188
          Fun weekend! -0.928850479
## 189
       Exciting news! -0.298691060
## 190
          Great work! -0.900102365
## 191
          Fun weekend! -0.371842024
## 192
         Team meeting -0.012694929
## 193
          Fun weekend! -0.357268680
## 194
          Fun weekend! -0.566594298
## 195
          Team meeting -0.284638313
## 196
          Team meeting -0.150205611
## 197 Need assistance -0.904224418
## 198
       Exciting news! -0.901918261
## 199
          Fun weekend! -0.259928443
## 200
           Great work! -0.545365768
## 201 Need assistance -0.104900640
## 202
         Fun weekend! -0.818538250
## 203
          Great work! -0.349391197
## 204
       Exciting news! -0.212464974
## 205 Need assistance -0.543064435
## 206
          Fun weekend! -0.286604216
## 207 Hello everyone! -0.038818533
## 208
          Great work! -0.574539005
## 209
       Exciting news! -0.762122771
## 210
          Team meeting -0.956999032
## 211
       Exciting news! -0.050068120
## 212 Hello everyone! -0.355751095
## 213 Need assistance -0.998774239
## 214
          Team meeting -0.970338997
## 215
       Exciting news! -0.033773244
## 216
          Team meeting -0.476500273
## 217
       Exciting news! -0.719712700
## 218 Need assistance -0.064178423
## 219 Hello everyone! -0.567197050
## 220 Hello everyone! -0.510870771
## 221 Hello everyone! -0.939573104
## 222 Need assistance -0.014521594
```

```
## 223
          Team meeting -0.287118956
## 224 Need assistance -0.883181106
## 225 Hello everyone! -0.863882122
## 226
           Great work! -0.641657173
## 227
       Exciting news! -0.847681918
## 228
          Team meeting -0.094959955
## 229
          Team meeting -0.024243061
## 230 Need assistance -0.750471560
## 231 Hello everyone! -0.526591262
## 232
          Fun weekend! -0.345988781
## 233
           Great work! -0.784876938
## 234
          Great work! -0.947211589
## 235
          Team meeting -0.235653992
## 236 Hello everyone! -0.426096413
## 237 Hello everyone! -0.774547359
## 238
          Team meeting -0.674190784
## 239
          Team meeting -0.993759494
## 240
          Team meeting -0.536957865
## 241 Need assistance -0.718395420
## 242
          Great work! -0.400677142
## 243
          Team meeting -0.232014328
## 244 Hello everyone! -0.918783627
## 245
          Fun weekend! -0.375794835
## 246
          Fun weekend! -0.021554315
## 247
          Team meeting -0.423585835
## 248
       Exciting news! -0.184577833
## 249
          Fun weekend! -0.624432764
## 250
          Fun weekend! -0.173903828
## 251 Hello everyone! -0.029610693
## 252
       Exciting news! -0.616928389
## 253
           Great work! -0.359934055
## 254
       Exciting news! -0.615862965
## 255
          Great work! -0.049498704
## 256
          Fun weekend! -0.111042333
## 257
          Team meeting -0.943049938
## 258
          Great work! -0.336303487
## 259
          Team meeting -0.642315470
## 260 Need assistance -0.236316590
## 261 Need assistance -0.249764988
## 262 Hello everyone! -0.161284721
## 263
           Great work! -0.956337988
## 264
          Fun weekend! -0.673607849
## 265 Need assistance -0.775436828
## 266
          Team meeting -0.134102609
## 267
          Fun weekend! -0.436848105
## 268
       Exciting news! -0.823877914
## 269
          Team meeting -0.299451457
## 270
        Exciting news! -0.542942689
## 271
          Team meeting -0.118006961
## 272 Need assistance -0.070094255
## 273 Need assistance -0.919222645
## 274
        Exciting news! -0.768564025
## 275
           Great work! -0.595158034
## 276
          Fun weekend! -0.064443091
## 277 Hello everyone! -0.605858998
## 278
           Great work! -0.823533585
```

```
## 279
          Fun weekend! -0.485003887
## 280 Need assistance -0.438784983
## 281
          Fun weekend! -0.495438306
## 282 Hello everyone! -0.143556185
## 283
          Fun weekend! -0.735883705
## 284
       Exciting news! -0.024743940
## 285
          Fun weekend! -0.797102704
## 286
          Team meeting -0.365139902
## 287 Need assistance -0.264464825
## 288 Need assistance -0.461871512
## 289 Need assistance -0.107154121
## 290
          Team meeting -0.229243480
## 291 Need assistance -0.035525655
## 292
           Great work! -0.405934577
## 293 Hello everyone! -0.606922586
## 294 Hello everyone! -0.172054263
## 295 Hello everyone! -0.987261285
## 296
          Fun weekend! -0.672147054
## 297
        Exciting news! -0.792284821
## 298
          Great work! -0.026141260
## 299
          Fun weekend! -0.141636565
## 300
          Fun weekend! -0.693275109
## 301 Need assistance -0.115035673
## 302
          Great work! -0.068923920
## 303
          Team meeting -0.289186294
## 304
       Exciting news! -0.633368273
## 305
           Great work! -0.725357866
## 306
          Team meeting -0.812502595
## 307
          Fun weekend! -0.042934414
## 308
          Fun weekend! -0.895003283
## 309 Need assistance -0.992002849
## 310
          Fun weekend! -0.552409418
## 311
          Team meeting -0.780283807
## 312
          Fun weekend! -0.835450725
## 313
          Great work! -0.236779108
## 314
           Great work! -0.495721815
## 315 Hello everyone! -0.446434771
## 316
          Team meeting -0.144443278
## 317
          Team meeting -0.877922161
## 318 Hello everyone! -0.725457437
## 319
          Team meeting -0.232356975
## 320 Need assistance -0.115179492
## 321 Hello everyone! -0.812013249
## 322
          Team meeting -0.320194449
## 323
       Exciting news! -0.546088908
## 324
           Great work! -0.018533767
## 325
           Great work! -0.777630202
## 326
          Team meeting -0.351081788
## 327 Hello everyone! -0.217646003
## 328
          Team meeting -0.203160496
## 329 Need assistance -0.100954488
## 330
          Team meeting -0.493501368
## 331
       Exciting news! -0.487793705
## 332
          Fun weekend! -0.329790550
## 333
       Exciting news! -0.149807401
## 334
          Great work! -0.022698464
```

```
Exciting news! -0.283369262
## 335
## 336
          Team meeting -0.933677876
## 337 Hello everyone! -0.878399170
## 338
          Great work! -0.311243319
## 339 Hello everyone! -0.572465386
## 340
          Fun weekend! -0.372473280
## 341 Need assistance -0.713639749
## 342
          Great work! -0.700269639
## 343
       Exciting news! -0.539138246
## 344
       Exciting news! -0.054910814
## 345
       Exciting news! -0.693217811
## 346 Hello everyone! -0.164491392
## 347 Hello everyone! -0.694118693
## 348
          Great work! -0.222633559
## 349
           Great work! -0.111933967
## 350
          Great work! -0.417041691
## 351
           Great work! -0.841218561
## 352 Need assistance -0.173975688
## 353
         Fun weekend! -0.102208237
## 354
          Great work! -0.505026447
## 355 Need assistance -0.544543609
## 356 Hello everyone! -0.289897254
## 357
          Team meeting -0.801572199
## 358
       Exciting news! -0.736287751
## 359
          Team meeting -0.303564250
## 360 Need assistance -0.281915764
## 361 Need assistance -0.273263505
## 362
           Great work! -0.693289580
## 363 Hello everyone! -0.395961934
## 364 Need assistance -0.970480603
## 365
          Team meeting -0.113114946
## 366 Hello everyone! -0.666331347
## 367
       Exciting news! -0.995861550
## 368
           Great work! -0.549234209
## 369 Hello everyone! -0.325806037
## 370 Exciting news! -0.873230109
## 371 Hello everyone! -0.851052538
## 372 Hello everyone! -0.633588556
           Great work! -0.481857921
## 373
## 374 Hello everyone! -0.378329881
## 375
          Great work! -0.674055766
## 376 Hello everyone! -0.508614742
## 377 Need assistance -0.917325706
## 378 Need assistance -0.600080754
## 379
          Great work! -0.539260621
## 380
          Team meeting -0.074092148
## 381 Need assistance -0.846264025
## 382 Hello everyone! -0.562214842
## 383 Hello everyone! -0.945477226
## 384 Need assistance -0.329706852
## 385
          Team meeting -0.927027794
## 386
          Team meeting -0.996662613
## 387
          Great work! -0.853163924
## 388
          Team meeting -0.887928675
## 389
         Team meeting -0.608078998
## 390
          Great work! -0.114574431
```

```
## 391 Need assistance -0.065970336
## 392
       Exciting news! -0.616592484
## 393
          Fun weekend! -0.953222217
## 394 Hello everyone! -0.120084892
## 395 Hello everyone! -0.568787924
## 396
          Team meeting -0.641849058
## 397
          Fun weekend! -0.530567507
## 398
          Fun weekend! -0.998980226
## 399
         Team meeting -0.492082868
## 400
          Great work! -0.160749977
## 401
          Team meeting -0.709024122
## 402 Hello everyone! -0.440484574
## 403
          Fun weekend! -0.898072343
## 404 Need assistance -0.161143415
## 405 Hello everyone! -0.040838550
## 406
        Exciting news! -0.798021044
## 407
           Great work! -0.652119522
## 408
       Exciting news! -0.286527871
## 409
           Great work! -0.597466531
## 410
       Exciting news! -0.113282133
## 411
          Fun weekend! -0.520876877
## 412
          Team meeting -0.528815492
## 413 Hello everyone! -0.279889458
## 414
          Fun weekend! -0.455487390
## 415 Hello everyone! -0.822144668
## 416 Hello everyone! -0.160779689
## 417 Need assistance -0.102778860
## 418
          Fun weekend! -0.511013610
## 419
          Team meeting -0.879799920
## 420
           Great work! -0.387922954
## 421
       Exciting news! -0.750027833
## 422 Need assistance -0.614020258
## 423
      Exciting news! -0.770805090
## 424 Hello everyone! -0.638266036
## 425 Hello everyone! -0.416070993
## 426
           Great work! -0.232635738
## 427 Hello everyone! -0.798660460
           Great work! -0.389785778
## 428
## 429 Hello everyone! -0.691606675
## 430 Hello everyone! -0.359136123
## 431
          Great work! -0.351176404
## 432
           Great work! -0.311684015
## 433
          Fun weekend! -0.789119672
## 434
          Team meeting -0.472906698
## 435
          Team meeting -0.789976987
## 436
          Team meeting -0.307752223
## 437
           Great work! -0.948017055
## 438 Hello everyone! -0.318016798
## 439
          Team meeting -0.893834382
## 440 Need assistance -0.600851388
## 441
           Great work! -0.548428072
## 442 Need assistance -0.003094339
## 443
          Fun weekend! -0.528116655
## 444
           Great work! -0.124954135
## 445 Need assistance -0.198273231
## 446
          Fun weekend! -0.240693055
```

```
## 447
         Team meeting -0.075425136
         Fun weekend! -0.088887415
## 448
## 449
         Team meeting -0.939407335
## 450
          Great work! -0.666475324
## 451 Hello everyone! -0.936083395
## 452
          Great work! -0.389590032
## 453 Hello everyone! -0.555095884
## 454
         Team meeting -0.047711935
       Exciting news! -0.618614707
## 455
## 456
         Fun weekend! -0.412842807
## 457
           Great work! -0.251496902
## 458 Need assistance -0.459899545
## 459 Need assistance -0.101536875
## 460
      Exciting news! -0.329569053
## 461
           Great work! -0.806566573
## 462 Exciting news! -0.249575844
## 463 Hello everyone! -0.064463819
## 464 Hello everyone! -0.357717138
## 465 Need assistance -0.696885624
       Exciting news! -0.662697271
## 466
## 467
           Great work! -0.704862314
## 468 Need assistance -0.129298556
## 469 Need assistance -0.988749139
## 470 Need assistance -0.044029484
## 471 Exciting news! -0.237763272
## 472
         Team meeting -0.666378770
## 473 Exciting news! -0.010767524
## 474
         Team meeting -0.712716471
## 475
          Great work! -0.839583620
## 476
          Great work! -0.887057793
## 477 Need assistance -0.837423526
## 478
          Great work! -0.462906254
## 479
          Great work! -0.129584252
## 480
         Team meeting -0.377541550
## 481
         Fun weekend! -0.363247766
## 482 Need assistance -0.716619523
## 483
          Great work! -0.071027102
## 484 Hello everyone! -0.360894154
## 485 Need assistance -0.316063035
       Exciting news! -0.531753783
## 486
## 487
          Team meeting -0.785379849
```

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.

```
##
              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
                             @frank_chat Need assistance 0.187954018
## 5
        2023-08-14
                     Slack
## 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
                             @frank_chat
                                             Fun weekend! 0.519153008
        2023-08-12
                     Slack
## 24
        2023-08-11
                                             Fun weekend! 0.874191639
                     Email
                             @frank_chat
## 25
        2023-08-04
                             @bob_tweets
                     Email
                                             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
                                              Great work! 0.468266435
                             @bob_tweets
## 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
                                          Exciting news! 0.468174768
        2023-08-05
                     Email
                             carol slack
## 41
        2023-08-19 Twitter
                             @frank_chat Need assistance 0.481529109
## 42
        2023-08-10
                     Slack
                            @erin_tweets Need assistance -0.766245456
## 43
                     Email
        2023-08-11
                             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
                            @erin_tweets
                                         Exciting news! -0.290788232
        2023-08-16
                     Slack
## 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
                     Slack
                             @bob tweets
        2023-08-13
                                              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
                            @erin tweets Hello everyone! -0.689319659
        2023-08-15
                      Slack
## 61
        2023-08-17
                      Email
                              @frank_chat
                                             Team meeting 0.932789830
## 62
                      Slack
        2023-08-12
                              @frank_chat Hello everyone! -0.219064676
## 63
                                             Team meeting -0.004460444
        2023-08-18 Twitter
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## 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
                             @erin_tweets
                                             Fun weekend!
                      Email
                                                            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
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## 72
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                             @erin_tweets Need assistance -0.195926677
## 73
                      Slack
        2023-08-12
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## 74
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                      Slack
                              carol_slack Hello everyone! 0.529127310
## 75
        2023-08-10
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## 76
        2023-08-12 Twitter
                                              Great work!
                                                            0.407506729
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## 77
        2023-08-18
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## 78
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## 79
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                             @erin tweets
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## 80
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                                              Great work!
                                                            0.924440826
## 81
        2023-08-04 Twitter
                              @bob_tweets
                                             Fun weekend!
                                                            0.185009266
## 82
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                      Slack alice@example Need assistance
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## 87
        2023-08-03 Twitter
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## 94
        2023-08-19
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## 95
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                              @bob_tweets Need assistance -0.356371285
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## 99
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                             @erin_tweets
## 100
        2023-08-01 Twitter
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## 101
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                              @frank chat Hello everyone!
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## 102
        2023-08-17 Twitter
                                           Exciting news!
                                                            0.953910344
                              @bob_tweets
## 103
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                             @erin_tweets
                                              Great work!
                                                            0.891589128
  104
##
        2023-08-08
                      Email
                              @bob tweets Need assistance
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## 105
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                             @erin tweets Need assistance -0.680233249
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        2023-08-14 Twitter
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                                              Great work! -0.705626460
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## 110
        2023-08-20
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                                              Great work! -0.459148118
```

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## 111
                             dave@example
                                           Exciting news!
        2023-08-20
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                                                            0.617734990
## 112
        2023-08-11
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## 119
## 120
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        2023-08-12 Twitter
## 123
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## 129
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## 136
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## 153
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## 154
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  160
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  162
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##
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                                                            0.244422906
## 165
        2023-08-01 Twitter
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## 166
        2023-08-04 Twitter
                             dave@example Need assistance -0.635092593
```

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## 167
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                      Email
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## 168
        2023-08-06 Twitter
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                                              Fun weekend! -0.149422837
## 169
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## 170
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## 171
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                                              Great work! -0.630844017
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## 173
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                              @bob_tweets
## 174
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                              @bob_tweets
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                                                            0.201027735
## 175
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                                                            0.443950114
## 176
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## 178
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                             @erin_tweets Need assistance -0.514785561
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## 180
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## 182
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## 184
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## 185
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                                                            0.020394353
## 186
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##
  187
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## 188
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## 189
        2023-08-16
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                              @bob_tweets
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## 190
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## 191
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                                                            0.785684678
## 192
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                      Email
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## 193
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                              carol_slack
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                                                            0.474910577
## 194
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                              @frank chat Need assistance
                                                            0.601800072
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## 197
        2023-08-18 Twitter
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## 202
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##
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  205
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## 206
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##
   207
        2023-08-16
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                                                            0.306993762
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                                               Great work!
##
   208
        2023-08-10
                      Email
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##
   209
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##
  210
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                      Email
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##
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##
        2023-08-05 Twitter
                              @bob tweets Need assistance
                                                            0.089429019
## 213
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                              @bob tweets Hello everyone!
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##
  214
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                      Email
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                                                            0.100578078
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## 215
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                              @bob tweets Hello everyone! -0.940684421
##
## 219
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                      Slack alice@example
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                                                            0.685212519
##
   220
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                      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
```

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## 223
        2023-08-16 Twitter
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                                               Great work!
                                                            0.827052074
## 224
        2023-08-16
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                                               Great work! -0.045373839
## 225
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                                                            0.062969209
                              carol slack
                                          Exciting news!
##
  226
        2023-08-12
                      Email
                              @bob tweets Need assistance -0.042491458
## 227
        2023-08-18
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                              @bob tweets Need assistance 0.115823371
        2023-08-03 Twitter
## 229
        2023-08-20
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                      Slack
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## 233
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## 234
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        2023-08-07
## 235
                      Slack 1 4 1
                              carol_slack Hello everyone!
                                                            0.973429719
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                                               Great work!
                                                            0.646422371
## 237
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                                              Team meeting
                                                            0.146319367
## 238
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                      Slack
                              carol_slack Hello everyone!
                                                            0.802523659
## 239
        2023-08-08
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                                              Fun weekend!
                                                            0.670605208
## 240
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                                           Exciting news!
                                                            0.305391626
## 241
        2023-08-06
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## 242
                                               Great work! -0.518683678
        2023-08-14
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                             @erin_tweets
##
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                                           Exciting news!
                                                            0.549038415
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                              carol slack
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        2023-08-20 Twitter
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                                               Great work! -0.743658878
##
   247
        2023-08-11 Twitter
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                                              Team meeting 0.629940747
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                                              Team meeting -0.320228465
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##
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## 252
        2023-08-19
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## 255
        2023-08-14
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## 256
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                                                            0.018387399
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##
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##
                              @frank_chat
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        2023-08-20 Twitter
                                              Team meeting
                                                            0.659773430
##
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                                               Great work! -0.970631612
##
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                                           Exciting news!
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##
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##
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        2023-08-08
                      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
                             @erin tweets Need assistance
                                                            0.519475343
        2023-08-05
   282
##
        2023-08-06
                      Slack alice@example
                                              Fun weekend! -0.103599444
## 283
        2023-08-04
                      Email
                              @frank_chat Need assistance 0.063336529
        2023-08-15
  284
                      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
                             @erin_tweets
## 287
        2023-08-18
                      Slack
                                              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
        2023-08-05 Twitter alice@example
## 291
                                              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
                                              Fun weekend!
        2023-08-14 Twitter
                             dave@example
                                                            0.474564350
## 298
        2023-08-20
                      Slack
                             @erin_tweets
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##
   299
        2023-08-20
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                              carol slack
                                              Team meeting 0.078007510
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        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
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                             @erin tweets
                                               Great work! -0.410223121
## 304
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                      Slack
                             @erin_tweets
                                           Exciting news! -0.302134784
##
  305
        2023-08-19
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                             dave@example
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## 306
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                                              Team meeting -0.249497572
                                               Great work! -0.488912587
##
   307
        2023-08-03
                      Slack
                             dave@example
   308
                              @bob_tweets
                                              Team meeting -0.271451744
##
        2023-08-15
                      Slack
## 309
        2023-08-10 Twitter
                             @erin_tweets
                                              Team meeting 0.384202328
## 310
        2023-08-06
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                              carol_slack
                                               Great work!
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## 311
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                                           Exciting news! -0.007040349
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## 312
        2023-08-07
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                              @bob_tweets
                                            Exciting news!
                                                            0.370947586
## 313
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## 314
        2023-08-01
                              @frank_chat
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                      Fmail
##
  315
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                      Email alice@example
                                           Exciting news!
                                                            0.422912350
##
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## 317
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        2023-08-06
                      Slack alice@example
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##
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##
  324
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## 325
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  326
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                                              Fun weekend!
##
                      Slack
                             @erin_tweets
                                                            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
                                           Exciting news! -0.875286373
##
                              carol slack
## 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
```

```
Exciting news!
## 335
        2023-08-11 Twitter
                              @bob tweets
                                                             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
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## 339
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                      Slack
                              carol_slack
                                              Fun weekend! -0.877705400
## 340
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## 341
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                                              Team meeting -0.111247493
  342
##
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                      Email
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                                              Fun weekend!
                                                            0.451752027
## 343
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                                               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
                                              Fun weekend!
##
                              @bob_tweets
                                                             0.163814227
## 348
        2023-08-04
                      Email
                             @erin_tweets
                                              Fun weekend! -0.415885320
## 349
        2023-08-18
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                             @erin_tweets
                                            Exciting news! -0.537696546
## 350
        2023-08-01
                      Email
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## 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
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                              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
                              carol_slack Need assistance
##
        2023-08-04
                      Slack
                                                             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
                                              Fun weekend!
##
        2023-08-11 Twitter
                             dave@example
                                                             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
                             @erin_tweets
                      Email
                                            Exciting news!
                                                             0.679597112
   372
                      Email alice@example
##
        2023-08-12
                                              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
                              @frank_chat Need assistance -0.920249034
##
   375
        2023-08-14
                      Slack
##
   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
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                                            Exciting news! -0.858994203
   386
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                              carol slack
                                              Fun weekend!
                                                             0.608656868
##
                      Slack
##
   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
```

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## 391
        2023-08-08
                      Slack
                              @frank_chat Need assistance
                                                            0.963640937
## 392
        2023-08-07 Twitter
                              carol slack
                                               Great work!
                                                             0.805481421
## 393
                             @erin tweets
                                              Fun weekend! -0.928850479
        2023-08-16
                      Email
  394
##
        2023-08-14
                      Slack
                             dave@example
                                           Exciting news! -0.298691060
## 395
        2023-08-02
                      Slack alice@example
                                              Fun weekend!
                                                            0.823352248
                             @erin tweets
## 396
                      Email
                                               Great work! -0.900102365
        2023-08-03
## 397
        2023-08-19 Twitter
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                                              Fun weekend! -0.371842024
  398
##
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                                              Team meeting -0.012694929
                             @erin_tweets
## 399
        2023-08-12 Twitter
                                              Team meeting 0.650313874
## 400
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                             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 8 1
                             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
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                                              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
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## 412
        2023-08-15
                              carol slack Need assistance
                      Slack 

                                                             0.674294885
## 413
        2023-08-06
                      Email
                              @frank_chat
                                            Exciting news!
                                                             0.696377364
## 414
        2023-08-20
                      Email
                             dave@example
                                              Team meeting
                                                            0.985037738
                      Slack
## 415
        2023-08-10
                             @erin tweets Need assistance -0.904224418
## 416
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## 417
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                             @erin_tweets
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## 418
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## 426
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## 428
                             @erin_tweets Need assistance -0.543064435
        2023-08-14 Twitter
## 429
        2023-08-09
                      Slack
                             dave@example
                                              Fun weekend!
                                                            0.229193896
## 430
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        2023-08-05 Twitter
## 431
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                                               Great work!
                                                            0.473425272
## 433
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                                                             0.346377916
## 434
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                              @frank_chat Need assistance
                                                            0.933738099
## 435
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                                               Great work!
                                                             0.680826971
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                             dave@example
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## 438
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                                               Great work!
                                                            0.480317921
## 439
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                                              Team meeting -0.956999032
## 440
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                      Slack alice@example
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                                                             0.397376804
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                      Email
                              @frank chat
                                               Great work!
                                                             0.263225980
## 442
        2023-08-06
                      Email
                              @frank chat
                                              Fun weekend!
                                                             0.791513952
## 443
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                                           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
## 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
                              carol slack
                                              Team meeting -0.970338997
        2023-08-10
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## 453
        2023-08-08 Twitter
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                                              Fun weekend!
                                                            0.232626481
## 454
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                              @bob_tweets
                                           Exciting news! -0.033773244
## 455
                                              Team meeting -0.476500273
        2023-08-20 Twitter
                              @frank_chat
## 456
        2023-08-17
                             @erin_tweets
                                              Team meeting 0.863822790
                      Email
## 457
                     Slack
        2023-08-18
                             @erin_tweets
                                           Exciting news! -0.719712700
## 458
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                              @bob_tweets Need assistance 0.408644735
## 459
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                                               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
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                      Email
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## 464
        2023-08-16
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                             dave@example Need assistance -0.014521594
## 465
        2023-08-16
                      Email
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                                              Team meeting -0.287118956
## 466
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                      Email
                              carol_slack Need assistance
                                                           0.558824511
## 467
        2023-08-16
                      Email
                              @frank chat Need assistance
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## 468
        2023-08-15
                             dave@example Hello everyone!
                      Email
                                                            0.282330315
## 469
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                              @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
                             dave@example
## 476
        2023-08-04 Twitter
                                              Fun weekend!
                                                            0.463157478
## 477
        2023-08-05
                      Email
                              @frank_chat
                                                            0.567230823
                                           Exciting news!
## 478
        2023-08-17 Twitter alice@example
                                               Great work! -0.641657173
## 479
        2023-08-08
                             @erin_tweets
                      Email
                                           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
                              carol_slack Need assistance -0.750471560
                      Slack
## 484
                             dave@example Hello everyone! -0.526591262
        2023-08-07
                      Email
## 485
        2023-08-16 Twitter
                             @erin_tweets Hello everyone!
                                                            0.806540163
## 486
        2023-08-05
                      Fmail
                              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
                                               Great work! -0.947211589
        2023-08-13
                      Slack
                              carol slack
## 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
                              @frank chat Need assistance
                                                            0.235724795
                      Slack
## 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
```

```
## 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
                                          Exciting news!
##
        2023-08-15 Twitter alice@example
                                                            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
                      Fmail
                              @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
                             @erin_tweets
## 522
        2023-08-19 Twitter
                                              Team meeting
                                                            0.945942261
##
  523
        2023-08-12
                      Slack
                             dave@example
                                           Exciting news!
                                                            0.563268560
## 524
        2023-08-17
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                             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
                              @frank_chat
        2023-08-11
## 531
                      Slack
                                               Great work!
                                                            0.431652104
## 532
        2023-08-04 Twitter
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                                           Exciting news! -0.615862965
## 533
        2023-08-11
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                             @erin_tweets
                                               Great work! -0.049498704
## 534
        2023-08-19 Twitter alice@example
                                              Fun weekend! -0.111042333
        2023-08-03
## 535
                              carol_slack Need assistance 0.247236022
                      Email
  536
                             @erin_tweets
##
        2023-08-09
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                                              Fun weekend!
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## 537
        2023-08-19
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                                              Team meeting -0.943049938
## 538
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                      Email
                              @frank_chat
                                               Great work!
                                                            0.362224979
##
  539
        2023-08-14
                     Slack
                             dave@example
                                               Great work!
                                                            0.538406652
   540
        2023-08-19
                             dave@example
##
                      Email
                                               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
                                                            0.754322437
##
   543
        2023-08-14 Twitter
                              @bob_tweets
                                           Exciting news!
##
   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
                             @erin tweets
                                              Team meeting
                                                           0.457860831
##
                      Slack
## 555
        2023-08-08
                      Email
                             @erin_tweets Need assistance -0.775436828
##
   556
        2023-08-10
                      Slack
                             dave@example
                                           Exciting news!
                                                            0.532747218
   557
##
        2023-08-18
                      Slack
                              @frank_chat
                                              Team meeting -0.134102609
## 558
        2023-08-20 Twitter alice@example
                                              Fun weekend! -0.436848105
```

```
Email alice@example Need assistance 0.275121063
## 559
        2023-08-18
## 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
        2023-08-20
## 566
                      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
        2023-08-17 Twitter alice@example Hello everyone!
## 570
                                                            0.582868762
## 571
        2023-08-12
                      Slack 8 1
                              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
                             @erin tweets
        2023-08-01
                      Slack
                                              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
                              @bob_tweets Hello everyone!
                      Email
                                                            0.498191035
##
  592
        2023-08-04 Twitter
                             dave@example
                                              Fun weekend! -0.495438306
## 593
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                      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
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                                              Fun weekend! -0.735883705
## 598
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                      Slack
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                                              Great work!
                                                            0.960373470
  599
        2023-08-19
##
                              @bob_tweets
                      Email
                                              Team meeting
                                                            0.855612874
##
   600
        2023-08-02
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                              @bob_tweets
                                           Exciting news!
                                                            0.365244868
## 601
        2023-08-01
                      Slack
                              @bob_tweets
                                           Exciting news! -0.024743940
## 602
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                      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
                                              Team meeting 0.253805156
                      Email
                              @bob tweets
## 610
        2023-08-15 Twitter
                              @frank chat Need assistance
                                                            0.344264537
## 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
```

```
@frank_chat Exciting news!
## 615
        2023-08-10
                      Slack
                                                            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
        2023-08-14 Twitter
                              @frank chat
                                              Fun weekend! -0.672147054
## 620
## 621
        2023-08-09 Twitter alice@example
                                           Exciting news! -0.792284821
## 622
        2023-08-12
                      Email alice@example
                                           Exciting news! 0.063475272
        2023-08-13 Twitter alice@example
                                              Great work! -0.026141260
## 623
## 624
        2023-08-05
                      Email
                             @erin_tweets
                                              Great work! 0.830162693
## 625
        2023-08-15
                      Email
                              carol_slack
                                              Fun weekend! -0.141636565
                                              Fun weekend! 0.038330505
## 626
        2023-08-12 Twitter
                             @erin_tweets
        2023-08-04 Twitter alice@example
## 627
                                              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
                                                            0.383860287
                      Email alice@example
                                              Great work!
                              @bob_tweets
## 644
        2023-08-06
                      Slack
                                              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
                     Email
## 648
        2023-08-16
                              @frank_chat
                                              Fun weekend! -0.552409418
                             @erin_tweets
## 649
        2023-08-07
                      Slack
                                              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
                             dave@example
                                              Great work! -0.495721815
##
        2023-08-09 Twitter
## 653
        2023-08-01 Twitter
                              carol_slack
                                               Great work!
                                                            0.406890230
                                                            0.870818266
## 654
        2023-08-08 Twitter alice@example
                                              Team meeting
##
  655
        2023-08-14
                             dave@example
                                              Fun weekend!
                      Email
                                                            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
                                              Team meeting -0.144443278
                              @bob_tweets
##
  663
        2023-08-01
                      Email
                              @bob_tweets Hello everyone!
                                                            0.902623749
##
   664
        2023-08-13 Twitter
                              @frank chat
                                              Team meeting -0.877922161
##
  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
```

```
carol_slack Hello everyone!
## 671
        2023-08-02
                      Slack
                                                            0.805289558
## 672
        2023-08-10
                      Email
                              @frank chat
                                             Team meeting -0.320194449
## 673
        2023-08-14
                              @bob tweets Hello everyone!
                                                            0.450289166
                      Slack
## 674
        2023-08-18
                      Email
                              carol slack
                                           Exciting news! -0.546088908
## 675
        2023-08-14 Twitter
                              @bob_tweets
                                              Great work! -0.018533767
                              carol_slack
                                               Great work! -0.777630202
## 676
        2023-08-03
                      Slack
## 677
        2023-08-04
                      Fmail
                              @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 8 1
                              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
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## 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
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                                               Great work! -0.022698464
##
  695
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                      Email
                             @erin tweets
                                           Exciting news! -0.283369262
## 696
        2023-08-16
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                              @frank_chat
                                             Team meeting -0.933677876
## 697
        2023-08-16
                      Slack
                              @frank_chat Hello everyone! -0.878399170
## 698
        2023-08-11
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                              @bob tweets
                                               Great work! 0.041871845
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                      Slack
                              @bob_tweets
## 700
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                              @frank_chat
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## 701
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                              @frank_chat Hello everyone! -0.572465386
## 702
        2023-08-09
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                                             Fun weekend! -0.372473280
## 703
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                             dave@example Need assistance -0.713639749
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## 705
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## 706
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                              @frank_chat Need assistance
                                                            0.935812009
   707
##
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                              carol_slack
                                           Exciting news!
                                                            0.055117640
##
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## 709
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## 710
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                                           Exciting news!
                                                            0.722319741
##
  711
        2023-08-15 Twitter
                             @erin_tweets Hello everyone!
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##
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                              @frank_chat
                                           Exciting news! -0.054910814
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                                               Great work!
                                                            0.544805384
## 714
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                              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
                                           Exciting news!
                              @bob tweets
                                                            0.605349668
## 719
        2023-08-16 Twitter alice@example
                                           Exciting news!
                                                            0.696509592
##
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## 721
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                                             Fun weekend!
                                                            0.734125260
## 722
        2023-08-03
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                                               Great work! -0.222633559
## 723
        2023-08-14
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                                              Great work! -0.111933967
##
  724
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                      Email
                              @bob tweets
                                               Great work! -0.417041691
## 725
        2023-08-12
                      Email
                             dave@example
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## 726
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                             @erin_tweets Need assistance -0.173975688
```

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## 727
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                      Email
                              @frank chat
                                              Fun weekend! -0.102208237
## 728
        2023-08-15
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                             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
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                             @erin_tweets Need assistance -0.544543609
## 734
        2023-08-12
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                              @bob_tweets
                                              Fun weekend!
                                                            0.990166281
## 735
                      Email
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                                              Team meeting
                                                            0.560076173
## 736
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                              carol_slack Hello everyone! -0.289897254
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                                                            0.713812393
## 738
                             @erin_tweets
        2023-08-08 Twitter
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                                                            0.191519982
## 739
                              carol_slack
        2023-08-13
                      Slack 1 4 1
                                               Great work!
                                                            0.460303653
## 740
        2023-08-10
                      Slack
                             @erin_tweets Need assistance
                                                            0.037588875
## 741
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                                                            0.130742100
## 742
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                      Email
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## 743
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                             @erin_tweets
                                           Exciting news! -0.736287751
## 744
        2023-08-18
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## 745
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## 746
        2023-08-13
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## 749
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                              @bob_tweets Need assistance -0.281915764
## 750
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##
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        2023-08-14 Twitter
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## 753
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## 754
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                             @erin tweets Need assistance 0.787741330
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                              @frank chat Need assistance -0.970480603
##
        2023-08-01 Twitter
## 756
        2023-08-03
                      Slack alice@example
                                              Fun weekend!
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## 757
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                              @bob_tweets Need assistance 0.251102221
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## 759
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## 760
                      Email
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                                                            0.783531986
## 761
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                                                            0.018169560
## 762
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##
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## 765
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                              @bob_tweets
## 766
        2023-08-11
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        2023-08-03
##
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                      Email
##
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                                                            0.614791796
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        2023-08-01 Twitter
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## 771
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   772
##
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        2023-08-10 Twitter
                             @erin tweets
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##
  774
        2023-08-09
                      Email
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## 775
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                                                            0.159243134
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##
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                                               Great work! -0.481857921
## 777
        2023-08-19 Twitter alice@example Hello everyone! -0.378329881
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        2023-08-04 Twitter
                              @frank chat
                                           Exciting news!
                                                            0.795437461
##
## 779
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                              @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
```

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Exciting news!
## 783
        2023-08-14 Twitter
                              @bob tweets
                                                            0.671785708
##
  784
        2023-08-10
                      Slack alice@example Need assistance -0.917325706
## 785
        2023-08-09 Twitter
                             @erin tweets Need assistance -0.600080754
        2023-08-11
##
  786
                      Email
                              @bob tweets
                                               Great work! -0.539260621
## 787
        2023-08-02
                      Slack
                              carol_slack
                                               Great work! 0.066785066
        2023-08-15 Twitter
                              carol slack
                                              Team meeting -0.074092148
## 788
## 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
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                                                            0.535877908
## 793
        2023-08-13
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## 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
                                              Team meeting -0.996662613
        2023-08-14
                      Email
                              @bob_tweets
## 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
                              carol slack Hello everyone!
                                                            0.346090994
                      Slack
## 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
        2023-08-17 Twitter
## 811
                              carol slack Need assistance -0.065970336
## 812
        2023-08-10
                      Slack
                              @frank_chat Hello everyone!
                                                            0.672468295
## 813
        2023-08-12
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## 814
        2023-08-04
                      Slack
                              @frank_chat Need assistance 0.165087673
        2023-08-13
## 815
                      Email
                              @bob_tweets
                                           Exciting news!
                                                            0.553149406
## 816
        2023-08-04
                      Email
                              @bob_tweets
                                              Fun weekend! -0.953222217
## 817
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                                                            0.893210486
## 818
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## 819
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                                              Team meeting -0.641849058
## 820
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## 821
        2023-08-18 Twitter alice@example
                                              Fun weekend!
                                                            0.977650215
## 822
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                              @frank chat
                                              Fun weekend!
                                                            0.269629325
## 823
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                      Slack
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                                                            0.572155187
##
  824
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## 825
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## 826
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                                                            0.649366590
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## 827
        2023-08-12
                      Email
                              carol_slack
## 828
        2023-08-03
                      Slack alice@example Need assistance
                                                            0.135939530
## 829
        2023-08-07
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                             dave@example Hello everyone!
                                                            0.593321668
## 830
        2023-08-18 Twitter
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                                               Great work! -0.160749977
## 831
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                              carol_slack
                                              Fun weekend!
                                                            0.231915887
## 832
        2023-08-03
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                                              Fun weekend!
                                                            0.312383833
## 833
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                              @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
```

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## 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
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                              @bob_tweets Hello everyone!
                                                            0.520647362
## 844
        2023-08-05 Twitter
                                           Exciting news! -0.798021044
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                                              Great work! -0.652119522
## 845
        2023-08-14 Twitter alice@example
## 846
        2023-08-10
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                              @bob_tweets
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## 847
        2023-08-10 Twitter
                             @erin_tweets
                                              Great work!
                                                            0.282790715
## 848
        2023-08-07 Twitter
                             @erin_tweets
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## 849
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                                                            0.368215033
## 850
        2023-08-08
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                             @erin_tweets Need assistance 0.593302410
## 851
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                             @erin_tweets Exciting news! -0.113282133
## 852
        2023-08-12
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                              carol_slack Need assistance 0.937844194
## 853
        2023-08-10
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                              @frank_chat
                                             Fun weekend! -0.520876877
## 854
        2023-08-19
                     Email
                             @erin_tweets
                                              Great work! 0.570171806
## 855
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                     Email
                             dave@example
                                             Team meeting -0.528815492
## 856
        2023-08-05
                     Email
                              @bob_tweets Hello everyone!
                                                            0.725036937
                              carol_slack Hello everyone! -0.279889458
## 857
        2023-08-05 Twitter
## 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
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## 862
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  863
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## 864
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                             @erin_tweets Need assistance -0.102778860
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        2023-08-04 Twitter
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                                          Exciting news! 0.053784013
## 866
        2023-08-07
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                                             Fun weekend! -0.511013610
                                             Team meeting -0.879799920
## 867
        2023-08-10 Twitter
                             dave@example
## 868
        2023-08-06
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                             @erin_tweets
                                              Great work! -0.387922954
## 869
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                             dave@example Exciting news! -0.750027833
## 870
        2023-08-01
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                              @bob_tweets Need assistance -0.614020258
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## 873
        2023-08-16 Twitter
                             dave@example
                                             Team meeting 0.796688539
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## 874
                     Slack
                     Slack
## 875
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                                                            0.423581860
## 878
        2023-08-05
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## 879
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##
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## 883
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## 884
        2023-08-05 Twitter
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                                             Fun weekend!
                                                            0.619198539
## 885
        2023-08-01
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                                              Great work!
                                                            0.605523043
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  888
##
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                                                            0.911442756
## 889
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        2023-08-19
                     Slack
                             dave@example
                                             Team meeting -0.789976987
## 894
        2023-08-06
                     Slack
                              @bob_tweets Need assistance 0.743181323
```

```
## 895
                                             Team meeting -0.307752223
        2023-08-01
                      Email
                              @frank_chat
## 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
                      Email
                              carol slack
                                             Team meeting 0.082343857
        2023-08-20
## 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
                              @bob_tweets
                                              Great work! -0.548428072
        2023-08-07 Twitter
## 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
                                              Great work! -0.124954135
                             dave@example
## 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
                             @erin tweets Need assistance
                                                           0.298994374
## 923
        2023-08-12 Twitter
## 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
                                              Great work! -0.666475324
                      Slack
                              @bob_tweets
## 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
                                                            0.355941510
                                             Fun weekend!
## 933
                     Slack
        2023-08-03
                             @erin_tweets Need assistance 0.896539724
## 934
        2023-08-20
                      Email alice@example Hello everyone! -0.555095884
## 935
        2023-08-17
                             dave@example
                                             Team meeting -0.047711935
                      Email
## 936
        2023-08-13 Twitter
                             dave@example
                                           Exciting news! -0.618614707
## 937
                                             Fun weekend! -0.412842807
        2023-08-13 Twitter
                              carol_slack
## 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
                                           Exciting news! -0.249575844
                              carol slack
## 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
```

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## 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
                              carol_slack Exciting news! -0.237763272
        2023-08-17 Twitter
## 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
                             dave@example Need assistance 0.492307736
                      Fmail
## 963
        2023-08-10
                              @frank_chat Exciting news! -0.010767524
                      Email
## 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
                                              Great work! -0.887057793
        2023-08-02
                      Slack
                             @erin_tweets
## 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
        2023-08-07
                              @bob tweets
## 979
                      Slack
                                              Great work!
                                                            0.170066014
## 980
        2023-08-08 Twitter alice@example
                                                            0.552484959
                                              Great work!
## 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
                                             Team meeting -0.377541550
                      Email alice@example
                             dave@example
## 984
        2023-08-10 Twitter
                                             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
                      Slack alice@example
        2023-08-07
                                             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
                                           Exciting news!
                              carol slack
                                                            0.186763622
## 999
        2023-08-08
                      Slack
                             @erin tweets
                                             Fun weekend!
                                                            0.172925062
   1000 2023-08-03
                      Email
                              @frank chat Hello everyone!
##
                                                            0.583445542
##
        sentiment label
## 1
               Positive
## 2
               Positive
## 3
               Negative
## 4
               Positive
## 5
               Positive
```

## 6	Negative
## 7	Negative
## 8	Negative
## 9	Positive
## 10	Negative
## 11	Positive
## 12	Positive
## 13	Positive
## 14	Positive
## 15	Positive
## 16	Positive
## 17	Positive
## 18	Positive
## 19	Negative
	J
## 20	Positive
## 21	Negative
## 22	Negative
## 23	Positive
## 24	Positive
## 25	Negative
## 26	Positive
## 27	Negative
## 28	Positive
## 29	Positive
## 30	Negative
## 31	Negative
## 32	Positive
## 33	Positive
## 34	Negative
## 35	Positive
## 36	Positive
## 37	Positive
## 38	Negative
## 39	Negative
## 40	Positive
## 41	Positive
## 42	Negative
## 43	Negative
## 44	Negative
## 45	Negative
	Positive
## 47	Positive
## 48	Positive
## 49	Negative
## 50	Positive
## 51	Positive
## 52	Negative
## 53	Positive
## 54	Negative
## 55	Negative
## 56	Positive
## 57	Positive
## 58	Positive
## 59	Negative
## 60	Negative
## 61	Positive

## 62	Negative
## 63	Negative
## 64	Positive
## 65	Negative
## 66	Positive
## 67	Negative
## 68	Positive
## 69	Positive
## 70	Positive
## 71	Negative
## 72	Negative
## 73	Negative
## 74	Positive
## 75	Negative
## 76	Positive
## 77	Negative
## 78	Positive
## 79	Negative
## 80	Positive
## 81	Positive
## 82	Positive
## 83	Positive
## 84	Negative
## 85	Negative
## 86	Negative
## 87	Negative
## 88	Negative
## 89	Positive
## 90	Negative
## 91	Negative
## 92	Negative
## 93	Negative
## 94	Negative
## 95	Negative
## 96	Negative
## 97	Negative
## 98	Negative
## 99	Negative
## 100	Negative
## 101	Positive
## 102	Positive
## 103	Positive
## 104	Positive
## 104	Negative
## 106	Negative
## 100	Positive
## 107	Negative
## 100	Negative
## 109	Negative
## 110	Positive
## 111	Negative
## 112	Negative
	_
	Negative Positive
## 115 ## 116	
	Negative
## 117	Negative

## 118	Positive
## 119	Negative
## 120	Negative
## 121	Positive
## 122	Negative
## 123	Negative
## 124	Negative
## 125	Negative
## 126	Positive
## 127	Negative
## 128	Negative
## 129	Positive
## 130	Negative
## 131	Negative
## 132	Positive
## 133	Positive
## 134	Positive
## 135	Positive
## 136	Positive
## 137	Positive
## 138	Positive
## 139	Positive
## 140	Negative
## 141	Positive
## 142	Positive
## 143	Negative
## 144	Positive
## 145	Negative
## 146	Positive
## 147	Negative
## 148	Positive
## 149	Positive
## 150	Positive
## 151	Negative
## 152	Positive
## 153	Negative
## 154	Positive
## 155	Negative
## 156	Negative
## 157	Negative
## 158	Negative
## 159	Positive
## 160	Negative
## 161	Negative
## 162	Positive
## 163	Positive
## 164	Positive
## 165	Negative
## 166	Negative
## 167	Negative
## 168	Negative
## 169	Positive
## 170	Positive
## 171	Negative
## 172	Positive
## 173	Negative
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## 174	Positive
## 175	Positive
## 176	Negative
## 177	Negative
## 178	Negative
## 179	Negative
## 180	Positive
## 181	Negative
## 182	Negative
## 182	Positive
## 184	
## 185	Negative Positive
## 186 ## 187	Negative Positive
## 188	Negative
## 189	Positive
## 190	Negative
## 191	Positive
## 192	Negative
## 193	Positive
## 194	Positive
## 195	Positive
## 196	Negative
## 197	Negative
## 198	Negative
## 199	Positive
## 200	Positive
## 201	Positive
## 202	Positive
## 203	Negative
## 204	Positive
## 205	Negative
## 206	Positive
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## 208	Negative
## 209	Positive
## 210	Positive
## 211	Negative
## 212	Positive
## 213	Positive
## 214	Positive
## 214	Positive
## 216	Negative
## 217	Negative
## 218	Negative
## 219	Positive
## 220	Positive
## 221	Negative
## 222	Negative
## 223	Positive
## 224	Negative
## 225	Positive
## 226	Negative
## 227	Negative
## 228	Positive
## 229	Negative
	-

## 230	Negative
## 231	Positive
## 232	Negative
## 233	Negative
## 234	Negative
## 235	Positive
## 236	Positive
## 237	Positive
## 238	Positive
## 239	Positive
## 240	Positive
## 241	
	Negative
## 242	Negative
## 243	Positive
## 244	Positive
## 245	Negative
## 246	Negative
## 247	Positive
## 248	Positive
## 249	Negative
## 250	Negative
## 251	Positive
## 252	Positive
## 253	Negative
## 254	Positive
## 255	Negative
## 256	Positive
## 257	Positive
## 258	Positive
## 259	Positive
## 260	Positive
=00	
## 261	Positive
	Positive Negative
## 261	
## 261 ## 262	Negative
## 261 ## 262 ## 263	Negative Positive
## 261 ## 262 ## 263 ## 264	Negative Positive Negative Positive
## 261 ## 262 ## 263 ## 264 ## 265 ## 266	Negative Positive Negative Positive Negative
## 261 ## 262 ## 263 ## 264 ## 265 ## 266	Negative Positive Negative Positive Negative Positive
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268	Negative Positive Negative Positive Positive Positive
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269	Negative Positive Negative Positive Positive Positive Positive Negative
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269 ## 270	Negative Positive Negative Positive Positive Positive Positive Negative Negative
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269 ## 270 ## 271	Negative Positive Negative Positive Positive Positive Positive Negative Negative Positive
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269 ## 270 ## 271 ## 272	Negative Positive Negative Positive Positive Positive Negative Negative Negative Positive Positive
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269 ## 270 ## 271 ## 272 ## 273	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Positive
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269 ## 270 ## 271 ## 272 ## 273 ## 274	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Positive Positive Positive Positive
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269 ## 270 ## 271 ## 272 ## 273 ## 274 ## 275	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Positive Positive Negative Positive Negative Negative
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 270 ## 271 ## 272 ## 273 ## 274 ## 275 ## 276	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Positive Positive Negative Negative Negative Negative Negative Negative
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269 ## 270 ## 271 ## 272 ## 273 ## 274 ## 275 ## 276 ## 277	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Positive Negative Negative Negative Negative Negative Negative Negative Negative
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269 ## 270 ## 271 ## 272 ## 273 ## 274 ## 275 ## 276 ## 277 ## 278	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Positive Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 270 ## 271 ## 272 ## 273 ## 274 ## 275 ## 276 ## 277 ## 278 ## 279	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Positive Negative
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269 ## 270 ## 271 ## 272 ## 273 ## 274 ## 275 ## 276 ## 277 ## 278 ## 279 ## 280	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Negative
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 269 ## 270 ## 271 ## 272 ## 273 ## 274 ## 275 ## 276 ## 277 ## 278 ## 279 ## 280 ## 281	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Positive Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative Positive Negative Positive
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 270 ## 271 ## 272 ## 273 ## 274 ## 275 ## 276 ## 277 ## 278 ## 279 ## 280 ## 281 ## 282	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Negative Positive Negative Positive Negative Positive Negative Positive Negative
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 270 ## 271 ## 272 ## 273 ## 274 ## 275 ## 276 ## 277 ## 278 ## 280 ## 281 ## 282 ## 283	Negative Positive Negative Positive Positive Positive Negative Negative Positive Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative Negative Positive Negative Positive Negative Positive Negative Positive
## 261 ## 262 ## 263 ## 264 ## 265 ## 266 ## 267 ## 268 ## 270 ## 271 ## 272 ## 273 ## 274 ## 275 ## 276 ## 277 ## 278 ## 279 ## 280 ## 281 ## 282	Negative Positive Negative Positive Positive Positive Negative Negative Positive Positive Negative Positive Negative Positive Negative Positive Negative Positive Negative

## 286	Negative
## 287	Positive
## 288	Positive
## 289	Positive
## 290	Negative
## 291	Positive
## 292	Positive
## 293	Positive
## 294	Positive
## 295	Negative
## 296	Positive
## 297	Positive
## 298	Negative
## 299	Positive
## 300	Negative
## 301	Positive
## 302	Negative
## 303	Negative
## 304	Negative
## 305	Positive
## 306	Negative
## 307	Negative
## 308	Negative
## 309	Positive
## 310	Positive
## 310	Negative
## 312	Positive
## 313	Negative
## 314	Negative
## 315	Positive
## 316	Negative
## 317	Negative
## 318	Positive
## 319	Negative
## 320	Positive
## 321	Positive
## 322	Positive
## 323	Negative
## 324	Negative
## 325	Negative
## 326	Positive
## 327	Negative
## 328	Positive
## 329	Positive
## 330	Negative
## 331	Positive
## 332	Positive
## 333	Negative
## 334	Negative
## 335	Positive
## 336	Negative
## 337	Negative
## 337	Positive
## 339	Negative
## 340	Positive
	Negative
## 341	negative

## 342	Positive
## 343	Negative
## 344	Positive
## 345	Positive
## 346	Positive
## 347	Positive
## 348	Negative
## 349	Negative
## 350	Negative
## 350	Positive
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## 354	Negative
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## 365	Positive
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## 368	Positive
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## 375	Negative
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## 381	Negative
## 382	Positive
## 383	Positive
## 384	Negative
## 385	Negative
## 386	Positive
## 387	Negative
## 388	Positive
## 389	Positive
## 390	Negative
## 391	Positive
## 392	Positive
## 393	Negative
## 394	Negative
## 395	Positive
## 396	Negative
## 397	Negative
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## 398	Negative
## 399	Positive
## 400	Negative
## 401	Positive
## 402	Positive
## 403	Positive
## 404	Negative
## 405	Negative
## 406	Positive
## 407	Negative
## 408	Positive
## 409	Positive
## 410	Positive
## 410	Positive
## 412	Positive
## 413	Positive
## 414	Positive
## 415	Negative
## 416	Negative
## 417	Negative
## 418	Positive
## 419	Positive
## 420	Negative
## 421	Negative
## 422	Negative
## 423	Negative
## 424	Negative
## 425	Positive
## 426	Positive
## 427	Positive
## 428	Negative
## 429	Positive
## 430	Negative
## 431	Negative
## 432	Positive
## 433	Positive
## 434	Positive
## 435	Positive
## 436	Negative
## 430	Negative
	· ·
## 438 ## 439	Positive
	Negative
## 440	Positive
## 441	Positive
## 442	Positive
## 443	Negative
## 444	Negative
## 445	Positive
## 446	Positive
## 447	Positive
## 448	Positive
## 449	Positive
## 450	Positive
## 451	Negative
## 452	Negative
## 453	Positive

## 454	Negative
## 455	Negative
## 456	Positive
## 457	Negative
## 458	Positive
## 459	Positive
## 460	Negative
## 461	Negative
## 462	Negative
## 463	Negative
## 464	Negative
## 465	Negative
## 466	Positive
## 467	Positive
## 468	Positive
## 469	Positive
## 479	Positive
## 471	Positive
## 472	Positive
## 473	Positive
## 474	Negative
## 475	Negative
## 476	Positive
## 477	Positive
## 478	Negative
## 479	Negative
## 480	Negative
## 481	Negative
## 482	Positive
## 483	Negative
## 484	Negative
## 485	Positive
## 486	Positive
## 487	Negative
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## 491	Negative
## 492	Positive
## 493	Positive
## 494	Negative
## 495	Negative
## 496	Negative
## 497	Positive
## 498	Positive
## 499	Negative
## 500	Negative
## 501	Positive
## 502	Positive
## 503	Positive
## 504	Negative
## 505	Positive
## 506	Negative
## 507	Negative
## 508	Positive
## 509	Negative
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## 510	Negative
## 511	Negative
## 512	Positive
## 513	Positive
## 514	Negative
## 515	Negative
## 516	Positive
## 517	Negative
## 518	Positive
## 519	Positive
## 520	Positive
## 521	Positive
## 522	Positive
## 523	Positive
## 524	Negative
## 525	Positive
## 526	Negative
## 527	Positive
## 527	Negative
## 529	Positive
## 539	Negative
## 531	Positive
## 531	
## 532	Negative
	Negative
## 534	Negative Positive
## 535	
## 536	Positive
## 537	Negative
## 538	Positive
## 539	Positive
## 540	Negative
## 541	Positive
## 542	Negative
## 543	Positive
## 544	Negative
## 545	Positive
## 546	Positive
## 547	Positive
## 548	Negative
## 549	Negative
## 550	Positive
## 551	Negative
## 552	Positive
## 553	Negative
## 554	Positive
## 555	Negative
## 556	Positive
## 557	Negative
## 558	Negative
## 559	Positive
## 560	Positive
## 561	Positive
## 562	Negative
## 563	Negative
## 564	Negative
## 565	Positive

## 566	Negative
## 567	Negative
## 568	Positive
## 569	Positive
## 570	Positive
## 571	Negative
## 572	Positive
## 573	Positive
## 574	Negative
## 575	Negative
## 576	Positive
## 577	Negative
## 578	Positive
## 579	Positive
## 580	Negative
## 581	Positive
## 582	
## 583	Negative Positive
## 584	Positive
## 585	Positive
## 586	Negative
## 587	Positive
## 588	Negative
## 589	Positive
## 590	Positive
## 591	Positive
## 592	Negative
## 593	Positive
## 594	Negative
## 595	Positive
## 596	Positive
## 597	Negative
## 598	Positive
## 599	Positive
## 600	Positive
## 601	Negative
## 602	Negative
## 603	Negative
## 604	Negative
## 605	Negative
## 606	Negative
## 607	Negative
## 608	Negative
## 609	Positive
## 610	Positive
## 611	Negative
## 612	Positive
## 613	Negative
## 614	Positive
## 615	Positive
## 616	Negative
## 617	Positive
## 618	Negative
## 619	Positive
## 620	Negative
## 621	Negative

## 622	Positive
## 623	Negative
## 624	Positive
## 625	Negative
## 626	Positive
## 627	Negative
## 628	Positive
## 629	Negative
## 630	Positive
## 631	Negative
## 632	Negative
## 633	Positive
## 634	Positive
## 635	Positive
## 636	Positive
## 637	Negative
## 638	Negative
## 639	Negative
## 640	Positive
## 641	Negative
## 642	Positive
## 643	Positive
## 644	Negative
## 645	Positive
## 646	Negative
## 647	Positive
## 648	Negative
## 649	Negative
## 650	Negative
## 651	Negative
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## 652	Negative
## 653	Negative Positive
## 653 ## 654	Negative Positive Positive
## 653 ## 654 ## 655	Negative Positive Positive Positive
## 653 ## 654 ## 655 ## 656	Negative Positive Positive Positive Positive
## 653 ## 654 ## 655 ## 656 ## 657	Negative Positive Positive Positive Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658	Negative Positive Positive Positive Positive Positive Negative
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 659	Negative Positive Positive Positive Positive Negative Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 659 ## 660	Negative Positive Positive Positive Positive Negative Positive Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 659 ## 660	Negative Positive Positive Positive Positive Negative Positive Positive Positive Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 659 ## 660 ## 661 ## 662	Negative Positive Positive Positive Positive Negative Positive Positive Positive Positive Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 659 ## 660 ## 661	Negative Positive Positive Positive Positive Negative Positive Positive Positive Positive Positive Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 660 ## 661 ## 662 ## 663	Negative Positive Positive Positive Positive Negative Positive Positive Positive Positive Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 660 ## 661 ## 662 ## 663 ## 664	Negative Positive Positive Positive Positive Negative Positive Positive Positive Negative Negative Negative Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 660 ## 661 ## 662 ## 663 ## 664 ## 665	Negative Positive Positive Positive Positive Negative Positive Positive Positive Positive Positive Negative Negative Negative Negative
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 661 ## 662 ## 663 ## 664 ## 665 ## 666	Negative Positive Positive Positive Positive Negative Positive Positive Positive Negative Positive Negative Positive Negative Positive Negative Negative Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 661 ## 662 ## 663 ## 664 ## 665 ## 666 ## 666	Negative Positive Positive Positive Positive Negative Positive Positive Positive Positive Negative Negative Positive Negative Negative Negative Negative Negative
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 661 ## 662 ## 663 ## 664 ## 665 ## 666 ## 666	Negative Positive Positive Positive Positive Negative Positive Positive Positive Negative Positive Negative Positive Negative Negative Negative Positive Negative Positive Negative Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 661 ## 662 ## 663 ## 664 ## 665 ## 666 ## 666 ## 666 ## 666 ## 667	Negative Positive Positive Positive Positive Negative Positive Positive Positive Negative Positive Negative Positive Negative Positive Negative Positive Negative Negative Negative Negative Negative
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 661 ## 662 ## 663 ## 664 ## 665 ## 666 ## 666 ## 667 ## 668 ## 669 ## 670	Negative Positive Positive Positive Positive Negative Positive Positive Positive Positive Negative Positive Negative
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 661 ## 665 ## 666 ## 666 ## 666 ## 667 ## 668 ## 669 ## 670 ## 671	Negative Positive Positive Positive Positive Negative Positive Positive Positive Negative Positive Negative Positive Negative Positive Negative Negative Negative Negative Negative Positive Negative Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 661 ## 665 ## 666 ## 666 ## 666 ## 667 ## 668 ## 669 ## 670 ## 671 ## 672	Negative Positive Positive Positive Positive Positive Positive Positive Positive Positive Negative Positive Negative Negative Negative Negative Negative Negative Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative Negative
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 661 ## 666 ## 666 ## 667 ## 668 ## 669 ## 670 ## 671 ## 672 ## 673	Negative Positive Positive Positive Positive Negative Positive Positive Positive Negative Positive Negative Positive
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 661 ## 666 ## 666 ## 667 ## 668 ## 669 ## 670 ## 671 ## 672 ## 673 ## 674 ## 675 ## 676	Negative Positive Positive Positive Positive Negative Positive Positive Positive Negative Positive Negative
## 653 ## 654 ## 655 ## 656 ## 657 ## 658 ## 669 ## 661 ## 662 ## 663 ## 664 ## 665 ## 666 ## 667 ## 667 ## 670 ## 671 ## 672 ## 673 ## 674 ## 675	Negative Positive Positive Positive Positive Positive Positive Positive Positive Positive Negative Positive Negative Positive Negative Negative Negative Positive Negative Positive Negative Negative Negative

## 678	Negative
## 679	Negative
## 680	Positive
## 681	Negative
## 682	Negative
## 683	Positive
## 684	Positive
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## 686	Positive
## 687	Negative
## 688	Positive
## 689	Negative
## 690	Positive
## 691	Negative
## 692	Negative
## 693	Positive
## 694	Negative
## 695	· ·
## 696	Negative Negative
	_
027	Negative
## 698	Positive
## 699	Negative
## 700	Positive
## 701	Negative
## 702	Negative
## 703	Negative
## 704	Positive
## 705	Negative
## 706	Positive
## 707	Positive
## 708	Positive
## 709	Negative
## 710	Positive
## 711	Positive
## 712	Negative
## 713	Positive
## 714	Negative
## 715	Negative
## 716	Positive
## 717	Positive
## 718	Positive
## 719	Positive
## 720	Negative
## 721	Positive
## 722	Negative
## 723	Negative
## 724	Negative
## 725	Negative
## 726	Negative
## 727	Negative
## 728	Positive
## 729	Positive
## 730	Positive
## 731	Positive
## 732	Negative
## 733	Negative
	5

## 734	Positive
## 735	Positive
## 736	Negative
## 737	Positive
## 738	Positive
## 739	Positive
## 740	Positive
## 741	Positive
## 742	Negative
## 743	Negative
## 744	Positive
## 745	Positive
## 746	Positive
## 747	Negative
## 748	Positive
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## 749	Positive
## 751	Negative
## 752	Negative
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## 759	Negative
## 760	Positive
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## 763	Positive
## 764	Positive
## 765	Negative
## 766	Negative
## 767	Positive
## 768	Positive
## 769	Negative
## 770	Negative
## 771	Positive
## 772	Negative
## 773	Positive
## 774	Negative
## 775	Positive
## 776	Negative
## 777	Negative
## 778	Positive
## 779	Negative
## 780	Positive
## 781	Positive
## 782	Negative
## 783	Positive
## 784	Negative
## 785	Negative
## 786	Negative
## 787	Positive
## 788	Negative
## 789	Positive

## 790	Negative
## 791	Negative
## 792	Positive
## 793	Negative
## 794	Negative
## 795	Positive
## 796	Positive
## 797	Positive
## 798	Positive
## 799	Positive
## 800	Negative
## 801	Negative
## 802	Positive
## 803	Negative
## 804	Positive
## 805	Positive
## 806	Negative
## 807	Negative
## 808	Positive
## 809	Positive
## 810	Negative
## 811	Negative
## 812	Positive
## 813	Negative
## 814	Positive
## 815	Positive
## 816	Negative
## 817	Positive
## 817 ## 818	Positive Negative
_	Negative Negative
## 818	Negative Negative Negative
## 818 ## 819	Negative Negative
## 818 ## 819 ## 820 ## 821 ## 822	Negative Negative Negative Positive Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823	Negative Negative Negative Positive Positive
## 818 ## 819 ## 820 ## 821 ## 822	Negative Negative Negative Positive Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825	Negative Negative Negative Positive Positive Negative Negative
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824	Negative Negative Negative Positive Positive Negative Negative Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827	Negative Negative Positive Positive Positive Negative Negative Positive Negative
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive Positive Positive Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832	Negative Negative Positive Positive Positive Negative Negative Positive Positive Positive Positive Positive Positive Positive Positive Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832 ## 832	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive Positive Positive Negative Positive Negative Positive Negative Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832 ## 833	Negative Negative Positive Positive Positive Negative Negative Positive Positive Positive Positive Positive Positive Negative Positive Negative Positive Positive Positive Positive Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832 ## 833 ## 834	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive Negative Positive Negative
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832 ## 833 ## 834 ## 835 ## 835	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive Negative Positive Negative Positive Positive Negative Positive Negative Positive Negative Positive Negative Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832 ## 833 ## 834 ## 835 ## 836 ## 836	Negative Negative Positive Positive Positive Negative Negative Negative Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832 ## 833 ## 834 ## 835 ## 837 ## 838	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive Positive Positive Positive Positive Positive Positive Negative Positive Negative Positive Negative Positive Negative Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 830 ## 831 ## 832 ## 833 ## 834 ## 835 ## 836 ## 837 ## 838 ## 838	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive Positive Positive Positive Positive Positive Negative Positive Negative Positive Negative Positive Positive Positive Positive Positive Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832 ## 833 ## 834 ## 835 ## 836 ## 837 ## 838 ## 839 ## 840	Negative Negative Positive Positive Positive Negative Negative Positive Negative
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832 ## 833 ## 834 ## 835 ## 836 ## 837 ## 838 ## 839 ## 840 ## 841	Negative Negative Positive Positive Positive Negative Negative Positive Positive Positive Positive Positive Positive Positive Positive Positive Negative Positive Negative Positive Negative Positive Negative Positive Negative Positive Negative Negative Negative Negative Negative
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832 ## 833 ## 834 ## 835 ## 836 ## 837 ## 838 ## 839 ## 840 ## 841 ## 842	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive Positive Positive Positive Positive Negative Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 830 ## 831 ## 832 ## 833 ## 834 ## 835 ## 836 ## 837 ## 838 ## 839 ## 840 ## 841 ## 842 ## 843	Negative Negative Positive Positive Positive Negative Negative Positive Positive Positive Positive Positive Positive Positive Positive Positive Negative Positive
## 818 ## 819 ## 820 ## 821 ## 822 ## 823 ## 824 ## 825 ## 826 ## 827 ## 828 ## 829 ## 830 ## 831 ## 832 ## 833 ## 834 ## 835 ## 836 ## 837 ## 838 ## 839 ## 840 ## 841 ## 842	Negative Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive Positive Positive Positive Positive Negative Positive

## 846	Negative
## 847	Positive
## 848	Negative
## 849	Positive
## 850	Positive
## 851	Negative
## 852	Positive
## 853	Negative
## 854	Positive
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## 856	Positive
## 857	Negative
## 858	Negative
## 859	Positive
## 860	Positive
## 861	Negative
## 862	Negative
## 863	Positive
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## 865	Positive
## 866	Negative
## 867	Negative
## 868	Negative
## 869	Negative
## 879	Negative
## 870	Negative
## 871	_
	Negative Positive
## Q73	
## 873	
## 874	Negative
## 874 ## 875	Negative Positive
## 874 ## 875 ## 876	Negative Positive Negative
## 874 ## 875 ## 876 ## 877	Negative Positive Negative Positive
## 874 ## 875 ## 876 ## 877 ## 878	Negative Positive Negative Positive Positive
## 874 ## 875 ## 876 ## 877 ## 878 ## 879	Negative Positive Negative Positive Positive Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880	Negative Positive Negative Positive Positive Negative Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881	Negative Positive Negative Positive Positive Negative Positive
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882	Negative Positive Negative Positive Negative Negative Positive Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883	Negative Positive Positive Positive Negative Negative Positive Negative Positive
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884	Negative Positive Positive Positive Negative Negative Positive Positive Positive Positive
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884	Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive Positive
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 885	Negative Positive Positive Positive Negative Negative Positive Negative Positive Positive Positive Positive Positive
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 886	Negative Positive Positive Positive Negative Negative Positive Positive Positive Positive Positive Positive Positive Negative Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888	Negative Positive Negative Positive Negative Negative Positive Negative Positive Positive Positive Positive Negative Positive Positive Negative Negative Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888	Negative Positive Negative Positive Negative Negative Negative Positive Positive Positive Positive Positive Negative Positive Positive Negative Positive Negative Negative Positive
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889	Negative Positive Negative Positive Negative Negative Positive Negative Positive Positive Positive Negative Positive Negative Negative Negative Negative Negative Negative Positive
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889 ## 890 ## 891	Negative Positive Negative Positive Negative Negative Positive Negative Positive Positive Positive Negative Positive Negative Negative Negative Negative Negative Positive Negative Negative Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 889 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889 ## 890 ## 891 ## 892	Negative Positive Negative Positive Negative Negative Negative Positive Positive Positive Positive Negative Positive Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889 ## 890 ## 891 ## 892 ## 893	Negative Positive Negative Positive Negative Negative Positive Negative Positive Positive Positive Negative Positive Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889 ## 890 ## 891 ## 892 ## 893 ## 894	Negative Positive Negative Positive Negative Negative Negative Positive Positive Positive Positive Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 889 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889 ## 890 ## 891 ## 892 ## 893 ## 894 ## 895	Negative Positive Negative Positive Negative Negative Negative Positive Positive Positive Positive Positive Negative Negative Negative Negative Negative Positive Positive Positive Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889 ## 890 ## 891 ## 892 ## 893 ## 894 ## 895 ## 895	Negative Positive Negative Positive Negative Negative Positive Positive Positive Positive Positive Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889 ## 890 ## 891 ## 892 ## 893 ## 894 ## 895 ## 896 ## 897	Negative Positive Negative Positive Negative Negative Positive Positive Positive Positive Positive Negative Positive Negative Positive Positive Positive Negative Positive Positive
## 874 ## 875 ## 876 ## 877 ## 878 ## 889 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889 ## 890 ## 891 ## 892 ## 893 ## 894 ## 895 ## 896 ## 897 ## 898	Negative Positive Negative Positive Negative Negative Negative Positive Positive Positive Positive Positive Positive Negative Positive Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 879 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889 ## 890 ## 891 ## 892 ## 893 ## 894 ## 895 ## 895 ## 896 ## 897 ## 898 ## 898	Negative Positive Negative Positive Negative Negative Positive Positive Positive Positive Positive Negative Positive Negative
## 874 ## 875 ## 876 ## 877 ## 878 ## 889 ## 880 ## 881 ## 882 ## 883 ## 884 ## 885 ## 886 ## 887 ## 888 ## 889 ## 890 ## 891 ## 892 ## 893 ## 894 ## 895 ## 896 ## 897 ## 898	Negative Positive Negative Positive Negative Negative Negative Positive Positive Positive Positive Positive Positive Negative Positive Negative

## 902	Positive
## 903	Positive
## 904	Positive
## 905	Positive
## 906	Positive
## 907	Negative
## 908	Positive
## 909	Positive
## 910	Positive
## 911	Negative
## 912	Negative
## 913	Negative
## 914	Positive
## 915	Positive
## 916	Positive
## 917	Negative
## 918	Positive
## 919	Negative
## 920	Negative
## 921	Positive
## 922	Negative
## 923 ## 924	Positive Positive
## 924	Positive
## 925	
## 926	Negative Negative
	Positive
## 928 ## 929	
## 929	Positive
## 929 ## 930	Positive Negative
## 929	Positive Negative Negative
## 929 ## 930 ## 931	Positive Negative Negative Positive
## 929 ## 930 ## 931 ## 932	Positive Negative Negative Positive Positive
## 929 ## 930 ## 931 ## 932 ## 933	Positive Negative Negative Positive Positive Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934	Positive Negative Negative Positive Positive
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935	Positive Negative Negative Positive Positive Negative Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936	Positive Negative Negative Positive Positive Negative Negative Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937	Positive Negative Negative Positive Positive Negative Negative Negative Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937	Positive Negative Negative Positive Positive Negative Negative Negative Negative Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 939	Positive Negative Negative Positive Positive Negative Negative Negative Negative Negative Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 939 ## 940	Positive Negative Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 939 ## 940 ## 941	Positive Negative Negative Positive Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 939 ## 940 ## 941 ## 942	Positive Negative Negative Positive Positive Negative Positive
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943	Positive Negative Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative Negative Positive Positive
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944	Positive Negative Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative Negative Positive Positive Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944 ## 945	Positive Negative Negative Positive Negative Positive Positive Negative Negative Negative Negative Negative Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944 ## 945 ## 945	Positive Negative Negative Positive Positive Negative Positive Positive Negative Negative Negative Negative Negative Negative Negative Negative Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944 ## 945 ## 945 ## 946 ## 947 ## 948 ## 949	Positive Negative Negative Positive Negative Positive Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944 ## 945 ## 944 ## 945 ## 946 ## 947 ## 948 ## 949 ## 950	Positive Negative Negative Positive Negative Positive Positive Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944 ## 945 ## 945 ## 946 ## 947 ## 948 ## 949 ## 950 ## 950	Positive Negative Negative Positive Negative Positive Positive Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944 ## 945 ## 945 ## 946 ## 947 ## 948 ## 949 ## 950 ## 951 ## 952	Positive Negative Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative Positive Positive Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944 ## 945 ## 945 ## 946 ## 947 ## 948 ## 949 ## 950 ## 951 ## 952 ## 953	Positive Negative Negative Positive Negative Positive Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944 ## 945 ## 945 ## 946 ## 947 ## 948 ## 950 ## 950 ## 951 ## 952 ## 953 ## 953	Positive Negative Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative Positive Positive Negative Positive Positive Positive Positive Negative Positive Negative Positive Negative Positive
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944 ## 945 ## 945 ## 946 ## 947 ## 948 ## 949 ## 950 ## 951 ## 952 ## 953 ## 954 ## 955	Positive Negative Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative Positive Positive Negative Positive Negative
## 929 ## 930 ## 931 ## 932 ## 933 ## 934 ## 935 ## 936 ## 937 ## 938 ## 940 ## 941 ## 942 ## 943 ## 944 ## 945 ## 945 ## 946 ## 947 ## 948 ## 950 ## 950 ## 951 ## 952 ## 953 ## 953	Positive Negative Negative Positive Negative Negative Negative Negative Negative Negative Negative Negative Positive Positive Negative Positive Positive Positive Positive Negative Positive Negative Positive Negative Positive

##	958	Positive
##	959	Negative
##	960	Positive
##	961	Negative
##	962	Positive
##	963	Negative
	964	Positive
	965	Positive
	966	Negative
	967	Negative
	968	Positive
	969	Negative
	970	Negative
	971	Positive
		Positive
	972	
	973	Positive
	974	Positive
	975	Positive
	976	Negative
	977	Positive
##	978	Positive
##	979	Positive
##	980	Positive
##	981	Negative
	982	Positive
	983	Negative
	984	Negative
	985	Positive
	986	Negative
	987	Positive
	988	Positive
	989	Positive
	990	Positive
	991	Negative
	992	Negative
	993	Negative
	994	Negative
	995	Negative
##	996	Positive
##	997	Positive
##	998	Positive
##	999	Positive
##	1000	Positive

print(sentiment)

```
## # A tibble: 6 × 2
## sender average_sentiment
## cabas
## <chr>
                           <dbl>
## 1 carol_slack
                         0.118
## 2 alice@example
                        0.0570
## 3 dave@example
                        0.00687
                     -0.00880
## 4 @frank_chat
## 5 @bob_tweets
                       -0.0185
## 6 @erin_tweets
                        -0.0327
```

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
library(dplyr)
comm_data %>%
  mutate(product = sentiment*nchar(message)) %>%
arrange(desc(product))
```

```
##
              date channel
                                   sender
                                                  message
                                                              sentiment
                                                                              product
                              @frank_chat Hello everyone!
## 1
        2023-08-16
                     Email
                                                            0.997601895
                                                                         14.96402843
## 2
                     Slack
                             @erin_tweets Hello everyone!
        2023-08-14
                                                            0.987832270
                                                                         14.81748405
                     Email
                             dave@example Hello everyone!
## 3
        2023-08-18
                                                            0.978220029
                                                                         14.67330044
## 4
        2023-08-17
                     Email
                             dave@example Hello everyone!
                                                                         14.65342202
                                                            0.976894801
## 5
        2023-08-07
                     Slack
                              carol_slack Hello everyone!
                                                            0.973429719
                                                                         14.60144579
## 6
        2023-08-06
                     Slack
                             dave@example Hello everyone!
                                                            0.968081689
                                                                         14.52122533
## 7
        2023-08-08
                     Slack
                              @frank_chat Need assistance
                                                            0.963640937
                                                                         14.45461406
## 8
        2023-08-09
                     Email
                            @erin_tweets Need assistance
                                                            0.953375103
                                                                         14.30062655
## 9
        2023-08-17 Twitter
                              @frank_chat Hello everyone!
                                                            0.951721462
                                                                         14.27582193
## 10
        2023-08-12
                     Email
                              carol_slack Need assistance
                                                            0.937844194
                                                                         14.06766291
## 11
        2023-08-17
                     Slack
                             @erin_tweets Hello everyone!
                                                            0.937329018
                                                                         14.05993527
## 12
                     Email
        2023-08-13
                              @frank_chat Need assistance
                                                            0.935812009
                                                                         14.03718014
## 13
        2023-08-04
                     Slack
                              @frank_chat Need assistance
                                                            0.933738099
                                                                         14.00607149
## 14
        2023-08-11
                     Slack
                             dave@example Need assistance
                                                            0.930096855
                                                                         13.95145283
## 15
        2023-08-07
                     Slack
                              @frank_chat Exciting news!
                                                            0.993148146
                                                                         13.90407405
## 16
        2023-08-13
                     Email
                              carol_slack Exciting news!
                                                            0.991050147
                                                                         13.87470206
## 17
        2023-08-07
                     Email alice@example Hello everyone!
                                                            0.917979236
                                                                         13.76968854
## 18
        2023-08-07
                     Slack
                              @frank chat Need assistance
                                                            0.914976185
                                                                          13.72464278
## 19
        2023-08-06 Twitter
                              @bob_tweets Exciting news!
                                                            0.979591473
                                                                         13.71428062
## 20
        2023-08-08 Twitter
                             dave@example Need assistance
                                                            0.911442756
                                                                         13.67164134
## 21
        2023-08-06
                             @erin_tweets Hello everyone!
                                                            0.905330024
                                                                         13.57995036
                     Email
## 22
        2023-08-17 Twitter alice@example Exciting news!
                                                                         13.56505086
                                                            0.968932204
## 23
        2023-08-03 Twitter
                             dave@example Hello everyone!
                                                                         13.54025000
                                                            0.902683333
## 24
        2023-08-01
                     Email
                              @bob_tweets Hello everyone!
                                                            0.902623749
                                                                         13.53935624
## 25
        2023-08-09
                     Slack
                              carol slack Hello everyone!
                                                            0.902016178
                                                                         13.53024267
## 26
        2023-08-15
                     Slack alice@example Need assistance
                                                            0.899728119
                                                                         13.49592178
## 27
        2023-08-03
                     Slack @erin_tweets Need assistance
                                                            0.896539724
                                                                         13.44809587
## 28
        2023-08-07 Twitter
                              carol_slack Need assistance
                                                            0.895823483
                                                                         13.43735224
## 29
        2023-08-17 Twitter
                              @bob_tweets Exciting news!
                                                            0.953910344
                                                                         13.35474482
## 30
        2023-08-13
                     Slack
                              carol_slack Need assistance
                                                                         13.29513481
                                                            0.886342321
## 31
                            dave@example Hello everyone!
        2023-08-11
                     Slack
                                                            0.879992486
                                                                         13.19988729
## 32
        2023-08-07
                     Slack alice@example Need assistance
                                                            0.877496709
                                                                         13.16245064
## 33
        2023-08-20
                     Email
                              @bob_tweets Exciting news!
                                                            0.931368547
                                                                         13.03915965
## 34
        2023-08-14
                     Email
                             @erin_tweets Need assistance
                                                            0.867801995
                                                                         13.01702993
## 35
        2023-08-12
                     Email
                             @erin tweets Need assistance
                                                                         12.99911810
                                                            0.866607873
## 36
        2023-08-16 Twitter alice@example Exciting news!
                                                            0.927110374
                                                                         12.97954523
## 37
        2023-08-19 Twitter alice@example Hello everyone!
                                                            0.857508211
                                                                         12.86262316
## 38
        2023-08-02
                     Slack
                             @erin_tweets
                                           Exciting news!
                                                            0.900116188
                                                                         12.60162663
## 39
        2023-08-10
                     Email
                             dave@example Need assistance
                                                            0.834841503
                                                                         12.52262254
## 40
        2023-08-02 Twitter
                             @erin tweets Need assistance
                                                            0.821079701
                                                                         12.31619552
## 41
        2023-08-12 Twitter alice@example Exciting news!
                                                            0.874988238
                                                                         12.24983533
## 42
        2023-08-10 Twitter
                              carol_slack Need assistance
                                                            0.809991531
                                                                         12.14987296
## 43
        2023-08-11 Twitter
                              @frank chat Hello everyone!
                                                            0.807257727
                                                                         12.10886591
## 44
        2023-08-16 Twitter
                             @erin_tweets Hello everyone!
                                                            0.806540163
                                                                         12.09810244
## 45
        2023-08-02
                     Slack
                              carol slack Hello everyone!
                                                            0.805289558
                                                                         12.07934337
## 46
        2023-08-01
                     Slack
                              carol slack Hello everyone!
                                                            0.802523659
                                                                         12.03785488
## 47
        2023-08-03
                     Email
                              @frank chat
                                             Fun weekend!
                                                            0.992682932
                                                                          11.91219518
## 48
        2023-08-12
                     Slack
                              @bob tweets
                                             Fun weekend!
                                                            0.990166281
                                                                          11.88199537
## 49
        2023-08-13 Twitter
                             dave@example
                                             Fun weekend!
                                                            0.986894567
                                                                          11.84273481
## 50
        2023-08-20
                     Email
                             dave@example
                                             Team meeting
                                                            0.985037738
                                                                         11.82045285
## 51
        2023-08-15 Twitter
                             @erin_tweets Need assistance
                                                            0.787741330
                                                                         11.81611995
## 52
        2023-08-18 Twitter alice@example
                                             Fun weekend!
                                                            0.977650215
                                                                         11.73180258
## 53
                     Email
                             dave@example Need assistance
        2023-08-15
                                                            0.773382573
                                                                         11.60073860
## 54
        2023-08-02 Twitter alice@example
                                             Team meeting
                                                            0.964958043
                                                                         11.57949651
```

```
@erin_tweets Hello everyone!
## 55
        2023-08-15 Twitter
                                                             0.768580468
                                                                           11.52870702
## 56
        2023-08-19
                      Email
                             dave@example
                                            Exciting news!
                                                             0.821827833
                                                                           11.50558966
## 57
                      Slack
                              @bob tweets
                                              Fun weekend!
                                                             0.957983019
        2023-08-10
                                                                           11.49579623
## 58
        2023-08-09 Twitter alice@example Hello everyone!
                                                             0.762754925
                                                                           11.44132388
## 59
        2023-08-02 Twitter
                             dave@example
                                            Exciting news!
                                                                           11.43947885
                                                             0.817105632
## 60
                             @erin tweets
                                              Team meeting
                                                                           11.35130714
        2023-08-19 Twitter
                                                             0.945942261
## 61
        2023-08-13 Twitter alice@example Hello everyone!
                                                             0.752351641
                                                                           11.28527462
## 62
        2023-08-07
                      Slack
                             dave@example Hello everyone!
                                                             0.747580624
                                                                           11.21370936
## 63
        2023-08-03 Twitter alice@example Need assistance
                                                             0.747163485
                                                                           11.20745228
## 64
                      Slack
                              @frank_chat Need assistance
                                                                           11.20332586
        2023-08-06
                                                             0.746888391
        2023-08-17
                              @frank_chat
## 65
                      Email
                                              Team meeting
                                                             0.932789830
                                                                           11.19347795
## 66
        2023-08-06
                      Slack
                              @bob_tweets Need assistance
                                                             0.743181323
                                                                           11.14771985
## 67
        2023-08-04 Twitter
                              @frank_chat
                                            Exciting news!
                                                             0.795437461
                                                                           11.13612446
## 68
        2023-08-08
                      Slack
                              @bob_tweets Hello everyone!
                                                             0.740663246
                                                                           11.10994869
                                                             0.924321534
## 69
        2023-08-03
                      Email
                             @erin_tweets
                                              Fun weekend!
                                                                           11.09185841
## 70
        2023-08-14 Twitter
                              carol_slack Need assistance
                                                             0.739025190
                                                                           11.08537785
## 71
        2023-08-11
                      Slack
                              carol slack
                                              Team meeting
                                                             0.921573296
                                                                           11.05887955
## 72
        2023-08-07
                      Email
                              carol_slack
                                            Exciting news!
                                                             0.785684678
                                                                           10.99958549
## 73
        2023-08-18 Twitter
                              @frank_chat
                                            Exciting news!
                                                             0.784590872
                                                                           10.98427221
## 74
        2023-08-20
                      Email
                              carol_slack
                                              Team meeting
                                                             0.909817838
                                                                           10.91781405
## 75
        2023-08-12
                      Email
                              @frank chat
                                            Exciting news!
                                                             0.777389107
                                                                           10.88344750
## 76
        2023-08-05
                      Email
                              @bob tweets Hello everyone!
                                                                           10.87555406
                                                             0.725036937
## 77
        2023-08-07
                      Email alice@example
                                            Exciting news!
                                                             0.773558143
                                                                           10.82981400
## 78
        2023-08-13 Twitter
                               carol_slack
                                            Exciting news!
                                                             0.771407587
                                                                           10.79970622
## 79
        2023-08-10
                      Slack
                              @frank chat
                                            Exciting news!
                                                             0.769946682
                                                                           10.77925355
## 80
        2023-08-09
                      Email alice@example
                                              Fun weekend!
                                                             0.893210486
                                                                           10.71852583
## 81
        2023-08-19
                      Email
                               carol_slack
                                              Fun weekend!
                                                             0.892766985
                                                                           10.71320382
## 82
        2023-08-02
                      Email
                             dave@example
                                               Great work!
                                                             0.973676749
                                                                           10.71044424
## 83
        2023-08-13 Twitter alice@example
                                              Team meeting
                                                             0.892404643
                                                                           10.70885571
## 84
                      Email alice@example Hello everyone!
        2023-08-03
                                                             0.713812393
                                                                           10.70718590
## 85
        2023-08-06
                      Slack alice@example Hello everyone!
                                                                           10.65405886
                                                             0.710270591
## 86
        2023-08-15
                      Slack
                              @frank_chat
                                               Great work!
                                                             0.960373470
                                                                           10.56410817
## 87
        2023-08-14 Twitter
                              @bob_tweets
                                            Exciting news!
                                                             0.754322437
                                                                           10.56051412
## 88
                                                             0.703965933
        2023-08-09
                      Email
                              @bob_tweets Hello everyone!
                                                                           10.55948899
## 89
        2023-08-02 Twitter
                             @erin_tweets
                                            Exciting news!
                                                             0.750492542
                                                                           10.50689559
## 90
        2023-08-11
                      Email
                              @frank chat
                                              Fun weekend!
                                                             0.874191639
                                                                           10.49029966
## 91
                   Twitter alice@example
        2023-08-08
                                              Team meeting
                                                             0.870818266
                                                                           10.44981919
## 92
                      Email alice@example Need assistance
        2023-08-05
                                                             0.694902051
                                                                           10.42353076
## 93
        2023-08-18 Twitter
                              @bob_tweets
                                              Fun weekend!
                                                             0.866654206
                                                                           10.39985047
## 94
        2023-08-04
                      Slack
                              @bob_tweets
                                              Fun weekend!
                                                             0.866016825
                                                                           10.39220190
## 95
                      Slack
                              @frank_chat Need assistance
        2023-08-04
                                                             0.691338675
                                                                           10.37008012
## 96
        2023-08-17
                      Email
                             @erin_tweets
                                              Team meeting
                                                             0.863822790
                                                                           10.36587348
## 97
        2023-08-10
                      Slack
                             @erin tweets
                                              Team meeting
                                                             0.862134462
                                                                           10.34561354
## 98
        2023-08-04
                      Email
                             @erin_tweets Need assistance
                                                             0.689327837
                                                                           10.33991755
                      Slack
## 99
        2023-08-07
                              carol_slack
                                               Great work!
                                                             0.937586371
                                                                           10.31345008
## 100
        2023-08-16
                      Email alice@example
                                              Team meeting
                                                             0.858062949
                                                                           10.29675539
## 101
        2023-08-19
                      Email
                              @bob tweets
                                              Team meeting
                                                             0.855612874
                                                                           10.26735449
## 102
        2023-08-15 Twitter
                              @bob_tweets
                                              Team meeting
                                                             0.853966497
                                                                           10.24759796
## 103
        2023-08-20
                      Email alice@example
                                              Fun weekend!
                                                             0.851679420
                                                                           10.22015304
   104
##
        2023-08-08
                      Slack
                             @erin tweets
                                              Team meeting
                                                             0.849549761
                                                                           10.19459713
                              @bob_tweets Hello everyone!
## 105
        2023-08-19
                      Slack
                                                             0.679174718
                                                                           10.18762078
                              @bob_tweets
  106
                      Email
##
        2023-08-10
                                               Great work!
                                                             0.924440826
                                                                           10.16884909
## 107
        2023-08-01 Twitter alice@example Need assistance
                                                             0.676776995
                                                                           10.15165492
##
   108
        2023-08-07
                      Slack alice@example
                                              Fun weekend!
                                                             0.844455994
                                                                           10.13347192
  109
##
        2023-08-13
                      Slack
                               carol slack Hello everyone!
                                                             0.675182751
                                                                           10.12774126
## 110
        2023-08-08
                      Email alice@example Exciting news!
                                                             0.723251828
                                                                           10.12552560
```

```
carol_slack Need assistance
## 111
        2023-08-15
                      Slack
                                                             0.674294885
                                                                           10.11442328
## 112
        2023-08-05 Twitter alice@example
                                            Exciting news!
                                                             0.722319741
                                                                           10.11247638
## 113
        2023-08-10
                      Slack
                              @frank chat Hello everyone!
                                                             0.672468295
                                                                           10.08702442
## 114
        2023-08-02
                      Email
                             dave@example
                                            Exciting news!
                                                             0.717076284
                                                                           10.03906798
## 115
        2023-08-16
                      Slack alice@example Need assistance
                                                             0.669039086
                                                                           10.03558630
## 116
        2023-08-11 Twitter
                               carol slack
                                                Great work!
                                                             0.910158344
                                                                           10.01174178
## 117
        2023-08-09
                      Slack alice@example Need assistance
                                                             0.665302936
                                                                            9.97954403
## 118
        2023-08-06
                      Email
                             @erin_tweets Need assistance
                                                             0.664381829
                                                                            9.96572744
## 119
        2023-08-11
                      Email
                              @bob_tweets Hello everyone!
                                                             0.662486946
                                                                            9.93730419
## 120
        2023-08-09
                      Slack
                             dave@example Need assistance
                                                             0.662048494
                                                                            9.93072742
## 121
        2023-08-17
                      Email
                              @bob_tweets
                                               Fun weekend!
                                                             0.825692308
                                                                            9.90830769
## 122
                   Twitter alice@example
        2023-08-05
                                               Team meeting
                                                             0.824948560
                                                                            9.89938273
                              dave@example
## 123
        2023-08-11 Twitter
                                               Fun weekend!
                                                             0.824099663
                                                                            9.88919596
## 124
        2023-08-02
                      Slack alice@example
                                               Fun weekend!
                                                             0.823352248
                                                                            9.88022698
## 125
        2023-08-06
                      Email
                              @frank_chat
                                               Team meeting
                                                             0.819675826
                                                                            9.83610992
## 126
        2023-08-18 Twitter
                              @frank_chat
                                               Team meeting
                                                             0.818109252
                                                                            9.81731103
## 127
        2023-08-14
                      Email
                             @erin_tweets
                                                Great work!
                                                             0.891589128
                                                                            9.80748041
## 128
        2023-08-15
                      Slack
                              @frank chat
                                               Fun weekend!
                                                             0.816346027
                                                                            9.79615233
        2023-08-16 Twitter alice@example
                                            Exciting news!
## 129
                                                             0.696509592
                                                                            9.75113428
## 130
        2023-08-06
                      Email
                              @frank_chat
                                            Exciting news!
                                                             0.696377364
                                                                            9.74928310
##
   131
        2023-08-09
                    Twitter
                              @frank chat Hello everyone!
                                                             0.649366590
                                                                            9.74049885
## 132
        2023-08-03
                              @bob tweets
                      Slack
                                                Great work!
                                                              0.884830707
                                                                            9.73313778
## 133
        2023-08-12
                      Slack
                              carol_slack
                                                Great work!
                                                             0.874556832
                                                                            9.62012515
## 134
        2023-08-20 Twitter
                               carol_slack Hello everyone!
                                                              0.640248996
                                                                            9.60373494
##
   135
        2023-08-07
                      Slack
                              @bob tweets
                                                Great work!
                                                              0.872962321
                                                                            9.60258553
## 136
        2023-08-20
                      Slack alice@example
                                            Exciting news!
                                                             0.685212519
                                                                            9.59297527
## 137
        2023-08-16 Twitter
                              dave@example
                                               Team meeting
                                                             0.796688539
                                                                            9.56026246
## 138
        2023-08-04
                      Slack
                              dave@example
                                               Fun weekend!
                                                             0.796501584
                                                                            9.55801901
        2023-08-14 Twitter
                                                                            9.53507300
## 139
                              dave@example
                                                Great work!
                                                             0.866824818
## 140
                             @erin_tweets
        2023-08-10
                      Email
                                            Exciting news!
                                                             0.679597112
                                                                            9.51435957
## 141
        2023-08-06
                      Email
                              @frank_chat
                                               Fun weekend!
                                                             0.791513952
                                                                            9.49816742
## 142
        2023-08-14 Twitter
                              @bob_tweets
                                            Exciting news!
                                                             0.671785708
                                                                            9.40499991
## 143
        2023-08-01
                      Email
                              @bob_tweets
                                               Team meeting
                                                             0.783531986
                                                                            9.40238383
## 144
        2023-08-10
                      Slack 

                              @frank_chat Need assistance
                                                             0.626154714
                                                                            9.39232071
## 145
        2023-08-05 Twitter
                             dave@example
                                               Team meeting
                                                             0.779166287
                                                                            9.34999544
## 146
        2023-08-08
                      Email
                              @frank chat
                                               Team meeting
                                                             0.778342899
                                                                            9.34011479
##
  147
        2023-08-10
                                            Exciting news!
                      Email
                              @bob_tweets
                                                             0.664575256
                                                                            9.30405358
  148
                             dave@example
##
        2023-08-17 Twitter
                                               Fun weekend!
                                                             0.775130778
                                                                            9.30156934
## 149
        2023-08-12
                      Email alice@example
                                               Team meeting
                                                             0.774573303
                                                                            9.29487963
## 150
        2023-08-05
                      Email
                              @bob_tweets Hello everyone!
                                                             0.616259416
                                                                            9.24389124
                                                Great work!
##
  151
        2023-08-05
                             @erin_tweets
                                                                            9.13178963
                      Email
                                                             0.830162693
                                                             0.827052074
##
   152
        2023-08-16
                   Twitter
                              dave@example
                                                Great work!
                                                                            9.09757282
## 153
        2023-08-01
                      Email
                               carol slack
                                               Fun weekend!
                                                             0.757286296
                                                                            9.08743555
## 154
        2023-08-14
                      Slack
                             @erin tweets Hello everyone!
                                                             0.605556316
                                                                            9.08334474
##
  155
        2023-08-01
                      Slack
                              @frank_chat Need assistance
                                                             0.601800072
                                                                            9.02700109
##
   156
        2023-08-05
                    Twitter
                              @frank chat Hello everyone!
                                                             0.599585856
                                                                            8.99378784
##
  157
        2023-08-15 Twitter
                             @erin tweets Need assistance
                                                             0.599532404
                                                                            8.99298607
  158
        2023-08-01 Twitter
                              @frank chat Need assistance
                                                             0.599045397
##
                                                                            8.98568095
## 159
        2023-08-20
                      Slack
                              dave@example
                                                Great work!
                                                             0.814900840
                                                                            8.96390924
##
   160
        2023-08-09
                      Email
                              dave@example
                                               Team meeting
                                                             0.746085706
                                                                            8.95302847
## 161
        2023-08-13
                      Email
                            alice@example Need assistance
                                                             0.596431601
                                                                            8.94647402
   162
        2023-08-19 Twitter
                             @erin tweets
                                            Exciting news!
                                                                            8.94355174
##
                                                             0.638825124
##
  163
        2023-08-07
                      Slack
                              dave@example Hello everyone!
                                                             0.593321668
                                                                            8.89982501
##
   164
        2023-08-08
                      Slack
                             @erin tweets Need assistance
                                                             0.593302410
                                                                            8.89953615
##
  165
        2023-08-07
                   Twitter
                               carol slack
                                                Great work!
                                                              0.805481421
                                                                            8.86029563
## 166
        2023-08-10
                      Slack alice@example
                                                Great work!
                                                             0.804542714
                                                                            8.84996985
```

```
## 167
        2023-08-08
                      Email
                             @erin_tweets
                                              Fun weekend!
                                                             0.734125260
                                                                            8.80950312
##
  168
        2023-08-15 Twitter alice@example
                                               Great work!
                                                             0.798867194
                                                                            8.78753914
## 169
                              @frank chat Hello everyone!
        2023-08-03
                      Email
                                                             0.583445542
                                                                            8.75168314
##
  170
        2023-08-17 Twitter alice@example Hello everyone!
                                                             0.582868762
                                                                            8.74303143
## 171
        2023-08-20
                      Slack
                             dave@example Exciting news!
                                                             0.617734990
                                                                            8.64828986
        2023-08-11
## 172
                              @bob tweets Hello everyone!
                      Email
                                                             0.576369455
                                                                            8.64554183
## 173
        2023-08-03
                      Email
                             dave@example Hello everyone!
                                                             0.575844854
                                                                            8.63767281
## 174
        2023-08-08 Twitter
                              carol_slack
                                            Exciting news!
                                                             0.614791796
                                                                            8.60708514
## 175
        2023-08-11 Twitter
                              carol_slack
                                                Great work!
                                                             0.782265475
                                                                            8.60492022
## 176
        2023-08-06
                              carol_slack Need assistance
                                                             0.572155187
                                                                            8.58232781
                      Slack
## 177
        2023-08-05 Twitter
                               carol_slack
                                              Fun weekend!
                                                             0.706561523
                                                                            8.47873828
## 178
        2023-08-09 Twitter
                              @bob_tweets
                                            Exciting news!
                                                             0.605349668
                                                                            8.47489536
## 179
        2023-08-12 Twitter
                              carol_slack
                                              Team meeting
                                                             0.704733795
                                                                            8.45680553
## 180
        2023-08-06
                      Email
                              carol_slack
                                               Great work!
                                                             0.766328182
                                                                            8.42961000
## 181
        2023-08-05
                      Email
                               carol_slack Need assistance
                                                             0.558824511
                                                                            8.38236766
## 182
        2023-08-09
                      Email
                             dave@example
                                              Fun weekend!
                                                             0.698494015
                                                                            8.38192818
## 183
        2023-08-14
                      Email
                               carol slack
                                            Exciting news!
                                                             0.596924395
                                                                            8.35694153
## 184
        2023-08-09
                      Slack alice@example
                                              Fun weekend!
                                                             0.690391378
                                                                            8.28469654
## 185
        2023-08-03
                      Slack
                              @frank_chat
                                            Exciting news!
                                                             0.591279314
                                                                            8.27791040
## 186
        2023-08-10
                      Slack
                             dave@example
                                               Great work!
                                                             0.746216161
                                                                            8.20837777
##
   187
        2023-08-12
                      Email
                              @frank chat Need assistance
                                                             0.544408341
                                                                            8.16612512
## 188
        2023-08-02 Twitter
                             @erin tweets
                                            Exciting news!
                                                                            8.14179712
                                                             0.581556937
##
  189
        2023-08-08
                      Email
                              carol_slack
                                              Fun weekend!
                                                             0.670605208
                                                                            8.04726249
## 190
        2023-08-10
                      Email
                              @frank_chat Hello everyone!
                                                             0.535708998
                                                                            8.03563497
##
   191
        2023-08-04
                      Slack alice@example Need assistance
                                                             0.534302738
                                                                            8.01454106
                            alice@example Hello everyone!
## 192
        2023-08-12 Twitter
                                                             0.532433989
                                                                            7.98650983
## 193
        2023-08-01 Twitter
                              dave@example Hello everyone!
                                                             0.530999278
                                                                            7.96498917
## 194
        2023-08-03 Twitter alice@example Hello everyone!
                                                             0.530733542
                                                                            7.96100313
                              @frank chat
## 195
        2023-08-05
                      Email
                                            Exciting news!
                                                             0.567230823
                                                                            7.94123152
## 196
        2023-08-16
                      Slack
                              carol_slack Hello everyone!
                                                             0.529127310
                                                                            7.93690964
## 197
        2023-08-20 Twitter
                              @frank_chat
                                              Team meeting
                                                             0.659773430
                                                                            7.91728116
## 198
        2023-08-12
                      Slack
                             dave@example
                                           Exciting news!
                                                             0.563268560
                                                                            7.88575985
## 199
        2023-08-01 Twitter
                             @erin_tweets Hello everyone!
                                                             0.524320859
                                                                            7.86481288
##
  200
        2023-08-08
                      Email
                              carol_slack
                                                Great work!
                                                             0.710615378
                                                                            7.81676916
##
  201
        2023-08-20
                      Slack
                              @bob_tweets Hello everyone!
                                                             0.520647362
                                                                            7.80971044
## 202
        2023-08-12
                      Email
                              dave@example
                                              Fun weekend!
                                                             0.650773503
                                                                            7.80928203
##
   203
        2023-08-17
                             @erin_tweets
                      Email
                                               Great work!
                                                             0.709753431
                                                                            7.80728775
   204
##
        2023-08-12 Twitter
                             @erin_tweets
                                              Team meeting
                                                             0.650313874
                                                                            7.80376649
##
  205
        2023-08-05
                      Slack
                             @erin_tweets Need assistance
                                                             0.519475343
                                                                            7.79213014
        2023-08-13
                                                                            7.74409168
## 206
                      Email
                              @bob_tweets
                                            Exciting news!
                                                             0.553149406
##
   207
        2023-08-05
                             @erin_tweets
                                            Exciting news!
                      Email
                                                             0.549038415
                                                                            7.68653781
##
   208
        2023-08-10
                      Email alice@example
                                               Great work!
                                                             0.693037350
                                                                            7.62341085
##
   209
        2023-08-11 Twitter
                              @frank_chat
                                              Team meeting
                                                             0.629940747
                                                                            7.55928896
## 210
        2023-08-20
                      Email
                              carol_slack
                                                Great work!
                                                             0.680826971
                                                                            7.48909668
##
  211
        2023-08-14
                      Email
                              @bob_tweets Hello everyone!
                                                             0.498191035
                                                                            7.47286552
##
  212
        2023-08-10
                      Slack
                             dave@example
                                            Exciting news!
                                                             0.532747218
                                                                            7.45846105
## 213
        2023-08-03
                      Slack
                              @bob tweets Need assistance
                                                             0.496275815
                                                                            7.44413722
##
  214
        2023-08-03
                             dave@example
                                                             0.675534202
                                                                            7.43087622
                      Slack
                                                Great work!
## 215
        2023-08-05 Twitter
                             @erin_tweets
                                              Fun weekend!
                                                             0.619198539
                                                                            7.43038247
##
   216
        2023-08-20
                      Email
                              dave@example
                                              Team meeting
                                                             0.617879979
                                                                            7.41455975
## 217
        2023-08-08
                            alice@example
                                            Exciting news!
                                                             0.529548995
                                                                            7.41368593
                      Email
  218
        2023-08-06
                      Email
                              dave@example Need assistance
##
                                                             0.492307736
                                                                            7.38461604
## 219
        2023-08-14
                      Slack
                              dave@example Hello everyone!
                                                             0.491653796
                                                                            7.37480694
##
   220
        2023-08-05
                      Email
                              @frank chat
                                              Team meeting
                                                             0.611721705
                                                                            7.34066046
  221
##
        2023-08-03
                      Email
                              @frank chat Hello everyone!
                                                             0.488557915
                                                                            7.32836872
## 222
        2023-08-19
                      Slack
                              @bob_tweets Hello everyone!
                                                             0.487545231
                                                                            7.31317846
```

```
## 223
        2023-08-12
                      Slack
                               carol_slack
                                               Fun weekend!
                                                              0.608656868
                                                                             7.30388241
##
  224
        2023-08-16
                      Slack
                              dave@example Need assistance
                                                              0.484403751
                                                                             7.26605626
## 225
        2023-08-20
                      Slack
                              @erin tweets
                                               Fun weekend!
                                                              0.604609676
                                                                             7.25531611
##
   226
        2023-08-20 Twitter alice@example Hello everyone!
                                                              0.482187657
                                                                             7.23281485
## 227
        2023-08-19
                    Twitter
                               @frank_chat Need assistance
                                                              0.481529109
                                                                             7.22293664
## 228
                      Slack alice@example
        2023-08-17
                                                Great work!
                                                              0.652192219
                                                                             7.17411441
## 229
        2023-08-03 Twitter
                               carol_slack
                                                Great work!
                                                              0.646422371
                                                                             7.11064608
                               @bob_tweets
##
  230
        2023-08-18
                    Twitter
                                               Fun weekend!
                                                              0.590919483
                                                                             7.09103379
## 231
        2023-08-07
                      Email
                               @bob_tweets
                                                Great work!
                                                              0.642848774
                                                                             7.07133651
## 232
        2023-08-19
                      Slack alice@example
                                            Exciting news!
                                                              0.502961815
                                                                             7.04146541
## 233
        2023-08-12 Twitter alice@example
                                               Team meeting
                                                              0.582250814
                                                                             6.98700977
##
                               @bob_tweets
                                                              0.497974098
  234
        2023-08-18
                      Email
                                            Exciting news!
                                                                             6.97163737
                               carol_slack
## 235
        2023-08-19 Twitter
                                               Team meeting
                                                              0.578111817
                                                                             6.93734181
## 236
        2023-08-07
                      Slack alice@example
                                               Team meeting
                                                              0.569526526
                                                                             6.83431831
## 237
        2023-08-12
                      Slack alice@example Need assistance
                                                              0.454688824
                                                                             6.82033236
## 238
        2023-08-14 Twitter
                               @bob_tweets
                                               Fun weekend!
                                                              0.567614020
                                                                             6.81136824
## 239
        2023-08-18
                      Slack
                               @bob tweets
                                               Fun weekend!
                                                              0.567603516
                                                                             6.81124220
## 240
        2023-08-18
                      Email
                               @bob_tweets Need assistance
                                                              0.453627230
                                                                             6.80440845
## 241
        2023-08-02 Twitter
                               carol_slack Hello everyone!
                                                              0.450987421
                                                                             6.76481131
## 242
        2023-08-14
                      Slack
                               @bob_tweets Hello everyone!
                                                              0.450289166
                                                                             6.75433748
##
   243
        2023-08-20
                      Email
                               @frank chat
                                               Team meeting
                                                              0.560076173
                                                                             6.72091408
## 244
        2023-08-16
                      Slack alice@example Need assistance
                                                              0.445466304
                                                                             6.68199456
##
   245
        2023-08-20
                      Slack
                               @frank_chat
                                                Great work!
                                                              0.606102686
                                                                             6.66712955
##
  246
        2023-08-01
                      Email
                               carol_slack
                                                Great work!
                                                              0.605523043
                                                                             6.66075348
##
   247
        2023-08-13
                      Slack
                               carol_slack
                                            Exciting news!
                                                              0.474910577
                                                                             6.64874808
  248
##
        2023-08-05
                      Email
                               carol_slack
                                             Exciting news!
                                                              0.468174768
                                                                             6.55444675
##
   249
        2023-08-07 Twitter
                              dave@example
                                             Exciting news!
                                                              0.466239469
                                                                             6.52735257
## 250
        2023-08-09
                      Slack
                              @erin_tweets
                                               Fun weekend!
                                                              0.542777083
                                                                             6.51332500
##
   251
        2023-08-13
                      Email alice@example Hello everyone!
                                                              0.433930994
                                                                             6.50896490
## 252
                      Slack alice@example
        2023-08-03
                                               Fun weekend!
                                                              0.542070733
                                                                             6.50484880
## 253
        2023-08-16
                      Slack
                              dave@example
                                            Exciting news!
                                                              0.461496073
                                                                             6.46094502
##
  254
        2023-08-15
                      Email
                               @frank_chat
                                               Fun weekend!
                                                              0.535877908
                                                                             6.43053489
   255
                                                Great work!
##
        2023-08-07
                      Slack alice@example
                                                              0.580541194
                                                                             6.38595314
   256
                               @bob_tweets
                                                              0.526457346
##
        2023-08-09 Twitter
                                               Team meeting
                                                                             6.31748815
##
   257
        2023-08-19 Twitter
                               @bob_tweets Hello everyone!
                                                              0.420571170
                                                                             6.30856755
## 258
        2023-08-09
                      Slack
                              @erin tweets
                                               Fun weekend!
                                                              0.525517232
                                                                             6.30620678
##
   259
        2023-08-19
                      Email
                             @erin_tweets
                                                Great work!
                                                              0.570171806
                                                                             6.27188987
##
   260
        2023-08-12
                      Slack
                               @frank_chat
                                               Fun weekend!
                                                              0.519153008
                                                                             6.22983610
##
   261
        2023-08-15
                      Email
                               carol slack Need assistance
                                                              0.414960733
                                                                             6.22441100
                                            Exciting news!
## 262
        2023-08-13
                      Slack
                               @frank_chat
                                                              0.443950114
                                                                             6.21530160
   263
##
        2023-08-08
                               @bob_tweets
                    Twitter
                                                Great work!
                                                              0.564973874
                                                                             6.21471261
##
   264
        2023-08-09
                      Email
                              @erin_tweets
                                               Fun weekend!
                                                              0.513564137
                                                                             6.16276965
##
   265
        2023-08-13 Twitter
                               @bob_tweets Need assistance
                                                              0.408644735
                                                                             6.12967103
##
   266
        2023-08-08 Twitter alice@example
                                                Great work!
                                                              0.552484959
                                                                             6.07733455
##
   267
        2023-08-13
                      Email
                              dave@example
                                                Great work!
                                                              0.550955762
                                                                             6.06051338
##
   268
        2023-08-12
                      Slack
                               carol slack
                                               Team meeting
                                                              0.504667453
                                                                             6.05600943
##
   269
        2023-08-03 Twitter
                               @bob tweets Hello everyone!
                                                              0.401231622
                                                                             6.01847433
##
   270
        2023-08-09
                      Slack
                               @bob_tweets
                                               Team meeting
                                                              0.500293179
                                                                             6.00351815
## 271
        2023-08-14 Twitter
                               @frank_chat
                                               Team meeting
                                                              0.499737595
                                                                             5.99685114
##
   272
        2023-08-05 Twitter
                              dave@example
                                                Great work!
                                                              0.544805384
                                                                             5.99285923
## 273
        2023-08-20 Twitter
                                                Great work!
                                                              0.544291852
                                                                             5.98721037
                               carol_slack
   274
        2023-08-15 Twitter
                                                                             5.97950716
##
                               carol slack
                                               Team meeting
                                                              0.498292263
## 275
        2023-08-13
                      Email
                              @erin_tweets
                                               Fun weekend!
                                                              0.496487776
                                                                             5.95785331
##
   276
        2023-08-01 Twitter
                              @erin tweets
                                             Exciting news!
                                                              0.423581860
                                                                             5.93014603
   277
##
        2023-08-15
                      Slack
                               @bob_tweets
                                             Exciting news!
                                                              0.423514269
                                                                             5.92919976
## 278
        2023-08-14
                      Slack
                              dave@example
                                                Great work!
                                                              0.538406652
                                                                             5.92247317
```

```
## 279
                      Email alice@example
                                            Exciting news!
        2023-08-18
                                                              0.422912350
                                                                             5.92077291
##
   280
        2023-08-10
                      Email
                               @frank chat
                                                Great work!
                                                              0.533465849
                                                                             5.86812434
## 281
        2023-08-08 Twitter
                               @frank chat
                                               Fun weekend!
                                                              0.484796492
                                                                             5.81755790
##
   282
        2023-08-14
                    Twitter alice@example
                                             Exciting news!
                                                              0.415267176
                                                                             5.81374047
   283
        2023-08-15
                      Email
                               @frank_chat Need assistance
                                                              0.385732211
                                                                             5.78598316
##
##
   284
        2023-08-15 Twitter
                               @frank chat Hello everyone!
                                                              0.384222084
                                                                             5.76333126
## 285
        2023-08-19 Twitter
                               @bob_tweets
                                                Great work!
                                                              0.521462946
                                                                             5.73609240
##
   286
        2023-08-14 Twitter
                              dave@example
                                               Fun weekend!
                                                              0.474564350
                                                                             5.69477220
   287
                              dave@example
##
        2023-08-02 Twitter
                                                Great work!
                                                              0.516138048
                                                                             5.67751853
##
   288
        2023-08-13 Twitter
                              @erin_tweets
                                                Great work!
                                                              0.515643027
                                                                             5.67207329
## 289
                                                              0.469535301
        2023-08-15 Twitter
                              dave@example
                                               Fun weekend!
                                                                             5.63442361
##
   290
                             alice@example
        2023-08-19
                      Email
                                             Exciting news!
                                                              0.401543677
                                                                             5.62161148
   291
                              dave@example
##
        2023-08-11
                      Fmail
                                                Great work!
                                                              0.509797142
                                                                             5.60776857
## 292
        2023-08-15 Twitter
                               @bob_tweets Need assistance
                                                              0.373691486
                                                                             5.60537229
## 293
        2023-08-04 Twitter
                              dave@example
                                               Fun weekend!
                                                              0.463157478
                                                                             5.55788974
## 294
        2023-08-03
                      Slack
                               @frank_chat Hello everyone!
                                                              0.368215033
                                                                             5.52322549
##
   295
        2023-08-15
                      Slack
                              @erin tweets
                                               Team meeting
                                                              0.457860831
                                                                             5.49432997
## 296
        2023-08-19 Twitter
                               @frank_chat
                                            Exciting news!
                                                              0.388266448
                                                                             5.43573027
## 297
        2023-08-05
                      Email
                               carol_slack
                                               Fun weekend!
                                                              0.451752027
                                                                             5.42102432
## 298
        2023-08-14
                      Email
                               carol_slack
                                               Fun weekend!
                                                              0.446355308
                                                                             5.35626370
##
   299
        2023-08-13
                      Slack alice@example
                                                Great work!
                                                              0.480868685
                                                                             5.28955554
##
   300
        2023-08-12
                      Email
                              dave@example
                                                              0.480317921
                                                Great work!
                                                                             5.28349713
##
   301
        2023-08-16
                      Slack
                              dave@example
                                               Fun weekend!
                                                              0.438361928
                                                                             5.26034314
##
   302
        2023-08-01 Twitter
                               @frank_chat
                                                Great work!
                                                              0.473425272
                                                                             5.20767800
##
   303
        2023-08-07
                      Slack
                               @bob tweets
                                             Exciting news!
                                                              0.370947586
                                                                             5.19326621
   304
##
        2023-08-09
                      Slack
                               carol_slack Hello everyone!
                                                              0.346090994
                                                                             5.19136491
##
   305
        2023-08-05
                      Slack
                               carol_slack
                                                Great work!
                                                              0.470731148
                                                                             5.17804263
##
   306
        2023-08-15 Twitter
                               @frank chat Need assistance
                                                              0.344264537
                                                                             5.16396806
   307
##
        2023-08-16
                      Email
                               @frank chat Need assistance
                                                              0.343977793
                                                                             5.15966690
   308
                              @erin_tweets
##
        2023-08-14 Twitter
                                                Great work!
                                                              0.468599080
                                                                             5.15458988
## 309
        2023-08-13 Twitter
                               @frank_chat
                                            Exciting news!
                                                              0.368110256
                                                                             5.15354359
   310
##
        2023-08-15
                      Email
                               @bob_tweets
                                                Great work!
                                                              0.468266435
                                                                             5.15093079
##
   311
        2023-08-02
                      Slack
                               @bob_tweets
                                            Exciting news!
                                                              0.365244868
                                                                             5.11342815
## 312
                                                              0.425960287
        2023-08-10
                      Slack alice@example
                                               Team meeting
                                                                             5.11152345
## 313
        2023-08-19
                      Email
                               @frank_chat
                                                Great work!
                                                              0.463513046
                                                                             5.09864350
## 314
        2023-08-13
                      Slack
                               carol slack
                                                Great work!
                                                              0.460303653
                                                                             5.06334018
##
   315
        2023-08-17
                              dave@example
                                               Fun weekend!
                      Email
                                                              0.420022254
                                                                             5.04026705
   316
                               @bob_tweets
##
        2023-08-04
                      Email
                                               Fun weekend!
                                                              0.419715998
                                                                             5.03659197
## 317
        2023-08-13
                      Email
                              @erin_tweets
                                               Fun weekend!
                                                              0.418006041
                                                                             5.01607249
                               @bob_tweets Need assistance
                                                                             4.95161911
## 318
        2023-08-14
                      Email
                                                              0.330107941
##
   319
        2023-08-01
                      Slack alice@example
                                             Exciting news!
                                                              0.350437745
                                                                             4.90612843
##
   320
        2023-08-18
                      Slack
                               @bob_tweets
                                               Team meeting
                                                              0.403409261
                                                                             4.84091114
##
   321
        2023-08-16
                      Email
                               @frank_chat
                                               Fun weekend!
                                                              0.402509230
                                                                             4.83011076
## 322
        2023-08-15 Twitter
                              dave@example
                                                Great work!
                                                              0.435108419
                                                                             4.78619261
## 323
        2023-08-07
                      Slack alice@example
                                               Fun weekend!
                                                              0.397376804
                                                                             4.76852165
##
   324
        2023-08-09
                    Twitter alice@example
                                                Great work!
                                                              0.432502551
                                                                             4.75752807
## 325
        2023-08-11
                      Slack
                               @frank chat
                                                Great work!
                                                              0.431652104
                                                                             4.74817314
                               carol_slack
##
   326
        2023-08-06 Twitter
                                               Fun weekend!
                                                              0.394200163
                                                                             4.73040196
## 327
        2023-08-14
                      Slack
                              @erin_tweets
                                            Exciting news!
                                                              0.336964048
                                                                             4.71749668
   328
##
        2023-08-07
                      Email
                               @frank chat
                                               Fun weekend!
                                                              0.387379609
                                                                             4.64855530
##
   329
        2023-08-10 Twitter
                              @erin tweets
                                               Team meeting
                                                              0.384202328
                                                                             4.61042793
   330
                      Email
                               @frank_chat
                                               Fun weekend!
##
        2023-08-18
                                                              0.380196611
                                                                             4.56235933
## 331
        2023-08-08
                      Email
                              @erin_tweets
                                               Fun weekend!
                                                              0.378708432
                                                                             4.54450119
##
   332
        2023-08-19
                      Email
                              dave@example
                                             Exciting news!
                                                              0.324592507
                                                                             4.54429509
   333
##
        2023-08-05
                      Email
                               carol slack Need assistance
                                                              0.300882405
                                                                             4.51323607
## 334
        2023-08-17 Twitter
                              @erin_tweets Hello everyone!
                                                              0.299843722
                                                                             4.49765583
```

```
Slack alice@example
                                            Exciting news!
## 335
        2023-08-16
                                                              0.320830711
                                                                            4.49162996
                              @erin tweets Need assistance
## 336
        2023-08-12 Twitter
                                                              0.298994374
                                                                             4.48491562
## 337
        2023-08-12 Twitter
                               carol slack
                                                Great work!
                                                              0.407506729
                                                                             4.48257402
##
  338
        2023-08-01 Twitter
                               carol slack
                                                Great work!
                                                              0.406890230
                                                                             4.47579253
## 339
        2023-08-17 Twitter
                              @bob_tweets
                                                Great work!
                                                              0.401612313
                                                                            4.41773544
                               carol slack
## 340
        2023-08-05 Twitter
                                               Team meeting
                                                              0.364639959
                                                                             4.37567951
## 341
        2023-08-05
                      Slack
                              @bob_tweets Need assistance
                                                              0.291605130
                                                                            4.37407695
##
  342
        2023-08-20
                   Twitter alice@example
                                            Exciting news!
                                                              0.310656996
                                                                             4.34919794
                      Email alice@example
                                            Exciting news!
##
  343
        2023-08-04
                                                              0.308247630
                                                                            4.31546681
## 344
        2023-08-20 Twitter
                              @frank_chat
                                            Exciting news!
                                                              0.307898677
                                                                            4.31058148
## 345
        2023-08-16
                      Email
                              @frank_chat
                                            Exciting news!
                                                              0.305391626
                                                                            4.27548276
##
  346
                      Email
                              carol_slack
        2023-08-11
                                               Fun weekend!
                                                              0.355941510
                                                                            4.27129812
                              @erin_tweets
##
   347
        2023-08-18
                      Slack
                                               Team meeting
                                                              0.353438236
                                                                            4.24125884
## 348
        2023-08-15
                      Email
                              dave@example Hello everyone!
                                                              0.282330315
                                                                            4.23495473
                                                                            4.22246316
## 349
        2023-08-12
                      Email alice@example
                                                Great work!
                                                              0.383860287
## 350
        2023-08-10
                      Slack
                              @bob_tweets Need assistance
                                                              0.279333149
                                                                            4.18999723
## 351
        2023-08-12 Twitter
                              dave@example Hello everyone!
                                                              0.278570379
                                                                            4.17855568
## 352
        2023-08-05
                      Email alice@example
                                               Fun weekend!
                                                              0.347548683
                                                                            4.17058419
## 353
        2023-08-10 Twitter
                              @bob_tweets
                                               Fun weekend!
                                                              0.346377916
                                                                            4.15653499
## 354
        2023-08-15
                   Twitter
                              dave@example
                                               Fun weekend!
                                                              0.345517721
                                                                             4.14621265
##
   355
        2023-08-18
                      Email alice@example Need assistance
                                                              0.275121063
                                                                            4.12681595
   356
        2023-08-18
                                               Team meeting
##
                      Email
                               carol slack
                                                              0.343653605
                                                                            4.12384326
##
   357
        2023-08-20 Twitter
                              @erin_tweets
                                               Team meeting
                                                              0.341763970
                                                                            4.10116764
##
   358
        2023-08-18 Twitter
                              @bob_tweets
                                            Exciting news!
                                                              0.290797958
                                                                             4.07117141
##
   359
        2023-08-08
                      Email
                              @frank chat
                                                Great work!
                                                              0.362224979
                                                                             3.98447477
##
  360
        2023-08-16
                      Email alice@example
                                                Great work!
                                                              0.360768258
                                                                             3.96845084
##
   361
        2023-08-13
                      Email
                               @bob_tweets Hello everyone!
                                                              0.264306294
                                                                             3.96459441
## 362
        2023-08-07
                      Email
                              dave@example
                                               Team meeting
                                                              0.327507946
                                                                             3.93009535
                              @erin tweets
                                            Exciting news!
##
   363
        2023-08-10 Twitter
                                                              0.275836162
                                                                             3.86170627
##
   364
        2023-08-14 Twitter alice@example
                                                Great work!
                                                              0.346799491
                                                                             3.81479440
## 365
        2023-08-19 Twitter
                               carol_slack
                                               Team meeting
                                                              0.317846402
                                                                             3.81415682
##
   366
        2023-08-07
                      Slack
                              @bob_tweets Need assistance
                                                              0.251102221
                                                                             3.76653332
   367
        2023-08-14 Twitter
                              @bob_tweets Hello everyone!
##
                                                              0.250149151
                                                                             3.75223726
                      Email alice@example
##
   368
        2023-08-03
                                               Fun weekend!
                                                              0.312383833
                                                                             3.74860600
##
   369
        2023-08-11
                      Slack
                              @frank_chat
                                               Fun weekend!
                                                              0.312006338
                                                                             3.74407606
        2023-08-03
##
  370
                      Email
                               carol_slack Need assistance
                                                                             3.70854033
                                                              0.247236022
##
   371
        2023-08-14
                      Email
                              dave@example
                                               Fun weekend!
                                                              0.304697359
                                                                             3.65636831
   372
                              @bob_tweets
##
        2023-08-11 Twitter
                                            Exciting news!
                                                              0.260118117
                                                                             3.64165363
## 373
        2023-08-11
                      Slack
                              @frank chat Need assistance
                                                              0.235724795
                                                                             3.53587192
## 374
        2023-08-07
                      Email
                              @bob_tweets
                                            Exciting news!
                                                              0.244900235
                                                                             3.42860330
   375
##
                               carol_slack
        2023-08-16
                      Email
                                                Great work!
                                                              0.306993762
                                                                             3.37693138
##
   376
        2023-08-20 Twitter alice@example
                                               Fun weekend!
                                                              0.280627117
                                                                            3.36752540
##
  377
        2023-08-08 Twitter alice@example Hello everyone!
                                                              0.223401716
                                                                             3.35102573
## 378
        2023-08-19
                      Email alice@example
                                                Great work!
                                                              0.301563812
                                                                             3.31720194
##
  379
        2023-08-15
                      Slack alice@example
                                               Fun weekend!
                                                              0.271711212
                                                                             3.26053455
   380
##
        2023-08-02 Twitter
                               carol slack Need assistance
                                                              0.215954025
                                                                             3.23931037
##
  381
        2023-08-16
                      Slack
                              @frank chat
                                               Fun weekend!
                                                              0.269629325
                                                                             3.23555190
##
   382
        2023-08-09
                              @erin_tweets
                                               Team meeting
                      Slack
                                                              0.268132484
                                                                             3.21758980
##
  383
        2023-08-12 Twitter
                              @bob_tweets
                                               Team meeting
                                                              0.265132846
                                                                             3.18159415
   384
##
        2023-08-18 Twitter
                               carol slack
                                            Exciting news!
                                                              0.222249684
                                                                             3.11149558
##
   385
        2023-08-10 Twitter
                              @erin tweets
                                                Great work!
                                                              0.282790715
                                                                             3.11069786
   386
        2023-08-19 Twitter
                              @frank_chat
                                            Exciting news!
##
                                                              0.221380584
                                                                             3.09932818
##
   387
        2023-08-20
                      Slack
                               carol_slack
                                            Exciting news!
                                                              0.221250645
                                                                             3.09750903
##
   388
        2023-08-12
                      Email alice@example
                                               Team meeting
                                                              0.255163795
                                                                             3.06196554
   389
##
        2023-08-10
                      Email
                              @bob_tweets
                                               Team meeting
                                                              0.253805156
                                                                             3.04566188
## 390
        2023-08-10 Twitter
                               carol_slack
                                               Great work!
                                                              0.268422757
                                                                             2.95265032
```

```
2023-08-10 Twitter alice@example
## 391
                                                Great work!
                                                             0.266619468
                                                                             2.93281415
## 392
                              @bob tweets
        2023-08-05
                      Email
                                               Team meeting
                                                             0.243233590
                                                                             2.91880308
## 393
        2023-08-04
                      Email
                              @frank_chat
                                                Great work!
                                                             0.263225980
                                                                             2.89548578
##
  394
        2023-08-09
                      Email
                             @erin_tweets
                                               Fun weekend!
                                                             0.237909144
                                                                             2.85490973
## 395
        2023-08-20 Twitter
                              @bob_tweets
                                               Fun weekend!
                                                             0.236553716
                                                                             2.83864459
## 396
        2023-08-04
                              carol slack Need assistance
                                                             0.188933107
                      Email
                                                                             2.83399661
## 397
        2023-08-14
                      Slack
                              @frank_chat Need assistance
                                                             0.187954018
                                                                             2.81931028
  398
                      Email alice@example
##
        2023-08-18
                                               Fun weekend!
                                                             0.233402089
                                                                             2.80082507
## 399
                               carol_slack
        2023-08-08 Twitter
                                               Fun weekend!
                                                             0.232626481
                                                                             2.79151777
## 400
        2023-08-20
                      Slack
                               carol_slack
                                               Fun weekend!
                                                             0.231915887
                                                                             2.78299064
## 401
        2023-08-09 Twitter alice@example Hello everyone!
                                                             0.184942272
                                                                             2.77413409
## 402
                              dave@example
        2023-08-09
                      Slack
                                               Fun weekend!
                                                             0.229193896
                                                                             2.75032675
## 403
                              @bob_tweets
        2023-08-12 Twitter
                                               Fun weekend!
                                                             0.226440192
                                                                             2.71728230
## 404
        2023-08-12
                      Slack alice@example
                                               Fun weekend!
                                                             0.226010282
                                                                             2.71212338
                                                Great work!
## 405
        2023-08-05 Twitter
                              dave@example
                                                             0.245927144
                                                                             2.70519859
## 406
        2023-08-19
                      Email
                              @frank_chat Hello everyone!
                                                             0.179850068
                                                                             2.69775102
## 407
        2023-08-01
                      Slack
                             @erin tweets
                                                Great work!
                                                             0.244422906
                                                                             2.68865196
## 408
        2023-08-07
                      Slack
                               carol slack
                                            Exciting news!
                                                             0.186763622
                                                                             2.61469071
## 409
        2023-08-02 Twitter
                               carol_slack Hello everyone!
                                                             0.173851238
                                                                             2.60776856
## 410
                              @erin_tweets Need assistance
        2023-08-18
                      Email
                                                             0.171319252
                                                                             2.56978878
## 411
        2023-08-08
                      Email
                               carol slack
                                               Team meeting
                                                             0.213498762
                                                                             2.56198514
## 412
        2023-08-02 Twitter alice@example
                                                             0.210089974
                                               Team meeting
                                                                             2.52107969
## 413
        2023-08-04
                      Slack
                               @frank_chat Need assistance
                                                             0.165087673
                                                                             2.47631510
## 414
        2023-08-08
                      Email alice@example
                                                Great work!
                                                             0.222402995
                                                                             2.44643294
## 415
        2023-08-01
                      Email
                              @erin tweets
                                               Fun weekend!
                                                              0.203746784
                                                                             2.44496141
## 416
        2023-08-04
                      Email alice@example Hello everyone!
                                                              0.161035733
                                                                             2.41553600
## 417
        2023-08-06
                      Email
                               @bob_tweets
                                               Fun weekend!
                                                             0.201027735
                                                                             2.41233282
## 418
        2023-08-02 Twitter alice@example Need assistance
                                                             0.157653404
                                                                             2.36480107
## 419
                              @frank_chat
        2023-08-10
                    Twitter
                                                Great work!
                                                             0.214199054
                                                                             2.35618959
## 420
                              @bob_tweets
        2023-08-18
                      Slack
                                               Team meeting
                                                             0.192284770
                                                                             2.30741724
## 421
        2023-08-07
                      Email
                              @frank_chat
                                               Team meeting
                                                             0.192018484
                                                                             2.30422181
## 422
        2023-08-08 Twitter
                              @erin_tweets
                                               Fun weekend!
                                                             0.191519982
                                                                             2.29823979
        2023-08-07
## 423
                               carol_slack
                      Slack
                                               Team meeting
                                                             0.190247875
                                                                             2.28297450
## 424
        2023-08-20
                      Slack 

                              @bob_tweets
                                                Great work!
                                                             0.203791809
                                                                             2.24170990
## 425
        2023-08-01 Twitter
                              @bob_tweets Need assistance
                                                             0.148395223
                                                                             2.22592835
        2023-08-04 Twitter
                                                                             2.22011119
## 426
                              @bob tweets
                                               Fun weekend!
                                                             0.185009266
## 427
        2023-08-14 Twitter alice@example
                                            Exciting news!
                                                             0.157755047
                                                                             2.20857066
## 428
                              @erin_tweets
        2023-08-10 Twitter
                                                Great work!
                                                             0.199771451
                                                                             2.19748596
## 429
        2023-08-19 Twitter alice@example Need assistance
                                                             0.143810244
                                                                             2.15715366
                              dave@example
## 430
        2023-08-12 Twitter
                                                Great work!
                                                             0.195303030
                                                                             2.14833333
                                            Exciting news!
## 431
        2023-08-15
                   Twitter alice@example
                                                             0.153143482
                                                                             2.14400875
## 432
        2023-08-10
                      Slack
                              @frank_chat Hello everyone!
                                                             0.142070077
                                                                             2.13105116
## 433
        2023-08-15
                      Email alice@example
                                               Team meeting
                                                             0.176413531
                                                                             2.11696237
## 434
        2023-08-14
                      Slack
                              @erin_tweets Need assistance
                                                             0.141076977
                                                                             2.11615465
                      Slack
## 435
        2023-08-08
                             @erin_tweets
                                               Fun weekend!
                                                             0.172925062
                                                                             2.07510074
## 436
        2023-08-17 Twitter
                               carol slack
                                               Fun weekend!
                                                             0.172285239
                                                                             2.06742287
## 437
        2023-08-01
                      Slack
                              @bob tweets
                                            Exciting news!
                                                             0.146396939
                                                                             2.04955714
## 438
        2023-08-03
                      Slack alice@example Need assistance
                                                             0.135939530
                                                                             2.03909295
## 439
        2023-08-17
                      Slack
                               carol_slack
                                               Fun weekend!
                                                             0.169502832
                                                                             2.03403399
## 440
        2023-08-10
                    Twitter
                              @erin tweets
                                                Great work!
                                                             0.181200765
                                                                             1.99320841
## 441
        2023-08-06 Twitter
                              dave@example
                                               Team meeting
                                                             0.165403601
                                                                             1.98484321
## 442
        2023-08-04 Twitter
                              @bob_tweets
                                               Fun weekend!
                                                                             1.96577073
                                                             0.163814227
## 443
        2023-08-05 Twitter
                               carol_slack Hello everyone!
                                                              0.130742100
                                                                             1.96113150
## 444
        2023-08-07
                      Slack
                              @bob tweets
                                                Great work!
                                                             0.170066014
                                                                             1.87072615
## 445
        2023-08-20
                    Twitter
                              @erin tweets
                                            Exciting news!
                                                              0.131818828
                                                                             1.84546359
## 446
        2023-08-18
                      Email
                               carol_slack Need assistance
                                                             0.121493359
                                                                             1.82240039
```

```
Email alice@example Need assistance
## 447
        2023-08-12
                                                              0.120129855
                                                                             1.80194782
## 448
        2023-08-13 Twitter alice@example Need assistance
                                                              0.119616441
                                                                             1.79424661
## 449
        2023-08-19
                      Email
                              @erin tweets
                                               Fun weekend!
                                                              0.149510738
                                                                             1.79412886
## 450
        2023-08-11
                      Email
                              dave@example
                                               Team meeting
                                                              0.146319367
                                                                             1.75583241
## 451
        2023-08-18 Twitter
                              @erin_tweets Need assistance
                                                              0.116931847
                                                                             1.75397770
## 452
                              @frank chat
        2023-08-01 Twitter
                                                Great work!
                                                              0.159243134
                                                                             1.75167448
## 453
        2023-08-06 Twitter
                              @bob_tweets Hello everyone!
                                                              0.116596443
                                                                             1.74894664
        2023-08-03 Twitter
## 454
                              @bob_tweets Need assistance
                                                              0.115823371
                                                                             1.73735056
## 455
        2023-08-08
                              @bob_tweets Need assistance
                                                              0.115187556
                                                                             1.72781333
                      Email
## 456
        2023-08-16 Twitter
                              @erin_tweets
                                                              0.150156671
                                                                             1.65172338
                                                Great work!
## 457
                                                              0.129630754
        2023-08-02
                      Fmail
                              @frank_chat
                                               Fun weekend!
                                                                             1.55556905
## 458
        2023-08-11 Twitter
                              dave@example
                                               Fun weekend!
                                                              0.124404418
                                                                             1.49285301
## 459
        2023-08-16
                      Slack 1 4 1
                              @bob_tweets
                                               Team meeting
                                                              0.120248223
                                                                             1.44297867
## 460
        2023-08-12
                      Email
                              dave@example Need assistance
                                                              0.091942075
                                                                            1.37913112
## 461
        2023-08-05 Twitter
                              @bob tweets Need assistance
                                                              0.089429019
                                                                             1.34143528
## 462
        2023-08-04
                      Slack
                               carol_slack Need assistance
                                                              0.088740259
                                                                             1.33110389
## 463
        2023-08-15
                      Email
                              @frank chat
                                                Great work!
                                                              0.120376800
                                                                            1.32414480
                              @erin_tweets Need assistance
## 464
        2023-08-10
                      Slack
                                                              0.086844633
                                                                            1.30266949
## 465
        2023-08-08
                      Email
                              dave@example Need assistance
                                                              0.084778340
                                                                             1.27167510
## 466
        2023-08-18 Twitter
                              @bob_tweets Need assistance
                                                              0.083397951
                                                                             1.25096926
##
  467
        2023-08-09
                    Twitter
                            alice@example Need assistance
                                                              0.083300223
                                                                             1.24950334
## 468
        2023-08-03
                      Email
                              @erin tweets
                                               Team meeting
                                                              0.100578078
                                                                             1.20693694
## 469
        2023-08-08
                      Slack
                              @erin_tweets
                                            Exciting news!
                                                              0.085280708
                                                                             1.19392991
## 470
        2023-08-07
                      Slack
                              @erin_tweets Hello everyone!
                                                              0.079340591
                                                                             1.19010886
## 471
        2023-08-06
                      Email
                               carol slack Hello everyone!
                                                              0.076276061
                                                                             1.14414092
## 472
        2023-08-01
                      Slack
                              dave@example
                                               Team meeting
                                                              0.093826082
                                                                             1.12591298
## 473
        2023-08-19
                      Email
                              dave@example
                                               Team meeting
                                                              0.087382621
                                                                             1.04859145
                               carol_slack
## 474
        2023-08-20
                      Email
                                               Team meeting
                                                              0.082343857
                                                                             0.98812629
## 475
                                                              0.082249742
        2023-08-05
                    Twitter alice@example
                                               Team meeting
                                                                             0.98699691
                              @erin_tweets Hello everyone!
## 476
        2023-08-10
                      Email
                                                              0.063933458
                                                                            0.95900187
## 477
        2023-08-07
                      Email
                              @bob_tweets
                                               Fun weekend!
                                                              0.079245736
                                                                            0.95094884
## 478
        2023-08-04
                      Email
                              @frank_chat Need assistance
                                                              0.063336529
                                                                             0.95004793
## 479
        2023-08-20
                      Email
                               carol_slack
                                               Team meeting
                                                              0.078007510
                                                                            0.93609012
## 480
                              dave@example Need assistance
        2023-08-11
                      Email
                                                              0.060486035
                                                                             0.90729052
## 481
        2023-08-12
                      Email alice@example
                                            Exciting news!
                                                              0.063475272
                                                                            0.88865381
                              @erin tweets
## 482
        2023-08-06
                      Slack
                                            Exciting news!
                                                              0.063273371
                                                                             0.88582719
## 483
        2023-08-11
                      Slack
                               carol_slack
                                            Exciting news!
                                                              0.062969209
                                                                            0.88156892
## 484
                              @frank_chat Hello everyone!
        2023-08-15
                      Slack
                                                              0.058449768
                                                                            0.87674651
## 485
        2023-08-08
                      Slack
                             @erin_tweets
                                               Team meeting
                                                              0.068864945
                                                                            0.82637934
## 486
        2023-08-10
                      Email
                              @frank_chat Hello everyone!
                                                              0.051583528
                                                                            0.77375292
##
  487
        2023-08-08
                                            Exciting news!
                      Slack
                              carol_slack
                                                              0.055117640
                                                                            0.77164696
##
  488
        2023-08-04
                    Twitter
                              @bob_tweets
                                            Exciting news!
                                                              0.053784013
                                                                            0.75297619
## 489
        2023-08-18
                      Email
                              @frank chat
                                               Fun weekend!
                                                              0.061621126
                                                                            0.73945352
                                                                            0.73463573
## 490
        2023-08-02
                      Slack
                               carol_slack
                                                Great work!
                                                              0.066785066
## 491
        2023-08-20
                      Email alice@example
                                                Great work!
                                                              0.062977130
                                                                            0.69274843
## 492
        2023-08-14
                      Email alice@example Need assistance
                                                              0.043240849
                                                                            0.64861274
## 493
        2023-08-13
                      Email alice@example Hello everyone!
                                                              0.042741961
                                                                             0.64112941
## 494
        2023-08-03 Twitter
                               carol slack
                                            Exciting news!
                                                              0.044649603
                                                                            0.62509445
## 495
        2023-08-14
                      Email alice@example Need assistance
                                                              0.041204039
                                                                             0.61806059
## 496
                              @erin tweets Need assistance
        2023-08-10
                                                              0.037588875
                                                                            0.56383313
## 497
        2023-08-06
                      Slack alice@example Need assistance
                                                              0.037042340
                                                                             0.55563510
## 498
                               carol slack
                                                              0.045978463
                                                                            0.55174155
        2023-08-02
                      Slack
                                               Fun weekend!
## 499
        2023-08-03 Twitter
                               carol_slack
                                                Great work!
                                                              0.049291416
                                                                             0.54220557
##
   500
        2023-08-12
                      Email
                              dave@example
                                               Fun weekend!
                                                              0.043927317
                                                                             0.52712780
   501
##
        2023-08-11
                      Slack
                              @bob_tweets
                                                Great work!
                                                              0.041871845
                                                                             0.46059029
## 502
        2023-08-12 Twitter
                             @erin_tweets
                                               Fun weekend!
                                                              0.038330505
                                                                            0.45996606
```

```
## 503
                                           Exciting news!
        2023-08-10 Twitter
                              carol slack
                                                             0.030849482
                                                                           0.43189275
## 504
        2023-08-14
                      Email
                             @erin tweets
                                              Fun weekend!
                                                             0.035476264
                                                                           0.42571517
## 505
                      Slack
                                               Great work!
                                                             0.037533612
        2023-08-19
                             @erin tweets
                                                                            0.41286974
##
  506
        2023-08-10
                      Slack
                              @bob_tweets
                                            Exciting news!
                                                             0.027252671
                                                                           0.38153739
  507
        2023-08-01
                      Slack
                             @erin_tweets
                                              Team meeting
                                                             0.031597136
                                                                           0.37916563
##
  508
        2023-08-14 Twitter alice@example
                                              Team meeting
##
                                                             0.024089097
                                                                           0.28906916
## 509
        2023-08-09
                      Email
                             @erin_tweets
                                            Exciting news!
                                                             0.020394353
                                                                            0.28552094
## 510
        2023-08-04
                      Email
                              @bob_tweets Need assistance
                                                             0.017915569
                                                                           0.26873354
## 511
                             dave@example
        2023-08-11 Twitter
                                            Exciting news!
                                                             0.018387399
                                                                           0.25742358
## 512
        2023-08-05
                      Slack
                             dave@example
                                               Great work!
                                                             0.018169560
                                                                           0.19986515
## 513
                                                             0.005671109
        2023-08-06 Twitter
                             dave@example
                                              Fun weekend!
                                                                            0.06805330
## 514
                              @frank_chat Need assistance -0.003094339
        2023-08-01 Twitter
                                                                           -0.04641508
## 515
                                              Team meeting -0.004460444
        2023-08-18 Twitter
                              @frank_chat
                                                                           -0.05352532
## 516
        2023-08-08
                      Email alice@example
                                            Exciting news! -0.007040349
                                                                           -0.09856489
## 517
        2023-08-10
                      Email
                              @frank_chat
                                            Exciting news! -0.010767524
                                                                           -0.15074534
## 518
        2023-08-18 Twitter
                             dave@example
                                              Team meeting -0.012694929
                                                                           -0.15233915
## 519
        2023-08-09 Twitter
                            alice@example
                                               Great work! -0.013945965
                                                                           -0.15340562
## 520
        2023-08-07 Twitter
                             dave@example
                                              Team meeting -0.014527882
                                                                           -0.17433458
## 521
                                               Great work! -0.018533767
        2023-08-14 Twitter
                              @bob_tweets
                                                                           -0.20387144
## 522
        2023-08-16
                      Email
                             dave@example Need assistance -0.014521594
                                                                           -0.21782391
## 523
        2023-08-03
                      Email
                              @frank chat
                                               Great work! -0.022698464
                                                                           -0.24968310
## 524
        2023-08-09
                      Email
                             @erin tweets
                                            Exciting news! -0.018193701
                                                                           -0.25471181
## 525
        2023-08-05 Twitter
                             dave@example
                                              Fun weekend! -0.021554315
                                                                           -0.25865178
## 526
        2023-08-13 Twitter
                            alice@example
                                               Great work! -0.026141260
                                                                           -0.28755386
##
  527
        2023-08-03 Twitter
                             dave@example
                                              Team meeting -0.024207670
                                                                           -0.29049204
## 528
        2023-08-08 Twitter
                              @bob_tweets
                                              Team meeting -0.024243061
                                                                           -0.29091674
## 529
        2023-08-01
                      Slack
                              @bob_tweets
                                            Exciting news! -0.024743940
                                                                           -0.34641516
## 530
        2023-08-18
                      Email alice@example Hello everyone! -0.024430894
                                                                           -0.36646341
## 531
        2023-08-11
                      Email alice@example
                                              Fun weekend! -0.034278538
                                                                           -0.41134245
## 532
                              carol_slack Hello everyone! -0.029610693
        2023-08-16
                      Email
                                                                           -0.44416040
## 533
        2023-08-11
                      Slack
                              @bob_tweets
                                            Exciting news! -0.033773244
                                                                           -0.47282542
## 534
        2023-08-16
                      Email
                              carol_slack
                                               Great work! -0.045373839
                                                                           -0.49911223
## 535
        2023-08-13 Twitter
                                              Fun weekend! -0.042934414
                                                                           -0.51521297
                             dave@example
  536
                             dave@example Need assistance -0.035525655
##
        2023-08-17 Twitter
                                                                           -0.53288483
## 537
        2023-08-11
                      Email
                             @erin_tweets
                                               Great work! -0.049498704
                                                                           -0.54448575
        2023-08-17
## 538
                      Email
                             dave@example
                                              Team meeting -0.047711935
                                                                           -0.57254322
##
  539
        2023-08-05 Twitter
                              @bob_tweets Hello everyone! -0.038818533
                                                                           -0.58227800
   540
                                              Fun weekend! -0.049394990
##
        2023-08-04
                      Slack
                              carol_slack
                                                                           -0.59273988
## 541
        2023-08-19
                      Email alice@example Hello everyone! -0.040838550
                                                                          -0.61257825
## 542
                              @bob tweets Need assistance -0.042491458
        2023-08-12
                      Email
                                                                           -0.63737187
##
  543
        2023-08-12
                              carol slack Need assistance -0.044029484
                      Slack
                                                                           -0.66044226
##
   544
        2023-08-09 Twitter
                              carol_slack
                                              Fun weekend! -0.056202481
                                                                           -0.67442977
## 545
        2023-08-08
                      Email
                              @frank_chat
                                            Exciting news! -0.050068120
                                                                           -0.70095369
## 546
        2023-08-10
                      Email
                              @bob_tweets
                                              Team meeting -0.060755176
                                                                           -0.72906211
## 547
        2023-08-06
                      Slack
                              @frank_chat Hello everyone! -0.050532605
                                                                           -0.75798908
   548
##
        2023-08-08
                      Email alice@example
                                               Great work! -0.068923920
                                                                           -0.75816312
  549
##
        2023-08-14
                      Slack
                              @frank chat
                                            Exciting news! -0.054910814
                                                                           -0.76875139
  550
        2023-08-14 Twitter
                             dave@example
                                              Fun weekend! -0.064443091
                                                                           -0.77331710
##
## 551
        2023-08-18
                      Slack
                              @frank_chat
                                               Great work! -0.071027102
                                                                           -0.78129812
   552
##
        2023-08-15
                   Twitter
                              carol slack
                                              Team meeting -0.074092148
                                                                           -0.88910578
##
   553
        2023-08-20
                      Email
                             dave@example
                                              Team meeting -0.075425136
                                                                           -0.90510163
   554
                             dave@example Need assistance -0.064178423
                                                                           -0.96267635
##
        2023-08-06 Twitter
## 555
        2023-08-08
                      Email
                             @erin_tweets Hello everyone! -0.064463819
                                                                           -0.96695728
##
   556
        2023-08-17 Twitter
                              carol slack Need assistance -0.065970336
                                                                           -0.98955503
   557
##
        2023-08-04
                      Email
                             @erin tweets Need assistance -0.070094255
                                                                           -1.05141382
## 558
        2023-08-18
                      Slack alice@example
                                              Fun weekend! -0.088887415
                                                                           -1.06664898
```

```
## 559
                                              Team meeting -0.092784007
        2023-08-13
                      Email
                              @bob_tweets
                                                                          -1.11340808
## 560
        2023-08-10
                      Slack
                              @bob tweets Hello everyone! -0.075317414
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## 561
                              @frank chat
                                              Team meeting -0.094959955
        2023-08-05
                      Email
                                                                          -1.13951946
## 562
        2023-08-08 Twitter
                              @frank chat Hello everyone! -0.081353148
                                                                          -1.22029721
## 563
        2023-08-12
                      Email
                              @frank_chat
                                              Fun weekend! -0.102208237
                                                                          -1.22649885
        2023-08-14
## 564
                      Email alice@example
                                               Great work! -0.111933967
                                                                          -1.23127363
## 565
        2023-08-06
                      Slack alice@example
                                              Fun weekend! -0.103599444
                                                                          -1.24319333
## 566
        2023-08-18
                      Slack alice@example
                                               Great work! -0.114574431
                                                                          -1.26031875
   567
        2023-08-19 Twitter alice@example
##
                                              Fun weekend! -0.111042333
                                                                          -1.33250799
## 568
        2023-08-04
                      Slack alice@example
                                              Team meeting -0.111247493
                                                                          -1.33496992
## 569
        2023-08-01
                      Slack
                              @frank_chat
                                              Team meeting -0.113114946
                                                                          -1.35737935
        2023-08-20 Twitter
## 570
                             dave@example
                                               Great work! -0.124954135
                                                                          -1.37449549
## 571
                              @bob_tweets
        2023-08-20
                      Slack 1 4 1
                                              Team meeting -0.118006961
                                                                          -1.41608354
## 572
        2023-08-14
                      Email
                             @erin_tweets
                                               Great work! -0.129584252
                                                                          -1.42542677
## 573
        2023-08-13
                      Slack alice@example Need assistance -0.100954488
                                                                          -1.51431733
## 574
        2023-08-17 Twitter
                              carol_slack Need assistance -0.101536875
                                                                          -1.52305313
## 575
        2023-08-11 Twitter
                             @erin tweets Need assistance -0.102778860
                                                                          -1.54168291
## 576
        2023-08-12
                      Email
                              @frank chat Need assistance -0.104900640
                                                                          -1.57350959
## 577
        2023-08-16
                      Slack
                             @erin tweets
                                           Exciting news! -0.113282133
                                                                          -1.58594986
## 578
        2023-08-18 Twitter
                              carol_slack Need assistance -0.107154121
                                                                          -1.60731181
## 579
        2023-08-18
                      Slack
                              @frank chat
                                              Team meeting -0.134102609
                                                                          -1.60923131
## 580
        2023-08-20
                             @erin tweets
                                              Team meeting -0.134665603
                      Slack
                                                                          -1.61598723
## 581
        2023-08-04
                      Email
                             @erin_tweets Need assistance -0.108376242
                                                                          -1.62564363
## 582
        2023-08-11
                      Slack
                              @frank_chat Hello everyone! -0.108963726
                                                                          -1.63445589
##
  583
        2023-08-03
                      Slack alice@example
                                               Great work! -0.150377708
                                                                          -1.65415478
## 584
        2023-08-15
                      Email
                              carol_slack
                                              Fun weekend! -0.141636565
                                                                          -1.69963878
## 585
        2023-08-04 Twitter
                              @bob_tweets
                                           Exciting news! -0.122806889
                                                                          -1.71929645
## 586
        2023-08-06
                      Slack alice@example
                                              Fun weekend! -0.143456620
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## 587
        2023-08-16
                      Slack
                              @frank_chat
                                              Team meeting -0.143542713
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## 588
        2023-08-19 Twitter
                             dave@example Need assistance -0.115035673
                                                                          -1.72553510
## 589
        2023-08-02 Twitter
                              @frank_chat Need assistance -0.115179492
                                                                          -1.72769238
## 590
        2023-08-15 Twitter
                              @bob_tweets
                                              Team meeting -0.144443278
                                                                          -1.73331933
## 591
        2023-08-18 Twitter
                             dave@example
                                               Great work! -0.160749977
                                                                          -1.76824975
## 592
        2023-08-06 Twitter
                              @bob_tweets
                                              Fun weekend! -0.149422837
                                                                          -1.79307404
## 593
        2023-08-11 Twitter alice@example Hello everyone! -0.120084892
                                                                          -1.80127337
## 594
        2023-08-07
                              @bob tweets
                      Email
                                              Team meeting -0.150205611
                                                                          -1.80246733
## 595
        2023-08-06
                                              Fun weekend! -0.159573650
                                                                          -1.91488379
                      Email
                              @bob_tweets
  596
##
        2023-08-05
                      Slack
                              @frank_chat Need assistance -0.129298556
                                                                          -1.93947834
## 597
        2023-08-01
                      Email
                              carol slack Need assistance -0.130674560
                                                                          -1.96011839
## 598
        2023-08-16 Twitter alice@example
                                               Great work! -0.179680133
                                                                          -1.97648147
##
  599
        2023-08-16
                              @bob_tweets
                                           Exciting news! -0.141741692
                                                                          -1.98438369
                   Twitter
##
  600
        2023-08-17
                      Email
                             dave@example
                                              Fun weekend! -0.173903828
                                                                          -2.08684593
## 601
        2023-08-10 Twitter
                              @frank_chat
                                           Exciting news! -0.149807401
                                                                          -2.09730361
## 602
        2023-08-01
                      Slack
                             dave@example
                                              Team meeting -0.176315426
                                                                          -2.11578512
## 603
        2023-08-15 Twitter alice@example
                                              Team meeting -0.178657859
                                                                          -2.14389431
  604
##
        2023-08-11
                      Slack
                              @frank chat Hello everyone! -0.143450806
                                                                          -2.15176209
## 605
        2023-08-07
                      Email
                              @frank chat Hello everyone! -0.143556185
                                                                          -2.15334277
## 606
        2023-08-17 Twitter alice@example
                                              Team meeting -0.189370414
                                                                          -2.27244497
## 607
        2023-08-07
                      Slack
                              @bob_tweets Hello everyone! -0.160779689
                                                                          -2.41169534
   608
##
        2023-08-03
                      Email
                              carol slack Need assistance -0.161143415
                                                                          -2.41715123
## 609
        2023-08-04
                      Slack
                              @bob tweets Hello everyone! -0.161284721
                                                                          -2.41927081
## 610
        2023-08-01
                      Slack
                              @frank chat
                                              Team meeting -0.202094683
                                                                          -2.42513620
## 611
        2023-08-11
                      Slack
                              @frank_chat
                                              Team meeting -0.203160496
                                                                          -2.43792596
## 612
        2023-08-03
                      Email
                              @frank chat
                                               Great work! -0.222633559
                                                                          -2.44896915
## 613
        2023-08-18
                      Slack
                              @bob_tweets Hello everyone! -0.164491392
                                                                          -2.46737088
## 614
        2023-08-20
                      Email alice@example Hello everyone! -0.166448134
                                                                          -2.49672201
```

```
2023-08-14 Twitter alice@example
## 615
                                               Great work! -0.232635738
                                                                          -2.55899312
## 616
        2023-08-06
                      Email
                             @erin tweets Hello everyone! -0.172054263
                                                                          -2.58081394
## 617
        2023-08-07
                      Email
                             dave@example
                                            Exciting news! -0.184577833
                                                                          -2.58408966
## 618
        2023-08-08 Twitter alice@example
                                               Great work! -0.236779108
                                                                          -2.60457019
## 619
        2023-08-03
                      Slack
                             @erin_tweets Need assistance -0.173975688
                                                                          -2.60963533
        2023-08-15 Twitter
                             @erin tweets
                                               Great work! -0.244326655
                                                                          -2.68759321
## 620
## 621
        2023-08-20
                      Email
                             @erin_tweets
                                           Exciting news! -0.195798854
                                                                          -2.74118396
## 622
        2023-08-17
                      Email
                              @frank_chat
                                              Team meeting -0.229243480
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## 623
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##
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##
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## 717
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```

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## 727
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```

```
## 783
                              @bob tweets Hello everyone! -0.452905738
        2023-08-06
                      Slack
                                                                          -6.79358607
## 784
        2023-08-18
                      Slack
                             dave@example
                                              Fun weekend! -0.566594298
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## 785
        2023-08-12 Twitter alice@example
                                           Exciting news! -0.487793705
                                                                          -6.82911187
##
  786
        2023-08-18
                      Email
                              @frank chat
                                              Fun weekend! -0.569811309
                                                                          -6.83773571
## 787
        2023-08-16
                      Email
                              @bob_tweets Need assistance -0.459899545
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        2023-08-15
                      Email
                             @erin tweets
                                              Fun weekend! -0.576360519
                                                                          -6.91632623
## 788
## 789
        2023-08-08
                      Slack
                             @erin_tweets Need assistance -0.461871512
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## 790
        2023-08-05 Twitter alice@example
                                               Great work! -0.630844017
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                             @erin_tweets Need assistance -0.462980804
## 791
        2023-08-11 Twitter
                                                                          -6.94471205
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        2023-08-16
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                                              Fun weekend! -0.584208118
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## 793
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## 794
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## 795
                                               Great work! -0.652119522
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        2023-08-17 Twitter
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## 797
        2023-08-02
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                              @bob_tweets
                                               Great work! -0.666475324
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## 798
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        2023-08-17 Twitter
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## 800
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        2023-08-17 Twitter
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        2023-08-18
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                             @erin tweets
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##
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```

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## 871
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        2023-08-16
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                      Slack
                             @erin_tweets
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                      Slack alice@example
## 874
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## 875
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        2023-08-04 Twitter
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## 876
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## 879
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## 880
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## 882
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## 883
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## 884
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## 885
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  888
##
        2023-08-02 Twitter
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## 889
        2023-08-14 Twitter
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        2023-08-03
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                      Slack
## 891
        2023-08-02
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## 892
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## 894
        2023-08-19
                      Email
                             @erin_tweets
                                              Team meeting -0.823923888
                                                                          -9.88708666
```

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## 895
        2023-08-03
                     Email
                             @erin_tweets
                                              Great work! -0.900102365
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        2023-08-08
                     Email alice@example Hello everyone! -0.666331347
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## 897
        2023-08-14
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                     Email
## 898
        2023-08-14 Twitter
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## 899
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        2023-08-14
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        2023-08-13
                     Slack 

                              carol_slack
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## 914
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        2023-08-10 Twitter
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        2023-08-18
                     Email
                             dave@example Need assistance -0.770186925 -11.55280388
```

```
## 951
                             @bob_tweets Hello everyone! -0.774547359 -11.61821038
        2023-08-04 Twitter
## 952
        2023-08-08
                     Email
                            @erin tweets Need assistance -0.775436828 -11.63155242
## 953
        2023-08-10
                             carol slack
                                             Team meeting -0.970338997 -11.64406797
                     Email
## 954
        2023-08-10 Twitter
                             @frank_chat
                                             Team meeting -0.976236885 -11.71484262
## 955
        2023-08-08
                     Email
                            @erin_tweets Exciting news! -0.847681918 -11.86754685
## 956
                     Email
                             @frank chat
                                             Team meeting -0.993759494 -11.92511393
        2023-08-20
                     Email
## 957
        2023-08-14
                             @bob_tweets
                                             Team meeting -0.996662613 -11.95995136
## 958
        2023-08-14
                     Slack alice@example Hello everyone! -0.798660460 -11.97990691
## 959
                            dave@example
        2023-08-14 Twitter
                                             Fun weekend! -0.998980226 -11.98776271
## 960
        2023-08-16
                     Email alice@example Exciting news! -0.858994203 -12.02591884
## 961
        2023-08-17 Twitter
                             carol_slack Need assistance -0.806338225 -12.09507338
## 962
        2023-08-08
                     Slack alice@example Hello everyone! -0.812013249 -12.18019874
                             @frank_chat Exciting news! -0.871460078 -12.20044109
## 963
        2023-08-11
                     Slack 8 1
## 964
        2023-08-10
                     Slack
                             @bob_tweets Exciting news! -0.873230109 -12.22522152
## 965
        2023-08-10
                     Email alice@example Need assistance -0.815106571 -12.22659857
## 966
        2023-08-16 Twitter
                             carol_slack Exciting news! -0.875286373 -12.25400923
## 967
        2023-08-05
                     Email alice@example Hello everyone! -0.822144668 -12.33217002
## 968
        2023-08-14
                     Email
                            dave@example Need assistance -0.829999507 -12.44999260
## 969
                            dave@example Need assistance -0.834047724 -12.51071587
        2023-08-13
                     Email
## 970
                             @frank_chat Need assistance -0.837423526 -12.56135289
        2023-08-17
                     Email
## 971
        2023-08-11
                     Email alice@example Exciting news! -0.901918261 -12.62685565
## 972
                            dave@example Hello everyone! -0.843954970 -12.65932455
        2023-08-11
## 973
        2023-08-07
                     Slack
                             @bob_tweets Need assistance -0.846264025 -12.69396038
## 974
        2023-08-16
                     Email
                             carol_slack Hello everyone! -0.851052538 -12.76578807
## 975
        2023-08-10
                     Email
                             @frank chat Need assistance -0.857863282 -12.86794923
## 976
        2023-08-20
                     Slack alice@example Hello everyone! -0.863882122 -12.95823183
## 977
        2023-08-13
                     Email
                             carol_slack Exciting news! -0.930242309 -13.02339232
                             @frank_chat Hello everyone! -0.878399170 -13.17598754
## 978
        2023-08-16
                     Slack
## 979
                            @erin_tweets Need assistance -0.879413284 -13.19119926
        2023-08-08
                     Slack
## 980
        2023-08-06 Twitter alice@example Hello everyone! -0.882707532 -13.24061299
        2023-08-13 Twitter
                             @bob_tweets Need assistance -0.883181106 -13.24771659
## 981
## 982
        2023-08-14 Twitter alice@example Hello everyone! -0.892831107 -13.39246661
## 983
        2023-08-03 Twitter alice@example Hello everyone! -0.893453151 -13.40179727
## 984
        2023-08-10
                     Slack
                            @erin_tweets Need assistance -0.904224418 -13.56336626
## 985
        2023-08-18
                     Email
                             carol_slack Exciting news! -0.978982675 -13.70575745
## 986
                     Slack alice@example Need assistance -0.917325706 -13.75988559
        2023-08-10
## 987
        2023-08-01 Twitter
                             @bob_tweets Hello everyone! -0.918783627 -13.78175441
## 988
                             carol_slack Need assistance -0.919222645 -13.78833968
        2023-08-12
                     Slack
## 989
        2023-08-14
                     Slack
                             @frank_chat Need assistance -0.920249034 -13.80373551
## 990
        2023-08-12
                     Email alice@example Exciting news! -0.995861550 -13.94206170
        2023-08-09
## 991
                            @erin_tweets Hello everyone! -0.932525445 -13.98788168
## 992
        2023-08-18 Twitter alice@example Hello everyone! -0.936083395 -14.04125092
## 993
        2023-08-13
                     Email
                            @erin_tweets Hello everyone! -0.939573104 -14.09359656
## 994
        2023-08-05
                     Slack
                             @bob_tweets Hello everyone! -0.940684421 -14.11026632
        2023-08-13
## 995
                     Slack
                            dave@example Hello everyone! -0.945477226 -14.18215839
## 996
        2023-08-01 Twitter
                             @frank chat Need assistance -0.970480603 -14.55720904
## 997
        2023-08-06
                     Email
                            dave@example Hello everyone! -0.987261285 -14.80891927
## 998
        2023-08-01
                     Slack
                            dave@example Need assistance -0.988749139 -14.83123708
## 999
        2023-08-08
                     Email
                             @frank_chat Need assistance -0.992002849 -14.88004273
## 1000 2023-08-08
                            dave@example Need assistance -0.998774239 -14.98161358
                     Email
```

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:

```
# Enter code here

comm_data%>%group_by(date) %>%
summarise(total_characters = sum(nchar(message))) %>%
arrange(desc(total_characters)) %>%
head(1)
```

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: 1) "United states" could have its own column under country. 2) They could have created a column for males over 16 in examining the total population (males and females) over 16 years old.