

# Challenge-4

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## Questions

Load the “CommQuest2023.csv” dataset using the `read_csv()` command and assign it to a variable named “comm\_data.”

```
# Enter code here
library(tidyverse)
```

```
## — 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
## — Conflicts — tidyverse_conflicts() —
## X dplyr::filter() masks stats::filter()
## X dplyr::lag()     masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to be
come errors
```

```
library(dplyr)
comm_data <- read_csv("CommQuest2023_Larger.csv")
#comm_data
```

### Question-1: Communication Chronicles

Using the `select` command, create a new dataframe containing only the “date,” “channel,” and “message” columns from the “comm\_data” dataset.

**Solution:**

```
# eval set to false to prevent document from being too long
comm_data %>% select(date, channel, message)
```

### Question-2: Channel Selection

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

**Solution:**

```
# eval set to false to prevent document from being too Long
comm_data %>% filter(date == "2/8/2023" & channel == "Twitter") %>% select(date, channel, message)
```

### Question-3: Chronological Order

Utilizing the arrange command, arrange the “comm\_data” dataframe in ascending order based on the “date” column.

**Solution:**

```
# eval set to false to prevent document from being too Long
x <- comm_data %>% group_by(date) %>% arrange(date)
print(x, n = length(comm_data$date))
```

### Question-4: Distinct Discovery

Apply the distinct command to find the unique senders in the “comm\_data” dataframe.

**Solution:**

```
# Enter code here
comm_data %>% distinct(sender) %>% select(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) %>% summarise(count = n()) #summarise the total integers by senders (bc prev is group_by(sender))
```

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

```
#method 2
comm_data %>% group_by(sender) %>% count(sender)
```

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

## Question-6: Channel Chatter Insights

Using the `group_by` and `count` commands, create a summary table that displays the count (FREQUENCY) of (the distinct?) messages sent through *each* communication channel in the “comm\_data” dataframe.

### Solution:

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

```
## # A tibble: 3 × 2
## # Groups:   channel [3]
##   channel      n
##   <chr>      <int>
## 1 Email      331
## 2 Slack      320
## 3 Twitter    349
```

```
#method 2
comm_data %>% group_by(channel) %>% summarise(count = n())
```

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

## Question-7: Positive Pioneers

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

### Solution:

```
# Enter code here
pos_data <- comm_data %>%
  filter(sentiment > 0)
sender_avg_senti <- pos_data %>%
  group_by(sender) %>%
  summarise(avg_senti = mean(sentiment))
top_senders <- sender_avg_senti %>%
  arrange(desc(avg_senti))

top_3_baes <- top_senders %>% slice(1:3)
top_3_baes
```

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

## Question-8: Message Mood Over Time

With the group\_by, summarise, and arrange commands, calculate the average sentiment score for each day in the “comm\_data” dataframe.

### Solution:

```
comm_data %>% group_by(date) %>% summarise(mean(sentiment)) %>% arrange(date)
```

```
## # A tibble: 20 × 2
##   date      `mean(sentiment)`
##   <chr>          <dbl>
## 1 1/8/2023      -0.0616
## 2 10/8/2023     -0.0254
## 3 11/8/2023     -0.0340
## 4 12/8/2023      0.0668
## 5 13/8/2023     -0.0604
## 6 14/8/2023     -0.0692
## 7 15/8/2023      0.0617
## 8 16/8/2023     -0.0220
## 9 17/8/2023     -0.0191
## 10 18/8/2023    -0.0760
## 11 19/8/2023      0.0551
## 12 2/8/2023      0.136
## 13 20/8/2023     0.0608
## 14 3/8/2023      0.107
## 15 4/8/2023     -0.0510
## 16 5/8/2023      0.193
## 17 6/8/2023     -0.0144
## 18 7/8/2023      0.0364
## 19 8/8/2023      0.0666
## 20 9/8/2023      0.0997
```

## Question-9: Selective Sentiments

Use the filter and select commands to extract messages with a negative sentiment score (less than 0) and create a new dataframe.

**Solution:**

```
# eval set to false to prevent document from being too long
comm_data %>% select(message, sentiment) %>% filter(sentiment < 0)
```

## Question-10: Enhancing Engagement

Apply the mutate command to add a new column to the “comm\_data” dataframe, representing a sentiment label: “Positive,” “Neutral,” or “Negative,” based on the sentiment score.

**Solution:**

```
# eval set to false to prevent document from being too long
comm_data %>% select(sentiment) %>% mutate(positive = as.logical(sentiment > 0), neutral = as.logical(sentiment == 0), negative = as.logical(sentiment < 0))

comm_data %>% select(sentiment) %>% mutate(sentiment_label = ifelse(as.logical(sentiment > 0), "Positive", ifelse(as.logical(sentiment < 0), "Negative", "Neutral")))
```

## Question-11: Message Impact

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

**Solution:**

```
# Enter code here
comm_data %>% select(message, sentiment) %>% mutate(amtired = sentiment*nchar(message)) %>% a
rrange(desc(amtired))
```

##	message	sentiment	im tired
## 1	Hello everyone!	0.997601895	14.96402842
## 2	Hello everyone!	0.987832270	14.81748405
## 3	Hello everyone!	0.978220029	14.67330044
## 4	Hello everyone!	0.976894801	14.65342202
## 5	Hello everyone!	0.973429719	14.60144578
## 6	Hello everyone!	0.968081689	14.52122534
## 7	Need assistance	0.963640937	14.45461406
## 8	Need assistance	0.953375103	14.30062655
## 9	Hello everyone!	0.951721462	14.27582193
## 10	Need assistance	0.937844194	14.06766291
## 11	Hello everyone!	0.937329018	14.05993527
## 12	Need assistance	0.935812009	14.03718013
## 13	Need assistance	0.933738099	14.00607149
## 14	Need assistance	0.930096855	13.95145282
## 15	Exciting news!	0.993148146	13.90407404
## 16	Exciting news!	0.991050147	13.87470206
## 17	Hello everyone!	0.917979236	13.76968854
## 18	Need assistance	0.914976185	13.72464277
## 19	Exciting news!	0.979591473	13.71428062
## 20	Need assistance	0.911442756	13.67164134
## 21	Hello everyone!	0.905330024	13.57995036
## 22	Exciting news!	0.968932204	13.56505086
## 23	Hello everyone!	0.902683333	13.54024999
## 24	Hello everyone!	0.902623749	13.53935623
## 25	Hello everyone!	0.902016178	13.53024267
## 26	Need assistance	0.899728119	13.49592179
## 27	Need assistance	0.896539724	13.44809586
## 28	Need assistance	0.895823483	13.43735224
## 29	Exciting news!	0.953910344	13.35474482
## 30	Need assistance	0.886342321	13.29513481
## 31	Hello everyone!	0.879992486	13.19988729
## 32	Need assistance	0.877496709	13.16245063
## 33	Exciting news!	0.931368547	13.03915966
## 34	Need assistance	0.867801995	13.01702992
## 35	Need assistance	0.866607873	12.99911810
## 36	Exciting news!	0.927110374	12.97954524
## 37	Hello everyone!	0.857508211	12.86262316
## 38	Exciting news!	0.900116188	12.60162663
## 39	Need assistance	0.834841503	12.52262255
## 40	Need assistance	0.821079701	12.31619552
## 41	Exciting news!	0.874988238	12.24983533
## 42	Need assistance	0.809991531	12.14987297
## 43	Hello everyone!	0.807257727	12.10886591
## 44	Hello everyone!	0.806540163	12.09810245
## 45	Hello everyone!	0.805289558	12.07934337
## 46	Hello everyone!	0.802523659	12.03785488
## 47	Fun weekend!	0.992682932	11.91219518
## 48	Fun weekend!	0.990166281	11.88199537
## 49	Fun weekend!	0.986894567	11.84273480
## 50	Team meeting	0.985037738	11.82045286
## 51	Need assistance	0.787741330	11.81611995
## 52	Fun weekend!	0.977650215	11.73180258
## 53	Need assistance	0.773382573	11.60073860
## 54	Team meeting	0.964958043	11.57949652

## 55	Hello everyone!	0.768580468	11.52870702
## 56	Exciting news!	0.821827833	11.50558966
## 57	Fun weekend!	0.957983019	11.49579623
## 58	Hello everyone!	0.762754925	11.44132388
## 59	Exciting news!	0.817105632	11.43947885
## 60	Team meeting	0.945942261	11.35130713
## 61	Hello everyone!	0.752351641	11.28527461
## 62	Hello everyone!	0.747580624	11.21370936
## 63	Need assistance	0.747163485	11.20745227
## 64	Need assistance	0.746888391	11.20332587
## 65	Team meeting	0.932789830	11.19347796
## 66	Need assistance	0.743181323	11.14771984
## 67	Exciting news!	0.795437461	11.13612445
## 68	Hello everyone!	0.740663246	11.10994869
## 69	Fun weekend!	0.924321534	11.09185841
## 70	Need assistance	0.739025190	11.08537785
## 71	Team meeting	0.921573296	11.05887955
## 72	Exciting news!	0.785684678	10.99958549
## 73	Exciting news!	0.784590872	10.98427221
## 74	Team meeting	0.909817838	10.91781406
## 75	Exciting news!	0.777389107	10.88344750
## 76	Hello everyone!	0.725036937	10.87555406
## 77	Exciting news!	0.773558143	10.82981400
## 78	Exciting news!	0.771407587	10.79970622
## 79	Exciting news!	0.769946682	10.77925355
## 80	Fun weekend!	0.893210486	10.71852583
## 81	Fun weekend!	0.892766985	10.71320382
## 82	Great work!	0.973676749	10.71044424
## 83	Team meeting	0.892404643	10.70885572
## 84	Hello everyone!	0.713812393	10.70718590
## 85	Hello everyone!	0.710270591	10.65405886
## 86	Great work!	0.960373470	10.56410817
## 87	Exciting news!	0.754322437	10.56051412
## 88	Hello everyone!	0.703965933	10.55948900
## 89	Exciting news!	0.750492542	10.50689559
## 90	Fun weekend!	0.874191639	10.49029967
## 91	Team meeting	0.870818266	10.44981919
## 92	Need assistance	0.694902051	10.42353077
## 93	Fun weekend!	0.866654206	10.39985047
## 94	Fun weekend!	0.866016825	10.39220190
## 95	Need assistance	0.691338675	10.37008012
## 96	Team meeting	0.863822790	10.36587348
## 97	Team meeting	0.862134462	10.34561354
## 98	Need assistance	0.689327837	10.33991755
## 99	Great work!	0.937586371	10.31345008
## 100	Team meeting	0.858062949	10.29675539
## 101	Team meeting	0.855612874	10.26735449
## 102	Team meeting	0.853966497	10.24759796
## 103	Fun weekend!	0.851679420	10.22015304
## 104	Team meeting	0.849549761	10.19459713
## 105	Hello everyone!	0.679174718	10.18762077
## 106	Great work!	0.924440826	10.16884909
## 107	Need assistance	0.676776995	10.15165492
## 108	Fun weekend!	0.844455994	10.13347193
## 109	Hello everyone!	0.675182751	10.12774127
## 110	Exciting news!	0.723251828	10.12552559



## 111	Need assistance	0.674294885	10.11442328
## 112	Exciting news!	0.722319741	10.11247637
## 113	Hello everyone!	0.672468295	10.08702443
## 114	Exciting news!	0.717076284	10.03906798
## 115	Need assistance	0.669039086	10.03558629
## 116	Great work!	0.910158344	10.01174178
## 117	Need assistance	0.665302936	9.97954404
## 118	Need assistance	0.664381829	9.96572743
## 119	Hello everyone!	0.662486946	9.93730419
## 120	Need assistance	0.662048494	9.93072741
## 121	Fun weekend!	0.825692308	9.90830770
## 122	Team meeting	0.824948560	9.89938272
## 123	Fun weekend!	0.824099663	9.88919596
## 124	Fun weekend!	0.823352248	9.88022698
## 125	Team meeting	0.819675826	9.83610991
## 126	Team meeting	0.818109252	9.81731102
## 127	Great work!	0.891589128	9.80748041
## 128	Fun weekend!	0.816346027	9.79615232
## 129	Exciting news!	0.696509592	9.75113429
## 130	Exciting news!	0.696377364	9.74928310
## 131	Hello everyone!	0.649366590	9.74049885
## 132	Great work!	0.884830707	9.73313778
## 133	Great work!	0.874556832	9.62012515
## 134	Hello everyone!	0.640248996	9.60373494
## 135	Great work!	0.872962321	9.60258553
## 136	Exciting news!	0.685212519	9.59297527
## 137	Team meeting	0.796688539	9.56026247
## 138	Fun weekend!	0.796501584	9.55801901
## 139	Great work!	0.866824818	9.53507300
## 140	Exciting news!	0.679597112	9.51435957
## 141	Fun weekend!	0.791513952	9.49816742
## 142	Exciting news!	0.671785708	9.40499991
## 143	Team meeting	0.783531986	9.40238383
## 144	Need assistance	0.626154714	9.39232071
## 145	Team meeting	0.779166287	9.34999544
## 146	Team meeting	0.778342899	9.34011479
## 147	Exciting news!	0.664575256	9.30405358
## 148	Fun weekend!	0.775130778	9.30156934
## 149	Team meeting	0.774573303	9.29487964
## 150	Hello everyone!	0.616259416	9.24389124
## 151	Great work!	0.830162693	9.13178962
## 152	Great work!	0.827052074	9.09757281
## 153	Fun weekend!	0.757286296	9.08743555
## 154	Hello everyone!	0.605556316	9.08334474
## 155	Need assistance	0.601800072	9.02700108
## 156	Hello everyone!	0.599585856	8.99378784
## 157	Need assistance	0.599532404	8.99298606
## 158	Need assistance	0.599045397	8.98568096
## 159	Great work!	0.814900840	8.96390924
## 160	Team meeting	0.746085706	8.95302847
## 161	Need assistance	0.596431601	8.94647401
## 162	Exciting news!	0.638825124	8.94355174
## 163	Hello everyone!	0.593321668	8.89982502
## 164	Need assistance	0.593302410	8.89953615
## 165	Great work!	0.805481421	8.86029563
## 166	Great work!	0.804542714	8.84996985

## 167	Fun weekend!	0.734125260	8.80950312
## 168	Great work!	0.798867194	8.78753913
## 169	Hello everyone!	0.583445542	8.75168313
## 170	Hello everyone!	0.582868762	8.74303143
## 171	Exciting news!	0.617734990	8.64828986
## 172	Hello everyone!	0.576369455	8.64554183
## 173	Hello everyone!	0.575844854	8.63767281
## 174	Exciting news!	0.614791796	8.60708514
## 175	Great work!	0.782265475	8.60492023
## 176	Need assistance	0.572155187	8.58232781
## 177	Fun weekend!	0.706561523	8.47873828
## 178	Exciting news!	0.605349668	8.47489535
## 179	Team meeting	0.704733795	8.45680554
## 180	Great work!	0.766328182	8.42961000
## 181	Need assistance	0.558824511	8.38236767
## 182	Fun weekend!	0.698494015	8.38192818
## 183	Exciting news!	0.596924395	8.35694153
## 184	Fun weekend!	0.690391378	8.28469654
## 185	Exciting news!	0.591279314	8.27791040
## 186	Great work!	0.746216161	8.20837777
## 187	Need assistance	0.544408341	8.16612511
## 188	Exciting news!	0.581556937	8.14179712
## 189	Fun weekend!	0.670605208	8.04726250
## 190	Hello everyone!	0.535708998	8.03563497
## 191	Need assistance	0.534302738	8.01454107
## 192	Hello everyone!	0.532433989	7.98650984
## 193	Hello everyone!	0.530999278	7.96498917
## 194	Hello everyone!	0.530733542	7.96100313
## 195	Exciting news!	0.567230823	7.94123152
## 196	Hello everyone!	0.529127310	7.93690965
## 197	Team meeting	0.659773430	7.91728116
## 198	Exciting news!	0.563268560	7.88575984
## 199	Hello everyone!	0.524320859	7.86481289
## 200	Great work!	0.710615378	7.81676916
## 201	Hello everyone!	0.520647362	7.80971043
## 202	Fun weekend!	0.650773503	7.80928204
## 203	Great work!	0.709753431	7.80728774
## 204	Team meeting	0.650313874	7.80376649
## 205	Need assistance	0.519475343	7.79213014
## 206	Exciting news!	0.553149406	7.74409168
## 207	Exciting news!	0.549038415	7.68653781
## 208	Great work!	0.693037350	7.62341085
## 209	Team meeting	0.629940747	7.55928896
## 210	Great work!	0.680826971	7.48909668
## 211	Hello everyone!	0.498191035	7.47286553
## 212	Exciting news!	0.532747218	7.45846105
## 213	Need assistance	0.496275815	7.44413723
## 214	Great work!	0.675534202	7.43087622
## 215	Fun weekend!	0.619198539	7.43038247
## 216	Team meeting	0.617879979	7.41455975
## 217	Exciting news!	0.529548995	7.41368593
## 218	Need assistance	0.492307736	7.38461604
## 219	Hello everyone!	0.491653796	7.37480694
## 220	Team meeting	0.611721705	7.34066046
## 221	Hello everyone!	0.488557915	7.32836872
## 222	Hello everyone!	0.487545231	7.31317847

## 223	Fun weekend!	0.608656868	7.30388242
## 224	Need assistance	0.484403751	7.26605626
## 225	Fun weekend!	0.604609676	7.25531611
## 226	Hello everyone!	0.482187657	7.23281485
## 227	Need assistance	0.481529109	7.22293663
## 228	Great work!	0.652192219	7.17411441
## 229	Great work!	0.646422371	7.11064608
## 230	Fun weekend!	0.590919483	7.09103380
## 231	Great work!	0.642848774	7.07133651
## 232	Exciting news!	0.502961815	7.04146541
## 233	Team meeting	0.582250814	6.98700977
## 234	Exciting news!	0.497974098	6.97163737
## 235	Team meeting	0.578111817	6.93734180
## 236	Team meeting	0.569526526	6.83431831
## 237	Need assistance	0.454688824	6.82033236
## 238	Fun weekend!	0.567614020	6.81136824
## 239	Fun weekend!	0.567603516	6.81124219
## 240	Need assistance	0.453627230	6.80440845
## 241	Hello everyone!	0.450987421	6.76481132
## 242	Hello everyone!	0.450289166	6.75433749
## 243	Team meeting	0.560076173	6.72091408
## 244	Need assistance	0.445466304	6.68199456
## 245	Great work!	0.606102686	6.66712955
## 246	Great work!	0.605523043	6.66075347
## 247	Exciting news!	0.474910577	6.64874808
## 248	Exciting news!	0.468174768	6.55444675
## 249	Exciting news!	0.466239469	6.52735257
## 250	Fun weekend!	0.542777083	6.51332500
## 251	Hello everyone!	0.433930994	6.50896491
## 252	Fun weekend!	0.542070733	6.50484880
## 253	Exciting news!	0.461496073	6.46094502
## 254	Fun weekend!	0.535877908	6.43053490
## 255	Great work!	0.580541194	6.38595313
## 256	Team meeting	0.526457346	6.31748815
## 257	Hello everyone!	0.420571170	6.30856755
## 258	Fun weekend!	0.525517232	6.30620678
## 259	Great work!	0.570171806	6.27188987
## 260	Fun weekend!	0.519153008	6.22983610
## 261	Need assistance	0.414960733	6.22441100
## 262	Exciting news!	0.443950114	6.21530160
## 263	Great work!	0.564973874	6.21471261
## 264	Fun weekend!	0.513564137	6.16276964
## 265	Need assistance	0.408644735	6.12967102
## 266	Great work!	0.552484959	6.07733455
## 267	Great work!	0.550955762	6.06051338
## 268	Team meeting	0.504667453	6.05600944
## 269	Hello everyone!	0.401231622	6.01847433
## 270	Team meeting	0.500293179	6.00351815
## 271	Team meeting	0.499737595	5.99685114
## 272	Great work!	0.544805384	5.99285922
## 273	Great work!	0.544291852	5.98721037
## 274	Team meeting	0.498292263	5.97950716
## 275	Fun weekend!	0.496487776	5.95785331
## 276	Exciting news!	0.423581860	5.93014604
## 277	Exciting news!	0.423514269	5.92919977
## 278	Great work!	0.538406652	5.92247317

## 279	Exciting news!	0.422912350	5.92077290
## 280	Great work!	0.533465849	5.86812434
## 281	Fun weekend!	0.484796492	5.81755790
## 282	Exciting news!	0.415267176	5.81374046
## 283	Need assistance	0.385732211	5.78598317
## 284	Hello everyone!	0.384222084	5.76333126
## 285	Great work!	0.521462946	5.73609241
## 286	Fun weekend!	0.474564350	5.69477220
## 287	Great work!	0.516138048	5.67751853
## 288	Great work!	0.515643027	5.67207330
## 289	Fun weekend!	0.469535301	5.63442361
## 290	Exciting news!	0.401543677	5.62161148
## 291	Great work!	0.509797142	5.60776856
## 292	Need assistance	0.373691486	5.60537229
## 293	Fun weekend!	0.463157478	5.55788974
## 294	Hello everyone!	0.368215033	5.52322550
## 295	Team meeting	0.457860831	5.49432997
## 296	Exciting news!	0.388266448	5.43573027
## 297	Fun weekend!	0.451752027	5.42102432
## 298	Fun weekend!	0.446355308	5.35626370
## 299	Great work!	0.480868685	5.28955553
## 300	Great work!	0.480317921	5.28349713
## 301	Fun weekend!	0.438361928	5.26034314
## 302	Great work!	0.473425272	5.20767799
## 303	Exciting news!	0.370947586	5.19326620
## 304	Hello everyone!	0.346090994	5.19136491
## 305	Great work!	0.470731148	5.17804263
## 306	Need assistance	0.344264537	5.16396805
## 307	Need assistance	0.343977793	5.15966689
## 308	Great work!	0.468599080	5.15458988
## 309	Exciting news!	0.368110256	5.15354358
## 310	Great work!	0.468266435	5.15093078
## 311	Exciting news!	0.365244868	5.11342815
## 312	Team meeting	0.425960287	5.11152344
## 313	Great work!	0.463513046	5.09864351
## 314	Great work!	0.460303653	5.06334018
## 315	Fun weekend!	0.420022254	5.04026705
## 316	Fun weekend!	0.419715998	5.03659198
## 317	Fun weekend!	0.418006041	5.01607249
## 318	Need assistance	0.330107941	4.95161912
## 319	Exciting news!	0.350437745	4.90612843
## 320	Team meeting	0.403409261	4.84091113
## 321	Fun weekend!	0.402509230	4.83011076
## 322	Great work!	0.435108419	4.78619261
## 323	Fun weekend!	0.397376804	4.76852165
## 324	Great work!	0.432502551	4.75752806
## 325	Great work!	0.431652104	4.74817314
## 326	Fun weekend!	0.394200163	4.73040196
## 327	Exciting news!	0.336964048	4.71749667
## 328	Fun weekend!	0.387379609	4.64855531
## 329	Team meeting	0.384202328	4.61042794
## 330	Fun weekend!	0.380196611	4.56235933
## 331	Fun weekend!	0.378708432	4.54450118
## 332	Exciting news!	0.324592507	4.54429510
## 333	Need assistance	0.300882405	4.51323608
## 334	Hello everyone!	0.299843722	4.49765583

## 335	Exciting news!	0.320830711	4.49162995
## 336	Need assistance	0.298994374	4.48491561
## 337	Great work!	0.407506729	4.48257402
## 338	Great work!	0.406890230	4.47579253
## 339	Great work!	0.401612313	4.41773544
## 340	Team meeting	0.364639959	4.37567951
## 341	Need assistance	0.291605130	4.37407695
## 342	Exciting news!	0.310656996	4.34919794
## 343	Exciting news!	0.308247630	4.31546682
## 344	Exciting news!	0.307898677	4.31058148
## 345	Exciting news!	0.305391626	4.27548276
## 346	Fun weekend!	0.355941510	4.27129812
## 347	Team meeting	0.353438236	4.24125883
## 348	Hello everyone!	0.282330315	4.23495472
## 349	Great work!	0.383860287	4.22246316
## 350	Need assistance	0.279333149	4.18999723
## 351	Hello everyone!	0.278570379	4.17855569
## 352	Fun weekend!	0.347548683	4.17058420
## 353	Fun weekend!	0.346377916	4.15653499
## 354	Fun weekend!	0.345517721	4.14621265
## 355	Need assistance	0.275121063	4.12681594
## 356	Team meeting	0.343653605	4.12384326
## 357	Team meeting	0.341763970	4.10116764
## 358	Exciting news!	0.290797958	4.07117141
## 359	Great work!	0.362224979	3.98447477
## 360	Great work!	0.360768258	3.96845084
## 361	Hello everyone!	0.264306294	3.96459441
## 362	Team meeting	0.327507946	3.93009535
## 363	Exciting news!	0.275836162	3.86170627
## 364	Great work!	0.346799491	3.81479440
## 365	Team meeting	0.317846402	3.81415682
## 366	Need assistance	0.251102221	3.76653332
## 367	Hello everyone!	0.250149151	3.75223727
## 368	Fun weekend!	0.312383833	3.74860600
## 369	Fun weekend!	0.312006338	3.74407606
## 370	Need assistance	0.247236022	3.70854033
## 371	Fun weekend!	0.304697359	3.65636831
## 372	Exciting news!	0.260118117	3.64165364
## 373	Need assistance	0.235724795	3.53587192
## 374	Exciting news!	0.244900235	3.42860329
## 375	Great work!	0.306993762	3.37693138
## 376	Fun weekend!	0.280627117	3.36752540
## 377	Hello everyone!	0.223401716	3.35102574
## 378	Great work!	0.301563812	3.31720193
## 379	Fun weekend!	0.271711212	3.26053454
## 380	Need assistance	0.215954025	3.23931038
## 381	Fun weekend!	0.269629325	3.23555190
## 382	Team meeting	0.268132484	3.21758981
## 383	Team meeting	0.265132846	3.18159415
## 384	Exciting news!	0.222249684	3.11149558
## 385	Great work!	0.282790715	3.11069787
## 386	Exciting news!	0.221380584	3.09932818
## 387	Exciting news!	0.221250645	3.09750903
## 388	Team meeting	0.255163795	3.06196554
## 389	Team meeting	0.253805156	3.04566187
## 390	Great work!	0.268422757	2.95265033

## 391	Great work!	0.266619468	2.93281415
## 392	Team meeting	0.243233590	2.91880308
## 393	Great work!	0.263225980	2.89548578
## 394	Fun weekend!	0.237909144	2.85490973
## 395	Fun weekend!	0.236553716	2.83864459
## 396	Need assistance	0.188933107	2.83399660
## 397	Need assistance	0.187954018	2.81931027
## 398	Fun weekend!	0.233402089	2.80082507
## 399	Fun weekend!	0.232626481	2.79151777
## 400	Fun weekend!	0.231915887	2.78299064
## 401	Hello everyone!	0.184942272	2.77413408
## 402	Fun weekend!	0.229193896	2.75032675
## 403	Fun weekend!	0.226440192	2.71728230
## 404	Fun weekend!	0.226010282	2.71212338
## 405	Great work!	0.245927144	2.70519858
## 406	Hello everyone!	0.179850068	2.69775102
## 407	Great work!	0.244422906	2.68865197
## 408	Exciting news!	0.186763622	2.61469071
## 409	Hello everyone!	0.173851238	2.60776857
## 410	Need assistance	0.171319252	2.56978878
## 411	Team meeting	0.213498762	2.56198514
## 412	Team meeting	0.210089974	2.52107969
## 413	Need assistance	0.165087673	2.47631509
## 414	Great work!	0.222402995	2.44643294
## 415	Fun weekend!	0.203746784	2.44496141
## 416	Hello everyone!	0.161035733	2.41553599
## 417	Fun weekend!	0.201027735	2.41233282
## 418	Need assistance	0.157653404	2.36480106
## 419	Great work!	0.214199054	2.35618959
## 420	Team meeting	0.192284770	2.30741724
## 421	Team meeting	0.192018484	2.30422181
## 422	Fun weekend!	0.191519982	2.29823978
## 423	Team meeting	0.190247875	2.28297450
## 424	Great work!	0.203791809	2.24170990
## 425	Need assistance	0.148395223	2.22592834
## 426	Fun weekend!	0.185009266	2.22011119
## 427	Exciting news!	0.157755047	2.20857066
## 428	Great work!	0.199771451	2.19748596
## 429	Need assistance	0.143810244	2.15715366
## 430	Great work!	0.195303030	2.14833333
## 431	Exciting news!	0.153143482	2.14400875
## 432	Hello everyone!	0.142070077	2.13105115
## 433	Team meeting	0.176413531	2.11696237
## 434	Need assistance	0.141076977	2.11615465
## 435	Fun weekend!	0.172925062	2.07510074
## 436	Fun weekend!	0.172285239	2.06742287
## 437	Exciting news!	0.146396939	2.04955715
## 438	Need assistance	0.135939530	2.03909295
## 439	Fun weekend!	0.169502832	2.03403398
## 440	Great work!	0.181200765	1.99320842
## 441	Team meeting	0.165403601	1.98484321
## 442	Fun weekend!	0.163814227	1.96577072
## 443	Hello everyone!	0.130742100	1.96113150
## 444	Great work!	0.170066014	1.87072615
## 445	Exciting news!	0.131818828	1.84546359
## 446	Need assistance	0.121493359	1.82240038

## 447	Need assistance	0.120129855	1.80194782
## 448	Need assistance	0.119616441	1.79424662
## 449	Fun weekend!	0.149510738	1.79412886
## 450	Team meeting	0.146319367	1.75583240
## 451	Need assistance	0.116931847	1.75397771
## 452	Great work!	0.159243134	1.75167447
## 453	Hello everyone!	0.116596443	1.74894664
## 454	Need assistance	0.115823371	1.73735056
## 455	Need assistance	0.115187556	1.72781334
## 456	Great work!	0.150156671	1.65172338
## 457	Fun weekend!	0.129630754	1.55556905
## 458	Fun weekend!	0.124404418	1.49285302
## 459	Team meeting	0.120248223	1.44297868
## 460	Need assistance	0.091942075	1.37913113
## 461	Need assistance	0.089429019	1.34143528
## 462	Need assistance	0.088740259	1.33110389
## 463	Great work!	0.120376800	1.32414480
## 464	Need assistance	0.086844633	1.30266949
## 465	Need assistance	0.084778340	1.27167510
## 466	Need assistance	0.083397951	1.25096926
## 467	Need assistance	0.083300223	1.24950335
## 468	Team meeting	0.100578078	1.20693694
## 469	Exciting news!	0.085280708	1.19392991
## 470	Hello everyone!	0.079340591	1.19010887
## 471	Hello everyone!	0.076276061	1.14414092
## 472	Team meeting	0.093826082	1.12591298
## 473	Team meeting	0.087382621	1.04859145
## 474	Team meeting	0.082343857	0.98812628
## 475	Team meeting	0.082249742	0.98699690
## 476	Hello everyone!	0.063933458	0.95900187
## 477	Fun weekend!	0.079245736	0.95094883
## 478	Need assistance	0.063336529	0.95004794
## 479	Team meeting	0.078007510	0.93609012
## 480	Need assistance	0.060486035	0.90729052
## 481	Exciting news!	0.063475272	0.88865381
## 482	Exciting news!	0.063273371	0.88582719
## 483	Exciting news!	0.062969209	0.88156893
## 484	Hello everyone!	0.058449768	0.87674652
## 485	Team meeting	0.068864945	0.82637934
## 486	Hello everyone!	0.051583528	0.77375292
## 487	Exciting news!	0.055117640	0.77164696
## 488	Exciting news!	0.053784013	0.75297618
## 489	Fun weekend!	0.061621126	0.73945351
## 490	Great work!	0.066785066	0.73463573
## 491	Great work!	0.062977130	0.69274843
## 492	Need assistance	0.043240849	0.64861273
## 493	Hello everyone!	0.042741961	0.64112941
## 494	Exciting news!	0.044649603	0.62509444
## 495	Need assistance	0.041204039	0.61806058
## 496	Need assistance	0.037588875	0.56383313
## 497	Need assistance	0.037042340	0.55563510
## 498	Fun weekend!	0.045978463	0.55174156
## 499	Great work!	0.049291416	0.54220558
## 500	Fun weekend!	0.043927317	0.52712780
## 501	Great work!	0.041871845	0.46059029
## 502	Fun weekend!	0.038330505	0.45996606

## 503	Exciting news!	0.030849482	0.43189275
## 504	Fun weekend!	0.035476264	0.42571517
## 505	Great work!	0.037533612	0.41286973
## 506	Exciting news!	0.027252671	0.38153739
## 507	Team meeting	0.031597136	0.37916563
## 508	Team meeting	0.024089097	0.28906916
## 509	Exciting news!	0.020394353	0.28552094
## 510	Need assistance	0.017915569	0.26873353
## 511	Exciting news!	0.018387399	0.25742359
## 512	Great work!	0.018169560	0.19986516
## 513	Fun weekend!	0.005671109	0.06805331
## 514	Need assistance	-0.003094339	-0.04641509
## 515	Team meeting	-0.004460444	-0.05352533
## 516	Exciting news!	-0.007040349	-0.09856489
## 517	Exciting news!	-0.010767524	-0.15074534
## 518	Team meeting	-0.012694929	-0.15233915
## 519	Great work!	-0.013945965	-0.15340561
## 520	Team meeting	-0.014527882	-0.17433458
## 521	Great work!	-0.018533767	-0.20387144
## 522	Need assistance	-0.014521594	-0.21782391
## 523	Great work!	-0.022698464	-0.24968310
## 524	Exciting news!	-0.018193701	-0.25471181
## 525	Fun weekend!	-0.021554315	-0.25865178
## 526	Great work!	-0.026141260	-0.28755386
## 527	Team meeting	-0.024207670	-0.29049204
## 528	Team meeting	-0.024243061	-0.29091673
## 529	Exciting news!	-0.024743940	-0.34641516
## 530	Hello everyone!	-0.024430894	-0.36646341
## 531	Fun weekend!	-0.034278538	-0.41134246
## 532	Hello everyone!	-0.029610693	-0.44416039
## 533	Exciting news!	-0.033773244	-0.47282542
## 534	Great work!	-0.045373839	-0.49911223
## 535	Fun weekend!	-0.042934414	-0.51521297
## 536	Need assistance	-0.035525655	-0.53288483
## 537	Great work!	-0.049498704	-0.54448574
## 538	Team meeting	-0.047711935	-0.57254322
## 539	Hello everyone!	-0.038818533	-0.58227799
## 540	Fun weekend!	-0.049394990	-0.59273988
## 541	Hello everyone!	-0.040838550	-0.61257825
## 542	Need assistance	-0.042491458	-0.63737187
## 543	Need assistance	-0.044029484	-0.66044226
## 544	Fun weekend!	-0.056202481	-0.67442977
## 545	Exciting news!	-0.050068120	-0.70095368
## 546	Team meeting	-0.060755176	-0.72906211
## 547	Hello everyone!	-0.050532605	-0.75798908
## 548	Great work!	-0.068923920	-0.75816312
## 549	Exciting news!	-0.054910814	-0.76875140
## 550	Fun weekend!	-0.064443091	-0.77331709
## 551	Great work!	-0.071027102	-0.78129812
## 552	Team meeting	-0.074092148	-0.88910578
## 553	Team meeting	-0.075425136	-0.90510163
## 554	Need assistance	-0.064178423	-0.96267634
## 555	Hello everyone!	-0.064463819	-0.96695729
## 556	Need assistance	-0.065970336	-0.98955504
## 557	Need assistance	-0.070094255	-1.05141383
## 558	Fun weekend!	-0.088887415	-1.06664898



## 559	Team meeting	-0.092784007	-1.11340808
## 560	Hello everyone!	-0.075317414	-1.12976121
## 561	Team meeting	-0.094959955	-1.13951946
## 562	Hello everyone!	-0.081353148	-1.22029722
## 563	Fun weekend!	-0.102208237	-1.22649884
## 564	Great work!	-0.111933967	-1.23127364
## 565	Fun weekend!	-0.103599444	-1.24319333
## 566	Great work!	-0.114574431	-1.26031874
## 567	Fun weekend!	-0.111042333	-1.33250800
## 568	Team meeting	-0.111247493	-1.33496992
## 569	Team meeting	-0.113114946	-1.35737935
## 570	Great work!	-0.124954135	-1.37449548
## 571	Team meeting	-0.118006961	-1.41608353
## 572	Great work!	-0.129584252	-1.42542677
## 573	Need assistance	-0.100954488	-1.51431732
## 574	Need assistance	-0.101536875	-1.52305312
## 575	Need assistance	-0.102778860	-1.54168290
## 576	Need assistance	-0.104900640	-1.57350960
## 577	Exciting news!	-0.113282133	-1.58594986
## 578	Need assistance	-0.107154121	-1.60731182
## 579	Team meeting	-0.134102609	-1.60923131
## 580	Team meeting	-0.134665603	-1.61598724
## 581	Need assistance	-0.108376242	-1.62564363
## 582	Hello everyone!	-0.108963726	-1.63445589
## 583	Great work!	-0.150377708	-1.65415479
## 584	Fun weekend!	-0.141636565	-1.69963878
## 585	Exciting news!	-0.122806889	-1.71929645
## 586	Fun weekend!	-0.143456620	-1.72147944
## 587	Team meeting	-0.143542713	-1.72251256
## 588	Need assistance	-0.115035673	-1.72553510
## 589	Need assistance	-0.115179492	-1.72769238
## 590	Team meeting	-0.144443278	-1.73331934
## 591	Great work!	-0.160749977	-1.76824975
## 592	Fun weekend!	-0.149422837	-1.79307404
## 593	Hello everyone!	-0.120084892	-1.80127338
## 594	Team meeting	-0.150205611	-1.80246733
## 595	Fun weekend!	-0.159573650	-1.91488380
## 596	Need assistance	-0.129298556	-1.93947834
## 597	Need assistance	-0.130674560	-1.96011840
## 598	Great work!	-0.179680133	-1.97648146
## 599	Exciting news!	-0.141741692	-1.98438369
## 600	Fun weekend!	-0.173903828	-2.08684594
## 601	Exciting news!	-0.149807401	-2.09730361
## 602	Team meeting	-0.176315426	-2.11578511
## 603	Team meeting	-0.178657859	-2.14389431
## 604	Hello everyone!	-0.143450806	-2.15176209
## 605	Hello everyone!	-0.143556185	-2.15334278
## 606	Team meeting	-0.189370414	-2.27244497
## 607	Hello everyone!	-0.160779689	-2.41169534
## 608	Need assistance	-0.161143415	-2.41715123
## 609	Hello everyone!	-0.161284721	-2.41927081
## 610	Team meeting	-0.202094683	-2.42513620
## 611	Team meeting	-0.203160496	-2.43792595
## 612	Great work!	-0.222633559	-2.44896915
## 613	Hello everyone!	-0.164491392	-2.46737088
## 614	Hello everyone!	-0.166448134	-2.49672201

## 615	Great work!	-0.232635738	-2.55899312
## 616	Hello everyone!	-0.172054263	-2.58081395
## 617	Exciting news!	-0.184577833	-2.58408966
## 618	Great work!	-0.236779108	-2.60457019
## 619	Need assistance	-0.173975688	-2.60963532
## 620	Great work!	-0.244326655	-2.68759321
## 621	Exciting news!	-0.195798854	-2.74118396
## 622	Team meeting	-0.229243480	-2.75092176
## 623	Great work!	-0.251496902	-2.76646592
## 624	Team meeting	-0.232014328	-2.78417194
## 625	Team meeting	-0.232356975	-2.78828370
## 626	Exciting news!	-0.200843529	-2.81180941
## 627	Hello everyone!	-0.187917918	-2.81876877
## 628	Team meeting	-0.235653992	-2.82784790
## 629	Fun weekend!	-0.240693055	-2.88831666
## 630	Need assistance	-0.194268964	-2.91403446
## 631	Exciting news!	-0.209318373	-2.93045722
## 632	Need assistance	-0.195926677	-2.93890015
## 633	Need assistance	-0.198273231	-2.97409846
## 634	Exciting news!	-0.212464974	-2.97450964
## 635	Team meeting	-0.249497572	-2.99397086
## 636	Fun weekend!	-0.259928443	-3.11914132
## 637	Team meeting	-0.271451744	-3.25742093
## 638	Hello everyone!	-0.217646003	-3.26469005
## 639	Hello everyone!	-0.219064676	-3.28597014
## 640	Need assistance	-0.220039924	-3.30059886
## 641	Exciting news!	-0.237763272	-3.32868581
## 642	Team meeting	-0.284638313	-3.41565976
## 643	Great work!	-0.311243319	-3.42367651
## 644	Fun weekend!	-0.285561244	-3.42673493
## 645	Great work!	-0.311684015	-3.42852416
## 646	Fun weekend!	-0.286604216	-3.43925059
## 647	Team meeting	-0.287118956	-3.44542747
## 648	Team meeting	-0.289186294	-3.47023553
## 649	Great work!	-0.317266905	-3.48993595
## 650	Exciting news!	-0.249575844	-3.49406182
## 651	Need assistance	-0.236316590	-3.54474885
## 652	Team meeting	-0.299451457	-3.59341748
## 653	Need assistance	-0.240649289	-3.60973933
## 654	Great work!	-0.329095908	-3.62005499
## 655	Exciting news!	-0.260005387	-3.64007542
## 656	Team meeting	-0.303564250	-3.64277100
## 657	Hello everyone!	-0.243440011	-3.65160017
## 658	Team meeting	-0.307752223	-3.69302668
## 659	Great work!	-0.336303487	-3.69933836
## 660	Exciting news!	-0.265161676	-3.71226346
## 661	Need assistance	-0.249764988	-3.74647482
## 662	Team meeting	-0.320194449	-3.84233339
## 663	Team meeting	-0.320228465	-3.84274158
## 664	Great work!	-0.349391197	-3.84330317
## 665	Great work!	-0.351176404	-3.86294044
## 666	Fun weekend!	-0.329790550	-3.95748660
## 667	Great work!	-0.359934055	-3.95927460
## 668	Need assistance	-0.264464825	-3.96697238
## 669	Exciting news!	-0.283369262	-3.96716967
## 670	Exciting news!	-0.286527871	-4.01139019

## 671	Exciting news!	-0.290788232	-4.07103525
## 672	Need assistance	-0.273263505	-4.09895258
## 673	Fun weekend!	-0.345988781	-4.15186537
## 674	Exciting news!	-0.298691060	-4.18167484
## 675	Hello everyone!	-0.279889458	-4.19834187
## 676	Team meeting	-0.351081788	-4.21298146
## 677	Exciting news!	-0.301641050	-4.22297470
## 678	Need assistance	-0.281915764	-4.22873646
## 679	Exciting news!	-0.302134784	-4.22988698
## 680	Great work!	-0.387922954	-4.26715249
## 681	Great work!	-0.389590032	-4.28549035
## 682	Fun weekend!	-0.357268680	-4.28722416
## 683	Great work!	-0.389785778	-4.28764356
## 684	Fun weekend!	-0.358376735	-4.30052082
## 685	Hello everyone!	-0.289897254	-4.34845881
## 686	Fun weekend!	-0.363247766	-4.35897319
## 687	Team meeting	-0.365139902	-4.38167882
## 688	Great work!	-0.400677142	-4.40744856
## 689	Great work!	-0.404516522	-4.44968174
## 690	Fun weekend!	-0.371842024	-4.46210429
## 691	Great work!	-0.405934577	-4.46528035
## 692	Fun weekend!	-0.372473280	-4.46967936
## 693	Need assistance	-0.299717092	-4.49575638
## 694	Fun weekend!	-0.375794835	-4.50953802
## 695	Great work!	-0.410223121	-4.51245433
## 696	Team meeting	-0.377541550	-4.53049860
## 697	Great work!	-0.417041691	-4.58745860
## 698	Exciting news!	-0.329569053	-4.61396674
## 699	Team meeting	-0.385177557	-4.62213068
## 700	Team meeting	-0.386754569	-4.64105483
## 701	Fun weekend!	-0.390309056	-4.68370867
## 702	Fun weekend!	-0.391704335	-4.70045202
## 703	Need assistance	-0.316063035	-4.74094552
## 704	Hello everyone!	-0.318016798	-4.77025197
## 705	Hello everyone!	-0.321912185	-4.82868277
## 706	Great work!	-0.443448592	-4.87793451
## 707	Hello everyone!	-0.325806037	-4.88709056
## 708	Great work!	-0.446627778	-4.91290556
## 709	Need assistance	-0.329706852	-4.94560278
## 710	Fun weekend!	-0.412842807	-4.95411368
## 711	Fun weekend!	-0.415885320	-4.99062384
## 712	Fun weekend!	-0.417790642	-5.01348770
## 713	Great work!	-0.459148118	-5.05062930
## 714	Team meeting	-0.423585835	-5.08303002
## 715	Great work!	-0.462906254	-5.09196879
## 716	Need assistance	-0.340010146	-5.10015219
## 717	Need assistance	-0.345415825	-5.18123738
## 718	Fun weekend!	-0.436848105	-5.24217726
## 719	Great work!	-0.481857921	-5.30043713
## 720	Hello everyone!	-0.355751095	-5.33626642
## 721	Need assistance	-0.356371285	-5.34556927
## 722	Need assistance	-0.356432681	-5.34649021
## 723	Hello everyone!	-0.357717138	-5.36575707
## 724	Great work!	-0.488912587	-5.37803846
## 725	Hello everyone!	-0.359136123	-5.38704184
## 726	Hello everyone!	-0.360894154	-5.41341231

## 727	Exciting news!	-0.388513986	-5.43919580
## 728	Great work!	-0.495721815	-5.45293997
## 729	Fun weekend!	-0.455487390	-5.46584868
## 730	Hello everyone!	-0.369747002	-5.54620503
## 731	Great work!	-0.505026447	-5.55529092
## 732	Exciting news!	-0.398672424	-5.58141394
## 733	Team meeting	-0.467768930	-5.61322716
## 734	Need assistance	-0.375053814	-5.62580721
## 735	Team meeting	-0.472906698	-5.67488038
## 736	Hello everyone!	-0.378329881	-5.67494821
## 737	Fun weekend!	-0.474169046	-5.69002855
## 738	Great work!	-0.518683678	-5.70552046
## 739	Team meeting	-0.476500273	-5.71800328
## 740	Exciting news!	-0.408464086	-5.71849720
## 741	Need assistance	-0.384110797	-5.76166196
## 742	Great work!	-0.526421044	-5.79063148
## 743	Exciting news!	-0.415566467	-5.81793054
## 744	Fun weekend!	-0.485003887	-5.82004664
## 745	Exciting news!	-0.415822029	-5.82150841
## 746	Team meeting	-0.492082868	-5.90499442
## 747	Team meeting	-0.493501368	-5.92201642
## 748	Great work!	-0.539260621	-5.93186683
## 749	Hello everyone!	-0.395961934	-5.93942901
## 750	Fun weekend!	-0.495438306	-5.94525967
## 751	Fun weekend!	-0.496555788	-5.95866946
## 752	Great work!	-0.545365768	-5.99902345
## 753	Great work!	-0.548428072	-6.03270879
## 754	Great work!	-0.549234209	-6.04157630
## 755	Exciting news!	-0.433124611	-6.06374455
## 756	Fun weekend!	-0.511013610	-6.13216332
## 757	Exciting news!	-0.445320373	-6.23448522
## 758	Hello everyone!	-0.416070993	-6.24106490
## 759	Fun weekend!	-0.520876877	-6.25052252
## 760	Team meeting	-0.526283488	-6.31540186
## 761	Great work!	-0.574539005	-6.31992906
## 762	Fun weekend!	-0.528116655	-6.33739986
## 763	Exciting news!	-0.452694423	-6.33772192
## 764	Team meeting	-0.528815492	-6.34578590
## 765	Fun weekend!	-0.530567507	-6.36681008
## 766	Great work!	-0.579760317	-6.37736349
## 767	Hello everyone!	-0.426096413	-6.39144620
## 768	Fun weekend!	-0.533522750	-6.40227300
## 769	Team meeting	-0.536957865	-6.44349438
## 770	Fun weekend!	-0.539049788	-6.46859746
## 771	Need assistance	-0.435741366	-6.53612049
## 772	Great work!	-0.595158034	-6.54673837
## 773	Great work!	-0.597466531	-6.57213184
## 774	Need assistance	-0.438415068	-6.57622602
## 775	Need assistance	-0.438784983	-6.58177475
## 776	Team meeting	-0.549432104	-6.59318525
## 777	Hello everyone!	-0.440484574	-6.60726861
## 778	Fun weekend!	-0.552409418	-6.62891302
## 779	Exciting news!	-0.476039052	-6.66454673
## 780	Hello everyone!	-0.446434771	-6.69652157
## 781	Fun weekend!	-0.558283084	-6.69939701
## 782	Fun weekend!	-0.558302570	-6.69963084

## 783	Hello everyone!	-0.452905738	-6.79358607
## 784	Fun weekend!	-0.566594298	-6.79913158
## 785	Exciting news!	-0.487793705	-6.82911187
## 786	Fun weekend!	-0.569811309	-6.83773571
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## 788	Fun weekend!	-0.576360519	-6.91632623
## 789	Need assistance	-0.461871512	-6.92807268
## 790	Great work!	-0.630844017	-6.93928419
## 791	Need assistance	-0.462980804	-6.94471206
## 792	Fun weekend!	-0.584208118	-7.01049742
## 793	Great work!	-0.641657173	-7.05822890
## 794	Great work!	-0.643276188	-7.07603807
## 795	Great work!	-0.652119522	-7.17331474
## 796	Team meeting	-0.608078998	-7.29694798
## 797	Great work!	-0.666475324	-7.33122856
## 798	Exciting news!	-0.525143623	-7.35201072
## 799	Need assistance	-0.493062959	-7.39594438
## 800	Great work!	-0.674055766	-7.41461343
## 801	Exciting news!	-0.531753783	-7.44455296
## 802	Exciting news!	-0.533024813	-7.46234738
## 803	Fun weekend!	-0.624432764	-7.49319317
## 804	Exciting news!	-0.537696546	-7.52775164
## 805	Exciting news!	-0.539138246	-7.54793544
## 806	Exciting news!	-0.542942689	-7.60119765
## 807	Great work!	-0.693289580	-7.62618538
## 808	Hello everyone!	-0.508614742	-7.62922113
## 809	Exciting news!	-0.546088908	-7.64524471
## 810	Hello everyone!	-0.510870771	-7.66306156
## 811	Team meeting	-0.641849058	-7.70218870
## 812	Great work!	-0.700269639	-7.70296603
## 813	Team meeting	-0.642315470	-7.70778564
## 814	Need assistance	-0.514785561	-7.72178341
## 815	Great work!	-0.704862314	-7.75348545
## 816	Great work!	-0.705626460	-7.76189106
## 817	Hello everyone!	-0.526591262	-7.89886893
## 818	Great work!	-0.725357866	-7.97893653
## 819	Team meeting	-0.666378770	-7.99654524
## 820	Team meeting	-0.670432338	-8.04518806
## 821	Fun weekend!	-0.672147054	-8.06576465
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## 823	Fun weekend!	-0.673607849	-8.08329419
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## 825	Need assistance	-0.542398809	-8.13598214
## 826	Need assistance	-0.543064435	-8.14596653
## 827	Exciting news!	-0.582243779	-8.15141291
## 828	Need assistance	-0.544543609	-8.16815413
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## 832	Fun weekend!	-0.693275109	-8.31930131
## 833	Hello everyone!	-0.555095884	-8.32643826
## 834	Exciting news!	-0.597888714	-8.37044200
## 835	Hello everyone!	-0.558468956	-8.37703434
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## 837	Great work!	-0.769964864	-8.46961350
## 838	Fun weekend!	-0.707901944	-8.49482333

## 839	Hello everyone!	-0.567197050	-8.50795575
## 840	Team meeting	-0.709024122	-8.50828946
## 841	Exciting news!	-0.608554570	-8.51976398
## 842	Hello everyone!	-0.568787924	-8.53181886
## 843	Team meeting	-0.712716471	-8.55259765
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## 845	Hello everyone!	-0.572465386	-8.58698079
## 846	Exciting news!	-0.615862965	-8.62208151
## 847	Team meeting	-0.718652172	-8.62382606
## 848	Exciting news!	-0.616592484	-8.63229478
## 849	Great work!	-0.784876938	-8.63364632
## 850	Exciting news!	-0.616928389	-8.63699745
## 851	Exciting news!	-0.618614707	-8.66060590
## 852	Need assistance	-0.577738499	-8.66607748
## 853	Fun weekend!	-0.735883705	-8.83060446
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## 856	Hello everyone!	-0.598425182	-8.97637773
## 857	Need assistance	-0.600080754	-9.00121131
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## 859	Great work!	-0.823533585	-9.05886944
## 860	Hello everyone!	-0.605858998	-9.08788497
## 861	Team meeting	-0.757670477	-9.09204572
## 862	Hello everyone!	-0.606922586	-9.10383879
## 863	Fun weekend!	-0.760701751	-9.12842101
## 864	Need assistance	-0.611560303	-9.17340455
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## 866	Need assistance	-0.613432584	-9.20148876
## 867	Need assistance	-0.614020258	-9.21030387
## 868	Team meeting	-0.767587414	-9.21104897
## 869	Great work!	-0.839583620	-9.23541982
## 870	Great work!	-0.841218561	-9.25340417
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## 872	Team meeting	-0.774452816	-9.29343379
## 873	Team meeting	-0.780283807	-9.36340568
## 874	Great work!	-0.853163924	-9.38480316
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## 879	Hello everyone!	-0.633588556	-9.50382834
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## 885	Exciting news!	-0.686074989	-9.60504985
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## 887	Team meeting	-0.801572199	-9.61886639
## 888	Exciting news!	-0.693217811	-9.70504935
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## 890	Team meeting	-0.812502595	-9.75003114
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## 892	Team meeting	-0.815906889	-9.79088267
## 893	Fun weekend!	-0.818538250	-9.82245900
## 894	Team meeting	-0.823923888	-9.88708666

## 895 Great work! -0.900102365 -9.90112601  
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## 899 Exciting news! -0.719712700 -10.07597780  
## 900 Fun weekend! -0.848228461 -10.17874153  
## 901 Need assistance -0.680233249 -10.20349874  
## 902 Exciting news! -0.736287751 -10.30802851  
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## 906 Great work! -0.947211589 -10.41932748  
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## 908 Exciting news! -0.745493084 -10.43690318  
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## 910 Great work! -0.951084716 -10.46193188  
## 911 Exciting news! -0.750027833 -10.50038966  
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## 913 Fun weekend! -0.877705400 -10.53246480  
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## 920 Team meeting -0.893834382 -10.72601258  
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## 922 Need assistance -0.716619523 -10.74929284  
## 923 Exciting news! -0.768564025 -10.75989635  
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## 926 Exciting news! -0.770805090 -10.79127126  
## 927 Hello everyone! -0.725457437 -10.88186156  
## 928 Exciting news! -0.792284821 -11.09198749  
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## 930 Fun weekend! -0.926554946 -11.11865935  
## 931 Team meeting -0.927027794 -11.12433353  
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## 933 Fun weekend! -0.928850479 -11.14620575  
## 934 Exciting news! -0.798021044 -11.17229462  
## 935 Team meeting -0.933677876 -11.20413451  
## 936 Team meeting -0.934943126 -11.21931751  
## 937 Team meeting -0.935610580 -11.22732696  
## 938 Need assistance -0.750471560 -11.25707340  
## 939 Team meeting -0.939407335 -11.27288802  
## 940 Need assistance -0.754348847 -11.31523271  
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## 942 Hello everyone! -0.761104998 -11.41657497  
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## 944 Team meeting -0.955364774 -11.46437729  
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## 953 Team meeting -0.970338997 -11.64406796  
## 954 Team meeting -0.976236885 -11.71484262  
## 955 Exciting news! -0.847681918 -11.86754685  
## 956 Team meeting -0.993759494 -11.92511393  
## 957 Team meeting -0.996662613 -11.95995136  
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## 962 Hello everyone! -0.812013249 -12.18019874  
## 963 Exciting news! -0.871460078 -12.20044109  
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## 966 Exciting news! -0.875286373 -12.25400922  
## 967 Hello everyone! -0.822144668 -12.33217002  
## 968 Need assistance -0.829999507 -12.44999261  
## 969 Need assistance -0.834047724 -12.51071586  
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## 971 Exciting news! -0.901918261 -12.62685565  
## 972 Hello everyone! -0.843954970 -12.65932455  
## 973 Need assistance -0.846264025 -12.69396037  
## 974 Hello everyone! -0.851052538 -12.76578807  
## 975 Need assistance -0.857863282 -12.86794923  
## 976 Hello everyone! -0.863882122 -12.95823183  
## 977 Exciting news! -0.930242309 -13.02339233  
## 978 Hello everyone! -0.878399170 -13.17598755  
## 979 Need assistance -0.879413284 -13.19119926  
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## 983 Hello everyone! -0.893453151 -13.40179727  
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## 987 Hello everyone! -0.918783627 -13.78175441  
## 988 Need assistance -0.919222645 -13.78833967  
## 989 Need assistance -0.920249034 -13.80373551  
## 990 Exciting news! -0.995861550 -13.94206170  
## 991 Hello everyone! -0.932525445 -13.98788168  
## 992 Hello everyone! -0.936083395 -14.04125092  
## 993 Hello everyone! -0.939573104 -14.09359656  
## 994 Hello everyone! -0.940684421 -14.11026632  
## 995 Hello everyone! -0.945477226 -14.18215839  
## 996 Need assistance -0.970480603 -14.55720905  
## 997 Hello everyone! -0.987261285 -14.80891927  
## 998 Need assistance -0.988749139 -14.83123709  
## 999 Need assistance -0.992002849 -14.88004273  
## 1000 Need assistance -0.998774239 -14.98161358

## 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 %>% select(message, date) %>% group_by(date) %>% summarise(amtired = length(message)) %>% arrange(desc(amtired)) %>% slice(1)
```

```
## # A tibble: 1 × 2
##   date      amtired
##   <chr>      <int>
## 1 10/8/2023      66
```

```
#length() can be replaced w sum(nchar())
```

### 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?

no

**Solution:** 1) no data is referred to as (X) instead of being left empty or left as NA

2. empty rows/observations

3. “+/-” causes the margin of error/ percent margin of error problems during computation, R will treat as character type