

# MapReduce

## Classroom example

This is the file to create a map reduce classroom example. The setup is as follows

1. print this file
2. give the raw file to 1-4 students, they shall count the words. Measure the time. This is sequential processing.
3. give the chunked file to the respective number of students. There are  $n = 2, 4, 5, 10$  groups available. The number of students is the chunk server.
4. one student acts as the “reduce” server, collecting all the counts.
5. write the counts on the whiteboard including the times
6. which number of groups is the most efficient and which produces considerable overhead?

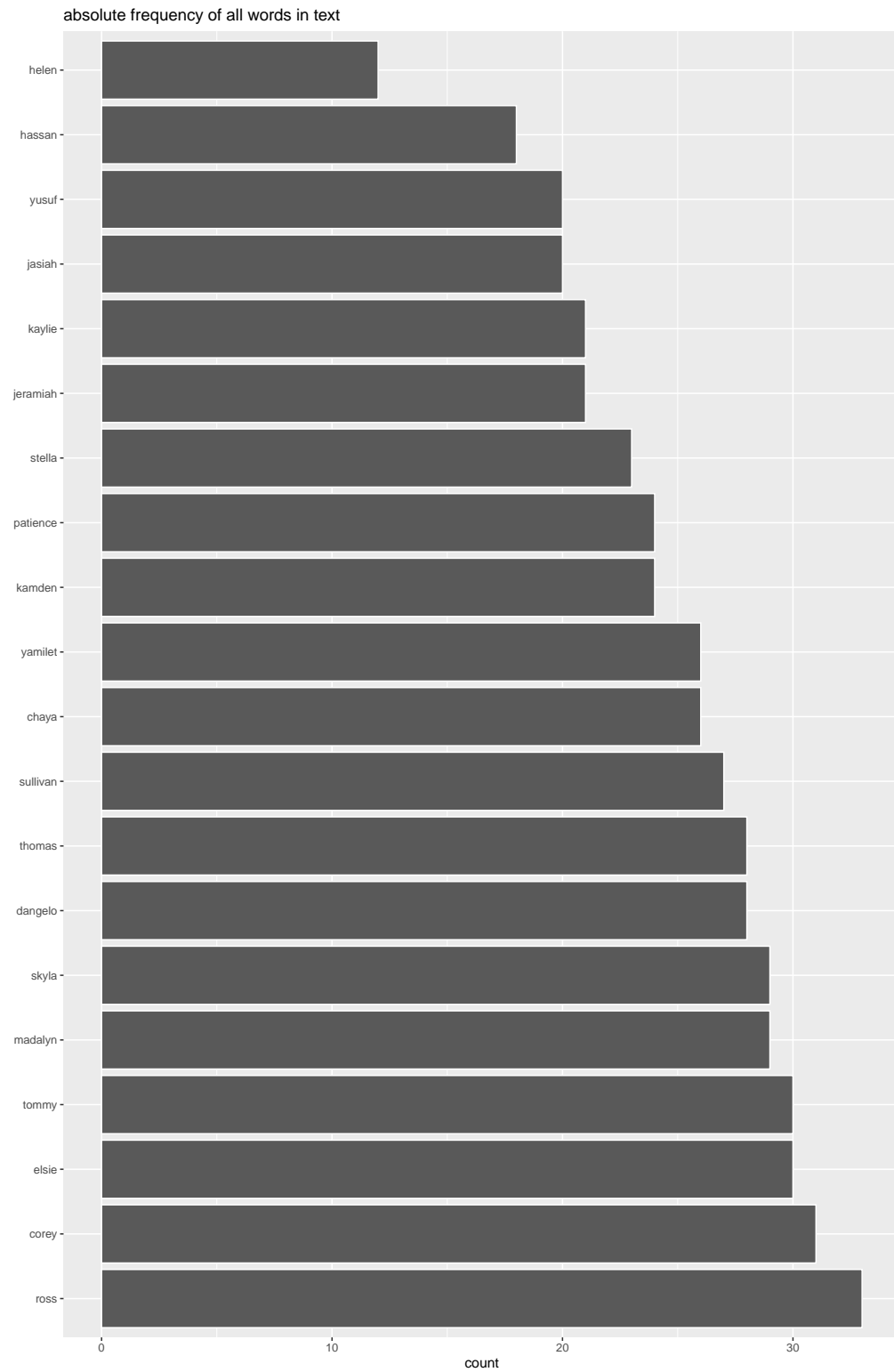
## some summary statistics on the raw data

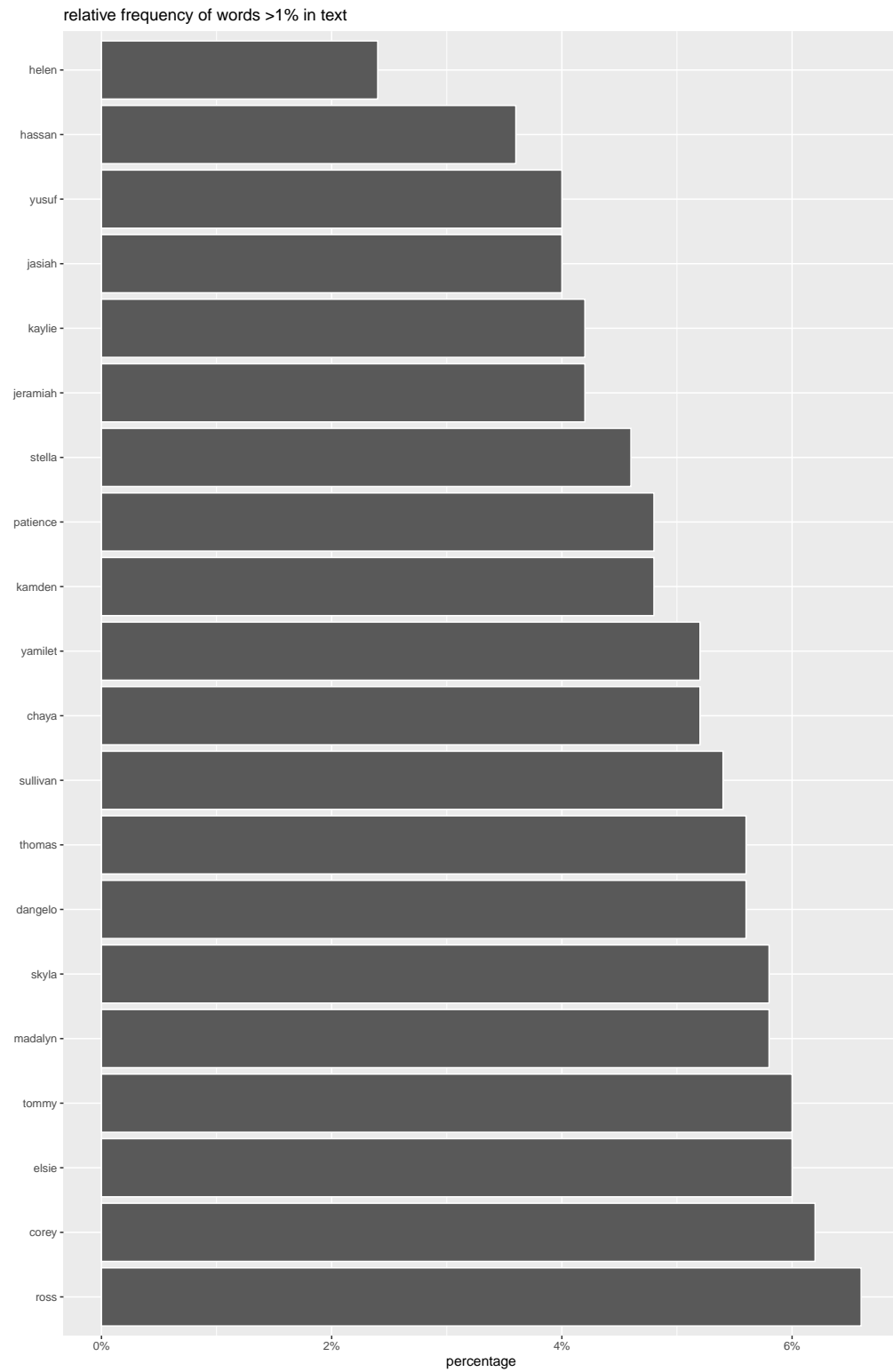
In total there are 500 words available.

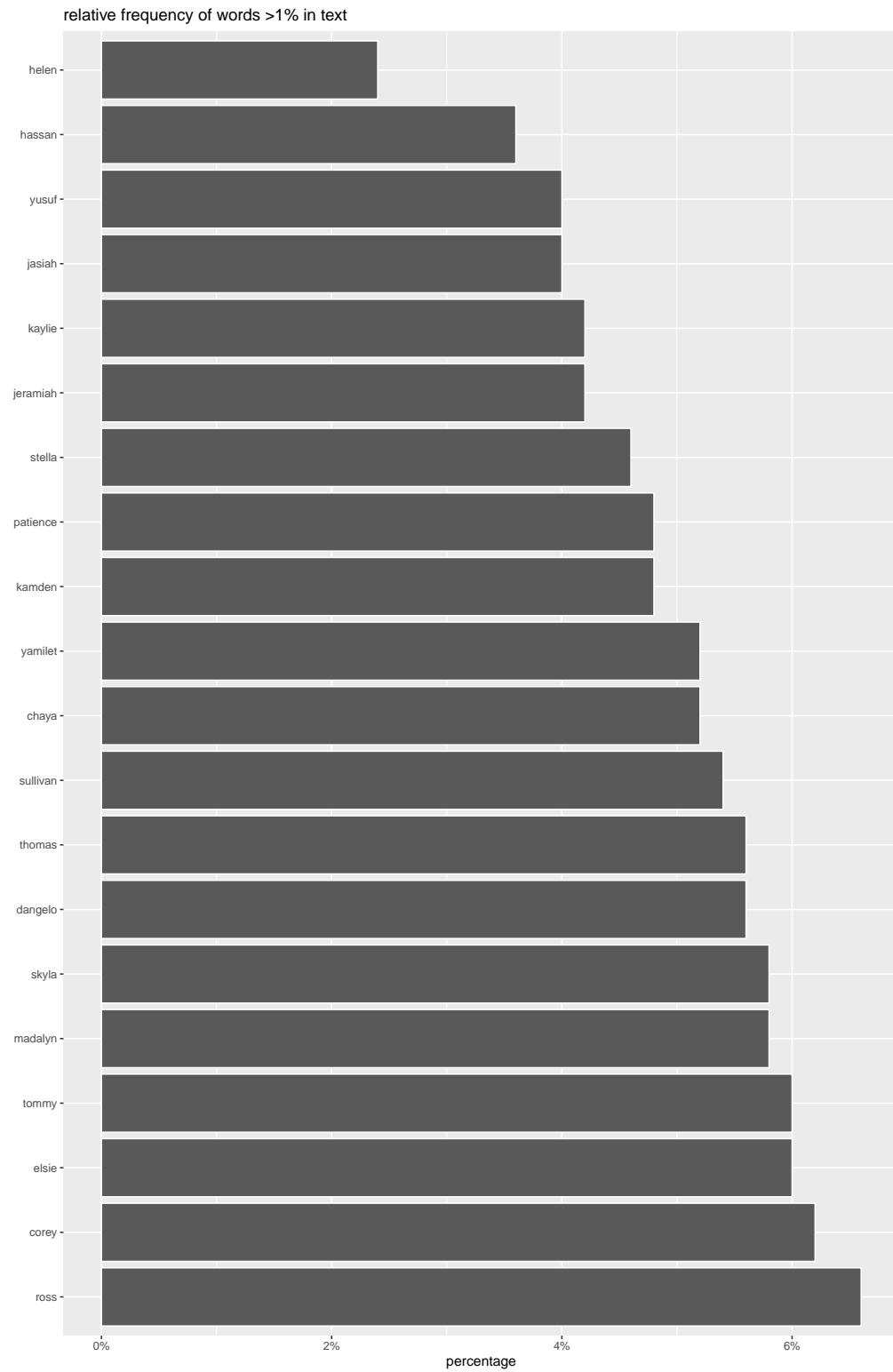
words	Freq	percentage	percentage_round
ross	33	6.60%	6.60%
corey	31	6.20%	6.20%
elsie	30	6.00%	6.00%
tommy	30	6.00%	6.00%
madalyn	29	5.80%	5.80%
skyla	29	5.80%	5.80%
dangelo	28	5.60%	5.60%
thomas	28	5.60%	5.60%
sullivan	27	5.40%	5.40%
chaya	26	5.20%	5.20%
yamilet	26	5.20%	5.20%
kamden	24	4.80%	4.80%

patience	24	4.80%	4.80%
stella	23	4.60%	4.60%
jeramiah	21	4.20%	4.20%
kaylie	21	4.20%	4.20%
jasiah	20	4.00%	4.00%
yusuf	20	4.00%	4.00%
hassan	18	3.60%	3.60%
helen	12	2.40%	2.40%

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## The Raw data 01

Corey, Sullivan, Stella, Yusuf, Hassan, Elsie, Sullivan, Sullivan, Dangelo, Sullivan, Ross , Chaya, Patience, Thomas, Tommy, Thomas, Dangelo, Yamilet, Thomas, Madalyn, Kaylie, Sullivan, Stella, Kamden, Thomas, Ross , Madalyn, Chaya, Madalyn, Tommy, Corey, Thomas, Elsie, Tommy, Hassan, Sullivan, Ross , Elsie, Stella, Corey, Stella, Helen, Helen, Ross , Skyla, Yusuf, Thomas, Patience, Sullivan, Madalyn, Patience, Skyla, Kamden, Helen, Ross , Elsie, Hassan, Corey, Jasiah, Jeramiah, Jeramiah, Hassan, Sullivan, Elsie, Yamilet, Yusuf, Elsie, Madalyn, Corey, Kamden, Elsie, Yamilet, Skyla, Ross , Chaya, Patience, Jasiah, Yusuf, Dangelo, Thomas, Patience, Dangelo, Hassan, Jasiah, Yamilet, Yamilet, Sullivan, Dangelo, Ross , Kamden, Chaya, Patience, Sullivan, Sullivan, Kamden, Jasiah, Corey, Madalyn, Skyla, Skyla, Kaylie, Corey, Kamden, Elsie, Ross , Madalyn, Tommy, Yamilet, Kaylie, Elsie, Tommy, Ross , Sullivan, Yusuf, Patience, Corey, Thomas, Helen, Corey, Dangelo, Yusuf, Dangelo, Hassan, Elsie, Helen, Skyla, Madalyn, Yusuf, Stella, Dangelo, Ross , Elsie, Kaylie, Ross , Yusuf, Thomas, Madalyn, Patience, Ross , Tommy, Jasiah, Skyla, Kamden, Jeramiah, Stella, Yamilet, Tommy, Corey, Madalyn, Madalyn, Yamilet, Thomas, Yamilet, Madalyn, Ross , Kaylie, Tommy, Dangelo, Tommy, Dangelo, Madalyn, Stella, Elsie, Yusuf, Dangelo, Kaylie, Madalyn, Hassan, Stella, Yusuf, Ross , Tommy, Yusuf, Jeramiah, Tommy, Yamilet, Hassan, Tommy, Corey, Skyla, Sullivan, Kaylie, Skyla, Stella, Madalyn, Elsie, Jeramiah, Jeramiah, Ross , Ross , Thomas, Madalyn, Tommy, Stella, Ross , Jasiah, Yamilet, Thomas, Thomas, Jasiah, Kamden, Skyla, Kaylie, Dangelo, Chaya, Stella, Kaylie, Hassan, Corey, Jasiah, Dangelo, Kaylie, Tommy, Dangelo, Thomas, Jeramiah, Kamden, Thomas, Stella, Skyla, Elsie, Elsie, Elsie, Thomas, Ross , Chaya, Thomas, Stella, Chaya, Sullivan, Dangelo, Stella, Jeramiah, Skyla, Hassan, Chaya, Tommy, Corey, Yusuf, Elsie, Ross , Helen, Sullivan, Skyla, Jasiah, Corey, Skyla, Yusuf, Corey, Hassan, Jeramiah, Jeramiah, Thomas, Jeramiah, Dangelo, Hassan, Kaylie, Kamden, Hassan, Patience, Patience, Kaylie, Kaylie, Patience, Thomas, Tommy, Thomas, Tommy, Chaya, Ross , Tommy, Elsie, Yusuf, Yamilet, Ross , Madalyn, Patience, Patience, Dangelo, Chaya, Yamilet, Hassan, Kaylie, Skyla, Elsie, Yusuf, Kamden, Thomas, Sullivan, Skyla, Tommy, Tommy, Jasiah, Chaya, Ross , Yamilet, Chaya, Skyla, Dangelo, Yamilet, Helen, Corey, Yamilet, Stella, Elsie, Dangelo, Sullivan, Kamden, Chaya, Ross , Yamilet, Yusuf, Stella, Ross , Madalyn, Chaya, Skyla, Dangelo, Tommy, Madalyn, Jeramiah, Jeramiah, Sullivan, Yamilet, Dangelo, Hassan, Hassan, Chaya, Helen, Stella, Madalyn, Sullivan, Tommy, Chaya, Elsie, Sullivan, Kamden, Jasiah, Chaya, Jeramiah, Elsie, Yamilet, Stella, Tommy, Kamden, Kamden, Dangelo, Dangelo, Jeramiah, Jasiah, Corey, Corey, Dangelo, Yamilet, Elsie, Thomas, Skyla, Elsie, Helen, Corey, Chaya, Kaylie, Ross , Thomas, Jasiah, Yusuf, Hassan, Kamden, Yamilet, Ross , Elsie, Sullivan, Jeramiah, Madalyn, Patience, Sullivan, Kamden, Chaya, Skyla, Skyla, Kamden, Jasiah, Helen, Skyla, Skyla, Ross , Chaya, Yusuf, Hassan, Corey, Skyla, Skyla, Chaya, Kamden, Corey, Patience, Kaylie, Patience, Elsie, Kamden, Ross , Elsie, Patience, Stella, Jeramiah, Patience, Patience, Corey, Patience, Jasiah, Madalyn, Corey, Corey, Patience, Patience, Tommy, Ross , Madalyn, Jeramiah, Kaylie, Jasiah, Skyla, Patience, Stella, Thomas, Ross , Chaya, Jasiah, Chaya, Madalyn, Madalyn, Sullivan, Tommy, Kaylie, Yamilet, Jasiah, Yamilet, Yusuf, Sullivan, Sullivan, Dangelo, Sullivan, Yamilet, Jasiah, Helen, Skyla, Kam-

den, Dangelo, Jasiah, Thomas, Yamilet, Kaylie, Ross , Thomas, Madalyn, Ross , Thomas, Corey, Elsie, Madalyn, Corey, Kamden, Ross , Yamilet, Kaylie, Corey, Chaya, Dangelo, Elsie, Thomas, Elsie, Stella, Madalyn, Tommy, Stella, Helen, Kamden, Skyla, Sullivan, Tommy, Tommy, Corey, Madalyn, Corey, Jeramiah, Jeramiah, Tommy, Dangelo, Corey, Kamden, Patience, Tommy, Corey, Yusuf, Stella, Chaya, Kaylie, Skyla, Chaya, Jeramiah

## The Raw data 02

Corey, Sullivan, Stella, Yusuf, Hassan, Elsie, Sullivan, Sullivan, Dangelo, Sullivan, Ross , Chaya, Patience, Thomas, Tommy, Thomas, Dangelo, Yamilet, Thomas, Madalyn, Kaylie, Sullivan, Stella, Kamden, Thomas, Ross , Madalyn, Chaya, Madalyn, Tommy, Corey, Thomas, Elsie, Tommy, Hassan, Sullivan, Ross , Elsie, Stella, Corey, Stella, Helen, Helen, Ross , Skyla, Yusuf, Thomas, Patience, Sullivan, Madalyn, Patience, Skyla, Kamden, Helen, Ross , Elsie, Hassan, Corey, Jasiah, Jeramiah, Jeramiah, Hassan, Sullivan, Elsie, Yamilet, Yusuf, Elsie, Madalyn, Corey, Kamden, Elsie, Yamilet, Skyla, Ross , Chaya, Patience, Jasiah, Yusuf, Dangelo, Thomas, Patience, Dangelo, Hassan, Jasiah, Yamilet, Yamilet, Sullivan, Dangelo, Ross , Kamden, Chaya, Patience, Sullivan, Sullivan, Kamden, Jasiah, Corey, Madalyn, Skyla, Skyla, Kaylie, Corey, Kamden, Elsie, Ross , Madalyn, Tommy, Yamilet, Kaylie, Elsie, Tommy, Ross , Sullivan, Yusuf, Patience, Corey, Thomas, Helen, Corey, Dangelo, Yusuf, Dangelo, Hassan, Elsie, Helen, Skyla, Madalyn, Yusuf, Stella, Dangelo, Ross , Elsie, Kaylie, Ross , Yusuf, Thomas, Madalyn, Patience, Ross , Tommy, Jasiah, Skyla, Kamden, Jeramiah, Stella, Yamilet, Tommy, Corey, Madalyn, Madalyn, Yamilet, Thomas, Yamilet, Madalyn, Ross , Kaylie, Tommy, Dangelo, Tommy, Dangelo, Madalyn, Stella, Elsie, Yusuf, Dangelo, Kaylie, Madalyn, Hassan, Stella, Yusuf, Ross , Tommy, Yusuf, Jeramiah, Tommy, Yamilet, Hassan, Tommy, Corey, Skyla, Sullivan, Kaylie, Skyla, Stella, Madalyn, Elsie, Jeramiah, Jeramiah, Ross , Ross , Thomas, Madalyn, Tommy, Stella, Ross , Jasiah, Yamilet, Thomas, Thomas, Jasiah, Kamden, Skyla, Kaylie, Dangelo, Chaya, Stella, Kaylie, Hassan, Corey, Jasiah, Dangelo, Kaylie, Tommy, Dangelo, Thomas, Jeramiah, Kamden, Thomas, Stella, Skyla, Elsie, Elsie, Elsie, Thomas, Ross , Chaya, Thomas, Stella, Chaya, Sullivan, Dangelo, Stella, Jeramiah, Skyla, Hassan, Chaya, Tommy, Corey, Yusuf, Elsie, Ross , Helen, Sullivan, Skyla, Jasiah, Corey, Skyla, Yusuf, Corey, Hassan, Jeramiah, Jeramiah, Thomas, Jeramiah, Dangelo, Hassan, Kaylie, Kamden, Hassan, Patience, Patience, Kaylie, Kaylie, Patience, Thomas, Tommy, Thomas, Tommy, Chaya, Ross , Tommy, Elsie, Yusuf, Yamilet, Ross , Madalyn, Patience, Patience, Dangelo, Chaya, Yamilet, Hassan, Kaylie, Skyla, Elsie, Yusuf, Kamden, Thomas, Sullivan, Skyla, Tommy, Tommy, Jasiah, Chaya, Ross , Yamilet, Chaya, Skyla, Dangelo, Yamilet, Helen, Corey, Yamilet, Stella, Elsie, Dangelo, Sullivan, Kamden, Chaya, Ross , Yamilet, Yusuf, Stella, Ross , Madalyn, Chaya, Skyla, Dangelo, Tommy, Madalyn, Jeramiah, Jeramiah, Sullivan, Yamilet, Dangelo, Hassan, Hassan, Chaya, Helen, Stella, Madalyn, Sullivan, Tommy, Chaya, Elsie, Sullivan, Kamden, Jasiah, Chaya, Jeramiah, Elsie, Yamilet, Stella, Tommy, Kamden, Kamden, Dangelo, Dangelo, Jeramiah, Jasiah, Corey, Corey, Dangelo, Yamilet, Elsie, Thomas, Skyla, Elsie, Helen, Corey, Chaya, Kaylie, Ross , Thomas, Jasiah, Yusuf, Hassan, Kamden, Yamilet, Ross , Elsie, Sullivan, Jeramiah, Madalyn, Patience, Sullivan, Kamden, Chaya, Skyla, Skyla, Kamden, Jasiah, Helen, Skyla, Skyla, Ross , Chaya, Yusuf, Hassan, Corey, Skyla, Skyla, Chaya, Kamden, Corey, Patience, Kaylie, Patience, Elsie, Kamden, Ross , Elsie, Patience, Stella, Jeramiah, Patience, Patience, Corey, Patience, Jasiah, Madalyn, Corey, Corey, Patience, Patience, Tommy, Ross , Madalyn, Jeramiah, Kaylie, Jasiah, Skyla, Patience, Stella, Thomas, Ross , Chaya, Jasiah, Chaya, Madalyn, Madalyn, Sullivan, Tommy, Kaylie, Yamilet, Jasiah, Yamilet, Yusuf, Sullivan, Sullivan, Dangelo, Sullivan, Yamilet, Jasiah, Helen, Skyla, Kam-



den, Dangelo, Jasiah, Thomas, Yamilet, Kaylie, Ross , Thomas, Madalyn, Ross , Thomas, Corey, Elsie, Madalyn, Corey, Kamden, Ross , Yamilet, Kaylie, Corey, Chaya, Dangelo, Elsie, Thomas, Elsie, Stella, Madalyn, Tommy, Stella, Helen, Kamden, Skyla, Sullivan, Tommy, Tommy, Corey, Madalyn, Corey, Jeramiah, Jeramiah, Tommy, Dangelo, Corey, Kamden, Patience, Tommy, Corey, Yusuf, Stella, Chaya, Kaylie, Skyla, Chaya, Jeramiah

## The Raw data 03

Corey, Sullivan, Stella, Yusuf, Hassan, Elsie, Sullivan, Sullivan, Dangelo, Sullivan, Ross , Chaya, Patience, Thomas, Tommy, Thomas, Dangelo, Yamilet, Thomas, Madalyn, Kaylie, Sullivan, Stella, Kamden, Thomas, Ross , Madalyn, Chaya, Madalyn, Tommy, Corey, Thomas, Elsie, Tommy, Hassan, Sullivan, Ross , Elsie, Stella, Corey, Stella, Helen, Helen, Ross , Skyla, Yusuf, Thomas, Patience, Sullivan, Madalyn, Patience, Skyla, Kamden, Helen, Ross , Elsie, Hassan, Corey, Jasiah, Jeramiah, Jeramiah, Hassan, Sullivan, Elsie, Yamilet, Yusuf, Elsie, Madalyn, Corey, Kamden, Elsie, Yamilet, Skyla, Ross , Chaya, Patience, Jasiah, Yusuf, Dangelo, Thomas, Patience, Dangelo, Hassan, Jasiah, Yamilet, Yamilet, Sullivan, Dangelo, Ross , Kamden, Chaya, Patience, Sullivan, Sullivan, Kamden, Jasiah, Corey, Madalyn, Skyla, Skyla, Kaylie, Corey, Kamden, Elsie, Ross , Madalyn, Tommy, Yamilet, Kaylie, Elsie, Tommy, Ross , Sullivan, Yusuf, Patience, Corey, Thomas, Helen, Corey, Dangelo, Yusuf, Dangelo, Hassan, Elsie, Helen, Skyla, Madalyn, Yusuf, Stella, Dangelo, Ross , Elsie, Kaylie, Ross , Yusuf, Thomas, Madalyn, Patience, Ross , Tommy, Jasiah, Skyla, Kamden, Jeramiah, Stella, Yamilet, Tommy, Corey, Madalyn, Madalyn, Yamilet, Thomas, Yamilet, Madalyn, Ross , Kaylie, Tommy, Dangelo, Tommy, Dangelo, Madalyn, Stella, Elsie, Yusuf, Dangelo, Kaylie, Madalyn, Hassan, Stella, Yusuf, Ross , Tommy, Yusuf, Jeramiah, Tommy, Yamilet, Hassan, Tommy, Corey, Skyla, Sullivan, Kaylie, Skyla, Stella, Madalyn, Elsie, Jeramiah, Jeramiah, Ross , Ross , Thomas, Madalyn, Tommy, Stella, Ross , Jasiah, Yamilet, Thomas, Thomas, Jasiah, Kamden, Skyla, Kaylie, Dangelo, Chaya, Stella, Kaylie, Hassan, Corey, Jasiah, Dangelo, Kaylie, Tommy, Dangelo, Thomas, Jeramiah, Kamden, Thomas, Stella, Skyla, Elsie, Elsie, Elsie, Thomas, Ross , Chaya, Thomas, Stella, Chaya, Sullivan, Dangelo, Stella, Jeramiah, Skyla, Hassan, Chaya, Tommy, Corey, Yusuf, Elsie, Ross , Helen, Sullivan, Skyla, Jasiah, Corey, Skyla, Yusuf, Corey, Hassan, Jeramiah, Jeramiah, Thomas, Jeramiah, Dangelo, Hassan, Kaylie, Kamden, Hassan, Patience, Patience, Kaylie, Kaylie, Patience, Thomas, Tommy, Thomas, Tommy, Chaya, Ross , Tommy, Elsie, Yusuf, Yamilet, Ross , Madalyn, Patience, Patience, Dangelo, Chaya, Yamilet, Hassan, Kaylie, Skyla, Elsie, Yusuf, Kamden, Thomas, Sullivan, Skyla, Tommy, Tommy, Jasiah, Chaya, Ross , Yamilet, Chaya, Skyla, Dangelo, Yamilet, Helen, Corey, Yamilet, Stella, Elsie, Dangelo, Sullivan, Kamden, Chaya, Ross , Yamilet, Yusuf, Stella, Ross , Madalyn, Chaya, Skyla, Dangelo, Tommy, Madalyn, Jeramiah, Jeramiah, Sullivan, Yamilet, Dangelo, Hassan, Hassan, Chaya, Helen, Stella, Madalyn, Sullivan, Tommy, Chaya, Elsie, Sullivan, Kamden, Jasiah, Chaya, Jeramiah, Elsie, Yamilet, Stella, Tommy, Kamden, Kamden, Dangelo, Dangelo, Jeramiah, Jasiah, Corey, Corey, Dangelo, Yamilet, Elsie, Thomas, Skyla, Elsie, Helen, Corey, Chaya, Kaylie, Ross , Thomas, Jasiah, Yusuf, Hassan, Kamden, Yamilet, Ross , Elsie, Sullivan, Jeramiah, Madalyn, Patience, Sullivan, Kamden, Chaya, Skyla, Skyla, Kamden, Jasiah, Helen, Skyla, Skyla, Ross , Chaya, Yusuf, Hassan, Corey, Skyla, Skyla, Chaya, Kamden, Corey, Patience, Kaylie, Patience, Elsie, Kamden, Ross , Elsie, Patience, Stella, Jeramiah, Patience, Patience, Corey, Patience, Jasiah, Madalyn, Corey, Corey, Patience, Patience, Tommy, Ross , Madalyn, Jeramiah, Kaylie, Jasiah, Skyla, Patience, Stella, Thomas, Ross , Chaya, Jasiah, Chaya, Madalyn, Madalyn, Sullivan, Tommy, Kaylie, Yamilet, Jasiah, Yamilet, Yusuf, Sullivan, Sullivan, Dangelo, Sullivan, Yamilet, Jasiah, Helen, Skyla, Kam-

den, Dangelo, Jasiah, Thomas, Yamilet, Kaylie, Ross , Thomas, Madalyn, Ross , Thomas, Corey, Elsie, Madalyn, Corey, Kamden, Ross , Yamilet, Kaylie, Corey, Chaya, Dangelo, Elsie, Thomas, Elsie, Stella, Madalyn, Tommy, Stella, Helen, Kamden, Skyla, Sullivan, Tommy, Tommy, Corey, Madalyn, Corey, Jeramiah, Jeramiah, Tommy, Dangelo, Corey, Kamden, Patience, Tommy, Corey, Yusuf, Stella, Chaya, Kaylie, Skyla, Chaya, Jeramiah

## The Raw data 04

Corey, Sullivan, Stella, Yusuf, Hassan, Elsie, Sullivan, Sullivan, Dangelo, Sullivan, Ross , Chaya, Patience, Thomas, Tommy, Thomas, Dangelo, Yamilet, Thomas, Madalyn, Kaylie, Sullivan, Stella, Kamden, Thomas, Ross , Madalyn, Chaya, Madalyn, Tommy, Corey, Thomas, Elsie, Tommy, Hassan, Sullivan, Ross , Elsie, Stella, Corey, Stella, Helen, Helen, Ross , Skyla, Yusuf, Thomas, Patience, Sullivan, Madalyn, Patience, Skyla, Kamden, Helen, Ross , Elsie, Hassan, Corey, Jasiah, Jeramiah, Jeramiah, Hassan, Sullivan, Elsie, Yamilet, Yusuf, Elsie, Madalyn, Corey, Kamden, Elsie, Yamilet, Skyla, Ross , Chaya, Patience, Jasiah, Yusuf, Dangelo, Thomas, Patience, Dangelo, Hassan, Jasiah, Yamilet, Yamilet, Sullivan, Dangelo, Ross , Kamden, Chaya, Patience, Sullivan, Sullivan, Kamden, Jasiah, Corey, Madalyn, Skyla, Skyla, Kaylie, Corey, Kamden, Elsie, Ross , Madalyn, Tommy, Yamilet, Kaylie, Elsie, Tommy, Ross , Sullivan, Yusuf, Patience, Corey, Thomas, Helen, Corey, Dangelo, Yusuf, Dangelo, Hassan, Elsie, Helen, Skyla, Madalyn, Yusuf, Stella, Dangelo, Ross , Elsie, Kaylie, Ross , Yusuf, Thomas, Madalyn, Patience, Ross , Tommy, Jasiah, Skyla, Kamden, Jeramiah, Stella, Yamilet, Tommy, Corey, Madalyn, Madalyn, Yamilet, Thomas, Yamilet, Madalyn, Ross , Kaylie, Tommy, Dangelo, Tommy, Dangelo, Madalyn, Stella, Elsie, Yusuf, Dangelo, Kaylie, Madalyn, Hassan, Stella, Yusuf, Ross , Tommy, Yusuf, Jeramiah, Tommy, Yamilet, Hassan, Tommy, Corey, Skyla, Sullivan, Kaylie, Skyla, Stella, Madalyn, Elsie, Jeramiah, Jeramiah, Ross , Ross , Thomas, Madalyn, Tommy, Stella, Ross , Jasiah, Yamilet, Thomas, Thomas, Jasiah, Kamden, Skyla, Kaylie, Dangelo, Chaya, Stella, Kaylie, Hassan, Corey, Jasiah, Dangelo, Kaylie, Tommy, Dangelo, Thomas, Jeramiah, Kamden, Thomas, Stella, Skyla, Elsie, Elsie, Elsie, Thomas, Ross , Chaya, Thomas, Stella, Chaya, Sullivan, Dangelo, Stella, Jeramiah, Skyla, Hassan, Chaya, Tommy, Corey, Yusuf, Elsie, Ross , Helen, Sullivan, Skyla, Jasiah, Corey, Skyla, Yusuf, Corey, Hassan, Jeramiah, Jeramiah, Thomas, Jeramiah, Dangelo, Hassan, Kaylie, Kamden, Hassan, Patience, Patience, Kaylie, Kaylie, Patience, Thomas, Tommy, Thomas, Tommy, Chaya, Ross , Tommy, Elsie, Yusuf, Yamilet, Ross , Madalyn, Patience, Patience, Dangelo, Chaya, Yamilet, Hassan, Kaylie, Skyla, Elsie, Yusuf, Kamden, Thomas, Sullivan, Skyla, Tommy, Tommy, Jasiah, Chaya, Ross , Yamilet, Chaya, Skyla, Dangelo, Yamilet, Helen, Corey, Yamilet, Stella, Elsie, Dangelo, Sullivan, Kamden, Chaya, Ross , Yamilet, Yusuf, Stella, Ross , Madalyn, Chaya, Skyla, Dangelo, Tommy, Madalyn, Jeramiah, Jeramiah, Sullivan, Yamilet, Dangelo, Hassan, Hassan, Chaya, Helen, Stella, Madalyn, Sullivan, Tommy, Chaya, Elsie, Sullivan, Kamden, Jasiah, Chaya, Jeramiah, Elsie, Yamilet, Stella, Tommy, Kamden, Kamden, Dangelo, Dangelo, Jeramiah, Jasiah, Corey, Corey, Dangelo, Yamilet, Elsie, Thomas, Skyla, Elsie, Helen, Corey, Chaya, Kaylie, Ross , Thomas, Jasiah, Yusuf, Hassan, Kamden, Yamilet, Ross , Elsie, Sullivan, Jeramiah, Madalyn, Patience, Sullivan, Kamden, Chaya, Skyla, Skyla, Kamden, Jasiah, Helen, Skyla, Skyla, Ross , Chaya, Yusuf, Hassan, Corey, Skyla, Skyla, Chaya, Kamden, Corey, Patience, Kaylie, Patience, Elsie, Kamden, Ross , Elsie, Patience, Stella, Jeramiah, Patience, Patience, Corey, Patience, Jasiah, Madalyn, Corey, Corey, Patience, Patience, Tommy, Ross , Madalyn, Jeramiah, Kaylie, Jasiah, Skyla, Patience, Stella, Thomas, Ross , Chaya, Jasiah, Chaya, Madalyn, Madalyn, Sullivan, Tommy, Kaylie, Yamilet, Jasiah, Yamilet, Yusuf, Sullivan, Sullivan, Dangelo, Sullivan, Yamilet, Jasiah, Helen, Skyla, Kam-

den, Dangelo, Jasiah, Thomas, Yamilet, Kaylie, Ross , Thomas, Madalyn, Ross , Thomas, Corey, Elsie, Madalyn, Corey, Kamden, Ross , Yamilet, Kaylie, Corey, Chaya, Dangelo, Elsie, Thomas, Elsie, Stella, Madalyn, Tommy, Stella, Helen, Kamden, Skyla, Sullivan, Tommy, Tommy, Corey, Madalyn, Corey, Jeramiah, Jeramiah, Tommy, Dangelo, Corey, Kamden, Patience, Tommy, Corey, Yusuf, Stella, Chaya, Kaylie, Skyla, Chaya, Jeramiah

## Two Groups

### Part 1 of 2 (250 words)

corey stella hassan sullivan dangelo ross patience tommy dangelo thomas kaylie stella thomas  
madalyn madalyn corey elsie hassan ross stella stella helen skyla thomas sullivan patience  
kamden ross hassan jasiah jeramiah sullivan yamilet elsie corey elsie skyla chaya jasiah dangelo  
patience hassan yamilet sullivan ross chaya sullivan kamden corey skyla kaylie kamden ross  
tommy kaylie tommy sullivan patience thomas corey yusuf hassan helen madalyn stella ross  
kaylie yusuf madalyn ross jasiah kamden stella tommy madalyn yamilet yamilet ross tommy  
tommy madalyn elsie dangelo madalyn stella ross yusuf tommy hassan corey sullivan skyla  
madalyn jeramiah ross thomas tommy ross yamilet thomas kamden kaylie chaya kaylie corey  
dangelo tommy thomas kamden stella elsie elsie ross thomas chaya dangelo jeramiah hassan  
tommy yusuf ross sullivan jasiah skyla corey jeramiah thomas dangelo kaylie hassan patience  
kaylie thomas thomas chaya tommy yusuf ross patience dangelo yamilet kaylie elsie kamden  
sullivan tommy jasiah ross chaya dangelo helen yamilet elsie sullivan chaya yamilet stella  
madalyn skyla tommy jeramiah sullivan dangelo hassan helen madalyn tommy elsie kamden  
chaya elsie stella kamden dangelo jeramiah corey dangelo elsie skyla helen chaya ross jasiah  
hassan yamilet elsie jeramiah patience kamden skyla kamden helen skyla chaya hassan skyla  
chaya corey kaylie elsie ross patience jeramiah patience patience madalyn corey patience ross  
jeramiah jasiah patience thomas chaya chaya madalyn tommy yamilet yamilet sullivan dangelo  
yamilet helen kamden jasiah yamilet ross madalyn thomas elsie corey ross kaylie chaya elsie  
elsie madalyn stella kamden sullivan tommy madalyn jeramiah tommy corey patience corey  
stella kaylie chaya

## Part 2 of 2 (250 words)

sullivan yusuf elsie sullivan sullivan chaya thomas thomas yamilet madalyn sullivan kamden  
ross chaya tommy thomas tommy sullivan elsie corey helen ross yusuf patience madalyn skyla  
helen elsie corey jeramiah hassan elsie yusuf madalyn kamden yamilet ross patience yusuf  
thomas dangelo jasiah yamilet dangelo kamden patience sullivan jasiah madalyn skyla corey  
elsie madalyn yamilet elsie ross yusuf corey helen dangelo dangelo elsie skyla yusuf dangelo  
elsie ross thomas patience tommy skyla jeramiah yamilet corey madalyn thomas madalyn  
kaylie dangelo dangelo stella yusuf kaylie hassan yusuf tommy jeramiah yamilet tommy skyla  
kaylie stella elsie jeramiah ross madalyn stella jasiah thomas jasiah skyla dangelo stella hassan  
jasiah kaylie dangelo jeramiah thomas skyla elsie thomas chaya stella sullivan stella skyla chaya  
corey elsie helen skyla corey yusuf hassan jeramiah jeramiah hassan kamden patience kaylie  
patience tommy tommy ross elsie yamilet madalyn patience chaya hassan skyla yusuf thomas  
skyla tommy chaya yamilet skyla yamilet corey stella dangelo kamden ross yusuf ross chaya  
dangelo madalyn jeramiah yamilet hassan chaya stella sullivan chaya sullivan jasiah jeramiah  
yamilet tommy kamden dangelo jasiah corey yamilet thomas elsie corey kaylie thomas yusuf  
kamden ross sullivan madalyn sullivan chaya skyla jasiah skyla ross yusuf corey skyla kamden  
patience patience kamden elsie stella patience corey jasiah corey patience tommy madalyn  
kaylie skyla stella ross jasiah madalyn sullivan kaylie jasiah yusuf sullivan sullivan jasiah skyla  
dangelo thomas kaylie thomas ross corey madalyn kamden yamilet corey dangelo thomas stella  
tommy helen skyla tommy corey corey jeramiah dangelo kamden tommy yusuf chaya skyla  
jeramiah

## Four Groups

### Part 1 of 4 (125 words)

corey hassan dangelo patience dangelo kaylie thomas madalyn elsie ross stella skyla sullivan kamden hassan jeramiah yamilet corey skyla jasiah patience yamilet ross sullivan corey kaylie ross kaylie sullivan thomas yusuf helen stella kaylie madalyn jasiah stella madalyn yamilet tommy madalyn dangelo stella yusuf hassan sullivan madalyn ross tommy yamilet kamden chaya corey tommy kamden elsie ross chaya jeramiah tommy ross jasiah corey thomas kaylie patience thomas chaya yusuf patience yamilet elsie sullivan jasiah chaya helen elsie chaya stella skyla jeramiah dangelo helen tommy kamden elsie kamden jeramiah dangelo skyla chaya jasiah yamilet jeramiah kamden kamden skyla hassan chaya kaylie ross jeramiah patience corey ross jasiah thomas chaya tommy yamilet dangelo helen jasiah ross thomas corey kaylie elsie madalyn kamden tommy jeramiah corey corey kaylie



**Part 2 of 4 (125 words)**

sullivan elsie sullivan thomas yamilet sullivan ross tommy tommy elsie helen yusuf madalyn  
helen corey hassan yusuf kamden ross yusuf dangelo yamilet kamden sullivan madalyn corey  
madalyn elsie yusuf helen dangelo skyla dangelo ross patience skyla yamilet madalyn madalyn  
dangelo stella kaylie yusuf jeramiah tommy kaylie elsie ross stella thomas skyla stella jasiah  
dangelo thomas elsie chaya sullivan skyla corey helen corey hassan jeramiah kamden kaylie  
tommy ross yamilet patience hassan yusuf skyla chaya skyla corey dangelo ross ross dangelo  
jeramiah hassan stella chaya jasiah yamilet kamden jasiah yamilet elsie kaylie yusuf ross mada-  
lyn chaya jasiah ross corey kamden patience elsie patience jasiah patience madalyn skyla ross  
madalyn kaylie yusuf sullivan skyla thomas thomas corey kamden corey thomas tommy skyla  
corey jeramiah kamden yusuf skyla

**Part 3 of 4 (125 words)**

stella sullivan ross tommy thomas stella madalyn corey hassan stella helen thomas patience  
ross jasiah sullivan elsie elsie chaya dangelo hassan sullivan chaya kamden skyla kamden tommy  
tommy patience corey hassan madalyn ross yusuf ross kamden tommy yamilet ross tommy elsie  
madalyn ross tommy corey skyla jeramiah thomas ross thomas kaylie kaylie dangelo thomas  
stella elsie thomas dangelo hassan yusuf sullivan skyla jeramiah dangelo hassan kaylie thomas  
tommy ross dangelo kaylie kamden tommy ross dangelo yamilet sullivan yamilet madalyn  
tommy sullivan hassan madalyn elsie chaya stella dangelo corey elsie helen ross hassan elsie  
patience skyla helen chaya skyla corey elsie patience patience madalyn patience jeramiah  
patience chaya madalyn yamilet sullivan yamilet kamden yamilet madalyn elsie ross chaya  
elsie stella sullivan madalyn tommy patience stella chaya

**Part 4 of 4 (125 words)**

yusuf sullivan chaya thomas madalyn kamden chaya thomas sullivan corey ross patience skyla  
elsie jeramiah elsie madalyn yamilet patience thomas jasiah dangelo patience jasiah skyla elsie  
yamilet ross corey dangelo elsie yusuf elsie thomas tommy jeramiah corey thomas kaylie dan-  
gelo yusuf hassan tommy yamilet skyla stella jeramiah madalyn jasiah jasiah dangelo hassan  
kaylie jeramiah skyla thomas stella stella chaya elsie skyla yusuf jeramiah hassan patience pa-  
tience tommy elsie madalyn chaya skyla thomas tommy yamilet yamilet stella kamden yusuf  
chaya madalyn yamilet chaya sullivan sullivan jeramiah tommy dangelo corey thomas corey  
thomas kamden sullivan sullivan skyla skyla yusuf skyla patience kamden stella corey corey  
tommy kaylie stella jasiah sullivan jasiah sullivan jasiah dangelo kaylie ross madalyn yamilet  
dangelo stella helen tommy corey dangelo tommy chaya jeramiah

## Five Groups

### Part 1 of 5 (100 words)

corey elsie ross thomas kaylie ross corey sullivan stella yusuf patience elsie jeramiah yusuf elsie  
patience patience yamilet chaya jasiah kaylie madalyn tommy corey yusuf skyla ross thomas  
jasiah yamilet yamilet kaylie madalyn kaylie ross yamilet sullivan elsie thomas jasiah kamden  
stella dangelo jeramiah elsie chaya dangelo chaya ross corey jeramiah hassan patience tommy  
tommy madalyn yamilet yusuf tommy yamilet helen dangelo yamilet chaya jeramiah hassan  
madalyn sullivan elsie kamden corey thomas chaya yusuf elsie sullivan kamden ross skyla  
patience ross patience madalyn tommy jasiah ross madalyn jasiah dangelo skyla yamilet ross  
corey corey elsie helen tommy jeramiah patience chaya

**Part 2 of 5 (100 words)**

sullivan sullivan chaya dangelo sullivan madalyn thomas ross helen thomas skyla hassan hassan  
elsie yamilet jasiah dangelo sullivan patience corey corey tommy ross thomas dangelo madalyn  
elsie madalyn skyla tommy thomas tommy stella madalyn tommy hassan kaylie jeramiah  
madalyn yamilet skyla kaylie kaylie kamden elsie thomas stella tommy helen skyla jeramiah  
kaylie kaylie thomas elsie patience hassan kamden tommy chaya corey sullivan yusuf skyla  
jeramiah hassan sullivan kamden yamilet dangelo corey skyla kaylie hassan sullivan kamden  
jasiah chaya skyla kaylie elsie patience corey ross skyla chaya sullivan yamilet sullivan kamden  
kaylie thomas kamden chaya stella kamden corey tommy tommy kaylie

**Part 3 of 5 (100 words)**

stella sullivan patience yamilet stella chaya elsie elsie helen patience kamden corey sullivan  
madalyn skyla yusuf hassan dangelo sullivan madalyn kamden yamilet sullivan helen hassan  
yusuf kaylie patience kamden corey yamilet dangelo elsie hassan yusuf tommy skyla jeramiah  
tommy thomas kaylie hassan tommy thomas elsie stella jeramiah corey sullivan yusuf thomas  
kamden kaylie tommy yusuf patience kaylie thomas jasiah skyla yamilet kamden stella dan-  
gelo sullivan chaya tommy jasiah stella dangelo dangelo elsie ross kamden jeramiah chaya  
helen yusuf chaya patience patience corey corey madalyn patience jasiah tommy yusuf yamilet  
dangelo ross corey ross dangelo madalyn skyla madalyn dangelo corey skyla

**Part 4 of 5 (100 words)**

yusuf dangelo thomas thomas kamden madalyn tommy stella ross sullivan helen jasiah elsie  
corey ross dangelo jasiah ross sullivan skyla elsie kaylie yusuf corey elsie stella ross ross jeramiah  
madalyn madalyn tommy yusuf stella jeramiah corey stella ross stella thomas dangelo corey  
dangelo stella thomas chaya skyla yusuf skyla corey jeramiah hassan patience chaya yamilet  
dangelo skyla sullivan chaya dangelo stella chaya ross tommy yamilet helen chaya chaya tommy  
jeramiah yamilet helen thomas yamilet madalyn skyla skyla hassan kamden elsie stella patience  
patience jeramiah stella chaya kaylie sullivan jasiah jasiah thomas elsie yamilet elsie tommy  
sullivan corey corey yusuf chaya

**Part 5 of 5 (100 words)**

hassan sullivan tommy madalyn thomas tommy hassan corey skyla madalyn ross jeramiah yamilet kamden chaya thomas yamilet kamden kamden skyla ross elsie patience dangelo helen dangelo yusuf tommy stella madalyn ross dangelo dangelo yusuf tommy skyla madalyn ross ross jasiah chaya jasiah thomas skyla ross sullivan hassan elsie jasiah hassan dangelo patience thomas ross ross chaya elsie skyla ross yamilet elsie ross madalyn madalyn dangelo stella elsie jeramiah kamden jasiah elsie corey jasiah ross patience skyla skyla corey corey kamden jeramiah jasiah patience kaylie thomas madalyn yamilet sullivan helen thomas madalyn madalyn kaylie thomas stella tommy jeramiah kamden stella jeramiah



## Ten Groups

### Part 1 of 10 (50 words)

corey ross kaylie corey stella patience jeramiah elsie patience chaya kaylie tommy yusuf ross  
jasiah yamilet madalyn ross sullivan thomas kamden dangelo elsie dangelo ross jeramiah pa-  
tience tommy yamilet tommy helen yamilet jeramiah madalyn elsie corey chaya elsie kamden  
skylar ross madalyn jasiah madalyn dangelo yamilet corey elsie tommy patience

**Part 2 of 10 (50 words)**

sullivan chaya sullivan thomas helen skyla hassan yamilet dangelo patience corey ross dangelo  
elsie skyla thomas stella tommy kaylie madalyn skyla kaylie elsie stella helen jeramiah kaylie  
elsie hassan tommy corey yusuf jeramiah sullivan yamilet corey kaylie sullivan jasiah skyla  
elsie corey skyla sullivan sullivan kaylie kamden stella corey tommy

**Part 3 of 10 (50 words)**

stella patience stella elsie helen kamden sullivan skyla hassan sullivan kamden sullivan hassan  
kaylie kamden yamilet elsie yusuf skyla tommy kaylie tommy elsie jeramiah sullivan thomas  
kaylie yusuf kaylie jasiah yamilet stella sullivan tommy stella dangelo ross jeramiah helen chaya  
patience corey patience tommy yamilet ross ross madalyn madalyn corey

**Part 4 of 10 (50 words)**

yusuf thomas kamden tommy ross helen elsie ross jasiah sullivan elsie yusuf elsie ross jeramiah  
madalyn yusuf jeramiah stella stella dangelo dangelo thomas skyla skyla jeramiah patience  
yamilet skyla chaya stella ross yamilet chaya tommy yamilet thomas madalyn skyla kamden  
stella patience stella kaylie jasiah thomas yamilet tommy corey yusuf

**Part 5 of 10 (50 words)**

hassan tommy thomas hassan skyla ross yamilet chaya yamilet kamden ross patience helen  
yusuf stella ross dangelo tommy madalyn ross chaya thomas ross hassan jasiah dangelo thomas  
ross elsie ross elsie madalyn dangelo elsie kamden elsie jasiah patience skyla corey jeramiah  
patience thomas yamilet helen madalyn kaylie stella jeramiah stella

**Part 6 of 10 (50 words)**

elsie thomas ross sullivan yusuf elsie yusuf patience yamilet jasiah madalyn corey skyla thomas  
yamilet kaylie kaylie yamilet elsie jasiah stella jeramiah chaya chaya corey hassan tommy mada-  
lyn yusuf yamilet dangelo chaya hassan sullivan kamden thomas yusuf sullivan ross patience  
patience tommy ross jasiah skyla ross corey helen jeramiah chaya

**Part 7 of 10 (50 words)**

sullivan dangelo madalyn ross thomas hassan elsie jasiah sullivan corey tommy thomas mada-  
lyn madalyn tommy tommy madalyn hassan jeramiah yamilet kaylie kamden thomas tommy  
skylar kaylie thomas patience kamden chaya sullivan skylar hassan kamden dangelo skylar has-  
san kamden chaya kaylie patience ross chaya yamilet kamden thomas chaya kamden tommy  
kaylie

**Part 8 of 10 (50 words)**

sullivan yamilet chaya elsie patience corey madalyn yusuf dangelo madalyn yamilet helen  
yusuf patience corey dangelo hassan tommy jeramiah thomas hassan thomas stella corey yusuf  
kamden tommy patience thomas skyla kamden dangelo chaya jasiah dangelo elsie kamden  
chaya yusuf patience corey madalyn jasiah yusuf dangelo corey dangelo skyla dangelo skyla



**Part 9 of 10 (50 words)**

dangelo thomas madalyn stella sullivan jasiah corey dangelo ross skyla kaylie corey stella ross  
madalyn tommy stella corey ross thomas corey stella chaya yusuf corey hassan chaya dangelo  
sullivan dangelo chaya tommy helen chaya jeramiah helen yamilet skyla hassan elsie patience  
jeramiah chaya sullivan jasiah elsie elsie sullivan corey chaya

**Part 10 of 10 (50 words)**

sullivan madalyn tommy corey madalyn jeramiah kamden thomas kamden skyla elsie dangelo  
dangelo tommy madalyn dangelo yusuf skyla ross jasiah jasiah skyla sullivan elsie hassan  
patience ross chaya skyla yamilet ross madalyn stella jeramiah jasiah corey ross skyla corey  
kamden jasiah kaylie madalyn sullivan thomas madalyn thomas tommy kamden jeramiah

## Twenty Groups

### Part 1 of 20 (25 words)

corey kaylie stella jeramiah patience kaylie yusuf jasiah madalyn sullivan kamden elsie ross  
patience yamilet helen jeramiah elsie chaya kamden ross jasiah dangelo corey tommy

**Part 2 of 20 (25 words)**

sullivan sullivan helen hassan dangelo corey dangelo skyla stella kaylie skyla elsie helen kaylie  
hassan corey jeramiah yamilet kaylie jasiah elsie skyla sullivan kamden corey

**Part 3 of 20 (25 words)**

stella stella helen sullivan hassan kamden hassan kamden elsie skyla kaylie elsie sullivan kaylie  
kaylie yamilet sullivan stella ross helen patience patience yamilet ross madalyn

**Part 4 of 20 (25 words)**

yusuf kamden ross elsie jasiah elsie elsie jeramiah yusuf stella dangelo thomas skyla patience  
skyla stella yamilet tommy thomas skyla stella stella jasiah yamilet corey

**Part 5 of 20 (25 words)**

hassan thomas skyla yamilet yamilet ross helen stella dangelo madalyn chaya ross jasiah thomas  
elsie elsie dangelo kamden jasiah skyla jeramiah thomas helen kaylie jeramiah

**Part 6 of 20 (25 words)**

elsie ross yusuf yusuf yamilet madalyn skyla yamilet kaylie elsie stella chaya corey tommy  
yusuf dangelo hassan kamden yusuf ross patience ross skyla corey jeramiah



**Part 7 of 20 (25 words)**

sullivan madalyn thomas elsie sullivan tommy madalyn tommy madalyn jeramiah kaylie  
thomas skyla thomas kamden sullivan hassan dangelo hassan chaya patience chaya kamden  
chaya tommy

**Part 8 of 20 (25 words)**

sullivan chaya patience madalyn dangelo yamilet yusuf corey hassan jeramiah hassan stella  
yusuf tommy thomas kamden chaya dangelo kamden yusuf corey jasiah dangelo dangelo dan-  
gelo

**Part 9 of 20 (25 words)**

dangelo madalyn sullivan corey ross kaylie stella madalyn stella ross corey chaya corey chaya  
sullivan chaya helen jeramiah yamilet hassan patience chaya jasiah elsie corey

**Part 10 of 20 (25 words)**

sullivan tommy madalyn kamden kamden elsie dangelo madalyn yusuf ross jasiah sullivan  
hassan ross skyla ross stella jasiah ross corey jasiah madalyn thomas thomas kamden

**Part 11 of 20 (25 words)**

ross corey patience elsie chaya tommy ross yamilet ross thomas dangelo dangelo jeramiah  
tommy tommy yamilet madalyn corey elsie skyla madalyn madalyn yamilet elsie patience

**Part 12 of 20 (25 words)**

chaya thomas skyla yamilet patience ross elsie thomas tommy madalyn kaylie stella jeramiah  
elsie tommy yusuf sullivan corey sullivan skyla corey sullivan kaylie stella tommy

**Part 13 of 20 (25 words)**

patience elsie kamden skyla sullivan sullivan kaylie yamilet yusuf tommy tommy jeramiah  
thomas yusuf jasiah stella tommy dangelo jeramiah chaya corey tommy ross madalyn corey

**Part 14 of 20 (25 words)**

thomas tommy helen ross sullivan yusuf ross madalyn jeramiah stella dangelo skyla jeramiah  
yamilet chaya ross chaya yamilet madalyn kamden patience kaylie thomas tommy yusuf



**Part 15 of 20 (25 words)**

tommy hassan ross chaya kamden patience yusuf ross tommy ross thomas hassan dangelo ross  
ross madalyn elsie elsie patience corey patience yamilet madalyn stella stella

**Part 16 of 20 (25 words)**

thomas sullivan elsie patience jasiah corey thomas kaylie yamilet jasiah jeramiah chaya hassan  
madalyn yamilet chaya sullivan thomas sullivan patience tommy jasiah ross helen chaya

**Part 17 of 20 (25 words)**

dangelo ross hassan jasiah corey thomas madalyn tommy hassan yamilet kamden tommy kaylie  
patience chaya skyla kamden skyla kamden kaylie ross yamilet thomas kamden kaylie

**Part 18 of 20 (25 words)**

yamilet elsie corey yusuf madalyn helen patience dangelo tommy thomas thomas corey kamden  
patience skyla dangelo jasiah elsie chaya patience madalyn yusuf corey skyla skyla

**Part 19 of 20 (25 words)**

thomas stella jasiah dangelo skyla corey ross tommy corey thomas stella yusuf hassan dangelo  
dangelo tommy chaya helen skyla elsie jeramiah sullivan elsie sullivan chaya

**Part 20 of 20 (25 words)**

madalyn corey jeramiah thomas skyla dangelo tommy dangelo skyla jasiah skyla elsie patience chaya yamilet madalyn jeramiah corey skyla kamden kaylie sullivan madalyn tommy jeramiah