

# 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?

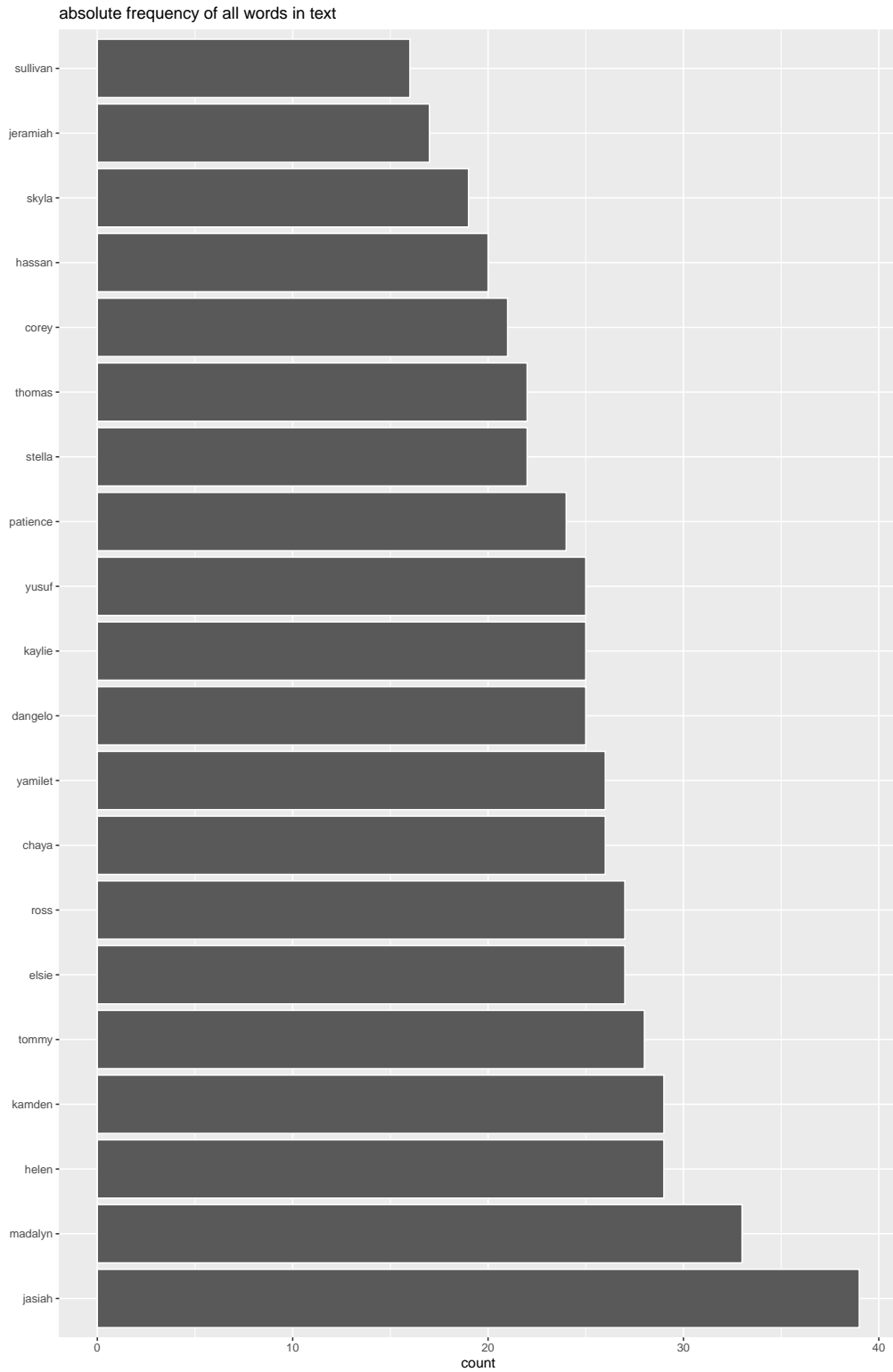
## some summary statistics on the raw data

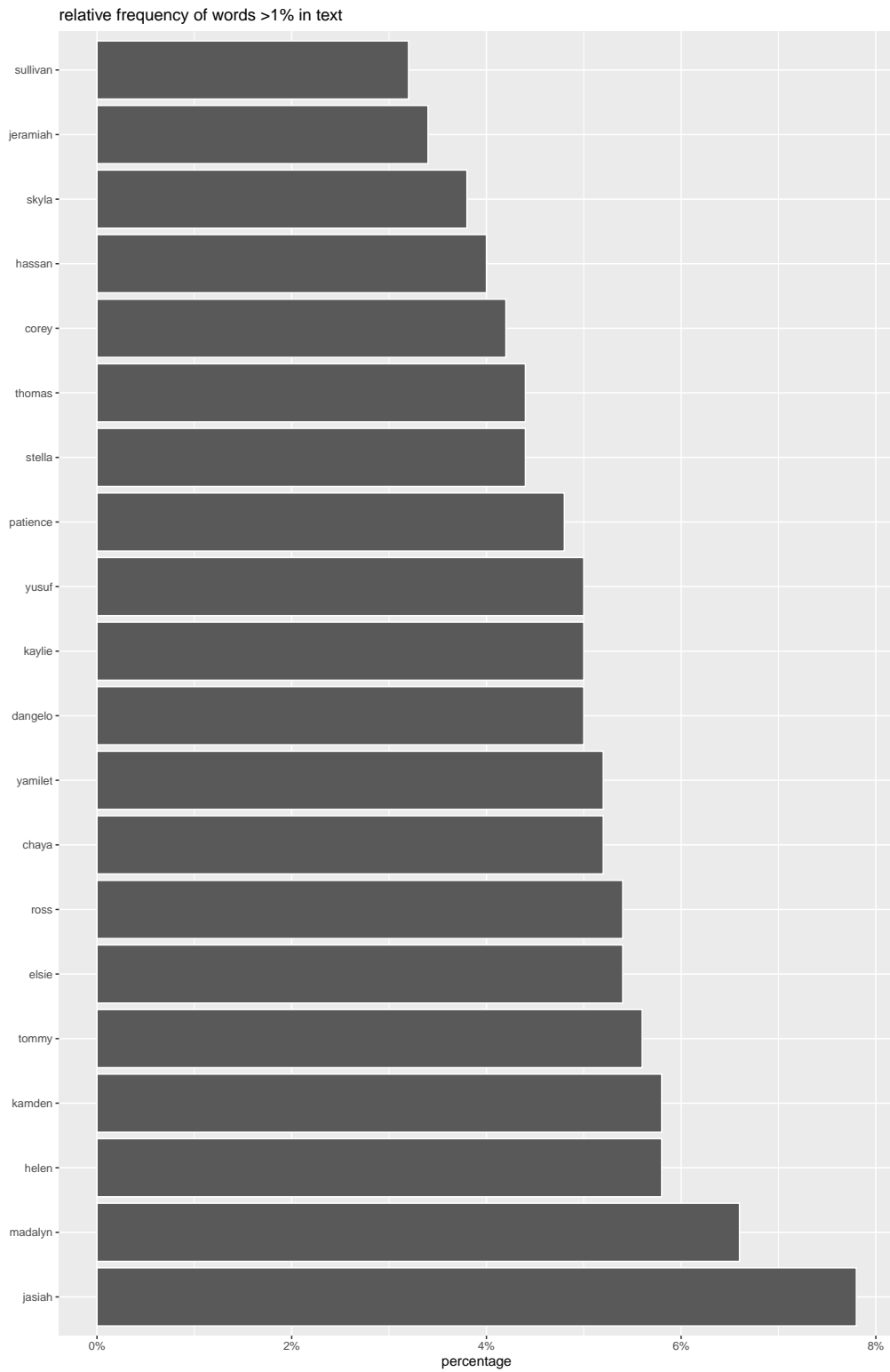
In total there are 500 words available.

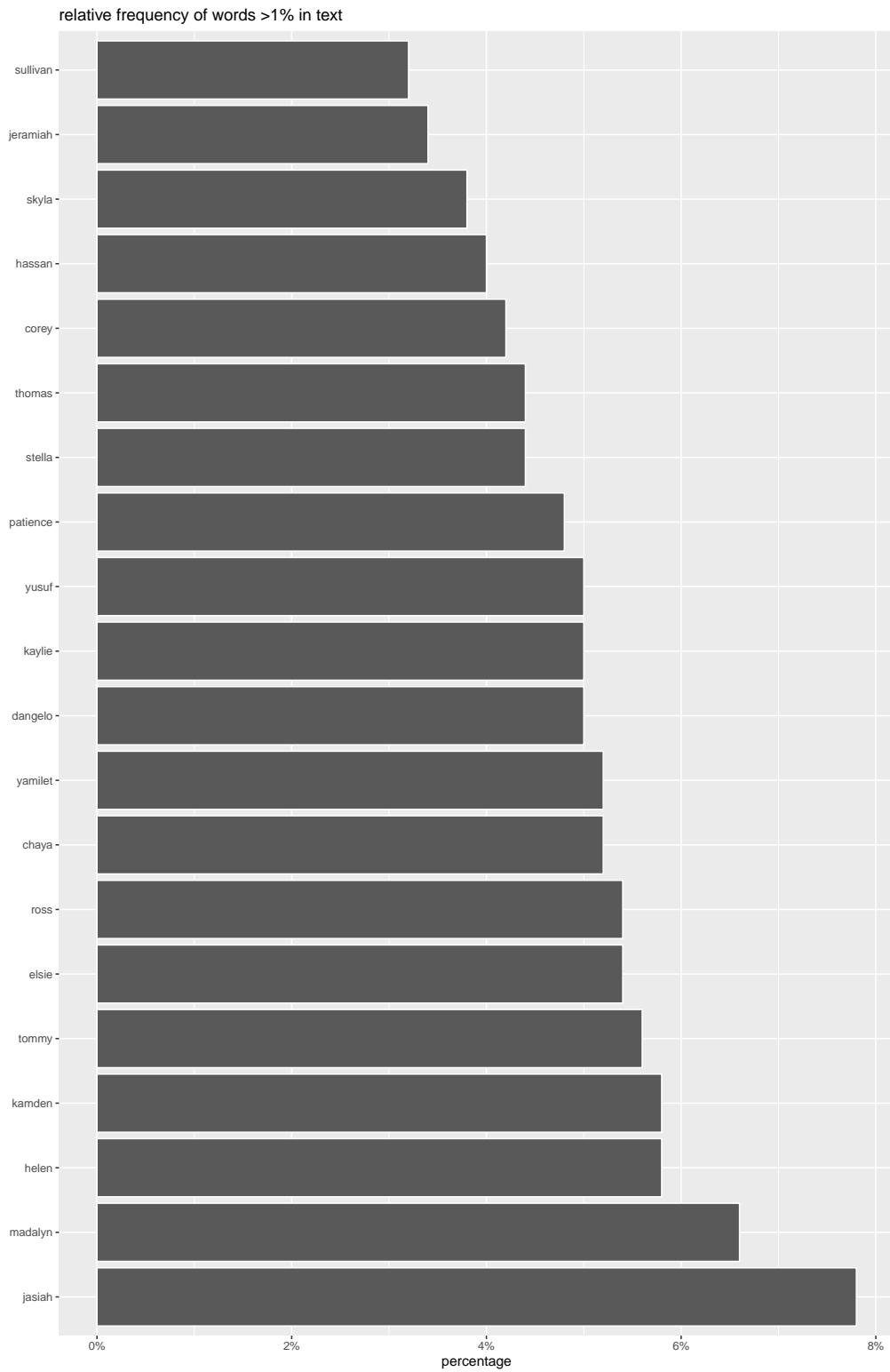
words	Freq	percentage	percentage_round
jasiah	39	7.80%	7.80%
madalyn	33	6.60%	6.60%
helen	29	5.80%	5.80%
kamden	29	5.80%	5.80%
tommy	28	5.60%	5.60%
elsie	27	5.40%	5.40%
ross	27	5.40%	5.40%
chaya	26	5.20%	5.20%
yamilet	26	5.20%	5.20%
dangelo	25	5.00%	5.00%
kaylie	25	5.00%	5.00%
yusuf	25	5.00%	5.00%

patience	24	4.80%	4.80%
stella	22	4.40%	4.40%
thomas	22	4.40%	4.40%
corey	21	4.20%	4.20%
hassan	20	4.00%	4.00%
skylar	19	3.80%	3.80%
jeramiah	17	3.40%	3.40%
sullivan	16	3.20%	3.20%

---







## The Raw data 01

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

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

## The Raw data 02

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



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

## The Raw data 03

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

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

## The Raw data 04

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

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

## Two Groups

### Part 1 of 2 (250 words)

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

## Part 2 of 2 (250 words)

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

## Four Groups

### Part 1 of 4 (125 words)

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



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

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

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

skylar stella stella tommy helen kamden elsie chaya corey tommy tommy kaylie ross madalyn stella jariah patience chaya stella kaylie ross kamden madalyn patience helen ross helen elsie jariah skylar tommy jeremiah elsie chaya jeremiah madalyn kaylie elsie yusuf jariah yusuf tommy hassan tommy yamilet helen jeremiah dangelo chaya jariah corey helen yamilet stella elsie stella kaylie yusuf helen jariah hassan dangelo jariah hassan yusuf corey helen jariah chaya sullivan corey skylar dangelo kaylie ross kamden elsie helen chaya tommy jariah thomas madalyn kamden kamden yamilet tommy ross tommy jariah jariah jariah corey madalyn sullivan dangelo stella kaylie patience kaylie tommy yamilet kaylie elsie tommy elsie kaylie chaya stella yusuf elsie stella yusuf madalyn dangelo madalyn helen kamden helen elsie hassan sullivan madalyn hassan patience

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

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

## Five Groups

### Part 1 of 5 (100 words)

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

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

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

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

skylar hassan skylar kamden kamden dangelo yusuf chaya tommy stella ross tommy jariah  
patience dangelo elsie ross jeremiah skylar dangelo ross stella madalyn stella tommy skylar  
yamilet corey madalyn elsie jeremiah chaya yusuf helen hassan elsie helen kamden hassan  
jeremiah corey jariah jariah skylar stella kamden stella yamilet hassan thomas kamden kamden  
corey corey madalyn tommy corey jariah yamilet dangelo kamden chaya madalyn kamden  
jariah kaylie elsie dangelo yamilet yusuf thomas yusuf jariah jeremiah corey helen dangelo  
jeremiah kamden yamilet tommy stella kamden tommy elsie dangelo stella skylar elsie yamilet  
helen hassan madalyn yusuf skylar yamilet hassan ross dangelo dangelo

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

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

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

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



## Ten Groups

### Part 1 of 10 (50 words)

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

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

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

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

skylar skylar kamden yusuf tommy ross jariah dangelo ross skylar ross madalyn tommy yamilet  
madalyn jeramiah yusuf hassan helen hassan corey jariah stella stella hassan kamden corey  
madalyn corey yamilet kamden madalyn jariah elsie yamilet thomas jariah corey dangelo  
kamden tommy kamden elsie stella elsie helen madalyn skylar hassan dangelo

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

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

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

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

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

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

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

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

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

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



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

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

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

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

## Twenty Groups

### Part 1 of 20 (25 words)

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

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

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

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

skylar kamden tommy jashah ross ross tommy madalyn yusuf helen corey stella hassan corey  
corey kamden jashah yamilet jashah dangelo tommy elsie elsie madalyn hassan

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

patience dangelo chaya jasiah ross jeramiah patience jasiah skyla patience dangelo patience  
corey kaylie ross dangelo thomas patience tommy chaya patience thomas yamilet tommy  
yusuf

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

madalyn madalyn sullivan jasiah chaya tommy ross kamden jasiah helen madalyn kaylie corey  
helen thomas yamilet helen yamilet jeramiah kaylie patience kaylie jasiah skyla jasiah

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

helen ross corey kaylie patience ross thomas ross ross yamilet corey kaylie elsie patience chaya  
corey yusuf patience jasiah tommy hassan thomas corey jasiah jasiah



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

stella elsie kaylie patience kamden helen jeramiah kaylie tommy jeramiah helen kaylie dangelo  
helen skyla elsie thomas tommy jasiah stella yamilet kaylie stella helen sullivan

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

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

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

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

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

helen elsie tommy skyla chaya thomas kaylie jasiah madalyn yamilet yusuf kamden yamilet  
madalyn hassan chaya yamilet thomas tommy dangelo hassan helen chaya ross yusuf

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

stella chaya ross chaya madalyn elsie elsie elsie hassan dangelo yamilet yusuf jasiah jasiah  
dangelo helen madalyn ross corey kaylie kaylie chaya yusuf kamden madalyn

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

kamden jasiah ross madalyn kaylie ross jasiah helen kamden dangelo madalyn helen ross  
sullivan ross thomas stella kaylie skyla patience dangelo chaya elsie kamden sullivan

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

skylar yusuf ross dangelo skylar madalyn yamilet jeramiah hassan hassan jariah stella kamden  
madalyn yamilet madalyn elsie thomas corey kamden kamden stella helen skylar dangelo

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

yamilet jasiah madalyn helen madalyn dangelo tommy helen helen thomas elsie kamden dangelo yamilet kamden yamilet madalyn yusuf madalyn kamden kamden helen ross ross thomas



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

tommy corey madalyn stella patience jasiah chaya yusuf tommy chaya stella helen hassan  
chaya kaylie chaya kamden tommy madalyn patience elsie stella madalyn helen hassan

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

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

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

kaylie yamilet jariah jeramiah kamden madalyn kaylie corey ross corey jariah yusuf helen  
yamilet hassan elsie elsie skyla kamden yamilet yusuf thomas patience yusuf stella

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

kamden chaya tommy elsie dangelo stella corey chaya elsie jeramiah skyla yamilet kamden  
tommy dangelo kamden dangelo yusuf helen yamilet tommy skyla hassan yamilet dangelo

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

helen tommy stella kaylie helen skyla jeramiah jasiah yamilet jasiah elsie jasiah yusuf sullivan  
ross tommy kamden jasiah sullivan kaylie tommy yusuf dangelo elsie patience

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

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