

# 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?

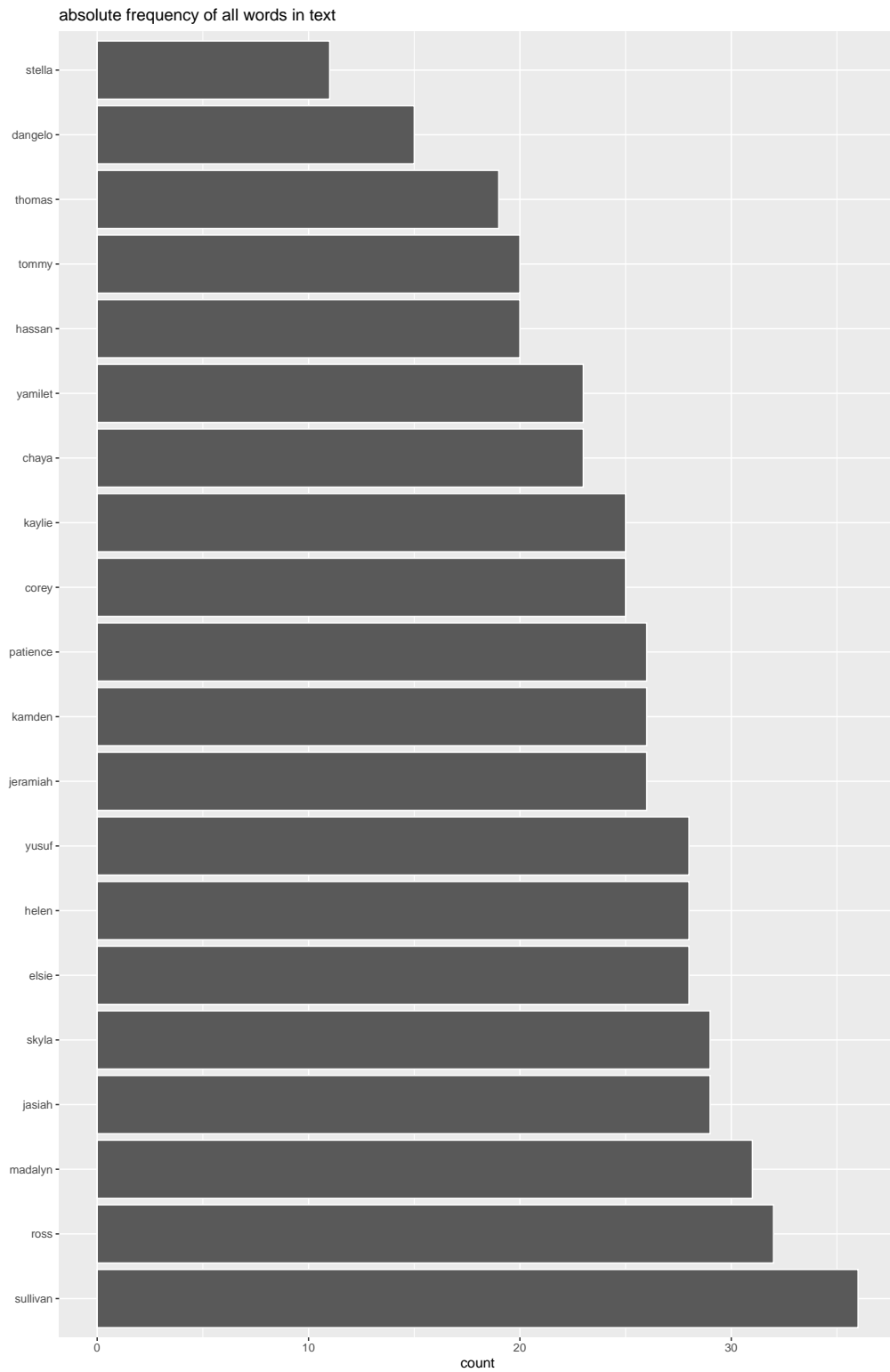
## some summary statistics on the raw data

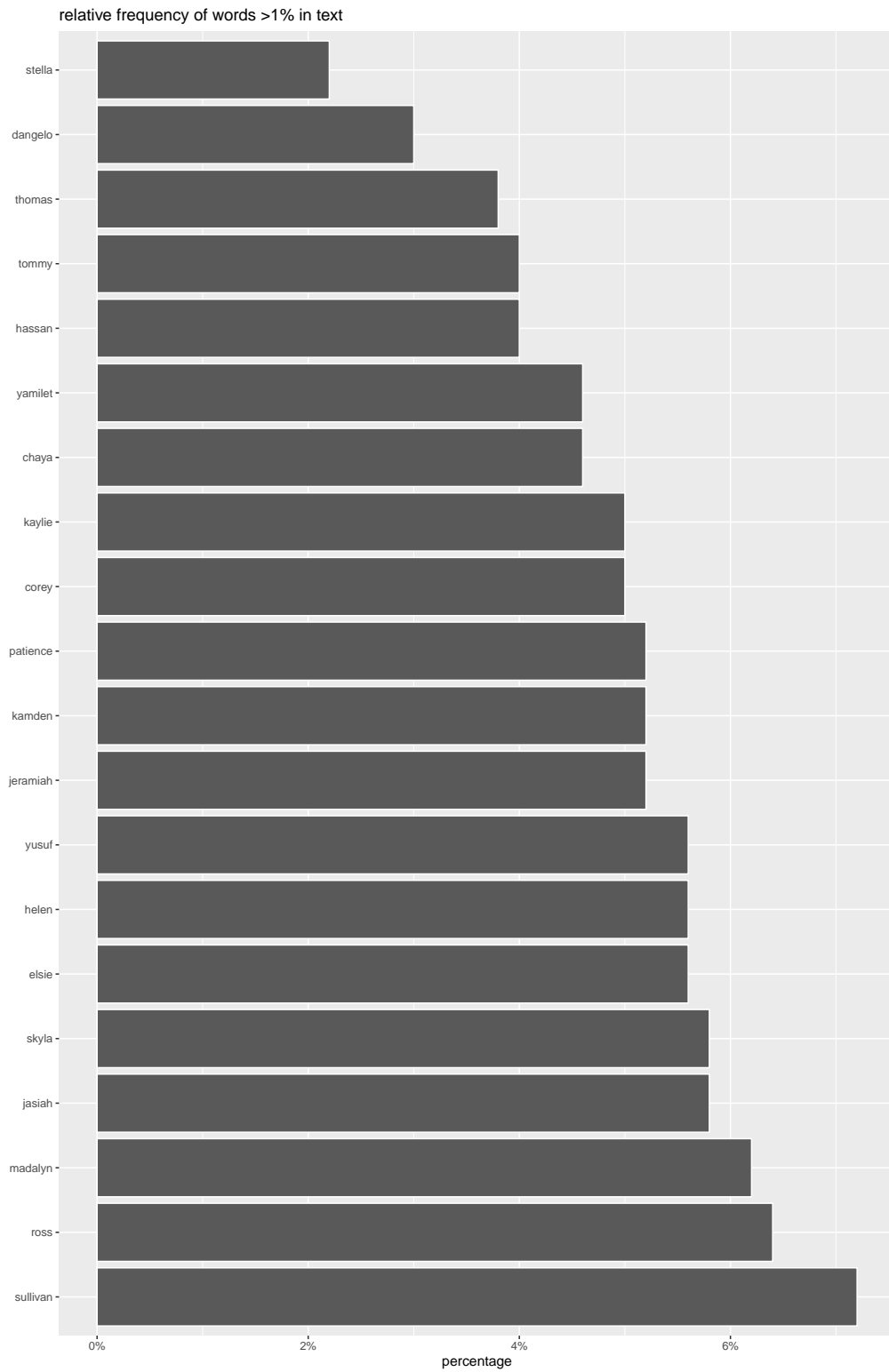
In total there are 500 words available.

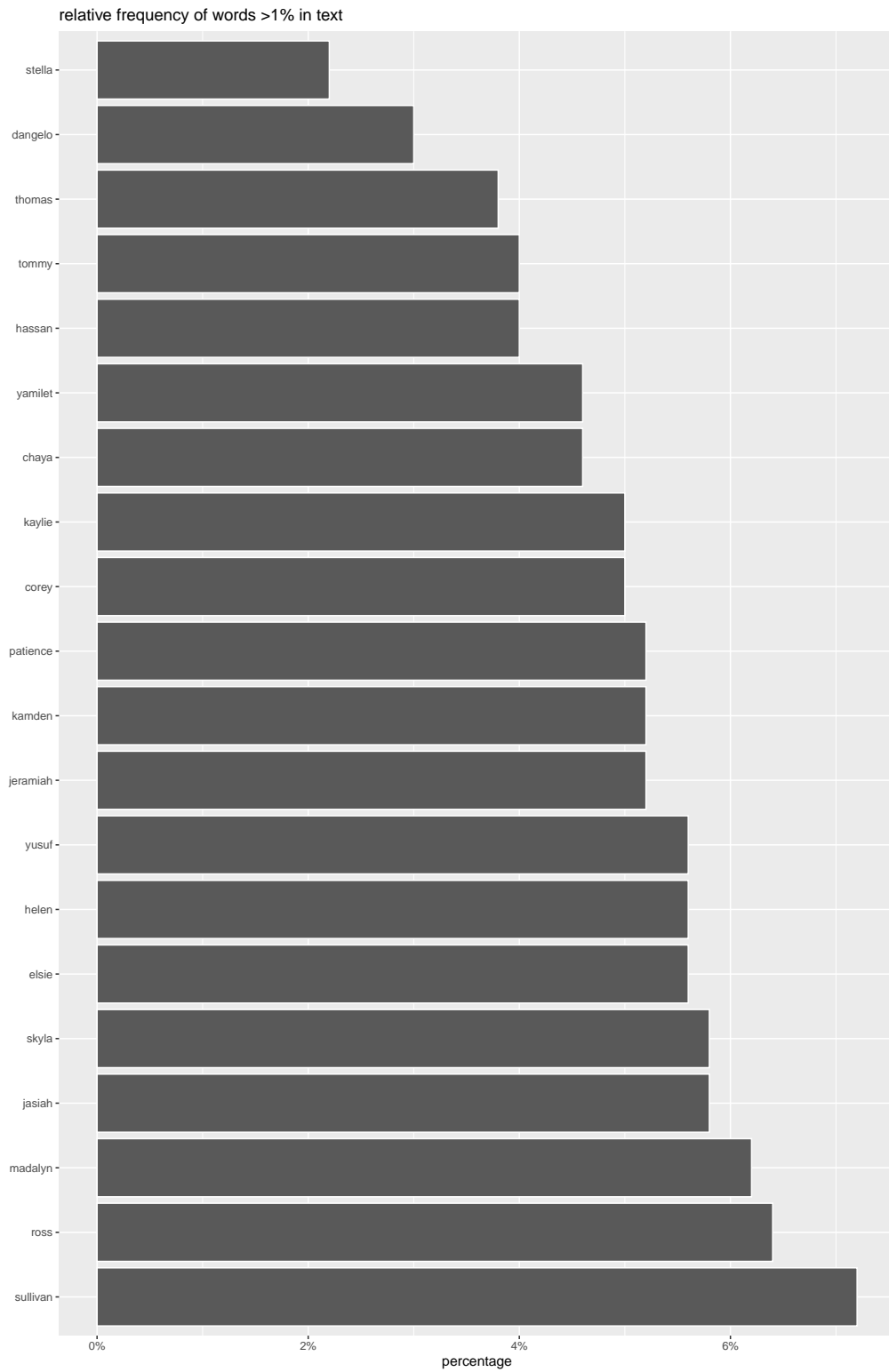
words	Freq	percentage	percentage_round
sullivan	36	7.20%	7.20%
ross	32	6.40%	6.40%
madalyn	31	6.20%	6.20%
jasiah	29	5.80%	5.80%
skyla	29	5.80%	5.80%
elsie	28	5.60%	5.60%
helen	28	5.60%	5.60%
yusuf	28	5.60%	5.60%
jeramiah	26	5.20%	5.20%
kamden	26	5.20%	5.20%
patience	26	5.20%	5.20%
corey	25	5.00%	5.00%

kaylie	25	5.00%	5.00%
chaya	23	4.60%	4.60%
yamilet	23	4.60%	4.60%
hassan	20	4.00%	4.00%
tommy	20	4.00%	4.00%
thomas	19	3.80%	3.80%
dangelo	15	3.00%	3.00%
stella	11	2.20%	2.20%

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## The Raw data 01

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

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

## The Raw data 02

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



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

## The Raw data 03

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

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

## The Raw data 04

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

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

## Two Groups

### Part 1 of 2 (250 words)

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

## Part 2 of 2 (250 words)

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

## Four Groups

### Part 1 of 4 (125 words)

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



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

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

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

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

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

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

## Five Groups

### Part 1 of 5 (100 words)

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

## Part 2 of 5 (100 words)

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

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

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

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

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

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

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



## Ten Groups

### Part 1 of 10 (50 words)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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

## Twenty Groups

### Part 1 of 20 (25 words)

skylar tommy yamilet madalyn ross dangelo kaylie yusuf madalyn kamden corey ross sullivan  
sullivan yamilet kamden chaya patience yusuf elsie tommy jasiah elsie chaya yusuf

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

yamilet chaya thomas yusuf patience corey yusuf hassan thomas thomas tommy kaylie skyla  
madalyn yamilet corey thomas jasiah madalyn kaylie kamden sullivan kaylie sullivan mada-  
lyn

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

helen jeramiah sullivan madalyn skyla corey kamden kaylie kamden hassan jeramiah jeramiah  
kaylie elsie tommy sullivan yamilet yamilet helen sullivan skyla elsie patience yusuf ross

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

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

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

sullivan dangelo yusuf dangelo skyla hassan sullivan elsie ross jasiah madalyn corey kamden  
hassan sullivan jasiah sullivan chaya yamilet hassan ross sullivan kamden skyla skyla

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

thomas corey ross yamilet madalyn yusuf skyla sullivan patience yusuf kamden kamden  
jeramiah stella ross yusuf stella skyla patience yusuf kamden patience jeramiah madalyn  
yamilet



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

jasiah ross jasiah chaya elsie kaylie sullivan hassan ross helen helen skyla skyla patience yusuf  
skyla tommy patience hassan tommy sullivan corey helen jasiah ross

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

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

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

sullivan jeramiah jasiah ross jasiah hassan helen helen thomas kaylie ross ross kaylie hassan  
jasiah madalyn sullivan kamden ross yamilet elsie ross tommy ross hassan

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

kaylie dangelo skyla sullivan hassan jeramiah patience dangelo jasiah kamden sullivan jeramiah  
madalyn thomas kaylie helen chaya skyla elsie jasiah jeramiah jasiah sullivan sullivan yamilet

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

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

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

hassan jeramiah thomas ross helen jeramiah madalyn ross elsie ross hassan elsie jeramiah  
jeramiah skyla elsie jasiah corey elsie jeramiah corey corey yusuf helen jeramiah

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

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

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

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



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

jasiah jeramiah yamilet kaylie jeramiah corey jasiah thomas ross stella madalyn chaya corey  
chaya yamilet elsie kamden stella yamilet elsie jasiah chaya madalyn patience dangelo

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

skylar elsie thomas yusuf skylar helen thomas ross jariah kaylie skylar madalyn chaya corey  
madalyn patience corey patience kamden madalyn helen patience jeremiah patience jariah

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

helen thomas helen patience skyla yamilet stella sullivan sullivan patience dangelo elsie yusuf  
stella jeramiah yusuf patience thomas hassan helen jeramiah patience yamilet jasiah madalyn

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

sullivan madalyn jasiah yamilet kamden skyla jasiah helen corey sullivan elsie dangelo corey  
yamilet jasiah corey thomas corey kamden helen corey elsie sullivan sullivan patience

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

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

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

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