

# Lab 2

Alexis Montes

11:59PM February 25, 2021

## More Basic R Skills

- Create a function `my_reverse` which takes as required input a vector `v` and returns the vector in reverse where the first entry is the last entry, etc. No function calls are allowed inside your function otherwise that would defeat the purpose of the exercise! (Yes, there is a base R function that does this called `rev`). Use `head` on `v` and `tail` on `my_reverse(v)` to verify it works.

```
my_reverse = function(v){
  v_rev = rep(NA, times=length((v)))
  for(i in length(v):1){
    v_rev[length(v) - i + 1] = v[i]
  }
  v_rev
}
v = 1:10
my_reverse(v)
```

```
## [1] 10 9 8 7 6 5 4 3 2 1
```

- Create a function `flip_matrix` which takes as required input a matrix, an argument `dim_to_rev` that returns the matrix with the rows in reverse order or the columns in reverse order depending on the `dim_to_rev` argument. Let the default be the dimension of the matrix that is greater. If the number of rows

```
flip_matrix = function(x, dim_to_rev = NULL){
  if(is.null(dim_to_rev)){
    dim_to_rev = ifelse(nrow(x) >= ncol(x), "rows", "cols")
  }
  if(dim_to_rev == "rows"){
    x[my_reverse(1:nrow(x))]
  } else if (dim_to_rev == "cols"){
    x[,my_reverse((1:ncol(x)))]
  } else {
    stop("Illegal arg")
  }
}
X = matrix(rnorm(100), nrow = 25, ncol=25)
flip_matrix(X)
```

```
## [1] -0.18023856  1.11653998  0.39645262 -0.31581331  1.26926558  0.32085810
## [7]  0.27541731 -0.66811352 -0.68453988  2.14119755  0.92110111 -0.82010273
## [13] -0.17732125  0.42796945 -1.90446969 -0.78643204 -0.43994517  0.10079897
## [19]  0.04747270  0.07471236  1.40840673  0.23954600  0.26051649  0.14302344
## [25] -0.25750067
```

- Create a list named `my_list` with keys “A”, “B”, ... where the entries are arrays of size 1, 2 x 2, 3 x 3 x 3, etc. Fill the array with the numbers 1, 2, 3, etc. Make 8 entries according to this sequence.

```
my_list=list()
LETTERS
```

```
## [1] "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K" "L" "M" "N" "O" "P" "Q" "R" "S"
## [20] "T" "U" "V" "W" "X" "Y" "Z"
```

```
my_list[["A"]] = array(data=1:4, dim=c(2,2))
array(data=1:27, dim=c(3,3,3))
```

```
## , , 1
##
##      [,1] [,2] [,3]
## [1,]    1    4    7
## [2,]    2    5    8
## [3,]    3    6    9
##
## , , 2
##
##      [,1] [,2] [,3]
## [1,]   10   13   16
## [2,]   11   14   17
## [3,]   12   15   18
##
## , , 3
##
##      [,1] [,2] [,3]
## [1,]   19   22   25
## [2,]   20   23   26
## [3,]   21   24   27
```

```
my_list
```

```
## $A
##      [,1] [,2]
## [1,]    1    3
## [2,]    2    4
```

Run the following code:

```
lapply(my_list, object.size)
```

```
## $A
## 232 bytes
```

Use `?object.size` to read about what these functions do. Then explain the output you see above. For the later arrays, does it make sense given the dimensions of the arrays?

#TO-DO

Now cleanup the namespace by deleting all stored objects and functions:

```
#rm(list = ls())
```

## A little about strings

- Use the `strsplit` function and `sample` to put the sentences in the string `lorem` below in random order. You will also need to manipulate the output of `strsplit` which is a list. You may need to learn basic concepts of regular expressions.

```
lorem = "Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi posuere varius volutpat. Morbi  
lorem_split = strsplit(lorem, split=".", fixed=TRUE)  
lorem_sample = sample(lorem_split[[1]])
```

You have a set of names divided by gender (M / F) and generation (Boomer / GenX / Millennial):

- M / Boomer “Theodore, Bernard, Gene, Herbert, Ray, Tom, Lee, Alfred, Leroy, Eddie”
- M / GenX “Marc, Jamie, Greg, Darryl, Tim, Dean, Jon, Chris, Troy, Jeff”
- M / Millennial “Zachary, Dylan, Christian, Wesley, Seth, Austin, Gabriel, Evan, Casey, Luis”
- F / Boomer “Gloria, Joan, Dorothy, Shirley, Betty, Dianne, Kay, Marjorie, Lorraine, Mildred”
- F / GenX “Tracy, Dawn, Tina, Tammy, Melinda, Tamara, Tracey, Colleen, Sherri, Heidi”
- F / Millennial “Samantha, Alexis, Brittany, Lauren, Taylor, Bethany, Latoya, Candice, Brittney, Cheyenne”

Create a list-within-a-list that will intelligently store this data.

```
M_Boomer = strsplit("Theodore, Bernard, Gene, Herbert, Ray, Tom, Lee, Alfred, Leroy, Eddie", split = ",")  
M_GenX = strsplit("Marc, Jamie, Greg, Darryl, Tim, Dean, Jon, Chris, Troy, Jeff", split = ",")[[1]]  
M_Millennial = strsplit("Zachary, Dylan, Christian, Wesley, Seth, Austin, Gabriel, Evan, Casey, Luis", split = ",")  
F_Boomer = strsplit("Gloria, Joan, Dorothy, Shirley, Betty, Dianne, Kay, Marjorie, Lorraine, Mildred", split = ",")  
F_GenX = strsplit("Tracy, Dawn, Tina, Tammy, Melinda, Tamara, Tracey, Colleen, Sherri, Heidi", split = ",")  
F_Millennial = strsplit("Samantha, Alexis, Brittany, Lauren, Taylor, Bethany, Latoya, Candice, Brittney, Cheyenne", split = ",")  
  
myList = list("M" = list(), "F" = list())  
  
myList$M$Boomer = M_Boomer  
myList$M$GenX = M_GenX  
myList$M$Millennial = M_Millennial  
myList$F$Boomer = F_Boomer  
myList$F$GenX = F_GenX  
myList$F$Millennial = F_Millennial
```

## Dataframe creation

Imagine you are running an experiment with many manipulations. You have 14 levels in the variable “treatment” with levels a, b, c, etc. For each of those manipulations you have 3 submanipulations in a variable named “variation” with levels A, B, C. Then you have “gender” with levels M / F. Then you have

“generation” with levels Boomer, GenX, Millenial. Then you will have 6 runs per each of these groups. In each set of 6 you will need to select a name without duplication from the appropriate set of names (from the last question). Create a data frame with columns treatment, variation, gender, generation, name and y that will store all the unique unit information in this experiment. Leave y empty because it will be measured as the experiment is executed.

```
n = 14 * 3 * 2 * 3 * 10
#X = data.frame(treatment = rep(NA,n),
X = data.frame(treatment = rep(NA,n), variation = rep(NA,n), gender = rep(NA,n), generation = rep(NA,n)

X$treatment = rep(letters[1:14], each = n / 14)
X$variation = rep(rep(LETTERS[1:3], each = n / 14 / 3), times = 14)
X$gender = rep(rep(c("M", "F"), each = n / 14 / 3 / 2), times = 14*3)
X$generation = rep(rep(c("Boomer", "GenX", "Millenial"), each = n / 14 / 3 / 2 / 3), times = 14 * 3 * 2)
X$name = rep(unlist(myList), times = 14 * 3)
```

X

##	treatment	variation	gender	generation	name	y
## 1	a	A	M	Boomer	Theodore	NA
## 2	a	A	M	Boomer	Bernard	NA
## 3	a	A	M	Boomer	Gene	NA
## 4	a	A	M	Boomer	Herbert	NA
## 5	a	A	M	Boomer	Ray	NA
## 6	a	A	M	Boomer	Tom	NA
## 7	a	A	M	Boomer	Lee	NA
## 8	a	A	M	Boomer	Alfred	NA
## 9	a	A	M	Boomer	Leroy	NA
## 10	a	A	M	Boomer	Eddie	NA
## 11	a	A	M	GenX	Marc	NA
## 12	a	A	M	GenX	Jamie	NA
## 13	a	A	M	GenX	Greg	NA
## 14	a	A	M	GenX	Darryl	NA
## 15	a	A	M	GenX	Tim	NA
## 16	a	A	M	GenX	Dean	NA
## 17	a	A	M	GenX	Jon	NA
## 18	a	A	M	GenX	Chris	NA
## 19	a	A	M	GenX	Troy	NA
## 20	a	A	M	GenX	Jeff	NA
## 21	a	A	M	Millenial	Zachary	NA
## 22	a	A	M	Millenial	Dylan	NA
## 23	a	A	M	Millenial	Christian	NA
## 24	a	A	M	Millenial	Wesley	NA
## 25	a	A	M	Millenial	Seth	NA
## 26	a	A	M	Millenial	Austin	NA
## 27	a	A	M	Millenial	Gabriel	NA
## 28	a	A	M	Millenial	Evan	NA
## 29	a	A	M	Millenial	Casey	NA
## 30	a	A	M	Millenial	Luis	NA
## 31	a	A	F	Boomer	Gloria	NA
## 32	a	A	F	Boomer	Joan	NA
## 33	a	A	F	Boomer	Dorothy	NA
## 34	a	A	F	Boomer	Shirley	NA
## 35	a	A	F	Boomer	Betty	NA

## 36	a	A	F	Boomer	Dianne	NA
## 37	a	A	F	Boomer	Kay	NA
## 38	a	A	F	Boomer	Marjorie	NA
## 39	a	A	F	Boomer	Lorraine	NA
## 40	a	A	F	Boomer	Mildred	NA
## 41	a	A	F	GenX	Tracy	NA
## 42	a	A	F	GenX	Dawn	NA
## 43	a	A	F	GenX	Tina	NA
## 44	a	A	F	GenX	Tammy	NA
## 45	a	A	F	GenX	Melinda	NA
## 46	a	A	F	GenX	Tamara	NA
## 47	a	A	F	GenX	Tracey	NA
## 48	a	A	F	GenX	Colleen	NA
## 49	a	A	F	GenX	Sherri	NA
## 50	a	A	F	GenX	Heidi	NA
## 51	a	A	F	Millenial	Samantha	NA
## 52	a	A	F	Millenial	Alexis	NA
## 53	a	A	F	Millenial	Brittany	NA
## 54	a	A	F	Millenial	Lauren	NA
## 55	a	A	F	Millenial	Taylor	NA
## 56	a	A	F	Millenial	Bethany	NA
## 57	a	A	F	Millenial	Latoya	NA
## 58	a	A	F	Millenial	Candice	NA
## 59	a	A	F	Millenial	Brittney	NA
## 60	a	A	F	Millenial	Cheyenne	NA
## 61	a	B	M	Boomer	Theodore	NA
## 62	a	B	M	Boomer	Bernard	NA
## 63	a	B	M	Boomer	Gene	NA
## 64	a	B	M	Boomer	Herbert	NA
## 65	a	B	M	Boomer	Ray	NA
## 66	a	B	M	Boomer	Tom	NA
## 67	a	B	M	Boomer	Lee	NA
## 68	a	B	M	Boomer	Alfred	NA
## 69	a	B	M	Boomer	Leroy	NA
## 70	a	B	M	Boomer	Eddie	NA
## 71	a	B	M	GenX	Marc	NA
## 72	a	B	M	GenX	Jamie	NA
## 73	a	B	M	GenX	Greg	NA
## 74	a	B	M	GenX	Darryl	NA
## 75	a	B	M	GenX	Tim	NA
## 76	a	B	M	GenX	Dean	NA
## 77	a	B	M	GenX	Jon	NA
## 78	a	B	M	GenX	Chris	NA
## 79	a	B	M	GenX	Troy	NA
## 80	a	B	M	GenX	Jeff	NA
## 81	a	B	M	Millenial	Zachary	NA
## 82	a	B	M	Millenial	Dylan	NA
## 83	a	B	M	Millenial	Christian	NA
## 84	a	B	M	Millenial	Wesley	NA
## 85	a	B	M	Millenial	Seth	NA
## 86	a	B	M	Millenial	Austin	NA
## 87	a	B	M	Millenial	Gabriel	NA
## 88	a	B	M	Millenial	Evan	NA
## 89	a	B	M	Millenial	Casey	NA

## 90	a	B	M	Millenial	Luis NA
## 91	a	B	F	Boomer	Gloria NA
## 92	a	B	F	Boomer	Joan NA
## 93	a	B	F	Boomer	Dorothy NA
## 94	a	B	F	Boomer	Shirley NA
## 95	a	B	F	Boomer	Betty NA
## 96	a	B	F	Boomer	Dianne NA
## 97	a	B	F	Boomer	Kay NA
## 98	a	B	F	Boomer	Marjorie NA
## 99	a	B	F	Boomer	Lorraine NA
## 100	a	B	F	Boomer	Mildred NA
## 101	a	B	F	GenX	Tracy NA
## 102	a	B	F	GenX	Dawn NA
## 103	a	B	F	GenX	Tina NA
## 104	a	B	F	GenX	Tammy NA
## 105	a	B	F	GenX	Melinda NA
## 106	a	B	F	GenX	Tamara NA
## 107	a	B	F	GenX	Tracey NA
## 108	a	B	F	GenX	Colleen NA
## 109	a	B	F	GenX	Sherri NA
## 110	a	B	F	GenX	Heidi NA
## 111	a	B	F	Millenial	Samantha NA
## 112	a	B	F	Millenial	Alexis NA
## 113	a	B	F	Millenial	Brittany NA
## 114	a	B	F	Millenial	Lauren NA
## 115	a	B	F	Millenial	Taylor NA
## 116	a	B	F	Millenial	Bethany NA
## 117	a	B	F	Millenial	Latoya NA
## 118	a	B	F	Millenial	Candice NA
## 119	a	B	F	Millenial	Brittney NA
## 120	a	B	F	Millenial	Cheyenne NA
## 121	a	C	M	Boomer	Theodore NA
## 122	a	C	M	Boomer	Bernard NA
## 123	a	C	M	Boomer	Gene NA
## 124	a	C	M	Boomer	Herbert NA
## 125	a	C	M	Boomer	Ray NA
## 126	a	C	M	Boomer	Tom NA
## 127	a	C	M	Boomer	Lee NA
## 128	a	C	M	Boomer	Alfred NA
## 129	a	C	M	Boomer	Leroy NA
## 130	a	C	M	Boomer	Eddie NA
## 131	a	C	M	GenX	Marc NA
## 132	a	C	M	GenX	Jamie NA
## 133	a	C	M	GenX	Greg NA
## 134	a	C	M	GenX	Darryl NA
## 135	a	C	M	GenX	Tim NA
## 136	a	C	M	GenX	Dean NA
## 137	a	C	M	GenX	Jon NA
## 138	a	C	M	GenX	Chris NA
## 139	a	C	M	GenX	Troy NA
## 140	a	C	M	GenX	Jeff NA
## 141	a	C	M	Millenial	Zachary NA
## 142	a	C	M	Millenial	Dylan NA
## 143	a	C	M	Millenial	Christian NA

## 144	a	C	M	Millenial	Wesley NA
## 145	a	C	M	Millenial	Seth NA
## 146	a	C	M	Millenial	Austin NA
## 147	a	C	M	Millenial	Gabriel NA
## 148	a	C	M	Millenial	Evan NA
## 149	a	C	M	Millenial	Casey NA
## 150	a	C	M	Millenial	Luis NA
## 151	a	C	F	Boomer	Gloria NA
## 152	a	C	F	Boomer	Joan NA
## 153	a	C	F	Boomer	Dorothy NA
## 154	a	C	F	Boomer	Shirley NA
## 155	a	C	F	Boomer	Betty NA
## 156	a	C	F	Boomer	Dianne NA
## 157	a	C	F	Boomer	Kay NA
## 158	a	C	F	Boomer	Marjorie NA
## 159	a	C	F	Boomer	Lorraine NA
## 160	a	C	F	Boomer	Mildred NA
## 161	a	C	F	GenX	Tracy NA
## 162	a	C	F	GenX	Dawn NA
## 163	a	C	F	GenX	Tina NA
## 164	a	C	F	GenX	Tammy NA
## 165	a	C	F	GenX	Melinda NA
## 166	a	C	F	GenX	Tamara NA
## 167	a	C	F	GenX	Tracey NA
## 168	a	C	F	GenX	Colleen NA
## 169	a	C	F	GenX	Sherri NA
## 170	a	C	F	GenX	Heidi NA
## 171	a	C	F	Millenial	Samantha NA
## 172	a	C	F	Millenial	Alexis NA
## 173	a	C	F	Millenial	Brittany NA
## 174	a	C	F	Millenial	Lauren NA
## 175	a	C	F	Millenial	Taylor NA
## 176	a	C	F	Millenial	Bethany NA
## 177	a	C	F	Millenial	Latoya NA
## 178	a	C	F	Millenial	Candice NA
## 179	a	C	F	Millenial	Brittney NA
## 180	a	C	F	Millenial	Cheyenne NA
## 181	b	A	M	Boomer	Theodore NA
## 182	b	A	M	Boomer	Bernard NA
## 183	b	A	M	Boomer	Gene NA
## 184	b	A	M	Boomer	Herbert NA
## 185	b	A	M	Boomer	Ray NA
## 186	b	A	M	Boomer	Tom NA
## 187	b	A	M	Boomer	Lee NA
## 188	b	A	M	Boomer	Alfred NA
## 189	b	A	M	Boomer	Leroy NA
## 190	b	A	M	Boomer	Eddie NA
## 191	b	A	M	GenX	Marc NA
## 192	b	A	M	GenX	Jamie NA
## 193	b	A	M	GenX	Greg NA
## 194	b	A	M	GenX	Darryl NA
## 195	b	A	M	GenX	Tim NA
## 196	b	A	M	GenX	Dean NA
## 197	b	A	M	GenX	Jon NA

## 198	b	A	M	GenX	Chris	NA
## 199	b	A	M	GenX	Troy	NA
## 200	b	A	M	GenX	Jeff	NA
## 201	b	A	M	Millenial	Zachary	NA
## 202	b	A	M	Millenial	Dylan	NA
## 203	b	A	M	Millenial	Christian	NA
## 204	b	A	M	Millenial	Wesley	NA
## 205	b	A	M	Millenial	Seth	NA
## 206	b	A	M	Millenial	Austin	NA
## 207	b	A	M	Millenial	Gabriel	NA
## 208	b	A	M	Millenial	Evan	NA
## 209	b	A	M	Millenial	Casey	NA
## 210	b	A	M	Millenial	Luis	NA
## 211	b	A	F	Boomer	Gloria	NA
## 212	b	A	F	Boomer	Joan	NA
## 213	b	A	F	Boomer	Dorothy	NA
## 214	b	A	F	Boomer	Shirley	NA
## 215	b	A	F	Boomer	Betty	NA
## 216	b	A	F	Boomer	Dianne	NA
## 217	b	A	F	Boomer	Kay	NA
## 218	b	A	F	Boomer	Marjorie	NA
## 219	b	A	F	Boomer	Lorraine	NA
## 220	b	A	F	Boomer	Mildred	NA
## 221	b	A	F	GenX	Tracy	NA
## 222	b	A	F	GenX	Dawn	NA
## 223	b	A	F	GenX	Tina	NA
## 224	b	A	F	GenX	Tammy	NA
## 225	b	A	F	GenX	Melinda	NA
## 226	b	A	F	GenX	Tamara	NA
## 227	b	A	F	GenX	Tracey	NA
## 228	b	A	F	GenX	Colleen	NA
## 229	b	A	F	GenX	Sherri	NA
## 230	b	A	F	GenX	Heidi	NA
## 231	b	A	F	Millenial	Samantha	NA
## 232	b	A	F	Millenial	Alexis	NA
## 233	b	A	F	Millenial	Brittany	NA
## 234	b	A	F	Millenial	Lauren	NA
## 235	b	A	F	Millenial	Taylor	NA
## 236	b	A	F	Millenial	Bethany	NA
## 237	b	A	F	Millenial	Latoya	NA
## 238	b	A	F	Millenial	Candice	NA
## 239	b	A	F	Millenial	Brittney	NA
## 240	b	A	F	Millenial	Cheyenne	NA
## 241	b	B	M	Boomer	Theodore	NA
## 242	b	B	M	Boomer	Bernard	NA
## 243	b	B	M	Boomer	Gene	NA
## 244	b	B	M	Boomer	Herbert	NA
## 245	b	B	M	Boomer	Ray	NA
## 246	b	B	M	Boomer	Tom	NA
## 247	b	B	M	Boomer	Lee	NA
## 248	b	B	M	Boomer	Alfred	NA
## 249	b	B	M	Boomer	Leroy	NA
## 250	b	B	M	Boomer	Eddie	NA
## 251	b	B	M	GenX	Marc	NA



## 252	b	B	M	GenX	Jamie NA
## 253	b	B	M	GenX	Greg NA
## 254	b	B	M	GenX	Darryl NA
## 255	b	B	M	GenX	Tim NA
## 256	b	B	M	GenX	Dean NA
## 257	b	B	M	GenX	Jon NA
## 258	b	B	M	GenX	Chris NA
## 259	b	B	M	GenX	Troy NA
## 260	b	B	M	GenX	Jeff NA
## 261	b	B	M	Millenial	Zachary NA
## 262	b	B	M	Millenial	Dylan NA
## 263	b	B	M	Millenial	Christian NA
## 264	b	B	M	Millenial	Wesley NA
## 265	b	B	M	Millenial	Seth NA
## 266	b	B	M	Millenial	Austin NA
## 267	b	B	M	Millenial	Gabriel NA
## 268	b	B	M	Millenial	Evan NA
## 269	b	B	M	Millenial	Casey NA
## 270	b	B	M	Millenial	Luis NA
## 271	b	B	F	Boomer	Gloria NA
## 272	b	B	F	Boomer	Joan NA
## 273	b	B	F	Boomer	Dorothy NA
## 274	b	B	F	Boomer	Shirley NA
## 275	b	B	F	Boomer	Betty NA
## 276	b	B	F	Boomer	Dianne NA
## 277	b	B	F	Boomer	Kay NA
## 278	b	B	F	Boomer	Marjorie NA
## 279	b	B	F	Boomer	Lorraine NA
## 280	b	B	F	Boomer	Mildred NA
## 281	b	B	F	GenX	Tracy NA
## 282	b	B	F	GenX	Dawn NA
## 283	b	B	F	GenX	Tina NA
## 284	b	B	F	GenX	Tammy NA
## 285	b	B	F	GenX	Melinda NA
## 286	b	B	F	GenX	Tamara NA
## 287	b	B	F	GenX	Tracey NA
## 288	b	B	F	GenX	Colleen NA
## 289	b	B	F	GenX	Sherri NA
## 290	b	B	F	GenX	Heidi NA
## 291	b	B	F	Millenial	Samantha NA
## 292	b	B	F	Millenial	Alexis NA
## 293	b	B	F	Millenial	Brittany NA
## 294	b	B	F	Millenial	Lauren NA
## 295	b	B	F	Millenial	Taylor NA
## 296	b	B	F	Millenial	Bethany NA
## 297	b	B	F	Millenial	Latoya NA
## 298	b	B	F	Millenial	Candice NA
## 299	b	B	F	Millenial	Brittney NA
## 300	b	B	F	Millenial	Cheyenne NA
## 301	b	C	M	Boomer	Theodore NA
## 302	b	C	M	Boomer	Bernard NA
## 303	b	C	M	Boomer	Gene NA
## 304	b	C	M	Boomer	Herbert NA
## 305	b	C	M	Boomer	Ray NA

## 306	b	C	M	Boomer	Tom NA
## 307	b	C	M	Boomer	Lee NA
## 308	b	C	M	Boomer	Alfred NA
## 309	b	C	M	Boomer	Leroy NA
## 310	b	C	M	Boomer	Eddie NA
## 311	b	C	M	GenX	Marc NA
## 312	b	C	M	GenX	Jamie NA
## 313	b	C	M	GenX	Greg NA
## 314	b	C	M	GenX	Darryl NA
## 315	b	C	M	GenX	Tim NA
## 316	b	C	M	GenX	Dean NA
## 317	b	C	M	GenX	Jon NA
## 318	b	C	M	GenX	Chris NA
## 319	b	C	M	GenX	Troy NA
## 320	b	C	M	GenX	Jeff NA
## 321	b	C	M	Millenial	Zachary NA
## 322	b	C	M	Millenial	Dylan NA
## 323	b	C	M	Millenial	Christian NA
## 324	b	C	M	Millenial	Wesley NA
## 325	b	C	M	Millenial	Seth NA
## 326	b	C	M	Millenial	Austin NA
## 327	b	C	M	Millenial	Gabriel NA
## 328	b	C	M	Millenial	Evan NA
## 329	b	C	M	Millenial	Casey NA
## 330	b	C	M	Millenial	Luis NA
## 331	b	C	F	Boomer	Gloria NA
## 332	b	C	F	Boomer	Joan NA
## 333	b	C	F	Boomer	Dorothy NA
## 334	b	C	F	Boomer	Shirley NA
## 335	b	C	F	Boomer	Betty NA
## 336	b	C	F	Boomer	Dianne NA
## 337	b	C	F	Boomer	Kay NA
## 338	b	C	F	Boomer	Marjorie NA
## 339	b	C	F	Boomer	Lorraine NA
## 340	b	C	F	Boomer	Mildred NA
## 341	b	C	F	GenX	Tracy NA
## 342	b	C	F	GenX	Dawn NA
## 343	b	C	F	GenX	Tina NA
## 344	b	C	F	GenX	Tammy NA
## 345	b	C	F	GenX	Melinda NA
## 346	b	C	F	GenX	Tamara NA
## 347	b	C	F	GenX	Tracey NA
## 348	b	C	F	GenX	Colleen NA
## 349	b	C	F	GenX	Sherri NA
## 350	b	C	F	GenX	Heidi NA
## 351	b	C	F	Millenial	Samantha NA
## 352	b	C	F	Millenial	Alexis NA
## 353	b	C	F	Millenial	Brittany NA
## 354	b	C	F	Millenial	Lauren NA
## 355	b	C	F	Millenial	Taylor NA
## 356	b	C	F	Millenial	Bethany NA
## 357	b	C	F	Millenial	Latoya NA
## 358	b	C	F	Millenial	Candice NA
## 359	b	C	F	Millenial	Brittney NA

## 360	b	C	F	Millenial	Cheyenne	NA
## 361	c	A	M	Boomer	Theodore	NA
## 362	c	A	M	Boomer	Bernard	NA
## 363	c	A	M	Boomer	Gene	NA
## 364	c	A	M	Boomer	Herbert	NA
## 365	c	A	M	Boomer	Ray	NA
## 366	c	A	M	Boomer	Tom	NA
## 367	c	A	M	Boomer	Lee	NA
## 368	c	A	M	Boomer	Alfred	NA
## 369	c	A	M	Boomer	Leroy	NA
## 370	c	A	M	Boomer	Eddie	NA
## 371	c	A	M	GenX	Marc	NA
## 372	c	A	M	GenX	Jamie	NA
## 373	c	A	M	GenX	Greg	NA
## 374	c	A	M	GenX	Darryl	NA
## 375	c	A	M	GenX	Tim	NA
## 376	c	A	M	GenX	Dean	NA
## 377	c	A	M	GenX	Jon	NA
## 378	c	A	M	GenX	Chris	NA
## 379	c	A	M	GenX	Troy	NA
## 380	c	A	M	GenX	Jeff	NA
## 381	c	A	M	Millenial	Zachary	NA
## 382	c	A	M	Millenial	Dylan	NA
## 383	c	A	M	Millenial	Christian	NA
## 384	c	A	M	Millenial	Wesley	NA
## 385	c	A	M	Millenial	Seth	NA
## 386	c	A	M	Millenial	Austin	NA
## 387	c	A	M	Millenial	Gabriel	NA
## 388	c	A	M	Millenial	Evan	NA
## 389	c	A	M	Millenial	Casey	NA
## 390	c	A	M	Millenial	Luis	NA
## 391	c	A	F	Boomer	Gloria	NA
## 392	c	A	F	Boomer	Joan	NA
## 393	c	A	F	Boomer	Dorothy	NA
## 394	c	A	F	Boomer	Shirley	NA
## 395	c	A	F	Boomer	Betty	NA
## 396	c	A	F	Boomer	Dianne	NA
## 397	c	A	F	Boomer	Kay	NA
## 398	c	A	F	Boomer	Marjorie	NA
## 399	c	A	F	Boomer	Lorraine	NA
## 400	c	A	F	Boomer	Mildred	NA
## 401	c	A	F	GenX	Tracy	NA
## 402	c	A	F	GenX	Dawn	NA
## 403	c	A	F	GenX	Tina	NA
## 404	c	A	F	GenX	Tammy	NA
## 405	c	A	F	GenX	Melinda	NA
## 406	c	A	F	GenX	Tamara	NA
## 407	c	A	F	GenX	Tracey	NA
## 408	c	A	F	GenX	Colleen	NA
## 409	c	A	F	GenX	Sherri	NA
## 410	c	A	F	GenX	Heidi	NA
## 411	c	A	F	Millenial	Samantha	NA
## 412	c	A	F	Millenial	Alexis	NA
## 413	c	A	F	Millenial	Brittany	NA

## 414	c	A	F	Millenial	Lauren	NA
## 415	c	A	F	Millenial	Taylor	NA
## 416	c	A	F	Millenial	Bethany	NA
## 417	c	A	F	Millenial	Latoya	NA
## 418	c	A	F	Millenial	Candice	NA
## 419	c	A	F	Millenial	Brittney	NA
## 420	c	A	F	Millenial	Cheyenne	NA
## 421	c	B	M	Boomer	Theodore	NA
## 422	c	B	M	Boomer	Bernard	NA
## 423	c	B	M	Boomer	Gene	NA
## 424	c	B	M	Boomer	Herbert	NA
## 425	c	B	M	Boomer	Ray	NA
## 426	c	B	M	Boomer	Tom	NA
## 427	c	B	M	Boomer	Lee	NA
## 428	c	B	M	Boomer	Alfred	NA
## 429	c	B	M	Boomer	Leroy	NA
## 430	c	B	M	Boomer	Eddie	NA
## 431	c	B	M	GenX	Marc	NA
## 432	c	B	M	GenX	Jamie	NA
## 433	c	B	M	GenX	Greg	NA
## 434	c	B	M	GenX	Darryl	NA
## 435	c	B	M	GenX	Tim	NA
## 436	c	B	M	GenX	Dean	NA
## 437	c	B	M	GenX	Jon	NA
## 438	c	B	M	GenX	Chris	NA
## 439	c	B	M	GenX	Troy	NA
## 440	c	B	M	GenX	Jeff	NA
## 441	c	B	M	Millenial	Zachary	NA
## 442	c	B	M	Millenial	Dylan	NA
## 443	c	B	M	Millenial	Christian	NA
## 444	c	B	M	Millenial	Wesley	NA
## 445	c	B	M	Millenial	Seth	NA
## 446	c	B	M	Millenial	Austin	NA
## 447	c	B	M	Millenial	Gabriel	NA
## 448	c	B	M	Millenial	Evan	NA
## 449	c	B	M	Millenial	Casey	NA
## 450	c	B	M	Millenial	Luis	NA
## 451	c	B	F	Boomer	Gloria	NA
## 452	c	B	F	Boomer	Joan	NA
## 453	c	B	F	Boomer	Dorothy	NA
## 454	c	B	F	Boomer	Shirley	NA
## 455	c	B	F	Boomer	Betty	NA
## 456	c	B	F	Boomer	Dianne	NA
## 457	c	B	F	Boomer	Kay	NA
## 458	c	B	F	Boomer	Marjorie	NA
## 459	c	B	F	Boomer	Lorraine	NA
## 460	c	B	F	Boomer	Mildred	NA
## 461	c	B	F	GenX	Tracy	NA
## 462	c	B	F	GenX	Dawn	NA
## 463	c	B	F	GenX	Tina	NA
## 464	c	B	F	GenX	Tammy	NA
## 465	c	B	F	GenX	Melinda	NA
## 466	c	B	F	GenX	Tamara	NA
## 467	c	B	F	GenX	Tracey	NA

## 468	c	B	F	GenX	Colleen NA
## 469	c	B	F	GenX	Sherri NA
## 470	c	B	F	GenX	Heidi NA
## 471	c	B	F	Millenial	Samantha NA
## 472	c	B	F	Millenial	Alexis NA
## 473	c	B	F	Millenial	Brittany NA
## 474	c	B	F	Millenial	Lauren NA
## 475	c	B	F	Millenial	Taylor NA
## 476	c	B	F	Millenial	Bethany NA
## 477	c	B	F	Millenial	Latoya NA
## 478	c	B	F	Millenial	Candice NA
## 479	c	B	F	Millenial	Brittney NA
## 480	c	B	F	Millenial	Cheyenne NA
## 481	c	C	M	Boomer	Theodore NA
## 482	c	C	M	Boomer	Bernard NA
## 483	c	C	M	Boomer	Gene NA
## 484	c	C	M	Boomer	Herbert NA
## 485	c	C	M	Boomer	Ray NA
## 486	c	C	M	Boomer	Tom NA
## 487	c	C	M	Boomer	Lee NA
## 488	c	C	M	Boomer	Alfred NA
## 489	c	C	M	Boomer	Leroy NA
## 490	c	C	M	Boomer	Eddie NA
## 491	c	C	M	GenX	Marc NA
## 492	c	C	M	GenX	Jamie NA
## 493	c	C	M	GenX	Greg NA
## 494	c	C	M	GenX	Darryl NA
## 495	c	C	M	GenX	Tim NA
## 496	c	C	M	GenX	Dean NA
## 497	c	C	M	GenX	Jon NA
## 498	c	C	M	GenX	Chris NA
## 499	c	C	M	GenX	Troy NA
## 500	c	C	M	GenX	Jeff NA
## 501	c	C	M	Millenial	Zachary NA
## 502	c	C	M	Millenial	Dylan NA
## 503	c	C	M	Millenial	Christian NA
## 504	c	C	M	Millenial	Wesley NA
## 505	c	C	M	Millenial	Seth NA
## 506	c	C	M	Millenial	Austin NA
## 507	c	C	M	Millenial	Gabriel NA
## 508	c	C	M	Millenial	Evan NA
## 509	c	C	M	Millenial	Casey NA
## 510	c	C	M	Millenial	Luis NA
## 511	c	C	F	Boomer	Gloria NA
## 512	c	C	F	Boomer	Joan NA
## 513	c	C	F	Boomer	Dorothy NA
## 514	c	C	F	Boomer	Shirley NA
## 515	c	C	F	Boomer	Betty NA
## 516	c	C	F	Boomer	Dianne NA
## 517	c	C	F	Boomer	Kay NA
## 518	c	C	F	Boomer	Marjorie NA
## 519	c	C	F	Boomer	Lorraine NA
## 520	c	C	F	Boomer	Mildred NA
## 521	c	C	F	GenX	Tracy NA

## 522	c	C	F	GenX	Dawn NA
## 523	c	C	F	GenX	Tina NA
## 524	c	C	F	GenX	Tammy NA
## 525	c	C	F	GenX	Melinda NA
## 526	c	C	F	GenX	Tamara NA
## 527	c	C	F	GenX	Tracey NA
## 528	c	C	F	GenX	Colleen NA
## 529	c	C	F	GenX	Sherri NA
## 530	c	C	F	GenX	Heidi NA
## 531	c	C	F	Millenial	Samantha NA
## 532	c	C	F	Millenial	Alexis NA
## 533	c	C	F	Millenial	Brittany NA
## 534	c	C	F	Millenial	Lauren NA
## 535	c	C	F	Millenial	Taylor NA
## 536	c	C	F	Millenial	Bethany NA
## 537	c	C	F	Millenial	Latoya NA
## 538	c	C	F	Millenial	Candice NA
## 539	c	C	F	Millenial	Brittney NA
## 540	c	C	F	Millenial	Cheyenne NA
## 541	d	A	M	Boomer	Theodore NA
## 542	d	A	M	Boomer	Bernard NA
## 543	d	A	M	Boomer	Gene NA
## 544	d	A	M	Boomer	Herbert NA
## 545	d	A	M	Boomer	Ray NA
## 546	d	A	M	Boomer	Tom NA
## 547	d	A	M	Boomer	Lee NA
## 548	d	A	M	Boomer	Alfred NA
## 549	d	A	M	Boomer	Leroy NA
## 550	d	A	M	Boomer	Eddie NA
## 551	d	A	M	GenX	Marc NA
## 552	d	A	M	GenX	Jamie NA
## 553	d	A	M	GenX	Greg NA
## 554	d	A	M	GenX	Darryl NA
## 555	d	A	M	GenX	Tim NA
## 556	d	A	M	GenX	Dean NA
## 557	d	A	M	GenX	Jon NA
## 558	d	A	M	GenX	Chris NA
## 559	d	A	M	GenX	Troy NA
## 560	d	A	M	GenX	Jeff NA
## 561	d	A	M	Millenial	Zachary NA
## 562	d	A	M	Millenial	Dylan NA
## 563	d	A	M	Millenial	Christian NA
## 564	d	A	M	Millenial	Wesley NA
## 565	d	A	M	Millenial	Seth NA
## 566	d	A	M	Millenial	Austin NA
## 567	d	A	M	Millenial	Gabriel NA
## 568	d	A	M	Millenial	Evan NA
## 569	d	A	M	Millenial	Casey NA
## 570	d	A	M	Millenial	Luis NA
## 571	d	A	F	Boomer	Gloria NA
## 572	d	A	F	Boomer	Joan NA
## 573	d	A	F	Boomer	Dorothy NA
## 574	d	A	F	Boomer	Shirley NA
## 575	d	A	F	Boomer	Betty NA

## 576	d	A	F	Boomer	Dianne	NA
## 577	d	A	F	Boomer	Kay	NA
## 578	d	A	F	Boomer	Marjorie	NA
## 579	d	A	F	Boomer	Lorraine	NA
## 580	d	A	F	Boomer	Mildred	NA
## 581	d	A	F	GenX	Tracy	NA
## 582	d	A	F	GenX	Dawn	NA
## 583	d	A	F	GenX	Tina	NA
## 584	d	A	F	GenX	Tammy	NA
## 585	d	A	F	GenX	Melinda	NA
## 586	d	A	F	GenX	Tamara	NA
## 587	d	A	F	GenX	Tracey	NA
## 588	d	A	F	GenX	Colleen	NA
## 589	d	A	F	GenX	Sherri	NA
## 590	d	A	F	GenX	Heidi	NA
## 591	d	A	F	Millenial	Samantha	NA
## 592	d	A	F	Millenial	Alexis	NA
## 593	d	A	F	Millenial	Brittany	NA
## 594	d	A	F	Millenial	Lauren	NA
## 595	d	A	F	Millenial	Taylor	NA
## 596	d	A	F	Millenial	Bethany	NA
## 597	d	A	F	Millenial	Latoya	NA
## 598	d	A	F	Millenial	Candice	NA
## 599	d	A	F	Millenial	Brittney	NA
## 600	d	A	F	Millenial	Cheyenne	NA
## 601	d	B	M	Boomer	Theodore	NA
## 602	d	B	M	Boomer	Bernard	NA
## 603	d	B	M	Boomer	Gene	NA
## 604	d	B	M	Boomer	Herbert	NA
## 605	d	B	M	Boomer	Ray	NA
## 606	d	B	M	Boomer	Tom	NA
## 607	d	B	M	Boomer	Lee	NA
## 608	d	B	M	Boomer	Alfred	NA
## 609	d	B	M	Boomer	Leroy	NA
## 610	d	B	M	Boomer	Eddie	NA
## 611	d	B	M	GenX	Marc	NA
## 612	d	B	M	GenX	Jamie	NA
## 613	d	B	M	GenX	Greg	NA
## 614	d	B	M	GenX	Darryl	NA
## 615	d	B	M	GenX	Tim	NA
## 616	d	B	M	GenX	Dean	NA
## 617	d	B	M	GenX	Jon	NA
## 618	d	B	M	GenX	Chris	NA
## 619	d	B	M	GenX	Troy	NA
## 620	d	B	M	GenX	Jeff	NA
## 621	d	B	M	Millenial	Zachary	NA
## 622	d	B	M	Millenial	Dylan	NA
## 623	d	B	M	Millenial	Christian	NA
## 624	d	B	M	Millenial	Wesley	NA
## 625	d	B	M	Millenial	Seth	NA
## 626	d	B	M	Millenial	Austin	NA
## 627	d	B	M	Millenial	Gabriel	NA
## 628	d	B	M	Millenial	Evan	NA
## 629	d	B	M	Millenial	Casey	NA

## 630	d	B	M	Millenial	Luis	NA
## 631	d	B	F	Boomer	Gloria	NA
## 632	d	B	F	Boomer	Joan	NA
## 633	d	B	F	Boomer	Dorothy	NA
## 634	d	B	F	Boomer	Shirley	NA
## 635	d	B	F	Boomer	Betty	NA
## 636	d	B	F	Boomer	Dianne	NA
## 637	d	B	F	Boomer	Kay	NA
## 638	d	B	F	Boomer	Marjorie	NA
## 639	d	B	F	Boomer	Lorraine	NA
## 640	d	B	F	Boomer	Mildred	NA
## 641	d	B	F	GenX	Tracy	NA
## 642	d	B	F	GenX	Dawn	NA
## 643	d	B	F	GenX	Tina	NA
## 644	d	B	F	GenX	Tammy	NA
## 645	d	B	F	GenX	Melinda	NA
## 646	d	B	F	GenX	Tamara	NA
## 647	d	B	F	GenX	Tracey	NA
## 648	d	B	F	GenX	Colleen	NA
## 649	d	B	F	GenX	Sherri	NA
## 650	d	B	F	GenX	Heidi	NA
## 651	d	B	F	Millenial	Samantha	NA
## 652	d	B	F	Millenial	Alexis	NA
## 653	d	B	F	Millenial	Brittany	NA
## 654	d	B	F	Millenial	Lauren	NA
## 655	d	B	F	Millenial	Taylor	NA
## 656	d	B	F	Millenial	Bethany	NA
## 657	d	B	F	Millenial	Latoya	NA
## 658	d	B	F	Millenial	Candice	NA
## 659	d	B	F	Millenial	Brittney	NA
## 660	d	B	F	Millenial	Cheyenne	NA
## 661	d	C	M	Boomer	Theodore	NA
## 662	d	C	M	Boomer	Bernard	NA
## 663	d	C	M	Boomer	Gene	NA
## 664	d	C	M	Boomer	Herbert	NA
## 665	d	C	M	Boomer	Ray	NA
## 666	d	C	M	Boomer	Tom	NA
## 667	d	C	M	Boomer	Lee	NA
## 668	d	C	M	Boomer	Alfred	NA
## 669	d	C	M	Boomer	Leroy	NA
## 670	d	C	M	Boomer	Eddie	NA
## 671	d	C	M	GenX	Marc	NA
## 672	d	C	M	GenX	Jamie	NA
## 673	d	C	M	GenX	Greg	NA
## 674	d	C	M	GenX	Darryl	NA
## 675	d	C	M	GenX	Tim	NA
## 676	d	C	M	GenX	Dean	NA
## 677	d	C	M	GenX	Jon	NA
## 678	d	C	M	GenX	Chris	NA
## 679	d	C	M	GenX	Troy	NA
## 680	d	C	M	GenX	Jeff	NA
## 681	d	C	M	Millenial	Zachary	NA
## 682	d	C	M	Millenial	Dylan	NA
## 683	d	C	M	Millenial	Christian	NA



## 684	d	C	M	Millenial	Wesley NA
## 685	d	C	M	Millenial	Seth NA
## 686	d	C	M	Millenial	Austin NA
## 687	d	C	M	Millenial	Gabriel NA
## 688	d	C	M	Millenial	Evan NA
## 689	d	C	M	Millenial	Casey NA
## 690	d	C	M	Millenial	Luis NA
## 691	d	C	F	Boomer	Gloria NA
## 692	d	C	F	Boomer	Joan NA
## 693	d	C	F	Boomer	Dorothy NA
## 694	d	C	F	Boomer	Shirley NA
## 695	d	C	F	Boomer	Betty NA
## 696	d	C	F	Boomer	Dianne NA
## 697	d	C	F	Boomer	Kay NA
## 698	d	C	F	Boomer	Marjorie NA
## 699	d	C	F	Boomer	Lorraine NA
## 700	d	C	F	Boomer	Mildred NA
## 701	d	C	F	GenX	Tracy NA
## 702	d	C	F	GenX	Dawn NA
## 703	d	C	F	GenX	Tina NA
## 704	d	C	F	GenX	Tammy NA
## 705	d	C	F	GenX	Melinda NA
## 706	d	C	F	GenX	Tamara NA
## 707	d	C	F	GenX	Tracey NA
## 708	d	C	F	GenX	Colleen NA
## 709	d	C	F	GenX	Sherri NA
## 710	d	C	F	GenX	Heidi NA
## 711	d	C	F	Millenial	Samantha NA
## 712	d	C	F	Millenial	Alexis NA
## 713	d	C	F	Millenial	Brittany NA
## 714	d	C	F	Millenial	Lauren NA
## 715	d	C	F	Millenial	Taylor NA
## 716	d	C	F	Millenial	Bethany NA
## 717	d	C	F	Millenial	Latoya NA
## 718	d	C	F	Millenial	Candice NA
## 719	d	C	F	Millenial	Brittney NA
## 720	d	C	F	Millenial	Cheyenne NA
## 721	e	A	M	Boomer	Theodore NA
## 722	e	A	M	Boomer	Bernard NA
## 723	e	A	M	Boomer	Gene NA
## 724	e	A	M	Boomer	Herbert NA
## 725	e	A	M	Boomer	Ray NA
## 726	e	A	M	Boomer	Tom NA
## 727	e	A	M	Boomer	Lee NA
## 728	e	A	M	Boomer	Alfred NA
## 729	e	A	M	Boomer	Leroy NA
## 730	e	A	M	Boomer	Eddie NA
## 731	e	A	M	GenX	Marc NA
## 732	e	A	M	GenX	Jamie NA
## 733	e	A	M	GenX	Greg NA
## 734	e	A	M	GenX	Darryl NA
## 735	e	A	M	GenX	Tim NA
## 736	e	A	M	GenX	Dean NA
## 737	e	A	M	GenX	Jon NA

## 738	e	A	M	GenX	Chris	NA
## 739	e	A	M	GenX	Troy	NA
## 740	e	A	M	GenX	Jeff	NA
## 741	e	A	M	Millenial	Zachary	NA
## 742	e	A	M	Millenial	Dylan	NA
## 743	e	A	M	Millenial	Christian	NA
## 744	e	A	M	Millenial	Wesley	NA
## 745	e	A	M	Millenial	Seth	NA
## 746	e	A	M	Millenial	Austin	NA
## 747	e	A	M	Millenial	Gabriel	NA
## 748	e	A	M	Millenial	Evan	NA
## 749	e	A	M	Millenial	Casey	NA
## 750	e	A	M	Millenial	Luis	NA
## 751	e	A	F	Boomer	Gloria	NA
## 752	e	A	F	Boomer	Joan	NA
## 753	e	A	F	Boomer	Dorothy	NA
## 754	e	A	F	Boomer	Shirley	NA
## 755	e	A	F	Boomer	Betty	NA
## 756	e	A	F	Boomer	Dianne	NA
## 757	e	A	F	Boomer	Kay	NA
## 758	e	A	F	Boomer	Marjorie	NA
## 759	e	A	F	Boomer	Lorraine	NA
## 760	e	A	F	Boomer	Mildred	NA
## 761	e	A	F	GenX	Tracy	NA
## 762	e	A	F	GenX	Dawn	NA
## 763	e	A	F	GenX	Tina	NA
## 764	e	A	F	GenX	Tammy	NA
## 765	e	A	F	GenX	Melinda	NA
## 766	e	A	F	GenX	Tamara	NA
## 767	e	A	F	GenX	Tracey	NA
## 768	e	A	F	GenX	Colleen	NA
## 769	e	A	F	GenX	Sherri	NA
## 770	e	A	F	GenX	Heidi	NA
## 771	e	A	F	Millenial	Samantha	NA
## 772	e	A	F	Millenial	Alexis	NA
## 773	e	A	F	Millenial	Brittany	NA
## 774	e	A	F	Millenial	Lauren	NA
## 775	e	A	F	Millenial	Taylor	NA
## 776	e	A	F	Millenial	Bethany	NA
## 777	e	A	F	Millenial	Latoya	NA
## 778	e	A	F	Millenial	Candice	NA
## 779	e	A	F	Millenial	Brittney	NA
## 780	e	A	F	Millenial	Cheyenne	NA
## 781	e	B	M	Boomer	Theodore	NA
## 782	e	B	M	Boomer	Bernard	NA
## 783	e	B	M	Boomer	Gene	NA
## 784	e	B	M	Boomer	Herbert	NA
## 785	e	B	M	Boomer	Ray	NA
## 786	e	B	M	Boomer	Tom	NA
## 787	e	B	M	Boomer	Lee	NA
## 788	e	B	M	Boomer	Alfred	NA
## 789	e	B	M	Boomer	Leroy	NA
## 790	e	B	M	Boomer	Eddie	NA
## 791	e	B	M	GenX	Marc	NA

## 792	e	B	M	GenX	Jamie NA
## 793	e	B	M	GenX	Greg NA
## 794	e	B	M	GenX	Darryl NA
## 795	e	B	M	GenX	Tim NA
## 796	e	B	M	GenX	Dean NA
## 797	e	B	M	GenX	Jon NA
## 798	e	B	M	GenX	Chris NA
## 799	e	B	M	GenX	Troy NA
## 800	e	B	M	GenX	Jeff NA
## 801	e	B	M	Millenial	Zachary NA
## 802	e	B	M	Millenial	Dylan NA
## 803	e	B	M	Millenial	Christian NA
## 804	e	B	M	Millenial	Wesley NA
## 805	e	B	M	Millenial	Seth NA
## 806	e	B	M	Millenial	Austin NA
## 807	e	B	M	Millenial	Gabriel NA
## 808	e	B	M	Millenial	Evan NA
## 809	e	B	M	Millenial	Casey NA
## 810	e	B	M	Millenial	Luis NA
## 811	e	B	F	Boomer	Gloria NA
## 812	e	B	F	Boomer	Joan NA
## 813	e	B	F	Boomer	Dorothy NA
## 814	e	B	F	Boomer	Shirley NA
## 815	e	B	F	Boomer	Betty NA
## 816	e	B	F	Boomer	Dianne NA
## 817	e	B	F	Boomer	Kay NA
## 818	e	B	F	Boomer	Marjorie NA
## 819	e	B	F	Boomer	Lorraine NA
## 820	e	B	F	Boomer	Mildred NA
## 821	e	B	F	GenX	Tracy NA
## 822	e	B	F	GenX	Dawn NA
## 823	e	B	F	GenX	Tina NA
## 824	e	B	F	GenX	Tammy NA
## 825	e	B	F	GenX	Melinda NA
## 826	e	B	F	GenX	Tamara NA
## 827	e	B	F	GenX	Tracey NA
## 828	e	B	F	GenX	Colleen NA
## 829	e	B	F	GenX	Sherri NA
## 830	e	B	F	GenX	Heidi NA
## 831	e	B	F	Millenial	Samantha NA
## 832	e	B	F	Millenial	Alexis NA
## 833	e	B	F	Millenial	Brittany NA
## 834	e	B	F	Millenial	Lauren NA
## 835	e	B	F	Millenial	Taylor NA
## 836	e	B	F	Millenial	Bethany NA
## 837	e	B	F	Millenial	Latoya NA
## 838	e	B	F	Millenial	Candice NA
## 839	e	B	F	Millenial	Brittney NA
## 840	e	B	F	Millenial	Cheyenne NA
## 841	e	C	M	Boomer	Theodore NA
## 842	e	C	M	Boomer	Bernard NA
## 843	e	C	M	Boomer	Gene NA
## 844	e	C	M	Boomer	Herbert NA
## 845	e	C	M	Boomer	Ray NA

## 846	e	C	M	Boomer	Tom NA
## 847	e	C	M	Boomer	Lee NA
## 848	e	C	M	Boomer	Alfred NA
## 849	e	C	M	Boomer	Leroy NA
## 850	e	C	M	Boomer	Eddie NA
## 851	e	C	M	GenX	Marc NA
## 852	e	C	M	GenX	Jamie NA
## 853	e	C	M	GenX	Greg NA
## 854	e	C	M	GenX	Darryl NA
## 855	e	C	M	GenX	Tim NA
## 856	e	C	M	GenX	Dean NA
## 857	e	C	M	GenX	Jon NA
## 858	e	C	M	GenX	Chris NA
## 859	e	C	M	GenX	Troy NA
## 860	e	C	M	GenX	Jeff NA
## 861	e	C	M	Millennial	Zachary NA
## 862	e	C	M	Millennial	Dylan NA
## 863	e	C	M	Millennial	Christian NA
## 864	e	C	M	Millennial	Wesley NA
## 865	e	C	M	Millennial	Seth NA
## 866	e	C	M	Millennial	Austin NA
## 867	e	C	M	Millennial	Gabriel NA
## 868	e	C	M	Millennial	Evan NA
## 869	e	C	M	Millennial	Casey NA
## 870	e	C	M	Millennial	Luis NA
## 871	e	C	F	Boomer	Gloria NA
## 872	e	C	F	Boomer	Joan NA
## 873	e	C	F	Boomer	Dorothy NA
## 874	e	C	F	Boomer	Shirley NA
## 875	e	C	F	Boomer	Betty NA
## 876	e	C	F	Boomer	Dianne NA
## 877	e	C	F	Boomer	Kay NA
## 878	e	C	F	Boomer	Marjorie NA
## 879	e	C	F	Boomer	Lorraine NA
## 880	e	C	F	Boomer	Mildred NA
## 881	e	C	F	GenX	Tracy NA
## 882	e	C	F	GenX	Dawn NA
## 883	e	C	F	GenX	Tina NA
## 884	e	C	F	GenX	Tammy NA
## 885	e	C	F	GenX	Melinda NA
## 886	e	C	F	GenX	Tamara NA
## 887	e	C	F	GenX	Tracey NA
## 888	e	C	F	GenX	Colleen NA
## 889	e	C	F	GenX	Sherri NA
## 890	e	C	F	GenX	Heidi NA
## 891	e	C	F	Millennial	Samantha NA
## 892	e	C	F	Millennial	Alexis NA
## 893	e	C	F	Millennial	Brittany NA
## 894	e	C	F	Millennial	Lauren NA
## 895	e	C	F	Millennial	Taylor NA
## 896	e	C	F	Millennial	Bethany NA
## 897	e	C	F	Millennial	Latoya NA
## 898	e	C	F	Millennial	Candice NA
## 899	e	C	F	Millennial	Brittney NA

## 900	e	C	F	Millenial	Cheyenne	NA
## 901	f	A	M	Boomer	Theodore	NA
## 902	f	A	M	Boomer	Bernard	NA
## 903	f	A	M	Boomer	Gene	NA
## 904	f	A	M	Boomer	Herbert	NA
## 905	f	A	M	Boomer	Ray	NA
## 906	f	A	M	Boomer	Tom	NA
## 907	f	A	M	Boomer	Lee	NA
## 908	f	A	M	Boomer	Alfred	NA
## 909	f	A	M	Boomer	Leroy	NA
## 910	f	A	M	Boomer	Eddie	NA
## 911	f	A	M	GenX	Marc	NA
## 912	f	A	M	GenX	Jamie	NA
## 913	f	A	M	GenX	Greg	NA
## 914	f	A	M	GenX	Darryl	NA
## 915	f	A	M	GenX	Tim	NA
## 916	f	A	M	GenX	Dean	NA
## 917	f	A	M	GenX	Jon	NA
## 918	f	A	M	GenX	Chris	NA
## 919	f	A	M	GenX	Troy	NA
## 920	f	A	M	GenX	Jeff	NA
## 921	f	A	M	Millenial	Zachary	NA
## 922	f	A	M	Millenial	Dylan	NA
## 923	f	A	M	Millenial	Christian	NA
## 924	f	A	M	Millenial	Wesley	NA
## 925	f	A	M	Millenial	Seth	NA
## 926	f	A	M	Millenial	Austin	NA
## 927	f	A	M	Millenial	Gabriel	NA
## 928	f	A	M	Millenial	Evan	NA
## 929	f	A	M	Millenial	Casey	NA
## 930	f	A	M	Millenial	Luis	NA
## 931	f	A	F	Boomer	Gloria	NA
## 932	f	A	F	Boomer	Joan	NA
## 933	f	A	F	Boomer	Dorothy	NA
## 934	f	A	F	Boomer	Shirley	NA
## 935	f	A	F	Boomer	Betty	NA
## 936	f	A	F	Boomer	Dianne	NA
## 937	f	A	F	Boomer	Kay	NA
## 938	f	A	F	Boomer	Marjorie	NA
## 939	f	A	F	Boomer	Lorraine	NA
## 940	f	A	F	Boomer	Mildred	NA
## 941	f	A	F	GenX	Tracy	NA
## 942	f	A	F	GenX	Dawn	NA
## 943	f	A	F	GenX	Tina	NA
## 944	f	A	F	GenX	Tammy	NA
## 945	f	A	F	GenX	Melinda	NA
## 946	f	A	F	GenX	Tamara	NA
## 947	f	A	F	GenX	Tracey	NA
## 948	f	A	F	GenX	Colleen	NA
## 949	f	A	F	GenX	Sherri	NA
## 950	f	A	F	GenX	Heidi	NA
## 951	f	A	F	Millenial	Samantha	NA
## 952	f	A	F	Millenial	Alexis	NA
## 953	f	A	F	Millenial	Brittany	NA

## 954	f	A	F	Millenial	Lauren	NA
## 955	f	A	F	Millenial	Taylor	NA
## 956	f	A	F	Millenial	Bethany	NA
## 957	f	A	F	Millenial	Latoya	NA
## 958	f	A	F	Millenial	Candice	NA
## 959	f	A	F	Millenial	Brittney	NA
## 960	f	A	F	Millenial	Cheyenne	NA
## 961	f	B	M	Boomer	Theodore	NA
## 962	f	B	M	Boomer	Bernard	NA
## 963	f	B	M	Boomer	Gene	NA
## 964	f	B	M	Boomer	Herbert	NA
## 965	f	B	M	Boomer	Ray	NA
## 966	f	B	M	Boomer	Tom	NA
## 967	f	B	M	Boomer	Lee	NA
## 968	f	B	M	Boomer	Alfred	NA
## 969	f	B	M	Boomer	Leroy	NA
## 970	f	B	M	Boomer	Eddie	NA
## 971	f	B	M	GenX	Marc	NA
## 972	f	B	M	GenX	Jamie	NA
## 973	f	B	M	GenX	Greg	NA
## 974	f	B	M	GenX	Darryl	NA
## 975	f	B	M	GenX	Tim	NA
## 976	f	B	M	GenX	Dean	NA
## 977	f	B	M	GenX	Jon	NA
## 978	f	B	M	GenX	Chris	NA
## 979	f	B	M	GenX	Troy	NA
## 980	f	B	M	GenX	Jeff	NA
## 981	f	B	M	Millenial	Zachary	NA
## 982	f	B	M	Millenial	Dylan	NA
## 983	f	B	M	Millenial	Christian	NA
## 984	f	B	M	Millenial	Wesley	NA
## 985	f	B	M	Millenial	Seth	NA
## 986	f	B	M	Millenial	Austin	NA
## 987	f	B	M	Millenial	Gabriel	NA
## 988	f	B	M	Millenial	Evan	NA
## 989	f	B	M	Millenial	Casey	NA
## 990	f	B	M	Millenial	Luis	NA
## 991	f	B	F	Boomer	Gloria	NA
## 992	f	B	F	Boomer	Joan	NA
## 993	f	B	F	Boomer	Dorothy	NA
## 994	f	B	F	Boomer	Shirley	NA
## 995	f	B	F	Boomer	Betty	NA
## 996	f	B	F	Boomer	Dianne	NA
## 997	f	B	F	Boomer	Kay	NA
## 998	f	B	F	Boomer	Marjorie	NA
## 999	f	B	F	Boomer	Lorraine	NA
## 1000	f	B	F	Boomer	Mildred	NA
## 1001	f	B	F	GenX	Tracy	NA
## 1002	f	B	F	GenX	Dawn	NA
## 1003	f	B	F	GenX	Tina	NA
## 1004	f	B	F	GenX	Tammy	NA
## 1005	f	B	F	GenX	Melinda	NA
## 1006	f	B	F	GenX	Tamara	NA
## 1007	f	B	F	GenX	Tracey	NA

## 1008	f	B	F	GenX	Colleen NA
## 1009	f	B	F	GenX	Sherri NA
## 1010	f	B	F	GenX	Heidi NA
## 1011	f	B	F	Millenial	Samantha NA
## 1012	f	B	F	Millenial	Alexis NA
## 1013	f	B	F	Millenial	Brittany NA
## 1014	f	B	F	Millenial	Lauren NA
## 1015	f	B	F	Millenial	Taylor NA
## 1016	f	B	F	Millenial	Bethany NA
## 1017	f	B	F	Millenial	Latoya NA
## 1018	f	B	F	Millenial	Candice NA
## 1019	f	B	F	Millenial	Brittney NA
## 1020	f	B	F	Millenial	Cheyenne NA
## 1021	f	C	M	Boomer	Theodore NA
## 1022	f	C	M	Boomer	Bernard NA
## 1023	f	C	M	Boomer	Gene NA
## 1024	f	C	M	Boomer	Herbert NA
## 1025	f	C	M	Boomer	Ray NA
## 1026	f	C	M	Boomer	Tom NA
## 1027	f	C	M	Boomer	Lee NA
## 1028	f	C	M	Boomer	Alfred NA
## 1029	f	C	M	Boomer	Leroy NA
## 1030	f	C	M	Boomer	Eddie NA
## 1031	f	C	M	GenX	Marc NA
## 1032	f	C	M	GenX	Jamie NA
## 1033	f	C	M	GenX	Greg NA
## 1034	f	C	M	GenX	Darryl NA
## 1035	f	C	M	GenX	Tim NA
## 1036	f	C	M	GenX	Dean NA
## 1037	f	C	M	GenX	Jon NA
## 1038	f	C	M	GenX	Chris NA
## 1039	f	C	M	GenX	Troy NA
## 1040	f	C	M	GenX	Jeff NA
## 1041	f	C	M	Millenial	Zachary NA
## 1042	f	C	M	Millenial	Dylan NA
## 1043	f	C	M	Millenial	Christian NA
## 1044	f	C	M	Millenial	Wesley NA
## 1045	f	C	M	Millenial	Seth NA
## 1046	f	C	M	Millenial	Austin NA
## 1047	f	C	M	Millenial	Gabriel NA
## 1048	f	C	M	Millenial	Evan NA
## 1049	f	C	M	Millenial	Casey NA
## 1050	f	C	M	Millenial	Luis NA
## 1051	f	C	F	Boomer	Gloria NA
## 1052	f	C	F	Boomer	Joan NA
## 1053	f	C	F	Boomer	Dorothy NA
## 1054	f	C	F	Boomer	Shirley NA
## 1055	f	C	F	Boomer	Betty NA
## 1056	f	C	F	Boomer	Dianne NA
## 1057	f	C	F	Boomer	Kay NA
## 1058	f	C	F	Boomer	Marjorie NA
## 1059	f	C	F	Boomer	Lorraine NA
## 1060	f	C	F	Boomer	Mildred NA
## 1061	f	C	F	GenX	Tracy NA

## 1062	f	C	F	GenX	Dawn	NA
## 1063	f	C	F	GenX	Tina	NA
## 1064	f	C	F	GenX	Tammy	NA
## 1065	f	C	F	GenX	Melinda	NA
## 1066	f	C	F	GenX	Tamara	NA
## 1067	f	C	F	GenX	Tracey	NA
## 1068	f	C	F	GenX	Colleen	NA
## 1069	f	C	F	GenX	Sherri	NA
## 1070	f	C	F	GenX	Heidi	NA
## 1071	f	C	F	Millenial	Samantha	NA
## 1072	f	C	F	Millenial	Alexis	NA
## 1073	f	C	F	Millenial	Brittany	NA
## 1074	f	C	F	Millenial	Lauren	NA
## 1075	f	C	F	Millenial	Taylor	NA
## 1076	f	C	F	Millenial	Bethany	NA
## 1077	f	C	F	Millenial	Latoya	NA
## 1078	f	C	F	Millenial	Candice	NA
## 1079	f	C	F	Millenial	Brittney	NA
## 1080	f	C	F	Millenial	Cheyenne	NA
## 1081	g	A	M	Boomer	Theodore	NA
## 1082	g	A	M	Boomer	Bernard	NA
## 1083	g	A	M	Boomer	Gene	NA
## 1084	g	A	M	Boomer	Herbert	NA
## 1085	g	A	M	Boomer	Ray	NA
## 1086	g	A	M	Boomer	Tom	NA
## 1087	g	A	M	Boomer	Lee	NA
## 1088	g	A	M	Boomer	Alfred	NA
## 1089	g	A	M	Boomer	Leroy	NA
## 1090	g	A	M	Boomer	Eddie	NA
## 1091	g	A	M	GenX	Marc	NA
## 1092	g	A	M	GenX	Jamie	NA
## 1093	g	A	M	GenX	Greg	NA
## 1094	g	A	M	GenX	Darryl	NA
## 1095	g	A	M	GenX	Tim	NA
## 1096	g	A	M	GenX	Dean	NA
## 1097	g	A	M	GenX	Jon	NA
## 1098	g	A	M	GenX	Chris	NA
## 1099	g	A	M	GenX	Troy	NA
## 1100	g	A	M	GenX	Jeff	NA
## 1101	g	A	M	Millenial	Zachary	NA
## 1102	g	A	M	Millenial	Dylan	NA
## 1103	g	A	M	Millenial	Christian	NA
## 1104	g	A	M	Millenial	Wesley	NA
## 1105	g	A	M	Millenial	Seth	NA
## 1106	g	A	M	Millenial	Austin	NA
## 1107	g	A	M	Millenial	Gabriel	NA
## 1108	g	A	M	Millenial	Evan	NA
## 1109	g	A	M	Millenial	Casey	NA
## 1110	g	A	M	Millenial	Luis	NA
## 1111	g	A	F	Boomer	Gloria	NA
## 1112	g	A	F	Boomer	Joan	NA
## 1113	g	A	F	Boomer	Dorothy	NA
## 1114	g	A	F	Boomer	Shirley	NA
## 1115	g	A	F	Boomer	Betty	NA



## 1116	g	A	F	Boomer	Dianne	NA
## 1117	g	A	F	Boomer	Kay	NA
## 1118	g	A	F	Boomer	Marjorie	NA
## 1119	g	A	F	Boomer	Lorraine	NA
## 1120	g	A	F	Boomer	Mildred	NA
## 1121	g	A	F	GenX	Tracy	NA
## 1122	g	A	F	GenX	Dawn	NA
## 1123	g	A	F	GenX	Tina	NA
## 1124	g	A	F	GenX	Tammy	NA
## 1125	g	A	F	GenX	Melinda	NA
## 1126	g	A	F	GenX	Tamara	NA
## 1127	g	A	F	GenX	Tracey	NA
## 1128	g	A	F	GenX	Colleen	NA
## 1129	g	A	F	GenX	Sherri	NA
## 1130	g	A	F	GenX	Heidi	NA
## 1131	g	A	F	Millenial	Samantha	NA
## 1132	g	A	F	Millenial	Alexis	NA
## 1133	g	A	F	Millenial	Brittany	NA
## 1134	g	A	F	Millenial	Lauren	NA
## 1135	g	A	F	Millenial	Taylor	NA
## 1136	g	A	F	Millenial	Bethany	NA
## 1137	g	A	F	Millenial	Latoya	NA
## 1138	g	A	F	Millenial	Candice	NA
## 1139	g	A	F	Millenial	Brittney	NA
## 1140	g	A	F	Millenial	Cheyenne	NA
## 1141	g	B	M	Boomer	Theodore	NA
## 1142	g	B	M	Boomer	Bernard	NA
## 1143	g	B	M	Boomer	Gene	NA
## 1144	g	B	M	Boomer	Herbert	NA
## 1145	g	B	M	Boomer	Ray	NA
## 1146	g	B	M	Boomer	Tom	NA
## 1147	g	B	M	Boomer	Lee	NA
## 1148	g	B	M	Boomer	Alfred	NA
## 1149	g	B	M	Boomer	Leroy	NA
## 1150	g	B	M	Boomer	Eddie	NA
## 1151	g	B	M	GenX	Marc	NA
## 1152	g	B	M	GenX	Jamie	NA
## 1153	g	B	M	GenX	Greg	NA
## 1154	g	B	M	GenX	Darryl	NA
## 1155	g	B	M	GenX	Tim	NA
## 1156	g	B	M	GenX	Dean	NA
## 1157	g	B	M	GenX	Jon	NA
## 1158	g	B	M	GenX	Chris	NA
## 1159	g	B	M	GenX	Troy	NA
## 1160	g	B	M	GenX	Jeff	NA
## 1161	g	B	M	Millenial	Zachary	NA
## 1162	g	B	M	Millenial	Dylan	NA
## 1163	g	B	M	Millenial	Christian	NA
## 1164	g	B	M	Millenial	Wesley	NA
## 1165	g	B	M	Millenial	Seth	NA
## 1166	g	B	M	Millenial	Austin	NA
## 1167	g	B	M	Millenial	Gabriel	NA
## 1168	g	B	M	Millenial	Evan	NA
## 1169	g	B	M	Millenial	Casey	NA

## 1170	g	B	M	Millenial	Luis NA
## 1171	g	B	F	Boomer	Gloria NA
## 1172	g	B	F	Boomer	Joan NA
## 1173	g	B	F	Boomer	Dorothy NA
## 1174	g	B	F	Boomer	Shirley NA
## 1175	g	B	F	Boomer	Betty NA
## 1176	g	B	F	Boomer	Dianne NA
## 1177	g	B	F	Boomer	Kay NA
## 1178	g	B	F	Boomer	Marjorie NA
## 1179	g	B	F	Boomer	Lorraine NA
## 1180	g	B	F	Boomer	Mildred NA
## 1181	g	B	F	GenX	Tracy NA
## 1182	g	B	F	GenX	Dawn NA
## 1183	g	B	F	GenX	Tina NA
## 1184	g	B	F	GenX	Tammy NA
## 1185	g	B	F	GenX	Melinda NA
## 1186	g	B	F	GenX	Tamara NA
## 1187	g	B	F	GenX	Tracey NA
## 1188	g	B	F	GenX	Colleen NA
## 1189	g	B	F	GenX	Sherri NA
## 1190	g	B	F	GenX	Heidi NA
## 1191	g	B	F	Millenial	Samantha NA
## 1192	g	B	F	Millenial	Alexis NA
## 1193	g	B	F	Millenial	Brittany NA
## 1194	g	B	F	Millenial	Lauren NA
## 1195	g	B	F	Millenial	Taylor NA
## 1196	g	B	F	Millenial	Bethany NA
## 1197	g	B	F	Millenial	Latoya NA
## 1198	g	B	F	Millenial	Candice NA
## 1199	g	B	F	Millenial	Brittney NA
## 1200	g	B	F	Millenial	Cheyenne NA
## 1201	g	C	M	Boomer	Theodore NA
## 1202	g	C	M	Boomer	Bernard NA
## 1203	g	C	M	Boomer	Gene NA
## 1204	g	C	M	Boomer	Herbert NA
## 1205	g	C	M	Boomer	Ray NA
## 1206	g	C	M	Boomer	Tom NA
## 1207	g	C	M	Boomer	Lee NA
## 1208	g	C	M	Boomer	Alfred NA
## 1209	g	C	M	Boomer	Leroy NA
## 1210	g	C	M	Boomer	Eddie NA
## 1211	g	C	M	GenX	Marc NA
## 1212	g	C	M	GenX	Jamie NA
## 1213	g	C	M	GenX	Greg NA
## 1214	g	C	M	GenX	Darryl NA
## 1215	g	C	M	GenX	Tim NA
## 1216	g	C	M	GenX	Dean NA
## 1217	g	C	M	GenX	Jon NA
## 1218	g	C	M	GenX	Chris NA
## 1219	g	C	M	GenX	Troy NA
## 1220	g	C	M	GenX	Jeff NA
## 1221	g	C	M	Millenial	Zachary NA
## 1222	g	C	M	Millenial	Dylan NA
## 1223	g	C	M	Millenial	Christian NA

## 1224	g	C	M	Millenial	Wesley NA
## 1225	g	C	M	Millenial	Seth NA
## 1226	g	C	M	Millenial	Austin NA
## 1227	g	C	M	Millenial	Gabriel NA
## 1228	g	C	M	Millenial	Evan NA
## 1229	g	C	M	Millenial	Casey NA
## 1230	g	C	M	Millenial	Luis NA
## 1231	g	C	F	Boomer	Gloria NA
## 1232	g	C	F	Boomer	Joan NA
## 1233	g	C	F	Boomer	Dorothy NA
## 1234	g	C	F	Boomer	Shirley NA
## 1235	g	C	F	Boomer	Betty NA
## 1236	g	C	F	Boomer	Dianne NA
## 1237	g	C	F	Boomer	Kay NA
## 1238	g	C	F	Boomer	Marjorie NA
## 1239	g	C	F	Boomer	Lorraine NA
## 1240	g	C	F	Boomer	Mildred NA
## 1241	g	C	F	GenX	Tracy NA
## 1242	g	C	F	GenX	Dawn NA
## 1243	g	C	F	GenX	Tina NA
## 1244	g	C	F	GenX	Tammy NA
## 1245	g	C	F	GenX	Melinda NA
## 1246	g	C	F	GenX	Tamara NA
## 1247	g	C	F	GenX	Tracey NA
## 1248	g	C	F	GenX	Colleen NA
## 1249	g	C	F	GenX	Sherri NA
## 1250	g	C	F	GenX	Heidi NA
## 1251	g	C	F	Millenial	Samantha NA
## 1252	g	C	F	Millenial	Alexis NA
## 1253	g	C	F	Millenial	Brittany NA
## 1254	g	C	F	Millenial	Lauren NA
## 1255	g	C	F	Millenial	Taylor NA
## 1256	g	C	F	Millenial	Bethany NA
## 1257	g	C	F	Millenial	Latoya NA
## 1258	g	C	F	Millenial	Candice NA
## 1259	g	C	F	Millenial	Brittney NA
## 1260	g	C	F	Millenial	Cheyenne NA
## 1261	h	A	M	Boomer	Theodore NA
## 1262	h	A	M	Boomer	Bernard NA
## 1263	h	A	M	Boomer	Gene NA
## 1264	h	A	M	Boomer	Herbert NA
## 1265	h	A	M	Boomer	Ray NA
## 1266	h	A	M	Boomer	Tom NA
## 1267	h	A	M	Boomer	Lee NA
## 1268	h	A	M	Boomer	Alfred NA
## 1269	h	A	M	Boomer	Leroy NA
## 1270	h	A	M	Boomer	Eddie NA
## 1271	h	A	M	GenX	Marc NA
## 1272	h	A	M	GenX	Jamie NA
## 1273	h	A	M	GenX	Greg NA
## 1274	h	A	M	GenX	Darryl NA
## 1275	h	A	M	GenX	Tim NA
## 1276	h	A	M	GenX	Dean NA
## 1277	h	A	M	GenX	Jon NA

## 1278	h	A	M	GenX	Chris	NA
## 1279	h	A	M	GenX	Troy	NA
## 1280	h	A	M	GenX	Jeff	NA
## 1281	h	A	M	Millenial	Zachary	NA
## 1282	h	A	M	Millenial	Dylan	NA
## 1283	h	A	M	Millenial	Christian	NA
## 1284	h	A	M	Millenial	Wesley	NA
## 1285	h	A	M	Millenial	Seth	NA
## 1286	h	A	M	Millenial	Austin	NA
## 1287	h	A	M	Millenial	Gabriel	NA
## 1288	h	A	M	Millenial	Evan	NA
## 1289	h	A	M	Millenial	Casey	NA
## 1290	h	A	M	Millenial	Luis	NA
## 1291	h	A	F	Boomer	Gloria	NA
## 1292	h	A	F	Boomer	Joan	NA
## 1293	h	A	F	Boomer	Dorothy	NA
## 1294	h	A	F	Boomer	Shirley	NA
## 1295	h	A	F	Boomer	Betty	NA
## 1296	h	A	F	Boomer	Dianne	NA
## 1297	h	A	F	Boomer	Kay	NA
## 1298	h	A	F	Boomer	Marjorie	NA
## 1299	h	A	F	Boomer	Lorraine	NA
## 1300	h	A	F	Boomer	Mildred	NA
## 1301	h	A	F	GenX	Tracy	NA
## 1302	h	A	F	GenX	Dawn	NA
## 1303	h	A	F	GenX	Tina	NA
## 1304	h	A	F	GenX	Tammy	NA
## 1305	h	A	F	GenX	Melinda	NA
## 1306	h	A	F	GenX	Tamara	NA
## 1307	h	A	F	GenX	Tracey	NA
## 1308	h	A	F	GenX	Colleen	NA
## 1309	h	A	F	GenX	Sherri	NA
## 1310	h	A	F	GenX	Heidi	NA
## 1311	h	A	F	Millenial	Samantha	NA
## 1312	h	A	F	Millenial	Alexis	NA
## 1313	h	A	F	Millenial	Brittany	NA
## 1314	h	A	F	Millenial	Lauren	NA
## 1315	h	A	F	Millenial	Taylor	NA
## 1316	h	A	F	Millenial	Bethany	NA
## 1317	h	A	F	Millenial	Latoya	NA
## 1318	h	A	F	Millenial	Candice	NA
## 1319	h	A	F	Millenial	Brittney	NA
## 1320	h	A	F	Millenial	Cheyenne	NA
## 1321	h	B	M	Boomer	Theodore	NA
## 1322	h	B	M	Boomer	Bernard	NA
## 1323	h	B	M	Boomer	Gene	NA
## 1324	h	B	M	Boomer	Herbert	NA
## 1325	h	B	M	Boomer	Ray	NA
## 1326	h	B	M	Boomer	Tom	NA
## 1327	h	B	M	Boomer	Lee	NA
## 1328	h	B	M	Boomer	Alfred	NA
## 1329	h	B	M	Boomer	Leroy	NA
## 1330	h	B	M	Boomer	Eddie	NA
## 1331	h	B	M	GenX	Marc	NA

## 1332	h	B	M	GenX	Jamie NA
## 1333	h	B	M	GenX	Greg NA
## 1334	h	B	M	GenX	Darryl NA
## 1335	h	B	M	GenX	Tim NA
## 1336	h	B	M	GenX	Dean NA
## 1337	h	B	M	GenX	Jon NA
## 1338	h	B	M	GenX	Chris NA
## 1339	h	B	M	GenX	Troy NA
## 1340	h	B	M	GenX	Jeff NA
## 1341	h	B	M	Millenial	Zachary NA
## 1342	h	B	M	Millenial	Dylan NA
## 1343	h	B	M	Millenial	Christian NA
## 1344	h	B	M	Millenial	Wesley NA
## 1345	h	B	M	Millenial	Seth NA
## 1346	h	B	M	Millenial	Austin NA
## 1347	h	B	M	Millenial	Gabriel NA
## 1348	h	B	M	Millenial	Evan NA
## 1349	h	B	M	Millenial	Casey NA
## 1350	h	B	M	Millenial	Luis NA
## 1351	h	B	F	Boomer	Gloria NA
## 1352	h	B	F	Boomer	Joan NA
## 1353	h	B	F	Boomer	Dorothy NA
## 1354	h	B	F	Boomer	Shirley NA
## 1355	h	B	F	Boomer	Betty NA
## 1356	h	B	F	Boomer	Dianne NA
## 1357	h	B	F	Boomer	Kay NA
## 1358	h	B	F	Boomer	Marjorie NA
## 1359	h	B	F	Boomer	Lorraine NA
## 1360	h	B	F	Boomer	Mildred NA
## 1361	h	B	F	GenX	Tracy NA
## 1362	h	B	F	GenX	Dawn NA
## 1363	h	B	F	GenX	Tina NA
## 1364	h	B	F	GenX	Tammy NA
## 1365	h	B	F	GenX	Melinda NA
## 1366	h	B	F	GenX	Tamara NA
## 1367	h	B	F	GenX	Tracey NA
## 1368	h	B	F	GenX	Colleen NA
## 1369	h	B	F	GenX	Sherri NA
## 1370	h	B	F	GenX	Heidi NA
## 1371	h	B	F	Millenial	Samantha NA
## 1372	h	B	F	Millenial	Alexis NA
## 1373	h	B	F	Millenial	Brittany NA
## 1374	h	B	F	Millenial	Lauren NA
## 1375	h	B	F	Millenial	Taylor NA
## 1376	h	B	F	Millenial	Bethany NA
## 1377	h	B	F	Millenial	Latoya NA
## 1378	h	B	F	Millenial	Candice NA
## 1379	h	B	F	Millenial	Brittney NA
## 1380	h	B	F	Millenial	Cheyenne NA
## 1381	h	C	M	Boomer	Theodore NA
## 1382	h	C	M	Boomer	Bernard NA
## 1383	h	C	M	Boomer	Gene NA
## 1384	h	C	M	Boomer	Herbert NA
## 1385	h	C	M	Boomer	Ray NA

## 1386	h	C	M	Boomer	Tom NA
## 1387	h	C	M	Boomer	Lee NA
## 1388	h	C	M	Boomer	Alfred NA
## 1389	h	C	M	Boomer	Leroy NA
## 1390	h	C	M	Boomer	Eddie NA
## 1391	h	C	M	GenX	Marc NA
## 1392	h	C	M	GenX	Jamie NA
## 1393	h	C	M	GenX	Greg NA
## 1394	h	C	M	GenX	Darryl NA
## 1395	h	C	M	GenX	Tim NA
## 1396	h	C	M	GenX	Dean NA
## 1397	h	C	M	GenX	Jon NA
## 1398	h	C	M	GenX	Chris NA
## 1399	h	C	M	GenX	Troy NA
## 1400	h	C	M	GenX	Jeff NA
## 1401	h	C	M	Millenial	Zachary NA
## 1402	h	C	M	Millenial	Dylan NA
## 1403	h	C	M	Millenial	Christian NA
## 1404	h	C	M	Millenial	Wesley NA
## 1405	h	C	M	Millenial	Seth NA
## 1406	h	C	M	Millenial	Austin NA
## 1407	h	C	M	Millenial	Gabriel NA
## 1408	h	C	M	Millenial	Evan NA
## 1409	h	C	M	Millenial	Casey NA
## 1410	h	C	M	Millenial	Luis NA
## 1411	h	C	F	Boomer	Gloria NA
## 1412	h	C	F	Boomer	Joan NA
## 1413	h	C	F	Boomer	Dorothy NA
## 1414	h	C	F	Boomer	Shirley NA
## 1415	h	C	F	Boomer	Betty NA
## 1416	h	C	F	Boomer	Dianne NA
## 1417	h	C	F	Boomer	Kay NA
## 1418	h	C	F	Boomer	Marjorie NA
## 1419	h	C	F	Boomer	Lorraine NA
## 1420	h	C	F	Boomer	Mildred NA
## 1421	h	C	F	GenX	Tracy NA
## 1422	h	C	F	GenX	Dawn NA
## 1423	h	C	F	GenX	Tina NA
## 1424	h	C	F	GenX	Tammy NA
## 1425	h	C	F	GenX	Melinda NA
## 1426	h	C	F	GenX	Tamara NA
## 1427	h	C	F	GenX	Tracey NA
## 1428	h	C	F	GenX	Colleen NA
## 1429	h	C	F	GenX	Sherri NA
## 1430	h	C	F	GenX	Heidi NA
## 1431	h	C	F	Millenial	Samantha NA
## 1432	h	C	F	Millenial	Alexis NA
## 1433	h	C	F	Millenial	Brittany NA
## 1434	h	C	F	Millenial	Lauren NA
## 1435	h	C	F	Millenial	Taylor NA
## 1436	h	C	F	Millenial	Bethany NA
## 1437	h	C	F	Millenial	Latoya NA
## 1438	h	C	F	Millenial	Candice NA
## 1439	h	C	F	Millenial	Brittney NA

## 1440	h	C	F	Millenial	Cheyenne	NA
## 1441	i	A	M	Boomer	Theodore	NA
## 1442	i	A	M	Boomer	Bernard	NA
## 1443	i	A	M	Boomer	Gene	NA
## 1444	i	A	M	Boomer	Herbert	NA
## 1445	i	A	M	Boomer	Ray	NA
## 1446	i	A	M	Boomer	Tom	NA
## 1447	i	A	M	Boomer	Lee	NA
## 1448	i	A	M	Boomer	Alfred	NA
## 1449	i	A	M	Boomer	Leroy	NA
## 1450	i	A	M	Boomer	Eddie	NA
## 1451	i	A	M	GenX	Marc	NA
## 1452	i	A	M	GenX	Jamie	NA
## 1453	i	A	M	GenX	Greg	NA
## 1454	i	A	M	GenX	Darryl	NA
## 1455	i	A	M	GenX	Tim	NA
## 1456	i	A	M	GenX	Dean	NA
## 1457	i	A	M	GenX	Jon	NA
## 1458	i	A	M	GenX	Chris	NA
## 1459	i	A	M	GenX	Troy	NA
## 1460	i	A	M	GenX	Jeff	NA
## 1461	i	A	M	Millenial	Zachary	NA
## 1462	i	A	M	Millenial	Dylan	NA
## 1463	i	A	M	Millenial	Christian	NA
## 1464	i	A	M	Millenial	Wesley	NA
## 1465	i	A	M	Millenial	Seth	NA
## 1466	i	A	M	Millenial	Austin	NA
## 1467	i	A	M	Millenial	Gabriel	NA
## 1468	i	A	M	Millenial	Evan	NA
## 1469	i	A	M	Millenial	Casey	NA
## 1470	i	A	M	Millenial	Luis	NA
## 1471	i	A	F	Boomer	Gloria	NA
## 1472	i	A	F	Boomer	Joan	NA
## 1473	i	A	F	Boomer	Dorothy	NA
## 1474	i	A	F	Boomer	Shirley	NA
## 1475	i	A	F	Boomer	Betty	NA
## 1476	i	A	F	Boomer	Dianne	NA
## 1477	i	A	F	Boomer	Kay	NA
## 1478	i	A	F	Boomer	Marjorie	NA
## 1479	i	A	F	Boomer	Lorraine	NA
## 1480	i	A	F	Boomer	Mildred	NA
## 1481	i	A	F	GenX	Tracy	NA
## 1482	i	A	F	GenX	Dawn	NA
## 1483	i	A	F	GenX	Tina	NA
## 1484	i	A	F	GenX	Tammy	NA
## 1485	i	A	F	GenX	Melinda	NA
## 1486	i	A	F	GenX	Tamara	NA
## 1487	i	A	F	GenX	Tracey	NA
## 1488	i	A	F	GenX	Colleen	NA
## 1489	i	A	F	GenX	Sherri	NA
## 1490	i	A	F	GenX	Heidi	NA
## 1491	i	A	F	Millenial	Samantha	NA
## 1492	i	A	F	Millenial	Alexis	NA
## 1493	i	A	F	Millenial	Brittany	NA

## 1494	i	A	F	Millenial	Lauren	NA
## 1495	i	A	F	Millenial	Taylor	NA
## 1496	i	A	F	Millenial	Bethany	NA
## 1497	i	A	F	Millenial	Latoya	NA
## 1498	i	A	F	Millenial	Candice	NA
## 1499	i	A	F	Millenial	Brittney	NA
## 1500	i	A	F	Millenial	Cheyenne	NA
## 1501	i	B	M	Boomer	Theodore	NA
## 1502	i	B	M	Boomer	Bernard	NA
## 1503	i	B	M	Boomer	Gene	NA
## 1504	i	B	M	Boomer	Herbert	NA
## 1505	i	B	M	Boomer	Ray	NA
## 1506	i	B	M	Boomer	Tom	NA
## 1507	i	B	M	Boomer	Lee	NA
## 1508	i	B	M	Boomer	Alfred	NA
## 1509	i	B	M	Boomer	Leroy	NA
## 1510	i	B	M	Boomer	Eddie	NA
## 1511	i	B	M	GenX	Marc	NA
## 1512	i	B	M	GenX	Jamie	NA
## 1513	i	B	M	GenX	Greg	NA
## 1514	i	B	M	GenX	Darryl	NA
## 1515	i	B	M	GenX	Tim	NA
## 1516	i	B	M	GenX	Dean	NA
## 1517	i	B	M	GenX	Jon	NA
## 1518	i	B	M	GenX	Chris	NA
## 1519	i	B	M	GenX	Troy	NA
## 1520	i	B	M	GenX	Jeff	NA
## 1521	i	B	M	Millenial	Zachary	NA
## 1522	i	B	M	Millenial	Dylan	NA
## 1523	i	B	M	Millenial	Christian	NA
## 1524	i	B	M	Millenial	Wesley	NA
## 1525	i	B	M	Millenial	Seth	NA
## 1526	i	B	M	Millenial	Austin	NA
## 1527	i	B	M	Millenial	Gabriel	NA
## 1528	i	B	M	Millenial	Evan	NA
## 1529	i	B	M	Millenial	Casey	NA
## 1530	i	B	M	Millenial	Luis	NA
## 1531	i	B	F	Boomer	Gloria	NA
## 1532	i	B	F	Boomer	Joan	NA
## 1533	i	B	F	Boomer	Dorothy	NA
## 1534	i	B	F	Boomer	Shirley	NA
## 1535	i	B	F	Boomer	Betty	NA
## 1536	i	B	F	Boomer	Dianne	NA
## 1537	i	B	F	Boomer	Kay	NA
## 1538	i	B	F	Boomer	Marjorie	NA
## 1539	i	B	F	Boomer	Lorraine	NA
## 1540	i	B	F	Boomer	Mildred	NA
## 1541	i	B	F	GenX	Tracy	NA
## 1542	i	B	F	GenX	Dawn	NA
## 1543	i	B	F	GenX	Tina	NA
## 1544	i	B	F	GenX	Tammy	NA
## 1545	i	B	F	GenX	Melinda	NA
## 1546	i	B	F	GenX	Tamara	NA
## 1547	i	B	F	GenX	Tracey	NA



## 1548	i	B	F	GenX	Colleen NA
## 1549	i	B	F	GenX	Sherri NA
## 1550	i	B	F	GenX	Heidi NA
## 1551	i	B	F	Millenial	Samantha NA
## 1552	i	B	F	Millenial	Alexis NA
## 1553	i	B	F	Millenial	Brittany NA
## 1554	i	B	F	Millenial	Lauren NA
## 1555	i	B	F	Millenial	Taylor NA
## 1556	i	B	F	Millenial	Bethany NA
## 1557	i	B	F	Millenial	Latoya NA
## 1558	i	B	F	Millenial	Candice NA
## 1559	i	B	F	Millenial	Brittney NA
## 1560	i	B	F	Millenial	Cheyenne NA
## 1561	i	C	M	Boomer	Theodore NA
## 1562	i	C	M	Boomer	Bernard NA
## 1563	i	C	M	Boomer	Gene NA
## 1564	i	C	M	Boomer	Herbert NA
## 1565	i	C	M	Boomer	Ray NA
## 1566	i	C	M	Boomer	Tom NA
## 1567	i	C	M	Boomer	Lee NA
## 1568	i	C	M	Boomer	Alfred NA
## 1569	i	C	M	Boomer	Leroy NA
## 1570	i	C	M	Boomer	Eddie NA
## 1571	i	C	M	GenX	Marc NA
## 1572	i	C	M	GenX	Jamie NA
## 1573	i	C	M	GenX	Greg NA
## 1574	i	C	M	GenX	Darryl NA
## 1575	i	C	M	GenX	Tim NA
## 1576	i	C	M	GenX	Dean NA
## 1577	i	C	M	GenX	Jon NA
## 1578	i	C	M	GenX	Chris NA
## 1579	i	C	M	GenX	Troy NA
## 1580	i	C	M	GenX	Jeff NA
## 1581	i	C	M	Millenial	Zachary NA
## 1582	i	C	M	Millenial	Dylan NA
## 1583	i	C	M	Millenial	Christian NA
## 1584	i	C	M	Millenial	Wesley NA
## 1585	i	C	M	Millenial	Seth NA
## 1586	i	C	M	Millenial	Austin NA
## 1587	i	C	M	Millenial	Gabriel NA
## 1588	i	C	M	Millenial	Evan NA
## 1589	i	C	M	Millenial	Casey NA
## 1590	i	C	M	Millenial	Luis NA
## 1591	i	C	F	Boomer	Gloria NA
## 1592	i	C	F	Boomer	Joan NA
## 1593	i	C	F	Boomer	Dorothy NA
## 1594	i	C	F	Boomer	Shirley NA
## 1595	i	C	F	Boomer	Betty NA
## 1596	i	C	F	Boomer	Dianne NA
## 1597	i	C	F	Boomer	Kay NA
## 1598	i	C	F	Boomer	Marjorie NA
## 1599	i	C	F	Boomer	Lorraine NA
## 1600	i	C	F	Boomer	Mildred NA
## 1601	i	C	F	GenX	Tracy NA

## 1602	i	C	F	GenX	Dawn NA
## 1603	i	C	F	GenX	Tina NA
## 1604	i	C	F	GenX	Tammy NA
## 1605	i	C	F	GenX	Melinda NA
## 1606	i	C	F	GenX	Tamara NA
## 1607	i	C	F	GenX	Tracey NA
## 1608	i	C	F	GenX	Colleen NA
## 1609	i	C	F	GenX	Sherri NA
## 1610	i	C	F	GenX	Heidi NA
## 1611	i	C	F	Millenial	Samantha NA
## 1612	i	C	F	Millenial	Alexis NA
## 1613	i	C	F	Millenial	Brittany NA
## 1614	i	C	F	Millenial	Lauren NA
## 1615	i	C	F	Millenial	Taylor NA
## 1616	i	C	F	Millenial	Bethany NA
## 1617	i	C	F	Millenial	Latoya NA
## 1618	i	C	F	Millenial	Candice NA
## 1619	i	C	F	Millenial	Brittney NA
## 1620	i	C	F	Millenial	Cheyenne NA
## 1621	j	A	M	Boomer	Theodore NA
## 1622	j	A	M	Boomer	Bernard NA
## 1623	j	A	M	Boomer	Gene NA
## 1624	j	A	M	Boomer	Herbert NA
## 1625	j	A	M	Boomer	Ray NA
## 1626	j	A	M	Boomer	Tom NA
## 1627	j	A	M	Boomer	Lee NA
## 1628	j	A	M	Boomer	Alfred NA
## 1629	j	A	M	Boomer	Leroy NA
## 1630	j	A	M	Boomer	Eddie NA
## 1631	j	A	M	GenX	Marc NA
## 1632	j	A	M	GenX	Jamie NA
## 1633	j	A	M	GenX	Greg NA
## 1634	j	A	M	GenX	Darryl NA
## 1635	j	A	M	GenX	Tim NA
## 1636	j	A	M	GenX	Dean NA
## 1637	j	A	M	GenX	Jon NA
## 1638	j	A	M	GenX	Chris NA
## 1639	j	A	M	GenX	Troy NA
## 1640	j	A	M	GenX	Jeff NA
## 1641	j	A	M	Millenial	Zachary NA
## 1642	j	A	M	Millenial	Dylan NA
## 1643	j	A	M	Millenial	Christian NA
## 1644	j	A	M	Millenial	Wesley NA
## 1645	j	A	M	Millenial	Seth NA
## 1646	j	A	M	Millenial	Austin NA
## 1647	j	A	M	Millenial	Gabriel NA
## 1648	j	A	M	Millenial	Evan NA
## 1649	j	A	M	Millenial	Casey NA
## 1650	j	A	M	Millenial	Luis NA
## 1651	j	A	F	Boomer	Gloria NA
## 1652	j	A	F	Boomer	Joan NA
## 1653	j	A	F	Boomer	Dorothy NA
## 1654	j	A	F	Boomer	Shirley NA
## 1655	j	A	F	Boomer	Betty NA

## 1656	j	A	F	Boomer	Dianne	NA
## 1657	j	A	F	Boomer	Kay	NA
## 1658	j	A	F	Boomer	Marjorie	NA
## 1659	j	A	F	Boomer	Lorraine	NA
## 1660	j	A	F	Boomer	Mildred	NA
## 1661	j	A	F	GenX	Tracy	NA
## 1662	j	A	F	GenX	Dawn	NA
## 1663	j	A	F	GenX	Tina	NA
## 1664	j	A	F	GenX	Tammy	NA
## 1665	j	A	F	GenX	Melinda	NA
## 1666	j	A	F	GenX	Tamara	NA
## 1667	j	A	F	GenX	Tracey	NA
## 1668	j	A	F	GenX	Colleen	NA
## 1669	j	A	F	GenX	Sherri	NA
## 1670	j	A	F	GenX	Heidi	NA
## 1671	j	A	F	Millenial	Samantha	NA
## 1672	j	A	F	Millenial	Alexis	NA
## 1673	j	A	F	Millenial	Brittany	NA
## 1674	j	A	F	Millenial	Lauren	NA
## 1675	j	A	F	Millenial	Taylor	NA
## 1676	j	A	F	Millenial	Bethany	NA
## 1677	j	A	F	Millenial	Latoya	NA
## 1678	j	A	F	Millenial	Candice	NA
## 1679	j	A	F	Millenial	Brittney	NA
## 1680	j	A	F	Millenial	Cheyenne	NA
## 1681	j	B	M	Boomer	Theodore	NA
## 1682	j	B	M	Boomer	Bernard	NA
## 1683	j	B	M	Boomer	Gene	NA
## 1684	j	B	M	Boomer	Herbert	NA
## 1685	j	B	M	Boomer	Ray	NA
## 1686	j	B	M	Boomer	Tom	NA
## 1687	j	B	M	Boomer	Lee	NA
## 1688	j	B	M	Boomer	Alfred	NA
## 1689	j	B	M	Boomer	Leroy	NA
## 1690	j	B	M	Boomer	Eddie	NA
## 1691	j	B	M	GenX	Marc	NA
## 1692	j	B	M	GenX	Jamie	NA
## 1693	j	B	M	GenX	Greg	NA
## 1694	j	B	M	GenX	Darryl	NA
## 1695	j	B	M	GenX	Tim	NA
## 1696	j	B	M	GenX	Dean	NA
## 1697	j	B	M	GenX	Jon	NA
## 1698	j	B	M	GenX	Chris	NA
## 1699	j	B	M	GenX	Troy	NA
## 1700	j	B	M	GenX	Jeff	NA
## 1701	j	B	M	Millenial	Zachary	NA
## 1702	j	B	M	Millenial	Dylan	NA
## 1703	j	B	M	Millenial	Christian	NA
## 1704	j	B	M	Millenial	Wesley	NA
## 1705	j	B	M	Millenial	Seth	NA
## 1706	j	B	M	Millenial	Austin	NA
## 1707	j	B	M	Millenial	Gabriel	NA
## 1708	j	B	M	Millenial	Evan	NA
## 1709	j	B	M	Millenial	Casey	NA

## 1710	j	B	M	Millenial	Luis NA
## 1711	j	B	F	Boomer	Gloria NA
## 1712	j	B	F	Boomer	Joan NA
## 1713	j	B	F	Boomer	Dorothy NA
## 1714	j	B	F	Boomer	Shirley NA
## 1715	j	B	F	Boomer	Betty NA
## 1716	j	B	F	Boomer	Dianne NA
## 1717	j	B	F	Boomer	Kay NA
## 1718	j	B	F	Boomer	Marjorie NA
## 1719	j	B	F	Boomer	Lorraine NA
## 1720	j	B	F	Boomer	Mildred NA
## 1721	j	B	F	GenX	Tracy NA
## 1722	j	B	F	GenX	Dawn NA
## 1723	j	B	F	GenX	Tina NA
## 1724	j	B	F	GenX	Tammy NA
## 1725	j	B	F	GenX	Melinda NA
## 1726	j	B	F	GenX	Tamara NA
## 1727	j	B	F	GenX	Tracey NA
## 1728	j	B	F	GenX	Colleen NA
## 1729	j	B	F	GenX	Sherri NA
## 1730	j	B	F	GenX	Heidi NA
## 1731	j	B	F	Millenial	Samantha NA
## 1732	j	B	F	Millenial	Alexis NA
## 1733	j	B	F	Millenial	Brittany NA
## 1734	j	B	F	Millenial	Lauren NA
## 1735	j	B	F	Millenial	Taylor NA
## 1736	j	B	F	Millenial	Bethany NA
## 1737	j	B	F	Millenial	Latoya NA
## 1738	j	B	F	Millenial	Candice NA
## 1739	j	B	F	Millenial	Brittney NA
## 1740	j	B	F	Millenial	Cheyenne NA
## 1741	j	C	M	Boomer	Theodore NA
## 1742	j	C	M	Boomer	Bernard NA
## 1743	j	C	M	Boomer	Gene NA
## 1744	j	C	M	Boomer	Herbert NA
## 1745	j	C	M	Boomer	Ray NA
## 1746	j	C	M	Boomer	Tom NA
## 1747	j	C	M	Boomer	Lee NA
## 1748	j	C	M	Boomer	Alfred NA
## 1749	j	C	M	Boomer	Leroy NA
## 1750	j	C	M	Boomer	Eddie NA
## 1751	j	C	M	GenX	Marc NA
## 1752	j	C	M	GenX	Jamie NA
## 1753	j	C	M	GenX	Greg NA
## 1754	j	C	M	GenX	Darryl NA
## 1755	j	C	M	GenX	Tim NA
## 1756	j	C	M	GenX	Dean NA
## 1757	j	C	M	GenX	Jon NA
## 1758	j	C	M	GenX	Chris NA
## 1759	j	C	M	GenX	Troy NA
## 1760	j	C	M	GenX	Jeff NA
## 1761	j	C	M	Millenial	Zachary NA
## 1762	j	C	M	Millenial	Dylan NA
## 1763	j	C	M	Millenial	Christian NA

## 1764	j	C	M	Millenial	Wesley NA
## 1765	j	C	M	Millenial	Seth NA
## 1766	j	C	M	Millenial	Austin NA
## 1767	j	C	M	Millenial	Gabriel NA
## 1768	j	C	M	Millenial	Evan NA
## 1769	j	C	M	Millenial	Casey NA
## 1770	j	C	M	Millenial	Luis NA
## 1771	j	C	F	Boomer	Gloria NA
## 1772	j	C	F	Boomer	Joan NA
## 1773	j	C	F	Boomer	Dorothy NA
## 1774	j	C	F	Boomer	Shirley NA
## 1775	j	C	F	Boomer	Betty NA
## 1776	j	C	F	Boomer	Dianne NA
## 1777	j	C	F	Boomer	Kay NA
## 1778	j	C	F	Boomer	Marjorie NA
## 1779	j	C	F	Boomer	Lorraine NA
## 1780	j	C	F	Boomer	Mildred NA
## 1781	j	C	F	GenX	Tracy NA
## 1782	j	C	F	GenX	Dawn NA
## 1783	j	C	F	GenX	Tina NA
## 1784	j	C	F	GenX	Tammy NA
## 1785	j	C	F	GenX	Melinda NA
## 1786	j	C	F	GenX	Tamara NA
## 1787	j	C	F	GenX	Tracey NA
## 1788	j	C	F	GenX	Colleen NA
## 1789	j	C	F	GenX	Sherri NA
## 1790	j	C	F	GenX	Heidi NA
## 1791	j	C	F	Millenial	Samantha NA
## 1792	j	C	F	Millenial	Alexis NA
## 1793	j	C	F	Millenial	Brittany NA
## 1794	j	C	F	Millenial	Lauren NA
## 1795	j	C	F	Millenial	Taylor NA
## 1796	j	C	F	Millenial	Bethany NA
## 1797	j	C	F	Millenial	Latoya NA
## 1798	j	C	F	Millenial	Candice NA
## 1799	j	C	F	Millenial	Brittney NA
## 1800	j	C	F	Millenial	Cheyenne NA
## 1801	k	A	M	Boomer	Theodore NA
## 1802	k	A	M	Boomer	Bernard NA
## 1803	k	A	M	Boomer	Gene NA
## 1804	k	A	M	Boomer	Herbert NA
## 1805	k	A	M	Boomer	Ray NA
## 1806	k	A	M	Boomer	Tom NA
## 1807	k	A	M	Boomer	Lee NA
## 1808	k	A	M	Boomer	Alfred NA
## 1809	k	A	M	Boomer	Leroy NA
## 1810	k	A	M	Boomer	Eddie NA
## 1811	k	A	M	GenX	Marc NA
## 1812	k	A	M	GenX	Jamie NA
## 1813	k	A	M	GenX	Greg NA
## 1814	k	A	M	GenX	Darryl NA
## 1815	k	A	M	GenX	Tim NA
## 1816	k	A	M	GenX	Dean NA
## 1817	k	A	M	GenX	Jon NA

## 1818	k	A	M	GenX	Chris	NA
## 1819	k	A	M	GenX	Troy	NA
## 1820	k	A	M	GenX	Jeff	NA
## 1821	k	A	M	Millenial	Zachary	NA
## 1822	k	A	M	Millenial	Dylan	NA
## 1823	k	A	M	Millenial	Christian	NA
## 1824	k	A	M	Millenial	Wesley	NA
## 1825	k	A	M	Millenial	Seth	NA
## 1826	k	A	M	Millenial	Austin	NA
## 1827	k	A	M	Millenial	Gabriel	NA
## 1828	k	A	M	Millenial	Evan	NA
## 1829	k	A	M	Millenial	Casey	NA
## 1830	k	A	M	Millenial	Luis	NA
## 1831	k	A	F	Boomer	Gloria	NA
## 1832	k	A	F	Boomer	Joan	NA
## 1833	k	A	F	Boomer	Dorothy	NA
## 1834	k	A	F	Boomer	Shirley	NA
## 1835	k	A	F	Boomer	Betty	NA
## 1836	k	A	F	Boomer	Dianne	NA
## 1837	k	A	F	Boomer	Kay	NA
## 1838	k	A	F	Boomer	Marjorie	NA
## 1839	k	A	F	Boomer	Lorraine	NA
## 1840	k	A	F	Boomer	Mildred	NA
## 1841	k	A	F	GenX	Tracy	NA
## 1842	k	A	F	GenX	Dawn	NA
## 1843	k	A	F	GenX	Tina	NA
## 1844	k	A	F	GenX	Tammy	NA
## 1845	k	A	F	GenX	Melinda	NA
## 1846	k	A	F	GenX	Tamara	NA
## 1847	k	A	F	GenX	Tracey	NA
## 1848	k	A	F	GenX	Colleen	NA
## 1849	k	A	F	GenX	Sherri	NA
## 1850	k	A	F	GenX	Heidi	NA
## 1851	k	A	F	Millenial	Samantha	NA
## 1852	k	A	F	Millenial	Alexis	NA
## 1853	k	A	F	Millenial	Brittany	NA
## 1854	k	A	F	Millenial	Lauren	NA
## 1855	k	A	F	Millenial	Taylor	NA
## 1856	k	A	F	Millenial	Bethany	NA
## 1857	k	A	F	Millenial	Latoya	NA
## 1858	k	A	F	Millenial	Candice	NA
## 1859	k	A	F	Millenial	Brittney	NA
## 1860	k	A	F	Millenial	Cheyenne	NA
## 1861	k	B	M	Boomer	Theodore	NA
## 1862	k	B	M	Boomer	Bernard	NA
## 1863	k	B	M	Boomer	Gene	NA
## 1864	k	B	M	Boomer	Herbert	NA
## 1865	k	B	M	Boomer	Ray	NA
## 1866	k	B	M	Boomer	Tom	NA
## 1867	k	B	M	Boomer	Lee	NA
## 1868	k	B	M	Boomer	Alfred	NA
## 1869	k	B	M	Boomer	Leroy	NA
## 1870	k	B	M	Boomer	Eddie	NA
## 1871	k	B	M	GenX	Marc	NA

## 1872	k	B	M	GenX	Jamie NA
## 1873	k	B	M	GenX	Greg NA
## 1874	k	B	M	GenX	Darryl NA
## 1875	k	B	M	GenX	Tim NA
## 1876	k	B	M	GenX	Dean NA
## 1877	k	B	M	GenX	Jon NA
## 1878	k	B	M	GenX	Chris NA
## 1879	k	B	M	GenX	Troy NA
## 1880	k	B	M	GenX	Jeff NA
## 1881	k	B	M	Millenial	Zachary NA
## 1882	k	B	M	Millenial	Dylan NA
## 1883	k	B	M	Millenial	Christian NA
## 1884	k	B	M	Millenial	Wesley NA
## 1885	k	B	M	Millenial	Seth NA
## 1886	k	B	M	Millenial	Austin NA
## 1887	k	B	M	Millenial	Gabriel NA
## 1888	k	B	M	Millenial	Evan NA
## 1889	k	B	M	Millenial	Casey NA
## 1890	k	B	M	Millenial	Luis NA
## 1891	k	B	F	Boomer	Gloria NA
## 1892	k	B	F	Boomer	Joan NA
## 1893	k	B	F	Boomer	Dorothy NA
## 1894	k	B	F	Boomer	Shirley NA
## 1895	k	B	F	Boomer	Betty NA
## 1896	k	B	F	Boomer	Dianne NA
## 1897	k	B	F	Boomer	Kay NA
## 1898	k	B	F	Boomer	Marjorie NA
## 1899	k	B	F	Boomer	Lorraine NA
## 1900	k	B	F	Boomer	Mildred NA
## 1901	k	B	F	GenX	Tracy NA
## 1902	k	B	F	GenX	Dawn NA
## 1903	k	B	F	GenX	Tina NA
## 1904	k	B	F	GenX	Tammy NA
## 1905	k	B	F	GenX	Melinda NA
## 1906	k	B	F	GenX	Tamara NA
## 1907	k	B	F	GenX	Tracey NA
## 1908	k	B	F	GenX	Colleen NA
## 1909	k	B	F	GenX	Sherri NA
## 1910	k	B	F	GenX	Heidi NA
## 1911	k	B	F	Millenial	Samantha NA
## 1912	k	B	F	Millenial	Alexis NA
## 1913	k	B	F	Millenial	Brittany NA
## 1914	k	B	F	Millenial	Lauren NA
## 1915	k	B	F	Millenial	Taylor NA
## 1916	k	B	F	Millenial	Bethany NA
## 1917	k	B	F	Millenial	Latoya NA
## 1918	k	B	F	Millenial	Candice NA
## 1919	k	B	F	Millenial	Brittney NA
## 1920	k	B	F	Millenial	Cheyenne NA
## 1921	k	C	M	Boomer	Theodore NA
## 1922	k	C	M	Boomer	Bernard NA
## 1923	k	C	M	Boomer	Gene NA
## 1924	k	C	M	Boomer	Herbert NA
## 1925	k	C	M	Boomer	Ray NA

## 1926	k	C	M	Boomer	Tom NA
## 1927	k	C	M	Boomer	Lee NA
## 1928	k	C	M	Boomer	Alfred NA
## 1929	k	C	M	Boomer	Leroy NA
## 1930	k	C	M	Boomer	Eddie NA
## 1931	k	C	M	GenX	Marc NA
## 1932	k	C	M	GenX	Jamie NA
## 1933	k	C	M	GenX	Greg NA
## 1934	k	C	M	GenX	Darryl NA
## 1935	k	C	M	GenX	Tim NA
## 1936	k	C	M	GenX	Dean NA
## 1937	k	C	M	GenX	Jon NA
## 1938	k	C	M	GenX	Chris NA
## 1939	k	C	M	GenX	Troy NA
## 1940	k	C	M	GenX	Jeff NA
## 1941	k	C	M	Millenial	Zachary NA
## 1942	k	C	M	Millenial	Dylan NA
## 1943	k	C	M	Millenial	Christian NA
## 1944	k	C	M	Millenial	Wesley NA
## 1945	k	C	M	Millenial	Seth NA
## 1946	k	C	M	Millenial	Austin NA
## 1947	k	C	M	Millenial	Gabriel NA
## 1948	k	C	M	Millenial	Evan NA
## 1949	k	C	M	Millenial	Casey NA
## 1950	k	C	M	Millenial	Luis NA
## 1951	k	C	F	Boomer	Gloria NA
## 1952	k	C	F	Boomer	Joan NA
## 1953	k	C	F	Boomer	Dorothy NA
## 1954	k	C	F	Boomer	Shirley NA
## 1955	k	C	F	Boomer	Betty NA
## 1956	k	C	F	Boomer	Dianne NA
## 1957	k	C	F	Boomer	Kay NA
## 1958	k	C	F	Boomer	Marjorie NA
## 1959	k	C	F	Boomer	Lorraine NA
## 1960	k	C	F	Boomer	Mildred NA
## 1961	k	C	F	GenX	Tracy NA
## 1962	k	C	F	GenX	Dawn NA
## 1963	k	C	F	GenX	Tina NA
## 1964	k	C	F	GenX	Tammy NA
## 1965	k	C	F	GenX	Melinda NA
## 1966	k	C	F	GenX	Tamara NA
## 1967	k	C	F	GenX	Tracey NA
## 1968	k	C	F	GenX	Colleen NA
## 1969	k	C	F	GenX	Sherri NA
## 1970	k	C	F	GenX	Heidi NA
## 1971	k	C	F	Millenial	Samantha NA
## 1972	k	C	F	Millenial	Alexis NA
## 1973	k	C	F	Millenial	Brittany NA
## 1974	k	C	F	Millenial	Lauren NA
## 1975	k	C	F	Millenial	Taylor NA
## 1976	k	C	F	Millenial	Bethany NA
## 1977	k	C	F	Millenial	Latoya NA
## 1978	k	C	F	Millenial	Candice NA
## 1979	k	C	F	Millenial	Brittney NA



## 1980	k	C	F	Millenial	Cheyenne	NA
## 1981	l	A	M	Boomer	Theodore	NA
## 1982	l	A	M	Boomer	Bernard	NA
## 1983	l	A	M	Boomer	Gene	NA
## 1984	l	A	M	Boomer	Herbert	NA
## 1985	l	A	M	Boomer	Ray	NA
## 1986	l	A	M	Boomer	Tom	NA
## 1987	l	A	M	Boomer	Lee	NA
## 1988	l	A	M	Boomer	Alfred	NA
## 1989	l	A	M	Boomer	Leroy	NA
## 1990	l	A	M	Boomer	Eddie	NA
## 1991	l	A	M	GenX	Marc	NA
## 1992	l	A	M	GenX	Jamie	NA
## 1993	l	A	M	GenX	Greg	NA
## 1994	l	A	M	GenX	Darryl	NA
## 1995	l	A	M	GenX	Tim	NA
## 1996	l	A	M	GenX	Dean	NA
## 1997	l	A	M	GenX	Jon	NA
## 1998	l	A	M	GenX	Chris	NA
## 1999	l	A	M	GenX	Troy	NA
## 2000	l	A	M	GenX	Jeff	NA
## 2001	l	A	M	Millenial	Zachary	NA
## 2002	l	A	M	Millenial	Dylan	NA
## 2003	l	A	M	Millenial	Christian	NA
## 2004	l	A	M	Millenial	Wesley	NA
## 2005	l	A	M	Millenial	Seth	NA
## 2006	l	A	M	Millenial	Austin	NA
## 2007	l	A	M	Millenial	Gabriel	NA
## 2008	l	A	M	Millenial	Evan	NA
## 2009	l	A	M	Millenial	Casey	NA
## 2010	l	A	M	Millenial	Luis	NA
## 2011	l	A	F	Boomer	Gloria	NA
## 2012	l	A	F	Boomer	Joan	NA
## 2013	l	A	F	Boomer	Dorothy	NA
## 2014	l	A	F	Boomer	Shirley	NA
## 2015	l	A	F	Boomer	Betty	NA
## 2016	l	A	F	Boomer	Dianne	NA
## 2017	l	A	F	Boomer	Kay	NA
## 2018	l	A	F	Boomer	Marjorie	NA
## 2019	l	A	F	Boomer	Lorraine	NA
## 2020	l	A	F	Boomer	Mildred	NA
## 2021	l	A	F	GenX	Tracy	NA
## 2022	l	A	F	GenX	Dawn	NA
## 2023	l	A	F	GenX	Tina	NA
## 2024	l	A	F	GenX	Tammy	NA
## 2025	l	A	F	GenX	Melinda	NA
## 2026	l	A	F	GenX	Tamara	NA
## 2027	l	A	F	GenX	Tracey	NA
## 2028	l	A	F	GenX	Colleen	NA
## 2029	l	A	F	GenX	Sherri	NA
## 2030	l	A	F	GenX	Heidi	NA
## 2031	l	A	F	Millenial	Samantha	NA
## 2032	l	A	F	Millenial	Alexis	NA
## 2033	l	A	F	Millenial	Brittany	NA

## 2034	1	A	F	Millenial	Lauren	NA
## 2035	1	A	F	Millenial	Taylor	NA
## 2036	1	A	F	Millenial	Bethany	NA
## 2037	1	A	F	Millenial	Latoya	NA
## 2038	1	A	F	Millenial	Candice	NA
## 2039	1	A	F	Millenial	Brittney	NA
## 2040	1	A	F	Millenial	Cheyenne	NA
## 2041	1	B	M	Boomer	Theodore	NA
## 2042	1	B	M	Boomer	Bernard	NA
## 2043	1	B	M	Boomer	Gene	NA
## 2044	1	B	M	Boomer	Herbert	NA
## 2045	1	B	M	Boomer	Ray	NA
## 2046	1	B	M	Boomer	Tom	NA
## 2047	1	B	M	Boomer	Lee	NA
## 2048	1	B	M	Boomer	Alfred	NA
## 2049	1	B	M	Boomer	Leroy	NA
## 2050	1	B	M	Boomer	Eddie	NA
## 2051	1	B	M	GenX	Marc	NA
## 2052	1	B	M	GenX	Jamie	NA
## 2053	1	B	M	GenX	Greg	NA
## 2054	1	B	M	GenX	Darryl	NA
## 2055	1	B	M	GenX	Tim	NA
## 2056	1	B	M	GenX	Dean	NA
## 2057	1	B	M	GenX	Jon	NA
## 2058	1	B	M	GenX	Chris	NA
## 2059	1	B	M	GenX	Troy	NA
## 2060	1	B	M	GenX	Jeff	NA
## 2061	1	B	M	Millenial	Zachary	NA
## 2062	1	B	M	Millenial	Dylan	NA
## 2063	1	B	M	Millenial	Christian	NA
## 2064	1	B	M	Millenial	Wesley	NA
## 2065	1	B	M	Millenial	Seth	NA
## 2066	1	B	M	Millenial	Austin	NA
## 2067	1	B	M	Millenial	Gabriel	NA
## 2068	1	B	M	Millenial	Evan	NA
## 2069	1	B	M	Millenial	Casey	NA
## 2070	1	B	M	Millenial	Luis	NA
## 2071	1	B	F	Boomer	Gloria	NA
## 2072	1	B	F	Boomer	Joan	NA
## 2073	1	B	F	Boomer	Dorothy	NA
## 2074	1	B	F	Boomer	Shirley	NA
## 2075	1	B	F	Boomer	Betty	NA
## 2076	1	B	F	Boomer	Dianne	NA
## 2077	1	B	F	Boomer	Kay	NA
## 2078	1	B	F	Boomer	Marjorie	NA
## 2079	1	B	F	Boomer	Lorraine	NA
## 2080	1	B	F	Boomer	Mildred	NA
## 2081	1	B	F	GenX	Tracy	NA
## 2082	1	B	F	GenX	Dawn	NA
## 2083	1	B	F	GenX	Tina	NA
## 2084	1	B	F	GenX	Tammy	NA
## 2085	1	B	F	GenX	Melinda	NA
## 2086	1	B	F	GenX	Tamara	NA
## 2087	1	B	F	GenX	Tracey	NA

## 2088	1	B	F	GenX	Colleen NA
## 2089	1	B	F	GenX	Sherri NA
## 2090	1	B	F	GenX	Heidi NA
## 2091	1	B	F	Millenial	Samantha NA
## 2092	1	B	F	Millenial	Alexis NA
## 2093	1	B	F	Millenial	Brittany NA
## 2094	1	B	F	Millenial	Lauren NA
## 2095	1	B	F	Millenial	Taylor NA
## 2096	1	B	F	Millenial	Bethany NA
## 2097	1	B	F	Millenial	Latoya NA
## 2098	1	B	F	Millenial	Candice NA
## 2099	1	B	F	Millenial	Brittney NA
## 2100	1	B	F	Millenial	Cheyenne NA
## 2101	1	C	M	Boomer	Theodore NA
## 2102	1	C	M	Boomer	Bernard NA
## 2103	1	C	M	Boomer	Gene NA
## 2104	1	C	M	Boomer	Herbert NA
## 2105	1	C	M	Boomer	Ray NA
## 2106	1	C	M	Boomer	Tom NA
## 2107	1	C	M	Boomer	Lee NA
## 2108	1	C	M	Boomer	Alfred NA
## 2109	1	C	M	Boomer	Leroy NA
## 2110	1	C	M	Boomer	Eddie NA
## 2111	1	C	M	GenX	Marc NA
## 2112	1	C	M	GenX	Jamie NA
## 2113	1	C	M	GenX	Greg NA
## 2114	1	C	M	GenX	Darryl NA
## 2115	1	C	M	GenX	Tim NA
## 2116	1	C	M	GenX	Dean NA
## 2117	1	C	M	GenX	Jon NA
## 2118	1	C	M	GenX	Chris NA
## 2119	1	C	M	GenX	Troy NA
## 2120	1	C	M	GenX	Jeff NA
## 2121	1	C	M	Millenial	Zachary NA
## 2122	1	C	M	Millenial	Dylan NA
## 2123	1	C	M	Millenial	Christian NA
## 2124	1	C	M	Millenial	Wesley NA
## 2125	1	C	M	Millenial	Seth NA
## 2126	1	C	M	Millenial	Austin NA
## 2127	1	C	M	Millenial	Gabriel NA
## 2128	1	C	M	Millenial	Evan NA
## 2129	1	C	M	Millenial	Casey NA
## 2130	1	C	M	Millenial	Luis NA
## 2131	1	C	F	Boomer	Gloria NA
## 2132	1	C	F	Boomer	Joan NA
## 2133	1	C	F	Boomer	Dorothy NA
## 2134	1	C	F	Boomer	Shirley NA
## 2135	1	C	F	Boomer	Betty NA
## 2136	1	C	F	Boomer	Dianne NA
## 2137	1	C	F	Boomer	Kay NA
## 2138	1	C	F	Boomer	Marjorie NA
## 2139	1	C	F	Boomer	Lorraine NA
## 2140	1	C	F	Boomer	Mildred NA
## 2141	1	C	F	GenX	Tracy NA

## 2142	l	C	F	GenX	Dawn NA
## 2143	l	C	F	GenX	Tina NA
## 2144	l	C	F	GenX	Tammy NA
## 2145	l	C	F	GenX	Melinda NA
## 2146	l	C	F	GenX	Tamara NA
## 2147	l	C	F	GenX	Tracey NA
## 2148	l	C	F	GenX	Colleen NA
## 2149	l	C	F	GenX	Sherri NA
## 2150	l	C	F	GenX	Heidi NA
## 2151	l	C	F	Millenial	Samantha NA
## 2152	l	C	F	Millenial	Alexis NA
## 2153	l	C	F	Millenial	Brittany NA
## 2154	l	C	F	Millenial	Lauren NA
## 2155	l	C	F	Millenial	Taylor NA
## 2156	l	C	F	Millenial	Bethany NA
## 2157	l	C	F	Millenial	Latoya NA
## 2158	l	C	F	Millenial	Candice NA
## 2159	l	C	F	Millenial	Brittney NA
## 2160	l	C	F	Millenial	Cheyenne NA
## 2161	m	A	M	Boomer	Theodore NA
## 2162	m	A	M	Boomer	Bernard NA
## 2163	m	A	M	Boomer	Gene NA
## 2164	m	A	M	Boomer	Herbert NA
## 2165	m	A	M	Boomer	Ray NA
## 2166	m	A	M	Boomer	Tom NA
## 2167	m	A	M	Boomer	Lee NA
## 2168	m	A	M	Boomer	Alfred NA
## 2169	m	A	M	Boomer	Leroy NA
## 2170	m	A	M	Boomer	Eddie NA
## 2171	m	A	M	GenX	Marc NA
## 2172	m	A	M	GenX	Jamie NA
## 2173	m	A	M	GenX	Greg NA
## 2174	m	A	M	GenX	Darryl NA
## 2175	m	A	M	GenX	Tim NA
## 2176	m	A	M	GenX	Dean NA
## 2177	m	A	M	GenX	Jon NA
## 2178	m	A	M	GenX	Chris NA
## 2179	m	A	M	GenX	Troy NA
## 2180	m	A	M	GenX	Jeff NA
## 2181	m	A	M	Millenial	Zachary NA
## 2182	m	A	M	Millenial	Dylan NA
## 2183	m	A	M	Millenial	Christian NA
## 2184	m	A	M	Millenial	Wesley NA
## 2185	m	A	M	Millenial	Seth NA
## 2186	m	A	M	Millenial	Austin NA
## 2187	m	A	M	Millenial	Gabriel NA
## 2188	m	A	M	Millenial	Evan NA
## 2189	m	A	M	Millenial	Casey NA
## 2190	m	A	M	Millenial	Luis NA
## 2191	m	A	F	Boomer	Gloria NA
## 2192	m	A	F	Boomer	Joan NA
## 2193	m	A	F	Boomer	Dorothy NA
## 2194	m	A	F	Boomer	Shirley NA
## 2195	m	A	F	Boomer	Betty NA

## 2196	m	A	F	Boomer	Dianne	NA
## 2197	m	A	F	Boomer	Kay	NA
## 2198	m	A	F	Boomer	Marjorie	NA
## 2199	m	A	F	Boomer	Lorraine	NA
## 2200	m	A	F	Boomer	Mildred	NA
## 2201	m	A	F	GenX	Tracy	NA
## 2202	m	A	F	GenX	Dawn	NA
## 2203	m	A	F	GenX	Tina	NA
## 2204	m	A	F	GenX	Tammy	NA
## 2205	m	A	F	GenX	Melinda	NA
## 2206	m	A	F	GenX	Tamara	NA
## 2207	m	A	F	GenX	Tracey	NA
## 2208	m	A	F	GenX	Colleen	NA
## 2209	m	A	F	GenX	Sherri	NA
## 2210	m	A	F	GenX	Heidi	NA
## 2211	m	A	F	Millenial	Samantha	NA
## 2212	m	A	F	Millenial	Alexis	NA
## 2213	m	A	F	Millenial	Brittany	NA
## 2214	m	A	F	Millenial	Lauren	NA
## 2215	m	A	F	Millenial	Taylor	NA
## 2216	m	A	F	Millenial	Bethany	NA
## 2217	m	A	F	Millenial	Latoya	NA
## 2218	m	A	F	Millenial	Candice	NA
## 2219	m	A	F	Millenial	Brittney	NA
## 2220	m	A	F	Millenial	Cheyenne	NA
## 2221	m	B	M	Boomer	Theodore	NA
## 2222	m	B	M	Boomer	Bernard	NA
## 2223	m	B	M	Boomer	Gene	NA
## 2224	m	B	M	Boomer	Herbert	NA
## 2225	m	B	M	Boomer	Ray	NA
## 2226	m	B	M	Boomer	Tom	NA
## 2227	m	B	M	Boomer	Lee	NA
## 2228	m	B	M	Boomer	Alfred	NA
## 2229	m	B	M	Boomer	Leroy	NA
## 2230	m	B	M	Boomer	Eddie	NA
## 2231	m	B	M	GenX	Marc	NA
## 2232	m	B	M	GenX	Jamie	NA
## 2233	m	B	M	GenX	Greg	NA
## 2234	m	B	M	GenX	Darryl	NA
## 2235	m	B	M	GenX	Tim	NA
## 2236	m	B	M	GenX	Dean	NA
## 2237	m	B	M	GenX	Jon	NA
## 2238	m	B	M	GenX	Chris	NA
## 2239	m	B	M	GenX	Troy	NA
## 2240	m	B	M	GenX	Jeff	NA
## 2241	m	B	M	Millenial	Zachary	NA
## 2242	m	B	M	Millenial	Dylan	NA
## 2243	m	B	M	Millenial	Christian	NA
## 2244	m	B	M	Millenial	Wesley	NA
## 2245	m	B	M	Millenial	Seth	NA
## 2246	m	B	M	Millenial	Austin	NA
## 2247	m	B	M	Millenial	Gabriel	NA
## 2248	m	B	M	Millenial	Evan	NA
## 2249	m	B	M	Millenial	Casey	NA

## 2250	m	B	M	Millenial	Luis NA
## 2251	m	B	F	Boomer	Gloria NA
## 2252	m	B	F	Boomer	Joan NA
## 2253	m	B	F	Boomer	Dorothy NA
## 2254	m	B	F	Boomer	Shirley NA
## 2255	m	B	F	Boomer	Betty NA
## 2256	m	B	F	Boomer	Dianne NA
## 2257	m	B	F	Boomer	Kay NA
## 2258	m	B	F	Boomer	Marjorie NA
## 2259	m	B	F	Boomer	Lorraine NA
## 2260	m	B	F	Boomer	Mildred NA
## 2261	m	B	F	GenX	Tracy NA
## 2262	m	B	F	GenX	Dawn NA
## 2263	m	B	F	GenX	Tina NA
## 2264	m	B	F	GenX	Tammy NA
## 2265	m	B	F	GenX	Melinda NA
## 2266	m	B	F	GenX	Tamara NA
## 2267	m	B	F	GenX	Tracey NA
## 2268	m	B	F	GenX	Colleen NA
## 2269	m	B	F	GenX	Sherri NA
## 2270	m	B	F	GenX	Heidi NA
## 2271	m	B	F	Millenial	Samantha NA
## 2272	m	B	F	Millenial	Alexis NA
## 2273	m	B	F	Millenial	Brittany NA
## 2274	m	B	F	Millenial	Lauren NA
## 2275	m	B	F	Millenial	Taylor NA
## 2276	m	B	F	Millenial	Bethany NA
## 2277	m	B	F	Millenial	Latoya NA
## 2278	m	B	F	Millenial	Candice NA
## 2279	m	B	F	Millenial	Brittney NA
## 2280	m	B	F	Millenial	Cheyenne NA
## 2281	m	C	M	Boomer	Theodore NA
## 2282	m	C	M	Boomer	Bernard NA
## 2283	m	C	M	Boomer	Gene NA
## 2284	m	C	M	Boomer	Herbert NA
## 2285	m	C	M	Boomer	Ray NA
## 2286	m	C	M	Boomer	Tom NA
## 2287	m	C	M	Boomer	Lee NA
## 2288	m	C	M	Boomer	Alfred NA
## 2289	m	C	M	Boomer	Leroy NA
## 2290	m	C	M	Boomer	Eddie NA
## 2291	m	C	M	GenX	Marc NA
## 2292	m	C	M	GenX	Jamie NA
## 2293	m	C	M	GenX	Greg NA
## 2294	m	C	M	GenX	Darryl NA
## 2295	m	C	M	GenX	Tim NA
## 2296	m	C	M	GenX	Dean NA
## 2297	m	C	M	GenX	Jon NA
## 2298	m	C	M	GenX	Chris NA
## 2299	m	C	M	GenX	Troy NA
## 2300	m	C	M	GenX	Jeff NA
## 2301	m	C	M	Millenial	Zachary NA
## 2302	m	C	M	Millenial	Dylan NA
## 2303	m	C	M	Millenial	Christian NA

## 2304	m	C	M	Millenial	Wesley NA
## 2305	m	C	M	Millenial	Seth NA
## 2306	m	C	M	Millenial	Austin NA
## 2307	m	C	M	Millenial	Gabriel NA
## 2308	m	C	M	Millenial	Evan NA
## 2309	m	C	M	Millenial	Casey NA
## 2310	m	C	M	Millenial	Luis NA
## 2311	m	C	F	Boomer	Gloria NA
## 2312	m	C	F	Boomer	Joan NA
## 2313	m	C	F	Boomer	Dorothy NA
## 2314	m	C	F	Boomer	Shirley NA
## 2315	m	C	F	Boomer	Betty NA
## 2316	m	C	F	Boomer	Dianne NA
## 2317	m	C	F	Boomer	Kay NA
## 2318	m	C	F	Boomer	Marjorie NA
## 2319	m	C	F	Boomer	Lorraine NA
## 2320	m	C	F	Boomer	Mildred NA
## 2321	m	C	F	GenX	Tracy NA
## 2322	m	C	F	GenX	Dawn NA
## 2323	m	C	F	GenX	Tina NA
## 2324	m	C	F	GenX	Tammy NA
## 2325	m	C	F	GenX	Melinda NA
## 2326	m	C	F	GenX	Tamara NA
## 2327	m	C	F	GenX	Tracey NA
## 2328	m	C	F	GenX	Colleen NA
## 2329	m	C	F	GenX	Sherri NA
## 2330	m	C	F	GenX	Heidi NA
## 2331	m	C	F	Millenial	Samantha NA
## 2332	m	C	F	Millenial	Alexis NA
## 2333	m	C	F	Millenial	Brittany NA
## 2334	m	C	F	Millenial	Lauren NA
## 2335	m	C	F	Millenial	Taylor NA
## 2336	m	C	F	Millenial	Bethany NA
## 2337	m	C	F	Millenial	Latoya NA
## 2338	m	C	F	Millenial	Candice NA
## 2339	m	C	F	Millenial	Brittney NA
## 2340	m	C	F	Millenial	Cheyenne NA
## 2341	n	A	M	Boomer	Theodore NA
## 2342	n	A	M	Boomer	Bernard NA
## 2343	n	A	M	Boomer	Gene NA
## 2344	n	A	M	Boomer	Herbert NA
## 2345	n	A	M	Boomer	Ray NA
## 2346	n	A	M	Boomer	Tom NA
## 2347	n	A	M	Boomer	Lee NA
## 2348	n	A	M	Boomer	Alfred NA
## 2349	n	A	M	Boomer	Leroy NA
## 2350	n	A	M	Boomer	Eddie NA
## 2351	n	A	M	GenX	Marc NA
## 2352	n	A	M	GenX	Jamie NA
## 2353	n	A	M	GenX	Greg NA
## 2354	n	A	M	GenX	Darryl NA
## 2355	n	A	M	GenX	Tim NA
## 2356	n	A	M	GenX	Dean NA
## 2357	n	A	M	GenX	Jon NA

## 2358	n	A	M	GenX	Chris	NA
## 2359	n	A	M	GenX	Troy	NA
## 2360	n	A	M	GenX	Jeff	NA
## 2361	n	A	M	Millenial	Zachary	NA
## 2362	n	A	M	Millenial	Dylan	NA
## 2363	n	A	M	Millenial	Christian	NA
## 2364	n	A	M	Millenial	Wesley	NA
## 2365	n	A	M	Millenial	Seth	NA
## 2366	n	A	M	Millenial	Austin	NA
## 2367	n	A	M	Millenial	Gabriel	NA
## 2368	n	A	M	Millenial	Evan	NA
## 2369	n	A	M	Millenial	Casey	NA
## 2370	n	A	M	Millenial	Luis	NA
## 2371	n	A	F	Boomer	Gloria	NA
## 2372	n	A	F	Boomer	Joan	NA
## 2373	n	A	F	Boomer	Dorothy	NA
## 2374	n	A	F	Boomer	Shirley	NA
## 2375	n	A	F	Boomer	Betty	NA
## 2376	n	A	F	Boomer	Dianne	NA
## 2377	n	A	F	Boomer	Kay	NA
## 2378	n	A	F	Boomer	Marjorie	NA
## 2379	n	A	F	Boomer	Lorraine	NA
## 2380	n	A	F	Boomer	Mildred	NA
## 2381	n	A	F	GenX	Tracy	NA
## 2382	n	A	F	GenX	Dawn	NA
## 2383	n	A	F	GenX	Tina	NA
## 2384	n	A	F	GenX	Tammy	NA
## 2385	n	A	F	GenX	Melinda	NA
## 2386	n	A	F	GenX	Tamara	NA
## 2387	n	A	F	GenX	Tracey	NA
## 2388	n	A	F	GenX	Colleen	NA
## 2389	n	A	F	GenX	Sherri	NA
## 2390	n	A	F	GenX	Heidi	NA
## 2391	n	A	F	Millenial	Samantha	NA
## 2392	n	A	F	Millenial	Alexis	NA
## 2393	n	A	F	Millenial	Brittany	NA
## 2394	n	A	F	Millenial	Lauren	NA
## 2395	n	A	F	Millenial	Taylor	NA
## 2396	n	A	F	Millenial	Bethany	NA
## 2397	n	A	F	Millenial	Latoya	NA
## 2398	n	A	F	Millenial	Candice	NA
## 2399	n	A	F	Millenial	Brittney	NA
## 2400	n	A	F	Millenial	Cheyenne	NA
## 2401	n	B	M	Boomer	Theodore	NA
## 2402	n	B	M	Boomer	Bernard	NA
## 2403	n	B	M	Boomer	Gene	NA
## 2404	n	B	M	Boomer	Herbert	NA
## 2405	n	B	M	Boomer	Ray	NA
## 2406	n	B	M	Boomer	Tom	NA
## 2407	n	B	M	Boomer	Lee	NA
## 2408	n	B	M	Boomer	Alfred	NA
## 2409	n	B	M	Boomer	Leroy	NA
## 2410	n	B	M	Boomer	Eddie	NA
## 2411	n	B	M	GenX	Marc	NA



## 2412	n	B	M	GenX	Jamie NA
## 2413	n	B	M	GenX	Greg NA
## 2414	n	B	M	GenX	Darryl NA
## 2415	n	B	M	GenX	Tim NA
## 2416	n	B	M	GenX	Dean NA
## 2417	n	B	M	GenX	Jon NA
## 2418	n	B	M	GenX	Chris NA
## 2419	n	B	M	GenX	Troy NA
## 2420	n	B	M	GenX	Jeff NA
## 2421	n	B	M	Millenial	Zachary NA
## 2422	n	B	M	Millenial	Dylan NA
## 2423	n	B	M	Millenial	Christian NA
## 2424	n	B	M	Millenial	Wesley NA
## 2425	n	B	M	Millenial	Seth NA
## 2426	n	B	M	Millenial	Austin NA
## 2427	n	B	M	Millenial	Gabriel NA
## 2428	n	B	M	Millenial	Evan NA
## 2429	n	B	M	Millenial	Casey NA
## 2430	n	B	M	Millenial	Luis NA
## 2431	n	B	F	Boomer	Gloria NA
## 2432	n	B	F	Boomer	Joan NA
## 2433	n	B	F	Boomer	Dorothy NA
## 2434	n	B	F	Boomer	Shirley NA
## 2435	n	B	F	Boomer	Betty NA
## 2436	n	B	F	Boomer	Dianne NA
## 2437	n	B	F	Boomer	Kay NA
## 2438	n	B	F	Boomer	Marjorie NA
## 2439	n	B	F	Boomer	Lorraine NA
## 2440	n	B	F	Boomer	Mildred NA
## 2441	n	B	F	GenX	Tracy NA
## 2442	n	B	F	GenX	Dawn NA
## 2443	n	B	F	GenX	Tina NA
## 2444	n	B	F	GenX	Tammy NA
## 2445	n	B	F	GenX	Melinda NA
## 2446	n	B	F	GenX	Tamara NA
## 2447	n	B	F	GenX	Tracey NA
## 2448	n	B	F	GenX	Colleen NA
## 2449	n	B	F	GenX	Sherri NA
## 2450	n	B	F	GenX	Heidi NA
## 2451	n	B	F	Millenial	Samantha NA
## 2452	n	B	F	Millenial	Alexis NA
## 2453	n	B	F	Millenial	Brittany NA
## 2454	n	B	F	Millenial	Lauren NA
## 2455	n	B	F	Millenial	Taylor NA
## 2456	n	B	F	Millenial	Bethany NA
## 2457	n	B	F	Millenial	Latoya NA
## 2458	n	B	F	Millenial	Candice NA
## 2459	n	B	F	Millenial	Brittney NA
## 2460	n	B	F	Millenial	Cheyenne NA
## 2461	n	C	M	Boomer	Theodore NA
## 2462	n	C	M	Boomer	Bernard NA
## 2463	n	C	M	Boomer	Gene NA
## 2464	n	C	M	Boomer	Herbert NA
## 2465	n	C	M	Boomer	Ray NA

## 2466	n	C	M	Boomer	Tom NA
## 2467	n	C	M	Boomer	Lee NA
## 2468	n	C	M	Boomer	Alfred NA
## 2469	n	C	M	Boomer	Leroy NA
## 2470	n	C	M	Boomer	Eddie NA
## 2471	n	C	M	GenX	Marc NA
## 2472	n	C	M	GenX	Jamie NA
## 2473	n	C	M	GenX	Greg NA
## 2474	n	C	M	GenX	Darryl NA
## 2475	n	C	M	GenX	Tim NA
## 2476	n	C	M	GenX	Dean NA
## 2477	n	C	M	GenX	Jon NA
## 2478	n	C	M	GenX	Chris NA
## 2479	n	C	M	GenX	Troy NA
## 2480	n	C	M	GenX	Jeff NA
## 2481	n	C	M	Millenial	Zachary NA
## 2482	n	C	M	Millenial	Dylan NA
## 2483	n	C	M	Millenial	Christian NA
## 2484	n	C	M	Millenial	Wesley NA
## 2485	n	C	M	Millenial	Seth NA
## 2486	n	C	M	Millenial	Austin NA
## 2487	n	C	M	Millenial	Gabriel NA
## 2488	n	C	M	Millenial	Evan NA
## 2489	n	C	M	Millenial	Casey NA
## 2490	n	C	M	Millenial	Luis NA
## 2491	n	C	F	Boomer	Gloria NA
## 2492	n	C	F	Boomer	Joan NA
## 2493	n	C	F	Boomer	Dorothy NA
## 2494	n	C	F	Boomer	Shirley NA
## 2495	n	C	F	Boomer	Betty NA
## 2496	n	C	F	Boomer	Dianne NA
## 2497	n	C	F	Boomer	Kay NA
## 2498	n	C	F	Boomer	Marjorie NA
## 2499	n	C	F	Boomer	Lorraine NA
## 2500	n	C	F	Boomer	Mildred NA
## 2501	n	C	F	GenX	Tracy NA
## 2502	n	C	F	GenX	Dawn NA
## 2503	n	C	F	GenX	Tina NA
## 2504	n	C	F	GenX	Tammy NA
## 2505	n	C	F	GenX	Melinda NA
## 2506	n	C	F	GenX	Tamara NA
## 2507	n	C	F	GenX	Tracey NA
## 2508	n	C	F	GenX	Colleen NA
## 2509	n	C	F	GenX	Sherri NA
## 2510	n	C	F	GenX	Heidi NA
## 2511	n	C	F	Millenial	Samantha NA
## 2512	n	C	F	Millenial	Alexis NA
## 2513	n	C	F	Millenial	Brittany NA
## 2514	n	C	F	Millenial	Lauren NA
## 2515	n	C	F	Millenial	Taylor NA
## 2516	n	C	F	Millenial	Bethany NA
## 2517	n	C	F	Millenial	Latoya NA
## 2518	n	C	F	Millenial	Candice NA
## 2519	n	C	F	Millenial	Brittney NA

```
## 2520      n      C      F  Millenial  Cheyenne NA
```

## Packages

Install the package `pacman` using regular base R.

```
#install.packages("pacman")
```

First, install the package `testthat` (a widely accepted testing suite for R) from <https://github.com/r-lib/testthat> using `pacman`. If you are using Windows, this will be a long install, but you have to go through it for some of the stuff we are doing in class. LINUX (or MAC) is preferred for coding. If you can't get it to work, install this package from CRAN (still using `pacman`), but this is not recommended long term.

```
pacman::p_load(testthat)
```

- Create vector `v` consisting of all numbers from -100 to 100 and test using the second line of code su

```
v = seq(-100, 100)
expect_equal(v, -100 : 100)
```

If there are any errors, the `expect_equal` function will tell you about them. If there are no errors, then it will be silent.

Test the `my_reverse` function from lab2 using the following code:

```
v = c(1:100)
expect_equal(my_reverse(v), rev(v))
expect_equal(my_reverse(c("A", "B", "C")), c("C", "B", "A"))
```

## Multinomial Classification using KNN

Write a  $k = 1$  nearest neighbor algorithm using the Euclidean distance function. This is standard “Roxygen” format for documentation. Hopefully, we will get to packages at some point and we will go over this again. It is your job also to fill in this documentation.

```
## One Nearest Neighbor Classifier
##
## Classify an observation based on the label of the closest observation in the set of training observa
##
## @param Xinput      A matrix of features for training data observations
## @param y_binary    The vector of training data labels
## @param Xtest       A test observation as a row vector
## @return            The predictive label for the test observation
nn_algorithm_predict = function(Xinput, y_binary, Xtest){
  n = nrow(Xinput)
  distances = array(NA, n)
  for(i in 1:n){
    distances[i] = sum((Xinput[i,]-Xtest)^2)
  }
  y_binary[which.min(distances)]
}
```

Write a few tests to ensure it actually works:

```
test_input = matrix( cbind(c(1, 1, 2, 3, 3, 4), c(1, 2, 1, 3, 4, 3)) )
test_data = matrix( c(1, 3, 4, 2, 1, 2) )
binary_data = factor(c(0, 1, 0, 1, 0, 1))
nn_algorithm_predict(test_input, binary_data, test_data)
```

```
## [1] 0
## Levels: 0 1
```

```
test_input = matrix( cbind(c(1, 2, 1, 3, 1, 4), c(2, 4, 1, 3, 2, 1)) )
test_data = matrix( c(1, 2, 3, 4, 1, 2) )
binary_data = factor(c(1, 1, 0, 1, 0, 0))
nn_algorithm_predict(test_input, binary_data, test_data)
```

```
## [1] 1
## Levels: 0 1
```

We now add an argument `d` representing any legal distance function to the `nn_algorithm_predict` function. Update the implementation so it performs NN using that distance function. Set the default function to be the Euclidean distance in the original function. Also, alter the documentation in the appropriate places.

```
## One Nearest Neighbor Classifier
##
## Classify an observation based on the label of the closest observation in the set of training observations
##
## @param Xinput      A matrix of features for training data observations
## @param y_binary    The vector of training data labels
## @param Xtest       A test observation as a row vector
## @param d           A distance function
## @return            The predictive label for the test observation
nn_algorithm_predict = function(Xinput, y_binary, Xtest, d=function(v1,v2){sum((v1-v2)^2)}){
  n = nrow(Xinput)
  distances = array(NA, n)
  for(i in 1:n){
    distances[i] = d((Xinput[i,]-Xtest)^2)
  }
  y_binary[which.min(distances)]
}
```

For extra credit (unless you're a masters student), add an argument `k` to the `nn_algorithm_predict` function and update the implementation so it performs KNN. In the case of a tie, choose  $\hat{y}$  randomly. Set the default `k` to be the square root of the size of  $\mathcal{D}$  which is an empirical rule-of-thumb popularized by the "Pattern Classification" book by Duda, Hart and Stork (2007). Also, alter the documentation in the appropriate places.

*#TO-DO for the 650 students but extra credit for undergrads*

## Basic Binary Classification Modeling

- Load the famous `iris` data frame into the namespace. Provide a summary of the columns using the `skim` function in package `skimr` and write a few descriptive sentences about the distributions using the code below and in English.

```
data(iris)
pacman::p_load(skimr)
skim(iris)
```

Table 1: Data summary

Name	iris
Number of rows	150
Number of columns	5
<hr/>	
Column type frequency:	
factor	1
numeric	4
<hr/>	
Group variables	None

## Variable type: factor

skim_variable	n_missing	complete_rate	ordered	n_unique	top_counts
Species	0	1	FALSE	3	set: 50, ver: 50, vir: 50

## Variable type: numeric

skim_variable	n_missing	complete_rate	mean	sd	p0	p25	p50	p75	p100	hist
Sepal.Length	0	1	5.84	0.83	4.3	5.1	5.80	6.4	7.9	
Sepal.Width	0	1	3.06	0.44	2.0	2.8	3.00	3.3	4.4	
Petal.Length	0	1	3.76	1.77	1.0	1.6	4.35	5.1	6.9	
Petal.Width	0	1	1.20	0.76	0.1	0.3	1.30	1.8	2.5	

TO-DO: gives an overview of the iris data including variable means and standard deviation

The outcome / label / response is **Species**. This is what we will be trying to predict. However, we only care about binary classification between “setosa” and “versicolor” for the purposes of this exercise. Thus the first order of business is to drop one class. Let’s drop the data for the level “virginica” from the data frame.

```
iris = iris[iris$Species != "virginica", ]
```

Now create a vector `y` that is length the number of remaining rows in the data frame whose entries are 0 if “setosa” and 1 if “versicolor”.

```
y <- ifelse(iris$Species == "setosa", 0, 1)
y
```

```
## [1] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
## [38] 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
## [75] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
```

- Write a function `mode` returning the sample mode.

```
mode = function(v){
  names(sort(table(v),decreasing = TRUE))
}
```

- Fit a threshold model to  $y$  using the feature `Sepal.Length`. Write your own code to do this. What is the estimated value of the threshold parameter? Save the threshold value as `threshold`.

```
#TO-DO
n <- nrow(iris)
numErrors <- array(NA, n)
for (i in 1:n){
  y_length <- as.numeric(iris$Sepal.Length > iris$Sepal.Length[i])
  numErrors[i] <- sum(y_length != y)
}
threshold <- iris$Sepal.Length[which.min(numErrors)]
threshold
```

```
## [1] 5.4
```

What is the total number of errors this model makes?

```
sum( as.numeric(iris$Sepal.Length > threshold) != y)
```

```
## [1] 11
```

Does the threshold model's performance make sense given the following summaries:

```
threshold
```

```
## [1] 5.4
```

```
summary(iris[iris$Species == "setosa", "Sepal.Length"])
```

```
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  4.300   4.800   5.000   5.006   5.200   5.800
```

```
summary(iris[iris$Species == "versicolor", "Sepal.Length"])
```

```
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  4.900   5.600   5.900   5.936   6.300   7.000
```

TO-DO: Write your answer here in English.

Yes since in the 75th percentile of the data of versicolors is greater than the threshold 5.4 and less than the length of setosas

Create the function `g` explicitly that can predict  $y$  from  $x$  being a new `Sepal.Length`.

```
g <- function(x){
  as.numeric(x > threshold)
}
```

## Perceptron

You will code the “perceptron learning algorithm” for arbitrary number of features  $p$ . Take a look at the comments above the function. Respect the spec below:

```
## Perceptron learning algorithm
##
## The perceptron fits the best line for the passed data
##
## @param Xinput      Training data as a matrix
## @param y_binary    Training data as a binary matrix
## @param MAX_ITER    maximum number of iterations for the function
## @param w           weights data as vector
##
## @return            The computed final parameter (weight) as a vector of length p + 1
perceptron_learning_algorithm = function(Xinput, y_binary, MAX_ITER = 1000, w = NULL){
  num_rows <- nrow(Xinput)

  Xinput <- cbind(rep(1, num_rows), Xinput)

  num_cols <- ncol(Xinput)

  if (is.null(w)) {
    w <- rep(0, num_cols)
  }

  for (i in 1:MAX_ITER) {
    for (j in 1:num_rows) {
      X <- Xinput[j, ]
      e <- y_binary[j] - ifelse(sum(w %*% X) > 0, 1, 0)
      for (k in 1:num_cols) {
        w[k] <- w[k] + e * X[k]
      }
    }
  }
  return(w)
}
```

To understand what the algorithm is doing - linear “discrimination” between two response categories, we can draw a picture. First let’s make up some very simple training data  $\mathbb{D}$ .

```
Xy_simple = data.frame(
  response = factor(c(0, 0, 0, 1, 1, 1)), #nominal
  first_feature = c(1, 1, 2, 3, 3, 4), #continuous
  second_feature = c(1, 2, 1, 3, 4, 3) #continuous
)
```

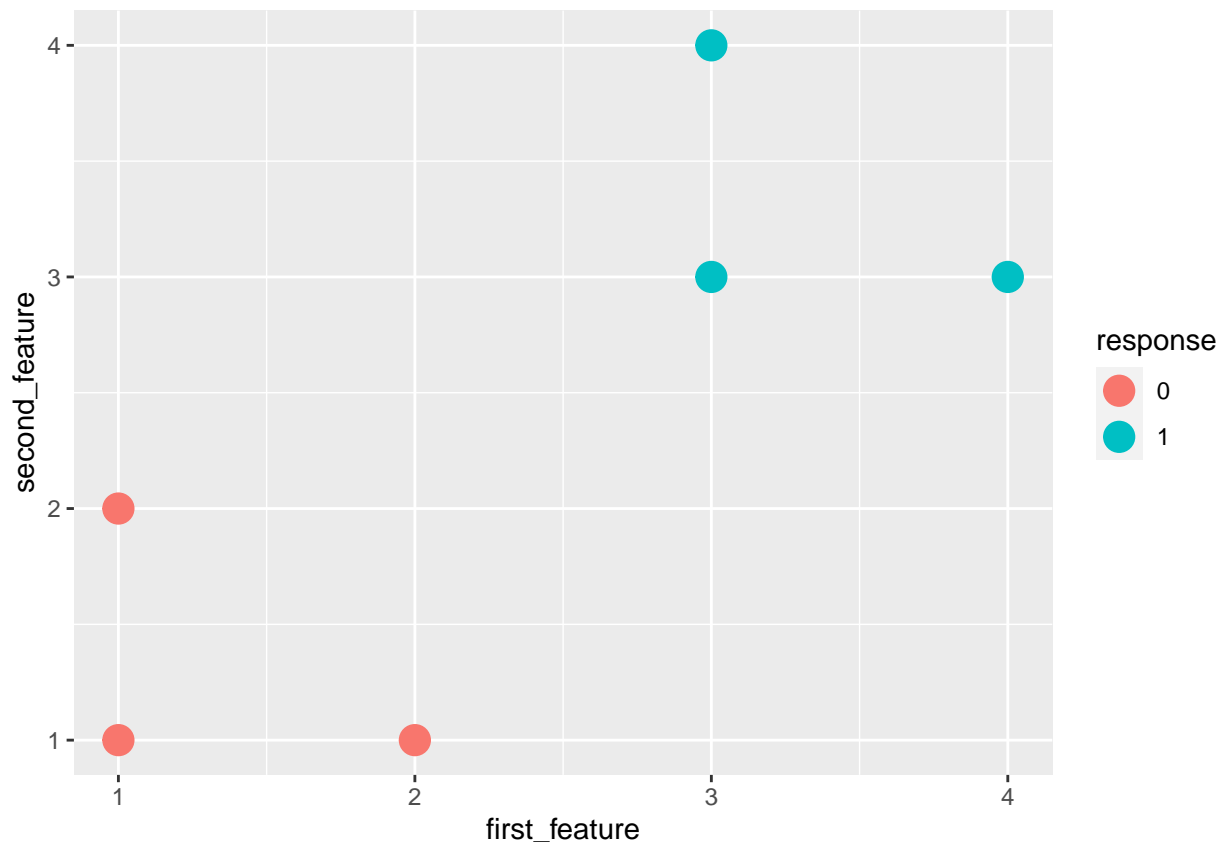
We haven’t spoken about visualization yet, but it is important we do some of it now. Thus, I will write this code for you and you will just run it. First we load the visualization library we’re going to use:

```
pacman::p_load(ggplot2)
```

We are going to just get some plots and not talk about the code to generate them as we will have a whole unit on visualization using `ggplot2` in the future.

Let's first plot  $y$  by the two features so the coordinate plane will be the two features and we use different colors to represent the third dimension,  $y$ .

```
simple_viz_obj = ggplot(Xy_simple, aes(x = first_feature, y = second_feature, color = response)) +  
  geom_point(size = 5)  
simple_viz_obj
```



This graph above show the binary response of the first\_feature and the second\_feature

Now, let us run the algorithm and see what happens:

```
w_vec_simple_per = perceptron_learning_algorithm(  
  cbind(Xy_simple$first_feature, Xy_simple$second_feature),  
  as.numeric(Xy_simple$response == 1))  
w_vec_simple_per
```

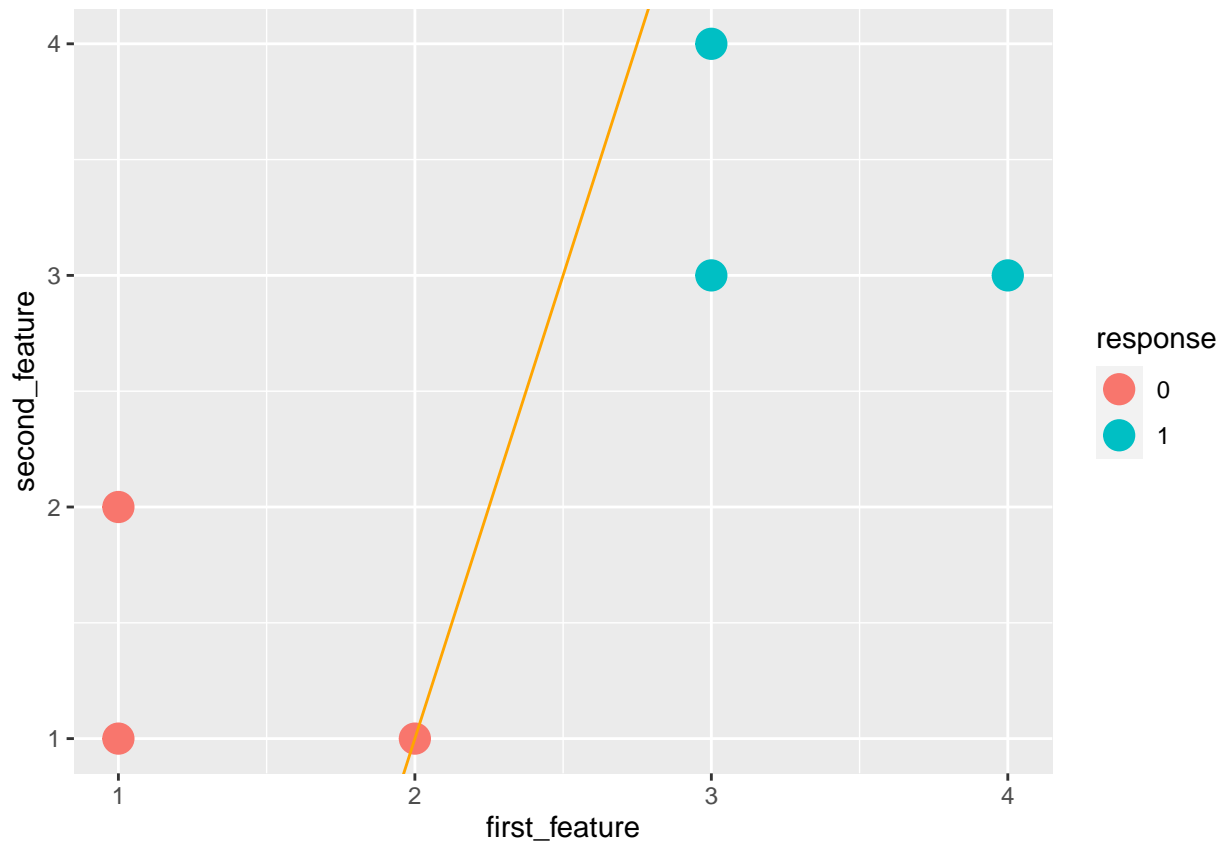
```
## [1] -7  4 -1
```

Explain this output. What do the numbers mean? What is the intercept of this line and the slope? You will have to do some algebra.



The first number represents the intercept The second number is the slope The algebra equation resulting from the out put is  $y = 4x + 7$

```
simple_perceptron_line = geom_abline(  
  intercept = -w_vec_simple_per[1] / w_vec_simple_per[3],  
  slope = -w_vec_simple_per[2] / w_vec_simple_per[3],  
  color = "orange")  
simple_viz_obj + simple_perceptron_line
```



Explain this picture. Why is this line of separation not “satisfying” to you?

It is not the most optimal way to separate the data in the graph

For extra credit, program the maximum-margin hyperplane perceptron that provides the best linear discrimination model for linearly separable data. Make sure you provide ROxygen documentation for this function.

*#TO-DO*