

# Lab 2

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11:59PM February 25, 2021

## More Basic R Skills

- Create a function `my_reverse` which takes as required input a vector 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, dim=length(v))  
  for (i in length(v):1){  
    v_rev[length(v)-i+1] = v[i]  
  }  
  v_rev  
}
```

```
v <- c(1,2,3,4,5,6,7,8,9)  
v
```

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

```
my_reverse(v)
```

```
## [1] 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.

```
flip_matrix <- function(X, dim_to_rev=NULL){  
  if(is.null(dim_to_rev)) {  
    dim_to_rev = ifelse(nrow(X) >= ncol, 0, 1)  
  } else if(dim_to_rev == 1) {  
    X <- X[,ncol(X):1]  
  } else if(dim_to_rev == 0) {  
    X <- X[nrow(X):1,]  
  }  
  else stop("Illegal arg")  
}
```

```
my_array <- matrix(1:25, 5)  
my_array
```

```
##      [,1] [,2] [,3] [,4] [,5]  
## [1,]    1    6   11   16   21  
## [2,]    2    7   12   17   22
```

```
## [3,]    3    8   13   18   23
## [4,]    4    9   14   19   24
## [5,]    5   10   15   20   25
```

```
print(flip_matrix(my_array, dim_to_rev = 0))
```

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

```
print(flip_matrix(my_array, dim_to_rev = 1))
```

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

- 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()
```

```
for (i in 1:8) {
  my_list[[LETTERS[i]]] = array(data = (1:i^i), dim=c(rep(i, i)))
}
```

Run the following code:

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

```
## $A
## 224 bytes
##
## $B
## 232 bytes
##
## $C
## 352 bytes
##
## $D
## 1248 bytes
##
## $E
## 12744 bytes
##
## $F
## 186864 bytes
##
## $G
## 3294416 bytes
##
## $H
```

```
## 67109104 bytes
```

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

```
## 3088 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?

The `object.size` function provides an estimate for the memory that is being used to store the objects. Because each level becomes a dimension larger, we see that each level consumed more and more memory.

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 :  
sample(unlist(strsplit(lorem, split = "\\.\\" ")))
```

```
## [1] "Cras suscipit id nibh lacinia elementum"  
## [2] "Morbi faucibus ligula id massa ultricies viverra"  
## [3] "Aenean nulla ante, iaculis sed vehicula ac, finibus vel arcu"  
## [4] "Donec vehicula sagittis nisi non semper"  
## [5] "Morbi posuere varius volutpat"  
## [6] "Donec at tempor erat"  
## [7] "Integer dapibus mi lectus, eu posuere arcu ultricies in"  
## [8] "Curabitur est augue, congue eget quam in, scelerisque semper magna"  
## [9] "Lorem ipsum dolor sit amet, consectetur adipiscing elit"  
## [10] "Mauris at sodales augue"
```

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.

*#HINT:*

```
#strsplit("Theodore, Bernard, Gene, Herbert, Ray, Tom, Lee, Alfred, Leroy, Eddie", split = ", ")[[1]]
```

```
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 = ', ')[  
M_Millennial  = strsplit("Zachary, Dylan, Christian, Wesley, Seth, Austin, Gabriel, Evan, Casey, Luis",  
F_Boomer      = strsplit("Gloria, Joan, Dorothy, Shirley, Betty, Dianne, Kay, Marjorie, Lorraine, Mildred",  
F_GenX        = strsplit("Tracy, Dawn, Tina, Tammy, Melinda, Tamara, Tracey, Colleen, Sherri, Heidi", sp  
F_Millennial  = strsplit("Samantha, Alexis, Brittany, Lauren, Taylor, Bethany, Latoya, Candice, Brittney,  
male <- c(M_Boomer, M_GenX, M_Millennial)
```

```
female <- c(F_Boomer, F_GenX, F_Millennial)
listed_list <- c(male, female)
```

## 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, Millennial. 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 = sort(rep(letters[1:14],n/14)))
X$variation = rep(LETTERS[1:3],n/3)
X$gender = rep(c('Male','Female'),n/2)
```

X

##	treatment	variation	gender
## 1	a	A	Male
## 2	a	B	Female
## 3	a	C	Male
## 4	a	A	Female
## 5	a	B	Male
## 6	a	C	Female
## 7	a	A	Male
## 8	a	B	Female
## 9	a	C	Male
## 10	a	A	Female
## 11	a	B	Male
## 12	a	C	Female
## 13	a	A	Male
## 14	a	B	Female
## 15	a	C	Male
## 16	a	A	Female
## 17	a	B	Male
## 18	a	C	Female
## 19	a	A	Male
## 20	a	B	Female
## 21	a	C	Male
## 22	a	A	Female
## 23	a	B	Male
## 24	a	C	Female
## 25	a	A	Male
## 26	a	B	Female
## 27	a	C	Male
## 28	a	A	Female
## 29	a	B	Male
## 30	a	C	Female
## 31	a	A	Male
## 32	a	B	Female

## 33	a	C Male
## 34	a	A Female
## 35	a	B Male
## 36	a	C Female
## 37	a	A Male
## 38	a	B Female
## 39	a	C Male
## 40	a	A Female
## 41	a	B Male
## 42	a	C Female
## 43	a	A Male
## 44	a	B Female
## 45	a	C Male
## 46	a	A Female
## 47	a	B Male
## 48	a	C Female
## 49	a	A Male
## 50	a	B Female
## 51	a	C Male
## 52	a	A Female
## 53	a	B Male
## 54	a	C Female
## 55	a	A Male
## 56	a	B Female
## 57	a	C Male
## 58	a	A Female
## 59	a	B Male
## 60	a	C Female
## 61	a	A Male
## 62	a	B Female
## 63	a	C Male
## 64	a	A Female
## 65	a	B Male
## 66	a	C Female
## 67	a	A Male
## 68	a	B Female
## 69	a	C Male
## 70	a	A Female
## 71	a	B Male
## 72	a	C Female
## 73	a	A Male
## 74	a	B Female
## 75	a	C Male
## 76	a	A Female
## 77	a	B Male
## 78	a	C Female
## 79	a	A Male
## 80	a	B Female
## 81	a	C Male
## 82	a	A Female
## 83	a	B Male
## 84	a	C Female
## 85	a	A Male
## 86	a	B Female

## 87	a	C Male
## 88	a	A Female
## 89	a	B Male
## 90	a	C Female
## 91	a	A Male
## 92	a	B Female
## 93	a	C Male
## 94	a	A Female
## 95	a	B Male
## 96	a	C Female
## 97	a	A Male
## 98	a	B Female
## 99	a	C Male
## 100	a	A Female
## 101	a	B Male
## 102	a	C Female
## 103	a	A Male
## 104	a	B Female
## 105	a	C Male
## 106	a	A Female
## 107	a	B Male
## 108	a	C Female
## 109	a	A Male
## 110	a	B Female
## 111	a	C Male
## 112	a	A Female
## 113	a	B Male
## 114	a	C Female
## 115	a	A Male
## 116	a	B Female
## 117	a	C Male
## 118	a	A Female
## 119	a	B Male
## 120	a	C Female
## 121	a	A Male
## 122	a	B Female
## 123	a	C Male
## 124	a	A Female
## 125	a	B Male
## 126	a	C Female
## 127	a	A Male
## 128	a	B Female
## 129	a	C Male
## 130	a	A Female
## 131	a	B Male
## 132	a	C Female
## 133	a	A Male
## 134	a	B Female
## 135	a	C Male
## 136	a	A Female
## 137	a	B Male
## 138	a	C Female
## 139	a	A Male
## 140	a	B Female

## 141	a	C Male
## 142	a	A Female
## 143	a	B Male
## 144	a	C Female
## 145	a	A Male
## 146	a	B Female
## 147	a	C Male
## 148	a	A Female
## 149	a	B Male
## 150	a	C Female
## 151	a	A Male
## 152	a	B Female
## 153	a	C Male
## 154	a	A Female
## 155	a	B Male
## 156	a	C Female
## 157	a	A Male
## 158	a	B Female
## 159	a	C Male
## 160	a	A Female
## 161	a	B Male
## 162	a	C Female
## 163	a	A Male
## 164	a	B Female
## 165	a	C Male
## 166	a	A Female
## 167	a	B Male
## 168	a	C Female
## 169	a	A Male
## 170	a	B Female
## 171	a	C Male
## 172	a	A Female
## 173	a	B Male
## 174	a	C Female
## 175	a	A Male
## 176	a	B Female
## 177	a	C Male
## 178	a	A Female
## 179	a	B Male
## 180	a	C Female
## 181	b	A Male
## 182	b	B Female
## 183	b	C Male
## 184	b	A Female
## 185	b	B Male
## 186	b	C Female
## 187	b	A Male
## 188	b	B Female
## 189	b	C Male
## 190	b	A Female
## 191	b	B Male
## 192	b	C Female
## 193	b	A Male
## 194	b	B Female

## 195	b	C Male
## 196	b	A Female
## 197	b	B Male
## 198	b	C Female
## 199	b	A Male
## 200	b	B Female
## 201	b	C Male
## 202	b	A Female
## 203	b	B Male
## 204	b	C Female
## 205	b	A Male
## 206	b	B Female
## 207	b	C Male
## 208	b	A Female
## 209	b	B Male
## 210	b	C Female
## 211	b	A Male
## 212	b	B Female
## 213	b	C Male
## 214	b	A Female
## 215	b	B Male
## 216	b	C Female
## 217	b	A Male
## 218	b	B Female
## 219	b	C Male
## 220	b	A Female
## 221	b	B Male
## 222	b	C Female
## 223	b	A Male
## 224	b	B Female
## 225	b	C Male
## 226	b	A Female
## 227	b	B Male
## 228	b	C Female
## 229	b	A Male
## 230	b	B Female
## 231	b	C Male
## 232	b	A Female
## 233	b	B Male
## 234	b	C Female
## 235	b	A Male
## 236	b	B Female
## 237	b	C Male
## 238	b	A Female
## 239	b	B Male
## 240	b	C Female
## 241	b	A Male
## 242	b	B Female
## 243	b	C Male
## 244	b	A Female
## 245	b	B Male
## 246	b	C Female
## 247	b	A Male
## 248	b	B Female



## 249	b	C Male
## 250	b	A Female
## 251	b	B Male
## 252	b	C Female
## 253	b	A Male
## 254	b	B Female
## 255	b	C Male
## 256	b	A Female
## 257	b	B Male
## 258	b	C Female
## 259	b	A Male
## 260	b	B Female
## 261	b	C Male
## 262	b	A Female
## 263	b	B Male
## 264	b	C Female
## 265	b	A Male
## 266	b	B Female
## 267	b	C Male
## 268	b	A Female
## 269	b	B Male
## 270	b	C Female
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## 272	b	B Female
## 273	b	C Male
## 274	b	A Female
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## 276	b	C Female
## 277	b	A Male
## 278	b	B Female
## 279	b	C Male
## 280	b	A Female
## 281	b	B Male
## 282	b	C Female
## 283	b	A Male
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## 285	b	C Male
## 286	b	A Female
## 287	b	B Male
## 288	b	C Female
## 289	b	A Male
## 290	b	B Female
## 291	b	C Male
## 292	b	A Female
## 293	b	B Male
## 294	b	C Female
## 295	b	A Male
## 296	b	B Female
## 297	b	C Male
## 298	b	A Female
## 299	b	B Male
## 300	b	C Female
## 301	b	A Male
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## 303	b	C Male
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## 330	b	C Female
## 331	b	A Male
## 332	b	B Female
## 333	b	C Male
## 334	b	A Female
## 335	b	B Male
## 336	b	C Female
## 337	b	A Male
## 338	b	B Female
## 339	b	C Male
## 340	b	A Female
## 341	b	B Male
## 342	b	C Female
## 343	b	A Male
## 344	b	B Female
## 345	b	C Male
## 346	b	A Female
## 347	b	B Male
## 348	b	C Female
## 349	b	A Male
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## 351	b	C Male
## 352	b	A Female
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## 354	b	C Female
## 355	b	A Male
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## 357	b	C Male
## 358	b	A Female
## 359	b	B Male
## 360	b	C Female
## 361	c	A Male
## 362	c	B Female
## 363	c	C Male
## 364	c	A Female
## 365	c	B Male
## 366	c	C Female
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## 381	c	C Male
## 382	c	A Female
## 383	c	B Male
## 384	c	C Female
## 385	c	A Male
## 386	c	B Female
## 387	c	C Male
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## 389	c	B Male
## 390	c	C Female
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## 405	c	C Male
## 406	c	A Female
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## 409	c	A Male
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## 417	c	C Male
## 418	c	A Female
## 419	c	B Male
## 420	c	C Female
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## 422	c	B Female
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## 426	c	C Female
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## 437	c	B Male
## 438	c	C Female
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## 441	c	C Male
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## 444	c	C Female
## 445	c	A Male
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## 450	c	C Female
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## 454	c	A Female
## 455	c	B Male
## 456	c	C Female
## 457	c	A Male
## 458	c	B Female
## 459	c	C Male
## 460	c	A Female
## 461	c	B Male
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## 463	c	A Male
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## 465	c	C Male
## 466	c	A Female
## 467	c	B Male
## 468	c	C Female
## 469	c	A Male
## 470	c	B Female
## 471	c	C Male
## 472	c	A Female
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## 474	c	C Female
## 475	c	A Male
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## 484	c	A Female
## 485	c	B Male
## 486	c	C Female
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## 497	c	B Male
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## 501	c	C Male
## 502	c	A Female
## 503	c	B Male
## 504	c	C Female
## 505	c	A Male
## 506	c	B Female
## 507	c	C Male
## 508	c	A Female
## 509	c	B Male
## 510	c	C Female
## 511	c	A Male
## 512	c	B Female
## 513	c	C Male
## 514	c	A Female
## 515	c	B Male
## 516	c	C Female
## 517	c	A Male
## 518	c	B Female

## 519	c	C Male
## 520	c	A Female
## 521	c	B Male
## 522	c	C Female
## 523	c	A Male
## 524	c	B Female
## 525	c	C Male
## 526	c	A Female
## 527	c	B Male
## 528	c	C Female
## 529	c	A Male
## 530	c	B Female
## 531	c	C Male
## 532	c	A Female
## 533	c	B Male
## 534	c	C Female
## 535	c	A Male
## 536	c	B Female
## 537	c	C Male
## 538	c	A Female
## 539	c	B Male
## 540	c	C Female
## 541	d	A Male
## 542	d	B Female
## 543	d	C Male
## 544	d	A Female
## 545	d	B Male
## 546	d	C Female
## 547	d	A Male
## 548	d	B Female
## 549	d	C Male
## 550	d	A Female
## 551	d	B Male
## 552	d	C Female
## 553	d	A Male
## 554	d	B Female
## 555	d	C Male
## 556	d	A Female
## 557	d	B Male
## 558	d	C Female
## 559	d	A Male
## 560	d	B Female
## 561	d	C Male
## 562	d	A Female
## 563	d	B Male
## 564	d	C Female
## 565	d	A Male
## 566	d	B Female
## 567	d	C Male
## 568	d	A Female
## 569	d	B Male
## 570	d	C Female
## 571	d	A Male
## 572	d	B Female

## 573	d	C Male
## 574	d	A Female
## 575	d	B Male
## 576	d	C Female
## 577	d	A Male
## 578	d	B Female
## 579	d	C Male
## 580	d	A Female
## 581	d	B Male
## 582	d	C Female
## 583	d	A Male
## 584	d	B Female
## 585	d	C Male
## 586	d	A Female
## 587	d	B Male
## 588	d	C Female
## 589	d	A Male
## 590	d	B Female
## 591	d	C Male
## 592	d	A Female
## 593	d	B Male
## 594	d	C Female
## 595	d	A Male
## 596	d	B Female
## 597	d	C Male
## 598	d	A Female
## 599	d	B Male
## 600	d	C Female
## 601	d	A Male
## 602	d	B Female
## 603	d	C Male
## 604	d	A Female
## 605	d	B Male
## 606	d	C Female
## 607	d	A Male
## 608	d	B Female
## 609	d	C Male
## 610	d	A Female
## 611	d	B Male
## 612	d	C Female
## 613	d	A Male
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## 618	d	C Female
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## 623	d	B Male
## 624	d	C Female
## 625	d	A Male
## 626	d	B Female

## 627	d	C Male
## 628	d	A Female
## 629	d	B Male
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## 631	d	A Male
## 632	d	B Female
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## 634	d	A Female
## 635	d	B Male
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## 674	d	B Female
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## 677	d	B Male
## 678	d	C Female
## 679	d	A Male
## 680	d	B Female



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## 683	d	B Male
## 684	d	C Female
## 685	d	A Male
## 686	d	B Female
## 687	d	C Male
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## 691	d	A Male
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## 695	d	B Male
## 696	d	C Female
## 697	d	A Male
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## 708	d	C Female
## 709	d	A Male
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## 717	d	C Male
## 718	d	A Female
## 719	d	B Male
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## 725	e	B Male
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## 729	e	C Male
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## 733	e	A Male
## 734	e	B Female

## 735	e	C Male
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## 739	e	A Male
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## 743	e	B Male
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## 749	e	B Male
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## 788	e	B Female

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## 794	e	B Female
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## 797	e	B Male
## 798	e	C Female
## 799	e	A Male
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## 804	e	C Female
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## 809	e	B Male
## 810	e	C Female
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## 812	e	B Female
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## 815	e	B Male
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## 819	e	C Male
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## 823	e	A Male
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## 842	e	B Female

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## 845	e	B Male
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## 944	f	B Female
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## 953	f	B Male
## 954	f	C Female
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## 977	f	B Male
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## 1013	f	B Male
## 1014	f	C Female
## 1015	f	A Male
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## 1019	f	B Male
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## 1047	f	C Male
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## 1049	f	B Male
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## 1052	f	B Female
## 1053	f	C Male
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## 1055	f	B Male
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## 1074	f	C Female
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## 1079	f	B Male
## 1080	f	C Female
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## 1083	g	C Male
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## 1085	g	B Male
## 1086	g	C Female
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## 1088	g	B Female
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## 1091	g	B Male
## 1092	g	C Female
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## 1095	g	C Male
## 1096	g	A Female
## 1097	g	B Male
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## 1099	g	A Male
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## 1101	g	C Male
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## 1103	g	B Male
## 1104	g	C Female
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## 1108	g	A Female
## 1109	g	B Male
## 1110	g	C Female
## 1111	g	A Male
## 1112	g	B Female



## 1113	g	C Male
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## 1115	g	B Male
## 1116	g	C Female
## 1117	g	A Male
## 1118	g	B Female
## 1119	g	C Male
## 1120	g	A Female
## 1121	g	B Male
## 1122	g	C Female
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## 1127	g	B Male
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## 1130	g	B Female
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## 1213	g	A Male
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## 1217	g	B Male
## 1218	g	C Female
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## 1220	g	B Female

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## 1254	g	C Female
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## 1259	g	B Male
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## 1268	h	B Female
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## 1272	h	C Female
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## 1274	h	B Female

## 1275	h	C Male
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## 1277	h	B Male
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## 1437	h	C Male
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## 1439	h	B Male
## 1440	h	C Female
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## 1443	i	C Male
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## 1445	i	B Male
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## 1544	i	B Female



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## 1862	k	B Female
## 1863	k	C Male
## 1864	k	A Female
## 1865	k	B Male
## 1866	k	C Female
## 1867	k	A Male
## 1868	k	B Female

## 1869	k	C Male
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## 1871	k	B Male
## 1872	k	C Female
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## 1874	k	B Female
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## 1880	k	B Female
## 1881	k	C Male
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## 1883	k	B Male
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## 1885	k	A Male
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## 1889	k	B Male
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## 1895	k	B Male
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## 1898	k	B Female
## 1899	k	C Male
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## 1902	k	C Female
## 1903	k	A Male
## 1904	k	B Female
## 1905	k	C Male
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## 1907	k	B Male
## 1908	k	C Female
## 1909	k	A Male
## 1910	k	B Female
## 1911	k	C Male
## 1912	k	A Female
## 1913	k	B Male
## 1914	k	C Female
## 1915	k	A Male
## 1916	k	B Female
## 1917	k	C Male
## 1918	k	A Female
## 1919	k	B Male
## 1920	k	C Female
## 1921	k	A Male
## 1922	k	B Female

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## 1924	k	A Female
## 1925	k	B Male
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## 1927	k	A Male
## 1928	k	B Female
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## 1931	k	B Male
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## 1971	k	C Male
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## 1979	k	B Male
## 1980	k	C Female
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## 1992	l	C Female
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## 1997	l	B Male
## 1998	l	C Female
## 1999	l	A Male
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## 2001	l	C Male
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## 2003	l	B Male
## 2004	l	C Female
## 2005	l	A Male
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## 2007	l	C Male
## 2008	l	A Female
## 2009	l	B Male
## 2010	l	C Female
## 2011	l	A Male
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## 2013	l	C Male
## 2014	l	A Female
## 2015	l	B Male
## 2016	l	C Female
## 2017	l	A Male
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## 2019	l	C Male
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## 2022	l	C Female
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## 2024	l	B Female
## 2025	l	C Male
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## 2027	l	B Male
## 2028	l	C Female
## 2029	l	A Male
## 2030	l	B Female

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## 2033	1	B Male
## 2034	1	C Female
## 2035	1	A Male
## 2036	1	B Female
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## 2045	1	B Male
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## 2267	m	B Male
## 2268	m	C Female
## 2269	m	A Male
## 2270	m	B Female
## 2271	m	C Male
## 2272	m	A Female
## 2273	m	B Male
## 2274	m	C Female
## 2275	m	A Male
## 2276	m	B Female
## 2277	m	C Male
## 2278	m	A Female
## 2279	m	B Male
## 2280	m	C Female
## 2281	m	A Male
## 2282	m	B Female
## 2283	m	C Male
## 2284	m	A Female
## 2285	m	B Male
## 2286	m	C Female
## 2287	m	A Male
## 2288	m	B Female
## 2289	m	C Male
## 2290	m	A Female
## 2291	m	B Male
## 2292	m	C Female
## 2293	m	A Male
## 2294	m	B Female
## 2295	m	C Male
## 2296	m	A Female
## 2297	m	B Male
## 2298	m	C Female
## 2299	m	A Male
## 2300	m	B Female

## 2301	m	C Male
## 2302	m	A Female
## 2303	m	B Male
## 2304	m	C Female
## 2305	m	A Male
## 2306	m	B Female
## 2307	m	C Male
## 2308	m	A Female
## 2309	m	B Male
## 2310	m	C Female
## 2311	m	A Male
## 2312	m	B Female
## 2313	m	C Male
## 2314	m	A Female
## 2315	m	B Male
## 2316	m	C Female
## 2317	m	A Male
## 2318	m	B Female
## 2319	m	C Male
## 2320	m	A Female
## 2321	m	B Male
## 2322	m	C Female
## 2323	m	A Male
## 2324	m	B Female
## 2325	m	C Male
## 2326	m	A Female
## 2327	m	B Male
## 2328	m	C Female
## 2329	m	A Male
## 2330	m	B Female
## 2331	m	C Male
## 2332	m	A Female
## 2333	m	B Male
## 2334	m	C Female
## 2335	m	A Male
## 2336	m	B Female
## 2337	m	C Male
## 2338	m	A Female
## 2339	m	B Male
## 2340	m	C Female
## 2341	n	A Male
## 2342	n	B Female
## 2343	n	C Male
## 2344	n	A Female
## 2345	n	B Male
## 2346	n	C Female
## 2347	n	A Male
## 2348	n	B Female
## 2349	n	C Male
## 2350	n	A Female
## 2351	n	B Male
## 2352	n	C Female
## 2353	n	A Male
## 2354	n	B Female

## 2355	n	C Male
## 2356	n	A Female
## 2357	n	B Male
## 2358	n	C Female
## 2359	n	A Male
## 2360	n	B Female
## 2361	n	C Male
## 2362	n	A Female
## 2363	n	B Male
## 2364	n	C Female
## 2365	n	A Male
## 2366	n	B Female
## 2367	n	C Male
## 2368	n	A Female
## 2369	n	B Male
## 2370	n	C Female
## 2371	n	A Male
## 2372	n	B Female
## 2373	n	C Male
## 2374	n	A Female
## 2375	n	B Male
## 2376	n	C Female
## 2377	n	A Male
## 2378	n	B Female
## 2379	n	C Male
## 2380	n	A Female
## 2381	n	B Male
## 2382	n	C Female
## 2383	n	A Male
## 2384	n	B Female
## 2385	n	C Male
## 2386	n	A Female
## 2387	n	B Male
## 2388	n	C Female
## 2389	n	A Male
## 2390	n	B Female
## 2391	n	C Male
## 2392	n	A Female
## 2393	n	B Male
## 2394	n	C Female
## 2395	n	A Male
## 2396	n	B Female
## 2397	n	C Male
## 2398	n	A Female
## 2399	n	B Male
## 2400	n	C Female
## 2401	n	A Male
## 2402	n	B Female
## 2403	n	C Male
## 2404	n	A Female
## 2405	n	B Male
## 2406	n	C Female
## 2407	n	A Male
## 2408	n	B Female



## 2409	n	C Male
## 2410	n	A Female
## 2411	n	B Male
## 2412	n	C Female
## 2413	n	A Male
## 2414	n	B Female
## 2415	n	C Male
## 2416	n	A Female
## 2417	n	B Male
## 2418	n	C Female
## 2419	n	A Male
## 2420	n	B Female
## 2421	n	C Male
## 2422	n	A Female
## 2423	n	B Male
## 2424	n	C Female
## 2425	n	A Male
## 2426	n	B Female
## 2427	n	C Male
## 2428	n	A Female
## 2429	n	B Male
## 2430	n	C Female
## 2431	n	A Male
## 2432	n	B Female
## 2433	n	C Male
## 2434	n	A Female
## 2435	n	B Male
## 2436	n	C Female
## 2437	n	A Male
## 2438	n	B Female
## 2439	n	C Male
## 2440	n	A Female
## 2441	n	B Male
## 2442	n	C Female
## 2443	n	A Male
## 2444	n	B Female
## 2445	n	C Male
## 2446	n	A Female
## 2447	n	B Male
## 2448	n	C Female
## 2449	n	A Male
## 2450	n	B Female
## 2451	n	C Male
## 2452	n	A Female
## 2453	n	B Male
## 2454	n	C Female
## 2455	n	A Male
## 2456	n	B Female
## 2457	n	C Male
## 2458	n	A Female
## 2459	n	B Male
## 2460	n	C Female
## 2461	n	A Male
## 2462	n	B Female

## 2463	n	C Male
## 2464	n	A Female
## 2465	n	B Male
## 2466	n	C Female
## 2467	n	A Male
## 2468	n	B Female
## 2469	n	C Male
## 2470	n	A Female
## 2471	n	B Male
## 2472	n	C Female
## 2473	n	A Male
## 2474	n	B Female
## 2475	n	C Male
## 2476	n	A Female
## 2477	n	B Male
## 2478	n	C Female
## 2479	n	A Male
## 2480	n	B Female
## 2481	n	C Male
## 2482	n	A Female
## 2483	n	B Male
## 2484	n	C Female
## 2485	n	A Male
## 2486	n	B Female
## 2487	n	C Male
## 2488	n	A Female
## 2489	n	B Male
## 2490	n	C Female
## 2491	n	A Male
## 2492	n	B Female
## 2493	n	C Male
## 2494	n	A Female
## 2495	n	B Male
## 2496	n	C Female
## 2497	n	A Male
## 2498	n	B Female
## 2499	n	C Male
## 2500	n	A Female
## 2501	n	B Male
## 2502	n	C Female
## 2503	n	A Male
## 2504	n	B Female
## 2505	n	C Male
## 2506	n	A Female
## 2507	n	B Male
## 2508	n	C Female
## 2509	n	A Male
## 2510	n	B Female
## 2511	n	C Male
## 2512	n	A Female
## 2513	n	B Male
## 2514	n	C Female
## 2515	n	A Male
## 2516	n	B Female

```
## 2517      n      C   Male
## 2518      n      A Female
## 2519      n      B   Male
## 2520      n      C Female
```

```
n = 14 * 3 * 2 * 3 * 10
```

```
X = data.frame(treatment = rep(NA, n),
               variation = rep(NA, n),
               gender = rep(NA, n),
               generation = rep(NA, n),
               name = rep(NA, n),
               y = 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", "Millennial"), each = n / 14 / 3 / 2 / 3), times = 14 * 3 * 2)
```

```
X$name = rep(sample(unlist(listed_list)), times = 14 * 3)
```

```
X
```

##	treatment	variation	gender	generation	name	y
## 1	a	A	M	Boomer	Ray	NA
## 2	a	A	M	Boomer	Leroy	NA
## 3	a	A	M	Boomer	Candice	NA
## 4	a	A	M	Boomer	Bethany	NA
## 5	a	A	M	Boomer	Kay	NA
## 6	a	A	M	Boomer	Casey	NA
## 7	a	A	M	Boomer	Evan	NA
## 8	a	A	M	Boomer	Gabriel	NA
## 9	a	A	M	Boomer	Dawn	NA
## 10	a	A	M	Boomer	Christian	NA
## 11	a	A	M	GenX	Mildred	NA
## 12	a	A	M	GenX	Colleen	NA
## 13	a	A	M	GenX	Greg	NA
## 14	a	A	M	GenX	Troy	NA
## 15	a	A	M	GenX	Heidi	NA
## 16	a	A	M	GenX	Taylor	NA
## 17	a	A	M	GenX	Dylan	NA
## 18	a	A	M	GenX	Latoya	NA
## 19	a	A	M	GenX	Cheyenne	NA
## 20	a	A	M	GenX	Austin	NA
## 21	a	A	M	Millennial	Bernard	NA
## 22	a	A	M	Millennial	Jon	NA
## 23	a	A	M	Millennial	Zachary	NA
## 24	a	A	M	Millennial	Chris	NA
## 25	a	A	M	Millennial	Tammy	NA
## 26	a	A	M	Millennial	Brittany	NA
## 27	a	A	M	Millennial	Lauren	NA
## 28	a	A	M	Millennial	Theodore	NA
## 29	a	A	M	Millennial	Jeff	NA
## 30	a	A	M	Millennial	Alexis	NA
## 31	a	A	F	Boomer	Joan	NA
## 32	a	A	F	Boomer	Marc	NA

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

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

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

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

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



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

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

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

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

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

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

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

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



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

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

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

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

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

## 1005	f	B	F	GenX	Marjorie	NA
## 1006	f	B	F	GenX	Shirley	NA
## 1007	f	B	F	GenX	Lee	NA
## 1008	f	B	F	GenX	Tracey	NA
## 1009	f	B	F	GenX	Tom	NA
## 1010	f	B	F	GenX	Tim	NA
## 1011	f	B	F	Millenial	Tina	NA
## 1012	f	B	F	Millenial	Lorraine	NA
## 1013	f	B	F	Millenial	Dean	NA
## 1014	f	B	F	Millenial	Jamie	NA
## 1015	f	B	F	Millenial	Sherri	NA
## 1016	f	B	F	Millenial	Gloria	NA
## 1017	f	B	F	Millenial	Alfred	NA
## 1018	f	B	F	Millenial	Luis	NA
## 1019	f	B	F	Millenial	Darryl	NA
## 1020	f	B	F	Millenial	Dorothy	NA
## 1021	f	C	M	Boomer	Ray	NA
## 1022	f	C	M	Boomer	Leroy	NA
## 1023	f	C	M	Boomer	Candice	NA
## 1024	f	C	M	Boomer	Bethany	NA
## 1025	f	C	M	Boomer	Kay	NA
## 1026	f	C	M	Boomer	Casey	NA
## 1027	f	C	M	Boomer	Evan	NA
## 1028	f	C	M	Boomer	Gabriel	NA
## 1029	f	C	M	Boomer	Dawn	NA
## 1030	f	C	M	Boomer	Christian	NA
## 1031	f	C	M	GenX	Mildred	NA
## 1032	f	C	M	GenX	Colleen	NA
## 1033	f	C	M	GenX	Greg	NA
## 1034	f	C	M	GenX	Troy	NA
## 1035	f	C	M	GenX	Heidi	NA
## 1036	f	C	M	GenX	Taylor	NA
## 1037	f	C	M	GenX	Dylan	NA
## 1038	f	C	M	GenX	Latoya	NA
## 1039	f	C	M	GenX	Cheyenne	NA
## 1040	f	C	M	GenX	Austin	NA
## 1041	f	C	M	Millenial	Bernard	NA
## 1042	f	C	M	Millenial	Jon	NA
## 1043	f	C	M	Millenial	Zachary	NA
## 1044	f	C	M	Millenial	Chris	NA
## 1045	f	C	M	Millenial	Tammy	NA
## 1046	f	C	M	Millenial	Brittany	NA
## 1047	f	C	M	Millenial	Lauren	NA
## 1048	f	C	M	Millenial	Theodore	NA
## 1049	f	C	M	Millenial	Jeff	NA
## 1050	f	C	M	Millenial	Alexis	NA
## 1051	f	C	F	Boomer	Joan	NA
## 1052	f	C	F	Boomer	Marc	NA
## 1053	f	C	F	Boomer	Melinda	NA
## 1054	f	C	F	Boomer	Wesley	NA
## 1055	f	C	F	Boomer	Dianne	NA
## 1056	f	C	F	Boomer	Seth	NA
## 1057	f	C	F	Boomer	Tamara	NA
## 1058	f	C	F	Boomer	Herbert	NA

## 1059	f	C	F	Boomer	Tracy NA
## 1060	f	C	F	Boomer	Brittney NA
## 1061	f	C	F	GenX	Samantha NA
## 1062	f	C	F	GenX	Eddie NA
## 1063	f	C	F	GenX	Betty NA
## 1064	f	C	F	GenX	Gene NA
## 1065	f	C	F	GenX	Marjorie NA
## 1066	f	C	F	GenX	Shirley NA
## 1067	f	C	F	GenX	Lee NA
## 1068	f	C	F	GenX	Tracey NA
## 1069	f	C	F	GenX	Tom NA
## 1070	f	C	F	GenX	Tim NA
## 1071	f	C	F	Millenial	Tina NA
## 1072	f	C	F	Millenial	Lorraine NA
## 1073	f	C	F	Millenial	Dean NA
## 1074	f	C	F	Millenial	Jamie NA
## 1075	f	C	F	Millenial	Sherri NA
## 1076	f	C	F	Millenial	Gloria NA
## 1077	f	C	F	Millenial	Alfred NA
## 1078	f	C	F	Millenial	Luis NA
## 1079	f	C	F	Millenial	Darryl NA
## 1080	f	C	F	Millenial	Dorothy NA
## 1081	g	A	M	Boomer	Ray NA
## 1082	g	A	M	Boomer	Leroy NA
## 1083	g	A	M	Boomer	Candice NA
## 1084	g	A	M	Boomer	Bethany NA
## 1085	g	A	M	Boomer	Kay NA
## 1086	g	A	M	Boomer	Casey NA
## 1087	g	A	M	Boomer	Evan NA
## 1088	g	A	M	Boomer	Gabriel NA
## 1089	g	A	M	Boomer	Dawn NA
## 1090	g	A	M	Boomer	Christian NA
## 1091	g	A	M	GenX	Mildred NA
## 1092	g	A	M	GenX	Colleen NA
## 1093	g	A	M	GenX	Greg NA
## 1094	g	A	M	GenX	Troy NA
## 1095	g	A	M	GenX	Heidi NA
## 1096	g	A	M	GenX	Taylor NA
## 1097	g	A	M	GenX	Dylan NA
## 1098	g	A	M	GenX	Latoya NA
## 1099	g	A	M	GenX	Cheyenne NA
## 1100	g	A	M	GenX	Austin NA
## 1101	g	A	M	Millenial	Bernard NA
## 1102	g	A	M	Millenial	Jon NA
## 1103	g	A	M	Millenial	Zachary NA
## 1104	g	A	M	Millenial	Chris NA
## 1105	g	A	M	Millenial	Tammy NA
## 1106	g	A	M	Millenial	Brittany NA
## 1107	g	A	M	Millenial	Lauren NA
## 1108	g	A	M	Millenial	Theodore NA
## 1109	g	A	M	Millenial	Jeff NA
## 1110	g	A	M	Millenial	Alexis NA
## 1111	g	A	F	Boomer	Joan NA
## 1112	g	A	F	Boomer	Marc NA

## 1113	g	A	F	Boomer	Melinda	NA
## 1114	g	A	F	Boomer	Wesley	NA
## 1115	g	A	F	Boomer	Dianne	NA
## 1116	g	A	F	Boomer	Seth	NA
## 1117	g	A	F	Boomer	Tamara	NA
## 1118	g	A	F	Boomer	Herbert	NA
## 1119	g	A	F	Boomer	Tracy	NA
## 1120	g	A	F	Boomer	Brittney	NA
## 1121	g	A	F	GenX	Samantha	NA
## 1122	g	A	F	GenX	Eddie	NA
## 1123	g	A	F	GenX	Betty	NA
## 1124	g	A	F	GenX	Gene	NA
## 1125	g	A	F	GenX	Marjorie	NA
## 1126	g	A	F	GenX	Shirley	NA
## 1127	g	A	F	GenX	Lee	NA
## 1128	g	A	F	GenX	Tracey	NA
## 1129	g	A	F	GenX	Tom	NA
## 1130	g	A	F	GenX	Tim	NA
## 1131	g	A	F	Millenial	Tina	NA
## 1132	g	A	F	Millenial	Lorraine	NA
## 1133	g	A	F	Millenial	Dean	NA
## 1134	g	A	F	Millenial	Jamie	NA
## 1135	g	A	F	Millenial	Sherri	NA
## 1136	g	A	F	Millenial	Gloria	NA
## 1137	g	A	F	Millenial	Alfred	NA
## 1138	g	A	F	Millenial	Luis	NA
## 1139	g	A	F	Millenial	Darryl	NA
## 1140	g	A	F	Millenial	Dorothy	NA
## 1141	g	B	M	Boomer	Ray	NA
## 1142	g	B	M	Boomer	Leroy	NA
## 1143	g	B	M	Boomer	Candice	NA
## 1144	g	B	M	Boomer	Bethany	NA
## 1145	g	B	M	Boomer	Kay	NA
## 1146	g	B	M	Boomer	Casey	NA
## 1147	g	B	M	Boomer	Evan	NA
## 1148	g	B	M	Boomer	Gabriel	NA
## 1149	g	B	M	Boomer	Dawn	NA
## 1150	g	B	M	Boomer	Christian	NA
## 1151	g	B	M	GenX	Mildred	NA
## 1152	g	B	M	GenX	Colleen	NA
## 1153	g	B	M	GenX	Greg	NA
## 1154	g	B	M	GenX	Troy	NA
## 1155	g	B	M	GenX	Heidi	NA
## 1156	g	B	M	GenX	Taylor	NA
## 1157	g	B	M	GenX	Dylan	NA
## 1158	g	B	M	GenX	Latoya	NA
## 1159	g	B	M	GenX	Cheyenne	NA
## 1160	g	B	M	GenX	Austin	NA
## 1161	g	B	M	Millenial	Bernard	NA
## 1162	g	B	M	Millenial	Jon	NA
## 1163	g	B	M	Millenial	Zachary	NA
## 1164	g	B	M	Millenial	Chris	NA
## 1165	g	B	M	Millenial	Tammy	NA
## 1166	g	B	M	Millenial	Brittany	NA



## 1167	g	B	M	Millenial	Lauren	NA
## 1168	g	B	M	Millenial	Theodore	NA
## 1169	g	B	M	Millenial	Jeff	NA
## 1170	g	B	M	Millenial	Alexis	NA
## 1171	g	B	F	Boomer	Joan	NA
## 1172	g	B	F	Boomer	Marc	NA
## 1173	g	B	F	Boomer	Melinda	NA
## 1174	g	B	F	Boomer	Wesley	NA
## 1175	g	B	F	Boomer	Dianne	NA
## 1176	g	B	F	Boomer	Seth	NA
## 1177	g	B	F	Boomer	Tamara	NA
## 1178	g	B	F	Boomer	Herbert	NA
## 1179	g	B	F	Boomer	Tracy	NA
## 1180	g	B	F	Boomer	Brittney	NA
## 1181	g	B	F	GenX	Samantha	NA
## 1182	g	B	F	GenX	Eddie	NA
## 1183	g	B	F	GenX	Betty	NA
## 1184	g	B	F	GenX	Gene	NA
## 1185	g	B	F	GenX	Marjorie	NA
## 1186	g	B	F	GenX	Shirley	NA
## 1187	g	B	F	GenX	Lee	NA
## 1188	g	B	F	GenX	Tracey	NA
## 1189	g	B	F	GenX	Tom	NA
## 1190	g	B	F	GenX	Tim	NA
## 1191	g	B	F	Millenial	Tina	NA
## 1192	g	B	F	Millenial	Lorraine	NA
## 1193	g	B	F	Millenial	Dean	NA
## 1194	g	B	F	Millenial	Jamie	NA
## 1195	g	B	F	Millenial	Sherri	NA
## 1196	g	B	F	Millenial	Gloria	NA
## 1197	g	B	F	Millenial	Alfred	NA
## 1198	g	B	F	Millenial	Luis	NA
## 1199	g	B	F	Millenial	Darryl	NA
## 1200	g	B	F	Millenial	Dorothy	NA
## 1201	g	C	M	Boomer	Ray	NA
## 1202	g	C	M	Boomer	Leroy	NA
## 1203	g	C	M	Boomer	Candice	NA
## 1204	g	C	M	Boomer	Bethany	NA
## 1205	g	C	M	Boomer	Kay	NA
## 1206	g	C	M	Boomer	Casey	NA
## 1207	g	C	M	Boomer	Evan	NA
## 1208	g	C	M	Boomer	Gabriel	NA
## 1209	g	C	M	Boomer	Dawn	NA
## 1210	g	C	M	Boomer	Christian	NA
## 1211	g	C	M	GenX	Mildred	NA
## 1212	g	C	M	GenX	Colleen	NA
## 1213	g	C	M	GenX	Greg	NA
## 1214	g	C	M	GenX	Troy	NA
## 1215	g	C	M	GenX	Heidi	NA
## 1216	g	C	M	GenX	Taylor	NA
## 1217	g	C	M	GenX	Dylan	NA
## 1218	g	C	M	GenX	Latoya	NA
## 1219	g	C	M	GenX	Cheyenne	NA
## 1220	g	C	M	GenX	Austin	NA

## 1221	g	C	M	Millenial	Bernard NA
## 1222	g	C	M	Millenial	Jon NA
## 1223	g	C	M	Millenial	Zachary NA
## 1224	g	C	M	Millenial	Chris NA
## 1225	g	C	M	Millenial	Tammy NA
## 1226	g	C	M	Millenial	Brittany NA
## 1227	g	C	M	Millenial	Lauren NA
## 1228	g	C	M	Millenial	Theodore NA
## 1229	g	C	M	Millenial	Jeff NA
## 1230	g	C	M	Millenial	Alexis NA
## 1231	g	C	F	Boomer	Joan NA
## 1232	g	C	F	Boomer	Marc NA
## 1233	g	C	F	Boomer	Melinda NA
## 1234	g	C	F	Boomer	Wesley NA
## 1235	g	C	F	Boomer	Dianne NA
## 1236	g	C	F	Boomer	Seth NA
## 1237	g	C	F	Boomer	Tamara NA
## 1238	g	C	F	Boomer	Herbert NA
## 1239	g	C	F	Boomer	Tracy NA
## 1240	g	C	F	Boomer	Brittney NA
## 1241	g	C	F	GenX	Samantha NA
## 1242	g	C	F	GenX	Eddie NA
## 1243	g	C	F	GenX	Betty NA
## 1244	g	C	F	GenX	Gene NA
## 1245	g	C	F	GenX	Marjorie NA
## 1246	g	C	F	GenX	Shirley NA
## 1247	g	C	F	GenX	Lee NA
## 1248	g	C	F	GenX	Tracey NA
## 1249	g	C	F	GenX	Tom NA
## 1250	g	C	F	GenX	Tim NA
## 1251	g	C	F	Millenial	Tina NA
## 1252	g	C	F	Millenial	Lorraine NA
## 1253	g	C	F	Millenial	Dean NA
## 1254	g	C	F	Millenial	Jamie NA
## 1255	g	C	F	Millenial	Sherri NA
## 1256	g	C	F	Millenial	Gloria NA
## 1257	g	C	F	Millenial	Alfred NA
## 1258	g	C	F	Millenial	Luis NA
## 1259	g	C	F	Millenial	Darryl NA
## 1260	g	C	F	Millenial	Dorothy NA
## 1261	h	A	M	Boomer	Ray NA
## 1262	h	A	M	Boomer	Leroy NA
## 1263	h	A	M	Boomer	Candice NA
## 1264	h	A	M	Boomer	Bethany NA
## 1265	h	A	M	Boomer	Kay NA
## 1266	h	A	M	Boomer	Casey NA
## 1267	h	A	M	Boomer	Evan NA
## 1268	h	A	M	Boomer	Gabriel NA
## 1269	h	A	M	Boomer	Dawn NA
## 1270	h	A	M	Boomer	Christian NA
## 1271	h	A	M	GenX	Mildred NA
## 1272	h	A	M	GenX	Colleen NA
## 1273	h	A	M	GenX	Greg NA
## 1274	h	A	M	GenX	Troy NA

## 1275	h	A	M	GenX	Heidi NA
## 1276	h	A	M	GenX	Taylor NA
## 1277	h	A	M	GenX	Dylan NA
## 1278	h	A	M	GenX	Latoya NA
## 1279	h	A	M	GenX	Cheyenne NA
## 1280	h	A	M	GenX	Austin NA
## 1281	h	A	M	Millenial	Bernard NA
## 1282	h	A	M	Millenial	Jon NA
## 1283	h	A	M	Millenial	Zachary NA
## 1284	h	A	M	Millenial	Chris NA
## 1285	h	A	M	Millenial	Tammy NA
## 1286	h	A	M	Millenial	Brittany NA
## 1287	h	A	M	Millenial	Lauren NA
## 1288	h	A	M	Millenial	Theodore NA
## 1289	h	A	M	Millenial	Jeff NA
## 1290	h	A	M	Millenial	Alexis NA
## 1291	h	A	F	Boomer	Joan NA
## 1292	h	A	F	Boomer	Marc NA
## 1293	h	A	F	Boomer	Melinda NA
## 1294	h	A	F	Boomer	Wesley NA
## 1295	h	A	F	Boomer	Dianne NA
## 1296	h	A	F	Boomer	Seth NA
## 1297	h	A	F	Boomer	Tamara NA
## 1298	h	A	F	Boomer	Herbert NA
## 1299	h	A	F	Boomer	Tracy NA
## 1300	h	A	F	Boomer	Brittney NA
## 1301	h	A	F	GenX	Samantha NA
## 1302	h	A	F	GenX	Eddie NA
## 1303	h	A	F	GenX	Betty NA
## 1304	h	A	F	GenX	Gene NA
## 1305	h	A	F	GenX	Marjorie NA
## 1306	h	A	F	GenX	Shirley NA
## 1307	h	A	F	GenX	Lee NA
## 1308	h	A	F	GenX	Tracey NA
## 1309	h	A	F	GenX	Tom NA
## 1310	h	A	F	GenX	Tim NA
## 1311	h	A	F	Millenial	Tina NA
## 1312	h	A	F	Millenial	Lorraine NA
## 1313	h	A	F	Millenial	Dean NA
## 1314	h	A	F	Millenial	Jamie NA
## 1315	h	A	F	Millenial	Sherri NA
## 1316	h	A	F	Millenial	Gloria NA
## 1317	h	A	F	Millenial	Alfred NA
## 1318	h	A	F	Millenial	Luis NA
## 1319	h	A	F	Millenial	Darryl NA
## 1320	h	A	F	Millenial	Dorothy NA
## 1321	h	B	M	Boomer	Ray NA
## 1322	h	B	M	Boomer	Leroy NA
## 1323	h	B	M	Boomer	Candice NA
## 1324	h	B	M	Boomer	Bethany NA
## 1325	h	B	M	Boomer	Kay NA
## 1326	h	B	M	Boomer	Casey NA
## 1327	h	B	M	Boomer	Evan NA
## 1328	h	B	M	Boomer	Gabriel NA

## 1329	h	B	M	Boomer	Dawn	NA
## 1330	h	B	M	Boomer	Christian	NA
## 1331	h	B	M	GenX	Mildred	NA
## 1332	h	B	M	GenX	Colleen	NA
## 1333	h	B	M	GenX	Greg	NA
## 1334	h	B	M	GenX	Troy	NA
## 1335	h	B	M	GenX	Heidi	NA
## 1336	h	B	M	GenX	Taylor	NA
## 1337	h	B	M	GenX	Dylan	NA
## 1338	h	B	M	GenX	Latoya	NA
## 1339	h	B	M	GenX	Cheyenne	NA
## 1340	h	B	M	GenX	Austin	NA
## 1341	h	B	M	Millennial	Bernard	NA
## 1342	h	B	M	Millennial	Jon	NA
## 1343	h	B	M	Millennial	Zachary	NA
## 1344	h	B	M	Millennial	Chris	NA
## 1345	h	B	M	Millennial	Tammy	NA
## 1346	h	B	M	Millennial	Brittany	NA
## 1347	h	B	M	Millennial	Lauren	NA
## 1348	h	B	M	Millennial	Theodore	NA
## 1349	h	B	M	Millennial	Jeff	NA
## 1350	h	B	M	Millennial	Alexis	NA
## 1351	h	B	F	Boomer	Joan	NA
## 1352	h	B	F	Boomer	Marc	NA
## 1353	h	B	F	Boomer	Melinda	NA
## 1354	h	B	F	Boomer	Wesley	NA
## 1355	h	B	F	Boomer	Dianne	NA
## 1356	h	B	F	Boomer	Seth	NA
## 1357	h	B	F	Boomer	Tamara	NA
## 1358	h	B	F	Boomer	Herbert	NA
## 1359	h	B	F	Boomer	Tracy	NA
## 1360	h	B	F	Boomer	Brittney	NA
## 1361	h	B	F	GenX	Samantha	NA
## 1362	h	B	F	GenX	Eddie	NA
## 1363	h	B	F	GenX	Betty	NA
## 1364	h	B	F	GenX	Gene	NA
## 1365	h	B	F	GenX	Marjorie	NA
## 1366	h	B	F	GenX	Shirley	NA
## 1367	h	B	F	GenX	Lee	NA
## 1368	h	B	F	GenX	Tracey	NA
## 1369	h	B	F	GenX	Tom	NA
## 1370	h	B	F	GenX	Tim	NA
## 1371	h	B	F	Millennial	Tina	NA
## 1372	h	B	F	Millennial	Lorraine	NA
## 1373	h	B	F	Millennial	Dean	NA
## 1374	h	B	F	Millennial	Jamie	NA
## 1375	h	B	F	Millennial	Sherri	NA
## 1376	h	B	F	Millennial	Gloria	NA
## 1377	h	B	F	Millennial	Alfred	NA
## 1378	h	B	F	Millennial	Luis	NA
## 1379	h	B	F	Millennial	Darryl	NA
## 1380	h	B	F	Millennial	Dorothy	NA
## 1381	h	C	M	Boomer	Ray	NA
## 1382	h	C	M	Boomer	Leroy	NA

## 1383	h	C	M	Boomer	Candice	NA
## 1384	h	C	M	Boomer	Bethany	NA
## 1385	h	C	M	Boomer	Kay	NA
## 1386	h	C	M	Boomer	Casey	NA
## 1387	h	C	M	Boomer	Evan	NA
## 1388	h	C	M	Boomer	Gabriel	NA
## 1389	h	C	M	Boomer	Dawn	NA
## 1390	h	C	M	Boomer	Christian	NA
## 1391	h	C	M	GenX	Mildred	NA
## 1392	h	C	M	GenX	Colleen	NA
## 1393	h	C	M	GenX	Greg	NA
## 1394	h	C	M	GenX	Troy	NA
## 1395	h	C	M	GenX	Heidi	NA
## 1396	h	C	M	GenX	Taylor	NA
## 1397	h	C	M	GenX	Dylan	NA
## 1398	h	C	M	GenX	Latoya	NA
## 1399	h	C	M	GenX	Cheyenne	NA
## 1400	h	C	M	GenX	Austin	NA
## 1401	h	C	M	Millenial	Bernard	NA
## 1402	h	C	M	Millenial	Jon	NA
## 1403	h	C	M	Millenial	Zachary	NA
## 1404	h	C	M	Millenial	Chris	NA
## 1405	h	C	M	Millenial	Tammy	NA
## 1406	h	C	M	Millenial	Brittany	NA
## 1407	h	C	M	Millenial	Lauren	NA
## 1408	h	C	M	Millenial	Theodore	NA
## 1409	h	C	M	Millenial	Jeff	NA
## 1410	h	C	M	Millenial	Alexis	NA
## 1411	h	C	F	Boomer	Joan	NA
## 1412	h	C	F	Boomer	Marc	NA
## 1413	h	C	F	Boomer	Melinda	NA
## 1414	h	C	F	Boomer	Wesley	NA
## 1415	h	C	F	Boomer	Dianne	NA
## 1416	h	C	F	Boomer	Seth	NA
## 1417	h	C	F	Boomer	Tamara	NA
## 1418	h	C	F	Boomer	Herbert	NA
## 1419	h	C	F	Boomer	Tracy	NA
## 1420	h	C	F	Boomer	Brittney	NA
## 1421	h	C	F	GenX	Samantha	NA
## 1422	h	C	F	GenX	Eddie	NA
## 1423	h	C	F	GenX	Betty	NA
## 1424	h	C	F	GenX	Gene	NA
## 1425	h	C	F	GenX	Marjorie	NA
## 1426	h	C	F	GenX	Shirley	NA
## 1427	h	C	F	GenX	Lee	NA
## 1428	h	C	F	GenX	Tracey	NA
## 1429	h	C	F	GenX	Tom	NA
## 1430	h	C	F	GenX	Tim	NA
## 1431	h	C	F	Millenial	Tina	NA
## 1432	h	C	F	Millenial	Lorraine	NA
## 1433	h	C	F	Millenial	Dean	NA
## 1434	h	C	F	Millenial	Jamie	NA
## 1435	h	C	F	Millenial	Sherri	NA
## 1436	h	C	F	Millenial	Gloria	NA

## 1437	h	C	F	Millenial	Alfred	NA
## 1438	h	C	F	Millenial	Luis	NA
## 1439	h	C	F	Millenial	Darryl	NA
## 1440	h	C	F	Millenial	Dorothy	NA
## 1441	i	A	M	Boomer	Ray	NA
## 1442	i	A	M	Boomer	Leroy	NA
## 1443	i	A	M	Boomer	Candice	NA
## 1444	i	A	M	Boomer	Bethany	NA
## 1445	i	A	M	Boomer	Kay	NA
## 1446	i	A	M	Boomer	Casey	NA
## 1447	i	A	M	Boomer	Evan	NA
## 1448	i	A	M	Boomer	Gabriel	NA
## 1449	i	A	M	Boomer	Dawn	NA
## 1450	i	A	M	Boomer	Christian	NA
## 1451	i	A	M	GenX	Mildred	NA
## 1452	i	A	M	GenX	Colleen	NA
## 1453	i	A	M	GenX	Greg	NA
## 1454	i	A	M	GenX	Troy	NA
## 1455	i	A	M	GenX	Heidi	NA
## 1456	i	A	M	GenX	Taylor	NA
## 1457	i	A	M	GenX	Dylan	NA
## 1458	i	A	M	GenX	Latoya	NA
## 1459	i	A	M	GenX	Cheyenne	NA
## 1460	i	A	M	GenX	Austin	NA
## 1461	i	A	M	Millenial	Bernard	NA
## 1462	i	A	M	Millenial	Jon	NA
## 1463	i	A	M	Millenial	Zachary	NA
## 1464	i	A	M	Millenial	Chris	NA
## 1465	i	A	M	Millenial	Tammy	NA
## 1466	i	A	M	Millenial	Brittany	NA
## 1467	i	A	M	Millenial	Lauren	NA
## 1468	i	A	M	Millenial	Theodore	NA
## 1469	i	A	M	Millenial	Jeff	NA
## 1470	i	A	M	Millenial	Alexis	NA
## 1471	i	A	F	Boomer	Joan	NA
## 1472	i	A	F	Boomer	Marc	NA
## 1473	i	A	F	Boomer	Melinda	NA
## 1474	i	A	F	Boomer	Wesley	NA
## 1475	i	A	F	Boomer	Dianne	NA
## 1476	i	A	F	Boomer	Seth	NA
## 1477	i	A	F	Boomer	Tamara	NA
## 1478	i	A	F	Boomer	Herbert	NA
## 1479	i	A	F	Boomer	Tracy	NA
## 1480	i	A	F	Boomer	Brittney	NA
## 1481	i	A	F	GenX	Samantha	NA
## 1482	i	A	F	GenX	Eddie	NA
## 1483	i	A	F	GenX	Betty	NA
## 1484	i	A	F	GenX	Gene	NA
## 1485	i	A	F	GenX	Marjorie	NA
## 1486	i	A	F	GenX	Shirley	NA
## 1487	i	A	F	GenX	Lee	NA
## 1488	i	A	F	GenX	Tracey	NA
## 1489	i	A	F	GenX	Tom	NA
## 1490	i	A	F	GenX	Tim	NA

## 1491	i	A	F	Millenial	Tina	NA
## 1492	i	A	F	Millenial	Lorraine	NA
## 1493	i	A	F	Millenial	Dean	NA
## 1494	i	A	F	Millenial	Jamie	NA
## 1495	i	A	F	Millenial	Sherri	NA
## 1496	i	A	F	Millenial	Gloria	NA
## 1497	i	A	F	Millenial	Alfred	NA
## 1498	i	A	F	Millenial	Luis	NA
## 1499	i	A	F	Millenial	Darryl	NA
## 1500	i	A	F	Millenial	Dorothy	NA
## 1501	i	B	M	Boomer	Ray	NA
## 1502	i	B	M	Boomer	Leroy	NA
## 1503	i	B	M	Boomer	Candice	NA
## 1504	i	B	M	Boomer	Bethany	NA
## 1505	i	B	M	Boomer	Kay	NA
## 1506	i	B	M	Boomer	Casey	NA
## 1507	i	B	M	Boomer	Evan	NA
## 1508	i	B	M	Boomer	Gabriel	NA
## 1509	i	B	M	Boomer	Dawn	NA
## 1510	i	B	M	Boomer	Christian	NA
## 1511	i	B	M	GenX	Mildred	NA
## 1512	i	B	M	GenX	Colleen	NA
## 1513	i	B	M	GenX	Greg	NA
## 1514	i	B	M	GenX	Troy	NA
## 1515	i	B	M	GenX	Heidi	NA
## 1516	i	B	M	GenX	Taylor	NA
## 1517	i	B	M	GenX	Dylan	NA
## 1518	i	B	M	GenX	Latoya	NA
## 1519	i	B	M	GenX	Cheyenne	NA
## 1520	i	B	M	GenX	Austin	NA
## 1521	i	B	M	Millenial	Bernard	NA
## 1522	i	B	M	Millenial	Jon	NA
## 1523	i	B	M	Millenial	Zachary	NA
## 1524	i	B	M	Millenial	Chris	NA
## 1525	i	B	M	Millenial	Tammy	NA
## 1526	i	B	M	Millenial	Brittany	NA
## 1527	i	B	M	Millenial	Lauren	NA
## 1528	i	B	M	Millenial	Theodore	NA
## 1529	i	B	M	Millenial	Jeff	NA
## 1530	i	B	M	Millenial	Alexis	NA
## 1531	i	B	F	Boomer	Joan	NA
## 1532	i	B	F	Boomer	Marc	NA
## 1533	i	B	F	Boomer	Melinda	NA
## 1534	i	B	F	Boomer	Wesley	NA
## 1535	i	B	F	Boomer	Dianne	NA
## 1536	i	B	F	Boomer	Seth	NA
## 1537	i	B	F	Boomer	Tamara	NA
## 1538	i	B	F	Boomer	Herbert	NA
## 1539	i	B	F	Boomer	Tracy	NA
## 1540	i	B	F	Boomer	Brittney	NA
## 1541	i	B	F	GenX	Samantha	NA
## 1542	i	B	F	GenX	Eddie	NA
## 1543	i	B	F	GenX	Betty	NA
## 1544	i	B	F	GenX	Gene	NA

## 1545	i	B	F	GenX	Marjorie	NA
## 1546	i	B	F	GenX	Shirley	NA
## 1547	i	B	F	GenX	Lee	NA
## 1548	i	B	F	GenX	Tracey	NA
## 1549	i	B	F	GenX	Tom	NA
## 1550	i	B	F	GenX	Tim	NA
## 1551	i	B	F	Millenial	Tina	NA
## 1552	i	B	F	Millenial	Lorraine	NA
## 1553	i	B	F	Millenial	Dean	NA
## 1554	i	B	F	Millenial	Jamie	NA
## 1555	i	B	F	Millenial	Sherri	NA
## 1556	i	B	F	Millenial	Gloria	NA
## 1557	i	B	F	Millenial	Alfred	NA
## 1558	i	B	F	Millenial	Luis	NA
## 1559	i	B	F	Millenial	Darryl	NA
## 1560	i	B	F	Millenial	Dorothy	NA
## 1561	i	C	M	Boomer	Ray	NA
## 1562	i	C	M	Boomer	Leroy	NA
## 1563	i	C	M	Boomer	Candice	NA
## 1564	i	C	M	Boomer	Bethany	NA
## 1565	i	C	M	Boomer	Kay	NA
## 1566	i	C	M	Boomer	Casey	NA
## 1567	i	C	M	Boomer	Evan	NA
## 1568	i	C	M	Boomer	Gabriel	NA
## 1569	i	C	M	Boomer	Dawn	NA
## 1570	i	C	M	Boomer	Christian	NA
## 1571	i	C	M	GenX	Mildred	NA
## 1572	i	C	M	GenX	Colleen	NA
## 1573	i	C	M	GenX	Greg	NA
## 1574	i	C	M	GenX	Troy	NA
## 1575	i	C	M	GenX	Heidi	NA
## 1576	i	C	M	GenX	Taylor	NA
## 1577	i	C	M	GenX	Dylan	NA
## 1578	i	C	M	GenX	Latoya	NA
## 1579	i	C	M	GenX	Cheyenne	NA
## 1580	i	C	M	GenX	Austin	NA
## 1581	i	C	M	Millenial	Bernard	NA
## 1582	i	C	M	Millenial	Jon	NA
## 1583	i	C	M	Millenial	Zachary	NA
## 1584	i	C	M	Millenial	Chris	NA
## 1585	i	C	M	Millenial	Tammy	NA
## 1586	i	C	M	Millenial	Brittany	NA
## 1587	i	C	M	Millenial	Lauren	NA
## 1588	i	C	M	Millenial	Theodore	NA
## 1589	i	C	M	Millenial	Jeff	NA
## 1590	i	C	M	Millenial	Alexis	NA
## 1591	i	C	F	Boomer	Joan	NA
## 1592	i	C	F	Boomer	Marc	NA
## 1593	i	C	F	Boomer	Melinda	NA
## 1594	i	C	F	Boomer	Wesley	NA
## 1595	i	C	F	Boomer	Dianne	NA
## 1596	i	C	F	Boomer	Seth	NA
## 1597	i	C	F	Boomer	Tamara	NA
## 1598	i	C	F	Boomer	Herbert	NA



## 1599	i	C	F	Boomer	Tracy NA
## 1600	i	C	F	Boomer	Brittney NA
## 1601	i	C	F	GenX	Samantha NA
## 1602	i	C	F	GenX	Eddie NA
## 1603	i	C	F	GenX	Betty NA
## 1604	i	C	F	GenX	Gene NA
## 1605	i	C	F	GenX	Marjorie NA
## 1606	i	C	F	GenX	Shirley NA
## 1607	i	C	F	GenX	Lee NA
## 1608	i	C	F	GenX	Tracey NA
## 1609	i	C	F	GenX	Tom NA
## 1610	i	C	F	GenX	Tim NA
## 1611	i	C	F	Millenial	Tina NA
## 1612	i	C	F	Millenial	Lorraine NA
## 1613	i	C	F	Millenial	Dean NA
## 1614	i	C	F	Millenial	Jamie NA
## 1615	i	C	F	Millenial	Sherri NA
## 1616	i	C	F	Millenial	Gloria NA
## 1617	i	C	F	Millenial	Alfred NA
## 1618	i	C	F	Millenial	Luis NA
## 1619	i	C	F	Millenial	Darryl NA
## 1620	i	C	F	Millenial	Dorothy NA
## 1621	j	A	M	Boomer	Ray NA
## 1622	j	A	M	Boomer	Leroy NA
## 1623	j	A	M	Boomer	Candice NA
## 1624	j	A	M	Boomer	Bethany NA
## 1625	j	A	M	Boomer	Kay NA
## 1626	j	A	M	Boomer	Casey NA
## 1627	j	A	M	Boomer	Evan NA
## 1628	j	A	M	Boomer	Gabriel NA
## 1629	j	A	M	Boomer	Dawn NA
## 1630	j	A	M	Boomer	Christian NA
## 1631	j	A	M	GenX	Mildred NA
## 1632	j	A	M	GenX	Colleen NA
## 1633	j	A	M	GenX	Greg NA
## 1634	j	A	M	GenX	Troy NA
## 1635	j	A	M	GenX	Heidi NA
## 1636	j	A	M	GenX	Taylor NA
## 1637	j	A	M	GenX	Dylan NA
## 1638	j	A	M	GenX	Latoya NA
## 1639	j	A	M	GenX	Cheyenne NA
## 1640	j	A	M	GenX	Austin NA
## 1641	j	A	M	Millenial	Bernard NA
## 1642	j	A	M	Millenial	Jon NA
## 1643	j	A	M	Millenial	Zachary NA
## 1644	j	A	M	Millenial	Chris NA
## 1645	j	A	M	Millenial	Tammy NA
## 1646	j	A	M	Millenial	Brittany NA
## 1647	j	A	M	Millenial	Lauren NA
## 1648	j	A	M	Millenial	Theodore NA
## 1649	j	A	M	Millenial	Jeff NA
## 1650	j	A	M	Millenial	Alexis NA
## 1651	j	A	F	Boomer	Joan NA
## 1652	j	A	F	Boomer	Marc NA

## 1653	j	A	F	Boomer	Melinda	NA
## 1654	j	A	F	Boomer	Wesley	NA
## 1655	j	A	F	Boomer	Dianne	NA
## 1656	j	A	F	Boomer	Seth	NA
## 1657	j	A	F	Boomer	Tamara	NA
## 1658	j	A	F	Boomer	Herbert	NA
## 1659	j	A	F	Boomer	Tracy	NA
## 1660	j	A	F	Boomer	Brittney	NA
## 1661	j	A	F	GenX	Samantha	NA
## 1662	j	A	F	GenX	Eddie	NA
## 1663	j	A	F	GenX	Betty	NA
## 1664	j	A	F	GenX	Gene	NA
## 1665	j	A	F	GenX	Marjorie	NA
## 1666	j	A	F	GenX	Shirley	NA
## 1667	j	A	F	GenX	Lee	NA
## 1668	j	A	F	GenX	Tracey	NA
## 1669	j	A	F	GenX	Tom	NA
## 1670	j	A	F	GenX	Tim	NA
## 1671	j	A	F	Millenial	Tina	NA
## 1672	j	A	F	Millenial	Lorraine	NA
## 1673	j	A	F	Millenial	Dean	NA
## 1674	j	A	F	Millenial	Jamie	NA
## 1675	j	A	F	Millenial	Sherri	NA
## 1676	j	A	F	Millenial	Gloria	NA
## 1677	j	A	F	Millenial	Alfred	NA
## 1678	j	A	F	Millenial	Luis	NA
## 1679	j	A	F	Millenial	Darryl	NA
## 1680	j	A	F	Millenial	Dorothy	NA
## 1681	j	B	M	Boomer	Ray	NA
## 1682	j	B	M	Boomer	Leroy	NA
## 1683	j	B	M	Boomer	Candice	NA
## 1684	j	B	M	Boomer	Bethany	NA
## 1685	j	B	M	Boomer	Kay	NA
## 1686	j	B	M	Boomer	Casey	NA
## 1687	j	B	M	Boomer	Evan	NA
## 1688	j	B	M	Boomer	Gabriel	NA
## 1689	j	B	M	Boomer	Dawn	NA
## 1690	j	B	M	Boomer	Christian	NA
## 1691	j	B	M	GenX	Mildred	NA
## 1692	j	B	M	GenX	Colleen	NA
## 1693	j	B	M	GenX	Greg	NA
## 1694	j	B	M	GenX	Troy	NA
## 1695	j	B	M	GenX	Heidi	NA
## 1696	j	B	M	GenX	Taylor	NA
## 1697	j	B	M	GenX	Dylan	NA
## 1698	j	B	M	GenX	Latoya	NA
## 1699	j	B	M	GenX	Cheyenne	NA
## 1700	j	B	M	GenX	Austin	NA
## 1701	j	B	M	Millenial	Bernard	NA
## 1702	j	B	M	Millenial	Jon	NA
## 1703	j	B	M	Millenial	Zachary	NA
## 1704	j	B	M	Millenial	Chris	NA
## 1705	j	B	M	Millenial	Tammy	NA
## 1706	j	B	M	Millenial	Brittany	NA

## 1707	j	B	M	Millenial	Lauren	NA
## 1708	j	B	M	Millenial	Theodore	NA
## 1709	j	B	M	Millenial	Jeff	NA
## 1710	j	B	M	Millenial	Alexis	NA
## 1711	j	B	F	Boomer	Joan	NA
## 1712	j	B	F	Boomer	Marc	NA
## 1713	j	B	F	Boomer	Melinda	NA
## 1714	j	B	F	Boomer	Wesley	NA
## 1715	j	B	F	Boomer	Dianne	NA
## 1716	j	B	F	Boomer	Seth	NA
## 1717	j	B	F	Boomer	Tamara	NA
## 1718	j	B	F	Boomer	Herbert	NA
## 1719	j	B	F	Boomer	Tracy	NA
## 1720	j	B	F	Boomer	Brittney	NA
## 1721	j	B	F	GenX	Samantha	NA
## 1722	j	B	F	GenX	Eddie	NA
## 1723	j	B	F	GenX	Betty	NA
## 1724	j	B	F	GenX	Gene	NA
## 1725	j	B	F	GenX	Marjorie	NA
## 1726	j	B	F	GenX	Shirley	NA
## 1727	j	B	F	GenX	Lee	NA
## 1728	j	B	F	GenX	Tracey	NA
## 1729	j	B	F	GenX	Tom	NA
## 1730	j	B	F	GenX	Tim	NA
## 1731	j	B	F	Millenial	Tina	NA
## 1732	j	B	F	Millenial	Lorraine	NA
## 1733	j	B	F	Millenial	Dean	NA
## 1734	j	B	F	Millenial	Jamie	NA
## 1735	j	B	F	Millenial	Sherri	NA
## 1736	j	B	F	Millenial	Gloria	NA
## 1737	j	B	F	Millenial	Alfred	NA
## 1738	j	B	F	Millenial	Luis	NA
## 1739	j	B	F	Millenial	Darryl	NA
## 1740	j	B	F	Millenial	Dorothy	NA
## 1741	j	C	M	Boomer	Ray	NA
## 1742	j	C	M	Boomer	Leroy	NA
## 1743	j	C	M	Boomer	Candice	NA
## 1744	j	C	M	Boomer	Bethany	NA
## 1745	j	C	M	Boomer	Kay	NA
## 1746	j	C	M	Boomer	Casey	NA
## 1747	j	C	M	Boomer	Evan	NA
## 1748	j	C	M	Boomer	Gabriel	NA
## 1749	j	C	M	Boomer	Dawn	NA
## 1750	j	C	M	Boomer	Christian	NA
## 1751	j	C	M	GenX	Mildred	NA
## 1752	j	C	M	GenX	Colleen	NA
## 1753	j	C	M	GenX	Greg	NA
## 1754	j	C	M	GenX	Troy	NA
## 1755	j	C	M	GenX	Heidi	NA
## 1756	j	C	M	GenX	Taylor	NA
## 1757	j	C	M	GenX	Dylan	NA
## 1758	j	C	M	GenX	Latoya	NA
## 1759	j	C	M	GenX	Cheyenne	NA
## 1760	j	C	M	GenX	Austin	NA

## 1761	j	C	M	Millenial	Bernard NA
## 1762	j	C	M	Millenial	Jon NA
## 1763	j	C	M	Millenial	Zachary NA
## 1764	j	C	M	Millenial	Chris NA
## 1765	j	C	M	Millenial	Tammy NA
## 1766	j	C	M	Millenial	Brittany NA
## 1767	j	C	M	Millenial	Lauren NA
## 1768	j	C	M	Millenial	Theodore NA
## 1769	j	C	M	Millenial	Jeff NA
## 1770	j	C	M	Millenial	Alexis NA
## 1771	j	C	F	Boomer	Joan NA
## 1772	j	C	F	Boomer	Marc NA
## 1773	j	C	F	Boomer	Melinda NA
## 1774	j	C	F	Boomer	Wesley NA
## 1775	j	C	F	Boomer	Dianne NA
## 1776	j	C	F	Boomer	Seth NA
## 1777	j	C	F	Boomer	Tamara NA
## 1778	j	C	F	Boomer	Herbert NA
## 1779	j	C	F	Boomer	Tracy NA
## 1780	j	C	F	Boomer	Brittney NA
## 1781	j	C	F	GenX	Samantha NA
## 1782	j	C	F	GenX	Eddie NA
## 1783	j	C	F	GenX	Betty NA
## 1784	j	C	F	GenX	Gene NA
## 1785	j	C	F	GenX	Marjorie NA
## 1786	j	C	F	GenX	Shirley NA
## 1787	j	C	F	GenX	Lee NA
## 1788	j	C	F	GenX	Tracey NA
## 1789	j	C	F	GenX	Tom NA
## 1790	j	C	F	GenX	Tim NA
## 1791	j	C	F	Millenial	Tina NA
## 1792	j	C	F	Millenial	Lorraine NA
## 1793	j	C	F	Millenial	Dean NA
## 1794	j	C	F	Millenial	Jamie NA
## 1795	j	C	F	Millenial	Sherri NA
## 1796	j	C	F	Millenial	Gloria NA
## 1797	j	C	F	Millenial	Alfred NA
## 1798	j	C	F	Millenial	Luis NA
## 1799	j	C	F	Millenial	Darryl NA
## 1800	j	C	F	Millenial	Dorothy NA
## 1801	k	A	M	Boomer	Ray NA
## 1802	k	A	M	Boomer	Leroy NA
## 1803	k	A	M	Boomer	Candice NA
## 1804	k	A	M	Boomer	Bethany NA
## 1805	k	A	M	Boomer	Kay NA
## 1806	k	A	M	Boomer	Casey NA
## 1807	k	A	M	Boomer	Evan NA
## 1808	k	A	M	Boomer	Gabriel NA
## 1809	k	A	M	Boomer	Dawn NA
## 1810	k	A	M	Boomer	Christian NA
## 1811	k	A	M	GenX	Mildred NA
## 1812	k	A	M	GenX	Colleen NA
## 1813	k	A	M	GenX	Greg NA
## 1814	k	A	M	GenX	Troy NA

## 1815	k	A	M	GenX	Heidi NA
## 1816	k	A	M	GenX	Taylor NA
## 1817	k	A	M	GenX	Dylan NA
## 1818	k	A	M	GenX	Latoya NA
## 1819	k	A	M	GenX	Cheyenne NA
## 1820	k	A	M	GenX	Austin NA
## 1821	k	A	M	Millenial	Bernard NA
## 1822	k	A	M	Millenial	Jon NA
## 1823	k	A	M	Millenial	Zachary NA
## 1824	k	A	M	Millenial	Chris NA
## 1825	k	A	M	Millenial	Tammy NA
## 1826	k	A	M	Millenial	Brittany NA
## 1827	k	A	M	Millenial	Lauren NA
## 1828	k	A	M	Millenial	Theodore NA
## 1829	k	A	M	Millenial	Jeff NA
## 1830	k	A	M	Millenial	Alexis NA
## 1831	k	A	F	Boomer	Joan NA
## 1832	k	A	F	Boomer	Marc NA
## 1833	k	A	F	Boomer	Melinda NA
## 1834	k	A	F	Boomer	Wesley NA
## 1835	k	A	F	Boomer	Dianne NA
## 1836	k	A	F	Boomer	Seth NA
## 1837	k	A	F	Boomer	Tamara NA
## 1838	k	A	F	Boomer	Herbert NA
## 1839	k	A	F	Boomer	Tracy NA
## 1840	k	A	F	Boomer	Brittney NA
## 1841	k	A	F	GenX	Samantha NA
## 1842	k	A	F	GenX	Eddie NA
## 1843	k	A	F	GenX	Betty NA
## 1844	k	A	F	GenX	Gene NA
## 1845	k	A	F	GenX	Marjorie NA
## 1846	k	A	F	GenX	Shirley NA
## 1847	k	A	F	GenX	Lee NA
## 1848	k	A	F	GenX	Tracey NA
## 1849	k	A	F	GenX	Tom NA
## 1850	k	A	F	GenX	Tim NA
## 1851	k	A	F	Millenial	Tina NA
## 1852	k	A	F	Millenial	Lorraine NA
## 1853	k	A	F	Millenial	Dean NA
## 1854	k	A	F	Millenial	Jamie NA
## 1855	k	A	F	Millenial	Sherri NA
## 1856	k	A	F	Millenial	Gloria NA
## 1857	k	A	F	Millenial	Alfred NA
## 1858	k	A	F	Millenial	Luis NA
## 1859	k	A	F	Millenial	Darryl NA
## 1860	k	A	F	Millenial	Dorothy NA
## 1861	k	B	M	Boomer	Ray NA
## 1862	k	B	M	Boomer	Leroy NA
## 1863	k	B	M	Boomer	Candice NA
## 1864	k	B	M	Boomer	Bethany NA
## 1865	k	B	M	Boomer	Kay NA
## 1866	k	B	M	Boomer	Casey NA
## 1867	k	B	M	Boomer	Evan NA
## 1868	k	B	M	Boomer	Gabriel NA

## 1869	k	B	M	Boomer	Dawn	NA
## 1870	k	B	M	Boomer	Christian	NA
## 1871	k	B	M	GenX	Mildred	NA
## 1872	k	B	M	GenX	Colleen	NA
## 1873	k	B	M	GenX	Greg	NA
## 1874	k	B	M	GenX	Troy	NA
## 1875	k	B	M	GenX	Heidi	NA
## 1876	k	B	M	GenX	Taylor	NA
## 1877	k	B	M	GenX	Dylan	NA
## 1878	k	B	M	GenX	Latoya	NA
## 1879	k	B	M	GenX	Cheyenne	NA
## 1880	k	B	M	GenX	Austin	NA
## 1881	k	B	M	Millenial	Bernard	NA
## 1882	k	B	M	Millenial	Jon	NA
## 1883	k	B	M	Millenial	Zachary	NA
## 1884	k	B	M	Millenial	Chris	NA
## 1885	k	B	M	Millenial	Tammy	NA
## 1886	k	B	M	Millenial	Brittany	NA
## 1887	k	B	M	Millenial	Lauren	NA
## 1888	k	B	M	Millenial	Theodore	NA
## 1889	k	B	M	Millenial	Jeff	NA
## 1890	k	B	M	Millenial	Alexis	NA
## 1891	k	B	F	Boomer	Joan	NA
## 1892	k	B	F	Boomer	Marc	NA
## 1893	k	B	F	Boomer	Melinda	NA
## 1894	k	B	F	Boomer	Wesley	NA
## 1895	k	B	F	Boomer	Dianne	NA
## 1896	k	B	F	Boomer	Seth	NA
## 1897	k	B	F	Boomer	Tamara	NA
## 1898	k	B	F	Boomer	Herbert	NA
## 1899	k	B	F	Boomer	Tracy	NA
## 1900	k	B	F	Boomer	Brittney	NA
## 1901	k	B	F	GenX	Samantha	NA
## 1902	k	B	F	GenX	Eddie	NA
## 1903	k	B	F	GenX	Betty	NA
## 1904	k	B	F	GenX	Gene	NA
## 1905	k	B	F	GenX	Marjorie	NA
## 1906	k	B	F	GenX	Shirley	NA
## 1907	k	B	F	GenX	Lee	NA
## 1908	k	B	F	GenX	Tracey	NA
## 1909	k	B	F	GenX	Tom	NA
## 1910	k	B	F	GenX	Tim	NA
## 1911	k	B	F	Millenial	Tina	NA
## 1912	k	B	F	Millenial	Lorraine	NA
## 1913	k	B	F	Millenial	Dean	NA
## 1914	k	B	F	Millenial	Jamie	NA
## 1915	k	B	F	Millenial	Sherri	NA
## 1916	k	B	F	Millenial	Gloria	NA
## 1917	k	B	F	Millenial	Alfred	NA
## 1918	k	B	F	Millenial	Luis	NA
## 1919	k	B	F	Millenial	Darryl	NA
## 1920	k	B	F	Millenial	Dorothy	NA
## 1921	k	C	M	Boomer	Ray	NA
## 1922	k	C	M	Boomer	Leroy	NA

## 1923	k	C	M	Boomer	Candice	NA
## 1924	k	C	M	Boomer	Bethany	NA
## 1925	k	C	M	Boomer	Kay	NA
## 1926	k	C	M	Boomer	Casey	NA
## 1927	k	C	M	Boomer	Evan	NA
## 1928	k	C	M	Boomer	Gabriel	NA
## 1929	k	C	M	Boomer	Dawn	NA
## 1930	k	C	M	Boomer	Christian	NA
## 1931	k	C	M	GenX	Mildred	NA
## 1932	k	C	M	GenX	Colleen	NA
## 1933	k	C	M	GenX	Greg	NA
## 1934	k	C	M	GenX	Troy	NA
## 1935	k	C	M	GenX	Heidi	NA
## 1936	k	C	M	GenX	Taylor	NA
## 1937	k	C	M	GenX	Dylan	NA
## 1938	k	C	M	GenX	Latoya	NA
## 1939	k	C	M	GenX	Cheyenne	NA
## 1940	k	C	M	GenX	Austin	NA
## 1941	k	C	M	Millenial	Bernard	NA
## 1942	k	C	M	Millenial	Jon	NA
## 1943	k	C	M	Millenial	Zachary	NA
## 1944	k	C	M	Millenial	Chris	NA
## 1945	k	C	M	Millenial	Tammy	NA
## 1946	k	C	M	Millenial	Brittany	NA
## 1947	k	C	M	Millenial	Lauren	NA
## 1948	k	C	M	Millenial	Theodore	NA
## 1949	k	C	M	Millenial	Jeff	NA
## 1950	k	C	M	Millenial	Alexis	NA
## 1951	k	C	F	Boomer	Joan	NA
## 1952	k	C	F	Boomer	Marc	NA
## 1953	k	C	F	Boomer	Melinda	NA
## 1954	k	C	F	Boomer	Wesley	NA
## 1955	k	C	F	Boomer	Dianne	NA
## 1956	k	C	F	Boomer	Seth	NA
## 1957	k	C	F	Boomer	Tamara	NA
## 1958	k	C	F	Boomer	Herbert	NA
## 1959	k	C	F	Boomer	Tracy	NA
## 1960	k	C	F	Boomer	Brittney	NA
## 1961	k	C	F	GenX	Samantha	NA
## 1962	k	C	F	GenX	Eddie	NA
## 1963	k	C	F	GenX	Betty	NA
## 1964	k	C	F	GenX	Gene	NA
## 1965	k	C	F	GenX	Marjorie	NA
## 1966	k	C	F	GenX	Shirley	NA
## 1967	k	C	F	GenX	Lee	NA
## 1968	k	C	F	GenX	Tracey	NA
## 1969	k	C	F	GenX	Tom	NA
## 1970	k	C	F	GenX	Tim	NA
## 1971	k	C	F	Millenial	Tina	NA
## 1972	k	C	F	Millenial	Lorraine	NA
## 1973	k	C	F	Millenial	Dean	NA
## 1974	k	C	F	Millenial	Jamie	NA
## 1975	k	C	F	Millenial	Sherri	NA
## 1976	k	C	F	Millenial	Gloria	NA

## 1977	k	C	F	Millennial	Alfred	NA
## 1978	k	C	F	Millennial	Luis	NA
## 1979	k	C	F	Millennial	Darryl	NA
## 1980	k	C	F	Millennial	Dorothy	NA
## 1981	l	A	M	Boomer	Ray	NA
## 1982	l	A	M	Boomer	Leroy	NA
## 1983	l	A	M	Boomer	Candice	NA
## 1984	l	A	M	Boomer	Bethany	NA
## 1985	l	A	M	Boomer	Kay	NA
## 1986	l	A	M	Boomer	Casey	NA
## 1987	l	A	M	Boomer	Evan	NA
## 1988	l	A	M	Boomer	Gabriel	NA
## 1989	l	A	M	Boomer	Dawn	NA
## 1990	l	A	M	Boomer	Christian	NA
## 1991	l	A	M	GenX	Mildred	NA
## 1992	l	A	M	GenX	Colleen	NA
## 1993	l	A	M	GenX	Greg	NA
## 1994	l	A	M	GenX	Troy	NA
## 1995	l	A	M	GenX	Heidi	NA
## 1996	l	A	M	GenX	Taylor	NA
## 1997	l	A	M	GenX	Dylan	NA
## 1998	l	A	M	GenX	Latoya	NA
## 1999	l	A	M	GenX	Cheyenne	NA
## 2000	l	A	M	GenX	Austin	NA
## 2001	l	A	M	Millennial	Bernard	NA
## 2002	l	A	M	Millennial	Jon	NA
## 2003	l	A	M	Millennial	Zachary	NA
## 2004	l	A	M	Millennial	Chris	NA
## 2005	l	A	M	Millennial	Tammy	NA
## 2006	l	A	M	Millennial	Brittany	NA
## 2007	l	A	M	Millennial	Lauren	NA
## 2008	l	A	M	Millennial	Theodore	NA
## 2009	l	A	M	Millennial	Jeff	NA
## 2010	l	A	M	Millennial	Alexis	NA
## 2011	l	A	F	Boomer	Joan	NA
## 2012	l	A	F	Boomer	Marc	NA
## 2013	l	A	F	Boomer	Melinda	NA
## 2014	l	A	F	Boomer	Wesley	NA
## 2015	l	A	F	Boomer	Dianne	NA
## 2016	l	A	F	Boomer	Seth	NA
## 2017	l	A	F	Boomer	Tamara	NA
## 2018	l	A	F	Boomer	Herbert	NA
## 2019	l	A	F	Boomer	Tracy	NA
## 2020	l	A	F	Boomer	Brittney	NA
## 2021	l	A	F	GenX	Samantha	NA
## 2022	l	A	F	GenX	Eddie	NA
## 2023	l	A	F	GenX	Betty	NA
## 2024	l	A	F	GenX	Gene	NA
## 2025	l	A	F	GenX	Marjorie	NA
## 2026	l	A	F	GenX	Shirley	NA
## 2027	l	A	F	GenX	Lee	NA
## 2028	l	A	F	GenX	Tracey	NA
## 2029	l	A	F	GenX	Tom	NA
## 2030	l	A	F	GenX	Tim	NA



## 2031	1	A	F	Millenial	Tina	NA
## 2032	1	A	F	Millenial	Lorraine	NA
## 2033	1	A	F	Millenial	Dean	NA
## 2034	1	A	F	Millenial	Jamie	NA
## 2035	1	A	F	Millenial	Sherri	NA
## 2036	1	A	F	Millenial	Gloria	NA
## 2037	1	A	F	Millenial	Alfred	NA
## 2038	1	A	F	Millenial	Luis	NA
## 2039	1	A	F	Millenial	Darryl	NA
## 2040	1	A	F	Millenial	Dorothy	NA
## 2041	1	B	M	Boomer	Ray	NA
## 2042	1	B	M	Boomer	Leroy	NA
## 2043	1	B	M	Boomer	Candice	NA
## 2044	1	B	M	Boomer	Bethany	NA
## 2045	1	B	M	Boomer	Kay	NA
## 2046	1	B	M	Boomer	Casey	NA
## 2047	1	B	M	Boomer	Evan	NA
## 2048	1	B	M	Boomer	Gabriel	NA
## 2049	1	B	M	Boomer	Dawn	NA
## 2050	1	B	M	Boomer	Christian	NA
## 2051	1	B	M	GenX	Mildred	NA
## 2052	1	B	M	GenX	Colleen	NA
## 2053	1	B	M	GenX	Greg	NA
## 2054	1	B	M	GenX	Troy	NA
## 2055	1	B	M	GenX	Heidi	NA
## 2056	1	B	M	GenX	Taylor	NA
## 2057	1	B	M	GenX	Dylan	NA
## 2058	1	B	M	GenX	Latoya	NA
## 2059	1	B	M	GenX	Cheyenne	NA
## 2060	1	B	M	GenX	Austin	NA
## 2061	1	B	M	Millenial	Bernard	NA
## 2062	1	B	M	Millenial	Jon	NA
## 2063	1	B	M	Millenial	Zachary	NA
## 2064	1	B	M	Millenial	Chris	NA
## 2065	1	B	M	Millenial	Tammy	NA
## 2066	1	B	M	Millenial	Brittany	NA
## 2067	1	B	M	Millenial	Lauren	NA
## 2068	1	B	M	Millenial	Theodore	NA
## 2069	1	B	M	Millenial	Jeff	NA
## 2070	1	B	M	Millenial	Alexis	NA
## 2071	1	B	F	Boomer	Joan	NA
## 2072	1	B	F	Boomer	Marc	NA
## 2073	1	B	F	Boomer	Melinda	NA
## 2074	1	B	F	Boomer	Wesley	NA
## 2075	1	B	F	Boomer	Dianne	NA
## 2076	1	B	F	Boomer	Seth	NA
## 2077	1	B	F	Boomer	Tamara	NA
## 2078	1	B	F	Boomer	Herbert	NA
## 2079	1	B	F	Boomer	Tracy	NA
## 2080	1	B	F	Boomer	Brittney	NA
## 2081	1	B	F	GenX	Samantha	NA
## 2082	1	B	F	GenX	Eddie	NA
## 2083	1	B	F	GenX	Betty	NA
## 2084	1	B	F	GenX	Gene	NA

## 2085	1	B	F	GenX	Marjorie	NA
## 2086	1	B	F	GenX	Shirley	NA
## 2087	1	B	F	GenX	Lee	NA
## 2088	1	B	F	GenX	Tracey	NA
## 2089	1	B	F	GenX	Tom	NA
## 2090	1	B	F	GenX	Tim	NA
## 2091	1	B	F	Millenial	Tina	NA
## 2092	1	B	F	Millenial	Lorraine	NA
## 2093	1	B	F	Millenial	Dean	NA
## 2094	1	B	F	Millenial	Jamie	NA
## 2095	1	B	F	Millenial	Sherri	NA
## 2096	1	B	F	Millenial	Gloria	NA
## 2097	1	B	F	Millenial	Alfred	NA
## 2098	1	B	F	Millenial	Luis	NA
## 2099	1	B	F	Millenial	Darryl	NA
## 2100	1	B	F	Millenial	Dorothy	NA
## 2101	1	C	M	Boomer	Ray	NA
## 2102	1	C	M	Boomer	Leroy	NA
## 2103	1	C	M	Boomer	Candice	NA
## 2104	1	C	M	Boomer	Bethany	NA
## 2105	1	C	M	Boomer	Kay	NA
## 2106	1	C	M	Boomer	Casey	NA
## 2107	1	C	M	Boomer	Evan	NA
## 2108	1	C	M	Boomer	Gabriel	NA
## 2109	1	C	M	Boomer	Dawn	NA
## 2110	1	C	M	Boomer	Christian	NA
## 2111	1	C	M	GenX	Mildred	NA
## 2112	1	C	M	GenX	Colleen	NA
## 2113	1	C	M	GenX	Greg	NA
## 2114	1	C	M	GenX	Troy	NA
## 2115	1	C	M	GenX	Heidi	NA
## 2116	1	C	M	GenX	Taylor	NA
## 2117	1	C	M	GenX	Dylan	NA
## 2118	1	C	M	GenX	Latoya	NA
## 2119	1	C	M	GenX	Cheyenne	NA
## 2120	1	C	M	GenX	Austin	NA
## 2121	1	C	M	Millenial	Bernard	NA
## 2122	1	C	M	Millenial	Jon	NA
## 2123	1	C	M	Millenial	Zachary	NA
## 2124	1	C	M	Millenial	Chris	NA
## 2125	1	C	M	Millenial	Tammy	NA
## 2126	1	C	M	Millenial	Brittany	NA
## 2127	1	C	M	Millenial	Lauren	NA
## 2128	1	C	M	Millenial	Theodore	NA
## 2129	1	C	M	Millenial	Jeff	NA
## 2130	1	C	M	Millenial	Alexis	NA
## 2131	1	C	F	Boomer	Joan	NA
## 2132	1	C	F	Boomer	Marc	NA
## 2133	1	C	F	Boomer	Melinda	NA
## 2134	1	C	F	Boomer	Wesley	NA
## 2135	1	C	F	Boomer	Dianne	NA
## 2136	1	C	F	Boomer	Seth	NA
## 2137	1	C	F	Boomer	Tamara	NA
## 2138	1	C	F	Boomer	Herbert	NA

## 2139	l	C	F	Boomer	Tracy	NA
## 2140	l	C	F	Boomer	Brittney	NA
## 2141	l	C	F	GenX	Samantha	NA
## 2142	l	C	F	GenX	Eddie	NA
## 2143	l	C	F	GenX	Betty	NA
## 2144	l	C	F	GenX	Gene	NA
## 2145	l	C	F	GenX	Marjorie	NA
## 2146	l	C	F	GenX	Shirley	NA
## 2147	l	C	F	GenX	Lee	NA
## 2148	l	C	F	GenX	Tracey	NA
## 2149	l	C	F	GenX	Tom	NA
## 2150	l	C	F	GenX	Tim	NA
## 2151	l	C	F	Millenial	Tina	NA
## 2152	l	C	F	Millenial	Lorraine	NA
## 2153	l	C	F	Millenial	Dean	NA
## 2154	l	C	F	Millenial	Jamie	NA
## 2155	l	C	F	Millenial	Sherri	NA
## 2156	l	C	F	Millenial	Gloria	NA
## 2157	l	C	F	Millenial	Alfred	NA
## 2158	l	C	F	Millenial	Luis	NA
## 2159	l	C	F	Millenial	Darryl	NA
## 2160	l	C	F	Millenial	Dorothy	NA
## 2161	m	A	M	Boomer	Ray	NA
## 2162	m	A	M	Boomer	Leroy	NA
## 2163	m	A	M	Boomer	Candice	NA
## 2164	m	A	M	Boomer	Bethany	NA
## 2165	m	A	M	Boomer	Kay	NA
## 2166	m	A	M	Boomer	Casey	NA
## 2167	m	A	M	Boomer	Evan	NA
## 2168	m	A	M	Boomer	Gabriel	NA
## 2169	m	A	M	Boomer	Dawn	NA
## 2170	m	A	M	Boomer	Christian	NA
## 2171	m	A	M	GenX	Mildred	NA
## 2172	m	A	M	GenX	Colleen	NA
## 2173	m	A	M	GenX	Greg	NA
## 2174	m	A	M	GenX	Troy	NA
## 2175	m	A	M	GenX	Heidi	NA
## 2176	m	A	M	GenX	Taylor	NA
## 2177	m	A	M	GenX	Dylan	NA
## 2178	m	A	M	GenX	Latoya	NA
## 2179	m	A	M	GenX	Cheyenne	NA
## 2180	m	A	M	GenX	Austin	NA
## 2181	m	A	M	Millenial	Bernard	NA
## 2182	m	A	M	Millenial	Jon	NA
## 2183	m	A	M	Millenial	Zachary	NA
## 2184	m	A	M	Millenial	Chris	NA
## 2185	m	A	M	Millenial	Tammy	NA
## 2186	m	A	M	Millenial	Brittany	NA
## 2187	m	A	M	Millenial	Lauren	NA
## 2188	m	A	M	Millenial	Theodore	NA
## 2189	m	A	M	Millenial	Jeff	NA
## 2190	m	A	M	Millenial	Alexis	NA
## 2191	m	A	F	Boomer	Joan	NA
## 2192	m	A	F	Boomer	Marc	NA

## 2193	m	A	F	Boomer	Melinda	NA
## 2194	m	A	F	Boomer	Wesley	NA
## 2195	m	A	F	Boomer	Dianne	NA
## 2196	m	A	F	Boomer	Seth	NA
## 2197	m	A	F	Boomer	Tamara	NA
## 2198	m	A	F	Boomer	Herbert	NA
## 2199	m	A	F	Boomer	Tracy	NA
## 2200	m	A	F	Boomer	Brittney	NA
## 2201	m	A	F	GenX	Samantha	NA
## 2202	m	A	F	GenX	Eddie	NA
## 2203	m	A	F	GenX	Betty	NA
## 2204	m	A	F	GenX	Gene	NA
## 2205	m	A	F	GenX	Marjorie	NA
## 2206	m	A	F	GenX	Shirley	NA
## 2207	m	A	F	GenX	Lee	NA
## 2208	m	A	F	GenX	Tracey	NA
## 2209	m	A	F	GenX	Tom	NA
## 2210	m	A	F	GenX	Tim	NA
## 2211	m	A	F	Millenial	Tina	NA
## 2212	m	A	F	Millenial	Lorraine	NA
## 2213	m	A	F	Millenial	Dean	NA
## 2214	m	A	F	Millenial	Jamie	NA
## 2215	m	A	F	Millenial	Sherri	NA
## 2216	m	A	F	Millenial	Gloria	NA
## 2217	m	A	F	Millenial	Alfred	NA
## 2218	m	A	F	Millenial	Luis	NA
## 2219	m	A	F	Millenial	Darryl	NA
## 2220	m	A	F	Millenial	Dorothy	NA
## 2221	m	B	M	Boomer	Ray	NA
## 2222	m	B	M	Boomer	Leroy	NA
## 2223	m	B	M	Boomer	Candice	NA
## 2224	m	B	M	Boomer	Bethany	NA
## 2225	m	B	M	Boomer	Kay	NA
## 2226	m	B	M	Boomer	Casey	NA
## 2227	m	B	M	Boomer	Evan	NA
## 2228	m	B	M	Boomer	Gabriel	NA
## 2229	m	B	M	Boomer	Dawn	NA
## 2230	m	B	M	Boomer	Christian	NA
## 2231	m	B	M	GenX	Mildred	NA
## 2232	m	B	M	GenX	Colleen	NA
## 2233	m	B	M	GenX	Greg	NA
## 2234	m	B	M	GenX	Troy	NA
## 2235	m	B	M	GenX	Heidi	NA
## 2236	m	B	M	GenX	Taylor	NA
## 2237	m	B	M	GenX	Dylan	NA
## 2238	m	B	M	GenX	Latoya	NA
## 2239	m	B	M	GenX	Cheyenne	NA
## 2240	m	B	M	GenX	Austin	NA
## 2241	m	B	M	Millenial	Bernard	NA
## 2242	m	B	M	Millenial	Jon	NA
## 2243	m	B	M	Millenial	Zachary	NA
## 2244	m	B	M	Millenial	Chris	NA
## 2245	m	B	M	Millenial	Tammy	NA
## 2246	m	B	M	Millenial	Brittany	NA

## 2247	m	B	M	Millenial	Lauren	NA
## 2248	m	B	M	Millenial	Theodore	NA
## 2249	m	B	M	Millenial	Jeff	NA
## 2250	m	B	M	Millenial	Alexis	NA
## 2251	m	B	F	Boomer	Joan	NA
## 2252	m	B	F	Boomer	Marc	NA
## 2253	m	B	F	Boomer	Melinda	NA
## 2254	m	B	F	Boomer	Wesley	NA
## 2255	m	B	F	Boomer	Dianne	NA
## 2256	m	B	F	Boomer	Seth	NA
## 2257	m	B	F	Boomer	Tamara	NA
## 2258	m	B	F	Boomer	Herbert	NA
## 2259	m	B	F	Boomer	Tracy	NA
## 2260	m	B	F	Boomer	Brittney	NA
## 2261	m	B	F	GenX	Samantha	NA
## 2262	m	B	F	GenX	Eddie	NA
## 2263	m	B	F	GenX	Betty	NA
## 2264	m	B	F	GenX	Gene	NA
## 2265	m	B	F	GenX	Marjorie	NA
## 2266	m	B	F	GenX	Shirley	NA
## 2267	m	B	F	GenX	Lee	NA
## 2268	m	B	F	GenX	Tracey	NA
## 2269	m	B	F	GenX	Tom	NA
## 2270	m	B	F	GenX	Tim	NA
## 2271	m	B	F	Millenial	Tina	NA
## 2272	m	B	F	Millenial	Lorraine	NA
## 2273	m	B	F	Millenial	Dean	NA
## 2274	m	B	F	Millenial	Jamie	NA
## 2275	m	B	F	Millenial	Sherri	NA
## 2276	m	B	F	Millenial	Gloria	NA
## 2277	m	B	F	Millenial	Alfred	NA
## 2278	m	B	F	Millenial	Luis	NA
## 2279	m	B	F	Millenial	Darryl	NA
## 2280	m	B	F	Millenial	Dorothy	NA
## 2281	m	C	M	Boomer	Ray	NA
## 2282	m	C	M	Boomer	Leroy	NA
## 2283	m	C	M	Boomer	Candice	NA
## 2284	m	C	M	Boomer	Bethany	NA
## 2285	m	C	M	Boomer	Kay	NA
## 2286	m	C	M	Boomer	Casey	NA
## 2287	m	C	M	Boomer	Evan	NA
## 2288	m	C	M	Boomer	Gabriel	NA
## 2289	m	C	M	Boomer	Dawn	NA
## 2290	m	C	M	Boomer	Christian	NA
## 2291	m	C	M	GenX	Mildred	NA
## 2292	m	C	M	GenX	Colleen	NA
## 2293	m	C	M	GenX	Greg	NA
## 2294	m	C	M	GenX	Troy	NA
## 2295	m	C	M	GenX	Heidi	NA
## 2296	m	C	M	GenX	Taylor	NA
## 2297	m	C	M	GenX	Dylan	NA
## 2298	m	C	M	GenX	Latoya	NA
## 2299	m	C	M	GenX	Cheyenne	NA
## 2300	m	C	M	GenX	Austin	NA

## 2301	m	C	M	Millenial	Bernard	NA
## 2302	m	C	M	Millenial	Jon	NA
## 2303	m	C	M	Millenial	Zachary	NA
## 2304	m	C	M	Millenial	Chris	NA
## 2305	m	C	M	Millenial	Tammy	NA
## 2306	m	C	M	Millenial	Brittany	NA
## 2307	m	C	M	Millenial	Lauren	NA
## 2308	m	C	M	Millenial	Theodore	NA
## 2309	m	C	M	Millenial	Jeff	NA
## 2310	m	C	M	Millenial	Alexis	NA
## 2311	m	C	F	Boomer	Joan	NA
## 2312	m	C	F	Boomer	Marc	NA
## 2313	m	C	F	Boomer	Melinda	NA
## 2314	m	C	F	Boomer	Wesley	NA
## 2315	m	C	F	Boomer	Dianne	NA
## 2316	m	C	F	Boomer	Seth	NA
## 2317	m	C	F	Boomer	Tamara	NA
## 2318	m	C	F	Boomer	Herbert	NA
## 2319	m	C	F	Boomer	Tracy	NA
## 2320	m	C	F	Boomer	Brittney	NA
## 2321	m	C	F	GenX	Samantha	NA
## 2322	m	C	F	GenX	Eddie	NA
## 2323	m	C	F	GenX	Betty	NA
## 2324	m	C	F	GenX	Gene	NA
## 2325	m	C	F	GenX	Marjorie	NA
## 2326	m	C	F	GenX	Shirley	NA
## 2327	m	C	F	GenX	Lee	NA
## 2328	m	C	F	GenX	Tracey	NA
## 2329	m	C	F	GenX	Tom	NA
## 2330	m	C	F	GenX	Tim	NA
## 2331	m	C	F	Millenial	Tina	NA
## 2332	m	C	F	Millenial	Lorraine	NA
## 2333	m	C	F	Millenial	Dean	NA
## 2334	m	C	F	Millenial	Jamie	NA
## 2335	m	C	F	Millenial	Sherri	NA
## 2336	m	C	F	Millenial	Gloria	NA
## 2337	m	C	F	Millenial	Alfred	NA
## 2338	m	C	F	Millenial	Luis	NA
## 2339	m	C	F	Millenial	Darryl	NA
## 2340	m	C	F	Millenial	Dorothy	NA
## 2341	n	A	M	Boomer	Ray	NA
## 2342	n	A	M	Boomer	Leroy	NA
## 2343	n	A	M	Boomer	Candice	NA
## 2344	n	A	M	Boomer	Bethany	NA
## 2345	n	A	M	Boomer	Kay	NA
## 2346	n	A	M	Boomer	Casey	NA
## 2347	n	A	M	Boomer	Evan	NA
## 2348	n	A	M	Boomer	Gabriel	NA
## 2349	n	A	M	Boomer	Dawn	NA
## 2350	n	A	M	Boomer	Christian	NA
## 2351	n	A	M	GenX	Mildred	NA
## 2352	n	A	M	GenX	Colleen	NA
## 2353	n	A	M	GenX	Greg	NA
## 2354	n	A	M	GenX	Troy	NA

## 2355	n	A	M	GenX	Heidi	NA
## 2356	n	A	M	GenX	Taylor	NA
## 2357	n	A	M	GenX	Dylan	NA
## 2358	n	A	M	GenX	Latoya	NA
## 2359	n	A	M	GenX	Cheyenne	NA
## 2360	n	A	M	GenX	Austin	NA
## 2361	n	A	M	Millenial	Bernard	NA
## 2362	n	A	M	Millenial	Jon	NA
## 2363	n	A	M	Millenial	Zachary	NA
## 2364	n	A	M	Millenial	Chris	NA
## 2365	n	A	M	Millenial	Tammy	NA
## 2366	n	A	M	Millenial	Brittany	NA
## 2367	n	A	M	Millenial	Lauren	NA
## 2368	n	A	M	Millenial	Theodore	NA
## 2369	n	A	M	Millenial	Jeff	NA
## 2370	n	A	M	Millenial	Alexis	NA
## 2371	n	A	F	Boomer	Joan	NA
## 2372	n	A	F	Boomer	Marc	NA
## 2373	n	A	F	Boomer	Melinda	NA
## 2374	n	A	F	Boomer	Wesley	NA
## 2375	n	A	F	Boomer	Dianne	NA
## 2376	n	A	F	Boomer	Seth	NA
## 2377	n	A	F	Boomer	Tamara	NA
## 2378	n	A	F	Boomer	Herbert	NA
## 2379	n	A	F	Boomer	Tracy	NA
## 2380	n	A	F	Boomer	Brittney	NA
## 2381	n	A	F	GenX	Samantha	NA
## 2382	n	A	F	GenX	Eddie	NA
## 2383	n	A	F	GenX	Betty	NA
## 2384	n	A	F	GenX	Gene	NA
## 2385	n	A	F	GenX	Marjorie	NA
## 2386	n	A	F	GenX	Shirley	NA
## 2387	n	A	F	GenX	Lee	NA
## 2388	n	A	F	GenX	Tracey	NA
## 2389	n	A	F	GenX	Tom	NA
## 2390	n	A	F	GenX	Tim	NA
## 2391	n	A	F	Millenial	Tina	NA
## 2392	n	A	F	Millenial	Lorraine	NA
## 2393	n	A	F	Millenial	Dean	NA
## 2394	n	A	F	Millenial	Jamie	NA
## 2395	n	A	F	Millenial	Sherri	NA
## 2396	n	A	F	Millenial	Gloria	NA
## 2397	n	A	F	Millenial	Alfred	NA
## 2398	n	A	F	Millenial	Luis	NA
## 2399	n	A	F	Millenial	Darryl	NA
## 2400	n	A	F	Millenial	Dorothy	NA
## 2401	n	B	M	Boomer	Ray	NA
## 2402	n	B	M	Boomer	Leroy	NA
## 2403	n	B	M	Boomer	Candice	NA
## 2404	n	B	M	Boomer	Bethany	NA
## 2405	n	B	M	Boomer	Kay	NA
## 2406	n	B	M	Boomer	Casey	NA
## 2407	n	B	M	Boomer	Evan	NA
## 2408	n	B	M	Boomer	Gabriel	NA

## 2409	n	B	M	Boomer	Dawn	NA
## 2410	n	B	M	Boomer	Christian	NA
## 2411	n	B	M	GenX	Mildred	NA
## 2412	n	B	M	GenX	Colleen	NA
## 2413	n	B	M	GenX	Greg	NA
## 2414	n	B	M	GenX	Troy	NA
## 2415	n	B	M	GenX	Heidi	NA
## 2416	n	B	M	GenX	Taylor	NA
## 2417	n	B	M	GenX	Dylan	NA
## 2418	n	B	M	GenX	Latoya	NA
## 2419	n	B	M	GenX	Cheyenne	NA
## 2420	n	B	M	GenX	Austin	NA
## 2421	n	B	M	Millenial	Bernard	NA
## 2422	n	B	M	Millenial	Jon	NA
## 2423	n	B	M	Millenial	Zachary	NA
## 2424	n	B	M	Millenial	Chris	NA
## 2425	n	B	M	Millenial	Tammy	NA
## 2426	n	B	M	Millenial	Brittany	NA
## 2427	n	B	M	Millenial	Lauren	NA
## 2428	n	B	M	Millenial	Theodore	NA
## 2429	n	B	M	Millenial	Jeff	NA
## 2430	n	B	M	Millenial	Alexis	NA
## 2431	n	B	F	Boomer	Joan	NA
## 2432	n	B	F	Boomer	Marc	NA
## 2433	n	B	F	Boomer	Melinda	NA
## 2434	n	B	F	Boomer	Wesley	NA
## 2435	n	B	F	Boomer	Dianne	NA
## 2436	n	B	F	Boomer	Seth	NA
## 2437	n	B	F	Boomer	Tamara	NA
## 2438	n	B	F	Boomer	Herbert	NA
## 2439	n	B	F	Boomer	Tracy	NA
## 2440	n	B	F	Boomer	Brittney	NA
## 2441	n	B	F	GenX	Samantha	NA
## 2442	n	B	F	GenX	Eddie	NA
## 2443	n	B	F	GenX	Betty	NA
## 2444	n	B	F	GenX	Gene	NA
## 2445	n	B	F	GenX	Marjorie	NA
## 2446	n	B	F	GenX	Shirley	NA
## 2447	n	B	F	GenX	Lee	NA
## 2448	n	B	F	GenX	Tracey	NA
## 2449	n	B	F	GenX	Tom	NA
## 2450	n	B	F	GenX	Tim	NA
## 2451	n	B	F	Millenial	Tina	NA
## 2452	n	B	F	Millenial	Lorraine	NA
## 2453	n	B	F	Millenial	Dean	NA
## 2454	n	B	F	Millenial	Jamie	NA
## 2455	n	B	F	Millenial	Sherri	NA
## 2456	n	B	F	Millenial	Gloria	NA
## 2457	n	B	F	Millenial	Alfred	NA
## 2458	n	B	F	Millenial	Luis	NA
## 2459	n	B	F	Millenial	Darryl	NA
## 2460	n	B	F	Millenial	Dorothy	NA
## 2461	n	C	M	Boomer	Ray	NA
## 2462	n	C	M	Boomer	Leroy	NA



## 2463	n	C	M	Boomer	Candice	NA
## 2464	n	C	M	Boomer	Bethany	NA
## 2465	n	C	M	Boomer	Kay	NA
## 2466	n	C	M	Boomer	Casey	NA
## 2467	n	C	M	Boomer	Evan	NA
## 2468	n	C	M	Boomer	Gabriel	NA
## 2469	n	C	M	Boomer	Dawn	NA
## 2470	n	C	M	Boomer	Christian	NA
## 2471	n	C	M	GenX	Mildred	NA
## 2472	n	C	M	GenX	Colleen	NA
## 2473	n	C	M	GenX	Greg	NA
## 2474	n	C	M	GenX	Troy	NA
## 2475	n	C	M	GenX	Heidi	NA
## 2476	n	C	M	GenX	Taylor	NA
## 2477	n	C	M	GenX	Dylan	NA
## 2478	n	C	M	GenX	Latoya	NA
## 2479	n	C	M	GenX	Cheyenne	NA
## 2480	n	C	M	GenX	Austin	NA
## 2481	n	C	M	Millenial	Bernard	NA
## 2482	n	C	M	Millenial	Jon	NA
## 2483	n	C	M	Millenial	Zachary	NA
## 2484	n	C	M	Millenial	Chris	NA
## 2485	n	C	M	Millenial	Tammy	NA
## 2486	n	C	M	Millenial	Brittany	NA
## 2487	n	C	M	Millenial	Lauren	NA
## 2488	n	C	M	Millenial	Theodore	NA
## 2489	n	C	M	Millenial	Jeff	NA
## 2490	n	C	M	Millenial	Alexis	NA
## 2491	n	C	F	Boomer	Joan	NA
## 2492	n	C	F	Boomer	Marc	NA
## 2493	n	C	F	Boomer	Melinda	NA
## 2494	n	C	F	Boomer	Wesley	NA
## 2495	n	C	F	Boomer	Dianne	NA
## 2496	n	C	F	Boomer	Seth	NA
## 2497	n	C	F	Boomer	Tamara	NA
## 2498	n	C	F	Boomer	Herbert	NA
## 2499	n	C	F	Boomer	Tracy	NA
## 2500	n	C	F	Boomer	Brittney	NA
## 2501	n	C	F	GenX	Samantha	NA
## 2502	n	C	F	GenX	Eddie	NA
## 2503	n	C	F	GenX	Betty	NA
## 2504	n	C	F	GenX	Gene	NA
## 2505	n	C	F	GenX	Marjorie	NA
## 2506	n	C	F	GenX	Shirley	NA
## 2507	n	C	F	GenX	Lee	NA
## 2508	n	C	F	GenX	Tracey	NA
## 2509	n	C	F	GenX	Tom	NA
## 2510	n	C	F	GenX	Tim	NA
## 2511	n	C	F	Millenial	Tina	NA
## 2512	n	C	F	Millenial	Lorraine	NA
## 2513	n	C	F	Millenial	Dean	NA
## 2514	n	C	F	Millenial	Jamie	NA
## 2515	n	C	F	Millenial	Sherri	NA
## 2516	n	C	F	Millenial	Gloria	NA

```
## 2517      n      C      F Millenial    Alfred NA
## 2518      n      C      F Millenial      Luis NA
## 2519      n      C      F Millenial    Darryl NA
## 2520      n      C      F Millenial    Dorothy 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 : 101)
```

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:

```
#print(expect_equal(my_reverse(v), rev(v)))
#print(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.

```
## KNN Euclidean Distance
##
## Assumes similarity between the new data and available data. A data point is classified based on the
##
## @param Xinput      A matrix of features for training data observations
## @param y_binary    A vector of training data labels
## @param xtest       A test observation as a row vector
## @return            The prediction label for the test observation

nn_algorithm_predict = function(Xinput, y_binary, xtest){
  n <- nrow(Xinput)
  distance <- array(NA, n)
  for(i in 1:n) {
    distance[i] <- sum(Xinput[i,] - xtest)^2
  }
  y_binary[which.min(distance)]
}

## Loading Iris dataset
data(iris)
```

```

# Removing Species column for xinput parameter
iris_wrangle = iris
iris_wrangle$Species <- NULL
xinput <- iris_wrangle
# Setting target feature to y_binary
y_binary <- iris$Species
# Test data
xtest <- c(5.0, 3.4, 1.4, 0.4)

nn_algorithm_predict(xinput, y_binary, xtest)

```

```

## [1] setosa
## Levels: setosa versicolor virginica

```

Write a few tests to ensure it actually works:

```

xtest <- c(7.0, 3.2, 4.7, 1.4)
nn_algorithm_predict(xinput, y_binary, xtest)

```

```

## [1] versicolor
## Levels: setosa versicolor virginica

```

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.

```

#' KNN Euclidean Distance
#'
#' Assumes similarity between the new data and available data. A data point is classified based on the
#'
#' @param Xinput      A matrix of features for training data observations
#' @param y_binary    A vector of training data labels
#' @param xtest       A test observation as a row vector
#' @d                 A distance function which takes as input 2 different row vectors.
#' @return            The prediction label for the test observation

nn_algorithm_predict = function(Xinput, y_binary, xtest, d=function(v1, v2){sum((v1-v2)^2)}){
  n = nrow(Xinput)
  distance <- array(NA, n)
  for(i in 1:n) {
    distance[i] <- d(Xinput[i,], xtest)
  }
  y_binary[which.min(distance)]
}

```

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.

```

#' KNN Euclidean Distance
#'
#' Assumes similarity between the new data and available data. A data point is classified based on the
#'
#' @param Xinput      A matrix of features for training data observations
#' @param y_binary    A vector of training data labels

```

```

#' @param xtest      A test observation as a row vector
#' @param k          The number of neighbors to consider when classifying a data point
#' @return           The prediction label for the test observation

nn_algorithm_predict = function(Xinput, y_binary, xtest, k=1){
  n <- nrow(Xinput)
  distance <- array(NA, n)
  for(i in 1:n) {
    distance[i] <- sum(Xinput[i,] - xtest)^2
  }

  # Create a list of the nearest k neighbors
  nearest_neighbors = array(NA, k)
  for(j in 1:k) {
    nearest_neighbors[j] = which.min(distance[j])
  }

  # Find mode of the nearest_neighbors
  sorted_counts <- sort(nearest_neighbors, decreasing = TRUE)
  y_binary[sorted_counts[1]]
}

# Loading Iris dataset
data(iris)
# Removing Species column for xinput parameter
iris_wrangle = iris
iris_wrangle$Species <- NULL
xinput <- iris_wrangle
# Setting target feature to y_binary
y_binary <- iris$Species
# Test data
xtest <- c(5.0, 3.4, 1.4, 0.4)

nn_algorithm_predict(xinput, y_binary, xtest, k=5)

## [1] setosa
## Levels: setosa versicolor virginica

```

## 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.

```

#install.packages(skimr)
skimr::skim(iris)

```

Table 1: Data summary

Name	iris
Number of rows	150
Number of columns	5

---

Column type frequency:

Table 1: Data summary

factor	1
numeric	4
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: This data has four independent variables, sepal.length, sepal.width, petal.length, and petal.width. The rate of missing cells per column is stated, as well as the mean, standard deviation, and percentiles of each data. The summary is split into two parts, this first type describes nominal data, which in the case of the iris dataset is the Species column. We find that there are 50 data points of each type of iris flower.

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",]
iris
```

```
##      Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 1           5.1         3.5         1.4         0.2    setosa
## 2           4.9         3.0         1.4         0.2    setosa
## 3           4.7         3.2         1.3         0.2    setosa
## 4           4.6         3.1         1.5         0.2    setosa
## 5           5.0         3.6         1.4         0.2    setosa
## 6           5.4         3.9         1.7         0.4    setosa
## 7           4.6         3.4         1.4         0.3    setosa
## 8           5.0         3.4         1.5         0.2    setosa
## 9           4.4         2.9         1.4         0.2    setosa
## 10          4.9         3.1         1.5         0.1    setosa
## 11          5.4         3.7         1.5         0.2    setosa
## 12          4.8         3.4         1.6         0.2    setosa
## 13          4.8         3.0         1.4         0.1    setosa
## 14          4.3         3.0         1.1         0.1    setosa
## 15          5.8         4.0         1.2         0.2    setosa
## 16          5.7         4.4         1.5         0.4    setosa
## 17          5.4         3.9         1.3         0.4    setosa
## 18          5.1         3.5         1.4         0.3    setosa
```

## 19	5.7	3.8	1.7	0.3	setosa
## 20	5.1	3.8	1.5	0.3	setosa
## 21	5.4	3.4	1.7	0.2	setosa
## 22	5.1	3.7	1.5	0.4	setosa
## 23	4.6	3.6	1.0	0.2	setosa
## 24	5.1	3.3	1.7	0.5	setosa
## 25	4.8	3.4	1.9	0.2	setosa
## 26	5.0	3.0	1.6	0.2	setosa
## 27	5.0	3.4	1.6	0.4	setosa
## 28	5.2	3.5	1.5	0.2	setosa
## 29	5.2	3.4	1.4	0.2	setosa
## 30	4.7	3.2	1.6	0.2	setosa
## 31	4.8	3.1	1.6	0.2	setosa
## 32	5.4	3.4	1.5	0.4	setosa
## 33	5.2	4.1	1.5	0.1	setosa
## 34	5.5	4.2	1.4	0.2	setosa
## 35	4.9	3.1	1.5	0.2	setosa
## 36	5.0	3.2	1.2	0.2	setosa
## 37	5.5	3.5	1.3	0.2	setosa
## 38	4.9	3.6	1.4	0.1	setosa
## 39	4.4	3.0	1.3	0.2	setosa
## 40	5.1	3.4	1.5	0.2	setosa
## 41	5.0	3.5	1.3	0.3	setosa
## 42	4.5	2.3	1.3	0.3	setosa
## 43	4.4	3.2	1.3	0.2	setosa
## 44	5.0	3.5	1.6	0.6	setosa
## 45	5.1	3.8	1.9	0.4	setosa
## 46	4.8	3.0	1.4	0.3	setosa
## 47	5.1	3.8	1.6	0.2	setosa
## 48	4.6	3.2	1.4	0.2	setosa
## 49	5.3	3.7	1.5	0.2	setosa
## 50	5.0	3.3	1.4	0.2	setosa
## 51	7.0	3.2	4.7	1.4	versicolor
## 52	6.4	3.2	4.5	1.5	versicolor
## 53	6.9	3.1	4.9	1.5	versicolor
## 54	5.5	2.3	4.0	1.3	versicolor
## 55	6.5	2.8	4.6	1.5	versicolor
## 56	5.7	2.8	4.5	1.3	versicolor
## 57	6.3	3.3	4.7	1.6	versicolor
## 58	4.9	2.4	3.3	1.0	versicolor
## 59	6.6	2.9	4.6	1.3	versicolor
## 60	5.2	2.7	3.9	1.4	versicolor
## 61	5.0	2.0	3.5	1.0	versicolor
## 62	5.9	3.0	4.2	1.5	versicolor
## 63	6.0	2.2	4.0	1.0	versicolor
## 64	6.1	2.9	4.7	1.4	versicolor
## 65	5.6	2.9	3.6	1.3	versicolor
## 66	6.7	3.1	4.4	1.4	versicolor
## 67	5.6	3.0	4.5	1.5	versicolor
## 68	5.8	2.7	4.1	1.0	versicolor
## 69	6.2	2.2	4.5	1.5	versicolor
## 70	5.6	2.5	3.9	1.1	versicolor
## 71	5.9	3.2	4.8	1.8	versicolor
## 72	6.1	2.8	4.0	1.3	versicolor

```
## 73      6.3      2.5      4.9      1.5 versicolor
## 74      6.1      2.8      4.7      1.2 versicolor
## 75      6.4      2.9      4.3      1.3 versicolor
## 76      6.6      3.0      4.4      1.4 versicolor
## 77      6.8      2.8      4.8      1.4 versicolor
## 78      6.7      3.0      5.0      1.7 versicolor
## 79      6.0      2.9      4.5      1.5 versicolor
## 80      5.7      2.6      3.5      1.0 versicolor
## 81      5.5      2.4      3.8      1.1 versicolor
## 82      5.5      2.4      3.7      1.0 versicolor
## 83      5.8      2.7      3.9      1.2 versicolor
## 84      6.0      2.7      5.1      1.6 versicolor
## 85      5.4      3.0      4.5      1.5 versicolor
## 86      6.0      3.4      4.5      1.6 versicolor
## 87      6.7      3.1      4.7      1.5 versicolor
## 88      6.3      2.3      4.4      1.3 versicolor
## 89      5.6      3.0      4.1      1.3 versicolor
## 90      5.5      2.5      4.0      1.3 versicolor
## 91      5.5      2.6      4.4      1.2 versicolor
## 92      6.1      3.0      4.6      1.4 versicolor
## 93      5.8      2.6      4.0      1.2 versicolor
## 94      5.0      2.3      3.3      1.0 versicolor
## 95      5.6      2.7      4.2      1.3 versicolor
## 96      5.7      3.0      4.2      1.2 versicolor
## 97      5.7      2.9      4.2      1.3 versicolor
## 98      6.2      2.9      4.3      1.3 versicolor
## 99      5.1      2.5      3.0      1.1 versicolor
## 100     5.7      2.8      4.1      1.3 versicolor
```

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 = as.integer(iris$Species == "versicolor")
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
## [38] 0 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
## [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
```

```
iris$Species
```

```
## [1] setosa      setosa      setosa      setosa      setosa      setosa
## [7] setosa      setosa      setosa      setosa      setosa      setosa
## [13] setosa      setosa      setosa      setosa      setosa      setosa
## [19] setosa      setosa      setosa      setosa      setosa      setosa
## [25] setosa      setosa      setosa      setosa      setosa      setosa
## [31] setosa      setosa      setosa      setosa      setosa      setosa
## [37] setosa      setosa      setosa      setosa      setosa      setosa
## [43] setosa      setosa      setosa      setosa      setosa      setosa
## [49] setosa      setosa      versicolor  versicolor  versicolor  versicolor
## [55] versicolor  versicolor  versicolor  versicolor  versicolor  versicolor
## [61] versicolor  versicolor  versicolor  versicolor  versicolor  versicolor
## [67] versicolor  versicolor  versicolor  versicolor  versicolor  versicolor
## [73] versicolor  versicolor  versicolor  versicolor  versicolor  versicolor
## [79] versicolor  versicolor  versicolor  versicolor  versicolor  versicolor
## [85] versicolor  versicolor  versicolor  versicolor  versicolor  versicolor
```

```
## [91] versicolor versicolor versicolor versicolor versicolor versicolor
## [97] versicolor versicolor versicolor versicolor
## Levels: setosa versicolor virginica
```

- Write a function mode returning the sample mode.

```
mode <- function(v) {
  sorted_counts <- sort(table(v), decreasing = TRUE)
  names(sorted_counts[1])
}
mode(y)
```

```
## [1] "0"
```

```
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
## [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
## [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
```

- 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.

```
## The Threshold Model
```

```
#Lets compute the threshold model and see what happens. Heres an inefficent but quite pedagogical way to
```

```
n = nrow(iris)
num_errors_by_parameter = matrix(NA, nrow = n, ncol = 2)
colnames(num_errors_by_parameter) = c("threshold_param", "num_errors")
for (i in 1 : n){
  threshold = iris$Sepal.Length[i]
  num_errors = sum((iris$Sepal.Length > threshold) != y)
  num_errors_by_parameter[i, ] = c(threshold, num_errors)
}
#look at all thresholds in order
num_errors_by_parameter[order(num_errors_by_parameter[, "num_errors"]), ]
```

```
##      threshold_param num_errors
## [1,]              5.4          11
## [2,]              5.4          11
## [3,]              5.4          11
## [4,]              5.4          11
## [5,]              5.4          11
## [6,]              5.4          11
## [7,]              5.5          14
## [8,]              5.5          14
## [9,]              5.5          14
## [10,]             5.5          14
## [11,]             5.5          14
## [12,]             5.5          14
## [13,]             5.5          14
## [14,]             5.3          15
## [15,]             5.2          16
## [16,]             5.2          16
## [17,]             5.2          16
## [18,]             5.2          16
```



##	[19,]	5.1	18
##	[20,]	5.1	18
##	[21,]	5.1	18
##	[22,]	5.1	18
##	[23,]	5.1	18
##	[24,]	5.1	18
##	[25,]	5.1	18
##	[26,]	5.1	18
##	[27,]	5.1	18
##	[28,]	5.6	19
##	[29,]	5.6	19
##	[30,]	5.6	19
##	[31,]	5.6	19
##	[32,]	5.6	19
##	[33,]	5.7	22
##	[34,]	5.7	22
##	[35,]	5.7	22
##	[36,]	5.7	22
##	[37,]	5.7	22
##	[38,]	5.7	22
##	[39,]	5.7	22
##	[40,]	5.8	24
##	[41,]	5.8	24
##	[42,]	5.8	24
##	[43,]	5.8	24
##	[44,]	5.0	25
##	[45,]	5.0	25
##	[46,]	5.0	25
##	[47,]	5.0	25
##	[48,]	5.0	25
##	[49,]	5.0	25
##	[50,]	5.0	25
##	[51,]	5.0	25
##	[52,]	5.0	25
##	[53,]	5.0	25
##	[54,]	5.9	26
##	[55,]	5.9	26
##	[56,]	6.0	30
##	[57,]	6.0	30
##	[58,]	6.0	30
##	[59,]	6.0	30
##	[60,]	4.9	31
##	[61,]	4.9	31
##	[62,]	4.9	31
##	[63,]	4.9	31
##	[64,]	4.9	31
##	[65,]	4.8	34
##	[66,]	4.8	34
##	[67,]	4.8	34
##	[68,]	4.8	34
##	[69,]	4.8	34
##	[70,]	6.1	34
##	[71,]	6.1	34
##	[72,]	6.1	34

```
## [73,]          6.1          34
## [74,]          6.2          36
## [75,]          6.2          36
## [76,]          4.7          39
## [77,]          4.7          39
## [78,]          6.3          39
## [79,]          6.3          39
## [80,]          6.3          39
## [81,]          4.6          41
## [82,]          4.6          41
## [83,]          4.6          41
## [84,]          4.6          41
## [85,]          6.4          41
## [86,]          6.4          41
## [87,]          6.5          42
## [88,]          6.6          44
## [89,]          6.6          44
## [90,]          4.5          45
## [91,]          4.4          46
## [92,]          4.4          46
## [93,]          4.4          46
## [94,]          6.7          47
## [95,]          6.7          47
## [96,]          6.7          47
## [97,]          6.8          48
## [98,]          4.3          49
## [99,]          6.9          49
## [100,]         7.0          50
```

```
#now grab the smallest num errors
best_row = order(num_errors_by_parameter[, "num_errors"])[1]
threshold = c(num_errors_by_parameter[best_row, "threshold_param"], use.names = FALSE)
threshold
```

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

What is the total number of errors this model makes?

```
sum(num_errors_by_parameter[,2])
```

```
## [1] 2796
```

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
```

The threshold model's performance does make sense. The threshold we calculate of 5.4 seems to fit right between the two means.

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

```
g = function(x){
  if(x > threshold) {
    print("versicolor")
  } else {
    print("setosa")
  }
}

a <- 7
g(a)
```

```
## [1] "versicolor"
```

## 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:

```
##' TO-DO: Provide a name for this function
##'
##' TO-DO: Explain what this function does in a few sentences
##'
##' @param Xinput      A matrix of features for training data observations
##' @param y_binary    A vector of training data labels
##' @param MAX_ITER    Number of epochs to run to train the data
##' @param w           A vector with  $p+1$  vectors
##'
##' @return            The computed final parameter (weight) as a vector of length  $p + 1$ 
perceptron_learning_algorithm = function(Xinput, y_binary, MAX_ITER = 100000, w = NULL){
  Xinput = as.matrix(cbind(1, Xinput))
  p = ncol(Xinput)
  w = rep(0, p)
  for (iter in 1 : MAX_ITER){
    for (i in 1 : nrow(Xinput)){
      x_i = Xinput[i, ]
      yhat_i = ifelse(sum(x_i * w) > 0, 1, 0)
      y_i = y_binary[i]
      for (j in 1 : p) {
        w[j] = w[j] + (y_i - yhat_i) * x_i[j]
      }
    }
  }
  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

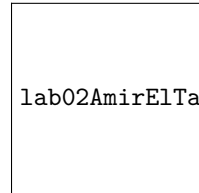
code for you and you will just run it. First we load the visualization library we're going to use:

```
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
```



The coordinates in the `Xy_simple` data are printed, where `first_feature` takes on the x-axis, and the `second_feature` takes on the y-axis, and the independent variable, `response`, is identified using the legend on the side.

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

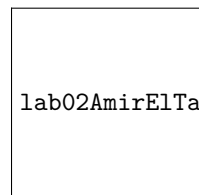
```
w_vec_simple_per = perceptron_learning_algorithm(  
  cbind(Xy_simple$first_feature, Xy_simple$second_feature),  
  as.numeric(Xy_simple$response == 1))  
w_vec_simple_per
```

```
## [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 value is the y intercept, or the bias, and the second and third values are the coefficients to  $x_1$  and  $x_2$  respectively, where  $x_1$  and  $x_2$  are the weights of the first and second features respectively.

```
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?

I expected to see a line go between the two responses, instead the line of best fit seems to intersect both response zones. This is likely because neural networks depend a lot on training data, we only fed the model 6 data points. That's why it might look a little awkward. Although the line is not perfect, it is not obviously wrong. The line does go between the two responses.

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*