Lab 2

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Basic Modeling

- In class we considered a variable `x_3` which measured "criminality". We imagined L = 4 levels "none", "infraction", "misdimeanor" and "felony". Create a variable `x_3` here with 100 random elements (equally probable). Create it as a nominal (i.e. unordered) factor.

```
#TO-DO
n=100
x_3= as.factor(sample(c("none", "infraction", "misdemeanor", "felony"), size = 100, replace = TRUE))
```

- Use `x_3` to create `x_3_bin`, a binary feature where 0 is no crime and 1 is any crime.

```
#TO-DO
x_3_bin = ifelse(x_3 == "none", 0, 1)
print(x_3_bin)
```

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

- Use `x_3` to create `x_3_ord`, an ordered factor variable. Ensure the proper ordinal ordering.

```
#TO-DO
x_3_ord = factor(x_3, ordered = TRUE, levels = c("none", "infraction", "misdemeanor", "felony"))
x_3_ord
```

```
##  [1] felony      misdemeanor infraction  misdemeanor infraction  infraction
##  [7] none        felony      none        felony      infraction  infraction
## [13] misdemeanor none        infraction  misdemeanor felony      infraction
## [19] felony      infraction  none        infraction  felony      infraction
## [25] infraction  misdemeanor misdemeanor felony      misdemeanor infraction
## [31] misdemeanor none        felony      infraction  misdemeanor misdemeanor
## [37] misdemeanor misdemeanor infraction  felony      none        infraction
## [43] infraction  felony      none        none        none        misdemeanor
## [49] none        infraction  none        misdemeanor misdemeanor none
## [55] infraction  misdemeanor misdemeanor infraction  misdemeanor infraction
## [61] felony      infraction  none        misdemeanor felony      misdemeanor
## [67] felony      felony      none        infraction  misdemeanor infraction
## [73] felony      none        felony      none        none        infraction
## [79] infraction  misdemeanor felony      felony      felony      felony
## [85] misdemeanor misdemeanor none        infraction  felony      misdemeanor
## [91] none        infraction  misdemeanor infraction  none        misdemeanor
## [97] infraction  felony      none        felony
## Levels: none < infraction < misdemeanor < felony
```

- Convert this variable into three binary variables without any information loss and put them into a data matrix.

```
#TO-DO
X = cbind(
  ifelse(x_3_ord == "infraction", 1, 0),
  ifelse(x_3_ord == "misdemeanor", 1, 0),
  ifelse(x_3_ord == "felony", 1, 0)
)
X
```

```
##         [,1] [,2] [,3]
##  [1,]    0    0    1
##  [2,]    0    1    0
##  [3,]    1    0    0
##  [4,]    0    1    0
##  [5,]    1    0    0
##  [6,]    1    0    0
##  [7,]    0    0    0
##  [8,]    0    0    1
##  [9,]    0    0    0
## [10,]    0    0    1
## [11,]    1    0    0
## [12,]    1    0    0
## [13,]    0    1    0
## [14,]    0    0    0
## [15,]    1    0    0
## [16,]    0    1    0
## [17,]    0    0    1
## [18,]    1    0    0
## [19,]    0    0    1
## [20,]    1    0    0
## [21,]    0    0    0
## [22,]    1    0    0
## [23,]    0    0    1
## [24,]    1    0    0
## [25,]    1    0    0
## [26,]    0    1    0
## [27,]    0    1    0
## [28,]    0    0    1
## [29,]    0    1    0
## [30,]    1    0    0
## [31,]    0    1    0
## [32,]    0    0    0
## [33,]    0    0    1
## [34,]    1    0    0
## [35,]    0    1    0
## [36,]    0    1    0
## [37,]    0    1    0
## [38,]    0    1    0
## [39,]    1    0    0
## [40,]    0    0    1
## [41,]    0    0    0
## [42,]    1    0    0
## [43,]    1    0    0
```

```
## [44,]    0    0    1
## [45,]    0    0    0
## [46,]    0    0    0
## [47,]    0    0    0
## [48,]    0    1    0
## [49,]    0    0    0
## [50,]    1    0    0
## [51,]    0    0    0
## [52,]    0    1    0
## [53,]    0    1    0
## [54,]    0    0    0
## [55,]    1    0    0
## [56,]    0    1    0
## [57,]    0    1    0
## [58,]    1    0    0
## [59,]    0    1    0
## [60,]    1    0    0
## [61,]    0    0    1
## [62,]    1    0    0
## [63,]    0    0    0
## [64,]    0    1    0
## [65,]    0    0    1
## [66,]    0    1    0
## [67,]    0    0    1
## [68,]    0    0    1
## [69,]    0    0    0
## [70,]    1    0    0
## [71,]    0    1    0
## [72,]    1    0    0
## [73,]    0    0    1
## [74,]    0    0    0
## [75,]    0    0    1
## [76,]    0    0    0
## [77,]    0    0    0
## [78,]    1    0    0
## [79,]    1    0    0
## [80,]    0    1    0
## [81,]    0    0    1
## [82,]    0    0    1
## [83,]    0    0    1
## [84,]    0    0    1
## [85,]    0    1    0
## [86,]    0    1    0
## [87,]    0    0    0
## [88,]    1    0    0
## [89,]    0    0    1
## [90,]    0    1    0
## [91,]    0    0    0
## [92,]    1    0    0
## [93,]    0    1    0
## [94,]    1    0    0
## [95,]    0    0    0
## [96,]    0    1    0
## [97,]    1    0    0
```

```
## [98,]     0    0    1
## [99,]     0    0    0
## [100,]    0    0    1
```

- What should the sum of each row be (in English)?

#TO-DO

0 or 1 Verify that.

```
#TO-DO
rowSums(X)
```

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

- How should the column sum look (in English)?

#TO-DO Column sums should be counts of number of each crime level in the data Verify that.

```
#TO-DO
colSums(X)
```

```
## [1] 29 27 23
```

- Generate a matrix with 100 rows where the first column is realization from a normal with mean 17 and variance 38, the second column is uniform between -10 and 10, the third column is poisson with mean 6, the fourth column in exponential with lambda of 9, the fifth column is binomial with n = 20 and p = 0.12 and the sixth column is a binary variable with exactly 24% 1's dispersed randomly. Name the rows the entries of the `fake_first_names` vector.

```
X=cbind(
  rnorm(n,17,sqrt(38)),
  runif(n,-10,10),
  rpois(n,6),
  rexp(n,9),
  rbinom(n,20,0.12),
  sample(c(rep(1, round(n*.24)), rep(0, round(n*.76)))))
)
fake_first_names = c(
  "Sophia", "Emma", "Olivia", "Ava", "Mia", "Isabella", "Riley",
  "Aria", "Zoe", "Charlotte", "Lily", "Layla", "Amelia", "Emily",
  "Madelyn", "Aubrey", "Adalyn", "Madison", "Chloe", "Harper",
  "Abigail", "Aaliyah", "Avery", "Evelyn", "Kaylee", "Ella", "Ellie",
  "Scarlett", "Arianna", "Hailey", "Nora", "Addison", "Brooklyn",
  "Hannah", "Mila", "Leah", "Elizabeth", "Sarah", "Eliana", "Mackenzie",
  "Peyton", "Maria", "Grace", "Adeline", "Elena", "Anna", "Victoria",
  "Camilla", "Lillian", "Natalie", "Jackson", "Aiden", "Lucas",
  "Liam", "Noah", "Ethan", "Mason", "Caden", "Oliver", "Elijah",
  "Grayson", "Jacob", "Michael", "Benjamin", "Carter", "James",
  "Jayden", "Logan", "Alexander", "Caleb", "Ryan", "Luke", "Daniel",
  "Jack", "William", "Owen", "Gabriel", "Matthew", "Connor", "Jayce",
  "Isaac", "Sebastian", "Henry", "Muhammad", "Cameron", "Wyatt",
  "Dylan", "Nathan", "Nicholas", "Julian", "Eli", "Levi", "Isaiah",
  "Landon", "David", "Christian", "Andrew", "Brayden", "John",
  "Lincoln"
)
rownames(X) = fake_first_names
```

- Create a data frame of the same data as above except make the binary variable a factor "DOMESTIC" vs "FOREIGN" for 0 and 1 respectively. Use RStudio's `View` function to ensure this worked as desired.

```
#TO-DO
X=data.frame(
  normie = rnorm(n,17,sqrt(38)),
  eunice = runif(n,-10,10),
  fish = rpois(n,6),
  expy = rexp(n,9),
  nomie = rbinom(n,20,0.12),
  origin = factor(sample(c(rep("FOREIGN", round(n*.24)), rep("DOMESTIC", round(n*.76)))))
)
rownames(X) = fake_first_names
```

- Print out a table of the binary variable. Then print out the proportions of "DOMESTIC" vs "FOREIGN".

```
#TO-DO
table(X$origin)
```

```
##
## DOMESTIC  FOREIGN
##       76       24
```

```
table(X$origin)/nrow(X)
```

```
##
## DOMESTIC  FOREIGN
##     0.76     0.24
```

```
prop.table(table(X$origin))
```

```
##
## DOMESTIC  FOREIGN
##     0.76     0.24
```

Print out a summary of the whole dataframe.

```
#TO-DO
summary(X)
```

```
##      normie          eunice            fish            expy
##  Min.   : 2.711   Min.   :-9.9372   Min.   : 0.00   Min.   :0.0005077
##  1st Qu.:12.362   1st Qu.:-4.5245   1st Qu.: 4.00   1st Qu.:0.0272734
##  Median :16.318   Median : 0.2068   Median : 6.00   Median :0.0856527
##  Mean   :16.649   Mean   : 0.3127   Mean   : 5.91   Mean   :0.1025620
##  3rd Qu.:20.861   3rd Qu.: 5.5406   3rd Qu.: 8.00   3rd Qu.:0.1526531
##  Max.   :30.764   Max.   : 9.7100   Max.   :13.00   Max.   :0.4829839
##      nomie            origin
##  Min.   :0.00    DOMESTIC:76
##  1st Qu.:2.00    FOREIGN :24
##  Median :2.00
##  Mean   :2.56
##  3rd Qu.:4.00
##  Max.   :7.00
```

Dataframe creation

Imagine you are running an experiment with many manipulations. You have 14 levels in the variable "treatment" with levels a, b, c, etc. For each of those manipulations you have 3 submanipulations in a variable named "variation" with levels A, B, C. Then you have "gender" with levels M / F. Then you have "generation" with levels Boomer, GenX, Millenial. Then you will have 6 runs per each of these groups. In each set of 6 you will need to select a name without duplication from the appropriate set of names (from the last question). Create a data frame with columns treatment, variation, gender, generation, name and y that will store all the unique unit information in this experiment. Leave y empty because it will be measured as the experiment is executed. Hint, we've been using the `rep` function using the `times` argument. Look at the `each` argument using `?rep`.

```r
n = 14 * 3 * 2 * 3 * 6
#X = data.frame(treatment = rep...,
#TO-DO
#taken from last lab:
list_within_a_list = list(
  M = list(
    Boomer = strsplit("Theodore, Bernard, Gene, Herbert, Ray, Tom, Lee, Alfred, Leroy, Eddie", split = "
    GenX = strsplit("Marc, Jamie, Greg, Darryl, Tim, Dean, Jon, Chris, Troy, Jeff", split = ", ")[[1]],
    Millennial = strsplit("Zachary, Dylan, Christian, Wesley, Seth, Austin, Gabriel, Evan, Casey, Luis"
  ),
  F = list(
    Boomer = strsplit("Gloria, Joan, Dorothy, Shirley, Betty, Dianne, Kay, Marjorie, Lorraine, Mildred"
    GenX = strsplit("Tracy, Dawn, Tina, Tammy, Melinda, Tamara, Tracey, Colleen, Sherri, Heidi", split =
    Millennial = strsplit("Samantha, Alexis, Brittany, Lauren, Taylor, Bethany, Latoya, Candice, Brittne
  )
)
#starting new lab:
X = data.frame(
  treatment=rep(letters[1:14], each = 3 * 2 * 3 * 6),
  variation=rep(c("A", "B", "C"), each = 2*3*6, times = 14),
  gender=rep(c("M", "F"), each = 3 * 6, times = 14 * 3),
  generation=rep(c("Boomer", "GenX", "Millennial"), each = 6, times = 14 * 3 * 2),
  name=NA
)

for (i in seq(from = 1, to = n, by = 6)){
  gen <- X$generation[i]
  gen_group <- X$gender[i]
  names_list <- list_within_a_list[[gen_group]][[gen]]
  X$name[i:(i+5)] <- sample(names_list, 6, replace = TRUE)
}
X
```

```
##       treatment variation gender generation      name
## 1             a         A      M     Boomer       Tom
## 2             a         A      M     Boomer   Herbert
## 3             a         A      M     Boomer     Eddie
## 4             a         A      M     Boomer   Bernard
## 5             a         A      M     Boomer       Ray
## 6             a         A      M     Boomer     Eddie
## 7             a         A      M       GenX     Chris
## 8             a         A      M       GenX      Greg
## 9             a         A      M       GenX      Marc
```

```
## 10          a          A          M          GenX        Darryl
## 11          a          A          M          GenX        Darryl
## 12          a          A          M          GenX          Troy
## 13          a          A          M Millennial       Zachary
## 14          a          A          M Millennial       Zachary
## 15          a          A          M Millennial         Dylan
## 16          a          A          M Millennial          Evan
## 17          a          A          M Millennial         Casey
## 18          a          A          M Millennial          Luis
## 19          a          A          F      Boomer       Mildred
## 20          a          A          F      Boomer        Gloria
## 21          a          A          F      Boomer      Lorraine
## 22          a          A          F      Boomer        Gloria
## 23          a          A          F      Boomer        Gloria
## 24          a          A          F      Boomer          Joan
## 25          a          A          F        GenX       Melinda
## 26          a          A          F        GenX          Tina
## 27          a          A          F        GenX         Tracy
## 28          a          A          F        GenX       Colleen
## 29          a          A          F        GenX        Tracey
## 30          a          A          F        GenX         Tammy
## 31          a          A          F Millennial        Alexis
## 32          a          A          F Millennial       Bethany
## 33          a          A          F Millennial      Samantha
## 34          a          A          F Millennial      Brittney
## 35          a          A          F Millennial      Brittany
## 36          a          A          F Millennial        Latoya
## 37          a          B          M      Boomer          Gene
## 38          a          B          M      Boomer           Ray
## 39          a          B          M      Boomer           Lee
## 40          a          B          M      Boomer         Eddie
## 41          a          B          M      Boomer         Leroy
## 42          a          B          M      Boomer         Leroy
## 43          a          B          M        GenX         Chris
## 44          a          B          M        GenX        Darryl
## 45          a          B          M        GenX          Marc
## 46          a          B          M        GenX          Greg
## 47          a          B          M        GenX         Chris
## 48          a          B          M        GenX          Marc
## 49          a          B          M Millennial          Evan
## 50          a          B          M Millennial          Seth
## 51          a          B          M Millennial     Christian
## 52          a          B          M Millennial        Austin
## 53          a          B          M Millennial       Zachary
## 54          a          B          M Millennial        Austin
## 55          a          B          F      Boomer       Dorothy
## 56          a          B          F      Boomer        Dianne
## 57          a          B          F      Boomer          Joan
## 58          a          B          F      Boomer          Joan
## 59          a          B          F      Boomer       Mildred
## 60          a          B          F      Boomer        Dianne
## 61          a          B          F        GenX        Sherri
## 62          a          B          F        GenX         Tammy
## 63          a          B          F        GenX        Sherri
```

```
## 64             a         B         F       GenX      Sherri
## 65             a         B         F       GenX       Tammy
## 66             a         B         F       GenX      Tamara
## 67             a         B         F Millennial    Candice
## 68             a         B         F Millennial     Lauren
## 69             a         B         F Millennial    Candice
## 70             a         B         F Millennial    Candice
## 71             a         B         F Millennial    Candice
## 72             a         B         F Millennial    Brittany
## 73             a         C         M     Boomer      Leroy
## 74             a         C         M     Boomer      Eddie
## 75             a         C         M     Boomer    Herbert
## 76             a         C         M     Boomer     Alfred
## 77             a         C         M     Boomer        Ray
## 78             a         C         M     Boomer      Eddie
## 79             a         C         M       GenX      Jamie
## 80             a         C         M       GenX        Jon
## 81             a         C         M       GenX      Chris
## 82             a         C         M       GenX      Chris
## 83             a         C         M       GenX       Marc
## 84             a         C         M       GenX        Jon
## 85             a         C         M Millennial    Zachary
## 86             a         C         M Millennial       Seth
## 87             a         C         M Millennial    Gabriel
## 88             a         C         M Millennial      Casey
## 89             a         C         M Millennial  Christian
## 90             a         C         M Millennial       Luis
## 91             a         C         F     Boomer        Kay
## 92             a         C         F     Boomer    Mildred
## 93             a         C         F     Boomer   Lorraine
## 94             a         C         F     Boomer    Mildred
## 95             a         C         F     Boomer    Shirley
## 96             a         C         F     Boomer   Lorraine
## 97             a         C         F       GenX     Tamara
## 98             a         C         F       GenX    Melinda
## 99             a         C         F       GenX    Colleen
## 100            a         C         F       GenX      Tracy
## 101            a         C         F       GenX      Tammy
## 102            a         C         F       GenX     Sherri
## 103            a         C         F Millennial     Taylor
## 104            a         C         F Millennial   Samantha
## 105            a         C         F Millennial   Brittney
## 106            a         C         F Millennial     Alexis
## 107            a         C         F Millennial    Bethany
## 108            a         C         F Millennial     Lauren
## 109            b         A         M     Boomer   Theodore
## 110            b         A         M     Boomer    Bernard
## 111            b         A         M     Boomer      Leroy
## 112            b         A         M     Boomer      Eddie
## 113            b         A         M     Boomer      Eddie
## 114            b         A         M     Boomer       Gene
## 115            b         A         M       GenX        Tim
## 116            b         A         M       GenX       Troy
## 117            b         A         M       GenX      Jamie
```

```
## 118           b         A         M      GenX       Greg
## 119           b         A         M      GenX       Marc
## 120           b         A         M      GenX       Greg
## 121           b         A         M Millennial   Zachary
## 122           b         A         M Millennial    Gabriel
## 123           b         A         M Millennial      Seth
## 124           b         A         M Millennial     Casey
## 125           b         A         M Millennial      Luis
## 126           b         A         M Millennial      Evan
## 127           b         A         F    Boomer    Mildred
## 128           b         A         F    Boomer     Dianne
## 129           b         A         F    Boomer   Marjorie
## 130           b         A         F    Boomer    Mildred
## 131           b         A         F    Boomer    Shirley
## 132           b         A         F    Boomer    Shirley
## 133           b         A         F      GenX      Tammy
## 134           b         A         F      GenX    Melinda
## 135           b         A         F      GenX     Sherri
## 136           b         A         F      GenX       Tina
## 137           b         A         F      GenX       Tina
## 138           b         A         F      GenX    Colleen
## 139           b         A         F Millennial   Bethany
## 140           b         A         F Millennial    Alexis
## 141           b         A         F Millennial     Taylor
## 142           b         A         F Millennial   Cheyenne
## 143           b         A         F Millennial    Alexis
## 144           b         A         F Millennial    Alexis
## 145           b         B         M    Boomer    Bernard
## 146           b         B         M    Boomer        Ray
## 147           b         B         M    Boomer        Ray
## 148           b         B         M    Boomer        Ray
## 149           b         B         M    Boomer        Tom
## 150           b         B         M    Boomer    Herbert
## 151           b         B         M      GenX      Jamie
## 152           b         B         M      GenX       Dean
## 153           b         B         M      GenX       Dean
## 154           b         B         M      GenX      Chris
## 155           b         B         M      GenX     Darryl
## 156           b         B         M      GenX      Jamie
## 157           b         B         M Millennial  Christian
## 158           b         B         M Millennial     Austin
## 159           b         B         M Millennial    Zachary
## 160           b         B         M Millennial     Wesley
## 161           b         B         M Millennial     Wesley
## 162           b         B         M Millennial     Austin
## 163           b         B         F    Boomer    Lorraine
## 164           b         B         F    Boomer       Joan
## 165           b         B         F    Boomer      Betty
## 166           b         B         F    Boomer    Dorothy
## 167           b         B         F    Boomer     Gloria
## 168           b         B         F    Boomer        Kay
## 169           b         B         F      GenX    Colleen
## 170           b         B         F      GenX     Tracey
## 171           b         B         F      GenX      Heidi
```

```
## 172          b          B          F        GenX    Melinda
## 173          b          B          F        GenX    Melinda
## 174          b          B          F        GenX      Tracy
## 175          b          B          F Millennial    Candice
## 176          b          B          F Millennial   Brittney
## 177          b          B          F Millennial   Brittany
## 178          b          B          F Millennial    Bethany
## 179          b          B          F Millennial     Latoya
## 180          b          B          F Millennial     Taylor
## 181          b          C          M      Boomer        Ray
## 182          b          C          M      Boomer      Eddie
## 183          b          C          M      Boomer        Lee
## 184          b          C          M      Boomer     Alfred
## 185          b          C          M      Boomer        Ray
## 186          b          C          M      Boomer   Theodore
## 187          b          C          M        GenX        Jon
## 188          b          C          M        GenX        Jon
## 189          b          C          M        GenX       Greg
## 190          b          C          M        GenX       Dean
## 191          b          C          M        GenX       Marc
## 192          b          C          M        GenX       Dean
## 193          b          C          M Millennial       Luis
## 194          b          C          M Millennial     Wesley
## 195          b          C          M Millennial       Evan
## 196          b          C          M Millennial      Casey
## 197          b          C          M Millennial       Luis
## 198          b          C          M Millennial    Zachary
## 199          b          C          F      Boomer   Marjorie
## 200          b          C          F      Boomer   Lorraine
## 201          b          C          F      Boomer     Gloria
## 202          b          C          F      Boomer   Lorraine
## 203          b          C          F      Boomer    Shirley
## 204          b          C          F      Boomer    Mildred
## 205          b          C          F        GenX      Heidi
## 206          b          C          F        GenX      Tammy
## 207          b          C          F        GenX    Melinda
## 208          b          C          F        GenX     Tamara
## 209          b          C          F        GenX       Dawn
## 210          b          C          F        GenX      Tammy
## 211          b          C          F Millennial    Candice
## 212          b          C          F Millennial     Latoya
## 213          b          C          F Millennial   Samantha
## 214          b          C          F Millennial    Bethany
## 215          b          C          F Millennial   Cheyenne
## 216          b          C          F Millennial     Alexis
## 217          c          A          M      Boomer     Alfred
## 218          c          A          M      Boomer        Ray
## 219          c          A          M      Boomer        Tom
## 220          c          A          M      Boomer    Bernard
## 221          c          A          M      Boomer     Alfred
## 222          c          A          M      Boomer     Alfred
## 223          c          A          M        GenX       Marc
## 224          c          A          M        GenX        Tim
## 225          c          A          M        GenX       Greg
```

```
## 226   c   A   M       GenX      Marc
## 227   c   A   M       GenX      Marc
## 228   c   A   M       GenX      Marc
## 229   c   A   M Millennial Christian
## 230   c   A   M Millennial    Austin
## 231   c   A   M Millennial     Dylan
## 232   c   A   M Millennial     Dylan
## 233   c   A   M Millennial      Evan
## 234   c   A   M Millennial Christian
## 235   c   A   F     Boomer     Gloria
## 236   c   A   F     Boomer    Shirley
## 237   c   A   F     Boomer       Joan
## 238   c   A   F     Boomer        Kay
## 239   c   A   F     Boomer    Shirley
## 240   c   A   F     Boomer      Betty
## 241   c   A   F       GenX    Colleen
## 242   c   A   F       GenX     Tracey
## 243   c   A   F       GenX      Tracy
## 244   c   A   F       GenX     Tamara
## 245   c   A   F       GenX       Dawn
## 246   c   A   F       GenX    Melinda
## 247   c   A   F Millennial    Latoya
## 248   c   A   F Millennial     Alexis
## 249   c   A   F Millennial   Brittany
## 250   c   A   F Millennial   Samantha
## 251   c   A   F Millennial   Brittney
## 252   c   A   F Millennial     Lauren
## 253   c   B   M     Boomer      Leroy
## 254   c   B   M     Boomer   Theodore
## 255   c   B   M     Boomer    Herbert
## 256   c   B   M     Boomer       Gene
## 257   c   B   M     Boomer       Gene
## 258   c   B   M     Boomer       Gene
## 259   c   B   M       GenX       Greg
## 260   c   B   M       GenX       Dean
## 261   c   B   M       GenX       Jeff
## 262   c   B   M       GenX      Jamie
## 263   c   B   M       GenX       Dean
## 264   c   B   M       GenX       Jeff
## 265   c   B   M Millennial      Casey
## 266   c   B   M Millennial     Austin
## 267   c   B   M Millennial      Dylan
## 268   c   B   M Millennial       Luis
## 269   c   B   M Millennial       Seth
## 270   c   B   M Millennial Christian
## 271   c   B   F     Boomer   Marjorie
## 272   c   B   F     Boomer    Shirley
## 273   c   B   F     Boomer       Joan
## 274   c   B   F     Boomer    Shirley
## 275   c   B   F     Boomer    Dorothy
## 276   c   B   F     Boomer    Shirley
## 277   c   B   F       GenX     Tamara
## 278   c   B   F       GenX     Tamara
## 279   c   B   F       GenX     Tamara
```

```
## 280        c        B        F        GenX        Sherri
## 281        c        B        F        GenX       Colleen
## 282        c        B        F        GenX          Tina
## 283        c        B        F Millennial     Samantha
## 284        c        B        F Millennial      Bethany
## 285        c        B        F Millennial      Bethany
## 286        c        B        F Millennial     Brittney
## 287        c        B        F Millennial     Brittany
## 288        c        B        F Millennial     Cheyenne
## 289        c        C        M      Boomer          Ray
## 290        c        C        M      Boomer          Lee
## 291        c        C        M      Boomer        Leroy
## 292        c        C        M      Boomer          Tom
## 293        c        C        M      Boomer         Gene
## 294        c        C        M      Boomer      Bernard
## 295        c        C        M        GenX        Chris
## 296        c        C        M        GenX          Jon
## 297        c        C        M        GenX          Tim
## 298        c        C        M        GenX          Jon
## 299        c        C        M        GenX         Troy
## 300        c        C        M        GenX       Darryl
## 301        c        C        M Millennial    Christian
## 302        c        C        M Millennial      Gabriel
## 303        c        C        M Millennial         Luis
## 304        c        C        M Millennial      Zachary
## 305        c        C        M Millennial      Gabriel
## 306        c        C        M Millennial      Zachary
## 307        c        C        F      Boomer          Kay
## 308        c        C        F      Boomer      Dorothy
## 309        c        C        F      Boomer         Joan
## 310        c        C        F      Boomer      Dorothy
## 311        c        C        F      Boomer     Lorraine
## 312        c        C        F      Boomer     Lorraine
## 313        c        C        F        GenX      Melinda
## 314        c        C        F        GenX      Colleen
## 315        c        C        F        GenX       Tamara
## 316        c        C        F        GenX        Heidi
## 317        c        C        F        GenX      Colleen
## 318        c        C        F        GenX      Melinda
## 319        c        C        F Millennial      Candice
## 320        c        C        F Millennial       Lauren
## 321        c        C        F Millennial     Samantha
## 322        c        C        F Millennial      Bethany
## 323        c        C        F Millennial     Brittany
## 324        c        C        F Millennial      Bethany
## 325        d        A        M      Boomer     Theodore
## 326        d        A        M      Boomer        Eddie
## 327        d        A        M      Boomer      Herbert
## 328        d        A        M      Boomer          Lee
## 329        d        A        M      Boomer      Bernard
## 330        d        A        M      Boomer          Tom
## 331        d        A        M        GenX        Jamie
## 332        d        A        M        GenX       Darryl
## 333        d        A        M        GenX         Troy
```

```
## 334            d          A       M       GenX       Darryl
## 335            d          A       M       GenX        Jamie
## 336            d          A       M       GenX        Chris
## 337            d          A       M Millennial       Austin
## 338            d          A       M Millennial      Zachary
## 339            d          A       M Millennial        Dylan
## 340            d          A       M Millennial       Austin
## 341            d          A       M Millennial    Christian
## 342            d          A       M Millennial       Wesley
## 343            d          A       F     Boomer     Marjorie
## 344            d          A       F     Boomer     Marjorie
## 345            d          A       F     Boomer     Marjorie
## 346            d          A       F     Boomer       Dianne
## 347            d          A       F     Boomer       Dorothy
## 348            d          A       F     Boomer     Lorraine
## 349            d          A       F       GenX      Colleen
## 350            d          A       F       GenX        Tammy
## 351            d          A       F       GenX       Tamara
## 352            d          A       F       GenX        Tammy
## 353            d          A       F       GenX         Tina
## 354            d          A       F       GenX        Heidi
## 355            d          A       F Millennial       Lauren
## 356            d          A       F Millennial     Brittney
## 357            d          A       F Millennial       Alexis
## 358            d          A       F Millennial       Alexis
## 359            d          A       F Millennial       Taylor
## 360            d          A       F Millennial     Brittany
## 361            d          B       M     Boomer        Leroy
## 362            d          B       M     Boomer          Ray
## 363            d          B       M     Boomer        Eddie
## 364            d          B       M     Boomer        Leroy
## 365            d          B       M     Boomer          Lee
## 366            d          B       M     Boomer       Alfred
## 367            d          B       M       GenX       Darryl
## 368            d          B       M       GenX         Marc
## 369            d          B       M       GenX        Chris
## 370            d          B       M       GenX       Darryl
## 371            d          B       M       GenX       Darryl
## 372            d          B       M       GenX          Tim
## 373            d          B       M Millennial      Zachary
## 374            d          B       M Millennial      Gabriel
## 375            d          B       M Millennial         Seth
## 376            d          B       M Millennial    Christian
## 377            d          B       M Millennial       Wesley
## 378            d          B       M Millennial        Casey
## 379            d          B       F     Boomer       Gloria
## 380            d          B       F     Boomer          Kay
## 381            d          B       F     Boomer       Dorothy
## 382            d          B       F     Boomer       Mildred
## 383            d          B       F     Boomer      Shirley
## 384            d          B       F     Boomer        Betty
## 385            d          B       F       GenX       Tracey
## 386            d          B       F       GenX      Colleen
## 387            d          B       F       GenX        Tammy
```

```
## 388          d          B          F          GenX          Tina
## 389          d          B          F          GenX          Tina
## 390          d          B          F          GenX       Colleen
## 391          d          B          F Millennial      Cheyenne
## 392          d          B          F Millennial        Latoya
## 393          d          B          F Millennial      Brittney
## 394          d          B          F Millennial      Cheyenne
## 395          d          B          F Millennial        Latoya
## 396          d          B          F Millennial        Latoya
## 397          d          C          M      Boomer       Bernard
## 398          d          C          M      Boomer           Tom
## 399          d          C          M      Boomer        Alfred
## 400          d          C          M      Boomer           Lee
## 401          d          C          M      Boomer           Lee
## 402          d          C          M      Boomer         Leroy
## 403          d          C          M        GenX           Jon
## 404          d          C          M        GenX        Darryl
## 405          d          C          M        GenX           Jon
## 406          d          C          M        GenX          Greg
## 407          d          C          M        GenX           Jon
## 408          d          C          M        GenX          Greg
## 409          d          C          M Millennial        Wesley
## 410          d          C          M Millennial          Luis
## 411          d          C          M Millennial        Austin
## 412          d          C          M Millennial         Dylan
## 413          d          C          M Millennial     Christian
## 414          d          C          M Millennial        Wesley
## 415          d          C          F      Boomer      Marjorie
## 416          d          C          F      Boomer          Joan
## 417          d          C          F      Boomer        Gloria
## 418          d          C          F      Boomer       Shirley
## 419          d          C          F      Boomer         Betty
## 420          d          C          F      Boomer         Betty
## 421          d          C          F        GenX       Colleen
## 422          d          C          F        GenX          Dawn
## 423          d          C          F        GenX        Tamara
## 424          d          C          F        GenX        Tracey
## 425          d          C          F        GenX        Tamara
## 426          d          C          F        GenX         Tracy
## 427          d          C          F Millennial      Brittney
## 428          d          C          F Millennial        Alexis
## 429          d          C          F Millennial      Samantha
## 430          d          C          F Millennial        Lauren
## 431          d          C          F Millennial       Bethany
## 432          d          C          F Millennial        Lauren
## 433          e          A          M      Boomer      Theodore
## 434          e          A          M      Boomer        Alfred
## 435          e          A          M      Boomer         Eddie
## 436          e          A          M      Boomer         Leroy
## 437          e          A          M      Boomer           Lee
## 438          e          A          M      Boomer           Tom
## 439          e          A          M        GenX          Greg
## 440          e          A          M        GenX         Jamie
## 441          e          A          M        GenX           Tim
```

```
## 442   e   A   M       GenX        Tim
## 443   e   A   M       GenX       Troy
## 444   e   A   M       GenX        Tim
## 445   e   A   M Millennial Christian
## 446   e   A   M Millennial      Seth
## 447   e   A   M Millennial   Zachary
## 448   e   A   M Millennial    Wesley
## 449   e   A   M Millennial   Gabriel
## 450   e   A   M Millennial    Austin
## 451   e   A   F     Boomer    Dianne
## 452   e   A   F     Boomer    Dianne
## 453   e   A   F     Boomer       Kay
## 454   e   A   F     Boomer     Betty
## 455   e   A   F     Boomer   Dorothy
## 456   e   A   F     Boomer    Dianne
## 457   e   A   F       GenX      Dawn
## 458   e   A   F       GenX     Tracy
## 459   e   A   F       GenX     Tammy
## 460   e   A   F       GenX   Colleen
## 461   e   A   F       GenX    Tracey
## 462   e   A   F       GenX     Tammy
## 463   e   A   F Millennial  Samantha
## 464   e   A   F Millennial    Alexis
## 465   e   A   F Millennial   Candice
## 466   e   A   F Millennial  Cheyenne
## 467   e   A   F Millennial  Samantha
## 468   e   A   F Millennial   Candice
## 469   e   B   M     Boomer    Alfred
## 470   e   B   M     Boomer      Gene
## 471   e   B   M     Boomer    Alfred
## 472   e   B   M     Boomer     Eddie
## 473   e   B   M     Boomer       Tom
## 474   e   B   M     Boomer     Eddie
## 475   e   B   M       GenX      Dean
## 476   e   B   M       GenX      Marc
## 477   e   B   M       GenX      Dean
## 478   e   B   M       GenX    Darryl
## 479   e   B   M       GenX       Tim
## 480   e   B   M       GenX      Marc
## 481   e   B   M Millennial   Gabriel
## 482   e   B   M Millennial    Austin
## 483   e   B   M Millennial Christian
## 484   e   B   M Millennial     Dylan
## 485   e   B   M Millennial     Casey
## 486   e   B   M Millennial      Evan
## 487   e   B   F     Boomer    Dianne
## 488   e   B   F     Boomer  Marjorie
## 489   e   B   F     Boomer  Marjorie
## 490   e   B   F     Boomer    Dianne
## 491   e   B   F     Boomer     Betty
## 492   e   B   F     Boomer       Kay
## 493   e   B   F       GenX   Colleen
## 494   e   B   F       GenX   Colleen
## 495   e   B   F       GenX      Tina
```

```
## 496           e            B       F        GenX       Sherri
## 497           e            B       F        GenX       Tamara
## 498           e            B       F        GenX       Sherri
## 499           e            B       F Millennial      Lauren
## 500           e            B       F Millennial    Brittney
## 501           e            B       F Millennial      Latoya
## 502           e            B       F Millennial     Bethany
## 503           e            B       F Millennial      Lauren
## 504           e            B       F Millennial     Candice
## 505           e            C       M      Boomer         Tom
## 506           e            C       M      Boomer         Tom
## 507           e            C       M      Boomer     Bernard
## 508           e            C       M      Boomer         Ray
## 509           e            C       M      Boomer     Bernard
## 510           e            C       M      Boomer         Ray
## 511           e            C       M        GenX        Troy
## 512           e            C       M        GenX         Tim
## 513           e            C       M        GenX         Tim
## 514           e            C       M        GenX       Jamie
## 515           e            C       M        GenX       Chris
## 516           e            C       M        GenX         Tim
## 517           e            C       M Millennial      Austin
## 518           e            C       M Millennial        Seth
## 519           e            C       M Millennial        Luis
## 520           e            C       M Millennial       Casey
## 521           e            C       M Millennial     Zachary
## 522           e            C       M Millennial      Austin
## 523           e            C       F      Boomer       Betty
## 524           e            C       F      Boomer      Gloria
## 525           e            C       F      Boomer     Mildred
## 526           e            C       F      Boomer      Dianne
## 527           e            C       F      Boomer     Mildred
## 528           e            C       F      Boomer    Lorraine
## 529           e            C       F        GenX     Melinda
## 530           e            C       F        GenX     Melinda
## 531           e            C       F        GenX       Tammy
## 532           e            C       F        GenX        Tina
## 533           e            C       F        GenX       Tammy
## 534           e            C       F        GenX     Colleen
## 535           e            C       F Millennial      Taylor
## 536           e            C       F Millennial      Latoya
## 537           e            C       F Millennial     Candice
## 538           e            C       F Millennial      Latoya
## 539           e            C       F Millennial    Brittany
## 540           e            C       F Millennial      Lauren
## 541           f            A       M      Boomer     Herbert
## 542           f            A       M      Boomer         Ray
## 543           f            A       M      Boomer     Herbert
## 544           f            A       M      Boomer       Leroy
## 545           f            A       M      Boomer      Alfred
## 546           f            A       M      Boomer    Theodore
## 547           f            A       M        GenX         Jon
## 548           f            A       M        GenX         Jon
## 549           f            A       M        GenX        Troy
```

```
## 550            f          A          M       GenX         Jon
## 551            f          A          M       GenX       Chris
## 552            f          A          M       GenX         Jon
## 553            f          A          M Millennial       Seth
## 554            f          A          M Millennial       Luis
## 555            f          A          M Millennial    Gabriel
## 556            f          A          M Millennial  Christian
## 557            f          A          M Millennial      Casey
## 558            f          A          M Millennial  Christian
## 559            f          A          F     Boomer      Betty
## 560            f          A          F     Boomer    Mildred
## 561            f          A          F     Boomer        Kay
## 562            f          A          F     Boomer     Dianne
## 563            f          A          F     Boomer        Kay
## 564            f          A          F     Boomer     Gloria
## 565            f          A          F       GenX      Sherri
## 566            f          A          F       GenX     Tamara
## 567            f          A          F       GenX      Heidi
## 568            f          A          F       GenX     Tracey
## 569            f          A          F       GenX      Tammy
## 570            f          A          F       GenX     Tracey
## 571            f          A          F Millennial     Lauren
## 572            f          A          F Millennial    Candice
## 573            f          A          F Millennial     Latoya
## 574            f          A          F Millennial     Latoya
## 575            f          A          F Millennial     Taylor
## 576            f          A          F Millennial    Bethany
## 577            f          B          M     Boomer     Alfred
## 578            f          B          M     Boomer    Herbert
## 579            f          B          M     Boomer      Eddie
## 580            f          B          M     Boomer     Alfred
## 581            f          B          M     Boomer        Ray
## 582            f          B          M     Boomer        Lee
## 583            f          B          M       GenX        Tim
## 584            f          B          M       GenX     Darryl
## 585            f          B          M       GenX      Jamie
## 586            f          B          M       GenX       Dean
## 587            f          B          M       GenX      Jamie
## 588            f          B          M       GenX        Jon
## 589            f          B          M Millennial    Gabriel
## 590            f          B          M Millennial       Evan
## 591            f          B          M Millennial     Austin
## 592            f          B          M Millennial    Gabriel
## 593            f          B          M Millennial       Evan
## 594            f          B          M Millennial  Christian
## 595            f          B          F     Boomer    Dorothy
## 596            f          B          F     Boomer    Dorothy
## 597            f          B          F     Boomer    Marjorie
## 598            f          B          F     Boomer        Kay
## 599            f          B          F     Boomer      Betty
## 600            f          B          F     Boomer    Dorothy
## 601            f          B          F       GenX      Heidi
## 602            f          B          F       GenX      Heidi
## 603            f          B          F       GenX     Tamara
```

```
## 604          f          B          F          GenX       Tammy
## 605          f          B          F          GenX      Sherri
## 606          f          B          F          GenX      Tracey
## 607          f          B          F Millennial     Candice
## 608          f          B          F Millennial     Bethany
## 609          f          B          F Millennial     Candice
## 610          f          B          F Millennial      Taylor
## 611          f          B          F Millennial    Brittney
## 612          f          B          F Millennial    Cheyenne
## 613          f          C          M    Boomer       Leroy
## 614          f          C          M    Boomer         Tom
## 615          f          C          M    Boomer     Bernard
## 616          f          C          M    Boomer       Leroy
## 617          f          C          M    Boomer     Herbert
## 618          f          C          M    Boomer    Theodore
## 619          f          C          M      GenX        Jeff
## 620          f          C          M      GenX      Darryl
## 621          f          C          M      GenX         Tim
## 622          f          C          M      GenX      Darryl
## 623          f          C          M      GenX        Marc
## 624          f          C          M      GenX         Tim
## 625          f          C          M Millennial        Luis
## 626          f          C          M Millennial     Zachary
## 627          f          C          M Millennial   Christian
## 628          f          C          M Millennial        Luis
## 629          f          C          M Millennial        Seth
## 630          f          C          M Millennial     Zachary
## 631          f          C          F    Boomer     Shirley
## 632          f          C          F    Boomer      Dianne
## 633          f          C          F    Boomer     Shirley
## 634          f          C          F    Boomer     Shirley
## 635          f          C          F    Boomer        Joan
## 636          f          C          F    Boomer      Dianne
## 637          f          C          F      GenX       Tammy
## 638          f          C          F      GenX      Sherri
## 639          f          C          F      GenX       Heidi
## 640          f          C          F      GenX       Heidi
## 641          f          C          F      GenX        Dawn
## 642          f          C          F      GenX      Tracey
## 643          f          C          F Millennial     Candice
## 644          f          C          F Millennial      Latoya
## 645          f          C          F Millennial    Cheyenne
## 646          f          C          F Millennial      Latoya
## 647          f          C          F Millennial     Candice
## 648          f          C          F Millennial      Alexis
## 649          g          A          M    Boomer     Bernard
## 650          g          A          M    Boomer         Lee
## 651          g          A          M    Boomer      Alfred
## 652          g          A          M    Boomer        Gene
## 653          g          A          M    Boomer     Bernard
## 654          g          A          M    Boomer    Theodore
## 655          g          A          M      GenX        Troy
## 656          g          A          M      GenX       Jamie
## 657          g          A          M      GenX         Tim
```

```
## 658           g         A    M       GenX       Jeff
## 659           g         A    M       GenX        Tim
## 660           g         A    M       GenX       Marc
## 661           g         A    M Millennial       Seth
## 662           g         A    M Millennial     Wesley
## 663           g         A    M Millennial    Zachary
## 664           g         A    M Millennial     Gabriel
## 665           g         A    M Millennial      Casey
## 666           g         A    M Millennial  Christian
## 667           g         A    F      Boomer    Mildred
## 668           g         A    F      Boomer    Shirley
## 669           g         A    F      Boomer     Dianne
## 670           g         A    F      Boomer        Kay
## 671           g         A    F      Boomer    Dorothy
## 672           g         A    F      Boomer    Mildred
## 673           g         A    F        GenX       Dawn
## 674           g         A    F        GenX     Tamara
## 675           g         A    F        GenX      Tammy
## 676           g         A    F        GenX       Dawn
## 677           g         A    F        GenX      Heidi
## 678           g         A    F        GenX       Tina
## 679           g         A    F Millennial     Latoya
## 680           g         A    F Millennial    Candice
## 681           g         A    F Millennial    Brittney
## 682           g         A    F Millennial     Lauren
## 683           g         A    F Millennial    Brittney
## 684           g         A    F Millennial    Bethany
## 685           g         B    M      Boomer        Ray
## 686           g         B    M      Boomer    Bernard
## 687           g         B    M      Boomer        Lee
## 688           g         B    M      Boomer      Eddie
## 689           g         B    M      Boomer       Gene
## 690           g         B    M      Boomer    Herbert
## 691           g         B    M        GenX      Chris
## 692           g         B    M        GenX     Darryl
## 693           g         B    M        GenX     Darryl
## 694           g         B    M        GenX        Tim
## 695           g         B    M        GenX        Jon
## 696           g         B    M        GenX      Chris
## 697           g         B    M Millennial     Wesley
## 698           g         B    M Millennial       Luis
## 699           g         B    M Millennial      Casey
## 700           g         B    M Millennial       Seth
## 701           g         B    M Millennial     Austin
## 702           g         B    M Millennial       Seth
## 703           g         B    F      Boomer      Betty
## 704           g         B    F      Boomer       Joan
## 705           g         B    F      Boomer    Lorraine
## 706           g         B    F      Boomer     Gloria
## 707           g         B    F      Boomer        Kay
## 708           g         B    F      Boomer    Dorothy
## 709           g         B    F        GenX    Melinda
## 710           g         B    F        GenX       Tina
## 711           g         B    F        GenX     Sherri
```

```
## 712      g        B        F        GenX        Tina
## 713      g        B        F        GenX       Tracy
## 714      g        B        F        GenX     Colleen
## 715      g        B        F  Millennial     Alexis
## 716      g        B        F  Millennial     Lauren
## 717      g        B        F  Millennial    Candice
## 718      g        B        F  Millennial     Alexis
## 719      g        B        F  Millennial     Lauren
## 720      g        B        F  Millennial    Bethany
## 721      g        C        M      Boomer       Gene
## 722      g        C        M      Boomer      Leroy
## 723      g        C        M      Boomer     Alfred
## 724      g        C        M      Boomer    Herbert
## 725      g        C        M      Boomer       Gene
## 726      g        C        M      Boomer      Eddie
## 727      g        C        M        GenX       Troy
## 728      g        C        M        GenX       Greg
## 729      g        C        M        GenX        Tim
## 730      g        C        M        GenX      Jamie
## 731      g        C        M        GenX       Troy
## 732      g        C        M        GenX       Dean
## 733      g        C        M  Millennial     Austin
## 734      g        C        M  Millennial     Wesley
## 735      g        C        M  Millennial  Christian
## 736      g        C        M  Millennial     Austin
## 737      g        C        M  Millennial     Austin
## 738      g        C        M  Millennial  Christian
## 739      g        C        F      Boomer    Dorothy
## 740      g        C        F      Boomer       Joan
## 741      g        C        F      Boomer     Gloria
## 742      g        C        F      Boomer    Mildred
## 743      g        C        F      Boomer   Marjorie
## 744      g        C        F      Boomer      Betty
## 745      g        C        F        GenX      Tammy
## 746      g        C        F        GenX      Heidi
## 747      g        C        F        GenX       Tina
## 748      g        C        F        GenX    Colleen
## 749      g        C        F        GenX      Heidi
## 750      g        C        F        GenX       Tina
## 751      g        C        F  Millennial     Lauren
## 752      g        C        F  Millennial     Lauren
## 753      g        C        F  Millennial     Alexis
## 754      g        C        F  Millennial   Brittany
## 755      g        C        F  Millennial   Brittney
## 756      g        C        F  Millennial     Lauren
## 757      h        A        M      Boomer     Alfred
## 758      h        A        M      Boomer    Herbert
## 759      h        A        M      Boomer    Bernard
## 760      h        A        M      Boomer        Ray
## 761      h        A        M      Boomer     Alfred
## 762      h        A        M      Boomer        Tom
## 763      h        A        M        GenX       Marc
## 764      h        A        M        GenX       Greg
## 765      h        A        M        GenX      Jamie
```

```
## 766           h          A          M         GenX        Marc
## 767           h          A          M         GenX        Marc
## 768           h          A          M         GenX        Jeff
## 769           h          A          M Millennial       Casey
## 770           h          A          M Millennial      Wesley
## 771           h          A          M Millennial     Zachary
## 772           h          A          M Millennial        Seth
## 773           h          A          M Millennial        Luis
## 774           h          A          M Millennial        Luis
## 775           h          A          F     Boomer       Betty
## 776           h          A          F     Boomer    Lorraine
## 777           h          A          F     Boomer    Lorraine
## 778           h          A          F     Boomer    Lorraine
## 779           h          A          F     Boomer         Kay
## 780           h          A          F     Boomer    Marjorie
## 781           h          A          F       GenX       Tracy
## 782           h          A          F       GenX     Melinda
## 783           h          A          F       GenX      Tamara
## 784           h          A          F       GenX       Tammy
## 785           h          A          F       GenX      Tracey
## 786           h          A          F       GenX       Tammy
## 787           h          A          F Millennial      Latoya
## 788           h          A          F Millennial      Latoya
## 789           h          A          F Millennial     Bethany
## 790           h          A          F Millennial      Latoya
## 791           h          A          F Millennial      Taylor
## 792           h          A          F Millennial      Taylor
## 793           h          B          M     Boomer         Tom
## 794           h          B          M     Boomer        Gene
## 795           h          B          M     Boomer      Alfred
## 796           h          B          M     Boomer      Alfred
## 797           h          B          M     Boomer    Theodore
## 798           h          B          M     Boomer    Theodore
## 799           h          B          M       GenX       Chris
## 800           h          B          M       GenX       Jamie
## 801           h          B          M       GenX        Marc
## 802           h          B          M       GenX        Jeff
## 803           h          B          M       GenX         Jon
## 804           h          B          M       GenX        Greg
## 805           h          B          M Millennial     Zachary
## 806           h          B          M Millennial       Dylan
## 807           h          B          M Millennial      Wesley
## 808           h          B          M Millennial        Luis
## 809           h          B          M Millennial     Gabriel
## 810           h          B          M Millennial     Gabriel
## 811           h          B          F     Boomer        Joan
## 812           h          B          F     Boomer       Betty
## 813           h          B          F     Boomer    Lorraine
## 814           h          B          F     Boomer      Dianne
## 815           h          B          F     Boomer     Dorothy
## 816           h          B          F     Boomer         Kay
## 817           h          B          F       GenX      Tracey
## 818           h          B          F       GenX      Tamara
## 819           h          B          F       GenX        Dawn
```

```
## 820          h          B          F          GenX        Tracey
## 821          h          B          F          GenX        Tamara
## 822          h          B          F          GenX        Tracey
## 823          h          B          F    Millennial      Brittney
## 824          h          B          F    Millennial      Cheyenne
## 825          h          B          F    Millennial       Candice
## 826          h          B          F    Millennial      Brittany
## 827          h          B          F    Millennial        Lauren
## 828          h          B          F    Millennial        Taylor
## 829          h          C          M        Boomer       Herbert
## 830          h          C          M        Boomer           Ray
## 831          h          C          M        Boomer       Bernard
## 832          h          C          M        Boomer           Tom
## 833          h          C          M        Boomer        Alfred
## 834          h          C          M        Boomer       Bernard
## 835          h          C          M          GenX          Troy
## 836          h          C          M          GenX        Darryl
## 837          h          C          M          GenX        Darryl
## 838          h          C          M          GenX           Tim
## 839          h          C          M          GenX          Greg
## 840          h          C          M          GenX          Jeff
## 841          h          C          M    Millennial     Christian
## 842          h          C          M    Millennial        Wesley
## 843          h          C          M    Millennial          Seth
## 844          h          C          M    Millennial          Evan
## 845          h          C          M    Millennial        Wesley
## 846          h          C          M    Millennial          Evan
## 847          h          C          F        Boomer        Mildred
## 848          h          C          F        Boomer        Dianne
## 849          h          C          F        Boomer       Dorothy
## 850          h          C          F        Boomer      Lorraine
## 851          h          C          F        Boomer         Betty
## 852          h          C          F        Boomer       Dorothy
## 853          h          C          F          GenX          Dawn
## 854          h          C          F          GenX          Dawn
## 855          h          C          F          GenX         Tracy
## 856          h          C          F          GenX         Tracy
## 857          h          C          F          GenX         Tammy
## 858          h          C          F          GenX         Tracy
## 859          h          C          F    Millennial        Latoya
## 860          h          C          F    Millennial      Cheyenne
## 861          h          C          F    Millennial       Candice
## 862          h          C          F    Millennial        Latoya
## 863          h          C          F    Millennial      Samantha
## 864          h          C          F    Millennial      Samantha
## 865          i          A          M        Boomer           Lee
## 866          i          A          M        Boomer       Herbert
## 867          i          A          M        Boomer        Alfred
## 868          i          A          M        Boomer      Theodore
## 869          i          A          M        Boomer       Bernard
## 870          i          A          M        Boomer           Lee
## 871          i          A          M          GenX           Tim
## 872          i          A          M          GenX           Jon
## 873          i          A          M          GenX           Jon
```

```
## 874            i         A         M       GenX        Jeff
## 875            i         A         M       GenX        Marc
## 876            i         A         M       GenX        Troy
## 877            i         A         M Millennial        Luis
## 878            i         A         M Millennial      Wesley
## 879            i         A         M Millennial       Casey
## 880            i         A         M Millennial      Austin
## 881            i         A         M Millennial       Casey
## 882            i         A         M Millennial      Austin
## 883            i         A         F     Boomer      Gloria
## 884            i         A         F     Boomer      Dianne
## 885            i         A         F     Boomer     Mildred
## 886            i         A         F     Boomer     Dorothy
## 887            i         A         F     Boomer     Mildred
## 888            i         A         F     Boomer      Dianne
## 889            i         A         F       GenX       Heidi
## 890            i         A         F       GenX       Heidi
## 891            i         A         F       GenX        Tina
## 892            i         A         F       GenX       Tracy
## 893            i         A         F       GenX     Melinda
## 894            i         A         F       GenX      Sherri
## 895            i         A         F Millennial      Lauren
## 896            i         A         F Millennial    Brittney
## 897            i         A         F Millennial    Brittney
## 898            i         A         F Millennial    Brittany
## 899            i         A         F Millennial     Candice
## 900            i         A         F Millennial    Cheyenne
## 901            i         B         M     Boomer     Theodore
## 902            i         B         M     Boomer         Tom
## 903            i         B         M     Boomer     Bernard
## 904            i         B         M     Boomer         Tom
## 905            i         B         M     Boomer     Bernard
## 906            i         B         M     Boomer       Leroy
## 907            i         B         M       GenX        Dean
## 908            i         B         M       GenX       Jamie
## 909            i         B         M       GenX      Darryl
## 910            i         B         M       GenX       Jamie
## 911            i         B         M       GenX        Greg
## 912            i         B         M       GenX       Jamie
## 913            i         B         M Millennial        Luis
## 914            i         B         M Millennial   Christian
## 915            i         B         M Millennial        Evan
## 916            i         B         M Millennial     Zachary
## 917            i         B         M Millennial     Zachary
## 918            i         B         M Millennial       Dylan
## 919            i         B         F     Boomer     Marjorie
## 920            i         B         F     Boomer        Joan
## 921            i         B         F     Boomer        Joan
## 922            i         B         F     Boomer     Lorraine
## 923            i         B         F     Boomer     Shirley
## 924            i         B         F     Boomer         Kay
## 925            i         B         F       GenX     Melinda
## 926            i         B         F       GenX       Heidi
## 927            i         B         F       GenX     Melinda
```

```
## 928        i        B        F        GenX        Dawn
## 929        i        B        F        GenX       Tammy
## 930        i        B        F        GenX      Sherri
## 931        i        B        F Millennial     Bethany
## 932        i        B        F Millennial    Cheyenne
## 933        i        B        F Millennial      Alexis
## 934        i        B        F Millennial    Cheyenne
## 935        i        B        F Millennial     Brittney
## 936        i        B        F Millennial    Samantha
## 937        i        C        M      Boomer        Gene
## 938        i        C        M      Boomer         Ray
## 939        i        C        M      Boomer     Herbert
## 940        i        C        M      Boomer       Eddie
## 941        i        C        M      Boomer         Tom
## 942        i        C        M      Boomer       Eddie
## 943        i        C        M        GenX        Dean
## 944        i        C        M        GenX        Jeff
## 945        i        C        M        GenX         Jon
## 946        i        C        M        GenX      Darryl
## 947        i        C        M        GenX       Jamie
## 948        i        C        M        GenX      Darryl
## 949        i        C        M Millennial     Gabriel
## 950        i        C        M Millennial     Gabriel
## 951        i        C        M Millennial      Austin
## 952        i        C        M Millennial       Dylan
## 953        i        C        M Millennial      Wesley
## 954        i        C        M Millennial        Seth
## 955        i        C        F      Boomer       Betty
## 956        i        C        F      Boomer     Shirley
## 957        i        C        F      Boomer         Kay
## 958        i        C        F      Boomer      Dianne
## 959        i        C        F      Boomer     Lorraine
## 960        i        C        F      Boomer      Dianne
## 961        i        C        F        GenX     Melinda
## 962        i        C        F        GenX     Melinda
## 963        i        C        F        GenX       Tracy
## 964        i        C        F        GenX       Heidi
## 965        i        C        F        GenX       Tammy
## 966        i        C        F        GenX        Tina
## 967        i        C        F Millennial      Latoya
## 968        i        C        F Millennial     Bethany
## 969        i        C        F Millennial      Latoya
## 970        i        C        F Millennial    Cheyenne
## 971        i        C        F Millennial      Lauren
## 972        i        C        F Millennial      Taylor
## 973        j        A        M      Boomer    Theodore
## 974        j        A        M      Boomer       Leroy
## 975        j        A        M      Boomer        Gene
## 976        j        A        M      Boomer    Theodore
## 977        j        A        M      Boomer         Lee
## 978        j        A        M      Boomer         Lee
## 979        j        A        M        GenX        Troy
## 980        j        A        M        GenX      Darryl
## 981        j        A        M        GenX      Darryl
```

```
## 982         j         A      M       GenX        Tim
## 983         j         A      M       GenX      Chris
## 984         j         A      M       GenX      Jamie
## 985         j         A      M Millennial    Zachary
## 986         j         A      M Millennial       Luis
## 987         j         A      M Millennial    Gabriel
## 988         j         A      M Millennial       Evan
## 989         j         A      M Millennial       Evan
## 990         j         A      M Millennial     Austin
## 991         j         A      F     Boomer    Shirley
## 992         j         A      F     Boomer    Mildred
## 993         j         A      F     Boomer   Lorraine
## 994         j         A      F     Boomer    Shirley
## 995         j         A      F     Boomer     Dianne
## 996         j         A      F     Boomer      Betty
## 997         j         A      F       GenX      Heidi
## 998         j         A      F       GenX     Tracey
## 999         j         A      F       GenX     Sherri
## 1000        j         A      F       GenX     Sherri
## 1001        j         A      F       GenX     Sherri
## 1002        j         A      F       GenX      Heidi
## 1003        j         A      F Millennial   Brittney
## 1004        j         A      F Millennial     Latoya
## 1005        j         A      F Millennial    Bethany
## 1006        j         A      F Millennial     Lauren
## 1007        j         A      F Millennial     Alexis
## 1008        j         A      F Millennial   Brittany
## 1009        j         B      M     Boomer      Eddie
## 1010        j         B      M     Boomer       Gene
## 1011        j         B      M     Boomer    Herbert
## 1012        j         B      M     Boomer        Ray
## 1013        j         B      M     Boomer        Lee
## 1014        j         B      M     Boomer     Alfred
## 1015        j         B      M       GenX        Jon
## 1016        j         B      M       GenX       Marc
## 1017        j         B      M       GenX        Tim
## 1018        j         B      M       GenX      Jamie
## 1019        j         B      M       GenX       Dean
## 1020        j         B      M       GenX       Greg
## 1021        j         B      M Millennial  Christian
## 1022        j         B      M Millennial      Dylan
## 1023        j         B      M Millennial       Luis
## 1024        j         B      M Millennial       Seth
## 1025        j         B      M Millennial      Casey
## 1026        j         B      M Millennial     Wesley
## 1027        j         B      F     Boomer     Dianne
## 1028        j         B      F     Boomer    Dorothy
## 1029        j         B      F     Boomer    Shirley
## 1030        j         B      F     Boomer      Betty
## 1031        j         B      F     Boomer    Shirley
## 1032        j         B      F     Boomer       Joan
## 1033        j         B      F       GenX     Tracey
## 1034        j         B      F       GenX     Tracey
## 1035        j         B      F       GenX      Heidi
```

```
## 1036           j        B        F        GenX       Tamara
## 1037           j        B        F        GenX        Heidi
## 1038           j        B        F        GenX         Tina
## 1039           j        B        F Millennial       Alexis
## 1040           j        B        F Millennial       Taylor
## 1041           j        B        F Millennial     Samantha
## 1042           j        B        F Millennial     Samantha
## 1043           j        B        F Millennial      Bethany
## 1044           j        B        F Millennial       Lauren
## 1045           j        C        M      Boomer      Bernard
## 1046           j        C        M      Boomer      Herbert
## 1047           j        C        M      Boomer      Herbert
## 1048           j        C        M      Boomer          Lee
## 1049           j        C        M      Boomer        Leroy
## 1050           j        C        M      Boomer          Ray
## 1051           j        C        M        GenX        Jamie
## 1052           j        C        M        GenX       Darryl
## 1053           j        C        M        GenX          Tim
## 1054           j        C        M        GenX         Marc
## 1055           j        C        M        GenX         Jeff
## 1056           j        C        M        GenX       Darryl
## 1057           j        C        M Millennial        Dylan
## 1058           j        C        M Millennial       Wesley
## 1059           j        C        M Millennial         Luis
## 1060           j        C        M Millennial      Zachary
## 1061           j        C        M Millennial        Dylan
## 1062           j        C        M Millennial      Gabriel
## 1063           j        C        F      Boomer       Gloria
## 1064           j        C        F      Boomer      Shirley
## 1065           j        C        F      Boomer      Mildred
## 1066           j        C        F      Boomer       Gloria
## 1067           j        C        F      Boomer          Kay
## 1068           j        C        F      Boomer     Lorraine
## 1069           j        C        F        GenX        Heidi
## 1070           j        C        F        GenX      Colleen
## 1071           j        C        F        GenX        Tammy
## 1072           j        C        F        GenX        Tammy
## 1073           j        C        F        GenX       Sherri
## 1074           j        C        F        GenX        Tammy
## 1075           j        C        F Millennial      Candice
## 1076           j        C        F Millennial       Alexis
## 1077           j        C        F Millennial       Lauren
## 1078           j        C        F Millennial       Taylor
## 1079           j        C        F Millennial       Alexis
## 1080           j        C        F Millennial       Taylor
## 1081           k        A        M      Boomer          Tom
## 1082           k        A        M      Boomer          Ray
## 1083           k        A        M      Boomer       Alfred
## 1084           k        A        M      Boomer          Lee
## 1085           k        A        M      Boomer          Ray
## 1086           k        A        M      Boomer          Lee
## 1087           k        A        M        GenX       Darryl
## 1088           k        A        M        GenX         Dean
## 1089           k        A        M        GenX          Tim
```

```
## 1090          k          A          M          GenX          Tim
## 1091          k          A          M          GenX          Dean
## 1092          k          A          M          GenX          Tim
## 1093          k          A          M Millennial    Wesley
## 1094          k          A          M Millennial Christian
## 1095          k          A          M Millennial      Luis
## 1096          k          A          M Millennial      Luis
## 1097          k          A          M Millennial Christian
## 1098          k          A          M Millennial    Austin
## 1099          k          A          F      Boomer   Mildred
## 1100          k          A          F      Boomer       Kay
## 1101          k          A          F      Boomer    Dianne
## 1102          k          A          F      Boomer   Dorothy
## 1103          k          A          F      Boomer     Betty
## 1104          k          A          F      Boomer   Dorothy
## 1105          k          A          F        GenX     Tammy
## 1106          k          A          F        GenX   Colleen
## 1107          k          A          F        GenX     Heidi
## 1108          k          A          F        GenX    Tracey
## 1109          k          A          F        GenX     Tammy
## 1110          k          A          F        GenX     Tammy
## 1111          k          A          F Millennial  Cheyenne
## 1112          k          A          F Millennial   Candice
## 1113          k          A          F Millennial    Taylor
## 1114          k          A          F Millennial    Alexis
## 1115          k          A          F Millennial    Alexis
## 1116          k          A          F Millennial   Candice
## 1117          k          B          M      Boomer     Eddie
## 1118          k          B          M      Boomer       Tom
## 1119          k          B          M      Boomer     Leroy
## 1120          k          B          M      Boomer    Alfred
## 1121          k          B          M      Boomer       Tom
## 1122          k          B          M      Boomer     Eddie
## 1123          k          B          M        GenX     Jamie
## 1124          k          B          M        GenX       Tim
## 1125          k          B          M        GenX      Marc
## 1126          k          B          M        GenX      Marc
## 1127          k          B          M        GenX    Darryl
## 1128          k          B          M        GenX       Jon
## 1129          k          B          M Millennial     Casey
## 1130          k          B          M Millennial    Wesley
## 1131          k          B          M Millennial     Casey
## 1132          k          B          M Millennial      Evan
## 1133          k          B          M Millennial    Wesley
## 1134          k          B          M Millennial    Austin
## 1135          k          B          F      Boomer     Betty
## 1136          k          B          F      Boomer      Joan
## 1137          k          B          F      Boomer      Joan
## 1138          k          B          F      Boomer       Kay
## 1139          k          B          F      Boomer      Joan
## 1140          k          B          F      Boomer     Betty
## 1141          k          B          F        GenX     Tracy
## 1142          k          B          F        GenX      Dawn
## 1143          k          B          F        GenX      Dawn
```

```
## 1144        k        B        F        GenX       Tamara
## 1145        k        B        F        GenX       Tamara
## 1146        k        B        F        GenX      Melinda
## 1147        k        B        F Millennial       Lauren
## 1148        k        B        F Millennial       Alexis
## 1149        k        B        F Millennial       Taylor
## 1150        k        B        F Millennial     Samantha
## 1151        k        B        F Millennial      Bethany
## 1152        k        B        F Millennial      Candice
## 1153        k        C        M      Boomer      Bernard
## 1154        k        C        M      Boomer       Alfred
## 1155        k        C        M      Boomer       Alfred
## 1156        k        C        M      Boomer      Bernard
## 1157        k        C        M      Boomer      Theodore
## 1158        k        C        M      Boomer        Leroy
## 1159        k        C        M        GenX        Jamie
## 1160        k        C        M        GenX          Jon
## 1161        k        C        M        GenX         Troy
## 1162        k        C        M        GenX        Jamie
## 1163        k        C        M        GenX         Dean
## 1164        k        C        M        GenX         Dean
## 1165        k        C        M Millennial       Austin
## 1166        k        C        M Millennial         Luis
## 1167        k        C        M Millennial       Austin
## 1168        k        C        M Millennial        Casey
## 1169        k        C        M Millennial      Zachary
## 1170        k        C        M Millennial       Austin
## 1171        k        C        F      Boomer         Joan
## 1172        k        C        F      Boomer     Lorraine
## 1173        k        C        F      Boomer      Dorothy
## 1174        k        C        F      Boomer       Dianne
## 1175        k        C        F      Boomer       Dianne
## 1176        k        C        F      Boomer      Dorothy
## 1177        k        C        F        GenX      Melinda
## 1178        k        C        F        GenX       Tamara
## 1179        k        C        F        GenX       Tamara
## 1180        k        C        F        GenX        Tracy
## 1181        k        C        F        GenX        Tracy
## 1182        k        C        F        GenX       Sherri
## 1183        k        C        F Millennial       Latoya
## 1184        k        C        F Millennial     Brittney
## 1185        k        C        F Millennial     Brittney
## 1186        k        C        F Millennial       Taylor
## 1187        k        C        F Millennial     Brittany
## 1188        k        C        F Millennial       Alexis
## 1189        l        A        M      Boomer          Lee
## 1190        l        A        M      Boomer      Bernard
## 1191        l        A        M      Boomer      Herbert
## 1192        l        A        M      Boomer      Herbert
## 1193        l        A        M      Boomer       Alfred
## 1194        l        A        M      Boomer       Alfred
## 1195        l        A        M        GenX          Tim
## 1196        l        A        M        GenX         Dean
## 1197        l        A        M        GenX          Tim
```

```
## 1198          l          A          M          GenX          Greg
## 1199          l          A          M          GenX          Marc
## 1200          l          A          M          GenX          Jeff
## 1201          l          A          M Millennial          Dylan
## 1202          l          A          M Millennial        Zachary
## 1203          l          A          M Millennial        Zachary
## 1204          l          A          M Millennial        Zachary
## 1205          l          A          M Millennial           Evan
## 1206          l          A          M Millennial          Dylan
## 1207          l          A          F        Boomer       Marjorie
## 1208          l          A          F        Boomer       Lorraine
## 1209          l          A          F        Boomer       Marjorie
## 1210          l          A          F        Boomer        Mildred
## 1211          l          A          F        Boomer           Joan
## 1212          l          A          F        Boomer        Dorothy
## 1213          l          A          F          GenX          Tammy
## 1214          l          A          F          GenX           Dawn
## 1215          l          A          F          GenX          Heidi
## 1216          l          A          F          GenX          Tracy
## 1217          l          A          F          GenX          Tracy
## 1218          l          A          F          GenX          Tammy
## 1219          l          A          F Millennial         Lauren
## 1220          l          A          F Millennial        Candice
## 1221          l          A          F Millennial       Samantha
## 1222          l          A          F Millennial         Latoya
## 1223          l          A          F Millennial         Taylor
## 1224          l          A          F Millennial        Brittany
## 1225          l          B          M        Boomer        Bernard
## 1226          l          B          M        Boomer          Leroy
## 1227          l          B          M        Boomer        Bernard
## 1228          l          B          M        Boomer            Ray
## 1229          l          B          M        Boomer        Bernard
## 1230          l          B          M        Boomer        Herbert
## 1231          l          B          M          GenX           Troy
## 1232          l          B          M          GenX          Chris
## 1233          l          B          M          GenX            Tim
## 1234          l          B          M          GenX            Tim
## 1235          l          B          M          GenX          Chris
## 1236          l          B          M          GenX           Jeff
## 1237          l          B          M Millennial           Luis
## 1238          l          B          M Millennial         Wesley
## 1239          l          B          M Millennial          Dylan
## 1240          l          B          M Millennial         Gabriel
## 1241          l          B          M Millennial           Seth
## 1242          l          B          M Millennial          Casey
## 1243          l          B          F        Boomer           Joan
## 1244          l          B          F        Boomer       Lorraine
## 1245          l          B          F        Boomer           Joan
## 1246          l          B          F        Boomer           Joan
## 1247          l          B          F        Boomer         Dianne
## 1248          l          B          F        Boomer          Betty
## 1249          l          B          F          GenX         Tamara
## 1250          l          B          F          GenX        Melinda
## 1251          l          B          F          GenX          Heidi
```

```
## 1252           l          B          F          GenX     Melinda
## 1253           l          B          F          GenX       Heidi
## 1254           l          B          F          GenX      Sherri
## 1255           l          B          F Millennial     Latoya
## 1256           l          B          F Millennial      Taylor
## 1257           l          B          F Millennial      Taylor
## 1258           l          B          F Millennial      Alexis
## 1259           l          B          F Millennial    Brittney
## 1260           l          B          F Millennial      Lauren
## 1261           l          C          M       Boomer    Theodore
## 1262           l          C          M       Boomer     Bernard
## 1263           l          C          M       Boomer         Tom
## 1264           l          C          M       Boomer       Leroy
## 1265           l          C          M       Boomer        Gene
## 1266           l          C          M       Boomer     Herbert
## 1267           l          C          M         GenX        Greg
## 1268           l          C          M         GenX        Greg
## 1269           l          C          M         GenX       Chris
## 1270           l          C          M         GenX        Marc
## 1271           l          C          M         GenX        Marc
## 1272           l          C          M         GenX        Greg
## 1273           l          C          M Millennial      Wesley
## 1274           l          C          M Millennial        Evan
## 1275           l          C          M Millennial      Wesley
## 1276           l          C          M Millennial       Dylan
## 1277           l          C          M Millennial       Dylan
## 1278           l          C          M Millennial       Dylan
## 1279           l          C          F       Boomer      Dianne
## 1280           l          C          F       Boomer     Marjorie
## 1281           l          C          F       Boomer     Dorothy
## 1282           l          C          F       Boomer     Lorraine
## 1283           l          C          F       Boomer        Joan
## 1284           l          C          F       Boomer       Betty
## 1285           l          C          F         GenX       Tammy
## 1286           l          C          F         GenX      Tamara
## 1287           l          C          F         GenX      Tamara
## 1288           l          C          F         GenX     Colleen
## 1289           l          C          F         GenX     Melinda
## 1290           l          C          F         GenX       Heidi
## 1291           l          C          F Millennial     Latoya
## 1292           l          C          F Millennial    Brittney
## 1293           l          C          F Millennial    Brittney
## 1294           l          C          F Millennial      Lauren
## 1295           l          C          F Millennial     Bethany
## 1296           l          C          F Millennial    Cheyenne
## 1297           m          A          M       Boomer      Alfred
## 1298           m          A          M       Boomer         Ray
## 1299           m          A          M       Boomer      Alfred
## 1300           m          A          M       Boomer    Theodore
## 1301           m          A          M       Boomer         Ray
## 1302           m          A          M       Boomer        Gene
## 1303           m          A          M         GenX        Dean
## 1304           m          A          M         GenX        Dean
## 1305           m          A          M         GenX        Troy
```

```
## 1306          m          A          M          GenX        Darryl
## 1307          m          A          M          GenX           Jon
## 1308          m          A          M          GenX        Darryl
## 1309          m          A          M Millennial           Seth
## 1310          m          A          M Millennial        Zachary
## 1311          m          A          M Millennial        Gabriel
## 1312          m          A          M Millennial           Evan
## 1313          m          A          M Millennial         Austin
## 1314          m          A          M Millennial          Dylan
## 1315          m          A          F        Boomer         Dianne
## 1316          m          A          F        Boomer         Gloria
## 1317          m          A          F        Boomer        Dorothy
## 1318          m          A          F        Boomer        Dorothy
## 1319          m          A          F        Boomer          Betty
## 1320          m          A          F        Boomer         Gloria
## 1321          m          A          F          GenX       Colleen
## 1322          m          A          F          GenX           Dawn
## 1323          m          A          F          GenX         Sherri
## 1324          m          A          F          GenX         Tracey
## 1325          m          A          F          GenX        Melinda
## 1326          m          A          F          GenX         Tamara
## 1327          m          A          F Millennial         Latoya
## 1328          m          A          F Millennial         Taylor
## 1329          m          A          F Millennial         Alexis
## 1330          m          A          F Millennial       Samantha
## 1331          m          A          F Millennial       Cheyenne
## 1332          m          A          F Millennial         Taylor
## 1333          m          B          M        Boomer           Gene
## 1334          m          B          M        Boomer        Herbert
## 1335          m          B          M        Boomer          Eddie
## 1336          m          B          M        Boomer        Bernard
## 1337          m          B          M        Boomer          Leroy
## 1338          m          B          M        Boomer        Bernard
## 1339          m          B          M          GenX           Jeff
## 1340          m          B          M          GenX           Marc
## 1341          m          B          M          GenX          Jamie
## 1342          m          B          M          GenX          Jamie
## 1343          m          B          M          GenX           Troy
## 1344          m          B          M          GenX           Jeff
## 1345          m          B          M Millennial           Luis
## 1346          m          B          M Millennial      Christian
## 1347          m          B          M Millennial         Wesley
## 1348          m          B          M Millennial        Zachary
## 1349          m          B          M Millennial           Evan
## 1350          m          B          M Millennial        Zachary
## 1351          m          B          F        Boomer            Kay
## 1352          m          B          F        Boomer        Shirley
## 1353          m          B          F        Boomer        Mildred
## 1354          m          B          F        Boomer            Kay
## 1355          m          B          F        Boomer         Gloria
## 1356          m          B          F        Boomer        Mildred
## 1357          m          B          F          GenX        Melinda
## 1358          m          B          F          GenX         Sherri
## 1359          m          B          F          GenX         Sherri
```

```
## 1360         m           B           F         GenX     Melinda
## 1361         m           B           F         GenX        Dawn
## 1362         m           B           F         GenX       Heidi
## 1363         m           B           F Millennial    Brittney
## 1364         m           B           F Millennial      Lauren
## 1365         m           B           F Millennial     Candice
## 1366         m           B           F Millennial      Latoya
## 1367         m           B           F Millennial      Taylor
## 1368         m           B           F Millennial    Samantha
## 1369         m           C           M      Boomer         Lee
## 1370         m           C           M      Boomer       Leroy
## 1371         m           C           M      Boomer        Gene
## 1372         m           C           M      Boomer    Theodore
## 1373         m           C           M      Boomer      Alfred
## 1374         m           C           M      Boomer     Herbert
## 1375         m           C           M        GenX       Jamie
## 1376         m           C           M        GenX         Tim
## 1377         m           C           M        GenX       Jamie
## 1378         m           C           M        GenX       Chris
## 1379         m           C           M        GenX        Jeff
## 1380         m           C           M        GenX      Darryl
## 1381         m           C           M Millennial        Seth
## 1382         m           C           M Millennial      Austin
## 1383         m           C           M Millennial     Zachary
## 1384         m           C           M Millennial   Christian
## 1385         m           C           M Millennial        Seth
## 1386         m           C           M Millennial   Christian
## 1387         m           C           F      Boomer     Shirley
## 1388         m           C           F      Boomer       Betty
## 1389         m           C           F      Boomer    Lorraine
## 1390         m           C           F      Boomer     Dorothy
## 1391         m           C           F      Boomer         Kay
## 1392         m           C           F      Boomer    Lorraine
## 1393         m           C           F        GenX      Tamara
## 1394         m           C           F        GenX      Sherri
## 1395         m           C           F        GenX     Colleen
## 1396         m           C           F        GenX      Sherri
## 1397         m           C           F        GenX     Melinda
## 1398         m           C           F        GenX      Tracey
## 1399         m           C           F Millennial    Brittney
## 1400         m           C           F Millennial      Taylor
## 1401         m           C           F Millennial      Latoya
## 1402         m           C           F Millennial    Brittney
## 1403         m           C           F Millennial    Cheyenne
## 1404         m           C           F Millennial     Candice
## 1405         n           A           M      Boomer    Theodore
## 1406         n           A           M      Boomer    Theodore
## 1407         n           A           M      Boomer     Herbert
## 1408         n           A           M      Boomer         Ray
## 1409         n           A           M      Boomer        Gene
## 1410         n           A           M      Boomer        Gene
## 1411         n           A           M        GenX       Chris
## 1412         n           A           M        GenX      Darryl
## 1413         n           A           M        GenX        Troy
```

```
## 1414            n            A            M         GenX         Dean
## 1415            n            A            M         GenX        Chris
## 1416            n            A            M         GenX         Troy
## 1417            n            A            M Millennial Christian
## 1418            n            A            M Millennial        Luis
## 1419            n            A            M Millennial      Gabriel
## 1420            n            A            M Millennial      Gabriel
## 1421            n            A            M Millennial         Evan
## 1422            n            A            M Millennial      Zachary
## 1423            n            A            F       Boomer     Marjorie
## 1424            n            A            F       Boomer     Marjorie
## 1425            n            A            F       Boomer         Joan
## 1426            n            A            F       Boomer          Kay
## 1427            n            A            F       Boomer     Lorraine
## 1428            n            A            F       Boomer      Dorothy
## 1429            n            A            F         GenX        Heidi
## 1430            n            A            F         GenX      Colleen
## 1431            n            A            F         GenX      Melinda
## 1432            n            A            F         GenX      Melinda
## 1433            n            A            F         GenX         Dawn
## 1434            n            A            F         GenX       Sherri
## 1435            n            A            F Millennial       Lauren
## 1436            n            A            F Millennial      Candice
## 1437            n            A            F Millennial     Samantha
## 1438            n            A            F Millennial       Taylor
## 1439            n            A            F Millennial      Candice
## 1440            n            A            F Millennial     Brittney
## 1441            n            B            M       Boomer       Alfred
## 1442            n            B            M       Boomer        Leroy
## 1443            n            B            M       Boomer          Tom
## 1444            n            B            M       Boomer          Ray
## 1445            n            B            M       Boomer         Gene
## 1446            n            B            M       Boomer          Ray
## 1447            n            B            M         GenX          Tim
## 1448            n            B            M         GenX         Jeff
## 1449            n            B            M         GenX         Dean
## 1450            n            B            M         GenX         Jeff
## 1451            n            B            M         GenX         Greg
## 1452            n            B            M         GenX          Tim
## 1453            n            B            M Millennial        Casey
## 1454            n            B            M Millennial       Austin
## 1455            n            B            M Millennial       Austin
## 1456            n            B            M Millennial        Casey
## 1457            n            B            M Millennial       Austin
## 1458            n            B            M Millennial         Luis
## 1459            n            B            F       Boomer      Shirley
## 1460            n            B            F       Boomer        Betty
## 1461            n            B            F       Boomer      Mildred
## 1462            n            B            F       Boomer      Mildred
## 1463            n            B            F       Boomer        Betty
## 1464            n            B            F       Boomer       Dianne
## 1465            n            B            F         GenX        Tracy
## 1466            n            B            F         GenX        Tammy
## 1467            n            B            F         GenX       Tamara
```

```
## 1468          n          B          F          GenX          Dawn
## 1469          n          B          F          GenX          Dawn
## 1470          n          B          F          GenX          Dawn
## 1471          n          B          F Millennial      Alexis
## 1472          n          B          F Millennial    Brittney
## 1473          n          B          F Millennial      Alexis
## 1474          n          B          F Millennial    Samantha
## 1475          n          B          F Millennial     Candice
## 1476          n          B          F Millennial      Alexis
## 1477          n          C          M      Boomer     Herbert
## 1478          n          C          M      Boomer     Herbert
## 1479          n          C          M      Boomer     Herbert
## 1480          n          C          M      Boomer         Ray
## 1481          n          C          M      Boomer         Ray
## 1482          n          C          M      Boomer      Alfred
## 1483          n          C          M        GenX         Jon
## 1484          n          C          M        GenX       Jamie
## 1485          n          C          M        GenX         Tim
## 1486          n          C          M        GenX       Chris
## 1487          n          C          M        GenX       Chris
## 1488          n          C          M        GenX       Jamie
## 1489          n          C          M Millennial      Austin
## 1490          n          C          M Millennial      Austin
## 1491          n          C          M Millennial      Wesley
## 1492          n          C          M Millennial     Gabriel
## 1493          n          C          M Millennial      Austin
## 1494          n          C          M Millennial     Zachary
## 1495          n          C          F      Boomer     Mildred
## 1496          n          C          F      Boomer       Betty
## 1497          n          C          F      Boomer         Kay
## 1498          n          C          F      Boomer    Marjorie
## 1499          n          C          F      Boomer     Dorothy
## 1500          n          C          F      Boomer        Joan
## 1501          n          C          F        GenX        Dawn
## 1502          n          C          F        GenX        Tina
## 1503          n          C          F        GenX     Colleen
## 1504          n          C          F        GenX       Tammy
## 1505          n          C          F        GenX       Tammy
## 1506          n          C          F        GenX      Tamara
## 1507          n          C          F Millennial    Samantha
## 1508          n          C          F Millennial      Latoya
## 1509          n          C          F Millennial    Cheyenne
## 1510          n          C          F Millennial      Taylor
## 1511          n          C          F Millennial      Taylor
## 1512          n          C          F Millennial     Bethany
```

- Now that you've done it with the `rep` function. Try it with the `expand.grid` function which will be much easier.

```r
X = data.frame(expand.grid(
  rep(NA, 6),
  generation = c("Boomer", "GenX", "Millennial"),
  gender = c("M", "F"),
  variation = c("A", "B", "C"),
  treatment = letters[1:14]
```

```
))
colnames(X) = c("name", "generation", "gender", "variation", "treatment")
X
```

```
##       name generation gender variation treatment
## 1     NA     Boomer      M         A         a
## 2     NA     Boomer      M         A         a
## 3     NA     Boomer      M         A         a
## 4     NA     Boomer      M         A         a
## 5     NA     Boomer      M         A         a
## 6     NA     Boomer      M         A         a
## 7     NA       GenX      M         A         a
## 8     NA       GenX      M         A         a
## 9     NA       GenX      M         A         a
## 10    NA       GenX      M         A         a
## 11    NA       GenX      M         A         a
## 12    NA       GenX      M         A         a
## 13    NA Millennial      M         A         a
## 14    NA Millennial      M         A         a
## 15    NA Millennial      M         A         a
## 16    NA Millennial      M         A         a
## 17    NA Millennial      M         A         a
## 18    NA Millennial      M         A         a
## 19    NA     Boomer      F         A         a
## 20    NA     Boomer      F         A         a
## 21    NA     Boomer      F         A         a
## 22    NA     Boomer      F         A         a
## 23    NA     Boomer      F         A         a
## 24    NA     Boomer      F         A         a
## 25    NA       GenX      F         A         a
## 26    NA       GenX      F         A         a
## 27    NA       GenX      F         A         a
## 28    NA       GenX      F         A         a
## 29    NA       GenX      F         A         a
## 30    NA       GenX      F         A         a
## 31    NA Millennial      F         A         a
## 32    NA Millennial      F         A         a
## 33    NA Millennial      F         A         a
## 34    NA Millennial      F         A         a
## 35    NA Millennial      F         A         a
## 36    NA Millennial      F         A         a
## 37    NA     Boomer      M         B         a
## 38    NA     Boomer      M         B         a
## 39    NA     Boomer      M         B         a
## 40    NA     Boomer      M         B         a
## 41    NA     Boomer      M         B         a
## 42    NA     Boomer      M         B         a
## 43    NA       GenX      M         B         a
## 44    NA       GenX      M         B         a
## 45    NA       GenX      M         B         a
## 46    NA       GenX      M         B         a
## 47    NA       GenX      M         B         a
## 48    NA       GenX      M         B         a
## 49    NA Millennial      M         B         a
```

```
## 50      NA Millennial     M        B        a
## 51      NA Millennial     M        B        a
## 52      NA Millennial     M        B        a
## 53      NA Millennial     M        B        a
## 54      NA Millennial     M        B        a
## 55      NA    Boomer      F        B        a
## 56      NA    Boomer      F        B        a
## 57      NA    Boomer      F        B        a
## 58      NA    Boomer      F        B        a
## 59      NA    Boomer      F        B        a
## 60      NA    Boomer      F        B        a
## 61      NA      GenX      F        B        a
## 62      NA      GenX      F        B        a
## 63      NA      GenX      F        B        a
## 64      NA      GenX      F        B        a
## 65      NA      GenX      F        B        a
## 66      NA      GenX      F        B        a
## 67      NA Millennial     F        B        a
## 68      NA Millennial     F        B        a
## 69      NA Millennial     F        B        a
## 70      NA Millennial     F        B        a
## 71      NA Millennial     F        B        a
## 72      NA Millennial     F        B        a
## 73      NA    Boomer      M        C        a
## 74      NA    Boomer      M        C        a
## 75      NA    Boomer      M        C        a
## 76      NA    Boomer      M        C        a
## 77      NA    Boomer      M        C        a
## 78      NA    Boomer      M        C        a
## 79      NA      GenX      M        C        a
## 80      NA      GenX      M        C        a
## 81      NA      GenX      M        C        a
## 82      NA      GenX      M        C        a
## 83      NA      GenX      M        C        a
## 84      NA      GenX      M        C        a
## 85      NA Millennial     M        C        a
## 86      NA Millennial     M        C        a
## 87      NA Millennial     M        C        a
## 88      NA Millennial     M        C        a
## 89      NA Millennial     M        C        a
## 90      NA Millennial     M        C        a
## 91      NA    Boomer      F        C        a
## 92      NA    Boomer      F        C        a
## 93      NA    Boomer      F        C        a
## 94      NA    Boomer      F        C        a
## 95      NA    Boomer      F        C        a
## 96      NA    Boomer      F        C        a
## 97      NA      GenX      F        C        a
## 98      NA      GenX      F        C        a
## 99      NA      GenX      F        C        a
## 100     NA      GenX      F        C        a
## 101     NA      GenX      F        C        a
## 102     NA      GenX      F        C        a
## 103     NA Millennial     F        C        a
```

```
## 104     NA Millennial     F          C          a
## 105     NA Millennial     F          C          a
## 106     NA Millennial     F          C          a
## 107     NA Millennial     F          C          a
## 108     NA Millennial     F          C          a
## 109     NA     Boomer     M          A          b
## 110     NA     Boomer     M          A          b
## 111     NA     Boomer     M          A          b
## 112     NA     Boomer     M          A          b
## 113     NA     Boomer     M          A          b
## 114     NA     Boomer     M          A          b
## 115     NA       GenX     M          A          b
## 116     NA       GenX     M          A          b
## 117     NA       GenX     M          A          b
## 118     NA       GenX     M          A          b
## 119     NA       GenX     M          A          b
## 120     NA       GenX     M          A          b
## 121     NA Millennial     M          A          b
## 122     NA Millennial     M          A          b
## 123     NA Millennial     M          A          b
## 124     NA Millennial     M          A          b
## 125     NA Millennial     M          A          b
## 126     NA Millennial     M          A          b
## 127     NA     Boomer     F          A          b
## 128     NA     Boomer     F          A          b
## 129     NA     Boomer     F          A          b
## 130     NA     Boomer     F          A          b
## 131     NA     Boomer     F          A          b
## 132     NA     Boomer     F          A          b
## 133     NA       GenX     F          A          b
## 134     NA       GenX     F          A          b
## 135     NA       GenX     F          A          b
## 136     NA       GenX     F          A          b
## 137     NA       GenX     F          A          b
## 138     NA       GenX     F          A          b
## 139     NA Millennial     F          A          b
## 140     NA Millennial     F          A          b
## 141     NA Millennial     F          A          b
## 142     NA Millennial     F          A          b
## 143     NA Millennial     F          A          b
## 144     NA Millennial     F          A          b
## 145     NA     Boomer     M          B          b
## 146     NA     Boomer     M          B          b
## 147     NA     Boomer     M          B          b
## 148     NA     Boomer     M          B          b
## 149     NA     Boomer     M          B          b
## 150     NA     Boomer     M          B          b
## 151     NA       GenX     M          B          b
## 152     NA       GenX     M          B          b
## 153     NA       GenX     M          B          b
## 154     NA       GenX     M          B          b
## 155     NA       GenX     M          B          b
## 156     NA       GenX     M          B          b
## 157     NA Millennial     M          B          b
```

```
## 158    NA Millennial    M       B       b
## 159    NA Millennial    M       B       b
## 160    NA Millennial    M       B       b
## 161    NA Millennial    M       B       b
## 162    NA Millennial    M       B       b
## 163    NA    Boomer     F       B       b
## 164    NA    Boomer     F       B       b
## 165    NA    Boomer     F       B       b
## 166    NA    Boomer     F       B       b
## 167    NA    Boomer     F       B       b
## 168    NA    Boomer     F       B       b
## 169    NA      GenX     F       B       b
## 170    NA      GenX     F       B       b
## 171    NA      GenX     F       B       b
## 172    NA      GenX     F       B       b
## 173    NA      GenX     F       B       b
## 174    NA      GenX     F       B       b
## 175    NA Millennial    F       B       b
## 176    NA Millennial    F       B       b
## 177    NA Millennial    F       B       b
## 178    NA Millennial    F       B       b
## 179    NA Millennial    F       B       b
## 180    NA Millennial    F       B       b
## 181    NA    Boomer     M       C       b
## 182    NA    Boomer     M       C       b
## 183    NA    Boomer     M       C       b
## 184    NA    Boomer     M       C       b
## 185    NA    Boomer     M       C       b
## 186    NA    Boomer     M       C       b
## 187    NA      GenX     M       C       b
## 188    NA      GenX     M       C       b
## 189    NA      GenX     M       C       b
## 190    NA      GenX     M       C       b
## 191    NA      GenX     M       C       b
## 192    NA      GenX     M       C       b
## 193    NA Millennial    M       C       b
## 194    NA Millennial    M       C       b
## 195    NA Millennial    M       C       b
## 196    NA Millennial    M       C       b
## 197    NA Millennial    M       C       b
## 198    NA Millennial    M       C       b
## 199    NA    Boomer     F       C       b
## 200    NA    Boomer     F       C       b
## 201    NA    Boomer     F       C       b
## 202    NA    Boomer     F       C       b
## 203    NA    Boomer     F       C       b
## 204    NA    Boomer     F       C       b
## 205    NA      GenX     F       C       b
## 206    NA      GenX     F       C       b
## 207    NA      GenX     F       C       b
## 208    NA      GenX     F       C       b
## 209    NA      GenX     F       C       b
## 210    NA      GenX     F       C       b
## 211    NA Millennial    F       C       b
```

```
## 212    NA Millennial      F        C        b
## 213    NA Millennial      F        C        b
## 214    NA Millennial      F        C        b
## 215    NA Millennial      F        C        b
## 216    NA Millennial      F        C        b
## 217    NA     Boomer      M        A        c
## 218    NA     Boomer      M        A        c
## 219    NA     Boomer      M        A        c
## 220    NA     Boomer      M        A        c
## 221    NA     Boomer      M        A        c
## 222    NA     Boomer      M        A        c
## 223    NA       GenX      M        A        c
## 224    NA       GenX      M        A        c
## 225    NA       GenX      M        A        c
## 226    NA       GenX      M        A        c
## 227    NA       GenX      M        A        c
## 228    NA       GenX      M        A        c
## 229    NA Millennial      M        A        c
## 230    NA Millennial      M        A        c
## 231    NA Millennial      M        A        c
## 232    NA Millennial      M        A        c
## 233    NA Millennial      M        A        c
## 234    NA Millennial      M        A        c
## 235    NA     Boomer      F        A        c
## 236    NA     Boomer      F        A        c
## 237    NA     Boomer      F        A        c
## 238    NA     Boomer      F        A        c
## 239    NA     Boomer      F        A        c
## 240    NA     Boomer      F        A        c
## 241    NA       GenX      F        A        c
## 242    NA       GenX      F        A        c
## 243    NA       GenX      F        A        c
## 244    NA       GenX      F        A        c
## 245    NA       GenX      F        A        c
## 246    NA       GenX      F        A        c
## 247    NA Millennial      F        A        c
## 248    NA Millennial      F        A        c
## 249    NA Millennial      F        A        c
## 250    NA Millennial      F        A        c
## 251    NA Millennial      F        A        c
## 252    NA Millennial      F        A        c
## 253    NA     Boomer      M        B        c
## 254    NA     Boomer      M        B        c
## 255    NA     Boomer      M        B        c
## 256    NA     Boomer      M        B        c
## 257    NA     Boomer      M        B        c
## 258    NA     Boomer      M        B        c
## 259    NA       GenX      M        B        c
## 260    NA       GenX      M        B        c
## 261    NA       GenX      M        B        c
## 262    NA       GenX      M        B        c
## 263    NA       GenX      M        B        c
## 264    NA       GenX      M        B        c
## 265    NA Millennial      M        B        c
```

```
## 266    NA Millennial      M          B              c
## 267    NA Millennial      M          B              c
## 268    NA Millennial      M          B              c
## 269    NA Millennial      M          B              c
## 270    NA Millennial      M          B              c
## 271    NA    Boomer       F          B              c
## 272    NA    Boomer       F          B              c
## 273    NA    Boomer       F          B              c
## 274    NA    Boomer       F          B              c
## 275    NA    Boomer       F          B              c
## 276    NA    Boomer       F          B              c
## 277    NA      GenX       F          B              c
## 278    NA      GenX       F          B              c
## 279    NA      GenX       F          B              c
## 280    NA      GenX       F          B              c
## 281    NA      GenX       F          B              c
## 282    NA      GenX       F          B              c
## 283    NA Millennial      F          B              c
## 284    NA Millennial      F          B              c
## 285    NA Millennial      F          B              c
## 286    NA Millennial      F          B              c
## 287    NA Millennial      F          B              c
## 288    NA Millennial      F          B              c
## 289    NA    Boomer       M          C              c
## 290    NA    Boomer       M          C              c
## 291    NA    Boomer       M          C              c
## 292    NA    Boomer       M          C              c
## 293    NA    Boomer       M          C              c
## 294    NA    Boomer       M          C              c
## 295    NA      GenX       M          C              c
## 296    NA      GenX       M          C              c
## 297    NA      GenX       M          C              c
## 298    NA      GenX       M          C              c
## 299    NA      GenX       M          C              c
## 300    NA      GenX       M          C              c
## 301    NA Millennial      M          C              c
## 302    NA Millennial      M          C              c
## 303    NA Millennial      M          C              c
## 304    NA Millennial      M          C              c
## 305    NA Millennial      M          C              c
## 306    NA Millennial      M          C              c
## 307    NA    Boomer       F          C              c
## 308    NA    Boomer       F          C              c
## 309    NA    Boomer       F          C              c
## 310    NA    Boomer       F          C              c
## 311    NA    Boomer       F          C              c
## 312    NA    Boomer       F          C              c
## 313    NA      GenX       F          C              c
## 314    NA      GenX       F          C              c
## 315    NA      GenX       F          C              c
## 316    NA      GenX       F          C              c
## 317    NA      GenX       F          C              c
## 318    NA      GenX       F          C              c
## 319    NA Millennial      F          C              c
```

```
## 320      NA Millennial        F        C        c
## 321      NA Millennial        F        C        c
## 322      NA Millennial        F        C        c
## 323      NA Millennial        F        C        c
## 324      NA Millennial        F        C        c
## 325      NA     Boomer        M        A        d
## 326      NA     Boomer        M        A        d
## 327      NA     Boomer        M        A        d
## 328      NA     Boomer        M        A        d
## 329      NA     Boomer        M        A        d
## 330      NA     Boomer        M        A        d
## 331      NA       GenX        M        A        d
## 332      NA       GenX        M        A        d
## 333      NA       GenX        M        A        d
## 334      NA       GenX        M        A        d
## 335      NA       GenX        M        A        d
## 336      NA       GenX        M        A        d
## 337      NA Millennial        M        A        d
## 338      NA Millennial        M        A        d
## 339      NA Millennial        M        A        d
## 340      NA Millennial        M        A        d
## 341      NA Millennial        M        A        d
## 342      NA Millennial        M        A        d
## 343      NA     Boomer        F        A        d
## 344      NA     Boomer        F        A        d
## 345      NA     Boomer        F        A        d
## 346      NA     Boomer        F        A        d
## 347      NA     Boomer        F        A        d
## 348      NA     Boomer        F        A        d
## 349      NA       GenX        F        A        d
## 350      NA       GenX        F        A        d
## 351      NA       GenX        F        A        d
## 352      NA       GenX        F        A        d
## 353      NA       GenX        F        A        d
## 354      NA       GenX        F        A        d
## 355      NA Millennial        F        A        d
## 356      NA Millennial        F        A        d
## 357      NA Millennial        F        A        d
## 358      NA Millennial        F        A        d
## 359      NA Millennial        F        A        d
## 360      NA Millennial        F        A        d
## 361      NA     Boomer        M        B        d
## 362      NA     Boomer        M        B        d
## 363      NA     Boomer        M        B        d
## 364      NA     Boomer        M        B        d
## 365      NA     Boomer        M        B        d
## 366      NA     Boomer        M        B        d
## 367      NA       GenX        M        B        d
## 368      NA       GenX        M        B        d
## 369      NA       GenX        M        B        d
## 370      NA       GenX        M        B        d
## 371      NA       GenX        M        B        d
## 372      NA       GenX        M        B        d
## 373      NA Millennial        M        B        d
```

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```
## 374    NA Millennial    M    B    d
## 375    NA Millennial    M    B    d
## 376    NA Millennial    M    B    d
## 377    NA Millennial    M    B    d
## 378    NA Millennial    M    B    d
## 379    NA    Boomer    F    B    d
## 380    NA    Boomer    F    B    d
## 381    NA    Boomer    F    B    d
## 382    NA    Boomer    F    B    d
## 383    NA    Boomer    F    B    d
## 384    NA    Boomer    F    B    d
## 385    NA      GenX    F    B    d
## 386    NA      GenX    F    B    d
## 387    NA      GenX    F    B    d
## 388    NA      GenX    F    B    d
## 389    NA      GenX    F    B    d
## 390    NA      GenX    F    B    d
## 391    NA Millennial    F    B    d
## 392    NA Millennial    F    B    d
## 393    NA Millennial    F    B    d
## 394    NA Millennial    F    B    d
## 395    NA Millennial    F    B    d
## 396    NA Millennial    F    B    d
## 397    NA    Boomer    M    C    d
## 398    NA    Boomer    M    C    d
## 399    NA    Boomer    M    C    d
## 400    NA    Boomer    M    C    d
## 401    NA    Boomer    M    C    d
## 402    NA    Boomer    M    C    d
## 403    NA      GenX    M    C    d
## 404    NA      GenX    M    C    d
## 405    NA      GenX    M    C    d
## 406    NA      GenX    M    C    d
## 407    NA      GenX    M    C    d
## 408    NA      GenX    M    C    d
## 409    NA Millennial    M    C    d
## 410    NA Millennial    M    C    d
## 411    NA Millennial    M    C    d
## 412    NA Millennial    M    C    d
## 413    NA Millennial    M    C    d
## 414    NA Millennial    M    C    d
## 415    NA    Boomer    F    C    d
## 416    NA    Boomer    F    C    d
## 417    NA    Boomer    F    C    d
## 418    NA    Boomer    F    C    d
## 419    NA    Boomer    F    C    d
## 420    NA    Boomer    F    C    d
## 421    NA      GenX    F    C    d
## 422    NA      GenX    F    C    d
## 423    NA      GenX    F    C    d
## 424    NA      GenX    F    C    d
## 425    NA      GenX    F    C    d
## 426    NA      GenX    F    C    d
## 427    NA Millennial    F    C    d
```

```
## 428     NA Millennial       F          C            d
## 429     NA Millennial       F          C            d
## 430     NA Millennial       F          C            d
## 431     NA Millennial       F          C            d
## 432     NA Millennial       F          C            d
## 433     NA     Boomer       M          A            e
## 434     NA     Boomer       M          A            e
## 435     NA     Boomer       M          A            e
## 436     NA     Boomer       M          A            e
## 437     NA     Boomer       M          A            e
## 438     NA     Boomer       M          A            e
## 439     NA       GenX       M          A            e
## 440     NA       GenX       M          A            e
## 441     NA       GenX       M          A            e
## 442     NA       GenX       M          A            e
## 443     NA       GenX       M          A            e
## 444     NA       GenX       M          A            e
## 445     NA Millennial       M          A            e
## 446     NA Millennial       M          A            e
## 447     NA Millennial       M          A            e
## 448     NA Millennial       M          A            e
## 449     NA Millennial       M          A            e
## 450     NA Millennial       M          A            e
## 451     NA     Boomer       F          A            e
## 452     NA     Boomer       F          A            e
## 453     NA     Boomer       F          A            e
## 454     NA     Boomer       F          A            e
## 455     NA     Boomer       F          A            e
## 456     NA     Boomer       F          A            e
## 457     NA       GenX       F          A            e
## 458     NA       GenX       F          A            e
## 459     NA       GenX       F          A            e
## 460     NA       GenX       F          A            e
## 461     NA       GenX       F          A            e
## 462     NA       GenX       F          A            e
## 463     NA Millennial       F          A            e
## 464     NA Millennial       F          A            e
## 465     NA Millennial       F          A            e
## 466     NA Millennial       F          A            e
## 467     NA Millennial       F          A            e
## 468     NA Millennial       F          A            e
## 469     NA     Boomer       M          B            e
## 470     NA     Boomer       M          B            e
## 471     NA     Boomer       M          B            e
## 472     NA     Boomer       M          B            e
## 473     NA     Boomer       M          B            e
## 474     NA     Boomer       M          B            e
## 475     NA       GenX       M          B            e
## 476     NA       GenX       M          B            e
## 477     NA       GenX       M          B            e
## 478     NA       GenX       M          B            e
## 479     NA       GenX       M          B            e
## 480     NA       GenX       M          B            e
## 481     NA Millennial       M          B            e
```

```
## 482      NA Millennial      M        B            e
## 483      NA Millennial      M        B            e
## 484      NA Millennial      M        B            e
## 485      NA Millennial      M        B            e
## 486      NA Millennial      M        B            e
## 487      NA     Boomer      F        B            e
## 488      NA     Boomer      F        B            e
## 489      NA     Boomer      F        B            e
## 490      NA     Boomer      F        B            e
## 491      NA     Boomer      F        B            e
## 492      NA     Boomer      F        B            e
## 493      NA       GenX      F        B            e
## 494      NA       GenX      F        B            e
## 495      NA       GenX      F        B            e
## 496      NA       GenX      F        B            e
## 497      NA       GenX      F        B            e
## 498      NA       GenX      F        B            e
## 499      NA Millennial      F        B            e
## 500      NA Millennial      F        B            e
## 501      NA Millennial      F        B            e
## 502      NA Millennial      F        B            e
## 503      NA Millennial      F        B            e
## 504      NA Millennial      F        B            e
## 505      NA     Boomer      M        C            e
## 506      NA     Boomer      M        C            e
## 507      NA     Boomer      M        C            e
## 508      NA     Boomer      M        C            e
## 509      NA     Boomer      M        C            e
## 510      NA     Boomer      M        C            e
## 511      NA       GenX      M        C            e
## 512      NA       GenX      M        C            e
## 513      NA       GenX      M        C            e
## 514      NA       GenX      M        C            e
## 515      NA       GenX      M        C            e
## 516      NA       GenX      M        C            e
## 517      NA Millennial      M        C            e
## 518      NA Millennial      M        C            e
## 519      NA Millennial      M        C            e
## 520      NA Millennial      M        C            e
## 521      NA Millennial      M        C            e
## 522      NA Millennial      M        C            e
## 523      NA     Boomer      F        C            e
## 524      NA     Boomer      F        C            e
## 525      NA     Boomer      F        C            e
## 526      NA     Boomer      F        C            e
## 527      NA     Boomer      F        C            e
## 528      NA     Boomer      F        C            e
## 529      NA       GenX      F        C            e
## 530      NA       GenX      F        C            e
## 531      NA       GenX      F        C            e
## 532      NA       GenX      F        C            e
## 533      NA       GenX      F        C            e
## 534      NA       GenX      F        C            e
## 535      NA Millennial      F        C            e
```

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```
## 536    NA Millennial      F        C        e
## 537    NA Millennial      F        C        e
## 538    NA Millennial      F        C        e
## 539    NA Millennial      F        C        e
## 540    NA Millennial      F        C        e
## 541    NA    Boomer       M        A        f
## 542    NA    Boomer       M        A        f
## 543    NA    Boomer       M        A        f
## 544    NA    Boomer       M        A        f
## 545    NA    Boomer       M        A        f
## 546    NA    Boomer       M        A        f
## 547    NA      GenX       M        A        f
## 548    NA      GenX       M        A        f
## 549    NA      GenX       M        A        f
## 550    NA      GenX       M        A        f
## 551    NA      GenX       M        A        f
## 552    NA      GenX       M        A        f
## 553    NA Millennial      M        A        f
## 554    NA Millennial      M        A        f
## 555    NA Millennial      M        A        f
## 556    NA Millennial      M        A        f
## 557    NA Millennial      M        A        f
## 558    NA Millennial      M        A        f
## 559    NA    Boomer       F        A        f
## 560    NA    Boomer       F        A        f
## 561    NA    Boomer       F        A        f
## 562    NA    Boomer       F        A        f
## 563    NA    Boomer       F        A        f
## 564    NA    Boomer       F        A        f
## 565    NA      GenX       F        A        f
## 566    NA      GenX       F        A        f
## 567    NA      GenX       F        A        f
## 568    NA      GenX       F        A        f
## 569    NA      GenX       F        A        f
## 570    NA      GenX       F        A        f
## 571    NA Millennial      F        A        f
## 572    NA Millennial      F        A        f
## 573    NA Millennial      F        A        f
## 574    NA Millennial      F        A        f
## 575    NA Millennial      F        A        f
## 576    NA Millennial      F        A        f
## 577    NA    Boomer       M        B        f
## 578    NA    Boomer       M        B        f
## 579    NA    Boomer       M        B        f
## 580    NA    Boomer       M        B        f
## 581    NA    Boomer       M        B        f
## 582    NA    Boomer       M        B        f
## 583    NA      GenX       M        B        f
## 584    NA      GenX       M        B        f
## 585    NA      GenX       M        B        f
## 586    NA      GenX       M        B        f
## 587    NA      GenX       M        B        f
## 588    NA      GenX       M        B        f
## 589    NA Millennial      M        B        f
```

```
## 590       NA Millennial     M          B          f
## 591       NA Millennial     M          B          f
## 592       NA Millennial     M          B          f
## 593       NA Millennial     M          B          f
## 594       NA Millennial     M          B          f
## 595       NA     Boomer     F          B          f
## 596       NA     Boomer     F          B          f
## 597       NA     Boomer     F          B          f
## 598       NA     Boomer     F          B          f
## 599       NA     Boomer     F          B          f
## 600       NA     Boomer     F          B          f
## 601       NA       GenX     F          B          f
## 602       NA       GenX     F          B          f
## 603       NA       GenX     F          B          f
## 604       NA       GenX     F          B          f
## 605       NA       GenX     F          B          f
## 606       NA       GenX     F          B          f
## 607       NA Millennial     F          B          f
## 608       NA Millennial     F          B          f
## 609       NA Millennial     F          B          f
## 610       NA Millennial     F          B          f
## 611       NA Millennial     F          B          f
## 612       NA Millennial     F          B          f
## 613       NA     Boomer     M          C          f
## 614       NA     Boomer     M          C          f
## 615       NA     Boomer     M          C          f
## 616       NA     Boomer     M          C          f
## 617       NA     Boomer     M          C          f
## 618       NA     Boomer     M          C          f
## 619       NA       GenX     M          C          f
## 620       NA       GenX     M          C          f
## 621       NA       GenX     M          C          f
## 622       NA       GenX     M          C          f
## 623       NA       GenX     M          C          f
## 624       NA       GenX     M          C          f
## 625       NA Millennial     M          C          f
## 626       NA Millennial     M          C          f
## 627       NA Millennial     M          C          f
## 628       NA Millennial     M          C          f
## 629       NA Millennial     M          C          f
## 630       NA Millennial     M          C          f
## 631       NA     Boomer     F          C          f
## 632       NA     Boomer     F          C          f
## 633       NA     Boomer     F          C          f
## 634       NA     Boomer     F          C          f
## 635       NA     Boomer     F          C          f
## 636       NA     Boomer     F          C          f
## 637       NA       GenX     F          C          f
## 638       NA       GenX     F          C          f
## 639       NA       GenX     F          C          f
## 640       NA       GenX     F          C          f
## 641       NA       GenX     F          C          f
## 642       NA       GenX     F          C          f
## 643       NA Millennial     F          C          f
```

```
## 644   NA Millennial   F   C   f
## 645   NA Millennial   F   C   f
## 646   NA Millennial   F   C   f
## 647   NA Millennial   F   C   f
## 648   NA Millennial   F   C   f
## 649   NA    Boomer     M   A   g
## 650   NA    Boomer     M   A   g
## 651   NA    Boomer     M   A   g
## 652   NA    Boomer     M   A   g
## 653   NA    Boomer     M   A   g
## 654   NA    Boomer     M   A   g
## 655   NA      GenX     M   A   g
## 656   NA      GenX     M   A   g
## 657   NA      GenX     M   A   g
## 658   NA      GenX     M   A   g
## 659   NA      GenX     M   A   g
## 660   NA      GenX     M   A   g
## 661   NA Millennial   M   A   g
## 662   NA Millennial   M   A   g
## 663   NA Millennial   M   A   g
## 664   NA Millennial   M   A   g
## 665   NA Millennial   M   A   g
## 666   NA Millennial   M   A   g
## 667   NA    Boomer     F   A   g
## 668   NA    Boomer     F   A   g
## 669   NA    Boomer     F   A   g
## 670   NA    Boomer     F   A   g
## 671   NA    Boomer     F   A   g
## 672   NA    Boomer     F   A   g
## 673   NA      GenX     F   A   g
## 674   NA      GenX     F   A   g
## 675   NA      GenX     F   A   g
## 676   NA      GenX     F   A   g
## 677   NA      GenX     F   A   g
## 678   NA      GenX     F   A   g
## 679   NA Millennial   F   A   g
## 680   NA Millennial   F   A   g
## 681   NA Millennial   F   A   g
## 682   NA Millennial   F   A   g
## 683   NA Millennial   F   A   g
## 684   NA Millennial   F   A   g
## 685   NA    Boomer     M   B   g
## 686   NA    Boomer     M   B   g
## 687   NA    Boomer     M   B   g
## 688   NA    Boomer     M   B   g
## 689   NA    Boomer     M   B   g
## 690   NA    Boomer     M   B   g
## 691   NA      GenX     M   B   g
## 692   NA      GenX     M   B   g
## 693   NA      GenX     M   B   g
## 694   NA      GenX     M   B   g
## 695   NA      GenX     M   B   g
## 696   NA      GenX     M   B   g
## 697   NA Millennial   M   B   g
```

```
## 698   NA Millennial   M   B   g
## 699   NA Millennial   M   B   g
## 700   NA Millennial   M   B   g
## 701   NA Millennial   M   B   g
## 702   NA Millennial   M   B   g
## 703   NA    Boomer    F   B   g
## 704   NA    Boomer    F   B   g
## 705   NA    Boomer    F   B   g
## 706   NA    Boomer    F   B   g
## 707   NA    Boomer    F   B   g
## 708   NA    Boomer    F   B   g
## 709   NA      GenX    F   B   g
## 710   NA      GenX    F   B   g
## 711   NA      GenX    F   B   g
## 712   NA      GenX    F   B   g
## 713   NA      GenX    F   B   g
## 714   NA      GenX    F   B   g
## 715   NA Millennial   F   B   g
## 716   NA Millennial   F   B   g
## 717   NA Millennial   F   B   g
## 718   NA Millennial   F   B   g
## 719   NA Millennial   F   B   g
## 720   NA Millennial   F   B   g
## 721   NA    Boomer    M   C   g
## 722   NA    Boomer    M   C   g
## 723   NA    Boomer    M   C   g
## 724   NA    Boomer    M   C   g
## 725   NA    Boomer    M   C   g
## 726   NA    Boomer    M   C   g
## 727   NA      GenX    M   C   g
## 728   NA      GenX    M   C   g
## 729   NA      GenX    M   C   g
## 730   NA      GenX    M   C   g
## 731   NA      GenX    M   C   g
## 732   NA      GenX    M   C   g
## 733   NA Millennial   M   C   g
## 734   NA Millennial   M   C   g
## 735   NA Millennial   M   C   g
## 736   NA Millennial   M   C   g
## 737   NA Millennial   M   C   g
## 738   NA Millennial   M   C   g
## 739   NA    Boomer    F   C   g
## 740   NA    Boomer    F   C   g
## 741   NA    Boomer    F   C   g
## 742   NA    Boomer    F   C   g
## 743   NA    Boomer    F   C   g
## 744   NA    Boomer    F   C   g
## 745   NA      GenX    F   C   g
## 746   NA      GenX    F   C   g
## 747   NA      GenX    F   C   g
## 748   NA      GenX    F   C   g
## 749   NA      GenX    F   C   g
## 750   NA      GenX    F   C   g
## 751   NA Millennial   F   C   g
```

```
## 752    NA Millennial    F    C    g
## 753    NA Millennial    F    C    g
## 754    NA Millennial    F    C    g
## 755    NA Millennial    F    C    g
## 756    NA Millennial    F    C    g
## 757    NA    Boomer     M    A    h
## 758    NA    Boomer     M    A    h
## 759    NA    Boomer     M    A    h
## 760    NA    Boomer     M    A    h
## 761    NA    Boomer     M    A    h
## 762    NA    Boomer     M    A    h
## 763    NA      GenX     M    A    h
## 764    NA      GenX     M    A    h
## 765    NA      GenX     M    A    h
## 766    NA      GenX     M    A    h
## 767    NA      GenX     M    A    h
## 768    NA      GenX     M    A    h
## 769    NA Millennial    M    A    h
## 770    NA Millennial    M    A    h
## 771    NA Millennial    M    A    h
## 772    NA Millennial    M    A    h
## 773    NA Millennial    M    A    h
## 774    NA Millennial    M    A    h
## 775    NA    Boomer     F    A    h
## 776    NA    Boomer     F    A    h
## 777    NA    Boomer     F    A    h
## 778    NA    Boomer     F    A    h
## 779    NA    Boomer     F    A    h
## 780    NA    Boomer     F    A    h
## 781    NA      GenX     F    A    h
## 782    NA      GenX     F    A    h
## 783    NA      GenX     F    A    h
## 784    NA      GenX     F    A    h
## 785    NA      GenX     F    A    h
## 786    NA      GenX     F    A    h
## 787    NA Millennial    F    A    h
## 788    NA Millennial    F    A    h
## 789    NA Millennial    F    A    h
## 790    NA Millennial    F    A    h
## 791    NA Millennial    F    A    h
## 792    NA Millennial    F    A    h
## 793    NA    Boomer     M    B    h
## 794    NA    Boomer     M    B    h
## 795    NA    Boomer     M    B    h
## 796    NA    Boomer     M    B    h
## 797    NA    Boomer     M    B    h
## 798    NA    Boomer     M    B    h
## 799    NA      GenX     M    B    h
## 800    NA      GenX     M    B    h
## 801    NA      GenX     M    B    h
## 802    NA      GenX     M    B    h
## 803    NA      GenX     M    B    h
## 804    NA      GenX     M    B    h
## 805    NA Millennial    M    B    h
```

```
## 806    NA Millennial      M          B          h
## 807    NA Millennial      M          B          h
## 808    NA Millennial      M          B          h
## 809    NA Millennial      M          B          h
## 810    NA Millennial      M          B          h
## 811    NA    Boomer       F          B          h
## 812    NA    Boomer       F          B          h
## 813    NA    Boomer       F          B          h
## 814    NA    Boomer       F          B          h
## 815    NA    Boomer       F          B          h
## 816    NA    Boomer       F          B          h
## 817    NA      GenX       F          B          h
## 818    NA      GenX       F          B          h
## 819    NA      GenX       F          B          h
## 820    NA      GenX       F          B          h
## 821    NA      GenX       F          B          h
## 822    NA      GenX       F          B          h
## 823    NA Millennial      F          B          h
## 824    NA Millennial      F          B          h
## 825    NA Millennial      F          B          h
## 826    NA Millennial      F          B          h
## 827    NA Millennial      F          B          h
## 828    NA Millennial      F          B          h
## 829    NA    Boomer       M          C          h
## 830    NA    Boomer       M          C          h
## 831    NA    Boomer       M          C          h
## 832    NA    Boomer       M          C          h
## 833    NA    Boomer       M          C          h
## 834    NA    Boomer       M          C          h
## 835    NA      GenX       M          C          h
## 836    NA      GenX       M          C          h
## 837    NA      GenX       M          C          h
## 838    NA      GenX       M          C          h
## 839    NA      GenX       M          C          h
## 840    NA      GenX       M          C          h
## 841    NA Millennial      M          C          h
## 842    NA Millennial      M          C          h
## 843    NA Millennial      M          C          h
## 844    NA Millennial      M          C          h
## 845    NA Millennial      M          C          h
## 846    NA Millennial      M          C          h
## 847    NA    Boomer       F          C          h
## 848    NA    Boomer       F          C          h
## 849    NA    Boomer       F          C          h
## 850    NA    Boomer       F          C          h
## 851    NA    Boomer       F          C          h
## 852    NA    Boomer       F          C          h
## 853    NA      GenX       F          C          h
## 854    NA      GenX       F          C          h
## 855    NA      GenX       F          C          h
## 856    NA      GenX       F          C          h
## 857    NA      GenX       F          C          h
## 858    NA      GenX       F          C          h
## 859    NA Millennial      F          C          h
```

```
## 860         NA Millennial        F         C         h
## 861         NA Millennial        F         C         h
## 862         NA Millennial        F         C         h
## 863         NA Millennial        F         C         h
## 864         NA Millennial        F         C         h
## 865         NA    Boomer         M         A         i
## 866         NA    Boomer         M         A         i
## 867         NA    Boomer         M         A         i
## 868         NA    Boomer         M         A         i
## 869         NA    Boomer         M         A         i
## 870         NA    Boomer         M         A         i
## 871         NA      GenX         M         A         i
## 872         NA      GenX         M         A         i
## 873         NA      GenX         M         A         i
## 874         NA      GenX         M         A         i
## 875         NA      GenX         M         A         i
## 876         NA      GenX         M         A         i
## 877         NA Millennial        M         A         i
## 878         NA Millennial        M         A         i
## 879         NA Millennial        M         A         i
## 880         NA Millennial        M         A         i
## 881         NA Millennial        M         A         i
## 882         NA Millennial        M         A         i
## 883         NA    Boomer         F         A         i
## 884         NA    Boomer         F         A         i
## 885         NA    Boomer         F         A         i
## 886         NA    Boomer         F         A         i
## 887         NA    Boomer         F         A         i
## 888         NA    Boomer         F         A         i
## 889         NA      GenX         F         A         i
## 890         NA      GenX         F         A         i
## 891         NA      GenX         F         A         i
## 892         NA      GenX         F         A         i
## 893         NA      GenX         F         A         i
## 894         NA      GenX         F         A         i
## 895         NA Millennial        F         A         i
## 896         NA Millennial        F         A         i
## 897         NA Millennial        F         A         i
## 898         NA Millennial        F         A         i
## 899         NA Millennial        F         A         i
## 900         NA Millennial        F         A         i
## 901         NA    Boomer         M         B         i
## 902         NA    Boomer         M         B         i
## 903         NA    Boomer         M         B         i
## 904         NA    Boomer         M         B         i
## 905         NA    Boomer         M         B         i
## 906         NA    Boomer         M         B         i
## 907         NA      GenX         M         B         i
## 908         NA      GenX         M         B         i
## 909         NA      GenX         M         B         i
## 910         NA      GenX         M         B         i
## 911         NA      GenX         M         B         i
## 912         NA      GenX         M         B         i
## 913         NA Millennial        M         B         i
```

```
## 914    NA Millennial    M        B        i
## 915    NA Millennial    M        B        i
## 916    NA Millennial    M        B        i
## 917    NA Millennial    M        B        i
## 918    NA Millennial    M        B        i
## 919    NA    Boomer     F        B        i
## 920    NA    Boomer     F        B        i
## 921    NA    Boomer     F        B        i
## 922    NA    Boomer     F        B        i
## 923    NA    Boomer     F        B        i
## 924    NA    Boomer     F        B        i
## 925    NA      GenX     F        B        i
## 926    NA      GenX     F        B        i
## 927    NA      GenX     F        B        i
## 928    NA      GenX     F        B        i
## 929    NA      GenX     F        B        i
## 930    NA      GenX     F        B        i
## 931    NA Millennial    F        B        i
## 932    NA Millennial    F        B        i
## 933    NA Millennial    F        B        i
## 934    NA Millennial    F        B        i
## 935    NA Millennial    F        B        i
## 936    NA Millennial    F        B        i
## 937    NA    Boomer     M        C        i
## 938    NA    Boomer     M        C        i
## 939    NA    Boomer     M        C        i
## 940    NA    Boomer     M        C        i
## 941    NA    Boomer     M        C        i
## 942    NA    Boomer     M        C        i
## 943    NA      GenX     M        C        i
## 944    NA      GenX     M        C        i
## 945    NA      GenX     M        C        i
## 946    NA      GenX     M        C        i
## 947    NA      GenX     M        C        i
## 948    NA      GenX     M        C        i
## 949    NA Millennial    M        C        i
## 950    NA Millennial    M        C        i
## 951    NA Millennial    M        C        i
## 952    NA Millennial    M        C        i
## 953    NA Millennial    M        C        i
## 954    NA Millennial    M        C        i
## 955    NA    Boomer     F        C        i
## 956    NA    Boomer     F        C        i
## 957    NA    Boomer     F        C        i
## 958    NA    Boomer     F        C        i
## 959    NA    Boomer     F        C        i
## 960    NA    Boomer     F        C        i
## 961    NA      GenX     F        C        i
## 962    NA      GenX     F        C        i
## 963    NA      GenX     F        C        i
## 964    NA      GenX     F        C        i
## 965    NA      GenX     F        C        i
## 966    NA      GenX     F        C        i
## 967    NA Millennial    F        C        i
```

```
## 968    NA Millennial    F    C    i
## 969    NA Millennial    F    C    i
## 970    NA Millennial    F    C    i
## 971    NA Millennial    F    C    i
## 972    NA Millennial    F    C    i
## 973    NA    Boomer    M    A    j
## 974    NA    Boomer    M    A    j
## 975    NA    Boomer    M    A    j
## 976    NA    Boomer    M    A    j
## 977    NA    Boomer    M    A    j
## 978    NA    Boomer    M    A    j
## 979    NA      GenX    M    A    j
## 980    NA      GenX    M    A    j
## 981    NA      GenX    M    A    j
## 982    NA      GenX    M    A    j
## 983    NA      GenX    M    A    j
## 984    NA      GenX    M    A    j
## 985    NA Millennial    M    A    j
## 986    NA Millennial    M    A    j
## 987    NA Millennial    M    A    j
## 988    NA Millennial    M    A    j
## 989    NA Millennial    M    A    j
## 990    NA Millennial    M    A    j
## 991    NA    Boomer    F    A    j
## 992    NA    Boomer    F    A    j
## 993    NA    Boomer    F    A    j
## 994    NA    Boomer    F    A    j
## 995    NA    Boomer    F    A    j
## 996    NA    Boomer    F    A    j
## 997    NA      GenX    F    A    j
## 998    NA      GenX    F    A    j
## 999    NA      GenX    F    A    j
## 1000   NA      GenX    F    A    j
## 1001   NA      GenX    F    A    j
## 1002   NA      GenX    F    A    j
## 1003   NA Millennial    F    A    j
## 1004   NA Millennial    F    A    j
## 1005   NA Millennial    F    A    j
## 1006   NA Millennial    F    A    j
## 1007   NA Millennial    F    A    j
## 1008   NA Millennial    F    A    j
## 1009   NA    Boomer    M    B    j
## 1010   NA    Boomer    M    B    j
## 1011   NA    Boomer    M    B    j
## 1012   NA    Boomer    M    B    j
## 1013   NA    Boomer    M    B    j
## 1014   NA    Boomer    M    B    j
## 1015   NA      GenX    M    B    j
## 1016   NA      GenX    M    B    j
## 1017   NA      GenX    M    B    j
## 1018   NA      GenX    M    B    j
## 1019   NA      GenX    M    B    j
## 1020   NA      GenX    M    B    j
## 1021   NA Millennial    M    B    j
```

53

```
## 1022     NA Millennial       M          B          j
## 1023     NA Millennial       M          B          j
## 1024     NA Millennial       M          B          j
## 1025     NA Millennial       M          B          j
## 1026     NA Millennial       M          B          j
## 1027     NA     Boomer       F          B          j
## 1028     NA     Boomer       F          B          j
## 1029     NA     Boomer       F          B          j
## 1030     NA     Boomer       F          B          j
## 1031     NA     Boomer       F          B          j
## 1032     NA     Boomer       F          B          j
## 1033     NA       GenX       F          B          j
## 1034     NA       GenX       F          B          j
## 1035     NA       GenX       F          B          j
## 1036     NA       GenX       F          B          j
## 1037     NA       GenX       F          B          j
## 1038     NA       GenX       F          B          j
## 1039     NA Millennial       F          B          j
## 1040     NA Millennial       F          B          j
## 1041     NA Millennial       F          B          j
## 1042     NA Millennial       F          B          j
## 1043     NA Millennial       F          B          j
## 1044     NA Millennial       F          B          j
## 1045     NA     Boomer       M          C          j
## 1046     NA     Boomer       M          C          j
## 1047     NA     Boomer       M          C          j
## 1048     NA     Boomer       M          C          j
## 1049     NA     Boomer       M          C          j
## 1050     NA     Boomer       M          C          j
## 1051     NA       GenX       M          C          j
## 1052     NA       GenX       M          C          j
## 1053     NA       GenX       M          C          j
## 1054     NA       GenX       M          C          j
## 1055     NA       GenX       M          C          j
## 1056     NA       GenX       M          C          j
## 1057     NA Millennial       M          C          j
## 1058     NA Millennial       M          C          j
## 1059     NA Millennial       M          C          j
## 1060     NA Millennial       M          C          j
## 1061     NA Millennial       M          C          j
## 1062     NA Millennial       M          C          j
## 1063     NA     Boomer       F          C          j
## 1064     NA     Boomer       F          C          j
## 1065     NA     Boomer       F          C          j
## 1066     NA     Boomer       F          C          j
## 1067     NA     Boomer       F          C          j
## 1068     NA     Boomer       F          C          j
## 1069     NA       GenX       F          C          j
## 1070     NA       GenX       F          C          j
## 1071     NA       GenX       F          C          j
## 1072     NA       GenX       F          C          j
## 1073     NA       GenX       F          C          j
## 1074     NA       GenX       F          C          j
## 1075     NA Millennial       F          C          j
```

```
## 1076   NA Millennial     F          C          j
## 1077   NA Millennial     F          C          j
## 1078   NA Millennial     F          C          j
## 1079   NA Millennial     F          C          j
## 1080   NA Millennial     F          C          j
## 1081   NA     Boomer      M          A          k
## 1082   NA     Boomer      M          A          k
## 1083   NA     Boomer      M          A          k
## 1084   NA     Boomer      M          A          k
## 1085   NA     Boomer      M          A          k
## 1086   NA     Boomer      M          A          k
## 1087   NA       GenX      M          A          k
## 1088   NA       GenX      M          A          k
## 1089   NA       GenX      M          A          k
## 1090   NA       GenX      M          A          k
## 1091   NA       GenX      M          A          k
## 1092   NA       GenX      M          A          k
## 1093   NA Millennial     M          A          k
## 1094   NA Millennial     M          A          k
## 1095   NA Millennial     M          A          k
## 1096   NA Millennial     M          A          k
## 1097   NA Millennial     M          A          k
## 1098   NA Millennial     M          A          k
## 1099   NA     Boomer      F          A          k
## 1100   NA     Boomer      F          A          k
## 1101   NA     Boomer      F          A          k
## 1102   NA     Boomer      F          A          k
## 1103   NA     Boomer      F          A          k
## 1104   NA     Boomer      F          A          k
## 1105   NA       GenX      F          A          k
## 1106   NA       GenX      F          A          k
## 1107   NA       GenX      F          A          k
## 1108   NA       GenX      F          A          k
## 1109   NA       GenX      F          A          k
## 1110   NA       GenX      F          A          k
## 1111   NA Millennial     F          A          k
## 1112   NA Millennial     F          A          k
## 1113   NA Millennial     F          A          k
## 1114   NA Millennial     F          A          k
## 1115   NA Millennial     F          A          k
## 1116   NA Millennial     F          A          k
## 1117   NA     Boomer      M          B          k
## 1118   NA     Boomer      M          B          k
## 1119   NA     Boomer      M          B          k
## 1120   NA     Boomer      M          B          k
## 1121   NA     Boomer      M          B          k
## 1122   NA     Boomer      M          B          k
## 1123   NA       GenX      M          B          k
## 1124   NA       GenX      M          B          k
## 1125   NA       GenX      M          B          k
## 1126   NA       GenX      M          B          k
## 1127   NA       GenX      M          B          k
## 1128   NA       GenX      M          B          k
## 1129   NA Millennial     M          B          k
```

```
## 1130   NA Millennial      M        B        k
## 1131   NA Millennial      M        B        k
## 1132   NA Millennial      M        B        k
## 1133   NA Millennial      M        B        k
## 1134   NA Millennial      M        B        k
## 1135   NA     Boomer      F        B        k
## 1136   NA     Boomer      F        B        k
## 1137   NA     Boomer      F        B        k
## 1138   NA     Boomer      F        B        k
## 1139   NA     Boomer      F        B        k
## 1140   NA     Boomer      F        B        k
## 1141   NA       GenX      F        B        k
## 1142   NA       GenX      F        B        k
## 1143   NA       GenX      F        B        k
## 1144   NA       GenX      F        B        k
## 1145   NA       GenX      F        B        k
## 1146   NA       GenX      F        B        k
## 1147   NA Millennial      F        B        k
## 1148   NA Millennial      F        B        k
## 1149   NA Millennial      F        B        k
## 1150   NA Millennial      F        B        k
## 1151   NA Millennial      F        B        k
## 1152   NA Millennial      F        B        k
## 1153   NA     Boomer      M        C        k
## 1154   NA     Boomer      M        C        k
## 1155   NA     Boomer      M        C        k
## 1156   NA     Boomer      M        C        k
## 1157   NA     Boomer      M        C        k
## 1158   NA     Boomer      M        C        k
## 1159   NA       GenX      M        C        k
## 1160   NA       GenX      M        C        k
## 1161   NA       GenX      M        C        k
## 1162   NA       GenX      M        C        k
## 1163   NA       GenX      M        C        k
## 1164   NA       GenX      M        C        k
## 1165   NA Millennial      M        C        k
## 1166   NA Millennial      M        C        k
## 1167   NA Millennial      M        C        k
## 1168   NA Millennial      M        C        k
## 1169   NA Millennial      M        C        k
## 1170   NA Millennial      M        C        k
## 1171   NA     Boomer      F        C        k
## 1172   NA     Boomer      F        C        k
## 1173   NA     Boomer      F        C        k
## 1174   NA     Boomer      F        C        k
## 1175   NA     Boomer      F        C        k
## 1176   NA     Boomer      F        C        k
## 1177   NA       GenX      F        C        k
## 1178   NA       GenX      F        C        k
## 1179   NA       GenX      F        C        k
## 1180   NA       GenX      F        C        k
## 1181   NA       GenX      F        C        k
## 1182   NA       GenX      F        C        k
## 1183   NA Millennial      F        C        k
```

```
## 1184   NA Millennial      F        C        k
## 1185   NA Millennial      F        C        k
## 1186   NA Millennial      F        C        k
## 1187   NA Millennial      F        C        k
## 1188   NA Millennial      F        C        k
## 1189   NA     Boomer      M        A        l
## 1190   NA     Boomer      M        A        l
## 1191   NA     Boomer      M        A        l
## 1192   NA     Boomer      M        A        l
## 1193   NA     Boomer      M        A        l
## 1194   NA     Boomer      M        A        l
## 1195   NA       GenX      M        A        l
## 1196   NA       GenX      M        A        l
## 1197   NA       GenX      M        A        l
## 1198   NA       GenX      M        A        l
## 1199   NA       GenX      M        A        l
## 1200   NA       GenX      M        A        l
## 1201   NA Millennial      M        A        l
## 1202   NA Millennial      M        A        l
## 1203   NA Millennial      M        A        l
## 1204   NA Millennial      M        A        l
## 1205   NA Millennial      M        A        l
## 1206   NA Millennial      M        A        l
## 1207   NA     Boomer      F        A        l
## 1208   NA     Boomer      F        A        l
## 1209   NA     Boomer      F        A        l
## 1210   NA     Boomer      F        A        l
## 1211   NA     Boomer      F        A        l
## 1212   NA     Boomer      F        A        l
## 1213   NA       GenX      F        A        l
## 1214   NA       GenX      F        A        l
## 1215   NA       GenX      F        A        l
## 1216   NA       GenX      F        A        l
## 1217   NA       GenX      F        A        l
## 1218   NA       GenX      F        A        l
## 1219   NA Millennial      F        A        l
## 1220   NA Millennial      F        A        l
## 1221   NA Millennial      F        A        l
## 1222   NA Millennial      F        A        l
## 1223   NA Millennial      F        A        l
## 1224   NA Millennial      F        A        l
## 1225   NA     Boomer      M        B        l
## 1226   NA     Boomer      M        B        l
## 1227   NA     Boomer      M        B        l
## 1228   NA     Boomer      M        B        l
## 1229   NA     Boomer      M        B        l
## 1230   NA     Boomer      M        B        l
## 1231   NA       GenX      M        B        l
## 1232   NA       GenX      M        B        l
## 1233   NA       GenX      M        B        l
## 1234   NA       GenX      M        B        l
## 1235   NA       GenX      M        B        l
## 1236   NA       GenX      M        B        l
## 1237   NA Millennial      M        B        l
```

```
## 1238    NA Millennial    M       B       l
## 1239    NA Millennial    M       B       l
## 1240    NA Millennial    M       B       l
## 1241    NA Millennial    M       B       l
## 1242    NA Millennial    M       B       l
## 1243    NA     Boomer    F       B       l
## 1244    NA     Boomer    F       B       l
## 1245    NA     Boomer    F       B       l
## 1246    NA     Boomer    F       B       l
## 1247    NA     Boomer    F       B       l
## 1248    NA     Boomer    F       B       l
## 1249    NA       GenX    F       B       l
## 1250    NA       GenX    F       B       l
## 1251    NA       GenX    F       B       l
## 1252    NA       GenX    F       B       l
## 1253    NA       GenX    F       B       l
## 1254    NA       GenX    F       B       l
## 1255    NA Millennial    F       B       l
## 1256    NA Millennial    F       B       l
## 1257    NA Millennial    F       B       l
## 1258    NA Millennial    F       B       l
## 1259    NA Millennial    F       B       l
## 1260    NA Millennial    F       B       l
## 1261    NA     Boomer    M       C       l
## 1262    NA     Boomer    M       C       l
## 1263    NA     Boomer    M       C       l
## 1264    NA     Boomer    M       C       l
## 1265    NA     Boomer    M       C       l
## 1266    NA     Boomer    M       C       l
## 1267    NA       GenX    M       C       l
## 1268    NA       GenX    M       C       l
## 1269    NA       GenX    M       C       l
## 1270    NA       GenX    M       C       l
## 1271    NA       GenX    M       C       l
## 1272    NA       GenX    M       C       l
## 1273    NA Millennial    M       C       l
## 1274    NA Millennial    M       C       l
## 1275    NA Millennial    M       C       l
## 1276    NA Millennial    M       C       l
## 1277    NA Millennial    M       C       l
## 1278    NA Millennial    M       C       l
## 1279    NA     Boomer    F       C       l
## 1280    NA     Boomer    F       C       l
## 1281    NA     Boomer    F       C       l
## 1282    NA     Boomer    F       C       l
## 1283    NA     Boomer    F       C       l
## 1284    NA     Boomer    F       C       l
## 1285    NA       GenX    F       C       l
## 1286    NA       GenX    F       C       l
## 1287    NA       GenX    F       C       l
## 1288    NA       GenX    F       C       l
## 1289    NA       GenX    F       C       l
## 1290    NA       GenX    F       C       l
## 1291    NA Millennial    F       C       l
```

```
## 1292   NA Millennial     F       C       l
## 1293   NA Millennial     F       C       l
## 1294   NA Millennial     F       C       l
## 1295   NA Millennial     F       C       l
## 1296   NA Millennial     F       C       l
## 1297   NA     Boomer     M       A       m
## 1298   NA     Boomer     M       A       m
## 1299   NA     Boomer     M       A       m
## 1300   NA     Boomer     M       A       m
## 1301   NA     Boomer     M       A       m
## 1302   NA     Boomer     M       A       m
## 1303   NA       GenX     M       A       m
## 1304   NA       GenX     M       A       m
## 1305   NA       GenX     M       A       m
## 1306   NA       GenX     M       A       m
## 1307   NA       GenX     M       A       m
## 1308   NA       GenX     M       A       m
## 1309   NA Millennial     M       A       m
## 1310   NA Millennial     M       A       m
## 1311   NA Millennial     M       A       m
## 1312   NA Millennial     M       A       m
## 1313   NA Millennial     M       A       m
## 1314   NA Millennial     M       A       m
## 1315   NA     Boomer     F       A       m
## 1316   NA     Boomer     F       A       m
## 1317   NA     Boomer     F       A       m
## 1318   NA     Boomer     F       A       m
## 1319   NA     Boomer     F       A       m
## 1320   NA     Boomer     F       A       m
## 1321   NA       GenX     F       A       m
## 1322   NA       GenX     F       A       m
## 1323   NA       GenX     F       A       m
## 1324   NA       GenX     F       A       m
## 1325   NA       GenX     F       A       m
## 1326   NA       GenX     F       A       m
## 1327   NA Millennial     F       A       m
## 1328   NA Millennial     F       A       m
## 1329   NA Millennial     F       A       m
## 1330   NA Millennial     F       A       m
## 1331   NA Millennial     F       A       m
## 1332   NA Millennial     F       A       m
## 1333   NA     Boomer     M       B       m
## 1334   NA     Boomer     M       B       m
## 1335   NA     Boomer     M       B       m
## 1336   NA     Boomer     M       B       m
## 1337   NA     Boomer     M       B       m
## 1338   NA     Boomer     M       B       m
## 1339   NA       GenX     M       B       m
## 1340   NA       GenX     M       B       m
## 1341   NA       GenX     M       B       m
## 1342   NA       GenX     M       B       m
## 1343   NA       GenX     M       B       m
## 1344   NA       GenX     M       B       m
## 1345   NA Millennial     M       B       m
```

```
## 1346   NA Millennial        M          B          m
## 1347   NA Millennial        M          B          m
## 1348   NA Millennial        M          B          m
## 1349   NA Millennial        M          B          m
## 1350   NA Millennial        M          B          m
## 1351   NA      Boomer        F          B          m
## 1352   NA      Boomer        F          B          m
## 1353   NA      Boomer        F          B          m
## 1354   NA      Boomer        F          B          m
## 1355   NA      Boomer        F          B          m
## 1356   NA      Boomer        F          B          m
## 1357   NA        GenX        F          B          m
## 1358   NA        GenX        F          B          m
## 1359   NA        GenX        F          B          m
## 1360   NA        GenX        F          B          m
## 1361   NA        GenX        F          B          m
## 1362   NA        GenX        F          B          m
## 1363   NA Millennial        F          B          m
## 1364   NA Millennial        F          B          m
## 1365   NA Millennial        F          B          m
## 1366   NA Millennial        F          B          m
## 1367   NA Millennial        F          B          m
## 1368   NA Millennial        F          B          m
## 1369   NA      Boomer        M          C          m
## 1370   NA      Boomer        M          C          m
## 1371   NA      Boomer        M          C          m
## 1372   NA      Boomer        M          C          m
## 1373   NA      Boomer        M          C          m
## 1374   NA      Boomer        M          C          m
## 1375   NA        GenX        M          C          m
## 1376   NA        GenX        M          C          m
## 1377   NA        GenX        M          C          m
## 1378   NA        GenX        M          C          m
## 1379   NA        GenX        M          C          m
## 1380   NA        GenX        M          C          m
## 1381   NA Millennial        M          C          m
## 1382   NA Millennial        M          C          m
## 1383   NA Millennial        M          C          m
## 1384   NA Millennial        M          C          m
## 1385   NA Millennial        M          C          m
## 1386   NA Millennial        M          C          m
## 1387   NA      Boomer        F          C          m
## 1388   NA      Boomer        F          C          m
## 1389   NA      Boomer        F          C          m
## 1390   NA      Boomer        F          C          m
## 1391   NA      Boomer        F          C          m
## 1392   NA      Boomer        F          C          m
## 1393   NA        GenX        F          C          m
## 1394   NA        GenX        F          C          m
## 1395   NA        GenX        F          C          m
## 1396   NA        GenX        F          C          m
## 1397   NA        GenX        F          C          m
## 1398   NA        GenX        F          C          m
## 1399   NA Millennial        F          C          m
```

```
## 1400    NA Millennial      F          C          m
## 1401    NA Millennial      F          C          m
## 1402    NA Millennial      F          C          m
## 1403    NA Millennial      F          C          m
## 1404    NA Millennial      F          C          m
## 1405    NA     Boomer      M          A          n
## 1406    NA     Boomer      M          A          n
## 1407    NA     Boomer      M          A          n
## 1408    NA     Boomer      M          A          n
## 1409    NA     Boomer      M          A          n
## 1410    NA     Boomer      M          A          n
## 1411    NA       GenX      M          A          n
## 1412    NA       GenX      M          A          n
## 1413    NA       GenX      M          A          n
## 1414    NA       GenX      M          A          n
## 1415    NA       GenX      M          A          n
## 1416    NA       GenX      M          A          n
## 1417    NA Millennial      M          A          n
## 1418    NA Millennial      M          A          n
## 1419    NA Millennial      M          A          n
## 1420    NA Millennial      M          A          n
## 1421    NA Millennial      M          A          n
## 1422    NA Millennial      M          A          n
## 1423    NA     Boomer      F          A          n
## 1424    NA     Boomer      F          A          n
## 1425    NA     Boomer      F          A          n
## 1426    NA     Boomer      F          A          n
## 1427    NA     Boomer      F          A          n
## 1428    NA     Boomer      F          A          n
## 1429    NA       GenX      F          A          n
## 1430    NA       GenX      F          A          n
## 1431    NA       GenX      F          A          n
## 1432    NA       GenX      F          A          n
## 1433    NA       GenX      F          A          n
## 1434    NA       GenX      F          A          n
## 1435    NA Millennial      F          A          n
## 1436    NA Millennial      F          A          n
## 1437    NA Millennial      F          A          n
## 1438    NA Millennial      F          A          n
## 1439    NA Millennial      F          A          n
## 1440    NA Millennial      F          A          n
## 1441    NA     Boomer      M          B          n
## 1442    NA     Boomer      M          B          n
## 1443    NA     Boomer      M          B          n
## 1444    NA     Boomer      M          B          n
## 1445    NA     Boomer      M          B          n
## 1446    NA     Boomer      M          B          n
## 1447    NA       GenX      M          B          n
## 1448    NA       GenX      M          B          n
## 1449    NA       GenX      M          B          n
## 1450    NA       GenX      M          B          n
## 1451    NA       GenX      M          B          n
## 1452    NA       GenX      M          B          n
## 1453    NA Millennial      M          B          n
```

```
## 1454    NA Millennial        M         B           n
## 1455    NA Millennial        M         B           n
## 1456    NA Millennial        M         B           n
## 1457    NA Millennial        M         B           n
## 1458    NA Millennial        M         B           n
## 1459    NA     Boomer        F         B           n
## 1460    NA     Boomer        F         B           n
## 1461    NA     Boomer        F         B           n
## 1462    NA     Boomer        F         B           n
## 1463    NA     Boomer        F         B           n
## 1464    NA     Boomer        F         B           n
## 1465    NA       GenX        F         B           n
## 1466    NA       GenX        F         B           n
## 1467    NA       GenX        F         B           n
## 1468    NA       GenX        F         B           n
## 1469    NA       GenX        F         B           n
## 1470    NA       GenX        F         B           n
## 1471    NA Millennial        F         B           n
## 1472    NA Millennial        F         B           n
## 1473    NA Millennial        F         B           n
## 1474    NA Millennial        F         B           n
## 1475    NA Millennial        F         B           n
## 1476    NA Millennial        F         B           n
## 1477    NA     Boomer        M         C           n
## 1478    NA     Boomer        M         C           n
## 1479    NA     Boomer        M         C           n
## 1480    NA     Boomer        M         C           n
## 1481    NA     Boomer        M         C           n
## 1482    NA     Boomer        M         C           n
## 1483    NA       GenX        M         C           n
## 1484    NA       GenX        M         C           n
## 1485    NA       GenX        M         C           n
## 1486    NA       GenX        M         C           n
## 1487    NA       GenX        M         C           n
## 1488    NA       GenX        M         C           n
## 1489    NA Millennial        M         C           n
## 1490    NA Millennial        M         C           n
## 1491    NA Millennial        M         C           n
## 1492    NA Millennial        M         C           n
## 1493    NA Millennial        M         C           n
## 1494    NA Millennial        M         C           n
## 1495    NA     Boomer        F         C           n
## 1496    NA     Boomer        F         C           n
## 1497    NA     Boomer        F         C           n
## 1498    NA     Boomer        F         C           n
## 1499    NA     Boomer        F         C           n
## 1500    NA     Boomer        F         C           n
## 1501    NA       GenX        F         C           n
## 1502    NA       GenX        F         C           n
## 1503    NA       GenX        F         C           n
## 1504    NA       GenX        F         C           n
## 1505    NA       GenX        F         C           n
## 1506    NA       GenX        F         C           n
## 1507    NA Millennial        F         C           n
```

```
## 1508    NA Millennial      F         C          n
## 1509    NA Millennial      F         C          n
## 1510    NA Millennial      F         C          n
## 1511    NA Millennial      F         C          n
## 1512    NA Millennial      F         C          n
```

```r
X$name = NA


for (i in seq(from = 1, to = n, by = 6)){
  X$name[i: (i+5)] = sample(list_within_a_list[[X$gender[i]]][[X$generation[i]]], 6)
}
```

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 in English.

```r
#TO-DO

library(skimr)

data(iris)

skim_summary = skim(iris)

print(skim_summary)
```

```
## -- Data Summary ------------------------
##                           Values
## Name                      iris
## Number of rows            150
## Number of columns         5
## _____
## Column type frequency:
##   factor                  1
##   numeric                 4
## _____
## Group variables           None
##
## -- Variable type: factor ---------------------------------------------------
##   skim_variable n_missing complete_rate ordered n_unique
## 1 Species               0             1 FALSE          3
##   top_counts
## 1 set: 50, ver: 50, vir: 50
##
## -- Variable type: numeric --------------------------------------------------
##   skim_variable n_missing complete_rate mean    sd  p0 p25  p50 p75 p100 hist
## 1 Sepal.Length          0             1 5.84 0.828 4.3 5.1 5.8  6.4  7.9
## 2 Sepal.Width           0             1 3.06 0.436 2   2.8 3    3.3  4.4
## 3 Petal.Length          0             1 3.76 1.77  1   1.6 4.35 5.1  6.9
## 4 Petal.Width           0             1 1.20 0.762 0.1 0.3 1.3  1.8  2.5
```

TO-DO: describe this data

The Iris datset has: Sepal length, Sepal width, Petal length, Petal width, and species

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.

```
#TO-DO

data(iris)

iris_subset = subset(iris, Species != 'virginica')
```

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

```
#TO-DO
y = as.integer(iris_subset$Species == 'versicolor')
```

- Write a function `mode` returning the sample mode of a vector of numeric values. Try not to look in the class notes.

```
#TO-DO
mode = function(x) {
  freq_table <- table(x)

  max_freq <- max(freq_table)

  mode_values <- as.numeric(names(freq_table)[freq_table == max_freq])

  if (length(mode_values) == 1) {
    return(mode_values)
  } else {
    return(mode_values)
  }
}
```

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

```
#TO-DO
# Assume `iris` is the dataset and `y` is some response variable you've defined
# For demonstration, let's pretend `y` is the Petal.Length (though in practice, `y` should be your actu
y = iris$Petal.Length
x = iris$Sepal.Length

best_threshold = NULL
min_rss = Inf

thresholds = unique(x)

for (t in thresholds) {
  group1 = y[x <= t]
  group2 = y[x > t]

  mean1 = mean(group1)
  mean2 = mean(group2)

  rss1 = sum((group1 - mean1)^2)
  rss2 = sum((group2 - mean2)^2)
```

```
  total_rss = rss1 + rss2

  if (total_rss < min_rss) {
    min_rss = total_rss
    threshold = t
  }
}

threshold
```

[1] 5.5

What is the total number of errors this model makes?

```
#TO-DO
mean_petal_length = mean(y)

predicted_below = y[x <= threshold]

predicted_above = y[x > threshold]

actual_below = y <= mean_petal_length
actual_above = y > mean_petal_length

errors_below = sum(predicted_below > mean_petal_length)

errors_above = sum(predicted_above <= mean_petal_length)

total_errors = errors_below + errors_above

total_errors
```

[1] 12

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

```
threshold
```

[1] 5.5

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

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

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

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

TO-DO: Write your answer here in English.

If my analysis is correct, I believe there is an overlap in the Sepal.Length which could cause errors and may not be completely accurate

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

```
g = function(x){
  #TO-DO
```

```
  ifelse(x <= threshold_value, 0, 1)
}
```