DSC_520_week9_Assignment00

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DGN: Diagnosis - specific combination of ICD-10 codes for primary and secondary as well multiple tumours if any (DGN3,DGN2,DGN4,DGN6,DGN5,DGN8,DGN1)

PRE4: Forced vital capacity - FVC (numeric)

PRE5: Volume that has been exhaled at the end of the first second of forced expiration - FEV1 (numeric)

PRE6: Performance status - Zubrod scale (PRZ2,PRZ1,PRZ0)

PRE7: Pain before surgery (T,F)

PRE8: Haemoptysis before surgery (T,F)

PRE9: Dyspnoea before surgery (T,F)

PRE10: Cough before surgery (T,F)

PRE11: Weakness before surgery (T,F)

PRE14: T in clinical TNM - size of the original tumour, from OC11 (smallest) to OC14 (largest) (OC11,OC14,OC12,OC13)

PRE17: Type 2 DM - diabetes mellitus (T,F)

PRE19: MI up to 6 months (T,F)

PRE25: PAD - peripheral arterial diseases (T,F)

PRE30: Smoking (T,F)

PRE32: Asthma (T,F)

AGE: Age at surgery (numeric)

Risk1Y: 1 year survival period - (T)rue value if died (T,F)

Load Libraries

```
if(!require('foreign')) {
  install.packages('foreign')
  library('foreign')
}
```

```
## Loading required package: foreign
```

```
if(!require('tidyr')) {
  install.packages('tidyr')
  library('tidyr')
}
```

```
## Loading required package: tidyr
```

```
## Warning: package 'tidyr' was built under R version 4.2.1
```

```
install.packages("MASS", repos="http://cran.us.r-project.org")
```

```
## Installing package into 'C:/Users/chris/AppData/Local/R/win-library/4.2'
## (as 'lib' is unspecified)
```

```
## package 'MASS' successfully unpacked and MD5 sums checked
```

```
## Warning: cannot remove prior installation of package 'MASS'
```

```
## Warning in file.copy(savedcopy, lib, recursive = TRUE): problem copying C:
## \Users\chris\AppData\Local\R\win-library\4.2\00LOCK\MASS\libs\x64\MASS.dll to C:
## \Users\chris\AppData\Local\R\win-library\4.2\MASS\libs\x64\MASS.dll: Permission
## denied
```

```
## Warning: restored 'MASS'
```

```
##
## The downloaded binary packages are in
##  C:\Users\chris\AppData\Local\Temp\Rtmp4MjtOH\downloaded_packages
```

```
library(MASS)
```

```
## Warning: package 'MASS' was built under R version 4.2.1
```

```
## Set the working directory to the root of your DSC 520 directory
setwd("C:/Users/chris/dsc520/data")
```

```
## Load the `data/r4ds/heights.csv` to
df <- read.arff("C:/Users/chris/dsc520/data/ThoracicSurgery.arff")
head(df)
```

```
##    DGN PRE4 PRE5 PRE6 PRE7 PRE8 PRE9 PRE10 PRE11 PRE14 PRE17 PRE19 PRE25 PRE30
## 1 DGN2 2.88 2.16 PRZ1    F    F    F     T     T  OC14     F     F     F     T
## 2 DGN3 3.40 1.88 PRZ0    F    F    F     F     F  OC12     F     F     F     T
## 3 DGN3 2.76 2.08 PRZ1    F    F    F     T     F  OC11     F     F     F     T
## 4 DGN3 3.68 3.04 PRZ0    F    F    F     F     F  OC11     F     F     F     F
## 5 DGN3 2.44 0.96 PRZ2    F    T    F     T     T  OC11     F     F     F     T
## 6 DGN3 2.48 1.88 PRZ1    F    F    F     T     F  OC11     F     F     F     F
##   PRE32 AGE Risk1Yr
## 1     F  60       F
## 2     F  51       F
## 3     F  59       F
## 4     F  54       F
## 5     F  73       T
## 6     F  51       F
```

```
data_new <- sapply(df, unclass)           # Convert categorical variables
head(data_new)
```

```
##      DGN PRE4 PRE5 PRE6 PRE7 PRE8 PRE9 PRE10 PRE11 PRE14 PRE17 PRE19 PRE25
## [1,]   2 2.88 2.16    2    1    1    1     2     2     4     1     1     1
## [2,]   3 3.40 1.88    1    1    1    1     1     1     2     1     1     1
## [3,]   3 2.76 2.08    2    1    1    1     2     1     1     1     1     1
## [4,]   3 3.68 3.04    1    1    1    1     1     1     1     1     1     1
## [5,]   3 2.44 0.96    3    1    2    1     2     2     1     1     1     1
## [6,]   3 2.48 1.88    2    1    1    1     2     1     1     1     1     1
##      PRE30 PRE32 AGE Risk1Yr
## [1,]     2     1  60       1
## [2,]     2     1  51       1
## [3,]     2     1  59       1
## [4,]     1     1  54       1
## [5,]     2     1  73       2
## [6,]     1     1  51       1
```

```
# convert the matrix into dataframe
newdata=as.data.frame(data_new)
newdata
```

```
##     DGN PRE4  PRE5 PRE6 PRE7 PRE8 PRE9 PRE10 PRE11 PRE14 PRE17 PRE19 PRE25
## 1     2 2.88  2.16    2    1    1    1     2     2     4     1     1     1
## 2     3 3.40  1.88    1    1    1    1     1     1     2     1     1     1
## 3     3 2.76  2.08    2    1    1    1     2     1     1     1     1     1
## 4     3 3.68  3.04    1    1    1    1     1     1     1     1     1     1
## 5     3 2.44  0.96    3    1    2    1     2     2     1     1     1     1
## 6     3 2.48  1.88    2    1    1    1     2     1     1     1     1     1
## 7     3 4.36  3.28    2    1    1    1     2     1     2     2     1     1
## 8     2 3.19  2.50    2    1    1    1     2     1     1     1     1     2
## 9     3 3.16  2.64    3    1    1    1     2     2     1     1     1     1
## 10    3 2.32  2.16    2    1    1    1     2     1     1     1     1     1
## 11    3 2.56  2.32    1    1    2    1     2     1     2     1     1     1
## 12    3 4.28  4.44    2    1    1    1     1     1     2     1     1     1
## 13    3 3.00  2.36    2    1    1    1     2     2     1     1     1     1
## 14    2 3.98  3.06    3    1    1    1     2     2     4     1     1     1
## 15    3 1.96  1.40    2    1    1    1     2     1     1     1     1     1
## 16    3 4.68  4.16    2    1    1    1     2     1     2     1     1     1
## 17    2 2.21  1.88    1    1    2    1     1     1     2     1     1     1
## 18    2 2.96  1.67    1    1    1    1     1     1     2     1     1     1
## 19    3 2.60  1.68    2    1    1    1     2     1     2     1     1     1
## 20    3 2.88  2.48    1    1    1    1     1     1     1     1     1     1
## 21    3 4.48  3.48    1    1    1    1     1     1     2     1     1     1
## 22    4 3.32  2.84    1    1    1    1     1     1     2     1     1     1
## 23    3 2.36  1.68    1    1    1    1     1     1     2     1     1     1
## 24    3 3.68  2.32    1    1    1    1     1     1     1     1     1     1
## 25    7 4.32  3.20    1    1    1    1     1     1     1     1     1     1
## 26    5 4.56 72.80    1    2    2    1     2     1     2     1     1     1
## 27    3 3.24  3.08    2    1    1    1     2     1     1     1     1     1
## 28    3 3.40  3.06    2    1    1    1     2     2     1     1     1     1
## 29    3 3.16  2.69    2    1    1    1     2     2     1     1     1     1
## 30    6 3.96  3.28    1    1    1    1     1     1     1     1     1     1
```

```
## 31    3 3.24  2.40    2    2    2    1    1    1    4    1    1    1
## 32    3 4.44  3.48    2    1    1    1    2    1    2    1    1    1
## 33    5 2.48  1.95    2    2    1    1    1    1    2    2    1    1
## 34    3 1.81  1.40    2    1    1    1    2    1    2    2    1    1
## 35    2 2.76  2.20    2    1    1    1    2    1    1    1    1    1
## 36    3 2.36  1.60    1    1    1    1    1    1    1    1    1    1
## 37    3 2.20  1.96    2    1    1    1    2    1    2    1    1    1
## 38    3 3.68  2.44    2    1    2    2    1    1    2    2    1    1
## 39    3 4.20  3.08    1    1    1    1    1    1    1    1    1    1
## 40    3 4.60  3.52    2    1    1    1    2    1    1    1    1    1
## 41    5 3.80  2.98    2    1    1    1    2    1    1    1    1    1
## 42    2 3.24  2.52    2    1    1    1    2    1    2    1    1    1
## 43    3 3.20  2.82    2    1    1    1    2    1    2    1    1    1
## 44    5 2.68  2.12    1    1    1    1    2    1    2    1    1    1
## 45    3 3.56  2.68    2    2    1    1    2    1    2    1    1    1
## 46    3 2.48  2.08    1    1    1    1    1    1    1    1    1    1
## 47    3 4.16  3.28    2    1    1    1    2    1    2    1    1    1
## 48    3 2.64  2.12    2    1    1    1    2    1    2    1    1    1
## 49    3 4.44  3.12    3    1    1    1    2    2    2    1    1    1
## 50    3 4.56  3.92    1    1    1    1    1    1    2    1    1    1
## 51    3 2.52  1.96    2    1    1    1    2    1    2    1    1    1
## 52    3 4.00  2.88    2    1    1    1    2    1    1    1    1    1
## 53    3 3.20  2.52    3    2    2    2    2    1    2    1    1    1
## 54    4 3.76  2.52    2    1    1    1    2    1    2    1    1    1
## 55    3 3.68  3.08    2    1    1    1    2    1    2    1    1    1
## 56    4 3.28  2.36    2    1    1    1    2    1    2    1    1    1
## 57    3 3.72  2.88    2    1    1    2    2    1    1    1    1    1
## 58    3 3.40  2.80    2    2    1    1    2    2    1    2    1    1
## 59    4 5.12  4.28    1    1    1    1    1    1    2    1    1    1
## 60    3 3.84  3.72    1    1    1    1    1    1    2    1    1    1
## 61    3 3.52  2.28    1    1    1    1    1    1    3    1    1    1
## 62    3 3.04  2.04    3    1    1    1    2    2    2    1    1    1
## 63    3 4.96  3.60    1    1    1    1    1    1    1    1    1    1
## 64    3 3.72  2.84    1    1    1    1    1    1    1    2    1    1
## 65    2 3.15  2.76    2    1    2    1    2    1    2    1    1    1
## 66    3 2.88  2.60    2    1    1    1    2    1    2    1    1    1
## 67    3 2.36  2.00    1    1    1    1    1    1    1    1    1    1
## 68    4 2.32  1.76    2    1    2    1    2    2    1    1    1    1
## 69    3 2.72  2.20    2    1    1    1    2    1    2    1    1    1
## 70    3 3.08  1.80    2    1    2    1    2    1    2    1    1    1
## 71    3 3.48  2.72    2    1    2    1    1    1    1    1    1    1
## 72    3 3.60  2.60    2    1    1    1    2    1    2    2    1    1
## 73    3 3.52  2.92    1    1    1    1    1    1    1    1    1    1
## 74    4 6.30  5.48    1    1    1    1    1    1    1    1    1    1
## 75    3 4.60  3.28    2    1    1    1    2    1    1    1    1    1
## 76    3 3.40  2.80    2    1    1    1    2    1    4    1    1    1
## 77    3 1.84  1.28    2    1    1    1    2    2    1    1    1    1
## 78    3 3.04  3.60    2    1    1    1    2    1    2    1    1    1
## 79    3 2.20  1.44    2    1    1    1    2    1    2    1    1    1
## 80    3 3.04  2.16    2    1    1    1    2    1    2    1    1    1
## 81    3 3.68  2.88    2    1    1    1    2    1    2    1    1    1
## 82    3 1.96  1.68    2    1    1    1    2    1    4    1    1    1
## 83    3 3.24  1.64    2    1    1    1    2    1    2    1    1    1
## 84    3 2.84  2.36    2    1    1    1    2    1    1    2    1    1
```

```
## 85    3 4.28  3.28    1    1    1    1    1    1    2    1    1    1
## 86    3 3.76  2.72    2    1    1    1    2    1    2    1    1    1
## 87    3 4.90  4.19    1    1    1    2    2    1    2    1    1    1
## 88    3 2.36  2.00    2    1    1    2    1    1    2    1    1    2
## 89    5 2.68  1.76    3    1    2    1    2    2    1    1    1    1
## 90    3 2.83 66.40    2    2    2    2    2    1    2    1    1    1
## 91    4 3.52  2.72    2    1    2    1    2    1    2    1    1    1
## 92    3 2.60  2.00    2    1    1    1    2    1    1    1    1    1
## 93    3 3.60  2.48    2    1    1    1    2    1    2    1    1    1
## 94    3 6.08  4.92    1    1    1    1    1    1    1    1    1    1
## 95    3 1.88  1.44    3    1    1    1    2    2    2    1    1    1
## 96    3 4.56  3.60    2    1    1    1    2    1    1    1    1    1
## 97    4 2.68  2.00    2    1    1    1    2    1    2    1    1    1
## 98    6 3.04  2.40    3    1    1    1    2    1    1    1    1    1
## 99    3 2.63 67.30    2    1    1    2    2    1    1    1    1    1
## 100   3 4.60  2.92    2    1    2    2    2    1    2    1    1    1
## 101   3 3.36  2.67    2    1    1    1    2    1    1    1    1    1
## 102   3 1.84  1.64    2    1    1    1    2    2    2    2    1    1
## 103   4 4.32  3.24    2    1    1    1    2    1    2    1    1    1
## 104   3 2.35  1.64    2    1    1    1    2    1    1    1    1    1
## 105   3 2.84  1.88    2    1    1    1    2    1    1    1    1    1
## 106   5 4.95  4.12    2    1    1    1    1    2    1    1    1    1
## 107   3 2.48  2.08    2    1    1    1    2    1    2    1    1    1
## 108   3 3.60  2.60    2    1    1    1    2    1    2    1    1    1
## 109   3 3.16  2.96    1    1    1    1    1    1    1    1    1    1
## 110   3 3.24  2.36    2    1    1    2    2    1    2    1    1    1
## 111   2 4.48  4.20    1    1    1    1    1    1    2    1    1    1
## 112   3 4.00  2.60    2    1    1    1    2    1    2    2    1    1
## 113   3 3.68 64.10    1    1    1    1    1    1    2    1    1    1
## 114   3 4.68  3.48    1    1    1    1    1    1    1    1    1    1
## 115   3 4.52  3.32    1    1    1    1    2    1    2    1    1    1
## 116   4 2.76  1.76    2    1    2    1    2    1    1    2    1    1
## 117   4 2.88  2.24    2    1    1    1    2    2    2    1    1    1
## 118   3 2.84  2.16    2    1    1    1    2    1    2    2    1    1
## 119   4 3.48  2.56    2    1    1    1    1    1    1    1    1    1
## 120   3 2.56  1.60    2    1    1    1    2    2    2    1    1    1
## 121   2 3.84  2.56    2    1    1    1    2    1    1    1    1    1
## 122   3 3.56  2.76    2    1    1    1    2    1    2    1    1    1
## 123   2 2.80  2.12    2    1    1    2    2    1    3    1    1    1
## 124   4 3.30  2.56    1    1    1    1    1    1    1    1    1    1
## 125   3 3.36  2.80    2    1    1    1    2    2    2    1    1    1
## 126   3 2.83  1.96    2    1    1    1    2    1    2    1    1    1
## 127   3 4.56  2.68    2    1    1    1    2    1    1    1    1    1
## 128   3 2.00  1.00    2    1    2    1    2    2    1    2    1    1
## 129   4 3.31  2.00    3    1    1    2    2    1    2    1    1    1
## 130   2 5.60  4.64    2    1    1    1    2    1    1    1    1    1
## 131   3 3.32  2.87    2    1    1    1    2    1    1    1    1    1
## 132   2 2.12  1.72    2    1    1    1    1    1    2    1    1    1
## 133   2 2.50 71.10    1    1    1    2    1    1    3    1    1    1
## 134   3 2.00  1.44    1    1    1    1    1    1    1    1    1    1
## 135   3 4.84  3.48    2    1    1    1    2    1    2    1    1    1
## 136   3 2.92  2.28    2    1    1    1    2    1    1    1    1    1
## 137   2 3.76  3.08    2    1    1    1    2    1    3    1    1    1
## 138   3 2.08  1.52    2    1    1    1    2    1    4    1    1    1
```

```
## 139   3 2.44  2.08    2    1    1    1    2    1    2    1    1    1
## 140   3 3.72  3.12    2    1    2    1    1    1    2    1    1    1
## 141   2 2.16  1.56    2    1    1    1    2    1    1    1    1    1
## 142   3 4.20  3.24    2    1    2    1    2    1    2    1    1    1
## 143   3 5.17  4.30    2    1    1    1    1    1    1    1    1    1
## 144   4 2.08  1.76    1    1    1    1    1    1    2    1    1    1
## 145   2 3.64  2.48    3    1    1    1    2    2    1    1    1    1
## 146   3 3.96  2.96    2    1    1    1    2    1    2    1    1    1
## 147   3 3.92  3.08    2    1    1    1    2    1    1    1    1    1
## 148   3 2.92  2.20    2    1    1    1    2    1    2    1    1    1
## 149   3 3.64  2.76    2    1    1    1    2    1    2    1    1    1
## 150   3 2.72  2.36    1    1    1    1    1    1    1    1    1    1
## 151   3 2.60  2.24    1    1    1    1    1    1    2    1    1    1
## 152   3 3.88  2.84    2    1    2    1    2    1    1    1    1    1
## 153   3 2.72  2.04    2    2    1    1    1    1    2    1    1    1
## 154   3 3.44  3.13    2    1    1    1    2    2    2    1    1    1
## 155   3 3.12  3.24    2    1    1    1    2    1    2    1    1    1
## 156   3 2.60  2.32    2    1    1    1    1    2    2    2    1    1
## 157   3 3.28  2.32    2    1    1    2    2    1    3    1    1    1
## 158   3 2.76  1.60    2    1    1    1    2    2    2    1    2    1
## 159   3 3.08  2.32    2    1    2    1    2    2    2    1    1    2
## 160   3 2.20  1.70    2    1    1    1    2    1    1    1    1    1
## 161   3 2.92  1.88    1    1    1    1    1    1    2    1    1    1
## 162   3 2.88  2.36    1    1    1    1    1    1    1    1    1    1
## 163   3 3.20  2.28    2    2    2    1    2    1    2    1    1    1
## 164   2 2.40  1.96    2    1    1    1    2    1    2    1    1    1
## 165   2 3.00  2.40    2    1    1    1    2    1    4    1    1    1
## 166   3 3.20  2.21    2    1    2    2    2    1    2    1    1    1
## 167   2 3.40  2.12    2    1    1    1    2    2    1    1    1    1
## 168   3 2.57  1.72    2    1    1    1    2    2    1    1    1    1
## 169   3 2.28  2.08    1    1    1    1    1    1    1    2    1    1
## 170   3 2.44  1.96    2    1    2    2    2    1    3    1    1    1
## 171   3 4.04  1.88    2    1    1    1    2    1    2    1    1    1
## 172   2 2.88  2.20    1    1    1    1    1    1    2    2    1    1
## 173   2 3.16  2.56    2    1    2    2    2    1    2    1    1    2
## 174   3 2.60  2.36    2    1    1    1    2    1    1    1    1    1
## 175   3 1.44  1.04    2    1    1    1    2    2    1    1    1    1
## 176   3 3.68  2.36    1    1    1    2    2    1    2    1    1    1
## 177   3 3.20  2.72    3    1    1    1    2    1    4    1    1    1
## 178   3 3.04  2.32    2    1    1    1    2    1    2    1    1    1
## 179   3 4.32  4.32    2    1    2    1    2    2    2    1    1    1
## 180   3 3.00  2.36    3    1    1    1    2    2    2    1    1    1
## 181   3 3.64  2.88    2    1    1    1    2    2    2    1    1    1
## 182   3 5.08  4.08    2    1    1    1    2    1    2    1    1    1
## 183   3 3.16  2.36    2    1    1    1    2    1    1    1    1    1
## 184   3 2.80  3.36    2    1    1    1    2    1    2    1    1    1
## 185   3 2.52  2.08    1    1    1    1    1    1    1    1    1    1
## 186   5 3.52  2.56    1    1    1    2    1    1    2    1    1    1
## 187   3 3.32  2.15    2    1    1    1    2    1    1    1    1    1
## 188   4 3.28  1.64    2    1    1    1    2    1    1    1    1    1
## 189   3 2.28  1.24    2    1    1    1    2    1    1    1    1    1
## 190   4 4.92  3.72    1    1    1    1    1    1    2    1    1    1
## 191   3 2.60  1.56    1    1    1    1    1    1    2    1    1    1
## 192   3 2.68  2.40    1    1    1    1    1    1    1    1    1    1
```

```
## 193   2 3.08  2.48    2    1    1    1    2    1    1    1    1    1
## 194   3 3.84  3.36    1    1    1    1    1    1    2    1    1    1
## 195   3 3.52  2.80    1    1    1    1    1    1    1    1    1    1
## 196   3 2.73  2.11    2    1    2    1    2    1    2    1    1    1
## 197   3 2.84  2.24    2    2    2    1    1    1    2    1    1    1
## 198   3 2.98  2.64    2    1    1    1    2    1    2    1    1    1
## 199   3 3.52  2.72    2    1    1    1    1    1    1    1    1    1
## 200   4 2.44  1.64    2    1    1    1    2    2    1    1    1    1
## 201   3 2.36  2.08    2    1    1    1    2    1    2    1    1    1
## 202   3 2.76  2.28    1    1    1    1    1    1    1    1    1    1
## 203   2 4.08  2.56    2    2    2    1    1    1    3    1    1    1
## 204   2 3.60  3.92    1    1    1    1    1    1    2    1    1    1
## 205   3 3.12  2.90    1    1    1    1    1    1    2    1    1    1
## 206   3 2.24  1.76    1    1    1    1    1    1    2    1    1    1
## 207   3 3.96  2.88    1    1    1    1    1    1    1    1    1    1
## 208   3 2.60  1.92    2    1    1    1    2    1    1    1    1    1
## 209   3 4.20  3.24    1    1    1    1    1    1    2    1    1    1
## 210   2 2.80  1.60    2    1    2    1    2    2    2    1    1    1
## 211   3 4.72  4.56    1    1    1    1    1    1    1    1    1    1
## 212   3 3.58  2.64    2    1    1    1    2    1    2    1    1    1
## 213   3 2.44  2.12    2    2    2    2    1    1    1    1    1    1
## 214   3 2.22  1.36    1    1    1    1    1    1    2    2    1    1
## 215   3 2.96  2.32    1    1    1    1    1    1    1    1    1    1
## 216   2 2.66  8.56    2    1    2    1    2    1    2    1    1    1
## 217   2 3.24  1.88    2    1    1    1    2    1    2    1    1    1
## 218   3 4.52  3.60    2    1    1    1    2    1    2    1    1    1
## 219   3 4.00  3.08    2    1    1    1    2    1    1    1    1    1
## 220   3 2.84  2.12    1    1    1    1    1    1    1    1    1    1
## 221   5 2.87  2.08    2    1    1    1    2    1    3    1    1    1
## 222   4 4.24  3.68    2    1    1    1    2    1    2    1    1    1
## 223   3 4.80  3.41    2    1    1    2    2    1    2    1    1    1
## 224   3 3.72  3.04    1    1    1    1    1    1    1    1    1    2
## 225   3 4.96  3.48    2    1    1    1    2    1    2    1    1    1
## 226   4 2.76  2.16    2    2    1    1    1    1    2    2    1    1
## 227   3 2.96  2.44    2    1    1    1    2    2    2    1    1    1
## 228   3 2.64  2.44    2    1    1    1    2    1    2    1    1    1
## 229   3 2.40  1.64    1    1    1    1    1    1    1    1    1    1
## 230   3 2.64  2.08    2    1    1    1    2    1    2    2    1    1
## 231   3 4.76  3.31    2    1    1    2    2    1    1    1    1    1
## 232   5 2.88  2.52    2    1    1    1    2    1    2    1    1    1
## 233   3 2.32  1.76    2    1    1    1    2    1    1    1    1    1
## 234   3 2.60  2.00    2    1    1    1    2    1    2    1    1    1
## 235   3 2.46  1.76    2    1    1    1    2    2    1    1    1    1
## 236   3 4.16  3.64    2    1    1    1    2    1    2    1    1    1
## 237   3 3.20  1.80    2    1    1    1    2    2    2    1    1    1
## 238   3 3.24  2.64    1    1    1    1    2    1    1    1    1    1
## 239   5 3.40  2.08    2    1    1    1    1    2    1    1    1    1
## 240   3 3.52  2.52    2    1    1    1    2    1    2    1    1    1
## 241   3 4.36  3.76    1    1    1    1    1    1    1    1    1    1
## 242   3 5.52  3.56    2    1    1    1    2    1    2    1    1    1
## 243   2 4.88  3.44    1    1    2    1    2    1    4    1    1    1
## 244   3 4.36  3.92    2    1    1    1    1    1    1    1    1    1
## 245   3 3.56  2.64    2    1    1    1    2    1    1    1    2    1
## 246   3 5.49  2.97    2    1    1    1    2    1    2    1    1    1
```

```
## 247   4 5.56  4.32    1    1    1    1    1    1    2    1    1    1
## 248   3 4.08  3.20    1    1    1    1    2    1    2    1    1    1
## 249   4 4.56  3.68    2    1    1    1    2    1    2    1    1    1
## 250   3 2.56  1.80    2    1    1    1    2    1    2    1    1    1
## 251   3 3.80  2.82    2    1    1    1    2    1    2    1    1    1
## 252   3 3.04  2.24    3    1    1    1    2    2    1    1    1    1
## 253   3 3.81  2.94    2    1    1    1    2    1    2    1    1    1
## 254   3 3.92  2.36    2    1    1    1    2    1    2    1    1    1
## 255   3 3.44  3.52    2    2    1    1    1    1    1    1    1    1
## 256   3 3.72 78.30    1    2    1    1    2    1    2    1    1    1
## 257   3 2.80  1.88    2    1    1    1    2    1    1    1    1    1
## 258   3 2.92  2.32    1    1    1    1    1    1    1    1    1    1
## 259   3 3.72  2.48    2    1    2    1    2    1    1    1    1    1
## 260   3 3.64  2.52    1    1    1    1    1    1    2    1    1    1
## 261   3 2.72  2.09    1    1    1    1    1    1    4    1    1    1
## 262   3 1.84  1.12    2    1    1    1    2    1    2    1    1    1
## 263   3 2.96  1.72    1    1    2    1    2    1    1    1    1    1
## 264   4 3.04  2.88    1    1    1    1    1    1    1    1    1    1
## 265   3 2.60  1.92    2    1    1    1    2    1    1    1    1    1
## 266   3 2.92  2.52    1    1    1    1    1    1    2    1    1    1
## 267   3 3.80  2.84    2    1    1    1    2    1    2    1    1    1
## 268   3 3.32  2.92    3    1    1    1    2    2    3    1    1    1
## 269   3 2.52  1.72    3    1    1    2    2    2    2    1    1    1
## 270   3 4.28  3.28    2    2    1    1    2    1    1    1    1    1
## 271   3 2.52  1.72    2    1    1    1    2    2    2    1    1    1
## 272   5 3.00  2.16    1    1    1    1    1    1    1    1    1    1
## 273   3 2.07  1.60    1    1    2    1    1    1    2    1    1    1
## 274   4 3.36  2.72    3    1    1    1    2    2    1    2    1    1
## 275   2 4.04  2.76    2    1    1    1    2    1    2    1    1    1
## 276   3 1.70  1.36    2    1    1    1    1    2    2    1    1    1
## 277   3 3.04  2.04    2    1    1    1    2    1    2    1    1    1
## 278   3 3.36  2.64    2    1    1    1    2    1    2    2    1    1
## 279   3 4.57  4.57    2    1    1    1    2    1    1    1    1    1
## 280   3 4.12  2.32    2    1    1    1    2    1    1    1    1    1
## 281   3 2.00  1.36    2    1    1    1    2    1    1    1    1    1
## 282   3 3.80  3.68    1    1    1    1    1    1    2    1    1    1
## 283   3 3.16  2.60    2    2    1    1    2    1    2    1    1    1
## 284   2 2.32  1.68    2    1    2    1    2    1    2    1    1    1
## 285   3 2.32  1.92    1    1    1    1    1    1    1    1    1    1
## 286   3 2.48  1.40    2    1    1    1    2    1    1    1    1    1
## 287   4 4.90  3.96    2    1    1    1    2    1    2    1    1    1
## 288   3 2.96  2.20    2    1    1    1    2    1    2    1    1    1
## 289   3 2.96  1.88    2    1    1    1    2    2    4    1    1    1
## 290   3 3.52  2.36    2    1    1    1    2    1    2    1    1    1
## 291   3 4.12  3.16    2    1    1    1    2    2    2    1    1    1
## 292   3 2.68  2.32    2    1    1    1    2    2    1    2    1    1
## 293   1 3.80  2.80    1    1    1    1    1    1    2    1    1    1
## 294   3 4.12  2.88    2    1    1    1    2    1    2    1    1    2
## 295   2 2.64  1.92    2    1    1    1    2    1    1    2    1    1
## 296   3 3.68  2.96    2    1    2    1    2    1    2    1    1    1
## 297   3 2.48  1.84    2    1    1    1    2    1    2    1    1    1
## 298   3 4.36  3.24    2    2    1    2    2    1    2    1    1    1
## 299   3 4.32  2.72    3    1    2    1    2    2    1    1    1    1
## 300   3 3.40  1.92    1    1    1    1    1    1    2    1    1    1
```

```
## 301   3 4.24  3.04    2    1    2    1    2    2    2    1    1    1
## 302   3 3.28  1.96    1    1    1    1    1    1    2    1    1    1
## 303   3 4.59  3.02    3    2    1    1    2    2    3    1    1    1
## 304   3 4.16  3.44    2    1    2    1    2    2    2    1    1    1
## 305   3 5.16  4.28    1    1    1    1    1    1    2    1    1    1
## 306   3 2.76  1.80    2    1    1    1    2    1    2    1    1    1
## 307   5 3.30  2.40    2    1    1    1    2    2    2    1    1    1
## 308   3 2.80  2.32    2    1    1    1    2    1    2    1    1    1
## 309   3 2.32  1.96    2    1    1    1    2    1    1    1    1    1
## 310   3 1.98  1.57    2    1    1    1    1    2    1    1    1    1
## 311   4 3.40  2.92    1    1    1    1    1    1    1    1    1    1
## 312   3 2.40  1.64    2    1    2    1    2    2    2    1    1    1
## 313   3 3.12  2.52    2    2    1    1    2    1    2    1    1    1
## 314   3 2.60  1.84    2    1    1    1    2    1    2    1    1    1
## 315   4 2.12  1.36    2    1    1    1    2    1    2    1    1    1
## 316   2 3.40  2.76    2    1    2    1    2    1    2    1    1    1
## 317   3 3.60  2.64    2    1    1    1    2    1    2    1    1    1
## 318   3 2.48  2.12    2    1    1    2    2    1    2    1    1    1
## 319   3 2.40  1.96    2    1    1    1    2    1    1    1    1    1
## 320   3 2.10 69.10    1    1    1    1    1    1    1    1    1    1
## 321   3 5.12  4.00    2    1    1    1    2    1    4    1    1    1
## 322   3 4.65  3.78    2    1    1    1    2    1    2    1    1    1
## 323   3 2.72  2.36    2    1    1    1    2    1    1    1    1    1
## 324   2 2.58  1.64    3    1    2    1    2    2    2    1    1    1
## 325   4 5.16  4.96    2    1    1    1    1    1    1    1    1    1
## 326   4 5.03 79.30    2    1    1    2    1    1    1    1    1    1
## 327   3 3.20  2.52    2    1    1    1    2    2    2    1    1    1
## 328   3 2.52  1.92    3    1    2    1    2    2    1    1    1    1
## 329   3 1.96  1.48    2    1    1    1    2    1    2    1    1    1
## 330   4 2.08  1.84    1    1    1    1    1    1    2    1    1    1
## 331   2 2.94 76.00    2    1    2    2    2    1    2    1    1    1
## 332   3 3.52  3.12    1    1    1    1    1    1    1    1    1    1
## 333   3 2.60  1.92    1    1    1    1    1    1    1    1    1    1
## 334   4 2.20  1.80    1    1    1    1    1    1    1    1    1    1
## 335   2 4.00  3.12    2    1    1    1    2    1    2    1    1    1
## 336   3 2.40  1.80    2    1    1    1    2    1    1    1    1    1
## 337   3 2.32  1.32    2    1    2    1    2    2    1    1    1    1
## 338   4 3.24  2.60    2    1    1    1    2    1    2    1    1    1
## 339   3 4.00  3.08    1    1    1    1    1    1    1    1    1    1
## 340   3 2.96  2.00    2    1    1    1    2    1    2    1    1    1
## 341   3 3.88  2.92    1    1    1    1    1    1    1    1    1    1
## 342   3 2.36  1.76    2    1    2    1    1    1    2    1    1    1
## 343   4 2.50  1.40    2    1    2    1    2    1    1    1    1    1
## 344   3 2.96  2.44    2    1    1    1    2    2    1    1    1    1
## 345   3 3.64  3.12    2    1    1    1    2    1    2    1    1    1
## 346   2 3.12  2.72    3    1    1    1    2    2    4    1    1    1
## 347   2 3.48  2.84    2    1    1    1    1    2    1    1    1    1
## 348   3 4.16  3.44    2    2    1    1    2    1    3    1    1    1
## 349   2 4.20  3.60    2    1    1    1    1    2    1    1    1    1
## 350   4 1.82 86.30    1    1    1    1    1    1    2    1    1    1
## 351   3 2.64  2.16    2    1    2    1    2    1    2    1    1    1
## 352   3 3.05  1.30    2    1    1    1    2    1    1    1    1    1
## 353   3 2.94 73.30    2    1    2    2    1    1    2    1    1    1
## 354   3 3.24 52.30    1    1    1    1    1    1    2    2    1    1
```

```
## 355   3 4.28  3.52    2    1    1    1    2    1    1    1    1    1
## 356   3 3.68  3.20    2    1    1    1    2    1    2    1    1    1
## 357   3 2.80  2.44    2    1    1    2    2    1    2    1    1    1
## 358   3 2.00  1.36    1    1    1    1    1    1    2    1    1    1
## 359   3 2.40  2.04    2    1    1    1    2    1    2    1    1    1
## 360   4 2.84  2.12    1    1    1    1    1    1    2    1    1    1
## 361   3 2.60  2.12    2    1    1    1    2    1    2    1    1    1
## 362   3 2.84  2.40    2    1    1    1    2    1    1    1    1    1
## 363   3 3.08  1.72    2    1    1    1    2    2    2    2    1    1
## 364   3 2.20  1.60    2    1    2    1    2    1    2    1    1    1
## 365   3 2.32  1.72    3    1    1    1    2    2    1    1    1    1
## 366   3 2.04  1.80    1    1    1    1    1    1    2    1    1    1
## 367   3 2.56  2.20    2    1    1    1    2    1    1    1    1    1
## 368   5 2.38  1.72    2    1    2    1    2    1    2    2    1    2
## 369   6 3.88  2.72    2    1    1    1    2    1    2    1    1    1
## 370   3 3.80  3.16    1    1    1    1    1    1    2    1    1    1
## 371   3 2.88  2.16    1    1    1    1    1    1    2    1    1    1
## 372   3 2.32  1.76    1    1    1    1    1    1    2    1    1    1
## 373   3 2.92  2.40    2    1    1    1    2    1    1    1    1    1
## 374   3 2.00  1.52    1    1    2    1    2    1    4    2    1    1
## 375   3 2.40  2.16    2    1    1    1    2    1    2    1    1    1
## 376   3 4.56  3.84    1    1    1    1    1    1    2    1    1    1
## 377   3 4.03  3.09    2    1    1    1    2    1    1    1    1    1
## 378   3 2.16  1.88    1    1    1    1    1    1    2    1    1    1
## 379   3 4.52  3.36    2    1    1    1    1    2    2    1    1    1
## 380   4 2.72  2.04    2    1    1    1    2    1    1    1    1    1
## 381   3 3.76  1.00    1    1    2    1    1    1    2    1    1    1
## 382   3 5.00  3.88    1    1    1    1    1    1    1    1    1    1
## 383   4 3.40  2.16    2    2    2    1    2    1    2    1    1    1
## 384   3 2.40  1.88    2    1    1    1    2    1    1    1    1    1
## 385   3 2.00  1.64    2    1    1    1    2    1    2    1    1    1
## 386   3 2.52  1.96    2    1    1    1    2    1    2    2    1    1
## 387   3 4.40  3.56    2    1    1    2    2    2    1    1    1    1
## 388   4 4.20  3.32    1    1    1    1    1    1    2    1    1    1
## 389   3 1.96  1.40    2    1    1    1    2    1    3    1    1    1
## 390   2 3.80  2.67    2    1    1    1    2    1    4    1    1    1
## 391   3 2.92  2.28    2    1    1    1    2    1    2    1    1    1
## 392   2 1.84  1.36    2    1    2    1    2    1    2    1    1    1
## 393   4 3.56  2.60    2    1    1    1    2    1    3    1    1    1
## 394   3 3.72  3.00    2    1    1    1    2    1    2    1    1    1
## 395   4 3.96  2.44    2    1    1    1    2    2    1    1    1    1
## 396   4 3.04  3.68    2    1    1    1    2    1    1    2    1    1
## 397   3 2.76  2.08    1    1    1    1    1    1    2    1    1    1
## 398   3 4.56  3.48    2    1    1    1    2    1    2    1    1    1
## 399   2 2.96  2.33    2    1    1    1    2    1    1    1    1    1
## 400   3 2.70  1.90    2    1    1    1    2    1    1    1    1    1
## 401   3 2.48  1.60    1    1    1    1    1    1    1    1    1    1
## 402   3 3.56  2.80    1    1    1    1    1    1    2    1    1    1
## 403   3 2.96  2.20    2    1    1    1    2    1    2    1    1    1
## 404   3 4.04  2.56    2    1    2    1    2    1    2    1    1    1
## 405   2 2.96  2.24    1    1    1    1    2    1    2    1    1    1
## 406   6 5.36  3.96    2    1    1    1    2    1    2    1    1    1
## 407   3 3.44  2.92    2    1    1    1    2    1    1    1    1    1
## 408   2 2.72  2.08    1    1    1    1    1    1    2    1    1    1
```

```
## 409   3 3.08  2.24    2    1    1    1    2    1    2    2    1    1
## 410   3 2.64  2.15    1    1    1    1    1    1    1    1    1    1
## 411   2 2.48  2.00    2    1    1    1    2    1    2    1    1    1
## 412   3 4.64  4.16    2    2    1    1    2    1    3    1    1    1
## 413   3 3.32  2.52    1    1    1    1    1    1    1    1    1    1
## 414   2 2.48  2.08    2    1    2    1    1    1    2    1    1    1
## 415   3 1.46  1.00    2    1    2    1    2    1    1    1    1    1
## 416   3 3.40  2.39    1    1    1    1    1    1    1    1    1    1
## 417   3 3.44  2.40    2    1    1    1    2    2    1    2    1    1
## 418   3 5.16  4.28    2    1    1    1    1    1    2    1    1    1
## 419   2 2.60  2.04    1    2    2    1    1    1    2    1    1    1
## 420   4 2.44  2.08    3    1    1    1    2    2    2    1    1    1
## 421   5 4.96  4.16    2    1    1    1    2    1    1    1    1    1
## 422   2 3.76  2.96    2    1    1    1    2    1    4    2    1    1
## 423   3 2.68  2.16    1    1    1    1    1    1    2    1    1    1
## 424   3 5.00  4.04    1    1    2    1    2    1    2    1    1    1
## 425   4 2.81  2.31    2    2    1    1    1    1    2    1    1    1
## 426   3 3.18  2.73    2    1    1    1    2    1    2    1    1    1
## 427   3 2.48  2.08    2    1    1    1    2    1    3    1    1    1
## 428   3 3.44  2.72    2    2    2    1    2    1    1    1    1    1
## 429   3 3.12  2.12    2    1    1    1    2    2    2    1    1    1
## 430   3 3.48  2.52    2    1    1    1    2    1    4    2    1    1
## 431   3 3.87  2.68    1    1    1    1    1    1    2    1    1    1
## 432   3 1.44  1.20    2    1    1    1    2    1    1    1    1    1
## 433   3 2.28  1.82    1    1    1    1    1    1    1    2    1    1
## 434   3 4.28  2.72    2    2    2    1    2    1    1    1    1    1
## 435   3 3.08  2.28    2    1    1    1    2    1    1    1    1    1
## 436   3 2.96  2.04    2    1    1    1    2    1    1    1    1    1
## 437   3 4.80  3.32    2    1    1    2    2    1    2    1    1    1
## 438   3 4.08  3.20    2    1    1    1    2    1    2    1    1    1
## 439   5 3.67 76.80    1    2    2    1    2    1    2    1    1    1
## 440   3 2.36  1.60    2    1    1    1    2    2    1    1    1    2
## 441   3 3.00  2.44    2    1    1    1    2    2    2    1    1    1
## 442   2 4.44  3.64    1    1    1    1    1    1    2    1    1    1
## 443   2 4.08  2.24    2    1    1    2    2    1    2    1    1    1
## 444   3 4.12  3.20    3    1    1    1    2    2    1    1    1    1
## 445   3 2.56 60.90    1    1    1    1    1    1    1    1    1    1
## 446   3 2.72  1.76    1    1    1    1    1    1    1    1    1    1
## 447   7 5.20  4.10    1    1    1    1    1    1    2    1    1    1
## 448   2 4.40  3.72    2    1    1    1    2    2    2    1    1    1
## 449   3 2.96  2.24    1    1    1    1    1    1    2    1    1    1
## 450   3 2.84  1.88    2    1    1    1    2    1    2    1    1    1
## 451   3 2.28  1.68    3    1    1    1    2    2    1    1    1    1
## 452   4 3.04  2.36    2    1    1    1    2    1    2    1    1    1
## 453   3 2.80  2.24    2    2    1    1    2    1    3    1    1    1
## 454   3 2.84  2.32    2    1    2    1    2    2    1    1    1    1
## 455   3 3.24  2.76    1    1    1    1    1    1    1    1    1    1
## 456   4 2.92  1.92    2    1    1    1    2    1    2    1    1    1
## 457   3 2.40  1.24    2    1    1    1    2    1    2    1    1    1
## 458   3 4.56  3.20    1    1    1    1    2    1    1    1    1    1
## 459   3 3.60  3.00    2    1    1    1    2    1    1    1    1    1
## 460   3 4.28  3.16    1    1    1    1    2    1    2    1    1    1
## 461   4 4.65  3.78    2    1    1    1    2    1    2    1    1    1
## 462   3 1.84  1.56    2    2    2    1    2    1    2    1    1    1
```

```
## 463   3 2.12  1.68    3    2    2    1     1     1     1     1     1     1
## 464   4 3.44  2.16    2    1    1    1     2     2     2     2     1     1
## 465   3 3.08  2.16    2    1    1    1     2     2     3     1     1     1
## 466   2 3.88  2.12    2    1    1    1     2     1     3     1     1     1
## 467   3 3.76  3.12    1    1    1    1     1     1     1     1     1     1
## 468   3 3.04  2.08    2    1    1    1     2     1     3     1     1     1
## 469   3 1.96  1.68    2    1    1    1     2     2     2     1     1     1
## 470   3 4.72  3.56    1    1    1    1     1     1     2     1     1     1
##     PRE30 PRE32 AGE Risk1Yr
## 1       2     1  60       1
## 2       2     1  51       1
## 3       2     1  59       1
## 4       1     1  54       1
## 5       2     1  73       2
## 6       1     1  51       1
## 7       2     1  59       2
## 8       2     1  66       2
## 9       2     1  68       1
## 10      2     1  54       1
## 11      1     1  60       1
## 12      2     1  58       1
## 13      2     1  68       1
## 14      2     1  80       2
## 15      2     1  77       1
## 16      2     1  62       1
## 17      2     1  56       1
## 18      2     1  61       1
## 19      2     1  70       1
## 20      2     1  71       1
## 21      2     1  51       1
## 22      2     1  62       1
## 23      2     1  62       1
## 24      2     1  62       1
## 25      1     1  58       2
## 26      2     1  57       1
## 27      2     1  60       1
## 28      2     1  68       2
## 29      2     1  56       1
## 30      2     1  61       1
## 31      2     1  55       2
## 32      1     1  52       1
## 33      1     1  72       1
## 34      1     1  68       1
## 35      1     1  76       1
## 36      2     1  58       1
## 37      2     1  71       1
## 38      1     1  61       1
## 39      2     1  56       1
## 40      2     1  52       1
## 41      2     1  60       2
## 42      2     1  63       2
## 43      2     1  68       1
## 44      2     1  51       2
## 45      2     1  60       1
```

```
## 46      2     1  60        1
## 47      2     1  67        1
## 48      2     1  72        2
## 49      2     1  59        1
## 50      1     1  55        1
## 51      1     1  79        1
## 52      2     1  69        1
## 53      2     1  68        1
## 54      2     1  75        1
## 55      2     1  63        1
## 56      2     1  65        1
## 57      1     1  37        1
## 58      2     1  64        2
## 59      2     1  62        1
## 60      2     1  58        1
## 61      2     1  51        2
## 62      2     1  77        1
## 63      2     1  56        1
## 64      1     1  55        1
## 65      2     1  59        1
## 66      1     1  54        1
## 67      1     1  39        1
## 68      2     1  62        2
## 69      2     1  61        1
## 70      2     1  70        1
## 71      1     1  53        1
## 72      2     1  71        1
## 73      2     1  63        1
## 74      1     1  45        1
## 75      2     1  55        1
## 76      2     1  41        2
## 77      2     1  66        1
## 78      2     1  62        2
## 79      2     1  54        1
## 80      1     1  78        1
## 81      2     1  58        1
## 82      2     1  59        1
## 83      2     1  63        1
## 84      1     1  62        1
## 85      2     1  51        1
## 86      2     1  58        1
## 87      1     1  52        1
## 88      2     1  67        1
## 89      2     1  76        1
## 90      2     1  75        1
## 91      2     1  80        1
## 92      2     1  73        1
## 93      2     1  60        2
## 94      2     1  50        1
## 95      2     1  87        1
## 96      2     1  54        1
## 97      2     1  70        2
## 98      2     1  76        1
## 99      2     1  54        1
```

```
## 100     2     1  57        2
## 101     2     1  72        1
## 102     2     1  72        1
## 103     2     1  76        1
## 104     1     2  59        1
## 105     1     1  53        1
## 106     1     1  57        1
## 107     2     1  55        1
## 108     2     1  54        1
## 109     1     1  63        1
## 110     2     1  74        1
## 111     2     1  55        1
## 112     2     1  58        1
## 113     2     1  60        1
## 114     2     1  52        1
## 115     2     1  58        1
## 116     2     1  61        2
## 117     2     1  73        1
## 118     2     1  53        1
## 119     2     1  57        1
## 120     2     1  75        1
## 121     1     1  59        1
## 122     2     1  74        1
## 123     2     1  80        1
## 124     2     1  67        1
## 125     2     1  76        1
## 126     2     1  71        1
## 127     2     1  62        1
## 128     2     1  73        2
## 129     2     1  81        2
## 130     2     1  45        1
## 131     2     1  63        1
## 132     2     1  74        1
## 133     2     1  64        2
## 134     2     1  63        1
## 135     2     1  56        1
## 136     2     1  63        1
## 137     2     1  54        1
## 138     2     1  49        2
## 139     2     1  57        1
## 140     1     1  52        1
## 141     2     1  63        1
## 142     2     1  73        1
## 143     1     1  47        1
## 144     2     1  69        2
## 145     2     1  70        1
## 146     2     1  60        1
## 147     1     1  70        1
## 148     2     1  68        1
## 149     2     1  74        1
## 150     2     1  71        1
## 151     1     1  56        1
## 152     2     1  66        2
## 153     1     1  76        2
```

```
## 154     2     1  78        1
## 155     2     1  68        1
## 156     1     1  66        1
## 157     2     1  67        1
## 158     2     1  60        1
## 159     2     1  61        1
## 160     2     1  58        1
## 161     1     1  76        1
## 162     2     1  56        1
## 163     2     1  67        1
## 164     1     1  73        1
## 165     2     1  58        1
## 166     2     1  54        1
## 167     2     1  62        1
## 168     2     1  81        1
## 169     2     1  56        1
## 170     1     1  60        2
## 171     2     1  66        1
## 172     2     1  62        1
## 173     2     1  62        1
## 174     2     1  55        2
## 175     2     1  62        1
## 176     2     1  71        2
## 177     2     1  52        1
## 178     2     1  59        1
## 179     2     1  48        1
## 180     2     1  60        1
## 181     2     1  61        1
## 182     2     1  59        1
## 183     2     1  64        1
## 184     2     1  56        1
## 185     1     1  58        1
## 186     1     1  81        2
## 187     2     1  64        1
## 188     2     1  62        1
## 189     2     1  72        1
## 190     2     1  60        1
## 191     2     2  61        1
## 192     2     1  60        2
## 193     1     1  49        1
## 194     2     1  53        1
## 195     2     1  58        1
## 196     2     1  61        2
## 197     2     1  68        2
## 198     1     1  60        1
## 199     2     1  72        1
## 200     2     1  72        1
## 201     2     1  57        1
## 202     2     1  51        1
## 203     2     1  54        1
## 204     2     1  56        1
## 205     1     1  77        1
## 206     2     1  64        1
## 207     2     1  57        1
```

```
## 208     2     1  66        1
## 209     2     1  70        1
## 210     2     1  53        2
## 211     2     1  51        1
## 212     2     1  58        2
## 213     2     1  58        1
## 214     2     1  63        2
## 215     2     1  51        1
## 216     2     1  61        1
## 217     2     1  61        1
## 218     2     1  76        1
## 219     2     1  71        1
## 220     2     1  69        1
## 221     2     1  56        2
## 222     2     1  67        1
## 223     2     1  54        1
## 224     2     1  63        1
## 225     2     1  47        1
## 226     2     1  62        1
## 227     2     1  65        1
## 228     2     1  63        2
## 229     1     1  64        1
## 230     2     1  65        2
## 231     2     1  51        1
## 232     2     1  56        1
## 233     2     1  70        1
## 234     2     1  58        1
## 235     2     1  67        1
## 236     2     1  62        1
## 237     2     1  74        1
## 238     2     1  69        1
## 239     2     1  55        2
## 240     2     1  60        2
## 241     2     1  72        1
## 242     2     1  64        1
## 243     2     1  75        2
## 244     2     1  47        1
## 245     2     1  57        1
## 246     2     1  56        1
## 247     2     1  68        1
## 248     2     1  55        1
## 249     2     1  62        1
## 250     2     1  73        1
## 251     2     1  68        1
## 252     2     1  75        2
## 253     2     1  63        1
## 254     2     1  61        1
## 255     2     1  62        1
## 256     2     1  44        1
## 257     2     1  56        1
## 258     2     1  54        1
## 259     2     1  57        1
## 260     2     1  56        1
## 261     1     1  69        2
```

```
## 262     2     1  72        1
## 263     2     1  59        1
## 264     1     1  70        1
## 265     2     1  64        1
## 266     2     1  61        1
## 267     2     1  72        1
## 268     2     1  63        1
## 269     2     1  74        2
## 270     2     1  71        1
## 271     2     1  71        2
## 272     2     1  72        1
## 273     1     1  77        1
## 274     2     1  72        1
## 275     2     1  55        2
## 276     2     1  65        1
## 277     2     1  67        1
## 278     2     1  69        1
## 279     1     1  55        1
## 280     2     1  51        1
## 281     2     1  64        1
## 282     1     1  63        1
## 283     1     1  69        1
## 284     2     1  64        1
## 285     2     1  59        1
## 286     2     1  73        1
## 287     2     1  55        1
## 288     2     1  63        1
## 289     2     1  60        1
## 290     2     1  74        1
## 291     2     1  65        1
## 292     2     1  79        1
## 293     2     1  62        1
## 294     2     1  71        1
## 295     2     1  63        1
## 296     2     1  67        1
## 297     2     1  55        2
## 298     2     1  54        2
## 299     2     1  77        1
## 300     2     1  58        1
## 301     2     1  64        1
## 302     1     1  61        1
## 303     1     1  62        2
## 304     2     1  67        1
## 305     2     1  56        1
## 306     2     1  70        2
## 307     2     1  70        1
## 308     2     1  57        1
## 309     2     1  61        1
## 310     2     1  77        1
## 311     1     1  63        1
## 312     1     1  62        1
## 313     2     1  59        2
## 314     2     1  70        1
## 315     2     1  71        1
```

```
## 316     2     1  56        1
## 317     1     1  57        1
## 318     2     1  78        1
## 319     2     1  64        1
## 320     2     1  62        1
## 321     2     1  49        1
## 322     2     1  77        2
## 323     2     1  64        1
## 324     2     1  63        1
## 325     2     1  54        1
## 326     1     1  38        1
## 327     2     1  75        1
## 328     2     1  70        1
## 329     2     1  59        1
## 330     1     1  77        1
## 331     1     1  61        1
## 332     2     1  64        1
## 333     2     1  59        1
## 334     1     1  71        1
## 335     2     1  67        2
## 336     2     1  64        1
## 337     2     1  68        1
## 338     2     1  69        1
## 339     2     1  64        1
## 340     2     1  59        1
## 341     2     1  67        2
## 342     2     1  74        1
## 343     2     1  77        1
## 344     2     1  60        1
## 345     2     1  64        1
## 346     2     1  70        1
## 347     2     1  58        1
## 348     2     1  59        1
## 349     2     1  39        2
## 350     1     1  67        1
## 351     2     1  71        2
## 352     2     1  70        1
## 353     1     1  60        1
## 354     2     1  55        1
## 355     2     1  60        1
## 356     2     1  55        1
## 357     2     1  55        1
## 358     2     1  70        2
## 359     2     1  63        1
## 360     1     1  64        1
## 361     2     1  55        1
## 362     2     1  49        1
## 363     2     1  58        2
## 364     2     1  59        1
## 365     2     1  56        1
## 366     2     1  64        1
## 367     2     1  62        1
## 368     2     1  87        2
## 369     2     1  77        1
```

```
## 370     2     1  59        1
## 371     2     1  59        1
## 372     1     1  55        1
## 373     2     1  46        1
## 374     2     1  60        1
## 375     2     1  69        1
## 376     2     1  74        1
## 377     2     1  59        1
## 378     2     1  63        1
## 379     2     1  63        1
## 380     2     1  75        1
## 381     2     1  52        1
## 382     2     1  51        1
## 383     1     1  68        1
## 384     1     1  53        1
## 385     1     1  61        1
## 386     2     1  72        1
## 387     2     1  60        2
## 388     2     1  58        1
## 389     2     1  69        1
## 390     2     1  48        1
## 391     2     1  75        1
## 392     2     1  57        1
## 393     2     1  68        1
## 394     2     1  61        1
## 395     2     1  44        1
## 396     2     1  64        1
## 397     1     1  21        1
## 398     2     1  60        1
## 399     2     1  72        1
## 400     2     1  65        1
## 401     1     1  61        1
## 402     1     1  69        1
## 403     2     1  53        1
## 404     2     1  55        1
## 405     2     1  57        2
## 406     1     1  62        1
## 407     2     1  56        1
## 408     2     1  67        1
## 409     2     1  59        1
## 410     2     1  59        1
## 411     2     1  60        2
## 412     2     1  56        1
## 413     1     1  56        1
## 414     2     1  60        1
## 415     2     1  68        1
## 416     1     1  63        1
## 417     2     1  77        1
## 418     2     1  52        1
## 419     1     1  70        1
## 420     2     1  72        2
## 421     2     1  62        2
## 422     1     1  64        2
## 423     2     1  70        1
```

```
## 424     1     1  60       1
## 425     2     1  58       1
## 426     2     1  47       1
## 427     2     1  54       2
## 428     1     1  73       1
## 429     2     1  62       1
## 430     2     1  72       1
## 431     2     1  63       1
## 432     2     1  58       1
## 433     1     1  69       1
## 434     2     1  66       1
## 435     2     1  57       1
## 436     2     1  56       1
## 437     2     1  54       1
## 438     2     1  40       1
## 439     1     1  61       1
## 440     2     1  54       1
## 441     2     1  65       1
## 442     1     1  62       1
## 443     1     1  61       1
## 444     1     1  76       1
## 445     2     1  50       1
## 446     2     1  63       1
## 447     1     1  49       1
## 448     2     1  52       1
## 449     2     1  69       1
## 450     2     1  53       2
## 451     1     1  77       1
## 452     2     1  59       1
## 453     2     1  70       1
## 454     2     1  72       1
## 455     2     1  70       1
## 456     2     1  70       1
## 457     2     1  62       1
## 458     2     1  61       1
## 459     1     1  46       1
## 460     1     1  66       1
## 461     1     1  55       1
## 462     1     1  72       1
## 463     2     1  74       1
## 464     2     1  57       2
## 465     2     1  79       1
## 466     2     1  63       1
## 467     2     1  61       1
## 468     1     1  52       1
## 469     2     1  79       1
## 470     2     1  51       1
```

```
##Fit a binary logistic regression model to the data set that predicts whether or not the
##patient survived for one year (the Risk1Y variable) after the surgery. Use the glm() function
##to perform the logistic regression. See Generalized Linear Models for an example.
##Include a summary using the summary() function in your results.

newdata2 <-newdata[,c("DGN","PRE4","PRE5","PRE6","PRE7","PRE8","PRE9","PRE11","PRE14","PRE17","PRE19","
```

```
                      ,"PRE32","AGE","Risk1Yr")]

riskmodel<-glm(as.factor(Risk1Yr)~DGN+PRE4+PRE5+PRE6+PRE7+PRE8+PRE9+PRE11+PRE14+PRE17+PRE19+PRE25+PRE30+
               family=binomial,data=newdata2)
summary(riskmodel)
```

```
##
## Call:
## glm(formula = as.factor(Risk1Yr) ~ DGN + PRE4 + PRE5 + PRE6 +
##     PRE7 + PRE8 + PRE9 + PRE11 + PRE14 + PRE17 + PRE19 + PRE25 +
##     PRE30 + PRE32 + AGE, family = binomial, data = newdata2)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.5778  -0.5689  -0.4405  -0.3213   2.4665
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)  18.14865 1391.66427   0.013 0.989595
## DGN           0.46286    0.19017   2.434 0.014938 *
## PRE4         -0.18753    0.17465  -1.074 0.282923
## PRE5         -0.02177    0.01673  -1.302 0.192990
## PRE6         -0.01923    0.30876  -0.062 0.950352
## PRE7          0.45697    0.51184   0.893 0.371973
## PRE8          0.33550    0.37456   0.896 0.370399
## PRE9          1.27502    0.47405   2.690 0.007153 **
## PRE11         0.63815    0.37492   1.702 0.088741 .
## PRE14         0.68003    0.18320   3.712 0.000206 ***
## PRE17         0.85492    0.43012   1.988 0.046850 *
## PRE19       -13.82120  984.05000  -0.014 0.988794
## PRE25         0.11986    0.92301   0.130 0.896683
## PRE30         0.91929    0.45608   2.016 0.043837 *
## PRE32       -13.20624  984.05778  -0.013 0.989293
## AGE          -0.01012    0.01697  -0.596 0.551017
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 395.61  on 469  degrees of freedom
## Residual deviance: 355.50  on 454  degrees of freedom
## AIC: 387.5
##
## Number of Fisher Scoring iterations: 14
```

```
##VARIABLE SELECTION
riskmodel_new <- stepAIC(riskmodel)
```

```
## Start:  AIC=387.5
## as.factor(Risk1Yr) ~ DGN + PRE4 + PRE5 + PRE6 + PRE7 + PRE8 +
##     PRE9 + PRE11 + PRE14 + PRE17 + PRE19 + PRE25 + PRE30 + PRE32 +
##     AGE
```

```
##
##         Df Deviance    AIC
## - PRE6   1   355.50 385.50
## - PRE25  1   355.52 385.52
## - AGE    1   355.86 385.86
## - PRE32  1   355.88 385.88
## - PRE19  1   356.17 386.17
## - PRE7   1   356.26 386.26
## - PRE8   1   356.28 386.28
## - PRE4   1   356.67 386.67
## <none>       355.50 387.50
## - PRE5   1   357.81 387.81
## - PRE11  1   358.31 388.31
## - PRE17  1   359.13 389.13
## - PRE30  1   360.23 390.23
## - DGN    1   360.99 390.99
## - PRE9   1   362.05 392.05
## - PRE14  1   369.21 399.21
##
## Step:  AIC=385.5
## as.factor(Risk1Yr) ~ DGN + PRE4 + PRE5 + PRE7 + PRE8 + PRE9 +
##     PRE11 + PRE14 + PRE17 + PRE19 + PRE25 + PRE30 + PRE32 + AGE
##
##         Df Deviance    AIC
## - PRE25  1   355.52 383.52
## - AGE    1   355.87 383.87
## - PRE32  1   355.89 383.89
## - PRE19  1   356.18 384.18
## - PRE7   1   356.27 384.27
## - PRE8   1   356.28 384.28
## - PRE4   1   356.67 384.67
## <none>       355.50 385.50
## - PRE5   1   357.87 385.87
## - PRE11  1   358.75 386.75
## - PRE17  1   359.14 387.14
## - PRE30  1   360.34 388.34
## - DGN    1   360.99 388.99
## - PRE9   1   362.18 390.18
## - PRE14  1   369.34 397.34
##
## Step:  AIC=383.52
## as.factor(Risk1Yr) ~ DGN + PRE4 + PRE5 + PRE7 + PRE8 + PRE9 +
##     PRE11 + PRE14 + PRE17 + PRE19 + PRE30 + PRE32 + AGE
##
##         Df Deviance    AIC
## - AGE    1   355.89 381.89
## - PRE32  1   355.90 381.90
## - PRE19  1   356.19 382.19
## - PRE7   1   356.27 382.27
## - PRE8   1   356.35 382.35
## - PRE4   1   356.70 382.70
## <none>       355.52 383.52
## - PRE5   1   357.91 383.91
## - PRE11  1   358.77 384.77
```

```
## - PRE17  1   359.20 385.20
## - PRE30  1   360.43 386.43
## - DGN    1   361.03 387.03
## - PRE9   1   362.37 388.37
## - PRE14  1   369.35 395.35
##
## Step:  AIC=381.89
## as.factor(Risk1Yr) ~ DGN + PRE4 + PRE5 + PRE7 + PRE8 + PRE9 +
##     PRE11 + PRE14 + PRE17 + PRE19 + PRE30 + PRE32
##
##         Df Deviance    AIC
## - PRE32  1   356.26 380.26
## - PRE19  1   356.52 380.52
## - PRE7   1   356.62 380.62
## - PRE8   1   356.67 380.67
## - PRE4   1   356.81 380.81
## <none>       355.89 381.89
## - PRE5   1   358.13 382.13
## - PRE11  1   358.83 382.83
## - PRE17  1   359.45 383.45
## - PRE30  1   360.69 384.69
## - DGN    1   361.09 385.09
## - PRE9   1   362.51 386.51
## - PRE14  1   369.69 393.69
##
## Step:  AIC=380.26
## as.factor(Risk1Yr) ~ DGN + PRE4 + PRE5 + PRE7 + PRE8 + PRE9 +
##     PRE11 + PRE14 + PRE17 + PRE19 + PRE30
##
##         Df Deviance    AIC
## - PRE19  1   356.89 378.89
## - PRE7   1   357.00 379.00
## - PRE8   1   357.06 379.06
## - PRE4   1   357.14 379.14
## <none>       356.26 380.26
## - PRE5   1   358.49 380.49
## - PRE11  1   359.25 381.25
## - PRE17  1   359.86 381.86
## - PRE30  1   361.11 383.11
## - DGN    1   361.48 383.48
## - PRE9   1   362.92 384.92
## - PRE14  1   370.08 392.08
##
## Step:  AIC=378.89
## as.factor(Risk1Yr) ~ DGN + PRE4 + PRE5 + PRE7 + PRE8 + PRE9 +
##     PRE11 + PRE14 + PRE17 + PRE30
##
##         Df Deviance    AIC
## - PRE7   1   357.63 377.63
## - PRE8   1   357.73 377.73
## - PRE4   1   357.76 377.76
## <none>       356.89 378.89
## - PRE5   1   359.13 379.13
## - PRE11  1   359.74 379.74
```

```
## - PRE17  1   360.56 380.56
## - PRE30  1   361.72 381.72
## - DGN    1   362.14 382.14
## - PRE9   1   363.57 383.57
## - PRE14  1   370.75 390.75
##
## Step:  AIC=377.63
## as.factor(Risk1Yr) ~ DGN + PRE4 + PRE5 + PRE8 + PRE9 + PRE11 +
##     PRE14 + PRE17 + PRE30
##
##         Df Deviance    AIC
## - PRE4   1   358.45 376.45
## - PRE8   1   358.90 376.90
## - PRE5   1   359.54 377.54
## <none>       357.63 377.63
## - PRE11  1   360.25 378.25
## - PRE17  1   361.42 379.42
## - PRE30  1   362.26 380.26
## - DGN    1   363.13 381.13
## - PRE9   1   364.39 382.39
## - PRE14  1   371.99 389.99
##
## Step:  AIC=376.45
## as.factor(Risk1Yr) ~ DGN + PRE5 + PRE8 + PRE9 + PRE11 + PRE14 +
##     PRE17 + PRE30
##
##         Df Deviance    AIC
## - PRE8   1   359.93 375.93
## <none>       358.45 376.45
## - PRE5   1   360.46 376.46
## - PRE11  1   361.35 377.35
## - PRE17  1   362.75 378.75
## - PRE30  1   363.16 379.16
## - DGN    1   363.65 379.65
## - PRE9   1   365.05 381.05
## - PRE14  1   372.51 388.51
##
## Step:  AIC=375.93
## as.factor(Risk1Yr) ~ DGN + PRE5 + PRE9 + PRE11 + PRE14 + PRE17 +
##     PRE30
##
##         Df Deviance    AIC
## - PRE5   1   361.65 375.65
## <none>       359.93 375.93
## - PRE11  1   363.03 377.03
## - PRE17  1   364.36 378.36
## - PRE30  1   364.42 378.42
## - DGN    1   364.75 378.75
## - PRE9   1   367.27 381.27
## - PRE14  1   373.99 387.99
##
## Step:  AIC=375.65
## as.factor(Risk1Yr) ~ DGN + PRE9 + PRE11 + PRE14 + PRE17 + PRE30
##
```

```
##         Df Deviance    AIC
## <none>       361.65 375.65
## - PRE11  1   365.08 377.08
## - PRE17  1   366.15 378.15
## - DGN    1   366.42 378.42
## - PRE30  1   366.63 378.63
## - PRE9   1   367.94 379.94
## - PRE14  1   375.79 387.79
```

```
##CONCLUSION:
##At the very last step stepAIC has produced the optimal set of features {DGN + PRE9 + PRE11 + PRE14 +
##    PRE17 + PRE30}. stepAIC also removes the Multicollinearity.
```

```
summary(riskmodel_new)
```

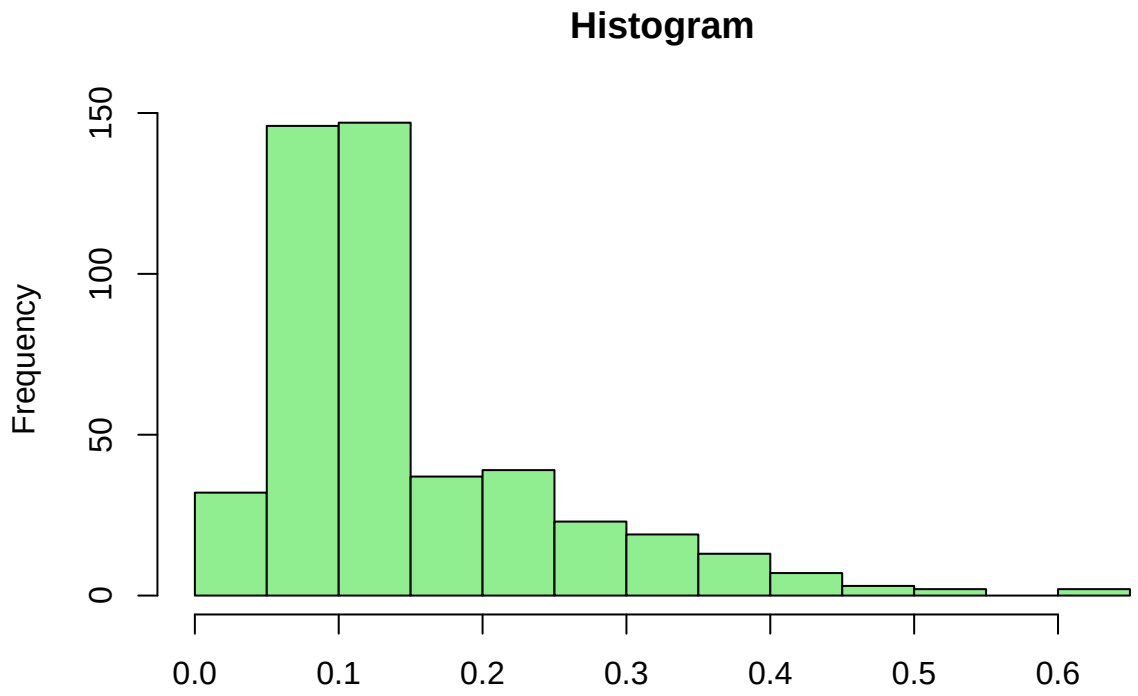
```
##
## Call:
## glm(formula = as.factor(Risk1Yr) ~ DGN + PRE9 + PRE11 + PRE14 +
##     PRE17 + PRE30, family = binomial, data = newdata2)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.3552  -0.5313  -0.4369  -0.3434   2.4622
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept)  -9.0559     1.5356  -5.897  3.7e-09 ***
## DGN           0.4146     0.1828   2.268 0.023317 *
## PRE9          1.1762     0.4411   2.666 0.007668 **
## PRE11         0.6251     0.3287   1.901 0.057240 .
## PRE14         0.6808     0.1795   3.793 0.000149 ***
## PRE17         0.9338     0.4193   2.227 0.025954 *
## PRE30         0.9145     0.4448   2.056 0.039772 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 395.61  on 469  degrees of freedom
## Residual deviance: 361.65  on 463  degrees of freedom
## AIC: 375.65
##
## Number of Fisher Scoring iterations: 5
```

```
##Analysis of the outcome

summary(newdata2$fitted.values)
```

```
## Length  Class   Mode
##      0   NULL   NULL
```

```
hist(riskmodel_new$fitted.values,main = " Histogram ",xlab = "", col = 'light green')
```




```
newdata2$Predict <- ifelse(riskmodel_new$fitted.values >0.5,"Survived","Not Survive")
newdata2
```

```
##     DGN PRE4  PRE5 PRE6 PRE7 PRE8 PRE9 PRE11 PRE14 PRE17 PRE19 PRE25 PRE30
## 1     2 2.88  2.16    2    1    1    1     2     4     1     1     1     2
## 2     3 3.40  1.88    1    1    1    1     1     2     1     1     1     2
## 3     3 2.76  2.08    2    1    1    1     1     1     1     1     1     2
## 4     3 3.68  3.04    1    1    1    1     1     1     1     1     1     1
## 5     3 2.44  0.96    3    1    2    1     2     1     1     1     1     2
## 6     3 2.48  1.88    2    1    1    1     1     1     1     1     1     1
## 7     3 4.36  3.28    2    1    1    1     1     2     2     1     1     2
## 8     2 3.19  2.50    2    1    1    1     1     1     1     1     2     2
## 9     3 3.16  2.64    3    1    1    1     2     1     1     1     1     2
## 10    3 2.32  2.16    2    1    1    1     1     1     1     1     1     2
## 11    3 2.56  2.32    1    1    2    1     1     2     1     1     1     1
## 12    3 4.28  4.44    2    1    1    1     1     2     1     1     1     2
## 13    3 3.00  2.36    2    1    1    1     2     1     1     1     1     2
## 14    2 3.98  3.06    3    1    1    1     2     4     1     1     1     2
## 15    3 1.96  1.40    2    1    1    1     1     1     1     1     1     2
## 16    3 4.68  4.16    2    1    1    1     1     2     1     1     1     2
## 17    2 2.21  1.88    1    1    2    1     1     2     1     1     1     2
## 18    2 2.96  1.67    1    1    1    1     1     2     1     1     1     2
## 19    3 2.60  1.68    2    1    1    1     1     2     1     1     1     2
```

```
## 20    3 2.88  2.48    1    1    1    1    1    1    1    1    1    2
## 21    3 4.48  3.48    1    1    1    1    1    2    1    1    1    2
## 22    4 3.32  2.84    1    1    1    1    1    2    1    1    1    2
## 23    3 2.36  1.68    1    1    1    1    1    2    1    1    1    2
## 24    3 3.68  2.32    1    1    1    1    1    1    1    1    1    2
## 25    7 4.32  3.20    1    1    1    1    1    1    1    1    1    1
## 26    5 4.56 72.80    1    2    2    1    1    2    1    1    1    2
## 27    3 3.24  3.08    2    1    1    1    1    1    1    1    1    2
## 28    3 3.40  3.06    2    1    1    1    2    1    1    1    1    2
## 29    3 3.16  2.69    2    1    1    1    2    1    1    1    1    2
## 30    6 3.96  3.28    1    1    1    1    1    1    1    1    1    2
## 31    3 3.24  2.40    2    2    2    1    1    4    1    1    1    2
## 32    3 4.44  3.48    2    1    1    1    1    2    1    1    1    1
## 33    5 2.48  1.95    2    2    1    1    1    2    2    1    1    1
## 34    3 1.81  1.40    2    1    1    1    1    2    2    1    1    1
## 35    2 2.76  2.20    2    1    1    1    1    1    1    1    1    1
## 36    3 2.36  1.60    1    1    1    1    1    1    1    1    1    2
## 37    3 2.20  1.96    2    1    1    1    1    2    1    1    1    2
## 38    3 3.68  2.44    2    1    2    2    1    2    2    1    1    1
## 39    3 4.20  3.08    1    1    1    1    1    1    1    1    1    2
## 40    3 4.60  3.52    2    1    1    1    1    1    1    1    1    2
## 41    5 3.80  2.98    2    1    1    1    1    1    1    1    1    2
## 42    2 3.24  2.52    2    1    1    1    1    2    1    1    1    2
## 43    3 3.20  2.82    2    1    1    1    1    2    1    1    1    2
## 44    5 2.68  2.12    1    1    1    1    1    2    1    1    1    2
## 45    3 3.56  2.68    2    2    1    1    1    2    1    1    1    2
## 46    3 2.48  2.08    1    1    1    1    1    1    1    1    1    2
## 47    3 4.16  3.28    2    1    1    1    1    2    1    1    1    2
## 48    3 2.64  2.12    2    1    1    1    1    2    1    1    1    2
## 49    3 4.44  3.12    3    1    1    1    2    2    1    1    1    2
## 50    3 4.56  3.92    1    1    1    1    1    2    1    1    1    1
## 51    3 2.52  1.96    2    1    1    1    1    2    1    1    1    1
## 52    3 4.00  2.88    2    1    1    1    1    1    1    1    1    2
## 53    3 3.20  2.52    3    2    2    2    1    2    1    1    1    2
## 54    4 3.76  2.52    2    1    1    1    1    2    1    1    1    2
## 55    3 3.68  3.08    2    1    1    1    1    2    1    1    1    2
## 56    4 3.28  2.36    2    1    1    1    1    2    1    1    1    2
## 57    3 3.72  2.88    2    1    1    2    1    1    1    1    1    1
## 58    3 3.40  2.80    2    2    1    1    2    1    2    1    1    2
## 59    4 5.12  4.28    1    1    1    1    1    2    1    1    1    2
## 60    3 3.84  3.72    1    1    1    1    1    2    1    1    1    2
## 61    3 3.52  2.28    1    1    1    1    1    3    1    1    1    2
## 62    3 3.04  2.04    3    1    1    1    2    2    1    1    1    2
## 63    3 4.96  3.60    1    1    1    1    1    1    1    1    1    2
## 64    3 3.72  2.84    1    1    1    1    1    1    2    1    1    1
## 65    2 3.15  2.76    2    1    2    1    1    2    1    1    1    2
## 66    3 2.88  2.60    2    1    1    1    1    2    1    1    1    1
## 67    3 2.36  2.00    1    1    1    1    1    1    1    1    1    1
## 68    4 2.32  1.76    2    1    2    1    2    1    1    1    1    2
## 69    3 2.72  2.20    2    1    1    1    1    2    1    1    1    2
## 70    3 3.08  1.80    2    1    2    1    1    2    1    1    1    2
## 71    3 3.48  2.72    2    1    2    1    1    1    1    1    1    1
## 72    3 3.60  2.60    2    1    1    1    1    2    2    1    1    2
## 73    3 3.52  2.92    1    1    1    1    1    1    1    1    1    2
```

```
## 74    4 6.30  5.48    1    1    1    1    1    1    1    1    1    1
## 75    3 4.60  3.28    2    1    1    1    1    1    1    1    1    2
## 76    3 3.40  2.80    2    1    1    1    1    4    1    1    1    2
## 77    3 1.84  1.28    2    1    1    1    2    1    1    1    1    2
## 78    3 3.04  3.60    2    1    1    1    1    2    1    1    1    2
## 79    3 2.20  1.44    2    1    1    1    1    2    1    1    1    2
## 80    3 3.04  2.16    2    1    1    1    1    2    1    1    1    1
## 81    3 3.68  2.88    2    1    1    1    1    2    1    1    1    2
## 82    3 1.96  1.68    2    1    1    1    1    4    1    1    1    2
## 83    3 3.24  1.64    2    1    1    1    1    2    1    1    1    2
## 84    3 2.84  2.36    2    1    1    1    1    1    2    1    1    1
## 85    3 4.28  3.28    1    1    1    1    1    2    1    1    1    2
## 86    3 3.76  2.72    2    1    1    1    1    2    1    1    1    2
## 87    3 4.90  4.19    1    1    1    2    1    2    1    1    1    1
## 88    3 2.36  2.00    2    1    1    2    1    2    1    1    2    2
## 89    5 2.68  1.76    3    1    2    1    2    1    1    1    1    2
## 90    3 2.83 66.40    2    2    2    2    1    2    1    1    1    2
## 91    4 3.52  2.72    2    1    2    1    1    2    1    1    1    2
## 92    3 2.60  2.00    2    1    1    1    1    1    1    1    1    2
## 93    3 3.60  2.48    2    1    1    1    1    2    1    1    1    2
## 94    3 6.08  4.92    1    1    1    1    1    1    1    1    1    2
## 95    3 1.88  1.44    3    1    1    1    2    2    1    1    1    2
## 96    3 4.56  3.60    2    1    1    1    1    1    1    1    1    2
## 97    4 2.68  2.00    2    1    1    1    1    2    1    1    1    2
## 98    6 3.04  2.40    3    1    1    1    1    1    1    1    1    2
## 99    3 2.63 67.30    2    1    1    2    1    1    1    1    1    2
## 100   3 4.60  2.92    2    1    2    2    1    2    1    1    1    2
## 101   3 3.36  2.67    2    1    1    1    1    1    1    1    1    2
## 102   3 1.84  1.64    2    1    1    1    2    2    2    1    1    2
## 103   4 4.32  3.24    2    1    1    1    1    2    1    1    1    2
## 104   3 2.35  1.64    2    1    1    1    1    1    1    1    1    1
## 105   3 2.84  1.88    2    1    1    1    1    1    1    1    1    1
## 106   5 4.95  4.12    2    1    1    1    2    1    1    1    1    1
## 107   3 2.48  2.08    2    1    1    1    1    2    1    1    1    2
## 108   3 3.60  2.60    2    1    1    1    1    2    1    1    1    2
## 109   3 3.16  2.96    1    1    1    1    1    1    1    1    1    1
## 110   3 3.24  2.36    2    1    1    2    1    2    1    1    1    2
## 111   2 4.48  4.20    1    1    1    1    1    2    1    1    1    2
## 112   3 4.00  2.60    2    1    1    1    1    2    2    1    1    2
## 113   3 3.68 64.10    1    1    1    1    1    2    1    1    1    2
## 114   3 4.68  3.48    1    1    1    1    1    1    1    1    1    2
## 115   3 4.52  3.32    1    1    1    1    1    2    1    1    1    2
## 116   4 2.76  1.76    2    1    2    1    1    1    2    1    1    2
## 117   4 2.88  2.24    2    1    1    1    2    2    1    1    1    2
## 118   3 2.84  2.16    2    1    1    1    1    2    2    1    1    2
## 119   4 3.48  2.56    2    1    1    1    1    1    1    1    1    2
## 120   3 2.56  1.60    2    1    1    1    2    2    1    1    1    2
## 121   2 3.84  2.56    2    1    1    1    1    1    1    1    1    1
## 122   3 3.56  2.76    2    1    1    1    1    2    1    1    1    2
## 123   2 2.80  2.12    2    1    1    2    1    3    1    1    1    2
## 124   4 3.30  2.56    1    1    1    1    1    1    1    1    1    2
## 125   3 3.36  2.80    2    1    1    1    2    2    1    1    1    2
## 126   3 2.83  1.96    2    1    1    1    1    2    1    1    1    2
## 127   3 4.56  2.68    2    1    1    1    1    1    1    1    1    2
```

```
## 128   3 2.00  1.00    2    1    2    1    2    1    2    1    1    2
## 129   4 3.31  2.00    3    1    1    2    1    2    1    1    1    2
## 130   2 5.60  4.64    2    1    1    1    1    1    1    1    1    2
## 131   3 3.32  2.87    2    1    1    1    1    1    1    1    1    2
## 132   2 2.12  1.72    2    1    1    1    1    2    1    1    1    2
## 133   2 2.50 71.10    1    1    1    2    1    3    1    1    1    2
## 134   3 2.00  1.44    1    1    1    1    1    1    1    1    1    2
## 135   3 4.84  3.48    2    1    1    1    1    2    1    1    1    2
## 136   3 2.92  2.28    2    1    1    1    1    1    1    1    1    2
## 137   2 3.76  3.08    2    1    1    1    1    3    1    1    1    2
## 138   3 2.08  1.52    2    1    1    1    1    4    1    1    1    2
## 139   3 2.44  2.08    2    1    1    1    1    2    1    1    1    2
## 140   3 3.72  3.12    2    1    2    1    1    2    1    1    1    1
## 141   2 2.16  1.56    2    1    1    1    1    1    1    1    1    2
## 142   3 4.20  3.24    2    1    2    1    1    2    1    1    1    2
## 143   3 5.17  4.30    2    1    1    1    1    1    1    1    1    1
## 144   4 2.08  1.76    1    1    1    1    1    2    1    1    1    2
## 145   2 3.64  2.48    3    1    1    1    2    1    1    1    1    2
## 146   3 3.96  2.96    2    1    1    1    1    2    1    1    1    2
## 147   3 3.92  3.08    2    1    1    1    1    1    1    1    1    1
## 148   3 2.92  2.20    2    1    1    1    1    2    1    1    1    2
## 149   3 3.64  2.76    2    1    1    1    1    2    1    1    1    2
## 150   3 2.72  2.36    1    1    1    1    1    1    1    1    1    2
## 151   3 2.60  2.24    1    1    1    1    1    2    1    1    1    1
## 152   3 3.88  2.84    2    1    2    1    1    1    1    1    1    2
## 153   3 2.72  2.04    2    2    1    1    1    2    1    1    1    1
## 154   3 3.44  3.13    2    1    1    1    2    2    1    1    1    2
## 155   3 3.12  3.24    2    1    1    1    1    2    1    1    1    2
## 156   3 2.60  2.32    2    1    1    1    2    2    2    1    1    1
## 157   3 3.28  2.32    2    1    1    2    1    3    1    1    1    2
## 158   3 2.76  1.60    2    1    1    1    2    2    1    2    1    2
## 159   3 3.08  2.32    2    1    2    1    2    2    1    1    2    2
## 160   3 2.20  1.70    2    1    1    1    1    1    1    1    1    2
## 161   3 2.92  1.88    1    1    1    1    1    2    1    1    1    1
## 162   3 2.88  2.36    1    1    1    1    1    1    1    1    1    2
## 163   3 3.20  2.28    2    2    2    1    1    2    1    1    1    2
## 164   2 2.40  1.96    2    1    1    1    1    2    1    1    1    1
## 165   2 3.00  2.40    2    1    1    1    1    4    1    1    1    2
## 166   3 3.20  2.21    2    1    2    2    1    2    1    1    1    2
## 167   2 3.40  2.12    2    1    1    1    2    1    1    1    1    2
## 168   3 2.57  1.72    2    1    1    1    2    1    1    1    1    2
## 169   3 2.28  2.08    1    1    1    1    1    1    2    1    1    2
## 170   3 2.44  1.96    2    1    2    2    1    3    1    1    1    1
## 171   3 4.04  1.88    2    1    1    1    1    2    1    1    1    2
## 172   2 2.88  2.20    1    1    1    1    1    2    2    1    1    2
## 173   2 3.16  2.56    2    1    2    2    1    2    1    1    2    2
## 174   3 2.60  2.36    2    1    1    1    1    1    1    1    1    2
## 175   3 1.44  1.04    2    1    1    1    2    1    1    1    1    2
## 176   3 3.68  2.36    1    1    1    2    1    2    1    1    1    2
## 177   3 3.20  2.72    3    1    1    1    1    4    1    1    1    2
## 178   3 3.04  2.32    2    1    1    1    1    2    1    1    1    2
## 179   3 4.32  4.32    2    1    2    1    2    2    1    1    1    2
## 180   3 3.00  2.36    3    1    1    1    2    2    1    1    1    2
## 181   3 3.64  2.88    2    1    1    1    2    2    1    1    1    2
```

```
## 182   3 5.08  4.08    2    1    1    1    1    2    1    1    1    2
## 183   3 3.16  2.36    2    1    1    1    1    1    1    1    1    2
## 184   3 2.80  3.36    2    1    1    1    1    2    1    1    1    2
## 185   3 2.52  2.08    1    1    1    1    1    1    1    1    1    1
## 186   5 3.52  2.56    1    1    1    2    1    2    1    1    1    1
## 187   3 3.32  2.15    2    1    1    1    1    1    1    1    1    2
## 188   4 3.28  1.64    2    1    1    1    1    1    1    1    1    2
## 189   3 2.28  1.24    2    1    1    1    1    1    1    1    1    2
## 190   4 4.92  3.72    1    1    1    1    1    2    1    1    1    2
## 191   3 2.60  1.56    1    1    1    1    1    2    1    1    1    2
## 192   3 2.68  2.40    1    1    1    1    1    1    1    1    1    2
## 193   2 3.08  2.48    2    1    1    1    1    1    1    1    1    1
## 194   3 3.84  3.36    1    1    1    1    1    2    1    1    1    2
## 195   3 3.52  2.80    1    1    1    1    1    1    1    1    1    2
## 196   3 2.73  2.11    2    1    2    1    1    2    1    1    1    2
## 197   3 2.84  2.24    2    2    2    1    1    2    1    1    1    2
## 198   3 2.98  2.64    2    1    1    1    1    2    1    1    1    1
## 199   3 3.52  2.72    2    1    1    1    1    1    1    1    1    2
## 200   4 2.44  1.64    2    1    1    1    2    1    1    1    1    2
## 201   3 2.36  2.08    2    1    1    1    1    2    1    1    1    2
## 202   3 2.76  2.28    1    1    1    1    1    1    1    1    1    2
## 203   2 4.08  2.56    2    2    2    1    1    3    1    1    1    2
## 204   2 3.60  3.92    1    1    1    1    1    2    1    1    1    2
## 205   3 3.12  2.90    1    1    1    1    1    2    1    1    1    1
## 206   3 2.24  1.76    1    1    1    1    1    2    1    1    1    2
## 207   3 3.96  2.88    1    1    1    1    1    1    1    1    1    2
## 208   3 2.60  1.92    2    1    1    1    1    1    1    1    1    2
## 209   3 4.20  3.24    1    1    1    1    1    2    1    1    1    2
## 210   2 2.80  1.60    2    1    2    1    2    2    1    1    1    2
## 211   3 4.72  4.56    1    1    1    1    1    1    1    1    1    2
## 212   3 3.58  2.64    2    1    1    1    1    2    1    1    1    2
## 213   3 2.44  2.12    2    2    2    2    1    1    1    1    1    2
## 214   3 2.22  1.36    1    1    1    1    1    2    2    1    1    2
## 215   3 2.96  2.32    1    1    1    1    1    1    1    1    1    2
## 216   2 2.66  8.56    2    1    2    1    1    2    1    1    1    2
## 217   2 3.24  1.88    2    1    1    1    1    2    1    1    1    2
## 218   3 4.52  3.60    2    1    1    1    1    2    1    1    1    2
## 219   3 4.00  3.08    2    1    1    1    1    1    1    1    1    2
## 220   3 2.84  2.12    1    1    1    1    1    1    1    1    1    2
## 221   5 2.87  2.08    2    1    1    1    1    3    1    1    1    2
## 222   4 4.24  3.68    2    1    1    1    1    2    1    1    1    2
## 223   3 4.80  3.41    2    1    1    2    1    2    1    1    1    2
## 224   3 3.72  3.04    1    1    1    1    1    1    1    1    2    2
## 225   3 4.96  3.48    2    1    1    1    1    2    1    1    1    2
## 226   4 2.76  2.16    2    2    1    1    1    2    2    1    1    2
## 227   3 2.96  2.44    2    1    1    1    2    2    1    1    1    2
## 228   3 2.64  2.44    2    1    1    1    1    2    1    1    1    2
## 229   3 2.40  1.64    1    1    1    1    1    1    1    1    1    1
## 230   3 2.64  2.08    2    1    1    1    1    2    2    1    1    2
## 231   3 4.76  3.31    2    1    1    2    1    1    1    1    1    2
## 232   5 2.88  2.52    2    1    1    1    1    2    1    1    1    2
## 233   3 2.32  1.76    2    1    1    1    1    1    1    1    1    2
## 234   3 2.60  2.00    2    1    1    1    1    2    1    1    1    2
## 235   3 2.46  1.76    2    1    1    1    2    1    1    1    1    2
```

```
## 236   3 4.16  3.64    2    1    1    1    1    2    1    1    1    2
## 237   3 3.20  1.80    2    1    1    1    2    2    1    1    1    2
## 238   3 3.24  2.64    1    1    1    1    1    1    1    1    1    2
## 239   5 3.40  2.08    2    1    1    1    2    1    1    1    1    2
## 240   3 3.52  2.52    2    1    1    1    1    2    1    1    1    2
## 241   3 4.36  3.76    1    1    1    1    1    1    1    1    1    2
## 242   3 5.52  3.56    2    1    1    1    1    2    1    1    1    2
## 243   2 4.88  3.44    1    1    2    1    1    4    1    1    1    2
## 244   3 4.36  3.92    2    1    1    1    1    1    1    1    1    2
## 245   3 3.56  2.64    2    1    1    1    1    1    1    2    1    2
## 246   3 5.49  2.97    2    1    1    1    1    2    1    1    1    2
## 247   4 5.56  4.32    1    1    1    1    1    2    1    1    1    2
## 248   3 4.08  3.20    1    1    1    1    1    2    1    1    1    2
## 249   4 4.56  3.68    2    1    1    1    1    2    1    1    1    2
## 250   3 2.56  1.80    2    1    1    1    1    2    1    1    1    2
## 251   3 3.80  2.82    2    1    1    1    1    2    1    1    1    2
## 252   3 3.04  2.24    3    1    1    1    2    1    1    1    1    2
## 253   3 3.81  2.94    2    1    1    1    1    2    1    1    1    2
## 254   3 3.92  2.36    2    1    1    1    1    2    1    1    1    2
## 255   3 3.44  3.52    2    2    1    1    1    1    1    1    1    2
## 256   3 3.72 78.30    1    2    1    1    1    2    1    1    1    2
## 257   3 2.80  1.88    2    1    1    1    1    1    1    1    1    2
## 258   3 2.92  2.32    1    1    1    1    1    1    1    1    1    2
## 259   3 3.72  2.48    2    1    2    1    1    1    1    1    1    2
## 260   3 3.64  2.52    1    1    1    1    1    2    1    1    1    2
## 261   3 2.72  2.09    1    1    1    1    1    4    1    1    1    1
## 262   3 1.84  1.12    2    1    1    1    1    2    1    1    1    2
## 263   3 2.96  1.72    1    1    2    1    1    1    1    1    1    2
## 264   4 3.04  2.88    1    1    1    1    1    1    1    1    1    1
## 265   3 2.60  1.92    2    1    1    1    1    1    1    1    1    2
## 266   3 2.92  2.52    1    1    1    1    1    2    1    1    1    2
## 267   3 3.80  2.84    2    1    1    1    1    2    1    1    1    2
## 268   3 3.32  2.92    3    1    1    1    2    3    1    1    1    2
## 269   3 2.52  1.72    3    1    1    2    2    2    1    1    1    2
## 270   3 4.28  3.28    2    2    1    1    1    1    1    1    1    2
## 271   3 2.52  1.72    2    1    1    1    2    2    1    1    1    2
## 272   5 3.00  2.16    1    1    1    1    1    1    1    1    1    2
## 273   3 2.07  1.60    1    1    2    1    1    2    1    1    1    1
## 274   4 3.36  2.72    3    1    1    1    2    1    2    1    1    2
## 275   2 4.04  2.76    2    1    1    1    1    2    1    1    1    2
## 276   3 1.70  1.36    2    1    1    1    2    2    1    1    1    2
## 277   3 3.04  2.04    2    1    1    1    1    2    1    1    1    2
## 278   3 3.36  2.64    2    1    1    1    1    2    2    1    1    2
## 279   3 4.57  4.57    2    1    1    1    1    1    1    1    1    1
## 280   3 4.12  2.32    2    1    1    1    1    1    1    1    1    2
## 281   3 2.00  1.36    2    1    1    1    1    1    1    1    1    2
## 282   3 3.80  3.68    1    1    1    1    1    2    1    1    1    1
## 283   3 3.16  2.60    2    2    1    1    1    2    1    1    1    1
## 284   2 2.32  1.68    2    1    2    1    1    2    1    1    1    2
## 285   3 2.32  1.92    1    1    1    1    1    1    1    1    1    2
## 286   3 2.48  1.40    2    1    1    1    1    1    1    1    1    2
## 287   4 4.90  3.96    2    1    1    1    1    2    1    1    1    2
## 288   3 2.96  2.20    2    1    1    1    1    2    1    1    1    2
## 289   3 2.96  1.88    2    1    1    1    2    4    1    1    1    2
```

```
## 290   3 3.52  2.36    2    1    1    1    1    2    1    1    1    2
## 291   3 4.12  3.16    2    1    1    1    2    2    1    1    1    2
## 292   3 2.68  2.32    2    1    1    1    2    1    2    1    1    2
## 293   1 3.80  2.80    1    1    1    1    1    2    1    1    1    2
## 294   3 4.12  2.88    2    1    1    1    1    2    1    1    2    2
## 295   2 2.64  1.92    2    1    1    1    1    1    2    1    1    2
## 296   3 3.68  2.96    2    1    2    1    1    2    1    1    1    2
## 297   3 2.48  1.84    2    1    1    1    1    2    1    1    1    2
## 298   3 4.36  3.24    2    2    1    2    1    2    1    1    1    2
## 299   3 4.32  2.72    3    1    2    1    2    1    1    1    1    2
## 300   3 3.40  1.92    1    1    1    1    1    2    1    1    1    2
## 301   3 4.24  3.04    2    1    2    1    2    2    1    1    1    2
## 302   3 3.28  1.96    1    1    1    1    1    2    1    1    1    1
## 303   3 4.59  3.02    3    2    1    1    2    3    1    1    1    1
## 304   3 4.16  3.44    2    1    2    1    2    2    1    1    1    2
## 305   3 5.16  4.28    1    1    1    1    1    2    1    1    1    2
## 306   3 2.76  1.80    2    1    1    1    1    2    1    1    1    2
## 307   5 3.30  2.40    2    1    1    1    2    2    1    1    1    2
## 308   3 2.80  2.32    2    1    1    1    1    2    1    1    1    2
## 309   3 2.32  1.96    2    1    1    1    1    1    1    1    1    2
## 310   3 1.98  1.57    2    1    1    1    2    1    1    1    1    2
## 311   4 3.40  2.92    1    1    1    1    1    1    1    1    1    1
## 312   3 2.40  1.64    2    1    2    1    2    2    1    1    1    1
## 313   3 3.12  2.52    2    2    1    1    1    2    1    1    1    2
## 314   3 2.60  1.84    2    1    1    1    1    2    1    1    1    2
## 315   4 2.12  1.36    2    1    1    1    1    2    1    1    1    2
## 316   2 3.40  2.76    2    1    2    1    1    2    1    1    1    2
## 317   3 3.60  2.64    2    1    1    1    1    2    1    1    1    1
## 318   3 2.48  2.12    2    1    1    2    1    2    1    1    1    2
## 319   3 2.40  1.96    2    1    1    1    1    1    1    1    1    2
## 320   3 2.10 69.10    1    1    1    1    1    1    1    1    1    2
## 321   3 5.12  4.00    2    1    1    1    1    4    1    1    1    2
## 322   3 4.65  3.78    2    1    1    1    1    2    1    1    1    2
## 323   3 2.72  2.36    2    1    1    1    1    1    1    1    1    2
## 324   2 2.58  1.64    3    1    2    1    2    2    1    1    1    2
## 325   4 5.16  4.96    2    1    1    1    1    1    1    1    1    2
## 326   4 5.03 79.30    2    1    1    2    1    1    1    1    1    1
## 327   3 3.20  2.52    2    1    1    1    2    2    1    1    1    2
## 328   3 2.52  1.92    3    1    2    1    2    1    1    1    1    2
## 329   3 1.96  1.48    2    1    1    1    1    2    1    1    1    2
## 330   4 2.08  1.84    1    1    1    1    1    2    1    1    1    1
## 331   2 2.94 76.00    2    1    2    2    1    2    1    1    1    1
## 332   3 3.52  3.12    1    1    1    1    1    1    1    1    1    2
## 333   3 2.60  1.92    1    1    1    1    1    1    1    1    1    2
## 334   4 2.20  1.80    1    1    1    1    1    1    1    1    1    1
## 335   2 4.00  3.12    2    1    1    1    1    2    1    1    1    2
## 336   3 2.40  1.80    2    1    1    1    1    1    1    1    1    2
## 337   3 2.32  1.32    2    1    2    1    2    1    1    1    1    2
## 338   4 3.24  2.60    2    1    1    1    1    2    1    1    1    2
## 339   3 4.00  3.08    1    1    1    1    1    1    1    1    1    2
## 340   3 2.96  2.00    2    1    1    1    1    2    1    1    1    2
## 341   3 3.88  2.92    1    1    1    1    1    1    1    1    1    2
## 342   3 2.36  1.76    2    1    2    1    1    2    1    1    1    2
## 343   4 2.50  1.40    2    1    2    1    1    1    1    1    1    2
```

```
## 344   3 2.96  2.44    2    1    1    1    2    1    1    1    1    2
## 345   3 3.64  3.12    2    1    1    1    1    2    1    1    1    2
## 346   2 3.12  2.72    3    1    1    1    2    4    1    1    1    2
## 347   2 3.48  2.84    2    1    1    1    2    1    1    1    1    2
## 348   3 4.16  3.44    2    2    1    1    1    3    1    1    1    2
## 349   2 4.20  3.60    2    1    1    1    2    1    1    1    1    2
## 350   4 1.82 86.30    1    1    1    1    1    2    1    1    1    1
## 351   3 2.64  2.16    2    1    2    1    1    2    1    1    1    2
## 352   3 3.05  1.30    2    1    1    1    1    1    1    1    1    2
## 353   3 2.94 73.30    2    1    2    2    1    2    1    1    1    1
## 354   3 3.24 52.30    1    1    1    1    1    2    2    1    1    2
## 355   3 4.28  3.52    2    1    1    1    1    1    1    1    1    2
## 356   3 3.68  3.20    2    1    1    1    1    2    1    1    1    2
## 357   3 2.80  2.44    2    1    1    2    1    2    1    1    1    2
## 358   3 2.00  1.36    1    1    1    1    1    2    1    1    1    2
## 359   3 2.40  2.04    2    1    1    1    1    2    1    1    1    2
## 360   4 2.84  2.12    1    1    1    1    1    2    1    1    1    1
## 361   3 2.60  2.12    2    1    1    1    1    2    1    1    1    2
## 362   3 2.84  2.40    2    1    1    1    1    1    1    1    1    2
## 363   3 3.08  1.72    2    1    1    1    2    2    2    1    1    2
## 364   3 2.20  1.60    2    1    2    1    1    2    1    1    1    2
## 365   3 2.32  1.72    3    1    1    1    2    1    1    1    1    2
## 366   3 2.04  1.80    1    1    1    1    1    2    1    1    1    2
## 367   3 2.56  2.20    2    1    1    1    1    1    1    1    1    2
## 368   5 2.38  1.72    2    1    2    1    1    2    2    1    2    2
## 369   6 3.88  2.72    2    1    1    1    1    2    1    1    1    2
## 370   3 3.80  3.16    1    1    1    1    1    2    1    1    1    2
## 371   3 2.88  2.16    1    1    1    1    1    2    1    1    1    2
## 372   3 2.32  1.76    1    1    1    1    1    2    1    1    1    1
## 373   3 2.92  2.40    2    1    1    1    1    1    1    1    1    2
## 374   3 2.00  1.52    1    1    2    1    1    4    2    1    1    2
## 375   3 2.40  2.16    2    1    1    1    1    2    1    1    1    2
## 376   3 4.56  3.84    1    1    1    1    1    2    1    1    1    2
## 377   3 4.03  3.09    2    1    1    1    1    1    1    1    1    2
## 378   3 2.16  1.88    1    1    1    1    1    2    1    1    1    2
## 379   3 4.52  3.36    2    1    1    1    2    2    1    1    1    2
## 380   4 2.72  2.04    2    1    1    1    1    1    1    1    1    2
## 381   3 3.76  1.00    1    1    2    1    1    2    1    1    1    2
## 382   3 5.00  3.88    1    1    1    1    1    1    1    1    1    2
## 383   4 3.40  2.16    2    2    2    1    1    2    1    1    1    1
## 384   3 2.40  1.88    2    1    1    1    1    1    1    1    1    1
## 385   3 2.00  1.64    2    1    1    1    1    2    1    1    1    1
## 386   3 2.52  1.96    2    1    1    1    1    2    2    1    1    2
## 387   3 4.40  3.56    2    1    1    2    2    1    1    1    1    2
## 388   4 4.20  3.32    1    1    1    1    1    2    1    1    1    2
## 389   3 1.96  1.40    2    1    1    1    1    3    1    1    1    2
## 390   2 3.80  2.67    2    1    1    1    1    4    1    1    1    2
## 391   3 2.92  2.28    2    1    1    1    1    2    1    1    1    2
## 392   2 1.84  1.36    2    1    2    1    1    2    1    1    1    2
## 393   4 3.56  2.60    2    1    1    1    1    3    1    1    1    2
## 394   3 3.72  3.00    2    1    1    1    1    2    1    1    1    2
## 395   4 3.96  2.44    2    1    1    1    2    1    1    1    1    2
## 396   4 3.04  3.68    2    1    1    1    1    1    2    1    1    2
## 397   3 2.76  2.08    1    1    1    1    1    2    1    1    1    1
```

```
## 398   3 4.56  3.48    2    1    1    1    1    2    1    1    1    2
## 399   2 2.96  2.33    2    1    1    1    1    1    1    1    1    2
## 400   3 2.70  1.90    2    1    1    1    1    1    1    1    1    2
## 401   3 2.48  1.60    1    1    1    1    1    1    1    1    1    1
## 402   3 3.56  2.80    1    1    1    1    1    2    1    1    1    1
## 403   3 2.96  2.20    2    1    1    1    1    2    1    1    1    2
## 404   3 4.04  2.56    2    1    2    1    1    2    1    1    1    2
## 405   2 2.96  2.24    1    1    1    1    1    2    1    1    1    2
## 406   6 5.36  3.96    2    1    1    1    1    2    1    1    1    1
## 407   3 3.44  2.92    2    1    1    1    1    1    1    1    1    2
## 408   2 2.72  2.08    1    1    1    1    1    2    1    1    1    2
## 409   3 3.08  2.24    2    1    1    1    1    2    2    1    1    2
## 410   3 2.64  2.15    1    1    1    1    1    1    1    1    1    2
## 411   2 2.48  2.00    2    1    1    1    1    2    1    1    1    2
## 412   3 4.64  4.16    2    2    1    1    1    3    1    1    1    2
## 413   3 3.32  2.52    1    1    1    1    1    1    1    1    1    1
## 414   2 2.48  2.08    2    1    2    1    1    2    1    1    1    2
## 415   3 1.46  1.00    2    1    2    1    1    1    1    1    1    2
## 416   3 3.40  2.39    1    1    1    1    1    1    1    1    1    1
## 417   3 3.44  2.40    2    1    1    1    2    1    2    1    1    2
## 418   3 5.16  4.28    2    1    1    1    1    2    1    1    1    2
## 419   2 2.60  2.04    1    2    2    1    1    2    1    1    1    1
## 420   4 2.44  2.08    3    1    1    1    2    2    1    1    1    2
## 421   5 4.96  4.16    2    1    1    1    1    1    1    1    1    2
## 422   2 3.76  2.96    2    1    1    1    1    4    2    1    1    1
## 423   3 2.68  2.16    1    1    1    1    1    2    1    1    1    2
## 424   3 5.00  4.04    1    1    2    1    1    2    1    1    1    1
## 425   4 2.81  2.31    2    2    1    1    1    2    1    1    1    2
## 426   3 3.18  2.73    2    1    1    1    1    2    1    1    1    2
## 427   3 2.48  2.08    2    1    1    1    1    3    1    1    1    2
## 428   3 3.44  2.72    2    2    2    1    1    1    1    1    1    1
## 429   3 3.12  2.12    2    1    1    1    2    2    1    1    1    2
## 430   3 3.48  2.52    2    1    1    1    1    4    2    1    1    2
## 431   3 3.87  2.68    1    1    1    1    1    2    1    1    1    2
## 432   3 1.44  1.20    2    1    1    1    1    1    1    1    1    2
## 433   3 2.28  1.82    1    1    1    1    1    1    2    1    1    1
## 434   3 4.28  2.72    2    2    2    1    1    1    1    1    1    2
## 435   3 3.08  2.28    2    1    1    1    1    1    1    1    1    2
## 436   3 2.96  2.04    2    1    1    1    1    1    1    1    1    2
## 437   3 4.80  3.32    2    1    1    2    1    2    1    1    1    2
## 438   3 4.08  3.20    2    1    1    1    1    2    1    1    1    2
## 439   5 3.67 76.80    1    2    2    1    1    2    1    1    1    1
## 440   3 2.36  1.60    2    1    1    1    2    1    1    1    2    2
## 441   3 3.00  2.44    2    1    1    1    2    2    1    1    1    2
## 442   2 4.44  3.64    1    1    1    1    1    2    1    1    1    1
## 443   2 4.08  2.24    2    1    1    2    1    2    1    1    1    1
## 444   3 4.12  3.20    3    1    1    1    2    1    1    1    1    1
## 445   3 2.56 60.90    1    1    1    1    1    1    1    1    1    2
## 446   3 2.72  1.76    1    1    1    1    1    1    1    1    1    2
## 447   7 5.20  4.10    1    1    1    1    1    2    1    1    1    1
## 448   2 4.40  3.72    2    1    1    1    2    2    1    1    1    2
## 449   3 2.96  2.24    1    1    1    1    1    2    1    1    1    2
## 450   3 2.84  1.88    2    1    1    1    1    2    1    1    1    2
## 451   3 2.28  1.68    3    1    1    1    2    1    1    1    1    1
```

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## 452   4 3.04  2.36    2    1    1    1     1     2     1     1     1     2
## 453   3 2.80  2.24    2    2    1    1     1     3     1     1     1     2
## 454   3 2.84  2.32    2    1    2    1     2     1     1     1     1     2
## 455   3 3.24  2.76    1    1    1    1     1     1     1     1     1     2
## 456   4 2.92  1.92    2    1    1    1     1     2     1     1     1     2
## 457   3 2.40  1.24    2    1    1    1     1     2     1     1     1     2
## 458   3 4.56  3.20    1    1    1    1     1     1     1     1     1     2
## 459   3 3.60  3.00    2    1    1    1     1     1     1     1     1     1
## 460   3 4.28  3.16    1    1    1    1     1     2     1     1     1     1
## 461   4 4.65  3.78    2    1    1    1     1     2     1     1     1     1
## 462   3 1.84  1.56    2    2    2    1     1     2     1     1     1     1
## 463   3 2.12  1.68    3    2    2    1     1     1     1     1     1     2
## 464   4 3.44  2.16    2    1    1    1     2     2     2     1     1     2
## 465   3 3.08  2.16    2    1    1    1     2     3     1     1     1     2
## 466   2 3.88  2.12    2    1    1    1     1     3     1     1     1     2
## 467   3 3.76  3.12    1    1    1    1     1     1     1     1     1     2
## 468   3 3.04  2.08    2    1    1    1     1     3     1     1     1     1
## 469   3 1.96  1.68    2    1    1    1     2     2     1     1     1     2
## 470   3 4.72  3.56    1    1    1    1     1     2     1     1     1     2
##     PRE32 AGE Risk1Yr     Predict
## 1       1  60       1 Not Survive
## 2       1  51       1 Not Survive
## 3       1  59       1 Not Survive
## 4       1  54       1 Not Survive
## 5       1  73       2 Not Survive
## 6       1  51       1 Not Survive
## 7       1  59       2 Not Survive
## 8       1  66       2 Not Survive
## 9       1  68       1 Not Survive
## 10      1  54       1 Not Survive
## 11      1  60       1 Not Survive
## 12      1  58       1 Not Survive
## 13      1  68       1 Not Survive
## 14      1  80       2 Not Survive
## 15      1  77       1 Not Survive
## 16      1  62       1 Not Survive
## 17      1  56       1 Not Survive
## 18      1  61       1 Not Survive
## 19      1  70       1 Not Survive
## 20      1  71       1 Not Survive
## 21      1  51       1 Not Survive
## 22      1  62       1 Not Survive
## 23      1  62       1 Not Survive
## 24      1  62       1 Not Survive
## 25      1  58       2 Not Survive
## 26      1  57       1 Not Survive
## 27      1  60       1 Not Survive
## 28      1  68       2 Not Survive
## 29      1  56       1 Not Survive
## 30      1  61       1 Not Survive
## 31      1  55       2 Not Survive
## 32      1  52       1 Not Survive
## 33      1  72       1 Not Survive
## 34      1  68       1 Not Survive
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## 35      1  76       1 Not Survive
## 36      1  58       1 Not Survive
## 37      1  71       1 Not Survive
## 38      1  61       1 Not Survive
## 39      1  56       1 Not Survive
## 40      1  52       1 Not Survive
## 41      1  60       2 Not Survive
## 42      1  63       2 Not Survive
## 43      1  68       1 Not Survive
## 44      1  51       2 Not Survive
## 45      1  60       1 Not Survive
## 46      1  60       1 Not Survive
## 47      1  67       1 Not Survive
## 48      1  72       2 Not Survive
## 49      1  59       1 Not Survive
## 50      1  55       1 Not Survive
## 51      1  79       1 Not Survive
## 52      1  69       1 Not Survive
## 53      1  68       1 Not Survive
## 54      1  75       1 Not Survive
## 55      1  63       1 Not Survive
## 56      1  65       1 Not Survive
## 57      1  37       1 Not Survive
## 58      1  64       2 Not Survive
## 59      1  62       1 Not Survive
## 60      1  58       1 Not Survive
## 61      1  51       2 Not Survive
## 62      1  77       1 Not Survive
## 63      1  56       1 Not Survive
## 64      1  55       1 Not Survive
## 65      1  59       1 Not Survive
## 66      1  54       1 Not Survive
## 67      1  39       1 Not Survive
## 68      1  62       2 Not Survive
## 69      1  61       1 Not Survive
## 70      1  70       1 Not Survive
## 71      1  53       1 Not Survive
## 72      1  71       1 Not Survive
## 73      1  63       1 Not Survive
## 74      1  45       1 Not Survive
## 75      1  55       1 Not Survive
## 76      1  41       2 Not Survive
## 77      1  66       1 Not Survive
## 78      1  62       2 Not Survive
## 79      1  54       1 Not Survive
## 80      1  78       1 Not Survive
## 81      1  58       1 Not Survive
## 82      1  59       1 Not Survive
## 83      1  63       1 Not Survive
## 84      1  62       1 Not Survive
## 85      1  51       1 Not Survive
## 86      1  58       1 Not Survive
## 87      1  52       1 Not Survive
## 88      1  67       1 Not Survive
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## 89      1  76       1 Not Survive
## 90      1  75       1 Not Survive
## 91      1  80       1 Not Survive
## 92      1  73       1 Not Survive
## 93      1  60       2 Not Survive
## 94      1  50       1 Not Survive
## 95      1  87       1 Not Survive
## 96      1  54       1 Not Survive
## 97      1  70       2 Not Survive
## 98      1  76       1 Not Survive
## 99      1  54       1 Not Survive
## 100     1  57       2 Not Survive
## 101     1  72       1 Not Survive
## 102     1  72       1 Not Survive
## 103     1  76       1 Not Survive
## 104     2  59       1 Not Survive
## 105     1  53       1 Not Survive
## 106     1  57       1 Not Survive
## 107     1  55       1 Not Survive
## 108     1  54       1 Not Survive
## 109     1  63       1 Not Survive
## 110     1  74       1 Not Survive
## 111     1  55       1 Not Survive
## 112     1  58       1 Not Survive
## 113     1  60       1 Not Survive
## 114     1  52       1 Not Survive
## 115     1  58       1 Not Survive
## 116     1  61       2 Not Survive
## 117     1  73       1 Not Survive
## 118     1  53       1 Not Survive
## 119     1  57       1 Not Survive
## 120     1  75       1 Not Survive
## 121     1  59       1 Not Survive
## 122     1  74       1 Not Survive
## 123     1  80       1 Not Survive
## 124     1  67       1 Not Survive
## 125     1  76       1 Not Survive
## 126     1  71       1 Not Survive
## 127     1  62       1 Not Survive
## 128     1  73       2 Not Survive
## 129     1  81       2 Not Survive
## 130     1  45       1 Not Survive
## 131     1  63       1 Not Survive
## 132     1  74       1 Not Survive
## 133     1  64       2 Not Survive
## 134     1  63       1 Not Survive
## 135     1  56       1 Not Survive
## 136     1  63       1 Not Survive
## 137     1  54       1 Not Survive
## 138     1  49       2 Not Survive
## 139     1  57       1 Not Survive
## 140     1  52       1 Not Survive
## 141     1  63       1 Not Survive
## 142     1  73       1 Not Survive
```

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## 143     1  47       1 Not Survive
## 144     1  69       2 Not Survive
## 145     1  70       1 Not Survive
## 146     1  60       1 Not Survive
## 147     1  70       1 Not Survive
## 148     1  68       1 Not Survive
## 149     1  74       1 Not Survive
## 150     1  71       1 Not Survive
## 151     1  56       1 Not Survive
## 152     1  66       2 Not Survive
## 153     1  76       2 Not Survive
## 154     1  78       1 Not Survive
## 155     1  68       1 Not Survive
## 156     1  66       1 Not Survive
## 157     1  67       1 Not Survive
## 158     1  60       1 Not Survive
## 159     1  61       1 Not Survive
## 160     1  58       1 Not Survive
## 161     1  76       1 Not Survive
## 162     1  56       1 Not Survive
## 163     1  67       1 Not Survive
## 164     1  73       1 Not Survive
## 165     1  58       1 Not Survive
## 166     1  54       1 Not Survive
## 167     1  62       1 Not Survive
## 168     1  81       1 Not Survive
## 169     1  56       1 Not Survive
## 170     1  60       2 Not Survive
## 171     1  66       1 Not Survive
## 172     1  62       1 Not Survive
## 173     1  62       1 Not Survive
## 174     1  55       2 Not Survive
## 175     1  62       1 Not Survive
## 176     1  71       2 Not Survive
## 177     1  52       1 Not Survive
## 178     1  59       1 Not Survive
## 179     1  48       1 Not Survive
## 180     1  60       1 Not Survive
## 181     1  61       1 Not Survive
## 182     1  59       1 Not Survive
## 183     1  64       1 Not Survive
## 184     1  56       1 Not Survive
## 185     1  58       1 Not Survive
## 186     1  81       2 Not Survive
## 187     1  64       1 Not Survive
## 188     1  62       1 Not Survive
## 189     1  72       1 Not Survive
## 190     1  60       1 Not Survive
## 191     2  61       1 Not Survive
## 192     1  60       2 Not Survive
## 193     1  49       1 Not Survive
## 194     1  53       1 Not Survive
## 195     1  58       1 Not Survive
## 196     1  61       2 Not Survive
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## 197     1  68       2 Not Survive
## 198     1  60       1 Not Survive
## 199     1  72       1 Not Survive
## 200     1  72       1 Not Survive
## 201     1  57       1 Not Survive
## 202     1  51       1 Not Survive
## 203     1  54       1 Not Survive
## 204     1  56       1 Not Survive
## 205     1  77       1 Not Survive
## 206     1  64       1 Not Survive
## 207     1  57       1 Not Survive
## 208     1  66       1 Not Survive
## 209     1  70       1 Not Survive
## 210     1  53       2 Not Survive
## 211     1  51       1 Not Survive
## 212     1  58       2 Not Survive
## 213     1  58       1 Not Survive
## 214     1  63       2 Not Survive
## 215     1  51       1 Not Survive
## 216     1  61       1 Not Survive
## 217     1  61       1 Not Survive
## 218     1  76       1 Not Survive
## 219     1  71       1 Not Survive
## 220     1  69       1 Not Survive
## 221     1  56       2 Not Survive
## 222     1  67       1 Not Survive
## 223     1  54       1 Not Survive
## 224     1  63       1 Not Survive
## 225     1  47       1 Not Survive
## 226     1  62       1 Not Survive
## 227     1  65       1 Not Survive
## 228     1  63       2 Not Survive
## 229     1  64       1 Not Survive
## 230     1  65       2 Not Survive
## 231     1  51       1 Not Survive
## 232     1  56       1 Not Survive
## 233     1  70       1 Not Survive
## 234     1  58       1 Not Survive
## 235     1  67       1 Not Survive
## 236     1  62       1 Not Survive
## 237     1  74       1 Not Survive
## 238     1  69       1 Not Survive
## 239     1  55       2 Not Survive
## 240     1  60       2 Not Survive
## 241     1  72       1 Not Survive
## 242     1  64       1 Not Survive
## 243     1  75       2 Not Survive
## 244     1  47       1 Not Survive
## 245     1  57       1 Not Survive
## 246     1  56       1 Not Survive
## 247     1  68       1 Not Survive
## 248     1  55       1 Not Survive
## 249     1  62       1 Not Survive
## 250     1  73       1 Not Survive
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## 251     1  68       1 Not Survive
## 252     1  75       2 Not Survive
## 253     1  63       1 Not Survive
## 254     1  61       1 Not Survive
## 255     1  62       1 Not Survive
## 256     1  44       1 Not Survive
## 257     1  56       1 Not Survive
## 258     1  54       1 Not Survive
## 259     1  57       1 Not Survive
## 260     1  56       1 Not Survive
## 261     1  69       2 Not Survive
## 262     1  72       1 Not Survive
## 263     1  59       1 Not Survive
## 264     1  70       1 Not Survive
## 265     1  64       1 Not Survive
## 266     1  61       1 Not Survive
## 267     1  72       1 Not Survive
## 268     1  63       1 Not Survive
## 269     1  74       2 Not Survive
## 270     1  71       1 Not Survive
## 271     1  71       2 Not Survive
## 272     1  72       1 Not Survive
## 273     1  77       1 Not Survive
## 274     1  72       1 Not Survive
## 275     1  55       2 Not Survive
## 276     1  65       1 Not Survive
## 277     1  67       1 Not Survive
## 278     1  69       1 Not Survive
## 279     1  55       1 Not Survive
## 280     1  51       1 Not Survive
## 281     1  64       1 Not Survive
## 282     1  63       1 Not Survive
## 283     1  69       1 Not Survive
## 284     1  64       1 Not Survive
## 285     1  59       1 Not Survive
## 286     1  73       1 Not Survive
## 287     1  55       1 Not Survive
## 288     1  63       1 Not Survive
## 289     1  60       1    Survived
## 290     1  74       1 Not Survive
## 291     1  65       1 Not Survive
## 292     1  79       1 Not Survive
## 293     1  62       1 Not Survive
## 294     1  71       1 Not Survive
## 295     1  63       1 Not Survive
## 296     1  67       1 Not Survive
## 297     1  55       2 Not Survive
## 298     1  54       2 Not Survive
## 299     1  77       1 Not Survive
## 300     1  58       1 Not Survive
## 301     1  64       1 Not Survive
## 302     1  61       1 Not Survive
## 303     1  62       2 Not Survive
## 304     1  67       1 Not Survive
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## 305     1  56       1 Not Survive
## 306     1  70       2 Not Survive
## 307     1  70       1 Not Survive
## 308     1  57       1 Not Survive
## 309     1  61       1 Not Survive
## 310     1  77       1 Not Survive
## 311     1  63       1 Not Survive
## 312     1  62       1 Not Survive
## 313     1  59       2 Not Survive
## 314     1  70       1 Not Survive
## 315     1  71       1 Not Survive
## 316     1  56       1 Not Survive
## 317     1  57       1 Not Survive
## 318     1  78       1 Not Survive
## 319     1  64       1 Not Survive
## 320     1  62       1 Not Survive
## 321     1  49       1 Not Survive
## 322     1  77       2 Not Survive
## 323     1  64       1 Not Survive
## 324     1  63       1 Not Survive
## 325     1  54       1 Not Survive
## 326     1  38       1 Not Survive
## 327     1  75       1 Not Survive
## 328     1  70       1 Not Survive
## 329     1  59       1 Not Survive
## 330     1  77       1 Not Survive
## 331     1  61       1 Not Survive
## 332     1  64       1 Not Survive
## 333     1  59       1 Not Survive
## 334     1  71       1 Not Survive
## 335     1  67       2 Not Survive
## 336     1  64       1 Not Survive
## 337     1  68       1 Not Survive
## 338     1  69       1 Not Survive
## 339     1  64       1 Not Survive
## 340     1  59       1 Not Survive
## 341     1  67       2 Not Survive
## 342     1  74       1 Not Survive
## 343     1  77       1 Not Survive
## 344     1  60       1 Not Survive
## 345     1  64       1 Not Survive
## 346     1  70       1 Not Survive
## 347     1  58       1 Not Survive
## 348     1  59       1 Not Survive
## 349     1  39       2 Not Survive
## 350     1  67       1 Not Survive
## 351     1  71       2 Not Survive
## 352     1  70       1 Not Survive
## 353     1  60       1 Not Survive
## 354     1  55       1 Not Survive
## 355     1  60       1 Not Survive
## 356     1  55       1 Not Survive
## 357     1  55       1 Not Survive
## 358     1  70       2 Not Survive
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## 359     1  63       1 Not Survive
## 360     1  64       1 Not Survive
## 361     1  55       1 Not Survive
## 362     1  49       1 Not Survive
## 363     1  58       2 Not Survive
## 364     1  59       1 Not Survive
## 365     1  56       1 Not Survive
## 366     1  64       1 Not Survive
## 367     1  62       1 Not Survive
## 368     1  87       2 Not Survive
## 369     1  77       1 Not Survive
## 370     1  59       1 Not Survive
## 371     1  59       1 Not Survive
## 372     1  55       1 Not Survive
## 373     1  46       1 Not Survive
## 374     1  60       1    Survived
## 375     1  69       1 Not Survive
## 376     1  74       1 Not Survive
## 377     1  59       1 Not Survive
## 378     1  63       1 Not Survive
## 379     1  63       1 Not Survive
## 380     1  75       1 Not Survive
## 381     1  52       1 Not Survive
## 382     1  51       1 Not Survive
## 383     1  68       1 Not Survive
## 384     1  53       1 Not Survive
## 385     1  61       1 Not Survive
## 386     1  72       1 Not Survive
## 387     1  60       2 Not Survive
## 388     1  58       1 Not Survive
## 389     1  69       1 Not Survive
## 390     1  48       1 Not Survive
## 391     1  75       1 Not Survive
## 392     1  57       1 Not Survive
## 393     1  68       1 Not Survive
## 394     1  61       1 Not Survive
## 395     1  44       1 Not Survive
## 396     1  64       1 Not Survive
## 397     1  21       1 Not Survive
## 398     1  60       1 Not Survive
## 399     1  72       1 Not Survive
## 400     1  65       1 Not Survive
## 401     1  61       1 Not Survive
## 402     1  69       1 Not Survive
## 403     1  53       1 Not Survive
## 404     1  55       1 Not Survive
## 405     1  57       2 Not Survive
## 406     1  62       1 Not Survive
## 407     1  56       1 Not Survive
## 408     1  67       1 Not Survive
## 409     1  59       1 Not Survive
## 410     1  59       1 Not Survive
## 411     1  60       2 Not Survive
## 412     1  56       1 Not Survive
```

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## 413     1  56       1 Not Survive
## 414     1  60       1 Not Survive
## 415     1  68       1 Not Survive
## 416     1  63       1 Not Survive
## 417     1  77       1 Not Survive
## 418     1  52       1 Not Survive
## 419     1  70       1 Not Survive
## 420     1  72       2 Not Survive
## 421     1  62       2 Not Survive
## 422     1  64       2 Not Survive
## 423     1  70       1 Not Survive
## 424     1  60       1 Not Survive
## 425     1  58       1 Not Survive
## 426     1  47       1 Not Survive
## 427     1  54       2 Not Survive
## 428     1  73       1 Not Survive
## 429     1  62       1 Not Survive
## 430     1  72       1    Survived
## 431     1  63       1 Not Survive
## 432     1  58       1 Not Survive
## 433     1  69       1 Not Survive
## 434     1  66       1 Not Survive
## 435     1  57       1 Not Survive
## 436     1  56       1 Not Survive
## 437     1  54       1 Not Survive
## 438     1  40       1 Not Survive
## 439     1  61       1 Not Survive
## 440     1  54       1 Not Survive
## 441     1  65       1 Not Survive
## 442     1  62       1 Not Survive
## 443     1  61       1 Not Survive
## 444     1  76       1 Not Survive
## 445     1  50       1 Not Survive
## 446     1  63       1 Not Survive
## 447     1  49       1 Not Survive
## 448     1  52       1 Not Survive
## 449     1  69       1 Not Survive
## 450     1  53       2 Not Survive
## 451     1  77       1 Not Survive
## 452     1  59       1 Not Survive
## 453     1  70       1 Not Survive
## 454     1  72       1 Not Survive
## 455     1  70       1 Not Survive
## 456     1  70       1 Not Survive
## 457     1  62       1 Not Survive
## 458     1  61       1 Not Survive
## 459     1  46       1 Not Survive
## 460     1  66       1 Not Survive
## 461     1  55       1 Not Survive
## 462     1  72       1 Not Survive
## 463     1  74       1 Not Survive
## 464     1  57       2    Survived
## 465     1  79       1 Not Survive
## 466     1  63       1 Not Survive
```

```
## 467     1  61       1 Not Survive
## 468     1  52       1 Not Survive
## 469     1  79       1 Not Survive
## 470     1  51       1 Not Survive
```

```
##Model Performance Evaluation
riskmodel$aic
```

```
## [1] 387.5008
```

```
riskmodel_new$aic
```

```
## [1] 375.6534
```

```
## CONCLUSION : A model with minimum AIC value is preferred.The above shows the AIC of the original mod
```

```
##Confusion Matrix
mytable <- table(newdata2$Risk1Yr,newdata2$Predict)
mytable
```

```
##
##     Not Survive Survived
##   1         397        3
##   2          69        1
```

```
efficiency <- sum(diag(mytable))/sum(mytable)
efficiency
```

```
## [1] 0.8468085
```

```
## CONCLUSION: The accuracy of our model is 84.7%
```