project

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setwd("~/Documents/my classes/Coursera/Practical machine learning/project data")  
training<-read.csv("./pml-training.csv",na.strings=c("NA","#DIV/0!"),stringsAsFactors=FALSE)  
testing<-read.csv("./pml-testing.csv")  
training1<-training[,colSums(is.na(training))==0] ##remove columns with NA  
training2<-training1[,8:dim(training1)[2]]  
library(caret);library(rpart)

## Loading required package: lattice  
## Loading required package: ggplot2

set.seed(123)  
model<-rpart(classe~.,data=training2,method="class",control=rpart.control(minsplit=5,cp=0,xval=2))  
print(model)

## n= 19622   
##   
## node), split, n, loss, yval, (yprob)  
## \* denotes terminal node  
##   
## 1.000e+00) root 19622 14040 A (0.28 0.19 0.17 0.16 0.18)   
## 2.000e+00) roll\_belt< 130.5 17977 12410 A (0.31 0.21 0.19 0.18 0.11)   
## 4.000e+00) pitch\_forearm< -33.95 1578 10 A (0.99 0.0063 0 0 0)   
## 8.000e+00) gyros\_dumbbell\_y< 1.035 1572 5 A (1 0.0032 0 0 0)   
## 1.600e+01) magnet\_forearm\_z< 783.5 1568 1 A (1 0.00064 0 0 0) \*  
## 1.700e+01) magnet\_forearm\_z>=783.5 4 0 B (0 1 0 0 0) \*  
## 9.000e+00) gyros\_dumbbell\_y>=1.035 6 1 B (0.17 0.83 0 0 0) \*  
## 5.000e+00) pitch\_forearm>=-33.95 16399 12400 A (0.24 0.23 0.21 0.2 0.12)   
## 1.000e+01) magnet\_dumbbell\_y< 439.5 13870 9953 A (0.28 0.18 0.24 0.19 0.11)   
## 2.000e+01) roll\_forearm< 123.5 8643 5131 A (0.41 0.18 0.18 0.17 0.061)   
## 4.000e+01) magnet\_dumbbell\_z< -27.5 2913 969 A (0.67 0.21 0.013 0.077 0.03)   
## 8.000e+01) roll\_forearm>=-136.5 2429 537 A (0.78 0.17 0.014 0.027 0.0062)   
## 1.600e+02) roll\_forearm< 113.5 2137 318 A (0.85 0.12 0.015 0.01 0.0061)   
## 3.200e+02) magnet\_dumbbell\_y< 378.5 1752 113 A (0.94 0.056 0.0029 0.0011 0.0046)   
## 6.400e+02) gyros\_dumbbell\_y>=-0.525 1735 96 A (0.94 0.047 0.0029 0.0012 0.0046)   
## 1.280e+03) gyros\_dumbbell\_y< 0.6 1721 84 A (0.95 0.04 0.0029 0.0012 0.0046)   
## 2.560e+03) magnet\_forearm\_z>=102.5 1712 75 A (0.96 0.04 0.0029 0.00058 0)   
## 5.120e+03) gyros\_arm\_x< 2.05 1619 48 A (0.97 0.028 0.0012 0.00062 0)   
## 1.024e+04) accel\_belt\_x< 52.5 1615 44 A (0.97 0.025 0.0012 0.00062 0)   
## 2.048e+04) accel\_arm\_y>=-129 1607 39 A (0.98 0.022 0.0012 0.00062 0)   
## 4.096e+04) magnet\_arm\_y< 455 1605 37 A (0.98 0.022 0 0.00062 0)   
## 8.192e+04) magnet\_dumbbell\_y< 366.5 1400 15 A (0.99 0.011 0 0 0)   
## 1.638e+05) magnet\_forearm\_z< 801 1397 13 A (0.99 0.0093 0 0 0)   
## 3.277e+05) gyros\_arm\_x< 1.725 1320 5 A (1 0.0038 0 0 0)   
## 6.554e+05) gyros\_forearm\_z< 0.845 1294 3 A (1 0.0023 0 0 0)   
## 1.311e+06) accel\_arm\_y>=-109 1264 1 A (1 0.00079 0 0 0) \*  
## 1.311e+06) accel\_arm\_y< -109 30 2 A (0.93 0.067 0 0 0)   
## 2.621e+06) accel\_belt\_z< -154 28 0 A (1 0 0 0 0) \*  
## 2.621e+06) accel\_belt\_z>=-154 2 0 B (0 1 0 0 0) \*  
## 6.554e+05) gyros\_forearm\_z>=0.845 26 2 A (0.92 0.077 0 0 0)   
## 1.311e+06) accel\_dumbbell\_z< 41.5 24 0 A (1 0 0 0 0) \*  
## 1.311e+06) accel\_dumbbell\_z>=41.5 2 0 B (0 1 0 0 0) \*  
## 3.277e+05) gyros\_arm\_x>=1.725 77 8 A (0.9 0.1 0 0 0)   
## 6.554e+05) accel\_forearm\_z< 39.5 71 3 A (0.96 0.042 0 0 0)   
## 1.311e+06) gyros\_dumbbell\_z< 0.14 68 0 A (1 0 0 0 0) \*  
## 1.311e+06) gyros\_dumbbell\_z>=0.14 3 0 B (0 1 0 0 0) \*  
## 6.554e+05) accel\_forearm\_z>=39.5 6 1 B (0.17 0.83 0 0 0) \*  
## 1.638e+05) magnet\_forearm\_z>=801 3 1 B (0.33 0.67 0 0 0) \*  
## 8.192e+04) magnet\_dumbbell\_y>=366.5 205 22 A (0.89 0.1 0 0.0049 0)   
## 1.638e+05) roll\_belt>=116.5 179 6 A (0.97 0.028 0 0.0056 0)   
## 3.277e+05) magnet\_dumbbell\_z< -30 177 4 A (0.98 0.023 0 0 0)   
## 6.554e+05) yaw\_belt>=-1.385 156 0 A (1 0 0 0 0) \*  
## 6.554e+05) yaw\_belt< -1.385 21 4 A (0.81 0.19 0 0 0)   
## 1.311e+06) roll\_arm< -44.75 17 0 A (1 0 0 0 0) \*  
## 1.311e+06) roll\_arm>=-44.75 4 0 B (0 1 0 0 0) \*  
## 3.277e+05) magnet\_dumbbell\_z>=-30 2 1 B (0 0.5 0 0.5 0) \*  
## 1.638e+05) roll\_belt< 116.5 26 10 B (0.38 0.62 0 0 0)   
## 3.277e+05) roll\_belt< 57.59 10 0 A (1 0 0 0 0) \*  
## 3.277e+05) roll\_belt>=57.59 16 0 B (0 1 0 0 0) \*  
## 4.096e+04) magnet\_arm\_y>=455 2 0 C (0 0 1 0 0) \*  
## 2.048e+04) accel\_arm\_y< -129 8 3 B (0.38 0.62 0 0 0)   
## 4.096e+04) gyros\_belt\_x>=0.12 3 0 A (1 0 0 0 0) \*  
## 4.096e+04) gyros\_belt\_x< 0.12 5 0 B (0 1 0 0 0) \*  
## 1.024e+04) accel\_belt\_x>=52.5 4 0 B (0 1 0 0 0) \*  
## 5.121e+03) gyros\_arm\_x>=2.05 93 27 A (0.71 0.26 0.032 0 0)   
## 1.024e+04) magnet\_dumbbell\_x>=-549.5 77 11 A (0.86 0.14 0 0 0)   
## 2.048e+04) total\_accel\_forearm>=19 69 3 A (0.96 0.043 0 0 0)   
## 4.097e+04) gyros\_forearm\_x>=-0.48 65 0 A (1 0 0 0 0) \*  
## 4.097e+04) gyros\_forearm\_x< -0.48 4 1 B (0.25 0.75 0 0 0) \*  
## 2.048e+04) total\_accel\_forearm< 19 8 0 B (0 1 0 0 0) \*  
## 1.024e+04) magnet\_dumbbell\_x< -549.5 16 3 B (0 0.81 0.19 0 0)   
## 2.049e+04) roll\_belt< 63.73 13 0 B (0 1 0 0 0) \*  
## 2.049e+04) roll\_belt>=63.73 3 0 C (0 0 1 0 0) \*  
## 2.561e+03) magnet\_forearm\_z< 102.5 9 1 E (0 0 0 0.11 0.89) \*  
## 1.281e+03) gyros\_dumbbell\_y>=0.6 14 2 B (0.14 0.86 0 0 0)   
## 2.562e+03) magnet\_belt\_x>=10.5 2 0 A (1 0 0 0 0) \*  
## 2.563e+03) magnet\_belt\_x< 10.5 12 0 B (0 1 0 0 0) \*  
## 6.410e+02) gyros\_dumbbell\_y< -0.525 17 0 B (0 1 0 0 0) \*  
## 3.210e+02) magnet\_dumbbell\_y>=378.5 385 205 A (0.47 0.39 0.073 0.052 0.013)   
## 6.420e+02) pitch\_belt< 17.55 305 125 A (0.59 0.24 0.092 0.066 0.016)   
## 1.284e+03) accel\_dumbbell\_y>=-9 246 66 A (0.73 0.19 0 0.077 0)   
## 2.568e+03) magnet\_arm\_z>=-12.5 194 30 A (0.85 0.057 0 0.098 0)   
## 5.136e+03) magnet\_dumbbell\_x< -452.5 166 9 A (0.95 0.03 0 0.024 0)   
## 1.027e+04) yaw\_arm< 0.58 159 2 A (0.99 0.0063 0 0.0063 0) \*  
## 1.027e+04) yaw\_arm>=0.58 7 3 B (0 0.57 0 0.43 0)   
## 2.055e+04) yaw\_belt>=-93 4 0 B (0 1 0 0 0) \*  
## 2.055e+04) yaw\_belt< -93 3 0 D (0 0 0 1 0) \*  
## 5.137e+03) magnet\_dumbbell\_x>=-452.5 28 13 D (0.25 0.21 0 0.54 0)   
## 1.027e+04) pitch\_arm< 7.55 13 6 A (0.54 0.46 0 0 0)   
## 2.055e+04) magnet\_belt\_x>=21.5 7 0 A (1 0 0 0 0) \*  
## 2.055e+04) magnet\_belt\_x< 21.5 6 0 B (0 1 0 0 0) \*  
## 1.028e+04) pitch\_arm>=7.55 15 0 D (0 0 0 1 0) \*  
## 2.569e+03) magnet\_arm\_z< -12.5 52 16 B (0.31 0.69 0 0 0)   
## 5.138e+03) yaw\_belt>=170.5 8 0 A (1 0 0 0 0) \*  
## 5.139e+03) yaw\_belt< 170.5 44 8 B (0.18 0.82 0 0 0)   
## 1.028e+04) gyros\_belt\_z>=-0.025 5 0 A (1 0 0 0 0) \*  
## 1.028e+04) gyros\_belt\_z< -0.025 39 3 B (0.077 0.92 0 0 0)   
## 2.056e+04) magnet\_belt\_y< 597 3 0 A (1 0 0 0 0) \*  
## 2.056e+04) magnet\_belt\_y>=597 36 0 B (0 1 0 0 0) \*  
## 1.285e+03) accel\_dumbbell\_y< -9 59 31 C (0 0.42 0.47 0.017 0.085)   
## 2.570e+03) roll\_belt< 118 25 0 B (0 1 0 0 0) \*  
## 2.571e+03) roll\_belt>=118 34 6 C (0 0 0.82 0.029 0.15)   
## 5.142e+03) yaw\_dumbbell>=-15.16 28 0 C (0 0 1 0 0) \*  
## 5.143e+03) yaw\_dumbbell< -15.16 6 1 E (0 0 0 0.17 0.83) \*  
## 6.430e+02) pitch\_belt>=17.55 80 0 B (0 1 0 0 0) \*  
## 1.610e+02) roll\_forearm>=113.5 292 118 B (0.25 0.6 0 0.15 0.0068)   
## 3.220e+02) magnet\_dumbbell\_y< -534.5 116 2 B (0 0.98 0 0 0.017)   
## 6.440e+02) roll\_belt< 127 114 0 B (0 1 0 0 0) \*  
## 6.450e+02) roll\_belt>=127 2 0 E (0 0 0 0 1) \*  
## 3.230e+02) magnet\_dumbbell\_y>=-534.5 176 103 A (0.41 0.34 0 0.24 0)   
## 6.460e+02) roll\_arm< 9.5 88 23 A (0.74 0.26 0 0 0)   
## 1.292e+03) yaw\_belt< -3.67 65 3 A (0.95 0.046 0 0 0)   
## 2.584e+03) gyros\_dumbbell\_y< 0.67 63 1 A (0.98 0.016 0 0 0) \*  
## 2.585e+03) gyros\_dumbbell\_y>=0.67 2 0 B (0 1 0 0 0) \*  
## 1.293e+03) yaw\_belt>=-3.67 23 3 B (0.13 0.87 0 0 0)   
## 2.586e+03) pitch\_arm>=12.45 3 0 A (1 0 0 0 0) \*  
## 2.587e+03) pitch\_arm< 12.45 20 0 B (0 1 0 0 0) \*  
## 6.470e+02) roll\_arm>=9.5 88 45 D (0.091 0.42 0 0.49 0)   
## 1.294e+03) yaw\_forearm>=103.5 43 9 B (0.19 0.79 0 0.023 0)   
## 2.588e+03) accel\_arm\_z>=87 8 0 A (1 0 0 0 0) \*  
## 2.589e+03) accel\_arm\_z< 87 35 1 B (0 0.97 0 0.029 0) \*  
## 1.295e+03) yaw\_forearm< 103.5 45 3 D (0 0.067 0 0.93 0)   
## 2.590e+03) roll\_belt>=122.5 3 0 B (0 1 0 0 0) \*  
## 2.591e+03) roll\_belt< 122.5 42 0 D (0 0 0 1 0) \*  
## 8.100e+01) roll\_forearm< -136.5 484 290 B (0.11 0.4 0.01 0.33 0.15)   
## 1.620e+02) gyros\_arm\_y>=0.995 174 37 B (0 0.79 0 0 0.21)   
## 3.240e+02) gyros\_arm\_x>=-4.345 143 12 B (0 0.92 0 0 0.084)   
## 6.480e+02) magnet\_belt\_x< 9.5 133 2 B (0 0.98 0 0 0.015) \*  
## 6.490e+02) magnet\_belt\_x>=9.5 10 0 E (0 0 0 0 1) \*  
## 3.250e+02) gyros\_arm\_x< -4.345 31 6 E (0 0.19 0 0 0.81)   
## 6.500e+02) accel\_belt\_z>=7.5 6 0 B (0 1 0 0 0) \*  
## 6.510e+02) accel\_belt\_z< 7.5 25 0 E (0 0 0 0 1) \*  
## 1.630e+02) gyros\_arm\_y< 0.995 310 150 D (0.17 0.18 0.016 0.52 0.12)   
## 3.260e+02) yaw\_arm< -71.6 46 2 B (0.043 0.96 0 0 0)   
## 6.520e+02) pitch\_arm>=38.47 2 0 A (1 0 0 0 0) \*  
## 6.530e+02) pitch\_arm< 38.47 44 0 B (0 1 0 0 0) \*  
## 3.270e+02) yaw\_arm>=-71.6 264 104 D (0.19 0.049 0.019 0.61 0.14)   
## 6.540e+02) gyros\_belt\_z< 0.07 232 72 D (0.22 0.056 0.022 0.69 0.017)   
## 1.308e+03) roll\_belt>=122.5 54 15 A (0.72 0.13 0 0.074 0.074)   
## 2.616e+03) magnet\_dumbbell\_x>=511 38 0 A (1 0 0 0 0) \*  
## 2.617e+03) magnet\_dumbbell\_x< 511 16 9 B (0.062 0.44 0 0.25 0.25)   
## 5.234e+03) magnet\_belt\_x< -1.5 7 0 B (0 1 0 0 0) \*  
## 5.235e+03) magnet\_belt\_x>=-1.5 9 5 D (0.11 0 0 0.44 0.44)   
## 1.047e+04) roll\_belt< 125.5 5 1 D (0.2 0 0 0.8 0) \*  
## 1.047e+04) roll\_belt>=125.5 4 0 E (0 0 0 0 1) \*  
## 1.309e+03) roll\_belt< 122.5 178 22 D (0.062 0.034 0.028 0.88 0)   
## 2.618e+03) pitch\_belt>=25.95 15 7 A (0.53 0.067 0.33 0.067 0)   
## 5.236e+03) roll\_dumbbell>=-11.31 8 0 A (1 0 0 0 0) \*  
## 5.237e+03) roll\_dumbbell< -11.31 7 2 C (0 0.14 0.71 0.14 0)   
## 1.047e+04) accel\_belt\_x< -36.5 5 0 C (0 0 1 0 0) \*  
## 1.048e+04) accel\_belt\_x>=-36.5 2 1 B (0 0.5 0 0.5 0) \*  
## 2.619e+03) pitch\_belt< 25.95 163 8 D (0.018 0.031 0 0.95 0)   
## 5.238e+03) accel\_dumbbell\_x< -6.5 6 3 A (0.5 0.5 0 0 0)   
## 1.048e+04) roll\_belt< 1.1 3 0 A (1 0 0 0 0) \*  
## 1.048e+04) roll\_belt>=1.1 3 0 B (0 1 0 0 0) \*  
## 5.239e+03) accel\_dumbbell\_x>=-6.5 157 2 D (0 0.013 0 0.99 0)   
## 1.048e+04) magnet\_arm\_x>=762 2 0 B (0 1 0 0 0) \*  
## 1.048e+04) magnet\_arm\_x< 762 155 0 D (0 0 0 1 0) \*  
## 6.550e+02) gyros\_belt\_z>=0.07 32 0 E (0 0 0 0 1) \*  
## 4.100e+01) magnet\_dumbbell\_z>=-27.5 5730 4162 A (0.27 0.17 0.27 0.21 0.076)   
## 8.200e+01) yaw\_belt>=168.5 749 113 A (0.85 0.079 0.0013 0.067 0.004)   
## 1.640e+02) pitch\_belt>=-45.05 684 48 A (0.93 0.069 0.0015 0 0)   
## 3.280e+02) gyros\_belt\_x>=0.025 649 26 A (0.96 0.039 0.0015 0 0)   
## 6.560e+02) roll\_dumbbell< 72.26 640 17 A (0.97 0.027 0 0 0)   
## 1.312e+03) gyros\_belt\_z< -0.105 623 9 A (0.99 0.014 0 0 0)   
## 2.624e+03) gyros\_dumbbell\_z< 0.515 621 7 A (0.99 0.011 0 0 0)   
## 5.248e+03) magnet\_arm\_y< 326.5 563 0 A (1 0 0 0 0) \*  
## 5.249e+03) magnet\_arm\_y>=326.5 58 7 A (0.88 0.12 0 0 0)   
## 1.050e+04) yaw\_belt>=172 53 2 A (0.96 0.038 0 0 0)   
## 2.100e+04) pitch\_arm< 81.75 51 0 A (1 0 0 0 0) \*  
## 2.100e+04) pitch\_arm>=81.75 2 0 B (0 1 0 0 0) \*  
## 1.050e+04) yaw\_belt< 172 5 0 B (0 1 0 0 0) \*  
## 2.625e+03) gyros\_dumbbell\_z>=0.515 2 0 B (0 1 0 0 0) \*  
## 1.313e+03) gyros\_belt\_z>=-0.105 17 8 A (0.53 0.47 0 0 0)   
## 2.626e+03) yaw\_belt>=172.5 9 0 A (1 0 0 0 0) \*  
## 2.627e+03) yaw\_belt< 172.5 8 0 B (0 1 0 0 0) \*  
## 6.570e+02) roll\_dumbbell>=72.26 9 1 B (0 0.89 0.11 0 0) \*  
## 3.290e+02) gyros\_belt\_x< 0.025 35 13 B (0.37 0.63 0 0 0)   
## 6.580e+02) magnet\_belt\_z< -334.5 13 0 A (1 0 0 0 0) \*  
## 6.590e+02) magnet\_belt\_z>=-334.5 22 0 B (0 1 0 0 0) \*  
## 1.650e+02) pitch\_belt< -45.05 65 15 D (0 0.18 0 0.77 0.046)   
## 3.300e+02) magnet\_forearm\_x>=-322 13 1 B (0 0.92 0 0 0.077) \*  
## 3.310e+02) magnet\_forearm\_x< -322 52 2 D (0 0 0 0.96 0.038)   
## 6.620e+02) pitch\_arm< -5.385 50 0 D (0 0 0 1 0) \*  
## 6.630e+02) pitch\_arm>=-5.385 2 0 E (0 0 0 0 1) \*  
## 8.300e+01) yaw\_belt< 168.5 4981 3433 C (0.19 0.18 0.31 0.24 0.087)   
## 1.660e+02) accel\_dumbbell\_y>=-40.5 4298 3145 D (0.22 0.2 0.22 0.27 0.094)   
## 3.320e+02) pitch\_belt< -42.85 506 90 B (0.022 0.82 0.11 0.026 0.022)   
## 6.640e+02) magnet\_belt\_x< 172.5 405 20 B (0.012 0.95 0.035 0.0025 0)   
## 1.328e+03) accel\_forearm\_z>=-43 382 9 B (0.0026 0.98 0.018 0.0026 0)   
## 2.656e+03) accel\_arm\_x>=-299 380 7 B (0.0026 0.98 0.013 0.0026 0)   
## 5.312e+03) accel\_belt\_x>=46.5 358 3 B (0.0028 0.99 0.0028 0.0028 0) \*  
## 5.313e+03) accel\_belt\_x< 46.5 22 4 B (0 0.82 0.18 0 0)   
## 1.063e+04) accel\_belt\_z< -158.5 19 1 B (0 0.95 0.053 0 0) \*  
## 1.063e+04) accel\_belt\_z>=-158.5 3 0 C (0 0 1 0 0) \*  
## 2.657e+03) accel\_arm\_x< -299 2 0 C (0 0 1 0 0) \*  
## 1.329e+03) accel\_forearm\_z< -43 23 11 B (0.17 0.52 0.3 0 0)   
## 2.658e+03) roll\_belt>=125.5 12 0 B (0 1 0 0 0) \*  
## 2.659e+03) roll\_belt< 125.5 11 4 C (0.36 0 0.64 0 0)   
## 5.318e+03) roll\_belt< 124.5 4 0 A (1 0 0 0 0) \*  
## 5.319e+03) roll\_belt>=124.5 7 0 C (0 0 1 0 0) \*  
## 6.650e+02) magnet\_belt\_x>=172.5 101 60 C (0.059 0.31 0.41 0.12 0.11)   
## 1.330e+03) pitch\_belt>=-44.05 61 20 C (0.098 0.21 0.67 0.016 0)   
## 2.660e+03) gyros\_arm\_y< -0.475 26 14 B (0.23 0.46 0.27 0.038 0)   
## 5.320e+03) yaw\_arm>=-27.6 11 0 B (0 1 0 0 0) \*  
## 5.321e+03) yaw\_arm< -27.6 15 8 C (0.4 0.067 0.47 0.067 0)   
## 1.064e+04) accel\_arm\_z>=-1.5 8 2 A (0.75 0.12 0 0.12 0)   
## 2.128e+04) accel\_belt\_x< 51.5 6 0 A (1 0 0 0 0) \*  
## 2.128e+04) accel\_belt\_x>=51.5 2 1 B (0 0.5 0 0.5 0) \*  
## 1.064e+04) accel\_arm\_z< -1.5 7 0 C (0 0 1 0 0) \*  
## 2.661e+03) gyros\_arm\_y>=-0.475 35 1 C (0 0.029 0.97 0 0) \*  
## 1.331e+03) pitch\_belt< -44.05 40 22 B (0 0.45 0 0.28 0.28)   
## 2.662e+03) yaw\_arm>=-38.35 18 0 B (0 1 0 0 0) \*  
## 2.663e+03) yaw\_arm< -38.35 22 11 D (0 0 0 0.5 0.5)   
## 5.326e+03) magnet\_belt\_x< 187 11 0 D (0 0 0 1 0) \*  
## 5.327e+03) magnet\_belt\_x>=187 11 0 E (0 0 0 0 1) \*  
## 3.330e+02) pitch\_belt>=-42.85 3792 2652 D (0.24 0.12 0.24 0.3 0.1)   
## 6.660e+02) roll\_belt>=125.5 899 369 C (0.38 0.02 0.59 0.011 0.0033)   
## 1.332e+03) magnet\_belt\_z< -322.5 298 10 A (0.97 0 0.023 0 0.01)   
## 2.664e+03) magnet\_dumbbell\_z< 65.5 292 4 A (0.99 0 0.0034 0 0.01)   
## 5.328e+03) accel\_forearm\_x>=-120 288 0 A (1 0 0 0 0) \*  
## 5.329e+03) accel\_forearm\_x< -120 4 1 E (0 0 0.25 0 0.75) \*  
## 2.665e+03) magnet\_dumbbell\_z>=65.5 6 0 C (0 0 1 0 0) \*  
## 1.333e+03) magnet\_belt\_z>=-322.5 601 78 C (0.083 0.03 0.87 0.017 0)   
## 2.666e+03) magnet\_arm\_z>=639 45 1 A (0.98 0 0.022 0 0) \*  
## 2.667e+03) magnet\_arm\_z< 639 556 34 C (0.011 0.032 0.94 0.018 0)   
## 5.334e+03) accel\_belt\_x>=55.5 13 5 B (0.15 0.62 0.15 0.077 0)   
## 1.067e+04) gyros\_arm\_x< -0.47 8 0 B (0 1 0 0 0) \*  
## 1.067e+04) gyros\_arm\_x>=-0.47 5 3 A (0.4 0 0.4 0.2 0)   
## 2.134e+04) pitch\_belt>=-40.8 2 0 A (1 0 0 0 0) \*  
## 2.134e+04) pitch\_belt< -40.8 3 1 C (0 0 0.67 0.33 0) \*  
## 5.335e+03) accel\_belt\_x< 55.5 543 23 C (0.0074 0.018 0.96 0.017 0)   
## 1.067e+04) yaw\_arm< -121 7 3 B (0.43 0.57 0 0 0)   
## 2.134e+04) yaw\_belt< 163 3 0 A (1 0 0 0 0) \*  
## 2.134e+04) yaw\_belt>=163 4 0 B (0 1 0 0 0) \*  
## 1.067e+04) yaw\_arm>=-121 536 16 C (0.0019 0.011 0.97 0.017 0)   
## 2.134e+04) gyros\_belt\_x>=0.275 3 0 B (0 1 0 0 0) \*  
## 2.134e+04) gyros\_belt\_x< 0.275 533 13 C (0.0019 0.0056 0.98 0.017 0)   
## 4.269e+04) gyros\_belt\_z>=-0.07 3 0 B (0 1 0 0 0) \*  
## 4.269e+04) gyros\_belt\_z< -0.07 530 10 C (0.0019 0 0.98 0.017 0)   
## 8.537e+04) magnet\_belt\_x>=156.5 526 8 C (0.0019 0 0.98 0.013 0)   
## 1.707e+05) gyros\_arm\_x< 2.19 489 3 C (0.002 0 0.99 0.0041 0) \*  
## 1.707e+05) gyros\_arm\_x>=2.19 37 5 C (0 0 0.86 0.14 0)   
## 3.415e+05) gyros\_forearm\_y>=-0.24 32 0 C (0 0 1 0 0) \*  
## 3.415e+05) gyros\_forearm\_y< -0.24 5 0 D (0 0 0 1 0) \*  
## 8.538e+04) magnet\_belt\_x< 156.5 4 2 C (0 0 0.5 0.5 0) \*  
## 6.670e+02) roll\_belt< 125.5 2893 1763 D (0.2 0.15 0.13 0.39 0.14)   
## 1.334e+03) pitch\_belt>=1.035 1879 1433 A (0.24 0.21 0.14 0.23 0.19)   
## 2.668e+03) accel\_dumbbell\_z< 27.5 1212 792 A (0.35 0.13 0.21 0.28 0.037)   
## 5.336e+03) yaw\_forearm>=-94.65 876 456 A (0.48 0.18 0.22 0.082 0.04)   
## 1.067e+04) magnet\_forearm\_z>=-125.5 576 165 A (0.71 0.13 0.017 0.1 0.036)   
## 2.134e+04) accel\_belt\_z>=9 513 102 A (0.8 0.15 0.018 0.029 0.0058)   
## 4.269e+04) magnet\_dumbbell\_x>=-549.5 450 48 A (0.89 0.053 0.02 0.029 0.0044)   
## 8.538e+04) gyros\_forearm\_x>=-1.34 438 37 A (0.92 0.034 0.016 0.03 0.0046)   
## 1.708e+05) yaw\_forearm< 165.5 425 27 A (0.94 0.035 0.016 0.0071 0.0047)   
## 3.415e+05) accel\_forearm\_z>=-225.5 417 20 A (0.95 0.024 0.017 0.0072 0)   
## 6.830e+05) gyros\_forearm\_y>=-3.975 411 15 A (0.96 0.012 0.017 0.0073 0)   
## 1.366e+06) magnet\_dumbbell\_y>=173.5 408 12 A (0.97 0.012 0.015 0.0025 0)   
## 2.732e+06) magnet\_forearm\_z< 898.5 404 9 A (0.98 0.012 0.0074 0.0025 0)   
## 5.464e+06) magnet\_arm\_x< 766 401 7 A (0.98 0.0075 0.0075 0.0025 0)   
## 1.093e+07) magnet\_forearm\_z>=-69.5 389 3 A (0.99 0.0077 0 0 0)   
## 2.186e+07) magnet\_arm\_y< 439 387 2 A (0.99 0.0052 0 0 0)   
## 4.371e+07) pitch\_forearm< 64.85 369 0 A (1 0 0 0 0) \*  
## 4.371e+07) pitch\_forearm>=64.85 18 2 A (0.89 0.11 0 0 0)   
## 8.743e+07) gyros\_forearm\_y< 2.89 16 0 A (1 0 0 0 0) \*  
## 8.743e+07) gyros\_forearm\_y>=2.89 2 0 B (0 1 0 0 0) \*  
## 2.186e+07) magnet\_arm\_y>=439 2 1 A (0.5 0.5 0 0 0) \*  
## 1.093e+07) magnet\_forearm\_z< -69.5 12 4 A (0.67 0 0.25 0.083 0)   
## 2.186e+07) pitch\_belt>=3.085 8 0 A (1 0 0 0 0) \*  
## 2.186e+07) pitch\_belt< 3.085 4 1 C (0 0 0.75 0.25 0) \*  
## 5.464e+06) magnet\_arm\_x>=766 3 1 B (0.33 0.67 0 0 0) \*  
## 2.732e+06) magnet\_forearm\_z>=898.5 4 1 C (0.25 0 0.75 0 0) \*  
## 1.366e+06) magnet\_dumbbell\_y< 173.5 3 1 D (0 0 0.33 0.67 0) \*  
## 6.830e+05) gyros\_forearm\_y< -3.975 6 1 B (0.17 0.83 0 0 0) \*  
## 3.415e+05) accel\_forearm\_z< -225.5 8 3 B (0.12 0.62 0 0 0.25)   
## 6.830e+05) pitch\_dumbbell< 5.552 5 0 B (0 1 0 0 0) \*  
## 6.830e+05) pitch\_dumbbell>=5.552 3 1 E (0.33 0 0 0 0.67) \*  
## 1.708e+05) yaw\_forearm>=165.5 13 3 D (0.23 0 0 0.77 0)   
## 3.415e+05) pitch\_belt>=7.975 3 0 A (1 0 0 0 0) \*  
## 3.415e+05) pitch\_belt< 7.975 10 0 D (0 0 0 1 0) \*  
## 8.538e+04) gyros\_forearm\_x< -1.34 12 3 B (0.083 0.75 0.17 0 0)   
## 1.708e+05) gyros\_arm\_y< 0.175 9 0 B (0 1 0 0 0) \*  
## 1.708e+05) gyros\_arm\_y>=0.175 3 1 C (0.33 0 0.67 0 0) \*  
## 4.269e+04) magnet\_dumbbell\_x< -549.5 63 12 B (0.14 0.81 0 0.032 0.016)   
## 8.538e+04) magnet\_dumbbell\_y>=290.5 16 7 A (0.56 0.25 0 0.12 0.062)   
## 1.708e+05) gyros\_arm\_x< 2.15 12 3 A (0.75 0 0 0.17 0.083)   
## 3.415e+05) roll\_dumbbell>=6.251 9 0 A (1 0 0 0 0) \*  
## 3.415e+05) roll\_dumbbell< 6.251 3 1 D (0 0 0 0.67 0.33) \*  
## 1.708e+05) gyros\_arm\_x>=2.15 4 0 B (0 1 0 0 0) \*  
## 8.538e+04) magnet\_dumbbell\_y< 290.5 47 0 B (0 1 0 0 0) \*  
## 2.134e+04) accel\_belt\_z< 9 63 19 D (0 0 0.016 0.7 0.29)   
## 4.269e+04) yaw\_belt>=-88.45 45 1 D (0 0 0.022 0.98 0) \*  
## 4.269e+04) yaw\_belt< -88.45 18 0 E (0 0 0 0 1) \*  
## 1.067e+04) magnet\_forearm\_z< -125.5 300 115 C (0.03 0.26 0.62 0.043 0.047)   
## 2.135e+04) roll\_dumbbell< -89.49 81 10 B (0 0.88 0.11 0 0.012)   
## 4.269e+04) magnet\_dumbbell\_y>=148 74 4 B (0 0.95 0.041 0 0.014)   
## 8.538e+04) magnet\_forearm\_x>=-731 71 1 B (0 0.99 0 0 0.014) \*  
## 8.538e+04) magnet\_forearm\_x< -731 3 0 C (0 0 1 0 0) \*  
## 4.269e+04) magnet\_dumbbell\_y< 148 7 1 C (0 0.14 0.86 0 0) \*  
## 2.135e+04) roll\_dumbbell>=-89.49 219 43 C (0.041 0.037 0.8 0.059 0.059)   
## 4.269e+04) accel\_dumbbell\_z>=8.5 25 15 E (0.32 0.2 0.04 0.04 0.4)   
## 8.539e+04) magnet\_dumbbell\_x>=-368.5 8 0 A (1 0 0 0 0) \*  
## 8.539e+04) magnet\_dumbbell\_x< -368.5 17 7 E (0 0.29 0.059 0.059 0.59)   
## 1.708e+05) accel\_arm\_y>=168 7 2 B (0 0.71 0 0.14 0.14)   
## 3.416e+05) roll\_belt>=0.695 5 0 B (0 1 0 0 0) \*  
## 3.416e+05) roll\_belt< 0.695 2 1 D (0 0 0 0.5 0.5) \*  
## 1.708e+05) accel\_arm\_y< 168 10 1 E (0 0 0.1 0 0.9) \*  
## 4.270e+04) accel\_dumbbell\_z< 8.5 194 19 C (0.0052 0.015 0.9 0.062 0.015)   
## 8.539e+04) gyros\_belt\_y>=-0.04 185 10 C (0.0054 0.016 0.95 0.016 0.016)   
## 1.708e+05) roll\_belt< 2.135 178 3 C (0.0056 0.011 0.98 0 0)   
## 3.416e+05) accel\_belt\_z>=30.5 2 0 B (0 1 0 0 0) \*  
## 3.416e+05) accel\_belt\_z< 30.5 176 1 C (0.0057 0 0.99 0 0) \*  
## 1.708e+05) roll\_belt>=2.135 7 4 D (0 0.14 0 0.43 0.43)   
## 3.416e+05) gyros\_arm\_y< -0.41 4 1 D (0 0.25 0 0.75 0) \*  
## 3.416e+05) gyros\_arm\_y>=-0.41 3 0 E (0 0 0 0 1) \*  
## 8.539e+04) gyros\_belt\_y< -0.04 9 0 D (0 0 0 1 0) \*  
## 5.337e+03) yaw\_forearm< -94.65 336 74 D (0 0.027 0.16 0.78 0.03)   
## 1.067e+04) magnet\_dumbbell\_y< 263 65 22 C (0 0.062 0.66 0.14 0.14)   
## 2.135e+04) gyros\_belt\_y< 0.025 53 10 C (0 0.075 0.81 0.094 0.019)   
## 4.270e+04) magnet\_dumbbell\_x>=-589 48 5 C (0 0.083 0.9 0 0.021)   
## 8.539e+04) yaw\_arm>=104.6 4 0 B (0 1 0 0 0) \*  
## 8.539e+04) yaw\_arm< 104.6 44 1 C (0 0 0.98 0 0.023) \*  
## 4.270e+04) magnet\_dumbbell\_x< -589 5 0 D (0 0 0 1 0) \*  
## 2.135e+04) gyros\_belt\_y>=0.025 12 4 E (0 0 0 0.33 0.67)   
## 4.270e+04) pitch\_belt< 4.485 4 0 D (0 0 0 1 0) \*  
## 4.270e+04) pitch\_belt>=4.485 8 0 E (0 0 0 0 1) \*  
## 1.068e+04) magnet\_dumbbell\_y>=263 271 18 D (0 0.018 0.044 0.93 0.0037)   
## 2.135e+04) accel\_arm\_y>=184.5 8 2 C (0 0.25 0.75 0 0)   
## 4.270e+04) pitch\_belt>=4.435 2 0 B (0 1 0 0 0) \*  
## 4.270e+04) pitch\_belt< 4.435 6 0 C (0 0 1 0 0) \*  
## 2.135e+04) accel\_arm\_y< 184.5 263 10 D (0 0.011 0.023 0.96 0.0038)   
## 4.270e+04) roll\_arm< -43.15 8 2 C (0 0.25 0.75 0 0)   
## 8.540e+04) pitch\_belt>=14.85 2 0 B (0 1 0 0 0) \*  
## 8.540e+04) pitch\_belt< 14.85 6 0 C (0 0 1 0 0) \*  
## 4.270e+04) roll\_arm>=-43.15 255 2 D (0 0.0039 0 0.99 0.0039)   
## 8.541e+04) gyros\_dumbbell\_y< -0.63 2 1 B (0 0.5 0 0 0.5) \*  
## 8.541e+04) gyros\_dumbbell\_y>=-0.63 253 0 D (0 0 0 1 0) \*  
## 2.669e+03) accel\_dumbbell\_z>=27.5 667 361 E (0.039 0.36 0.01 0.13 0.46)   
## 5.338e+03) roll\_dumbbell< 36.7 215 41 B (0.033 0.81 0.033 0.042 0.084)   
## 1.068e+04) magnet\_dumbbell\_y>=218.5 189 16 B (0.016 0.92 0.037 0 0.032)   
## 2.135e+04) pitch\_arm>=-42.6 178 8 B (0.011 0.96 0 0 0.034)   
## 4.270e+04) magnet\_forearm\_x< 312 171 2 B (0.0058 0.99 0 0 0.0058) \*  
## 4.270e+04) magnet\_forearm\_x>=312 7 2 E (0.14 0.14 0 0 0.71)   
## 8.541e+04) roll\_arm>=84.15 2 1 A (0.5 0.5 0 0 0) \*  
## 8.541e+04) roll\_arm< 84.15 5 0 E (0 0 0 0 1) \*  
## 2.135e+04) pitch\_arm< -42.6 11 4 C (0.091 0.27 0.64 0 0)   
## 4.271e+04) gyros\_arm\_y< 1.195 4 1 B (0.25 0.75 0 0 0) \*  
## 4.271e+04) gyros\_arm\_y>=1.195 7 0 C (0 0 1 0 0) \*  
## 1.068e+04) magnet\_dumbbell\_y< 218.5 26 14 E (0.15 0.038 0 0.35 0.46)   
## 2.135e+04) accel\_forearm\_z< 196.5 14 5 D (0.29 0.071 0 0.64 0)   
## 4.271e+04) roll\_arm>=130 5 1 A (0.8 0.2 0 0 0) \*  
## 4.271e+04) roll\_arm< 130 9 0 D (0 0 0 1 0) \*  
## 2.136e+04) accel\_forearm\_z>=196.5 12 0 E (0 0 0 0 1) \*  
## 5.339e+03) roll\_dumbbell>=36.7 452 164 E (0.042 0.14 0 0.18 0.64)   
## 1.068e+04) roll\_dumbbell< 53.36 199 130 E (0.08 0.23 0 0.34 0.35)   
## 2.136e+04) magnet\_dumbbell\_y>=319 59 15 B (0.24 0.75 0 0 0.017)   
## 4.271e+04) magnet\_forearm\_y>=1195 14 0 A (1 0 0 0 0) \*  
## 4.271e+04) magnet\_forearm\_y< 1195 45 1 B (0 0.98 0 0 0.022) \*  
## 2.136e+04) magnet\_dumbbell\_y< 319 140 72 D (0.014 0.014 0 0.49 0.49)   
## 4.271e+04) gyros\_dumbbell\_x< -0.36 69 7 D (0.029 0 0 0.9 0.072)   
## 8.543e+04) gyros\_arm\_y< 0.38 64 2 D (0.016 0 0 0.97 0.016)   
## 1.709e+05) gyros\_dumbbell\_y>=0.595 2 1 A (0.5 0 0 0 0.5) \*  
## 1.709e+05) gyros\_dumbbell\_y< 0.595 62 0 D (0 0 0 1 0) \*  
## 8.543e+04) gyros\_arm\_y>=0.38 5 1 E (0.2 0 0 0 0.8) \*  
## 4.272e+04) gyros\_dumbbell\_x>=-0.36 71 8 E (0 0.028 0 0.085 0.89)   
## 8.543e+04) gyros\_arm\_y< -1.205 7 1 D (0 0 0 0.86 0.14) \*  
## 8.543e+04) gyros\_arm\_y>=-1.205 64 2 E (0 0.031 0 0 0.97)   
## 1.709e+05) roll\_belt>=1.9 2 0 B (0 1 0 0 0) \*  
## 1.709e+05) roll\_belt< 1.9 62 0 E (0 0 0 0 1) \*  
## 1.068e+04) roll\_dumbbell>=53.36 253 34 E (0.012 0.075 0 0.047 0.87)   
## 2.136e+04) magnet\_dumbbell\_x< -482 40 24 B (0.025 0.4 0 0.25 0.33)   
## 4.272e+04) gyros\_belt\_z< 0.04 28 12 B (0.036 0.57 0 0.36 0.036)   
## 8.543e+04) accel\_dumbbell\_z>=36 15 1 B (0 0.93 0 0 0.067) \*  
## 8.543e+04) accel\_dumbbell\_z< 36 13 3 D (0.077 0.15 0 0.77 0)   
## 1.709e+05) total\_accel\_arm>=23.5 3 1 B (0.33 0.67 0 0 0) \*  
## 1.709e+05) total\_accel\_arm< 23.5 10 0 D (0 0 0 1 0) \*  
## 4.272e+04) gyros\_belt\_z>=0.04 12 0 E (0 0 0 0 1) \*  
## 2.136e+04) magnet\_dumbbell\_x>=-482 213 7 E (0.0094 0.014 0 0.0094 0.97)   
## 4.272e+04) magnet\_forearm\_z>=294 4 1 B (0 0.75 0 0.25 0) \*  
## 4.272e+04) magnet\_forearm\_z< 294 209 3 E (0.0096 0 0 0.0048 0.99) \*  
## 1.335e+03) pitch\_belt< 1.035 1014 307 D (0.13 0.028 0.11 0.7 0.039)   
## 2.670e+03) yaw\_arm< -110.5 128 0 A (1 0 0 0 0) \*  
## 2.671e+03) yaw\_arm>=-110.5 886 179 D (0.0034 0.032 0.12 0.8 0.045)   
## 5.342e+03) magnet\_belt\_x>=166.5 117 47 C (0 0.0085 0.6 0.3 0.094)   
## 1.068e+04) pitch\_belt< -42.05 65 8 C (0 0.015 0.88 0.11 0)   
## 2.137e+04) roll\_dumbbell< 61.38 57 0 C (0 0 1 0 0) \*  
## 2.137e+04) roll\_dumbbell>=61.38 8 1 D (0 0.13 0 0.88 0) \*  
## 1.068e+04) pitch\_belt>=-42.05 52 24 D (0 0 0.25 0.54 0.21)   
## 2.137e+04) pitch\_belt< -41.1 41 13 D (0 0 0.32 0.68 0)   
## 4.274e+04) magnet\_dumbbell\_z>=70.5 11 2 C (0 0 0.82 0.18 0)   
## 8.548e+04) total\_accel\_forearm< 48.5 9 0 C (0 0 1 0 0) \*  
## 8.548e+04) total\_accel\_forearm>=48.5 2 0 D (0 0 0 1 0) \*  
## 4.274e+04) magnet\_dumbbell\_z< 70.5 30 4 D (0 0 0.13 0.87 0)   
## 8.548e+04) magnet\_forearm\_x>=-7 5 1 C (0 0 0.8 0.2 0) \*  
## 8.548e+04) magnet\_forearm\_x< -7 25 0 D (0 0 0 1 0) \*  
## 2.137e+04) pitch\_belt>=-41.1 11 0 E (0 0 0 0 1) \*  
## 5.343e+03) magnet\_belt\_x< 166.5 769 97 D (0.0039 0.035 0.049 0.87 0.038)   
## 1.069e+04) pitch\_forearm< 20.85 743 72 D (0.004 0.036 0.051 0.9 0.0054)   
## 2.137e+04) pitch\_belt< -42.55 25 5 B (0 0.8 0.2 0 0)   
## 4.274e+04) magnet\_arm\_y< 316 20 0 B (0 1 0 0 0) \*  
## 4.274e+04) magnet\_arm\_y>=316 5 0 C (0 0 1 0 0) \*  
## 2.137e+04) pitch\_belt>=-42.55 718 47 D (0.0042 0.0097 0.046 0.93 0.0056)   
## 4.275e+04) accel\_dumbbell\_x>=76 6 0 B (0 1 0 0 0) \*  
## 4.275e+04) accel\_dumbbell\_x< 76 712 41 D (0.0042 0.0014 0.046 0.94 0.0056)   
## 8.549e+04) accel\_forearm\_y< 38 6 2 E (0.33 0 0 0 0.67)   
## 1.710e+05) roll\_belt< 4.325 2 0 A (1 0 0 0 0) \*  
## 1.710e+05) roll\_belt>=4.325 4 0 E (0 0 0 0 1) \*  
## 8.550e+04) accel\_forearm\_y>=38 706 35 D (0.0014 0.0014 0.047 0.95 0)   
## 1.710e+05) pitch\_belt< -42.05 104 23 D (0 0 0.22 0.78 0)   
## 3.420e+05) magnet\_dumbbell\_y< 296 24 1 C (0 0 0.96 0.042 0) \*  
## 3.420e+05) magnet\_dumbbell\_y>=296 80 0 D (0 0 0 1 0) \*  
## 1.710e+05) pitch\_belt>=-42.05 602 12 D (0.0017 0.0017 0.017 0.98 0)   
## 3.420e+05) accel\_belt\_x>=54.5 2 0 C (0 0 1 0 0) \*  
## 3.420e+05) accel\_belt\_x< 54.5 600 10 D (0.0017 0.0017 0.013 0.98 0)   
## 6.840e+05) accel\_dumbbell\_z>=114 2 1 B (0 0.5 0 0.5 0) \*  
## 6.840e+05) accel\_dumbbell\_z< 114 598 9 D (0.0017 0 0.013 0.98 0)   
## 1.368e+06) yaw\_arm< -68.5 81 7 D (0 0 0.086 0.91 0)   
## 2.736e+06) accel\_forearm\_y< 296 4 0 C (0 0 1 0 0) \*  
## 2.736e+06) accel\_forearm\_y>=296 77 3 D (0 0 0.039 0.96 0)   
## 5.472e+06) magnet\_forearm\_y< 532 2 0 C (0 0 1 0 0) \*  
## 5.472e+06) magnet\_forearm\_y>=532 75 1 D (0 0 0.013 0.99 0) \*  
## 1.368e+06) yaw\_arm>=-68.5 517 2 D (0.0019 0 0.0019 1 0) \*  
## 1.069e+04) pitch\_forearm>=20.85 26 1 E (0 0 0 0.038 0.96) \*  
## 1.670e+02) accel\_dumbbell\_y< -40.5 683 85 C (0.0088 0.044 0.88 0.031 0.041)   
## 3.340e+02) yaw\_belt< 4.24 645 48 C (0.0093 0.047 0.93 0.017 0.0016)   
## 6.680e+02) gyros\_dumbbell\_y< -0.25 29 11 B (0.14 0.62 0.17 0.069 0)   
## 1.336e+03) magnet\_forearm\_z< -183 20 2 B (0 0.9 0.1 0 0)   
## 2.672e+03) gyros\_forearm\_y< 0.185 18 0 B (0 1 0 0 0) \*  
## 2.673e+03) gyros\_forearm\_y>=0.185 2 0 C (0 0 1 0 0) \*  
## 1.337e+03) magnet\_forearm\_z>=-183 9 5 A (0.44 0 0.33 0.22 0)   
## 2.674e+03) gyros\_dumbbell\_z>=-0.345 4 0 A (1 0 0 0 0) \*  
## 2.675e+03) gyros\_dumbbell\_z< -0.345 5 2 C (0 0 0.6 0.4 0)   
## 5.350e+03) roll\_belt< 60.77 3 0 C (0 0 1 0 0) \*  
## 5.351e+03) roll\_belt>=60.77 2 0 D (0 0 0 1 0) \*  
## 6.690e+02) gyros\_dumbbell\_y>=-0.25 616 24 C (0.0032 0.019 0.96 0.015 0.0016)   
## 1.338e+03) pitch\_belt>=14.95 15 9 D (0.067 0.33 0.2 0.4 0)   
## 2.676e+03) gyros\_arm\_x< 0.52 9 4 B (0.11 0.56 0.33 0 0)   
## 5.352e+03) roll\_belt< 118.5 5 0 B (0 1 0 0 0) \*  
## 5.353e+03) roll\_belt>=118.5 4 1 C (0.25 0 0.75 0 0) \*  
## 2.677e+03) gyros\_arm\_x>=0.52 6 0 D (0 0 0 1 0) \*  
## 1.339e+03) pitch\_belt< 14.95 601 12 C (0.0017 0.012 0.98 0.005 0.0017)   
## 2.678e+03) gyros\_belt\_z>=0.05 4 1 B (0 0.75 0 0 0.25) \*  
## 2.679e+03) gyros\_belt\_z< 0.05 597 8 C (0.0017 0.0067 0.99 0.005 0)   
## 5.358e+03) gyros\_dumbbell\_x< -0.23 3 0 B (0 1 0 0 0) \*  
## 5.359e+03) gyros\_dumbbell\_x>=-0.23 594 5 C (0.0017 0.0017 0.99 0.0051 0)   
## 1.072e+04) magnet\_belt\_x>=2.5 591 3 C (0.0017 0 0.99 0.0034 0)   
## 2.144e+04) gyros\_dumbbell\_x>=0.25 2 1 A (0.5 0 0.5 0 0) \*  
## 2.144e+04) gyros\_dumbbell\_x< 0.25 589 2 C (0 0 1 0.0034 0)   
## 4.287e+04) pitch\_forearm< 49.25 576 0 C (0 0 1 0 0) \*  
## 4.288e+04) pitch\_forearm>=49.25 13 2 C (0 0 0.85 0.15 0)   
## 8.575e+04) pitch\_belt< 14.55 11 0 C (0 0 1 0 0) \*  
## 8.575e+04) pitch\_belt>=14.55 2 0 D (0 0 0 1 0) \*  
## 1.072e+04) magnet\_belt\_x< 2.5 3 2 B (0 0.33 0.33 0.33 0) \*  
## 3.350e+02) yaw\_belt>=4.24 38 11 E (0 0 0.026 0.26 0.71)   
## 6.700e+02) roll\_belt< 125 11 1 D (0 0 0.091 0.91 0) \*  
## 6.710e+02) roll\_belt>=125 27 0 E (0 0 0 0 1) \*  
## 2.100e+01) roll\_forearm>=123.5 5227 3500 C (0.077 0.18 0.33 0.23 0.18)   
## 4.200e+01) magnet\_dumbbell\_y< 290.5 3047 1569 C (0.093 0.13 0.49 0.15 0.14)   
## 8.400e+01) magnet\_forearm\_z< -251 238 49 A (0.79 0.071 0 0.046 0.088)   
## 1.680e+02) roll\_forearm< 175.5 194 5 A (0.97 0.026 0 0 0)   
## 3.360e+02) pitch\_forearm< 21.7 189 0 A (1 0 0 0 0) \*  
## 3.370e+02) pitch\_forearm>=21.7 5 0 B (0 1 0 0 0) \*  
## 1.690e+02) roll\_forearm>=175.5 44 23 E (0 0.27 0 0.25 0.48)   
## 3.380e+02) roll\_dumbbell< 39.57 23 11 B (0 0.52 0 0.48 0)   
## 6.760e+02) pitch\_forearm>=15.65 12 0 B (0 1 0 0 0) \*  
## 6.770e+02) pitch\_forearm< 15.65 11 0 D (0 0 0 1 0) \*  
## 3.390e+02) roll\_dumbbell>=39.57 21 0 E (0 0 0 0 1) \*  
## 8.500e+01) magnet\_forearm\_z>=-251 2809 1331 C (0.033 0.14 0.53 0.16 0.15)   
## 1.700e+02) pitch\_belt>=26.15 190 40 B (0.1 0.79 0.032 0 0.079)   
## 3.400e+02) gyros\_belt\_z< -0.35 178 28 B (0.11 0.84 0.034 0 0.017)   
## 6.800e+02) roll\_arm< -31.45 26 9 A (0.65 0.35 0 0 0)   
## 1.360e+03) magnet\_arm\_z>=-150.5 17 0 A (1 0 0 0 0) \*  
## 1.361e+03) magnet\_arm\_z< -150.5 9 0 B (0 1 0 0 0) \*  
## 6.810e+02) roll\_arm>=-31.45 152 11 B (0.013 0.93 0.039 0 0.02)   
## 1.362e+03) gyros\_forearm\_z>=-1.69 146 5 B (0.014 0.97 0 0 0.021)   
## 2.724e+03) roll\_belt< 126 143 2 B (0.014 0.99 0 0 0)   
## 5.448e+03) pitch\_forearm>=74.9 2 0 A (1 0 0 0 0) \*  
## 5.449e+03) pitch\_forearm< 74.9 141 0 B (0 1 0 0 0) \*  
## 2.725e+03) roll\_belt>=126 3 0 E (0 0 0 0 1) \*  
## 1.363e+03) gyros\_forearm\_z< -1.69 6 0 C (0 0 1 0 0) \*  
## 3.410e+02) gyros\_belt\_z>=-0.35 12 0 E (0 0 0 0 1) \*  
## 1.710e+02) pitch\_belt< 26.15 2619 1147 C (0.028 0.092 0.56 0.17 0.15)   
## 3.420e+02) accel\_arm\_x< 198.5 2071 773 C (0.026 0.097 0.63 0.082 0.17)   
## 6.840e+02) gyros\_belt\_z< 0.075 1888 590 C (0.028 0.11 0.69 0.042 0.14)   
## 1.368e+03) magnet\_dumbbell\_z< 284.5 1679 403 C (0.011 0.086 0.76 0.041 0.1)   
## 2.736e+03) pitch\_belt>=0.6 1629 353 C (0.011 0.088 0.78 0.042 0.076)   
## 5.472e+03) roll\_belt>=0.34 1550 288 C (0.012 0.086 0.81 0.04 0.048)   
## 1.094e+04) gyros\_forearm\_z< -0.63 162 88 B (0.049 0.46 0.46 0.031 0.0062)   
## 2.189e+04) gyros\_forearm\_y< -3.33 104 33 B (0.0096 0.68 0.3 0.0096 0)   
## 4.378e+04) accel\_dumbbell\_x>=-11.5 49 0 B (0 1 0 0 0) \*  
## 4.378e+04) accel\_dumbbell\_x< -11.5 55 24 C (0.018 0.4 0.56 0.018 0)   
## 8.755e+04) magnet\_arm\_y>=360.5 24 4 B (0 0.83 0.17 0 0)   
## 1.751e+05) roll\_forearm>=136.5 21 1 B (0 0.95 0.048 0 0) \*  
## 1.751e+05) roll\_forearm< 136.5 3 0 C (0 0 1 0 0) \*  
## 8.756e+04) magnet\_arm\_y< 360.5 31 4 C (0.032 0.065 0.87 0.032 0)   
## 1.751e+05) accel\_belt\_z>=26.5 4 2 B (0.25 0.5 0 0.25 0) \*  
## 1.751e+05) accel\_belt\_z< 26.5 27 0 C (0 0 1 0 0) \*  
## 2.189e+04) gyros\_forearm\_y>=-3.33 58 15 C (0.12 0.052 0.74 0.069 0.017)   
## 4.378e+04) magnet\_forearm\_x>=141.5 7 0 A (1 0 0 0 0) \*  
## 4.378e+04) magnet\_forearm\_x< 141.5 51 8 C (0 0.059 0.84 0.078 0.02)   
## 8.756e+04) magnet\_dumbbell\_x< 284 46 3 C (0 0.043 0.93 0.022 0)   
## 1.751e+05) magnet\_belt\_x>=58 2 0 B (0 1 0 0 0) \*  
## 1.751e+05) magnet\_belt\_x< 58 44 1 C (0 0 0.98 0.023 0) \*  
## 8.756e+04) magnet\_dumbbell\_x>=284 5 2 D (0 0.2 0 0.6 0.2)   
## 1.751e+05) total\_accel\_belt>=20.5 2 1 B (0 0.5 0 0 0.5) \*  
## 1.751e+05) total\_accel\_belt< 20.5 3 0 D (0 0 0 1 0) \*  
## 1.094e+04) gyros\_forearm\_z>=-0.63 1388 200 C (0.0072 0.043 0.86 0.041 0.053)   
## 2.189e+04) magnet\_dumbbell\_z>=-131.5 1343 163 C (0.0052 0.037 0.88 0.042 0.036)   
## 4.378e+04) magnet\_forearm\_z< 823.5 1320 145 C (0.0053 0.031 0.89 0.043 0.03)   
## 8.756e+04) roll\_belt< 125 1312 137 C (0.0053 0.031 0.9 0.043 0.024)   
## 1.751e+05) gyros\_dumbbell\_y< 0.36 1261 110 C (0.0056 0.027 0.91 0.036 0.018)   
## 3.502e+05) pitch\_forearm>=56.15 10 4 A (0.6 0 0 0.4 0)   
## 7.005e+05) roll\_belt>=121.5 6 0 A (1 0 0 0 0) \*  
## 7.005e+05) roll\_belt< 121.5 4 0 D (0 0 0 1 0) \*  
## 3.502e+05) pitch\_forearm< 56.15 1251 100 C (0.0008 0.027 0.92 0.034 0.018)   
## 7.005e+05) accel\_forearm\_y>=400.5 12 4 B (0 0.67 0.33 0 0)   
## 1.401e+06) accel\_arm\_x< -151.5 8 0 B (0 1 0 0 0) \*  
## 1.401e+06) accel\_arm\_x>=-151.5 4 0 C (0 0 1 0 0) \*  
## 7.005e+05) accel\_forearm\_y< 400.5 1239 92 C (0.00081 0.021 0.93 0.034 0.019)   
## 1.401e+06) pitch\_forearm< -21.3 4 0 B (0 1 0 0 0) \*  
## 1.401e+06) pitch\_forearm>=-21.3 1235 88 C (0.00081 0.018 0.93 0.034 0.019)   
## 2.802e+06) yaw\_belt>=-93.65 1231 84 C (0.00081 0.018 0.93 0.031 0.019)   
## 5.604e+06) total\_accel\_arm>=3.5 1228 81 C (0.00081 0.018 0.93 0.029 0.019)   
## 1.121e+07) magnet\_dumbbell\_y< 286.5 1201 70 C (0.00083 0.017 0.94 0.027 0.012)   
## 2.242e+07) accel\_dumbbell\_y>=161.5 15 7 C (0 0.4 0.53 0.067 0)   
## 4.483e+07) accel\_belt\_z< 40 7 1 B (0 0.86 0 0.14 0) \*  
## 4.483e+07) accel\_belt\_z>=40 8 0 C (0 0 1 0 0) \*  
## 2.242e+07) accel\_dumbbell\_y< 161.5 1186 63 C (0.00084 0.013 0.95 0.027 0.013)   
## 4.483e+07) gyros\_belt\_y>=-0.055 1180 59 C (0.00085 0.013 0.95 0.025 0.012)   
## 8.966e+07) yaw\_belt>=-93.15 1096 45 C (0.00091 0.013 0.96 0.026 0.00091)   
## 1.793e+08) roll\_forearm< 125 2 1 B (0 0.5 0 0.5 0) \*  
## 1.793e+08) roll\_forearm>=125 1094 43 C (0.00091 0.012 0.96 0.026 0.00091)   
## 3.586e+08) gyros\_forearm\_y< -3.96 23 6 C (0 0.26 0.74 0 0)   
## 7.173e+08) pitch\_belt>=5.47 6 0 B (0 1 0 0 0) \*  
## 7.173e+08) pitch\_belt< 5.47 17 0 C (0 0 1 0 0) \*  
## 3.586e+08) gyros\_forearm\_y>=-3.96 1071 37 C (0.00093 0.0065 0.97 0.026 0.00093)   
## 7.173e+08) yaw\_belt< -87.65 731 9 C (0.0014 0.0096 0.99 0 0.0014)   
## 1.435e+09) roll\_forearm< 128.5 5 1 B (0 0.8 0.2 0 0) \*  
## 1.435e+09) roll\_forearm>=128.5 726 5 C (0.0014 0.0041 0.99 0 0.0014) \*  
## 7.173e+08) yaw\_belt>=-87.65 340 28 C (0 0 0.92 0.082 0) \*  
## 8.966e+07) yaw\_belt< -93.15 84 14 C (0 0.012 0.83 0 0.15)   
## 1.793e+08) magnet\_forearm\_y< 725.5 69 1 C (0 0.014 0.99 0 0) \*  
## 1.793e+08) magnet\_forearm\_y>=725.5 15 2 E (0 0 0.13 0 0.87)   
## 3.586e+08) gyros\_arm\_x>=0.795 2 0 C (0 0 1 0 0) \*  
## 3.586e+08) gyros\_arm\_x< 0.795 13 0 E (0 0 0 0 1) \*  
## 4.483e+07) gyros\_belt\_y< -0.055 6 3 D (0 0 0.33 0.5 0.17)   
## 8.966e+07) magnet\_belt\_y>=582.5 3 1 C (0 0 0.67 0 0.33) \*  
## 8.966e+07) magnet\_belt\_y< 582.5 3 0 D (0 0 0 1 0) \*  
## 1.121e+07) magnet\_dumbbell\_y>=286.5 27 11 C (0 0.037 0.59 0.074 0.3)   
## 2.242e+07) pitch\_belt< 6.345 21 5 C (0 0.048 0.76 0.095 0.095)   
## 4.483e+07) gyros\_arm\_x< 3.355 19 3 C (0 0.053 0.84 0.11 0)   
## 8.966e+07) pitch\_belt>=3.985 17 1 C (0 0.059 0.94 0 0) \*  
## 8.966e+07) pitch\_belt< 3.985 2 0 D (0 0 0 1 0) \*  
## 4.483e+07) gyros\_arm\_x>=3.355 2 0 E (0 0 0 0 1) \*  
## 2.242e+07) pitch\_belt>=6.345 6 0 E (0 0 0 0 1) \*  
## 5.604e+06) total\_accel\_arm< 3.5 3 0 D (0 0 0 1 0) \*  
## 2.802e+06) yaw\_belt< -93.65 4 0 D (0 0 0 1 0) \*  
## 1.751e+05) gyros\_dumbbell\_y>=0.36 51 27 C (0 0.14 0.47 0.22 0.18)   
## 3.502e+05) gyros\_forearm\_y< 0.355 29 6 C (0 0.14 0.79 0 0.069)   
## 7.005e+05) magnet\_arm\_x< -302.5 4 0 B (0 1 0 0 0) \*  
## 7.005e+05) magnet\_arm\_x>=-302.5 25 2 C (0 0 0.92 0 0.08)   
## 1.401e+06) gyros\_belt\_x< 0.095 23 0 C (0 0 1 0 0) \*  
## 1.401e+06) gyros\_belt\_x>=0.095 2 0 E (0 0 0 0 1) \*  
## 3.502e+05) gyros\_forearm\_y>=0.355 22 11 D (0 0.14 0.045 0.5 0.32)   
## 7.005e+05) roll\_belt< 2.14 15 4 D (0 0.2 0.067 0.73 0)   
## 1.401e+06) roll\_dumbbell>=65.33 2 0 B (0 1 0 0 0) \*  
## 1.401e+06) roll\_dumbbell< 65.33 13 2 D (0 0.077 0.077 0.85 0)   
## 2.802e+06) accel\_forearm\_y< 174.5 2 1 B (0 0.5 0.5 0 0) \*  
## 2.802e+06) accel\_forearm\_y>=174.5 11 0 D (0 0 0 1 0) \*  
## 7.005e+05) roll\_belt>=2.14 7 0 E (0 0 0 0 1) \*  
## 8.756e+04) roll\_belt>=125 8 0 E (0 0 0 0 1) \*  
## 4.378e+04) magnet\_forearm\_z>=823.5 23 14 B (0 0.39 0.22 0 0.39)   
## 8.756e+04) yaw\_belt>=-88.4 14 5 B (0 0.64 0.36 0 0)   
## 1.751e+05) accel\_arm\_x< -248.5 9 0 B (0 1 0 0 0) \*  
## 1.751e+05) accel\_arm\_x>=-248.5 5 0 C (0 0 1 0 0) \*  
## 8.756e+04) yaw\_belt< -88.4 9 0 E (0 0 0 0 1) \*  
## 2.189e+04) magnet\_dumbbell\_z< -131.5 45 21 E (0.067 0.22 0.18 0 0.53)   
## 4.378e+04) gyros\_belt\_x< -0.12 21 11 B (0.14 0.48 0.38 0 0)   
## 8.756e+04) yaw\_belt< -3.905 10 0 B (0 1 0 0 0) \*  
## 8.756e+04) yaw\_belt>=-3.905 11 3 C (0.27 0 0.73 0 0)   
## 1.751e+05) roll\_arm< 19.75 3 0 A (1 0 0 0 0) \*  
## 1.751e+05) roll\_arm>=19.75 8 0 C (0 0 1 0 0) \*  
## 4.378e+04) gyros\_belt\_x>=-0.12 24 0 E (0 0 0 0 1) \*  
## 5.473e+03) roll\_belt< 0.34 79 30 E (0 0.13 0.18 0.076 0.62)   
## 1.095e+04) roll\_forearm< 135.5 14 0 C (0 0 1 0 0) \*  
## 1.095e+04) roll\_forearm>=135.5 65 16 E (0 0.15 0 0.092 0.75)   
## 2.189e+04) roll\_forearm>=157.5 15 6 B (0 0.6 0 0.4 0)   
## 4.379e+04) roll\_arm< 40.75 9 0 B (0 1 0 0 0) \*  
## 4.379e+04) roll\_arm>=40.75 6 0 D (0 0 0 1 0) \*  
## 2.190e+04) roll\_forearm< 157.5 50 1 E (0 0.02 0 0 0.98) \*  
## 2.737e+03) pitch\_belt< 0.6 50 0 E (0 0 0 0 1) \*  
## 1.369e+03) magnet\_dumbbell\_z>=284.5 209 125 E (0.17 0.27 0.11 0.057 0.4)   
## 2.738e+03) accel\_dumbbell\_y< 23 115 60 B (0.3 0.48 0.19 0.026 0)   
## 5.476e+03) gyros\_dumbbell\_x< 0.355 45 10 A (0.78 0 0.16 0.067 0)   
## 1.095e+04) pitch\_forearm< 6.78 35 0 A (1 0 0 0 0) \*  
## 1.095e+04) pitch\_forearm>=6.78 10 3 C (0 0 0.7 0.3 0)   
## 2.191e+04) gyros\_dumbbell\_x>=-0.145 7 0 C (0 0 1 0 0) \*  
## 2.191e+04) gyros\_dumbbell\_x< -0.145 3 0 D (0 0 0 1 0) \*  
## 5.477e+03) gyros\_dumbbell\_x>=0.355 70 15 B (0 0.79 0.21 0 0)   
## 1.095e+04) yaw\_belt>=-89.3 54 0 B (0 1 0 0 0) \*  
## 1.096e+04) yaw\_belt< -89.3 16 1 C (0 0.063 0.94 0 0) \*  
## 2.739e+03) accel\_dumbbell\_y>=23 94 10 E (0 0.011 0 0.096 0.89)   
## 5.478e+03) pitch\_belt< 1.34 9 0 D (0 0 0 1 0) \*  
## 5.479e+03) pitch\_belt>=1.34 85 1 E (0 0.012 0 0 0.99) \*  
## 6.850e+02) gyros\_belt\_z>=0.075 183 90 E (0 0 0 0.49 0.51)   
## 1.370e+03) magnet\_forearm\_z< 156.5 92 2 D (0 0 0 0.98 0.022)   
## 2.740e+03) pitch\_belt< 3.27 90 0 D (0 0 0 1 0) \*  
## 2.741e+03) pitch\_belt>=3.27 2 0 E (0 0 0 0 1) \*  
## 1.371e+03) magnet\_forearm\_z>=156.5 91 0 E (0 0 0 0 1) \*  
## 3.430e+02) accel\_arm\_x>=198.5 548 280 D (0.038 0.073 0.32 0.49 0.082)   
## 6.860e+02) pitch\_forearm< 21.35 203 32 C (0 0.069 0.84 0.069 0.02)   
## 1.372e+03) roll\_forearm>=128.5 178 11 C (0 0.039 0.94 0 0.022)   
## 2.744e+03) roll\_dumbbell< -87.79 11 5 B (0 0.55 0.18 0 0.27)   
## 5.488e+03) roll\_belt< 122.5 6 0 B (0 1 0 0 0) \*  
## 5.489e+03) roll\_belt>=122.5 5 2 E (0 0 0.4 0 0.6)   
## 1.098e+04) pitch\_belt>=24.6 2 0 C (0 0 1 0 0) \*  
## 1.098e+04) pitch\_belt< 24.6 3 0 E (0 0 0 0 1) \*  
## 2.745e+03) roll\_dumbbell>=-87.79 167 2 C (0 0.006 0.99 0 0.006) \*  
## 1.373e+03) roll\_forearm< 128.5 25 11 D (0 0.28 0.16 0.56 0)   
## 2.746e+03) yaw\_belt>=-4.14 7 0 B (0 1 0 0 0) \*  
## 2.747e+03) yaw\_belt< -4.14 18 4 D (0 0 0.22 0.78 0)   
## 5.494e+03) yaw\_belt< -5.86 4 0 C (0 0 1 0 0) \*  
## 5.495e+03) yaw\_belt>=-5.86 14 0 D (0 0 0 1 0) \*  
## 6.870e+02) pitch\_forearm>=21.35 345 91 D (0.061 0.075 0.0087 0.74 0.12)   
## 1.374e+03) yaw\_belt>=-4.135 84 43 E (0.2 0.26 0.036 0.012 0.49)   
## 2.748e+03) yaw\_belt< 3.685 45 23 B (0.38 0.49 0.067 0.022 0.044)   
## 5.496e+03) magnet\_arm\_y>=41.5 23 6 A (0.74 0 0.13 0.043 0.087)   
## 1.099e+04) roll\_belt>=122.5 16 0 A (1 0 0 0 0) \*  
## 1.099e+04) roll\_belt< 122.5 7 4 C (0.14 0 0.43 0.14 0.29)   
## 2.199e+04) yaw\_belt>=-3.405 3 0 C (0 0 1 0 0) \*  
## 2.199e+04) yaw\_belt< -3.405 4 2 E (0.25 0 0 0.25 0.5) \*  
## 5.497e+03) magnet\_arm\_y< 41.5 22 0 B (0 1 0 0 0) \*  
## 2.749e+03) yaw\_belt>=3.685 39 0 E (0 0 0 0 1) \*  
## 1.375e+03) yaw\_belt< -4.135 261 8 D (0.015 0.015 0 0.97 0)   
## 2.750e+03) yaw\_arm< -40.35 6 2 B (0.33 0.67 0 0 0)   
## 5.500e+03) gyros\_belt\_x< -0.52 2 0 A (1 0 0 0 0) \*  
## 5.501e+03) gyros\_belt\_x>=-0.52 4 0 B (0 1 0 0 0) \*  
## 2.751e+03) yaw\_arm>=-40.35 255 2 D (0.0078 0 0 0.99 0)   
## 5.502e+03) pitch\_forearm>=64.95 2 0 A (1 0 0 0 0) \*  
## 5.503e+03) pitch\_forearm< 64.95 253 0 D (0 0 0 1 0) \*  
## 4.300e+01) magnet\_dumbbell\_y>=290.5 2180 1430 D (0.056 0.24 0.11 0.34 0.25)   
## 8.600e+01) accel\_forearm\_x>=-101.5 1398 923 E (0.051 0.3 0.16 0.15 0.34)   
## 1.720e+02) magnet\_arm\_y>=188.5 573 267 B (0.014 0.53 0.23 0.1 0.12)   
## 3.440e+02) magnet\_forearm\_z< 561 275 64 B (0 0.77 0.015 0.15 0.065)   
## 6.880e+02) yaw\_belt>=-93.3 242 31 B (0 0.87 0.017 0.037 0.074)   
## 1.376e+03) yaw\_belt< -85.55 224 13 B (0 0.94 0.018 0.0045 0.036)   
## 2.752e+03) accel\_forearm\_x< 210 206 6 B (0 0.97 0.019 0.0049 0.0049)   
## 5.504e+03) magnet\_arm\_z>=376.5 199 2 B (0 0.99 0 0.005 0.005) \*  
## 5.505e+03) magnet\_arm\_z< 376.5 7 3 C (0 0.43 0.57 0 0)   
## 1.101e+04) pitch\_belt>=3.125 3 0 B (0 1 0 0 0) \*  
## 1.101e+04) pitch\_belt< 3.125 4 0 C (0 0 1 0 0) \*  
## 2.753e+03) accel\_forearm\_x>=210 18 7 B (0 0.61 0 0 0.39)   
## 5.506e+03) yaw\_belt< -87.8 11 0 B (0 1 0 0 0) \*  
## 5.507e+03) yaw\_belt>=-87.8 7 0 E (0 0 0 0 1) \*  
## 1.377e+03) yaw\_belt>=-85.55 18 8 E (0 0 0 0.44 0.56)   
## 2.754e+03) roll\_belt>=10.88 8 0 D (0 0 0 1 0) \*  
## 2.755e+03) roll\_belt< 10.88 10 0 E (0 0 0 0 1) \*  
## 6.890e+02) yaw\_belt< -93.3 33 0 D (0 0 0 1 0) \*  
## 3.450e+02) magnet\_forearm\_z>=561 298 171 C (0.027 0.32 0.43 0.054 0.17)   
## 6.900e+02) roll\_belt>=-0.62 267 140 C (0.03 0.36 0.48 0.06 0.079)   
## 1.380e+03) magnet\_arm\_y>=445 59 11 B (0.051 0.81 0.068 0.068 0)   
## 2.760e+03) yaw\_belt< -87.55 51 4 B (0.059 0.92 0.02 0 0)   
## 5.520e+03) accel\_dumbbell\_z< -217.5 5 2 A (0.6 0.4 0 0 0)   
## 1.104e+04) gyros\_belt\_z< 0.01 3 0 A (1 0 0 0 0) \*  
## 1.104e+04) gyros\_belt\_z>=0.01 2 0 B (0 1 0 0 0) \*  
## 5.521e+03) accel\_dumbbell\_z>=-217.5 46 1 B (0 0.98 0.022 0 0) \*  
## 2.761e+03) yaw\_belt>=-87.55 8 4 D (0 0.13 0.37 0.5 0)   
## 5.522e+03) gyros\_arm\_x>=0.67 4 1 C (0 0.25 0.75 0 0) \*  
## 5.523e+03) gyros\_arm\_x< 0.67 4 0 D (0 0 0 1 0) \*  
## 1.381e+03) magnet\_arm\_y< 445 208 85 C (0.024 0.23 0.59 0.058 0.1)   
## 2.762e+03) accel\_belt\_z< 38.5 66 33 B (0.03 0.5 0.17 0.11 0.2)   
## 5.524e+03) roll\_arm< 82.35 56 23 B (0.036 0.59 0.2 0.12 0.054)   
## 1.105e+04) accel\_arm\_x>=-249.5 36 6 B (0.056 0.83 0.028 0.056 0.028)   
## 2.210e+04) accel\_forearm\_x>=-70 33 3 B (0.03 0.91 0.03 0 0.03)   
## 4.419e+04) magnet\_forearm\_x>=-14.5 2 1 A (0.5 0 0.5 0 0) \*  
## 4.419e+04) magnet\_forearm\_x< -14.5 31 1 B (0 0.97 0 0 0.032) \*  
## 2.210e+04) accel\_forearm\_x< -70 3 1 D (0.33 0 0 0.67 0) \*  
## 1.105e+04) accel\_arm\_x< -249.5 20 10 C (0 0.15 0.5 0.25 0.1)   
## 2.210e+04) magnet\_forearm\_z< 661 8 3 D (0 0.38 0 0.62 0)   
## 4.420e+04) roll\_belt< 1.105 3 0 B (0 1 0 0 0) \*  
## 4.420e+04) roll\_belt>=1.105 5 0 D (0 0 0 1 0) \*  
## 2.210e+04) magnet\_forearm\_z>=661 12 2 C (0 0 0.83 0 0.17)   
## 4.420e+04) yaw\_belt< -84.9 10 0 C (0 0 1 0 0) \*  
## 4.420e+04) yaw\_belt>=-84.9 2 0 E (0 0 0 0 1) \*  
## 5.525e+03) roll\_arm>=82.35 10 0 E (0 0 0 0 1) \*  
## 2.763e+03) accel\_belt\_z>=38.5 142 30 C (0.021 0.099 0.79 0.035 0.056)   
## 5.526e+03) gyros\_dumbbell\_x< -0.19 13 3 B (0 0.77 0 0 0.23)   
## 1.105e+04) gyros\_arm\_x< 0.87 10 0 B (0 1 0 0 0) \*  
## 1.105e+04) gyros\_arm\_x>=0.87 3 0 E (0 0 0 0 1) \*  
## 5.527e+03) gyros\_dumbbell\_x>=-0.19 129 17 C (0.023 0.031 0.87 0.039 0.039)   
## 1.105e+04) yaw\_belt>=-88.25 116 5 C (0 0.0086 0.96 0.034 0)   
## 2.211e+04) yaw\_belt< -87.55 109 1 C (0 0.0092 0.99 0 0) \*  
## 2.211e+04) yaw\_belt>=-87.55 7 3 D (0 0 0.43 0.57 0)   
## 4.422e+04) accel\_arm\_x>=-167 3 0 C (0 0 1 0 0) \*  
## 4.422e+04) accel\_arm\_x< -167 4 0 D (0 0 0 1 0) \*  
## 1.106e+04) yaw\_belt< -88.25 13 8 E (0.23 0.23 0.077 0.077 0.38)   
## 2.211e+04) pitch\_belt< 5.57 8 5 A (0.38 0.38 0.12 0.12 0)   
## 4.422e+04) magnet\_dumbbell\_z< -47 3 0 A (1 0 0 0 0) \*  
## 4.422e+04) magnet\_dumbbell\_z>=-47 5 2 B (0 0.6 0.2 0.2 0)   
## 8.844e+04) roll\_belt>=-0.22 3 0 B (0 1 0 0 0) \*  
## 8.844e+04) roll\_belt< -0.22 2 1 C (0 0 0.5 0.5 0) \*  
## 2.211e+04) pitch\_belt>=5.57 5 0 E (0 0 0 0 1) \*  
## 6.910e+02) roll\_belt< -0.62 31 0 E (0 0 0 0 1) \*  
## 1.730e+02) magnet\_arm\_y< 188.5 825 420 E (0.076 0.15 0.11 0.18 0.49)   
## 3.460e+02) accel\_dumbbell\_y< 52.5 284 188 D (0.21 0.24 0.011 0.34 0.19)   
## 6.920e+02) magnet\_forearm\_z< -107.5 69 13 A (0.81 0.17 0 0.014 0)   
## 1.384e+03) magnet\_dumbbell\_z< 384 52 1 A (0.98 0 0 0.019 0) \*  
## 1.385e+03) magnet\_dumbbell\_z>=384 17 5 B (0.29 0.71 0 0 0)   
## 2.770e+03) total\_accel\_arm>=34.5 5 0 A (1 0 0 0 0) \*  
## 2.771e+03) total\_accel\_arm< 34.5 12 0 B (0 1 0 0 0) \*  
## 6.930e+02) magnet\_forearm\_z>=-107.5 215 120 D (0.023 0.27 0.014 0.44 0.26)   
## 1.386e+03) yaw\_belt< -87.35 160 103 B (0.031 0.36 0.019 0.26 0.34)   
## 2.772e+03) accel\_dumbbell\_z>=48 71 14 B (0 0.8 0 0.085 0.11)   
## 5.544e+03) gyros\_dumbbell\_y< 0.445 59 2 B (0 0.97 0 0 0.034)   
## 1.109e+04) yaw\_belt< -88 57 0 B (0 1 0 0 0) \*  
## 1.109e+04) yaw\_belt>=-88 2 0 E (0 0 0 0 1) \*  
## 5.545e+03) gyros\_dumbbell\_y>=0.445 12 6 D (0 0 0 0.5 0.5)   
## 1.109e+04) roll\_belt< -9.36 6 0 D (0 0 0 1 0) \*  
## 1.109e+04) roll\_belt>=-9.36 6 0 E (0 0 0 0 1) \*  
## 2.773e+03) accel\_dumbbell\_z< 48 89 43 E (0.056 0 0.034 0.39 0.52)   
## 5.546e+03) total\_accel\_dumbbell< 2.5 39 5 D (0 0 0.051 0.87 0.077)   
## 1.109e+04) yaw\_belt< -93.3 34 0 D (0 0 0 1 0) \*  
## 1.109e+04) yaw\_belt>=-93.3 5 2 E (0 0 0.4 0 0.6)   
## 2.219e+04) gyros\_arm\_y>=0.08 2 0 C (0 0 1 0 0) \*  
## 2.219e+04) gyros\_arm\_y< 0.08 3 0 E (0 0 0 0 1) \*  
## 5.547e+03) total\_accel\_dumbbell>=2.5 50 7 E (0.1 0 0.02 0.02 0.86)   
## 1.109e+04) yaw\_belt>=-89.7 6 1 A (0.83 0 0 0.17 0) \*  
## 1.110e+04) yaw\_belt< -89.7 44 1 E (0 0 0.023 0 0.98) \*  
## 1.387e+03) yaw\_belt>=-87.35 55 1 D (0 0 0 0.98 0.018) \*  
## 3.470e+02) accel\_dumbbell\_y>=52.5 541 191 E (0.0037 0.094 0.16 0.094 0.65)   
## 6.940e+02) roll\_forearm< 132.5 85 24 C (0.012 0.22 0.72 0 0.047)   
## 1.388e+03) pitch\_forearm< -26.65 19 0 B (0 1 0 0 0) \*  
## 1.389e+03) pitch\_forearm>=-26.65 66 5 C (0.015 0 0.92 0 0.061)   
## 2.778e+03) yaw\_belt>=-88.4 63 2 C (0.016 0 0.97 0 0.016) \*  
## 2.779e+03) yaw\_belt< -88.4 3 0 E (0 0 0 0 1) \*  
## 6.950e+02) roll\_forearm>=132.5 456 110 E (0.0022 0.07 0.057 0.11 0.76)   
## 1.390e+03) roll\_belt< -9.195 27 0 D (0 0 0 1 0) \*  
## 1.391e+03) roll\_belt>=-9.195 429 83 E (0.0023 0.075 0.061 0.056 0.81)   
## 2.782e+03) pitch\_forearm< -9.68 19 6 C (0 0.32 0.68 0 0)   
## 5.564e+03) yaw\_belt< -88.05 6 0 B (0 1 0 0 0) \*  
## 5.565e+03) yaw\_belt>=-88.05 13 0 C (0 0 1 0 0) \*  
## 2.783e+03) pitch\_forearm>=-9.68 410 64 E (0.0024 0.063 0.032 0.059 0.84)   
## 5.566e+03) accel\_forearm\_x< -64.5 44 28 D (0.023 0.2 0.091 0.36 0.32)   
## 1.113e+04) roll\_belt< 3.095 33 17 D (0.03 0.27 0.12 0.48 0.091)   
## 2.226e+04) roll\_forearm>=161.5 10 1 B (0.1 0.9 0 0 0) \*  
## 2.226e+04) roll\_forearm< 161.5 23 7 D (0 0 0.17 0.7 0.13)   
## 4.453e+04) magnet\_dumbbell\_x< -500.5 7 3 C (0 0 0.57 0 0.43)   
## 8.906e+04) yaw\_belt>=-88.35 4 0 C (0 0 1 0 0) \*  
## 8.906e+04) yaw\_belt< -88.35 3 0 E (0 0 0 0 1) \*  
## 4.453e+04) magnet\_dumbbell\_x>=-500.5 16 0 D (0 0 0 1 0) \*  
## 1.113e+04) roll\_belt>=3.095 11 0 E (0 0 0 0 1) \*  
## 5.567e+03) accel\_forearm\_x>=-64.5 366 34 E (0 0.046 0.025 0.022 0.91)   
## 1.113e+04) gyros\_arm\_y>=2.055 9 2 B (0 0.78 0 0 0.22)   
## 2.227e+04) pitch\_belt< 6.05 7 0 B (0 1 0 0 0) \*  
## 2.227e+04) pitch\_belt>=6.05 2 0 E (0 0 0 0 1) \*  
## 1.114e+04) gyros\_arm\_y< 2.055 357 27 E (0 0.028 0.025 0.022 0.92)   
## 2.227e+04) pitch\_dumbbell>=66.3 5 0 B (0 1 0 0 0) \*  
## 2.227e+04) pitch\_dumbbell< 66.3 352 22 E (0 0.014 0.026 0.023 0.94)   
## 4.454e+04) roll\_dumbbell>=121 4 0 B (0 1 0 0 0) \*  
## 4.454e+04) roll\_dumbbell< 121 348 18 E (0 0.0029 0.026 0.023 0.95)   
## 8.909e+04) gyros\_belt\_z< -0.85 4 0 D (0 0 0 1 0) \*  
## 8.909e+04) gyros\_belt\_z>=-0.85 344 14 E (0 0.0029 0.026 0.012 0.96)   
## 1.782e+05) roll\_forearm< 138.5 59 11 E (0 0.017 0.14 0.034 0.81)   
## 3.563e+05) gyros\_arm\_x>=0.305 9 2 C (0 0 0.78 0.22 0)   
## 7.127e+05) roll\_belt< 1.19 7 0 C (0 0 1 0 0) \*  
## 7.127e+05) roll\_belt>=1.19 2 0 D (0 0 0 1 0) \*  
## 3.563e+05) gyros\_arm\_x< 0.305 50 2 E (0 0.02 0.02 0 0.96)   
## 7.127e+05) magnet\_forearm\_x< -499.5 2 1 B (0 0.5 0.5 0 0) \*  
## 7.127e+05) magnet\_forearm\_x>=-499.5 48 0 E (0 0 0 0 1) \*  
## 1.782e+05) roll\_forearm>=138.5 285 3 E (0 0 0.0035 0.007 0.99) \*  
## 8.700e+01) accel\_forearm\_x< -101.5 782 237 D (0.066 0.12 0.036 0.7 0.077)   
## 1.740e+02) accel\_dumbbell\_z>=34 96 8 B (0 0.92 0 0.021 0.062)   
## 3.480e+02) magnet\_belt\_y< 612.5 88 0 B (0 1 0 0 0) \*  
## 3.490e+02) magnet\_belt\_y>=612.5 8 2 E (0 0 0 0.25 0.75)   
## 6.980e+02) yaw\_belt>=-89.65 2 0 D (0 0 0 1 0) \*  
## 6.990e+02) yaw\_belt< -89.65 6 0 E (0 0 0 0 1) \*  
## 1.750e+02) accel\_dumbbell\_z< 34 686 143 D (0.076 0.013 0.041 0.79 0.079)   
## 3.500e+02) pitch\_forearm>=56.4 54 12 A (0.78 0.074 0 0.15 0)   
## 7.000e+02) roll\_belt< 1.015 42 0 A (1 0 0 0 0) \*  
## 7.010e+02) roll\_belt>=1.015 12 4 D (0 0.33 0 0.67 0)   
## 1.402e+03) yaw\_belt>=-92.9 4 0 B (0 1 0 0 0) \*  
## 1.403e+03) yaw\_belt< -92.9 8 0 D (0 0 0 1 0) \*  
## 3.510e+02) pitch\_forearm< 56.4 632 97 D (0.016 0.0079 0.044 0.85 0.085)   
## 7.020e+02) magnet\_dumbbell\_y>=338.5 429 19 D (0.016 0.007 0.0023 0.96 0.019)   
## 1.404e+03) roll\_forearm< 135.5 6 0 A (1 0 0 0 0) \*  
## 1.405e+03) roll\_forearm>=135.5 423 13 D (0.0024 0.0071 0.0024 0.97 0.019)   
## 2.810e+03) roll\_belt>=-1.145 419 9 D (0.0024 0.0072 0.0024 0.98 0.0095)   
## 5.620e+03) roll\_arm>=145 3 0 B (0 1 0 0 0) \*  
## 5.621e+03) roll\_arm< 145 416 6 D (0.0024 0 0.0024 0.99 0.0096)   
## 1.124e+04) gyros\_arm\_y>=1.465 2 1 A (0.5 0 0.5 0 0) \*  
## 1.124e+04) gyros\_arm\_y< 1.465 414 4 D (0 0 0 0.99 0.0097)   
## 2.249e+04) accel\_forearm\_x< -117.5 361 0 D (0 0 0 1 0) \*  
## 2.249e+04) accel\_forearm\_x>=-117.5 53 4 D (0 0 0 0.92 0.075)   
## 4.497e+04) pitch\_dumbbell>=-52.35 50 1 D (0 0 0 0.98 0.02) \*  
## 4.498e+04) pitch\_dumbbell< -52.35 3 0 E (0 0 0 0 1) \*  
## 2.811e+03) roll\_belt< -1.145 4 0 E (0 0 0 0 1) \*  
## 7.030e+02) magnet\_dumbbell\_y< 338.5 203 78 D (0.015 0.0099 0.13 0.62 0.23)   
## 1.406e+03) pitch\_dumbbell>=-50.39 109 11 D (0.0092 0.018 0.0092 0.9 0.064)   
## 2.812e+03) gyros\_dumbbell\_y< 0.35 102 4 D (0.0098 0 0.0098 0.96 0.02)   
## 5.624e+03) gyros\_arm\_y>=1.41 3 1 E (0.33 0 0 0 0.67) \*  
## 5.625e+03) gyros\_arm\_y< 1.41 99 1 D (0 0 0.01 0.99 0) \*  
## 2.813e+03) gyros\_dumbbell\_y>=0.35 7 2 E (0 0.29 0 0 0.71)   
## 5.626e+03) pitch\_belt>=5.6 2 0 B (0 1 0 0 0) \*  
## 5.627e+03) pitch\_belt< 5.6 5 0 E (0 0 0 0 1) \*  
## 1.407e+03) pitch\_dumbbell< -50.39 94 55 E (0.021 0 0.28 0.29 0.41)   
## 2.814e+03) yaw\_forearm>=142.5 35 9 C (0.057 0 0.74 0.14 0.057)   
## 5.628e+03) roll\_belt< 0.975 29 3 C (0.069 0 0.9 0 0.034)   
## 1.126e+04) magnet\_belt\_y< 626.5 3 1 A (0.67 0 0 0 0.33) \*  
## 1.126e+04) magnet\_belt\_y>=626.5 26 0 C (0 0 1 0 0) \*  
## 5.629e+03) roll\_belt>=0.975 6 1 D (0 0 0 0.83 0.17) \*  
## 2.815e+03) yaw\_forearm< 142.5 59 22 E (0 0 0 0.37 0.63)   
## 5.630e+03) accel\_arm\_y>=150.5 18 2 D (0 0 0 0.89 0.11)   
## 1.126e+04) yaw\_belt< -85.35 16 0 D (0 0 0 1 0) \*  
## 1.126e+04) yaw\_belt>=-85.35 2 0 E (0 0 0 0 1) \*  
## 5.631e+03) accel\_arm\_y< 150.5 41 6 E (0 0 0 0.15 0.85)   
## 1.126e+04) gyros\_arm\_z< -0.175 5 0 D (0 0 0 1 0) \*  
## 1.126e+04) gyros\_arm\_z>=-0.175 36 1 E (0 0 0 0.028 0.97) \*  
## 1.100e+01) magnet\_dumbbell\_y>=439.5 2529 1243 B (0.032 0.51 0.043 0.22 0.19)   
## 2.200e+01) total\_accel\_dumbbell>=5.5 1809 635 B (0.045 0.65 0.059 0.02 0.23)   
## 4.400e+01) roll\_belt>=-0.58 1527 353 B (0.053 0.77 0.069 0.024 0.084)   
## 8.800e+01) magnet\_belt\_y>=586.5 1430 256 B (0.057 0.82 0.074 0.026 0.022)   
## 1.760e+02) yaw\_dumbbell< -65.87 154 73 A (0.53 0.27 0.078 0.13 0)   
## 3.520e+02) roll\_forearm< 115.5 82 2 A (0.98 0.012 0.012 0 0)   
## 7.040e+02) roll\_dumbbell< 79.58 80 0 A (1 0 0 0 0) \*  
## 7.050e+02) roll\_dumbbell>=79.58 2 1 B (0 0.5 0.5 0 0) \*  
## 3.530e+02) roll\_forearm>=115.5 72 32 B (0.014 0.56 0.15 0.28 0)   
## 7.060e+02) accel\_forearm\_x>=-103 53 13 B (0.019 0.75 0.21 0.019 0)   
## 1.412e+03) magnet\_dumbbell\_z< 94.5 40 2 B (0.025 0.95 0.025 0 0) \*  
## 1.413e+03) magnet\_dumbbell\_z>=94.5 13 3 C (0 0.15 0.77 0.077 0)   
## 2.826e+03) yaw\_belt>=-87.75 3 1 B (0 0.67 0 0.33 0) \*  
## 2.827e+03) yaw\_belt< -87.75 10 0 C (0 0 1 0 0) \*  
## 7.070e+02) accel\_forearm\_x< -103 19 0 D (0 0 0 1 0) \*  
## 1.770e+02) yaw\_dumbbell>=-65.87 1276 143 B (0 0.89 0.074 0.013 0.025)   
## 3.540e+02) yaw\_belt< 165.5 1175 93 B (0 0.92 0.037 0.014 0.027)   
## 7.080e+02) gyros\_belt\_z< 0.135 1160 78 B (0 0.93 0.038 0.015 0.015)   
## 1.416e+03) magnet\_belt\_y< 631.5 1054 33 B (0 0.97 0.01 0.013 0.0076)   
## 2.832e+03) total\_accel\_dumbbell>=6.5 1006 16 B (0 0.98 0.011 0.003 0.002)   
## 5.664e+03) accel\_forearm\_x< 164.5 951 5 B (0 0.99 0.0021 0.0032 0)   
## 1.133e+04) accel\_arm\_y< 252.5 946 3 B (0 1 0 0.0032 0)   
## 2.266e+04) pitch\_dumbbell>=-44.56 940 1 B (0 1 0 0.0011 0) \*  
## 2.266e+04) pitch\_dumbbell< -44.56 6 2 B (0 0.67 0 0.33 0)   
## 4.531e+04) magnet\_arm\_x>=572.5 4 0 B (0 1 0 0 0) \*  
## 4.532e+04) magnet\_arm\_x< 572.5 2 0 D (0 0 0 1 0) \*  
## 1.133e+04) accel\_arm\_y>=252.5 5 2 B (0 0.6 0.4 0 0)   
## 2.266e+04) gyros\_belt\_y>=0.01 3 0 B (0 1 0 0 0) \*  
## 2.266e+04) gyros\_belt\_y< 0.01 2 0 C (0 0 1 0 0) \*  
## 5.665e+03) accel\_forearm\_x>=164.5 55 11 B (0 0.8 0.16 0 0.036)   
## 1.133e+04) accel\_forearm\_y>=256 39 0 B (0 1 0 0 0) \*  
## 1.133e+04) accel\_forearm\_y< 256 16 7 C (0 0.31 0.56 0 0.13)   
## 2.266e+04) magnet\_arm\_y>=150.5 7 2 B (0 0.71 0 0 0.29)   
## 4.532e+04) total\_accel\_arm< 37 5 0 B (0 1 0 0 0) \*  
## 4.532e+04) total\_accel\_arm>=37 2 0 E (0 0 0 0 1) \*  
## 2.266e+04) magnet\_arm\_y< 150.5 9 0 C (0 0 1 0 0) \*  
## 2.833e+03) total\_accel\_dumbbell< 6.5 48 17 B (0 0.65 0 0.23 0.12)   
## 5.666e+03) yaw\_belt< -1.82 31 0 B (0 1 0 0 0) \*  
## 5.667e+03) yaw\_belt>=-1.82 17 6 D (0 0 0 0.65 0.35)   
## 1.133e+04) roll\_belt< 122 11 0 D (0 0 0 1 0) \*  
## 1.134e+04) roll\_belt>=122 6 0 E (0 0 0 0 1) \*  
## 1.417e+03) magnet\_belt\_y>=631.5 106 45 B (0 0.58 0.31 0.028 0.085)   
## 2.834e+03) pitch\_forearm>=7.16 52 4 B (0 0.92 0.019 0.058 0)   
## 5.668e+03) accel\_arm\_z< 27 49 1 B (0 0.98 0.02 0 0) \*  
## 5.669e+03) accel\_arm\_z>=27 3 0 D (0 0 0 1 0) \*  
## 2.835e+03) pitch\_forearm< 7.16 54 22 C (0 0.24 0.59 0 0.17)   
## 5.670e+03) yaw\_forearm>=89.55 35 3 C (0 0.086 0.91 0 0)   
## 1.134e+04) pitch\_belt< 3.845 3 0 B (0 1 0 0 0) \*  
## 1.134e+04) pitch\_belt>=3.845 32 0 C (0 0 1 0 0) \*  
## 5.671e+03) yaw\_forearm< 89.55 19 9 B (0 0.53 0 0 0.47)   
## 1.134e+04) pitch\_belt< 5.43 10 0 B (0 1 0 0 0) \*  
## 1.134e+04) pitch\_belt>=5.43 9 0 E (0 0 0 0 1) \*  
## 7.090e+02) gyros\_belt\_z>=0.135 15 0 E (0 0 0 0 1) \*  
## 3.550e+02) yaw\_belt>=165.5 101 50 B (0 0.5 0.5 0 0)   
## 7.100e+02) roll\_arm>=25.3 43 0 B (0 1 0 0 0) \*  
## 7.110e+02) roll\_arm< 25.3 58 8 C (0 0.14 0.86 0 0)   
## 1.422e+03) pitch\_belt< -44.25 8 0 B (0 1 0 0 0) \*  
## 1.423e+03) pitch\_belt>=-44.25 50 0 C (0 0 1 0 0) \*  
## 8.900e+01) magnet\_belt\_y< 586.5 97 0 E (0 0 0 0 1) \*  
## 4.500e+01) roll\_belt< -0.58 282 0 E (0 0 0 0 1) \*  
## 2.300e+01) total\_accel\_dumbbell< 5.5 720 189 D (0 0.16 0.0028 0.74 0.1)   
## 4.600e+01) yaw\_belt< -2.825 105 0 B (0 1 0 0 0) \*  
## 4.700e+01) yaw\_belt>=-2.825 615 84 D (0 0.011 0.0033 0.86 0.12)   
## 9.400e+01) roll\_belt< 121.5 545 14 D (0 0.013 0.0037 0.97 0.0092)   
## 1.880e+02) yaw\_forearm>=27.35 10 4 B (0 0.6 0 0 0.4)   
## 3.760e+02) pitch\_belt< 15.3 6 0 B (0 1 0 0 0) \*  
## 3.770e+02) pitch\_belt>=15.3 4 0 E (0 0 0 0 1) \*  
## 1.890e+02) yaw\_forearm< 27.35 535 4 D (0 0.0019 0.0037 0.99 0.0019)   
## 3.780e+02) gyros\_forearm\_y>=2.74 3 1 C (0 0.33 0.67 0 0) \*  
## 3.790e+02) gyros\_forearm\_y< 2.74 532 1 D (0 0 0 1 0.0019) \*  
## 9.500e+01) roll\_belt>=121.5 70 0 E (0 0 0 0 1) \*  
## 3.000e+00) roll\_belt>=130.5 1645 14 E (0.0085 0 0 0 0.99)   
## 6.000e+00) pitch\_arm>=60.9 14 0 A (1 0 0 0 0) \*  
## 7.000e+00) pitch\_arm< 60.9 1631 0 E (0 0 0 0 1) \*

pred<-predict(model,newdata=testing)  
print(pred)

## A B C D E  
## 1 0.000000 1.0000000 0.000000 0.000000 0.000000  
## 2 0.987421 0.0062893 0.000000 0.006289 0.000000  
## 3 0.000000 0.9782609 0.021739 0.000000 0.000000  
## 4 1.000000 0.0000000 0.000000 0.000000 0.000000  
## 5 1.000000 0.0000000 0.000000 0.000000 0.000000  
## 6 0.000000 0.0200000 0.000000 0.000000 0.980000  
## 7 0.000000 0.0000000 0.000000 1.000000 0.000000  
## 8 0.000000 1.0000000 0.000000 0.000000 0.000000  
## 9 0.999362 0.0006378 0.000000 0.000000 0.000000  
## 10 0.999209 0.0007911 0.000000 0.000000 0.000000  
## 11 0.000000 1.0000000 0.000000 0.000000 0.000000  
## 12 0.000000 0.0091743 0.990826 0.000000 0.000000  
## 13 0.000000 1.0000000 0.000000 0.000000 0.000000  
## 14 0.999362 0.0006378 0.000000 0.000000 0.000000  
## 15 0.000000 0.0000000 0.003509 0.007018 0.989474  
## 16 0.009569 0.0000000 0.000000 0.004785 0.985646  
## 17 1.000000 0.0000000 0.000000 0.000000 0.000000  
## 18 0.000000 1.0000000 0.000000 0.000000 0.000000  
## 19 0.000000 1.0000000 0.000000 0.000000 0.000000  
## 20 0.000000 0.9899497 0.000000 0.005025 0.005025