TSAssignment

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## Summary for questions 1 & 2

library(caret)

## Loading required package: lattice

## Loading required package: ggplot2

setwd("/Users/Brett/Desktop/dsc520-master")  
ts\_df<-read.csv("/Users/Brett/Desktop/dsc520-master/data/TS.csv")  
head(ts\_df)

## Treatment PRE4 PRE5 PRE6 PRE7 PRE8 PRE9 PRE10 PRE11 PRE14 PRE17 PRE19  
## 1 DGN2 2.88 2.16 PRZ1 FALSE FALSE FALSE TRUE TRUE OC14 FALSE FALSE  
## 2 DGN3 3.40 1.88 PRZ0 FALSE FALSE FALSE FALSE FALSE OC12 FALSE FALSE  
## 3 DGN3 2.76 2.08 PRZ1 FALSE FALSE FALSE TRUE FALSE OC11 FALSE FALSE  
## 4 DGN3 3.68 3.04 PRZ0 FALSE FALSE FALSE FALSE FALSE OC11 FALSE FALSE  
## 5 DGN3 2.44 0.96 PRZ2 FALSE TRUE FALSE TRUE TRUE OC11 FALSE FALSE  
## 6 DGN3 2.48 1.88 PRZ1 FALSE FALSE FALSE TRUE FALSE OC11 FALSE FALSE  
## PRE25 PRE30 PRE32 AGE Risk1YR  
## 1 FALSE TRUE FALSE 60 FALSE  
## 2 FALSE TRUE FALSE 51 FALSE  
## 3 FALSE TRUE FALSE 59 FALSE  
## 4 FALSE FALSE FALSE 54 FALSE  
## 5 FALSE TRUE FALSE 73 TRUE  
## 6 FALSE FALSE FALSE 51 FALSE

survivalafter1year<- glm(ts\_df$Risk1YR ~ ts\_df$Treatment + ts\_df$PRE4  
 + ts\_df$PRE5 + ts\_df$PRE14 + ts\_df$AGE)  
summary(survivalafter1year)

##   
## Call:  
## glm(formula = ts\_df$Risk1YR ~ ts\_df$Treatment + ts\_df$PRE4 +   
## ts\_df$PRE5 + ts\_df$PRE14 + ts\_df$AGE)  
##   
## Deviance Residuals:   
## Min 1Q Median 3Q Max   
## -0.52272 -0.14838 -0.11155 -0.06859 0.94762   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 0.000496 0.382208 0.001 0.998965   
## ts\_df$TreatmentDGN2 0.186994 0.350191 0.534 0.593617   
## ts\_df$TreatmentDGN3 0.120499 0.347203 0.347 0.728708   
## ts\_df$TreatmentDGN4 0.160679 0.350270 0.459 0.646646   
## ts\_df$TreatmentDGN5 0.484324 0.358305 1.352 0.177137   
## ts\_df$TreatmentDGN6 0.027762 0.387912 0.072 0.942978   
## ts\_df$TreatmentDGN8 0.554971 0.424908 1.306 0.192177   
## ts\_df$PRE4 -0.022919 0.019580 -1.171 0.242393   
## ts\_df$PRE5 -0.001919 0.001385 -1.385 0.166587   
## ts\_df$PRE14OC12 0.051607 0.034209 1.509 0.132100   
## ts\_df$PRE14OC13 0.202960 0.084353 2.406 0.016521 \*   
## ts\_df$PRE14OC14 0.304024 0.089903 3.382 0.000782 \*\*\*  
## ts\_df$AGE 0.000651 0.001978 0.329 0.742209   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## (Dispersion parameter for gaussian family taken to be 0.1198834)  
##   
## Null deviance: 59.574 on 469 degrees of freedom  
## Residual deviance: 54.787 on 457 degrees of freedom  
## AIC: 351.64  
##   
## Number of Fisher Scoring iterations: 2

1. The largest impact we see is from PRE14OC14 and PRE14OC13 both show statistical significance on the survival rate.

## Question 3

res <- predict(survivalafter1year, test.type = 'response')  
res

## 1 2 3 4 5   
## 4.604229e-01 1.242715e-01 9.215756e-02 6.597396e-02 1.107560e-01   
## 6 7 8 9 10   
## 9.375049e-02 1.047903e-01 1.525479e-01 8.777443e-02 9.883335e-02   
## 11 12 13 14 15   
## 1.485388e-01 1.037465e-01 9.197893e-02 4.465052e-01 1.235171e-01   
## 16 17 18 19 20   
## 9.772024e-02 2.212953e-01 2.077640e-01 1.553608e-01 9.645209e-02   
## 21 22 23 24 25   
## 9.644770e-02 1.716039e-01 1.556531e-01 7.256418e-02 4.880745e-01   
## 26 27 28 29 30   
## 3.293027e-01 7.988803e-02 8.146768e-02 7.986590e-02 -2.908454e-02   
## 31 32 33 34 35   
## 3.819617e-01 9.801553e-02 5.227190e-01 1.727025e-01 1.694895e-01   
## 36 37 38 39 40   
## 1.015955e-01 1.646422e-01 1.232897e-01 5.528116e-02 4.266473e-02   
## 41 42 43 44 45   
## 4.310690e-01 2.010173e-01 1.381191e-01 5.041369e-01 1.249284e-01   
## 46 47 48 49 50   
## 9.922606e-02 1.145825e-01 1.549017e-01 1.032638e-01 9.637387e-02   
## 51 52 53 54 55   
## 1.625164e-01 6.871251e-02 1.386949e-01 1.705971e-01 1.233635e-01   
## 56 57 58 59 60   
## 1.753950e-01 5.429647e-02 7.936249e-02 1.275851e-01 1.152129e-01   
## 61 62 63 64 65   
## 2.721067e-01 1.491426e-01 3.686437e-02 6.609207e-02 2.000152e-01   
## 66 67 68 69 70   
## 1.367609e-01 8.845795e-02 1.449892e-01 1.457530e-01 1.441292e-01   
## 71 72 73 74 75   
## 7.052096e-02 1.313267e-01 7.573080e-02 3.556236e-02 4.507849e-02   
## 76 77 78 79 80   
## 3.684122e-01 1.193362e-01 1.363829e-01 1.545725e-01 1.495634e-01   
## 81 82 83 84 85   
## 1.204921e-01 4.152846e-01 1.362118e-01 9.173976e-02 1.014154e-01   
## 86 87 88 89 90   
## 1.189657e-01 8.610992e-02 1.582942e-01 4.694970e-01 2.913140e-02   
## 91 92 93 94 95   
## 1.789691e-01 1.050929e-01 1.243955e-01 4.754900e-03 1.833912e-01   
## 96 97 98 99 100   
## 4.473006e-02 1.930928e-01 3.455992e-03 -3.329092e-02 9.867842e-02   
## 101 102 103 104 105   
## 8.573714e-02 1.741585e-01 1.570313e-01 1.023990e-01 8.680158e-02   
## 106 107 108 109 110   
## 4.005706e-01 1.475777e-01 1.202589e-01 8.390504e-02 1.419915e-01   
## 111 112 113 114 115   
## 1.641645e-01 1.136953e-01 4.298406e-03 4.090794e-02 1.003953e-01   
## 116 117 118 119 120   
## 1.342536e-01 1.900015e-01 1.378711e-01 1.136120e-01 1.596864e-01   
## 121 122 123 124 125   
## 1.329777e-01 1.338895e-01 3.742906e-01 1.242479e-01 1.396987e-01   
## 126 127 128 129 130   
## 1.502030e-01 5.170413e-02 1.207638e-01 1.858151e-01 7.953282e-02   
## 131 132 133 134 135   
## 8.041065e-02 2.353840e-01 2.383605e-01 1.134089e-01 9.145193e-02   
## 136 137 138 139 140   
## 9.071079e-02 3.335182e-01 4.063309e-01 1.497966e-01 1.152085e-01   
## 141 142 143 144 145   
## 1.760059e-01 1.176488e-01 2.484840e-02 2.066541e-01 1.448767e-01   
## 146 147 148 149 150   
## 1.152232e-01 7.081326e-02 1.457265e-01 1.320560e-01 1.003495e-01   
## 151 152 153 154 155   
## 1.451714e-01 6.958647e-02 1.558258e-01 1.385339e-01 1.391466e-01   
## 156 157 158 159 160   
## 1.515283e-01 2.879473e-01 1.453368e-01 1.372717e-01 1.050707e-01   
## 161 162 163 164 165   
## 1.515490e-01 8.691670e-02 1.385044e-01 2.278549e-01 4.559099e-01   
## 166 167 168 169 170   
## 1.301752e-01 1.458599e-01 1.115262e-01 1.012058e-01 3.033333e-01   
## 171 172 173 174 175   
## 1.193687e-01 2.092314e-01 2.021230e-01 9.268310e-02 1.263604e-01   
## 176 177 178 179 180   
## 1.299537e-01 3.803111e-01 1.368864e-01 9.654951e-02 1.383775e-01   
## 181 182 183 184 185   
## 1.233621e-01 8.675286e-02 8.570763e-02 1.384379e-01 9.700719e-02   
## 186 187 188 189 190   
## 5.035715e-01 8.244355e-02 1.232168e-01 1.132347e-01 1.319417e-01   
## 191 192 193 194 195   
## 1.497317e-01 9.402801e-02 1.440396e-01 1.126486e-01 7.270588e-02   
## 196 197 198 199 200   
## 1.456966e-01 1.474833e-01 1.382985e-01 8.197407e-02 1.489796e-01   
## 201 202 203 204 205   
## 1.516302e-01 8.656534e-02 3.271820e-01 1.855220e-01 1.456585e-01   
## 206 207 208 209 210   
## 1.595520e-01 6.181673e-02 1.006891e-01 1.156957e-01 2.063571e-01   
## 211 212 213 214 215   
## 3.726734e-02 1.232447e-01 9.876397e-02 1.601270e-01 8.190468e-02   
## 216 217 218 219 220   
## 2.014163e-01 2.009435e-01 1.115768e-01 6.963075e-02 9.675770e-02   
## 221 222 223 224 225   
## 6.544674e-01 1.521610e-01 9.120096e-02 7.091660e-02 8.284217e-02   
## 226 227 228 229 230   
## 1.857438e-01 1.423959e-01 1.484281e-01 1.045083e-01 1.504211e-01   
## 231 232 233 234 235   
## 3.874961e-02 5.020405e-01 1.100178e-01 1.469341e-01 1.048559e-01   
## 236 237 238 239 240   
## 1.106364e-01 1.439830e-01 8.659192e-02 4.387089e-01 1.261523e-01   
## 241 242 243 244 245   
## 6.072571e-02 8.092153e-02 4.218931e-01 4.414247e-02 7.144513e-02   
## 246 247 248 249 250   
## 7.753309e-02 1.213301e-01 1.087571e-01 1.415716e-01 1.580004e-01   
## 251 252 253 254 255   
## 1.243674e-01 9.584978e-02 1.206527e-01 1.179426e-01 7.576177e-02   
## 256 257 258 259 260   
## -3.428832e-02 8.967149e-02 8.477460e-02 6.808509e-02 1.207978e-01   
## 261 262 263 264 265   
## 4.035894e-01 1.751565e-01 8.826460e-02 1.315460e-01 9.938699e-02   
## 266 267 268 269 270   
## 1.405550e-01 1.269332e-01 2.832748e-01 1.597218e-01 6.282946e-02   
## 271 272 273 274 275   
## 1.577686e-01 4.587909e-01 1.722190e-01 1.258209e-01 1.770127e-01   
## 276 277 278 279 280   
## 1.733472e-01 1.426322e-01 1.354485e-01 4.329025e-02 5.531811e-02   
## 281 282 283 284 285   
## 1.142134e-01 1.194616e-01 1.401092e-01 2.243664e-01 1.025492e-01   
## 286 287 288 289 290   
## 1.089947e-01 1.286842e-01 1.415545e-01 3.926323e-01 1.355740e-01   
## 291 292 293 294 295   
## 1.144275e-01 1.065514e-01 -1.861011e-14 1.188712e-01 1.643136e-01   
## 296 297 298 299 300   
## 1.261980e-01 1.480384e-01 1.016118e-01 6.689373e-02 1.287521e-01   
## 301 302 303 304 305   
## 1.112564e-01 1.333788e-01 2.533241e-01 1.142754e-01 8.258231e-02   
## 306 307 308 309 310   
## 1.514634e-01 5.017593e-01 1.410850e-01 1.037745e-01 1.227324e-01   
## 311 312 313 314 315   
## 1.186609e-01 1.548131e-01 1.346690e-01 1.550537e-01 2.078071e-01   
## 316 317 318 319 320   
## 1.923322e-01 1.221353e-01 1.624750e-01 1.038941e-01 -1.938987e-02   
## 321 322 323 324 325   
## 3.318960e-01 1.089028e-01 9.579219e-02 2.178331e-01 6.854797e-02   
## 326 327 328 329 330   
## -8.156549e-02 1.432522e-01 1.051268e-01 1.632516e-01 2.117089e-01   
## 331 332 333 334 335   
## 6.556533e-02 7.599800e-02 9.613176e-02 1.535222e-01 1.850511e-01   
## 336 337 338 339 340   
## 1.042012e-01 1.095602e-01 1.784554e-01 6.507343e-02 1.393341e-01   
## 341 342 343 344 345   
## 7.008398e-02 1.633121e-01 1.513203e-01 8.753379e-02 1.248546e-01   
## 346 347 348 349 350   
## 4.603580e-01 1.400403e-01 2.604203e-01 1.097098e-01 4.905857e-02   
## 351 352 353 354 355   
## 1.541738e-01 9.416944e-02 3.601805e-03 3.377476e-02 5.520733e-02   
## 356 357 358 359 360   
## 1.179248e-01 1.395526e-01 1.697266e-01 1.546964e-01 1.852891e-01   
## 361 362 363 364 365   
## 1.447506e-01 8.319938e-02 1.364701e-01 1.575206e-01 1.009799e-01   
## 366 367 368 369 370   
## 1.640591e-01 9.846429e-02 5.352181e-01 3.584745e-02 1.178555e-01   
## 371 372 373 374 375   
## 1.408606e-01 1.518590e-01 7.941269e-02 4.153260e-01 1.583724e-01   
## 376 377 378 379 380   
## 1.088973e-01 6.111142e-02 1.605042e-01 1.035738e-01 1.437476e-01   
## 381 382 383 384 385   
## 1.183605e-01 3.215497e-02 1.749817e-01 9.688614e-02 1.633298e-01   
## 386 387 388 389 390   
## 1.579591e-01 5.238022e-02 1.479093e-01 3.212688e-01 4.305457e-01   
## 391 392 393 394 395   
## 1.501303e-01 2.314246e-01 3.218233e-01 1.212982e-01 9.437734e-02   
## 396 397 398 399 400   
## 1.261043e-01 1.190247e-01 1.004736e-01 1.620519e-01 9.778447e-02   
## 401 402 403 404 405   
## 1.007983e-01 1.305575e-01 1.350440e-01 1.109022e-01 2.040658e-01   
## 406 407 408 409 410   
## -1.021890e-02 7.300703e-02 2.163841e-01 1.361232e-01 9.477355e-02   
## 411 412 413 414 415   
## 2.174809e-01 2.460840e-01 7.652506e-02 2.173274e-01 1.298851e-01   
## 416 417 418 419 420   
## 7.949833e-02 8.767701e-02 7.997812e-02 2.211643e-01 1.997421e-01   
## 421 422 423 424 425   
## 4.035199e-01 4.413226e-01 1.526060e-01 8.931423e-02 1.817058e-01   
## 426 427 428 429 430   
## 1.250782e-01 2.982799e-01 8.445867e-02 1.373898e-01 3.872985e-01   
## 431 432 433 434 435   
## 1.197765e-01 1.234491e-01 1.101684e-01 6.064900e-02 8.313740e-02   
## 436 437 438 439 440   
## 8.569730e-02 9.137369e-02 9.899136e-02 3.446283e-01 9.899135e-02   
## 441 442 443 444 445   
## 1.414792e-01 1.707133e-01 1.810002e-01 6.990534e-02 -2.200762e-02   
## 446 447 448 449 450   
## 9.629269e-02 5.119255e-01 1.649661e-01 1.453840e-01 1.384085e-01   
## 451 452 453 454 455   
## 1.156454e-01 1.769894e-01 3.010554e-01 9.832700e-02 8.701265e-02   
## 456 457 458 459 460   
## 1.877457e-01 1.555808e-01 5.005508e-02 6.267591e-02 1.114114e-01   
## 461 462 463 464 465   
## 1.347596e-01 1.743120e-01 1.173594e-01 1.669034e-01 3.006509e-01   
## 466 467 468 469 470   
## 3.384697e-01 6.854419e-02 2.841429e-01 1.758887e-01 9.079349e-02

res<- predict(survivalafter1year, train.type = 'response')  
res

## 1 2 3 4 5   
## 4.604229e-01 1.242715e-01 9.215756e-02 6.597396e-02 1.107560e-01   
## 6 7 8 9 10   
## 9.375049e-02 1.047903e-01 1.525479e-01 8.777443e-02 9.883335e-02   
## 11 12 13 14 15   
## 1.485388e-01 1.037465e-01 9.197893e-02 4.465052e-01 1.235171e-01   
## 16 17 18 19 20   
## 9.772024e-02 2.212953e-01 2.077640e-01 1.553608e-01 9.645209e-02   
## 21 22 23 24 25   
## 9.644770e-02 1.716039e-01 1.556531e-01 7.256418e-02 4.880745e-01   
## 26 27 28 29 30   
## 3.293027e-01 7.988803e-02 8.146768e-02 7.986590e-02 -2.908454e-02   
## 31 32 33 34 35   
## 3.819617e-01 9.801553e-02 5.227190e-01 1.727025e-01 1.694895e-01   
## 36 37 38 39 40   
## 1.015955e-01 1.646422e-01 1.232897e-01 5.528116e-02 4.266473e-02   
## 41 42 43 44 45   
## 4.310690e-01 2.010173e-01 1.381191e-01 5.041369e-01 1.249284e-01   
## 46 47 48 49 50   
## 9.922606e-02 1.145825e-01 1.549017e-01 1.032638e-01 9.637387e-02   
## 51 52 53 54 55   
## 1.625164e-01 6.871251e-02 1.386949e-01 1.705971e-01 1.233635e-01   
## 56 57 58 59 60   
## 1.753950e-01 5.429647e-02 7.936249e-02 1.275851e-01 1.152129e-01   
## 61 62 63 64 65   
## 2.721067e-01 1.491426e-01 3.686437e-02 6.609207e-02 2.000152e-01   
## 66 67 68 69 70   
## 1.367609e-01 8.845795e-02 1.449892e-01 1.457530e-01 1.441292e-01   
## 71 72 73 74 75   
## 7.052096e-02 1.313267e-01 7.573080e-02 3.556236e-02 4.507849e-02   
## 76 77 78 79 80   
## 3.684122e-01 1.193362e-01 1.363829e-01 1.545725e-01 1.495634e-01   
## 81 82 83 84 85   
## 1.204921e-01 4.152846e-01 1.362118e-01 9.173976e-02 1.014154e-01   
## 86 87 88 89 90   
## 1.189657e-01 8.610992e-02 1.582942e-01 4.694970e-01 2.913140e-02   
## 91 92 93 94 95   
## 1.789691e-01 1.050929e-01 1.243955e-01 4.754900e-03 1.833912e-01   
## 96 97 98 99 100   
## 4.473006e-02 1.930928e-01 3.455992e-03 -3.329092e-02 9.867842e-02   
## 101 102 103 104 105   
## 8.573714e-02 1.741585e-01 1.570313e-01 1.023990e-01 8.680158e-02   
## 106 107 108 109 110   
## 4.005706e-01 1.475777e-01 1.202589e-01 8.390504e-02 1.419915e-01   
## 111 112 113 114 115   
## 1.641645e-01 1.136953e-01 4.298406e-03 4.090794e-02 1.003953e-01   
## 116 117 118 119 120   
## 1.342536e-01 1.900015e-01 1.378711e-01 1.136120e-01 1.596864e-01   
## 121 122 123 124 125   
## 1.329777e-01 1.338895e-01 3.742906e-01 1.242479e-01 1.396987e-01   
## 126 127 128 129 130   
## 1.502030e-01 5.170413e-02 1.207638e-01 1.858151e-01 7.953282e-02   
## 131 132 133 134 135   
## 8.041065e-02 2.353840e-01 2.383605e-01 1.134089e-01 9.145193e-02   
## 136 137 138 139 140   
## 9.071079e-02 3.335182e-01 4.063309e-01 1.497966e-01 1.152085e-01   
## 141 142 143 144 145   
## 1.760059e-01 1.176488e-01 2.484840e-02 2.066541e-01 1.448767e-01   
## 146 147 148 149 150   
## 1.152232e-01 7.081326e-02 1.457265e-01 1.320560e-01 1.003495e-01   
## 151 152 153 154 155   
## 1.451714e-01 6.958647e-02 1.558258e-01 1.385339e-01 1.391466e-01   
## 156 157 158 159 160   
## 1.515283e-01 2.879473e-01 1.453368e-01 1.372717e-01 1.050707e-01   
## 161 162 163 164 165   
## 1.515490e-01 8.691670e-02 1.385044e-01 2.278549e-01 4.559099e-01   
## 166 167 168 169 170   
## 1.301752e-01 1.458599e-01 1.115262e-01 1.012058e-01 3.033333e-01   
## 171 172 173 174 175   
## 1.193687e-01 2.092314e-01 2.021230e-01 9.268310e-02 1.263604e-01   
## 176 177 178 179 180   
## 1.299537e-01 3.803111e-01 1.368864e-01 9.654951e-02 1.383775e-01   
## 181 182 183 184 185   
## 1.233621e-01 8.675286e-02 8.570763e-02 1.384379e-01 9.700719e-02   
## 186 187 188 189 190   
## 5.035715e-01 8.244355e-02 1.232168e-01 1.132347e-01 1.319417e-01   
## 191 192 193 194 195   
## 1.497317e-01 9.402801e-02 1.440396e-01 1.126486e-01 7.270588e-02   
## 196 197 198 199 200   
## 1.456966e-01 1.474833e-01 1.382985e-01 8.197407e-02 1.489796e-01   
## 201 202 203 204 205   
## 1.516302e-01 8.656534e-02 3.271820e-01 1.855220e-01 1.456585e-01   
## 206 207 208 209 210   
## 1.595520e-01 6.181673e-02 1.006891e-01 1.156957e-01 2.063571e-01   
## 211 212 213 214 215   
## 3.726734e-02 1.232447e-01 9.876397e-02 1.601270e-01 8.190468e-02   
## 216 217 218 219 220   
## 2.014163e-01 2.009435e-01 1.115768e-01 6.963075e-02 9.675770e-02   
## 221 222 223 224 225   
## 6.544674e-01 1.521610e-01 9.120096e-02 7.091660e-02 8.284217e-02   
## 226 227 228 229 230   
## 1.857438e-01 1.423959e-01 1.484281e-01 1.045083e-01 1.504211e-01   
## 231 232 233 234 235   
## 3.874961e-02 5.020405e-01 1.100178e-01 1.469341e-01 1.048559e-01   
## 236 237 238 239 240   
## 1.106364e-01 1.439830e-01 8.659192e-02 4.387089e-01 1.261523e-01   
## 241 242 243 244 245   
## 6.072571e-02 8.092153e-02 4.218931e-01 4.414247e-02 7.144513e-02   
## 246 247 248 249 250   
## 7.753309e-02 1.213301e-01 1.087571e-01 1.415716e-01 1.580004e-01   
## 251 252 253 254 255   
## 1.243674e-01 9.584978e-02 1.206527e-01 1.179426e-01 7.576177e-02   
## 256 257 258 259 260   
## -3.428832e-02 8.967149e-02 8.477460e-02 6.808509e-02 1.207978e-01   
## 261 262 263 264 265   
## 4.035894e-01 1.751565e-01 8.826460e-02 1.315460e-01 9.938699e-02   
## 266 267 268 269 270   
## 1.405550e-01 1.269332e-01 2.832748e-01 1.597218e-01 6.282946e-02   
## 271 272 273 274 275   
## 1.577686e-01 4.587909e-01 1.722190e-01 1.258209e-01 1.770127e-01   
## 276 277 278 279 280   
## 1.733472e-01 1.426322e-01 1.354485e-01 4.329025e-02 5.531811e-02   
## 281 282 283 284 285   
## 1.142134e-01 1.194616e-01 1.401092e-01 2.243664e-01 1.025492e-01   
## 286 287 288 289 290   
## 1.089947e-01 1.286842e-01 1.415545e-01 3.926323e-01 1.355740e-01   
## 291 292 293 294 295   
## 1.144275e-01 1.065514e-01 -1.861011e-14 1.188712e-01 1.643136e-01   
## 296 297 298 299 300   
## 1.261980e-01 1.480384e-01 1.016118e-01 6.689373e-02 1.287521e-01   
## 301 302 303 304 305   
## 1.112564e-01 1.333788e-01 2.533241e-01 1.142754e-01 8.258231e-02   
## 306 307 308 309 310   
## 1.514634e-01 5.017593e-01 1.410850e-01 1.037745e-01 1.227324e-01   
## 311 312 313 314 315   
## 1.186609e-01 1.548131e-01 1.346690e-01 1.550537e-01 2.078071e-01   
## 316 317 318 319 320   
## 1.923322e-01 1.221353e-01 1.624750e-01 1.038941e-01 -1.938987e-02   
## 321 322 323 324 325   
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## 326 327 328 329 330   
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## 331 332 333 334 335   
## 6.556533e-02 7.599800e-02 9.613176e-02 1.535222e-01 1.850511e-01   
## 336 337 338 339 340   
## 1.042012e-01 1.095602e-01 1.784554e-01 6.507343e-02 1.393341e-01   
## 341 342 343 344 345   
## 7.008398e-02 1.633121e-01 1.513203e-01 8.753379e-02 1.248546e-01   
## 346 347 348 349 350   
## 4.603580e-01 1.400403e-01 2.604203e-01 1.097098e-01 4.905857e-02   
## 351 352 353 354 355   
## 1.541738e-01 9.416944e-02 3.601805e-03 3.377476e-02 5.520733e-02   
## 356 357 358 359 360   
## 1.179248e-01 1.395526e-01 1.697266e-01 1.546964e-01 1.852891e-01   
## 361 362 363 364 365   
## 1.447506e-01 8.319938e-02 1.364701e-01 1.575206e-01 1.009799e-01   
## 366 367 368 369 370   
## 1.640591e-01 9.846429e-02 5.352181e-01 3.584745e-02 1.178555e-01   
## 371 372 373 374 375   
## 1.408606e-01 1.518590e-01 7.941269e-02 4.153260e-01 1.583724e-01   
## 376 377 378 379 380   
## 1.088973e-01 6.111142e-02 1.605042e-01 1.035738e-01 1.437476e-01   
## 381 382 383 384 385   
## 1.183605e-01 3.215497e-02 1.749817e-01 9.688614e-02 1.633298e-01   
## 386 387 388 389 390   
## 1.579591e-01 5.238022e-02 1.479093e-01 3.212688e-01 4.305457e-01   
## 391 392 393 394 395   
## 1.501303e-01 2.314246e-01 3.218233e-01 1.212982e-01 9.437734e-02   
## 396 397 398 399 400   
## 1.261043e-01 1.190247e-01 1.004736e-01 1.620519e-01 9.778447e-02   
## 401 402 403 404 405   
## 1.007983e-01 1.305575e-01 1.350440e-01 1.109022e-01 2.040658e-01   
## 406 407 408 409 410   
## -1.021890e-02 7.300703e-02 2.163841e-01 1.361232e-01 9.477355e-02   
## 411 412 413 414 415   
## 2.174809e-01 2.460840e-01 7.652506e-02 2.173274e-01 1.298851e-01   
## 416 417 418 419 420   
## 7.949833e-02 8.767701e-02 7.997812e-02 2.211643e-01 1.997421e-01   
## 421 422 423 424 425   
## 4.035199e-01 4.413226e-01 1.526060e-01 8.931423e-02 1.817058e-01   
## 426 427 428 429 430   
## 1.250782e-01 2.982799e-01 8.445867e-02 1.373898e-01 3.872985e-01   
## 431 432 433 434 435   
## 1.197765e-01 1.234491e-01 1.101684e-01 6.064900e-02 8.313740e-02   
## 436 437 438 439 440   
## 8.569730e-02 9.137369e-02 9.899136e-02 3.446283e-01 9.899135e-02   
## 441 442 443 444 445   
## 1.414792e-01 1.707133e-01 1.810002e-01 6.990534e-02 -2.200762e-02   
## 446 447 448 449 450   
## 9.629269e-02 5.119255e-01 1.649661e-01 1.453840e-01 1.384085e-01   
## 451 452 453 454 455   
## 1.156454e-01 1.769894e-01 3.010554e-01 9.832700e-02 8.701265e-02   
## 456 457 458 459 460   
## 1.877457e-01 1.555808e-01 5.005508e-02 6.267591e-02 1.114114e-01   
## 461 462 463 464 465   
## 1.347596e-01 1.743120e-01 1.173594e-01 1.669034e-01 3.006509e-01   
## 466 467 468 469 470   
## 3.384697e-01 6.854419e-02 2.841429e-01 1.758887e-01 9.079349e-02

confmatrix <- table(actual\_value=ts\_df$Risk1YR, predicted\_value = res >0.5)  
confmatrix

## predicted\_value  
## actual\_value FALSE TRUE  
## FALSE 396 4  
## TRUE 66 4

1. It did a good job at predicting those results that would be false, however not so much with true.