Homework 1

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**Challenge 1**

v <- c("Stately", "plump", "Buck", "Mulligan", "came", "from", "the", "stairhead", "bearing", "a", "bowl", "of", "lather", "on", "which", "a", "mirror", "and", "a", "razor", "lay", "crossed", "NA", "NA")  
  
m <- matrix(data = v, nrow =3, ncol = 8, byrow = FALSE)  
m

## [,1] [,2] [,3] [,4] [,5] [,6] [,7]   
## [1,] "Stately" "Mulligan" "the" "a" "lather" "a" "a"   
## [2,] "plump" "came" "stairhead" "bowl" "on" "mirror" "razor"  
## [3,] "Buck" "from" "bearing" "of" "which" "and" "lay"   
## [,8]   
## [1,] "crossed"  
## [2,] "NA"   
## [3,] "NA"

x <- m[3,]  
x

## [1] "Buck" "from" "bearing" "of" "which" "and" "lay"   
## [8] "NA"

#coundn’t figure out stringr – “error message: Error in UseMethod(”type“) : no applicable method for ‘type’ applied to an object of class”c(‘double’, ‘numeric’)""

**Challenge 2**

m <- matrix(data = 1:80, nrow = 8, ncol = 10, byrow = FALSE)  
m

## [,1] [,2] [,3] [,4] [,5] [,6] [,7] [,8] [,9] [,10]  
## [1,] 1 9 17 25 33 41 49 57 65 73  
## [2,] 2 10 18 26 34 42 50 58 66 74  
## [3,] 3 11 19 27 35 43 51 59 67 75  
## [4,] 4 12 20 28 36 44 52 60 68 76  
## [5,] 5 13 21 29 37 45 53 61 69 77  
## [6,] 6 14 22 30 38 46 54 62 70 78  
## [7,] 7 15 23 31 39 47 55 63 71 79  
## [8,] 8 16 24 32 40 48 56 64 72 80

x <- m[,c(2,3,6)]   
x

## [,1] [,2] [,3]  
## [1,] 9 17 41  
## [2,] 10 18 42  
## [3,] 11 19 43  
## [4,] 12 20 44  
## [5,] 13 21 45  
## [6,] 14 22 46  
## [7,] 15 23 47  
## [8,] 16 24 48

#part 1  
  
x <- m[c(6,8),]   
x

## [,1] [,2] [,3] [,4] [,5] [,6] [,7] [,8] [,9] [,10]  
## [1,] 6 14 22 30 38 46 54 62 70 78  
## [2,] 8 16 24 32 40 48 56 64 72 80

#part 2  
  
x <- m[c(2:6), c(2:9)]  
x

## [,1] [,2] [,3] [,4] [,5] [,6] [,7] [,8]  
## [1,] 10 18 26 34 42 50 58 66  
## [2,] 11 19 27 35 43 51 59 67  
## [3,] 12 20 28 36 44 52 60 68  
## [4,] 13 21 29 37 45 53 61 69  
## [5,] 14 22 30 38 46 54 62 70

#part3

**Challenge 3**

a <- array(data = 400:1, dim = c(5, 5, 4, 4))  
a

## , , 1, 1  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 400 395 390 385 380  
## [2,] 399 394 389 384 379  
## [3,] 398 393 388 383 378  
## [4,] 397 392 387 382 377  
## [5,] 396 391 386 381 376  
##   
## , , 2, 1  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 375 370 365 360 355  
## [2,] 374 369 364 359 354  
## [3,] 373 368 363 358 353  
## [4,] 372 367 362 357 352  
## [5,] 371 366 361 356 351  
##   
## , , 3, 1  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 350 345 340 335 330  
## [2,] 349 344 339 334 329  
## [3,] 348 343 338 333 328  
## [4,] 347 342 337 332 327  
## [5,] 346 341 336 331 326  
##   
## , , 4, 1  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 325 320 315 310 305  
## [2,] 324 319 314 309 304  
## [3,] 323 318 313 308 303  
## [4,] 322 317 312 307 302  
## [5,] 321 316 311 306 301  
##   
## , , 1, 2  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 300 295 290 285 280  
## [2,] 299 294 289 284 279  
## [3,] 298 293 288 283 278  
## [4,] 297 292 287 282 277  
## [5,] 296 291 286 281 276  
##   
## , , 2, 2  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 275 270 265 260 255  
## [2,] 274 269 264 259 254  
## [3,] 273 268 263 258 253  
## [4,] 272 267 262 257 252  
## [5,] 271 266 261 256 251  
##   
## , , 3, 2  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 250 245 240 235 230  
## [2,] 249 244 239 234 229  
## [3,] 248 243 238 233 228  
## [4,] 247 242 237 232 227  
## [5,] 246 241 236 231 226  
##   
## , , 4, 2  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 225 220 215 210 205  
## [2,] 224 219 214 209 204  
## [3,] 223 218 213 208 203  
## [4,] 222 217 212 207 202  
## [5,] 221 216 211 206 201  
##   
## , , 1, 3  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 200 195 190 185 180  
## [2,] 199 194 189 184 179  
## [3,] 198 193 188 183 178  
## [4,] 197 192 187 182 177  
## [5,] 196 191 186 181 176  
##   
## , , 2, 3  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 175 170 165 160 155  
## [2,] 174 169 164 159 154  
## [3,] 173 168 163 158 153  
## [4,] 172 167 162 157 152  
## [5,] 171 166 161 156 151  
##   
## , , 3, 3  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 150 145 140 135 130  
## [2,] 149 144 139 134 129  
## [3,] 148 143 138 133 128  
## [4,] 147 142 137 132 127  
## [5,] 146 141 136 131 126  
##   
## , , 4, 3  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 125 120 115 110 105  
## [2,] 124 119 114 109 104  
## [3,] 123 118 113 108 103  
## [4,] 122 117 112 107 102  
## [5,] 121 116 111 106 101  
##   
## , , 1, 4  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 100 95 90 85 80  
## [2,] 99 94 89 84 79  
## [3,] 98 93 88 83 78  
## [4,] 97 92 87 82 77  
## [5,] 96 91 86 81 76  
##   
## , , 2, 4  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 75 70 65 60 55  
## [2,] 74 69 64 59 54  
## [3,] 73 68 63 58 53  
## [4,] 72 67 62 57 52  
## [5,] 71 66 61 56 51  
##   
## , , 3, 4  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 50 45 40 35 30  
## [2,] 49 44 39 34 29  
## [3,] 48 43 38 33 28  
## [4,] 47 42 37 32 27  
## [5,] 46 41 36 31 26  
##   
## , , 4, 4  
##   
## [,1] [,2] [,3] [,4] [,5]  
## [1,] 25 20 15 10 5  
## [2,] 24 19 14 9 4  
## [3,] 23 18 13 8 3  
## [4,] 22 17 12 7 2  
## [5,] 21 16 11 6 1

a[1, 1, 1, 2]

## [1] 300

#returns 300  
  
a[2, 3, 2, ]

## [1] 364 264 164 64

#returns 364 264 164 64  
  
a[1:5, 1:5, 3, 3]

## [,1] [,2] [,3] [,4] [,5]  
## [1,] 150 145 140 135 130  
## [2,] 149 144 139 134 129  
## [3,] 148 143 138 133 128  
## [4,] 147 142 137 132 127  
## [5,] 146 141 136 131 126

# [,1] [,2] [,3] [,4] [,5]  
#[1,] 150 145 140 135 130  
#[2,] 149 144 139 134 129  
#[3,] 148 143 138 133 128  
#[4,] 147 142 137 132 127  
#[5,] 146 141 136 131 126

**Challenge 4**

Platyrrhini <- c("Cebidea", "Atelidae", "Pitheciidae")  
Catarrhini <- c("Cercopithecidea", "Hylobatidae", "Hominidae")  
Anthropoidea <- list(Platyrrhini, Catarrhini)  
names(Anthropoidea) <- list("Platyrrhini", "Catarrhini")  
Anthropoidea

## $Platyrrhini  
## [1] "Cebidea" "Atelidae" "Pitheciidae"  
##   
## $Catarrhini  
## [1] "Cercopithecidea" "Hylobatidae" "Hominidae"

Tarsioidea <- c("Tarsiidae")  
Haplorhini <- list(Anthropoidea, Tarsioidea)  
names(Haplorhini) <- list("Anthropoidea", "Tarsioidea")  
Haplorhini

## $Anthropoidea  
## $Anthropoidea$Platyrrhini  
## [1] "Cebidea" "Atelidae" "Pitheciidae"  
##   
## $Anthropoidea$Catarrhini  
## [1] "Cercopithecidea" "Hylobatidae" "Hominidae"   
##   
##   
## $Tarsioidea  
## [1] "Tarsiidae"

Lorisoidea <- c("Lorisidae", "Galagidae")  
Lemuroidea <- c("Cheirogaleidae", "Lepilemuridae", "Indriidae", "Lemuridae", "Daubentoniidae")  
Strepsirhini <- list(Lorisoidea, Lemuroidea)  
names(Strepsirhini) <- list("Lorisoidea", "Lemuroidea")  
Strepsirhini

## $Lorisoidea  
## [1] "Lorisidae" "Galagidae"  
##   
## $Lemuroidea  
## [1] "Cheirogaleidae" "Lepilemuridae" "Indriidae" "Lemuridae"   
## [5] "Daubentoniidae"

Primates <- list(Haplorhini, Strepsirhini)  
names(Primates) <- list("Haplorhini", "Strepsirhini")  
Primates

## $Haplorhini  
## $Haplorhini$Anthropoidea  
## $Haplorhini$Anthropoidea$Platyrrhini  
## [1] "Cebidea" "Atelidae" "Pitheciidae"  
##   
## $Haplorhini$Anthropoidea$Catarrhini  
## [1] "Cercopithecidea" "Hylobatidae" "Hominidae"   
##   
##   
## $Haplorhini$Tarsioidea  
## [1] "Tarsiidae"  
##   
##   
## $Strepsirhini  
## $Strepsirhini$Lorisoidea  
## [1] "Lorisidae" "Galagidae"  
##   
## $Strepsirhini$Lemuroidea  
## [1] "Cheirogaleidae" "Lepilemuridae" "Indriidae" "Lemuridae"   
## [5] "Daubentoniidae"

**Challenge 5**

m3 <- matrix(data = c(3, 0, 1 ,23, 1, 2, 33, 1, 1, 42, 0, 1, 41, 0, 2), nrow = 5, ncol = 3, byrow = TRUE)  
m3

## [,1] [,2] [,3]  
## [1,] 3 0 1  
## [2,] 23 1 2  
## [3,] 33 1 1  
## [4,] 42 0 1  
## [5,] 41 0 2

m3.df <- as.data.frame(t(m3))  
  
as.logical(m3.df$Col2)

## logical(0)

as.factor(m3.df$Col3)

## factor(0)  
## Levels:

str(m3.df)

## 'data.frame': 3 obs. of 5 variables:  
## $ V1: num 3 0 1  
## $ V2: num 23 1 2  
## $ V3: num 33 1 1  
## $ V4: num 42 0 1  
## $ V5: num 41 0 2

# I think this worked… not really sure what to look for