Assignment3 - Introuction to Data Analysis

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Table of Contents

## 1. Import the data into R.

### 1a) How many observations are there in the dataset?

# load the forest fires data from the csv file at  
# https://archive.ics.uci.edu/ml/machine-learning-databases/forest-fires/forestfires.csv  
# getwd()  
# setwd("C:/Users/esheega/Documents/UCSC/DataAnalyticsR/assignment3")  
ffires = read.csv("forestfires.csv")  
dim(ffires)[1]

## [1] 517

### 1b) How many observations are there with a fire (i.e., area>0)

areaFires = ffires[which(ffires$area > 0.0),]  
dim(areaFires)[1]

## [1] 270

### 1c) How many observations are there with a rain (i.e., rain>0)

rainFires = ffires[which(ffires$rain > 0.0),]  
dim(rainFires)[1]

## [1] 8

### 1d) How many observations are there with both a fire and a rain?

rainAreaFires = ffires[which(ffires$rain > 0.0 & ffires$area > 0.0),]  
dim(rainAreaFires)[1]

## [1] 2

## 2) Show the columns month, day, area of the all the observations.

ffires[,c("month","day","area")]

## month day area  
## 1 mar fri 0.00  
## 2 oct tue 0.00  
## 3 oct sat 0.00  
## 4 mar fri 0.00  
## 5 mar sun 0.00  
## 6 aug sun 0.00  
## 7 aug mon 0.00  
## 8 aug mon 0.00  
## 9 sep tue 0.00  
## 10 sep sat 0.00  
## 11 sep sat 0.00  
## 12 sep sat 0.00  
## 13 aug fri 0.00  
## 14 sep mon 0.00  
## 15 sep wed 0.00  
## 16 sep fri 0.00  
## 17 mar sat 0.00  
## 18 oct mon 0.00  
## 19 mar wed 0.00  
## 20 apr sat 0.00  
## 21 sep tue 0.00  
## 22 sep mon 0.00  
## 23 jun sun 0.00  
## 24 aug sat 0.00  
## 25 aug sat 0.00  
## 26 aug sun 0.00  
## 27 sep fri 0.00  
## 28 sep mon 0.00  
## 29 sep sat 0.00  
## 30 sep sun 0.00  
## 31 sep fri 0.00  
## 32 sep mon 0.00  
## 33 sep fri 0.00  
## 34 sep sun 0.00  
## 35 sep mon 0.00  
## 36 sep tue 0.00  
## 37 oct tue 0.00  
## 38 oct fri 0.00  
## 39 oct sat 0.00  
## 40 mar tue 0.00  
## 41 jul tue 0.00  
## 42 aug sat 0.00  
## 43 aug tue 0.00  
## 44 sep sat 0.00  
## 45 sep wed 0.00  
## 46 sep wed 0.00  
## 47 sep mon 0.00  
## 48 jul mon 0.00  
## 49 mar mon 0.00  
## 50 mar mon 0.00  
## 51 sep thu 0.00  
## 52 aug sun 0.00  
## 53 aug wed 0.00  
## 54 aug wed 0.00  
## 55 aug thu 0.00  
## 56 sep thu 0.00  
## 57 sep tue 0.00  
## 58 oct sun 0.00  
## 59 feb mon 0.00  
## 60 feb fri 0.00  
## 61 mar sun 0.00  
## 62 mar sun 0.00  
## 63 aug thu 0.00  
## 64 aug sun 0.00  
## 65 aug mon 0.00  
## 66 aug thu 0.00  
## 67 sep fri 0.00  
## 68 sep fri 0.00  
## 69 sep fri 0.00  
## 70 mar fri 0.00  
## 71 mar fri 0.00  
## 72 sep fri 0.00  
## 73 mar fri 0.00  
## 74 aug tue 0.00  
## 75 sep fri 0.00  
## 76 feb thu 0.00  
## 77 feb fri 0.00  
## 78 mar mon 0.00  
## 79 aug fri 0.00  
## 80 aug tue 0.00  
## 81 aug sun 0.00  
## 82 aug sun 0.00  
## 83 aug tue 0.00  
## 84 aug wed 0.00  
## 85 aug thu 0.00  
## 86 sep thu 0.00  
## 87 sep thu 0.00  
## 88 sep thu 0.00  
## 89 sep sun 0.00  
## 90 mar sat 0.00  
## 91 aug sat 0.00  
## 92 mar fri 0.00  
## 93 aug sun 0.00  
## 94 aug sun 0.00  
## 95 aug mon 0.00  
## 96 sep sun 0.00  
## 97 feb sat 0.00  
## 98 mar sat 0.00  
## 99 aug sun 0.00  
## 100 aug sun 0.00  
## 101 aug sun 0.00  
## 102 aug tue 0.00  
## 103 aug tue 0.00  
## 104 sep sat 0.00  
## 105 jan sat 0.00  
## 106 mar fri 0.00  
## 107 mar thu 0.00  
## 108 aug sun 0.00  
## 109 sep sat 0.00  
## 110 sep mon 0.00  
## 111 mar fri 0.00  
## 112 mar fri 0.00  
## 113 sep sun 0.00  
## 114 sep mon 0.00  
## 115 mar tue 0.00  
## 116 mar tue 0.00  
## 117 mar sat 0.00  
## 118 mar sat 0.00  
## 119 mar mon 0.00  
## 120 aug thu 0.00  
## 121 aug mon 0.00  
## 122 aug mon 0.00  
## 123 sep sun 0.00  
## 124 sep tue 0.00  
## 125 sep fri 0.00  
## 126 oct sun 0.00  
## 127 mar mon 0.00  
## 128 sep fri 0.00  
## 129 oct wed 0.00  
## 130 oct sun 0.00  
## 131 feb sat 0.00  
## 132 mar mon 0.00  
## 133 mar sun 0.00  
## 134 sep thu 0.00  
## 135 mar tue 0.00  
## 136 aug sat 0.00  
## 137 sep sun 0.00  
## 138 sep mon 0.00  
## 139 jul tue 0.36  
## 140 sep tue 0.43  
## 141 sep mon 0.47  
## 142 aug wed 0.55  
## 143 aug fri 0.61  
## 144 jul sat 0.71  
## 145 aug wed 0.77  
## 146 aug thu 0.90  
## 147 mar mon 0.95  
## 148 sep tue 0.96  
## 149 aug tue 1.07  
## 150 sep thu 1.12  
## 151 jun fri 1.19  
## 152 jul sun 1.36  
## 153 jul sat 1.43  
## 154 sep fri 1.46  
## 155 sep sat 1.46  
## 156 aug sun 1.56  
## 157 sep sat 1.61  
## 158 aug wed 1.63  
## 159 aug wed 1.64  
## 160 sep fri 1.69  
## 161 mar mon 1.75  
## 162 aug thu 1.90  
## 163 mar sat 1.94  
## 164 sep sat 1.95  
## 165 sep sun 2.01  
## 166 mar thu 2.14  
## 167 aug wed 2.29  
## 168 aug wed 2.51  
## 169 mar fri 2.53  
## 170 aug thu 2.55  
## 171 sep wed 2.57  
## 172 aug wed 2.69  
## 173 aug sun 2.74  
## 174 sep mon 3.07  
## 175 aug sat 3.50  
## 176 aug sat 4.53  
## 177 apr thu 4.61  
## 178 aug sun 4.69  
## 179 sep wed 4.88  
## 180 aug tue 5.23  
## 181 sep sun 5.33  
## 182 oct mon 5.44  
## 183 feb sun 6.38  
## 184 oct mon 6.83  
## 185 aug fri 6.96  
## 186 sep tue 7.04  
## 187 mar sun 7.19  
## 188 sep mon 7.30  
## 189 mar sat 7.40  
## 190 mar sun 8.24  
## 191 mar fri 8.31  
## 192 aug thu 8.68  
## 193 aug tue 8.71  
## 194 sep wed 9.41  
## 195 aug tue 10.01  
## 196 aug fri 10.02  
## 197 apr thu 10.93  
## 198 sep thu 11.06  
## 199 sep tue 11.24  
## 200 sep mon 11.32  
## 201 sep tue 11.53  
## 202 mar sun 12.10  
## 203 feb sun 13.05  
## 204 oct wed 13.70  
## 205 mar sat 13.99  
## 206 sep thu 14.57  
## 207 aug sat 15.45  
## 208 sep tue 17.20  
## 209 sep fri 19.23  
## 210 sep thu 23.41  
## 211 oct sat 24.23  
## 212 aug sat 26.00  
## 213 sep fri 26.13  
## 214 mar mon 27.35  
## 215 mar sat 28.66  
## 216 mar sat 28.66  
## 217 sep sun 29.48  
## 218 sep mon 30.32  
## 219 sep wed 31.72  
## 220 mar mon 31.86  
## 221 aug sun 32.07  
## 222 sep fri 35.88  
## 223 mar mon 36.85  
## 224 jul fri 37.02  
## 225 sep wed 37.71  
## 226 sep sun 48.55  
## 227 oct mon 49.37  
## 228 aug sat 58.30  
## 229 sep sun 64.10  
## 230 aug sat 71.30  
## 231 sep wed 88.49  
## 232 sep sun 95.18  
## 233 sep tue 103.39  
## 234 sep tue 105.66  
## 235 sep sat 154.88  
## 236 aug sun 196.48  
## 237 sep sat 200.94  
## 238 sep tue 212.88  
## 239 sep sat 1090.84  
## 240 apr sun 0.00  
## 241 apr wed 0.00  
## 242 apr fri 0.00  
## 243 aug sun 10.13  
## 244 aug sun 0.00  
## 245 aug sun 2.87  
## 246 aug sun 0.76  
## 247 aug sun 0.09  
## 248 aug wed 0.75  
## 249 aug wed 0.00  
## 250 aug wed 2.47  
## 251 aug wed 0.68  
## 252 aug wed 0.24  
## 253 aug wed 0.21  
## 254 aug thu 1.52  
## 255 aug thu 10.34  
## 256 aug thu 0.00  
## 257 aug sat 8.02  
## 258 aug sat 0.68  
## 259 aug sat 0.00  
## 260 aug sat 1.38  
## 261 aug mon 8.85  
## 262 aug fri 3.30  
## 263 aug fri 4.25  
## 264 aug fri 1.56  
## 265 aug fri 6.54  
## 266 aug tue 0.79  
## 267 aug tue 0.17  
## 268 aug tue 0.00  
## 269 aug tue 0.00  
## 270 aug tue 4.40  
## 271 aug tue 0.52  
## 272 aug tue 9.27  
## 273 aug tue 3.09  
## 274 dec sun 8.98  
## 275 dec wed 11.19  
## 276 dec thu 5.38  
## 277 dec mon 17.85  
## 278 dec mon 10.73  
## 279 dec mon 22.03  
## 280 dec mon 9.77  
## 281 dec fri 9.27  
## 282 dec tue 24.77  
## 283 feb sun 0.00  
## 284 feb wed 1.10  
## 285 feb fri 24.24  
## 286 jul sun 0.00  
## 287 jul wed 0.00  
## 288 jul sat 0.00  
## 289 jul sat 0.00  
## 290 jul sat 0.00  
## 291 jul sat 0.00  
## 292 jul sat 8.00  
## 293 jul fri 2.64  
## 294 jul tue 86.45  
## 295 jul tue 6.57  
## 296 jun sun 0.00  
## 297 jun sun 0.90  
## 298 jun sun 0.00  
## 299 jun wed 0.00  
## 300 jun sat 0.00  
## 301 jun mon 0.00  
## 302 jun mon 3.52  
## 303 jun fri 0.00  
## 304 jun fri 0.00  
## 305 may sat 0.00  
## 306 sep sun 0.00  
## 307 sep sun 0.41  
## 308 sep sun 5.18  
## 309 sep sun 0.00  
## 310 sep sun 0.00  
## 311 sep sun 0.00  
## 312 sep sun 14.29  
## 313 sep sun 0.00  
## 314 sep wed 0.00  
## 315 sep wed 1.58  
## 316 sep wed 0.00  
## 317 sep thu 0.00  
## 318 sep thu 3.78  
## 319 sep thu 0.00  
## 320 sep thu 4.41  
## 321 sep thu 34.36  
## 322 sep thu 7.21  
## 323 sep thu 1.01  
## 324 sep thu 2.18  
## 325 sep thu 4.42  
## 326 sep sat 0.00  
## 327 sep sat 0.00  
## 328 sep sat 0.00  
## 329 sep sat 0.00  
## 330 sep sat 3.33  
## 331 sep sat 6.58  
## 332 sep sat 15.64  
## 333 sep sat 11.22  
## 334 sep mon 2.13  
## 335 sep mon 0.00  
## 336 sep mon 0.00  
## 337 sep mon 0.00  
## 338 sep mon 56.04  
## 339 sep mon 7.48  
## 340 sep mon 1.47  
## 341 sep mon 3.93  
## 342 sep mon 0.00  
## 343 sep mon 0.00  
## 344 sep mon 2.18  
## 345 sep mon 6.10  
## 346 sep mon 5.83  
## 347 sep mon 28.19  
## 348 sep fri 0.00  
## 349 sep fri 0.00  
## 350 sep fri 1.64  
## 351 sep fri 3.71  
## 352 sep fri 7.31  
## 353 sep fri 2.03  
## 354 sep fri 1.72  
## 355 sep fri 5.97  
## 356 sep fri 13.06  
## 357 sep fri 1.26  
## 358 sep fri 0.00  
## 359 sep fri 0.00  
## 360 sep fri 8.12  
## 361 sep fri 1.09  
## 362 sep fri 3.94  
## 363 sep fri 0.52  
## 364 sep tue 2.93  
## 365 sep tue 5.65  
## 366 sep tue 20.03  
## 367 sep tue 1.75  
## 368 sep tue 0.00  
## 369 sep sat 12.64  
## 370 sep sun 0.00  
## 371 sep sun 11.06  
## 372 jul wed 0.00  
## 373 aug sun 0.00  
## 374 aug thu 0.00  
## 375 sep fri 18.30  
## 376 sep sat 39.35  
## 377 aug mon 0.00  
## 378 aug sat 174.63  
## 379 mar thu 0.00  
## 380 jan sun 0.00  
## 381 jul wed 7.73  
## 382 aug thu 16.33  
## 383 aug wed 5.86  
## 384 aug thu 42.87  
## 385 aug sat 12.18  
## 386 aug sun 16.00  
## 387 sep sun 24.59  
## 388 mar thu 0.00  
## 389 aug fri 28.74  
## 390 aug fri 0.00  
## 391 feb mon 9.96  
## 392 sep fri 30.18  
## 393 sep sun 70.76  
## 394 mar tue 0.00  
## 395 feb mon 0.00  
## 396 feb sun 51.78  
## 397 sep sun 3.64  
## 398 aug sun 3.63  
## 399 aug sat 0.00  
## 400 jun wed 0.00  
## 401 jun wed 8.16  
## 402 sep thu 4.95  
## 403 aug fri 0.00  
## 404 aug thu 0.00  
## 405 sep wed 6.04  
## 406 aug tue 0.00  
## 407 sep sat 3.95  
## 408 feb sat 0.00  
## 409 sep fri 7.80  
## 410 jul tue 0.00  
## 411 feb fri 0.00  
## 412 feb fri 4.62  
## 413 jul mon 1.63  
## 414 aug sat 0.00  
## 415 aug sun 0.00  
## 416 aug thu 746.28  
## 417 jul tue 7.02  
## 418 mar wed 0.00  
## 419 aug sun 2.44  
## 420 aug sun 3.05  
## 421 aug wed 185.76  
## 422 aug wed 0.00  
## 423 jul sun 6.30  
## 424 sep sat 0.72  
## 425 aug sat 4.96  
## 426 aug thu 0.00  
## 427 aug thu 0.00  
## 428 aug mon 2.35  
## 429 aug thu 0.00  
## 430 aug sun 3.20  
## 431 sep thu 0.00  
## 432 aug sat 6.36  
## 433 aug thu 0.00  
## 434 aug sun 15.34  
## 435 aug fri 0.00  
## 436 jul sat 0.00  
## 437 aug mon 0.54  
## 438 aug sat 0.00  
## 439 aug sat 6.43  
## 440 sep fri 0.33  
## 441 sep fri 0.00  
## 442 aug mon 1.23  
## 443 apr mon 3.35  
## 444 jul fri 0.00  
## 445 sep fri 9.96  
## 446 aug sun 0.00  
## 447 aug sun 0.00  
## 448 mar wed 0.00  
## 449 sep wed 0.00  
## 450 aug sun 0.00  
## 451 aug wed 6.43  
## 452 aug fri 9.71  
## 453 aug mon 0.00  
## 454 aug thu 0.00  
## 455 aug thu 0.00  
## 456 jul mon 0.00  
## 457 aug thu 0.00  
## 458 aug wed 82.75  
## 459 aug sat 3.32  
## 460 aug sat 1.94  
## 461 aug sat 0.00  
## 462 aug sat 0.00  
## 463 sep sun 3.71  
## 464 feb tue 5.39  
## 465 feb tue 2.14  
## 466 feb sat 6.84  
## 467 mar mon 3.18  
## 468 mar wed 5.55  
## 469 mar thu 6.61  
## 470 apr sun 61.13  
## 471 apr sun 0.00  
## 472 may fri 38.48  
## 473 jun mon 1.94  
## 474 jun sat 70.32  
## 475 jun thu 10.08  
## 476 jun thu 3.19  
## 477 jul thu 1.76  
## 478 jul sun 7.36  
## 479 jul sun 2.21  
## 480 jul mon 278.53  
## 481 jul thu 2.75  
## 482 jul thu 0.00  
## 483 aug sun 1.29  
## 484 aug sun 0.00  
## 485 aug sun 26.43  
## 486 aug mon 2.07  
## 487 aug tue 2.00  
## 488 aug tue 16.40  
## 489 aug tue 46.70  
## 490 aug wed 0.00  
## 491 aug wed 0.00  
## 492 aug thu 0.00  
## 493 aug fri 0.00  
## 494 aug fri 43.32  
## 495 aug sat 8.59  
## 496 aug mon 0.00  
## 497 aug mon 2.77  
## 498 aug tue 14.68  
## 499 aug tue 40.54  
## 500 aug tue 10.82  
## 501 aug tue 0.00  
## 502 aug tue 0.00  
## 503 aug tue 0.00  
## 504 aug wed 1.95  
## 505 aug wed 49.59  
## 506 aug thu 5.80  
## 507 aug fri 0.00  
## 508 aug fri 0.00  
## 509 aug fri 0.00  
## 510 aug fri 2.17  
## 511 aug fri 0.43  
## 512 aug sun 0.00  
## 513 aug sun 6.44  
## 514 aug sun 54.29  
## 515 aug sun 11.16  
## 516 aug sat 0.00  
## 517 nov tue 0.00

## 3) Show the columns month, day, area of the observations with a fire.

ffires[which(ffires$area > 0.0),c("month","day","area")]

## month day area  
## 139 jul tue 0.36  
## 140 sep tue 0.43  
## 141 sep mon 0.47  
## 142 aug wed 0.55  
## 143 aug fri 0.61  
## 144 jul sat 0.71  
## 145 aug wed 0.77  
## 146 aug thu 0.90  
## 147 mar mon 0.95  
## 148 sep tue 0.96  
## 149 aug tue 1.07  
## 150 sep thu 1.12  
## 151 jun fri 1.19  
## 152 jul sun 1.36  
## 153 jul sat 1.43  
## 154 sep fri 1.46  
## 155 sep sat 1.46  
## 156 aug sun 1.56  
## 157 sep sat 1.61  
## 158 aug wed 1.63  
## 159 aug wed 1.64  
## 160 sep fri 1.69  
## 161 mar mon 1.75  
## 162 aug thu 1.90  
## 163 mar sat 1.94  
## 164 sep sat 1.95  
## 165 sep sun 2.01  
## 166 mar thu 2.14  
## 167 aug wed 2.29  
## 168 aug wed 2.51  
## 169 mar fri 2.53  
## 170 aug thu 2.55  
## 171 sep wed 2.57  
## 172 aug wed 2.69  
## 173 aug sun 2.74  
## 174 sep mon 3.07  
## 175 aug sat 3.50  
## 176 aug sat 4.53  
## 177 apr thu 4.61  
## 178 aug sun 4.69  
## 179 sep wed 4.88  
## 180 aug tue 5.23  
## 181 sep sun 5.33  
## 182 oct mon 5.44  
## 183 feb sun 6.38  
## 184 oct mon 6.83  
## 185 aug fri 6.96  
## 186 sep tue 7.04  
## 187 mar sun 7.19  
## 188 sep mon 7.30  
## 189 mar sat 7.40  
## 190 mar sun 8.24  
## 191 mar fri 8.31  
## 192 aug thu 8.68  
## 193 aug tue 8.71  
## 194 sep wed 9.41  
## 195 aug tue 10.01  
## 196 aug fri 10.02  
## 197 apr thu 10.93  
## 198 sep thu 11.06  
## 199 sep tue 11.24  
## 200 sep mon 11.32  
## 201 sep tue 11.53  
## 202 mar sun 12.10  
## 203 feb sun 13.05  
## 204 oct wed 13.70  
## 205 mar sat 13.99  
## 206 sep thu 14.57  
## 207 aug sat 15.45  
## 208 sep tue 17.20  
## 209 sep fri 19.23  
## 210 sep thu 23.41  
## 211 oct sat 24.23  
## 212 aug sat 26.00  
## 213 sep fri 26.13  
## 214 mar mon 27.35  
## 215 mar sat 28.66  
## 216 mar sat 28.66  
## 217 sep sun 29.48  
## 218 sep mon 30.32  
## 219 sep wed 31.72  
## 220 mar mon 31.86  
## 221 aug sun 32.07  
## 222 sep fri 35.88  
## 223 mar mon 36.85  
## 224 jul fri 37.02  
## 225 sep wed 37.71  
## 226 sep sun 48.55  
## 227 oct mon 49.37  
## 228 aug sat 58.30  
## 229 sep sun 64.10  
## 230 aug sat 71.30  
## 231 sep wed 88.49  
## 232 sep sun 95.18  
## 233 sep tue 103.39  
## 234 sep tue 105.66  
## 235 sep sat 154.88  
## 236 aug sun 196.48  
## 237 sep sat 200.94  
## 238 sep tue 212.88  
## 239 sep sat 1090.84  
## 243 aug sun 10.13  
## 245 aug sun 2.87  
## 246 aug sun 0.76  
## 247 aug sun 0.09  
## 248 aug wed 0.75  
## 250 aug wed 2.47  
## 251 aug wed 0.68  
## 252 aug wed 0.24  
## 253 aug wed 0.21  
## 254 aug thu 1.52  
## 255 aug thu 10.34  
## 257 aug sat 8.02  
## 258 aug sat 0.68  
## 260 aug sat 1.38  
## 261 aug mon 8.85  
## 262 aug fri 3.30  
## 263 aug fri 4.25  
## 264 aug fri 1.56  
## 265 aug fri 6.54  
## 266 aug tue 0.79  
## 267 aug tue 0.17  
## 270 aug tue 4.40  
## 271 aug tue 0.52  
## 272 aug tue 9.27  
## 273 aug tue 3.09  
## 274 dec sun 8.98  
## 275 dec wed 11.19  
## 276 dec thu 5.38  
## 277 dec mon 17.85  
## 278 dec mon 10.73  
## 279 dec mon 22.03  
## 280 dec mon 9.77  
## 281 dec fri 9.27  
## 282 dec tue 24.77  
## 284 feb wed 1.10  
## 285 feb fri 24.24  
## 292 jul sat 8.00  
## 293 jul fri 2.64  
## 294 jul tue 86.45  
## 295 jul tue 6.57  
## 297 jun sun 0.90  
## 302 jun mon 3.52  
## 307 sep sun 0.41  
## 308 sep sun 5.18  
## 312 sep sun 14.29  
## 315 sep wed 1.58  
## 318 sep thu 3.78  
## 320 sep thu 4.41  
## 321 sep thu 34.36  
## 322 sep thu 7.21  
## 323 sep thu 1.01  
## 324 sep thu 2.18  
## 325 sep thu 4.42  
## 330 sep sat 3.33  
## 331 sep sat 6.58  
## 332 sep sat 15.64  
## 333 sep sat 11.22  
## 334 sep mon 2.13  
## 338 sep mon 56.04  
## 339 sep mon 7.48  
## 340 sep mon 1.47  
## 341 sep mon 3.93  
## 344 sep mon 2.18  
## 345 sep mon 6.10  
## 346 sep mon 5.83  
## 347 sep mon 28.19  
## 350 sep fri 1.64  
## 351 sep fri 3.71  
## 352 sep fri 7.31  
## 353 sep fri 2.03  
## 354 sep fri 1.72  
## 355 sep fri 5.97  
## 356 sep fri 13.06  
## 357 sep fri 1.26  
## 360 sep fri 8.12  
## 361 sep fri 1.09  
## 362 sep fri 3.94  
## 363 sep fri 0.52  
## 364 sep tue 2.93  
## 365 sep tue 5.65  
## 366 sep tue 20.03  
## 367 sep tue 1.75  
## 369 sep sat 12.64  
## 371 sep sun 11.06  
## 375 sep fri 18.30  
## 376 sep sat 39.35  
## 378 aug sat 174.63  
## 381 jul wed 7.73  
## 382 aug thu 16.33  
## 383 aug wed 5.86  
## 384 aug thu 42.87  
## 385 aug sat 12.18  
## 386 aug sun 16.00  
## 387 sep sun 24.59  
## 389 aug fri 28.74  
## 391 feb mon 9.96  
## 392 sep fri 30.18  
## 393 sep sun 70.76  
## 396 feb sun 51.78  
## 397 sep sun 3.64  
## 398 aug sun 3.63  
## 401 jun wed 8.16  
## 402 sep thu 4.95  
## 405 sep wed 6.04  
## 407 sep sat 3.95  
## 409 sep fri 7.80  
## 412 feb fri 4.62  
## 413 jul mon 1.63  
## 416 aug thu 746.28  
## 417 jul tue 7.02  
## 419 aug sun 2.44  
## 420 aug sun 3.05  
## 421 aug wed 185.76  
## 423 jul sun 6.30  
## 424 sep sat 0.72  
## 425 aug sat 4.96  
## 428 aug mon 2.35  
## 430 aug sun 3.20  
## 432 aug sat 6.36  
## 434 aug sun 15.34  
## 437 aug mon 0.54  
## 439 aug sat 6.43  
## 440 sep fri 0.33  
## 442 aug mon 1.23  
## 443 apr mon 3.35  
## 445 sep fri 9.96  
## 451 aug wed 6.43  
## 452 aug fri 9.71  
## 458 aug wed 82.75  
## 459 aug sat 3.32  
## 460 aug sat 1.94  
## 463 sep sun 3.71  
## 464 feb tue 5.39  
## 465 feb tue 2.14  
## 466 feb sat 6.84  
## 467 mar mon 3.18  
## 468 mar wed 5.55  
## 469 mar thu 6.61  
## 470 apr sun 61.13  
## 472 may fri 38.48  
## 473 jun mon 1.94  
## 474 jun sat 70.32  
## 475 jun thu 10.08  
## 476 jun thu 3.19  
## 477 jul thu 1.76  
## 478 jul sun 7.36  
## 479 jul sun 2.21  
## 480 jul mon 278.53  
## 481 jul thu 2.75  
## 483 aug sun 1.29  
## 485 aug sun 26.43  
## 486 aug mon 2.07  
## 487 aug tue 2.00  
## 488 aug tue 16.40  
## 489 aug tue 46.70  
## 494 aug fri 43.32  
## 495 aug sat 8.59  
## 497 aug mon 2.77  
## 498 aug tue 14.68  
## 499 aug tue 40.54  
## 500 aug tue 10.82  
## 504 aug wed 1.95  
## 505 aug wed 49.59  
## 506 aug thu 5.80  
## 510 aug fri 2.17  
## 511 aug fri 0.43  
## 513 aug sun 6.44  
## 514 aug sun 54.29  
## 515 aug sun 11.16

## 4) How large are the five largest fires (i.e., having largest area).

head(ffires[with(ffires, order(-area)),], 5)$area

## [1] 1090.84 746.28 278.53 212.88 200.94

### 4a) What are the corresponding month, temp, RH, wind, rain area?

head(ffires[with(ffires, order(-area)),], 5)[,c("month","temp","RH", "wind", "rain", "area")]

## month temp RH wind rain area  
## 239 sep 25.1 27 4.0 0 1090.84  
## 416 aug 27.5 27 4.9 0 746.28  
## 480 jul 22.6 57 4.9 0 278.53  
## 238 sep 18.8 40 2.2 0 212.88  
## 237 sep 18.2 46 1.8 0 200.94

### 4b) Reorder factor levels of month to be from Jan to Dec.

levels(ffires$month)

## [1] "apr" "aug" "dec" "feb" "jan" "jul" "jun" "mar" "may" "nov" "oct"  
## [12] "sep"

ffires$month = factor(ffires$month, levels=c("jan","feb","mar", "apr", "may", "jun", "jul", "aug", "sep", "oct", "nov", "dec"))

levels(ffires$month)

## [1] "jan" "feb" "mar" "apr" "may" "jun" "jul" "aug" "sep" "oct" "nov"  
## [12] "dec"

### 4b) Add one column to the data indicating whether a fire occured for each observation (true for area > 0 and false for area == 0)

ffires$fire = if (ffires$area > 0.0) TRUE else FALSE

## Warning in if (ffires$area > 0) TRUE else FALSE: the condition has length >  
## 1 and only the first element will be used

head(ffires)

## X Y month day FFMC DMC DC ISI temp RH wind rain area fire  
## 1 7 5 mar fri 86.2 26.2 94.3 5.1 8.2 51 6.7 0.0 0 FALSE  
## 2 7 4 oct tue 90.6 35.4 669.1 6.7 18.0 33 0.9 0.0 0 FALSE  
## 3 7 4 oct sat 90.6 43.7 686.9 6.7 14.6 33 1.3 0.0 0 FALSE  
## 4 8 6 mar fri 91.7 33.3 77.5 9.0 8.3 97 4.0 0.2 0 FALSE  
## 5 8 6 mar sun 89.3 51.3 102.2 9.6 11.4 99 1.8 0.0 0 FALSE  
## 6 8 6 aug sun 92.3 85.3 488.0 14.7 22.2 29 5.4 0.0 0 FALSE