```
> #Assignment12.1
> my_data <- read.delim("community.txt",sep = ",")
> #a Find top attributes having highest correlation (select only Numeric)
> options(max.print = 99999)
> nums <- unlist(lapply(my_data, is.numeric))
> numeric_attributes<- my_data[,nums]
> correlation <-as.data.frame(cor(numeric_attributes))
> #replacing all values of 1 with 0.
> correlation[correlation==1]<-0
> correlation1<-as.matrix(correlation)
> nlargest <- function(correlation1, n, sim = TRUE) {
+   mult <- 1;
+   if (sim) mult <- 2;
+   res <- order(correlation1)[seq_len(n) * mult];
+   pos <- arrayInd(res, dim(correlation1), useNames = TRUE);
+   list(values = correlation1[res],
+        position = pos)
+ }
> nlargest(correlation1, 5);
$`values`
[1] -0.9393641 -0.8978944 -0.8908440 -0.8777814 -0.8702888

$position
     row col
[1,]  62  63
[2,]  16  19
[3,]   8  62
[4,]  62  93
[5,]  46  52

> #Values for the above 5 correlations are as below :
> correlation1[62,63]
[1] -0.9393641
> correlation1[16,19]
[1] -0.8978944
> correlation1[8,62]
[1] -0.890844
> correlation1[62,93]
[1] -0.8777814
> correlation1[46,52]
[1] -0.8702888
> #b Find out top 3 reasons for having  more crime in city
> #The column X0.2.2 is ViolentCrimesPerPop which best identifies having more
crime.
> # Hence we will take the 3 highest correlations for this column and identif
y the 3 reasons.
> violent3<-correlation1[,102]
> sort(violent3,decreasing = TRUE)
      X0.14       X0.02       X0.15       X0.75     X0.75.1     X0.68.1     X
0.19.1     X0.27.2
 0.73796471  0.63127917  0.57468959  0.55647177  0.55316446  0.52569861  0.52
187160  0.50422724
    X0.14.2       X0.18       X0.05       X0.51       X0.04       X0.09
X0.08       X0.21
 0.48823696  0.48340928  0.48282198  0.47450097  0.47103421  0.45289031  0.44
760441  0.42155395
       X0.1     X0.14.1     X0.04.1       X0.19     X0.06.1        X0.2     X
0.32.2          X0
 0.41112107  0.38346973  0.37576608  0.36734559  0.36445578  0.36308897  0.34
878391  0.34026490
    X0.38.1      X0.4.1       X0.06       X0.25       X0.13       X0.03
X0.17     X0.39.2
```

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 0.32502870  0.30457183  0.30000010  0.29556250  0.29478403  0.29424191  0.29
306223  0.29152480
    X0.26.1     X0.08.2     X0.08.1       X0.28     X0.37.1     X0.07.1
X0.07     X0.27.3
 0.28140359  0.26424179  0.25317516  0.24831458  0.24812650  0.24802146  0.23
074437  0.21602527
    X0.12.2     X0.12.1       X0.24      X0.2.1       X0.47       X0.35     X
0.29.1       X0.29
 0.19685452  0.19436624  0.17185474  0.15384464  0.15334517  0.14060739  0.11
792479  0.09932653
       X1.1     X0.51.1       X0.32       X0.46       X0.34     X0.25.1
X0.12       X0.26
 0.08209145  0.07551730  0.06713037  0.06385163  0.06043771  0.05370691  0.03
760909  0.02121239
     X0.2.2       X0.64       X0.74          X1       X0.33     X0.33.1
X0.23     X0.41.1
 0.00000000 -0.01946384 -0.02243101 -0.03272495 -0.03499534 -0.03980919 -0.04
498121 -0.07149790
      X0.42       X0.27       X0.43       X0.65     X0.39.3       X0.76     X
0.34.1      X0.5.1
-0.07725173 -0.09082511 -0.09846907 -0.10995268 -0.12448456 -0.15051730 -0.15
310812 -0.15540649
    X0.27.1     X0.18.1     X0.19.2     X0.39.1       X0.22        ï..8
X0.38     X0.34.2
-0.15561743 -0.17216035 -0.19075628 -0.20926471 -0.21056961 -0.21158667 -0.23
230769 -0.23988486
    X0.35.1       X0.89       X0.41     X0.36.1     X0.32.1       X0.72
X0.48       X0.71
-0.24050482 -0.24144272 -0.24454495 -0.25184378 -0.27538110 -0.30549013 -0.31
465626 -0.31901600
      X0.68       X0.52        X0.4        X0.5       X0.37       X0.39     X
0.52.1     X0.55.1
-0.33164891 -0.33909211 -0.35207176 -0.35737501 -0.42422017 -0.43910533 -0.47
070124 -0.52550042
       X0.6       X0.56       X0.61        X0.9       X0.55       X0.59
-0.57632919 -0.66159821 -0.66609375 -0.68478685 -0.70671300 -0.73844498
> #Which all attributes have high attribute with crime rate.
> library(sqldf)
> #Which all attributes have high attribute with crime rate.
> library(sqldf)
> correlation1 <- as.data.frame(correlation1)
> #Choosing correlations that are higher than 0.5
> high_corr <- sqldf("SELECT *
+       FROM  correlation1
+       WHERE  `X0.2.2` > '0.5'")
> high_corr
        Ã¯..8          X1     X0.19       X0.33     X0.02       X0.9       X
0.12       X0.17
1 -0.04657613  0.003031941 0.2315940 -0.06738470 0.0000000 -0.7943502 -0.1067
9999 -0.06655217
2 -0.10277686 -0.043701056 0.1776412  0.11493074 0.4448023 -0.5894483 -0.0591
5360  0.41980757
3  0.03390776 -0.040566591 0.1623171  0.05489567 0.4901633 -0.5420719 -0.1736
6267  0.31469883
4 -0.03919845 -0.035085626 0.1455371  0.14365294 0.3882319 -0.5174180 -0.1590
3616  0.43265174
5 -0.10400032 -0.023747063 0.2321221 -0.44920711 0.4044269 -0.3423033 -0.1107
5156  0.06240841
6 -0.18193689 -0.016140917 0.2579606 -0.34876948 0.4297607 -0.4474573 -0.0137
3489  0.18486931
7 -0.14460569 -0.020029290 0.2475575 -0.40902877 0.4331216 -0.4082193 -0.0670
0114  0.12486240
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8 -0.11551685 -0.009452029 0.3329242  0.02052018 0.8106764 -0.8034266 -0.0472
4537  0.23720951
       X0.34        X0.47       X0.29      X0.32      X0.2         X1.1
X0.37      X0.72
1  0.1221880  0.153438300  0.13399607 0.05276128 0.2238898 -0.001053523 -0.36
07004 -0.2273502
2  0.2132375  0.191881591  0.15069851 0.14274984 0.1500717 -0.224479123 -0.65
66076 -0.5522574
3  0.5001517  0.454063575  0.47105880 0.09956165 0.1245043 -0.318898981 -0.79
11336 -0.5198700
4  0.2730640  0.229380199  0.20120157 0.12873411 0.1168541 -0.230563575 -0.65
19030 -0.5134332
5 -0.2068860 -0.008735277 -0.10504717 0.18648549 0.2179908 -0.061501243 -0.55
87935 -0.3766923
6 -0.1321332  0.074596111 -0.05006230 0.06518430 0.2471957 -0.016436948 -0.53
79120 -0.3034668
7 -0.1694772  0.031609744 -0.07926607 0.13261745 0.2348969 -0.041261504 -0.56
27890 -0.3526713
8  0.1918152  0.304518812  0.24482836 0.00950939 0.3230220  0.012101210 -0.48
86691 -0.2899416
      X0.34.1       X0.6    X0.29.1     X0.15       X0.43      X0.39       X0
.4    X0.39.1
1 -0.15282722 -0.4928206 0.11152733 0.4448023 -0.07249293 -0.3599762 -0.28683
27 -0.1024902
2 -0.02963449 -0.7510263 0.31009036 0.0000000 -0.02204220 -0.6850884 -0.63824
75 -0.5385707
3  0.14244767 -0.7216090 0.24390026 0.7823808 -0.15326354 -0.7628409 -0.70063
80 -0.5941934
4 -0.02158473 -0.7311870 0.30162192 0.8361845  0.01724887 -0.6764149 -0.65530
53 -0.5772374
5 -0.17971389 -0.5769792 0.18413326 0.4508211  0.01749535 -0.5601521 -0.40722
00 -0.3252846
6 -0.15997501 -0.6316394 0.06869927 0.5127984 -0.07859500 -0.5450891 -0.39933
00 -0.3034025
7 -0.17168054 -0.6195020 0.13415253 0.4985836 -0.03269623 -0.5659806 -0.41231
51 -0.3203751
8 -0.18318124 -0.6345316 0.09901521 0.6689070 -0.14950650 -0.4963614 -0.43404
67 -0.2613714
     X0.32.1       X0.27    X0.27.1      X0.41     X0.08   X0.19.1      X0.1
X0.18
1 -0.2546708 -0.04839801 -0.1156819 -0.1517750 0.3225565 0.4901633 0.2868287
0.3671676
2 -0.4281269 -0.18965487 -0.2652677 -0.4518096 0.3225744 0.7823808 0.7290465
0.7726475
3 -0.5339563 -0.23340984 -0.3311747 -0.5159181 0.3383853 0.0000000 0.6580876
0.6688876
4 -0.4107388 -0.20571520 -0.2703174 -0.4599510 0.2914630 0.7761866 0.6889428
0.7436166
5 -0.3297774 -0.08956356 -0.2250756 -0.3104390 0.2794376 0.3947695 0.2557520
0.3924363
6 -0.3026415 -0.07157454 -0.2271916 -0.3128804 0.3027933 0.4324516 0.2791840
0.3854253
7 -0.3231392 -0.08271393 -0.2297082 -0.3173539 0.2961736 0.4291800 0.2776852
0.4002573
8 -0.3285166 -0.10842474 -0.2160554 -0.3064994 0.4477815 0.6388556 0.4984377
0.5694064
       X0.48   X0.27.2      X0.68       X0.23      X0.41.1     X0.25      X0.
52   X0.68.1
1 -0.1798257 0.3882319 -0.2730675 -0.01782833  0.098481063 0.2343307 -0.19566
87 0.4044269
2 -0.5701460 0.8361845 -0.6361789  0.10986082 -0.068204487 0.5806749 -0.57816
58 0.4508211
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3 -0.3928127 0.7761866 -0.7047760 -0.06908249  0.165137920 0.4504204 -0.46863
19 0.3947695
4 -0.5661765 0.0000000 -0.6837387  0.05483333 -0.064906353 0.5358576 -0.58749
53 0.3662406
5 -0.4802950 0.3662406 -0.2391479  0.05919581 -0.273253542 0.3859600 -0.46894
51 0.0000000
6 -0.4198438 0.4007348 -0.1899496  0.01271956 -0.233763758 0.3473639 -0.42279
33 0.9223454
7 -0.4554670 0.3965770 -0.2249721  0.03487739 -0.248526545 0.3737871 -0.45093
97 0.9757144
8 -0.3222129 0.5898887 -0.3653434  0.04740543  0.001968055 0.3990692 -0.37769
72 0.4845337
      X0.4.1     X0.75   X0.75.1       X0.35      X0.55      X0.59      X0.61
X0.56
1 0.28495977 0.4297607 0.4331216  0.04614736 -0.7007769 -0.7363685 -0.6557267
-0.6900130
2 0.24188199 0.5127984 0.4985836  0.30121354 -0.7375859 -0.7604874 -0.7755670
-0.6297143
3 0.40447978 0.4324516 0.4291800  0.12502858 -0.7437712 -0.7586968 -0.7610251
-0.6650296
4 0.24756269 0.4007348 0.3965770  0.31169548 -0.6516353 -0.6793581 -0.6859502
-0.5492898
5 0.01768298 0.9223454 0.9757144 -0.24504772 -0.7305865 -0.7103091 -0.6720133
-0.6558460
6 0.07555079 0.0000000 0.9832019 -0.13126631 -0.7490183 -0.7302256 -0.6710509
-0.6860700
7 0.04549752 0.9832019 0.0000000 -0.19102045 -0.7609100 -0.7403962 -0.6898949
-0.6908935
8 0.48569699 0.5233119 0.5186786  0.18403629 -0.8433742 -0.8702888 -0.8124013
-0.7985383
        X0.74       X0.76     X0.04     X0.14      X0.03      X0.24   X0.27.3
X0.37.1
1  0.16900056  0.07567722 0.4028499 0.8106764 0.07628857 0.16532133 0.1940259
0.2272647
2 -0.19710563 -0.34599737 0.3154826 0.6689070 0.17883872 0.10937571 0.1460711
0.1464917
3 -0.10276649 -0.25240809 0.2765565 0.6388556 0.10254188 0.32147214 0.3449110
0.3393123
4 -0.20827234 -0.34700515 0.2711697 0.5898887 0.14177607 0.08160066 0.1103776
0.1044731
5  0.17583283  0.10113137 0.2742631 0.4845337 0.09214121 0.07228315 0.1229841
0.1481509
6  0.14653281  0.05140903 0.2882354 0.5233119 0.15195680 0.14196017 0.2063173
0.2407681
7  0.16538029  0.07752330 0.2861651 0.5186786 0.12256697 0.11088799 0.1693916
0.2001602
8  0.04518757 -0.08350540 0.5187150 0.0000000 0.25135687 0.24171130 0.2858211
0.3092597
    X0.39.2       X0.07     X0.07.1     X0.08.1     X0.08.2       X0.89
X0.06    X0.14.1
1 0.2489933 -0.03802902 -0.02917614 -0.02506160 -0.02025068  0.09629904 -0.04
6842988 0.18543847
2 0.1808227  0.15928515  0.17641557  0.17166150  0.18502141 -0.31993784  0.41
3207292 0.52463193
3 0.3577880  0.10155838  0.09630831  0.07788573  0.07978541 -0.18155987  0.26
0206671 0.37913891
4 0.1305934  0.14640946  0.16321183  0.15660593  0.16848179 -0.34215897  0.40
7863113 0.51537644
5 0.1913918 -0.05601685 -0.03751621 -0.03553971 -0.02358717  0.07576613  0.00
6903696 0.02067352
6 0.2883517  0.07283429  0.09170670  0.09301020  0.10421737 -0.03761777  0.13
0302869 0.13200532
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7 0.2462950  0.00715678  0.02598833  0.02769864  0.03942378  0.02055340  0.06
9918364 0.07851969
8 0.3370879  0.20847299  0.22183935  0.21837232  0.22305574 -0.19100559  0.27
2594300 0.41327183
        X0.13     X0.33.1     X0.39.3       X0.28    X0.55.1     X0.09     X0
.51       X0.5
1  0.10874157 -0.11186972 -0.17218064  0.10811123 -0.3766611 0.1582361 0.2347
213 -0.1454045
2  0.45836447  0.09254810 -0.02024104  0.39999674 -0.5384948 0.5543979 0.4460
399 -0.3310517
3  0.30128413 -0.08699361 -0.18719116  0.28588761 -0.6310650 0.4541237 0.5084
752 -0.4191264
4  0.45652105  0.11786698  0.02140554  0.39815722 -0.4755634 0.5215952 0.4380
757 -0.3406900
5 -0.07813592 -0.40575836 -0.47624123 -0.02255189 -0.5499534 0.1750948 0.5684
012 -0.4167792
6  0.03797084 -0.29666007 -0.37570980  0.09752502 -0.6167589 0.3053762 0.5660
756 -0.4195143
7 -0.02003488 -0.35913543 -0.43462565  0.03731140 -0.5957913 0.2446423 0.5764
896 -0.4235801
8  0.31084135 -0.04162025 -0.09548209  0.23900426 -0.6210126 0.4277724 0.4811
442 -0.3549039
      X0.21      X0.71    X0.52.1     X0.05       X0.26       X0.65   X0.14.2
X0.06.1
1 0.2802711 -0.2529117 -0.3392896 0.4727881  0.16847296 -0.08588361 0.4849537
0.3028186
2 0.1755100 -0.2224980 -0.4703495 0.5026514  0.17945449 -0.25799474 0.6922298
0.5644054
3 0.2162305 -0.3688327 -0.5682373 0.4751490  0.22383327 -0.13503153 0.8137762
0.5288964
4 0.1882672 -0.3302520 -0.4112063 0.5219032  0.28474540 -0.24352731 0.6768855
0.5419842
5 0.3234354 -0.3844740 -0.5174738 0.3462242 -0.02111746 -0.06954454 0.5171835
0.2361075
6 0.3152052 -0.3250306 -0.5767862 0.3264580 -0.12201070 -0.01501131 0.5167150
0.2551778
7 0.3223275 -0.3586738 -0.5592077 0.3438093 -0.07147288 -0.04689240 0.5319855
0.2542435
8 0.3544085 -0.2407086 -0.5778996 0.5544863  0.09522209 -0.21000441 0.5601393
0.4323959
       X0.22    X0.19.2    X0.18.1    X0.36.1    X0.35.1      X0.38    X0.34.
2    X0.38.1
1 -0.2878396 -0.2698746 -0.2463021 -0.3212668 -0.3048525 -0.2934202 -0.279369
0 0.19202219
2 -0.3992162 -0.3868258 -0.3802708 -0.5205056 -0.4995750 -0.4895600 -0.507750
8 0.38598228
3 -0.5512762 -0.5291982 -0.5054303 -0.6574591 -0.6512762 -0.6362524 -0.660640
9 0.44992352
4 -0.4264968 -0.4201745 -0.4187246 -0.5240490 -0.4983287 -0.4848770 -0.497828
0 0.40718643
5 -0.3811282 -0.3693803 -0.3542602 -0.3463710 -0.3984650 -0.4172218 -0.409931
3 0.09610637
6 -0.3208763 -0.3081339 -0.2937346 -0.2966805 -0.3527083 -0.3716483 -0.368741
6 0.15964010
7 -0.3611627 -0.3484532 -0.3330753 -0.3341262 -0.3883560 -0.4072640 -0.402149
4 0.13288079
8 -0.2704344 -0.2535183 -0.2386459 -0.3264590 -0.3092161 -0.2994401 -0.307414
3 0.36349028
        X0.46     X0.25.1   X0.04.1        X0      X0.12.1       X0.42      X
0.5.1     X0.51.1
1 -0.06999410  0.22064282 0.2293791 0.1670805 -0.098258373  0.09323112 -0.045
71172  0.05618490
```

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2 -0.07790175  0.09803378 0.2140806 0.1656018  0.128000850  0.20480547 -0.052
40584  0.21941936
3 -0.23835884  0.05050757 0.1820225 0.1320954 -0.027506644  0.15353336 -0.262
76297 -0.05102099
4 -0.06696714  0.18170667 0.1668293 0.1376424  0.129243009  0.15725457 -0.011
21481  0.19440488
5 -0.12196963 -0.04706075 0.2415871 0.2126138 -0.117621605 -0.05011594 -0.297
36422  0.03614762
6 -0.04337708 -0.10489182 0.2434173 0.2245781 -0.001088575 -0.11463484 -0.375
52247 -0.01168355
7 -0.08889707 -0.07331649 0.2449802 0.2196642 -0.062218459 -0.07642601 -0.337
83146  0.01898089
8  0.04323067  0.20035473 0.3547861 0.2654738  0.129901828  0.03508103 -0.141
59223  0.07684443
          X0.64    X0.12.2    X0.26.1      X0.2.1   X0.32.2    X0.2.2
1 -0.0029127902 0.14994080 0.09510537  0.14709156 0.2611739 0.6312792
2  0.2107726449 0.03065176 0.19713512 -0.01637714 0.1764570 0.5746896
3  0.0177872384 0.06627253 0.06504662 -0.10895897 0.1704510 0.5218716
4  0.1867722799 0.04512582 0.17265619 -0.01691224 0.1702988 0.5042272
5 -0.0340412714 0.14770163 0.09186165 -0.07846360 0.2372099 0.5256986
6 -0.0786429929 0.14335504 0.16748111 -0.05663741 0.2526498 0.5564718
7 -0.0505450782 0.14439700 0.13339905 -0.06719406 0.2483505 0.5531645
8  0.0003671061 0.13969840 0.32257721  0.21789854 0.3505148 0.7379647
> #Choosing correlations that are less than -0.5
> high_corr_neg <- sqldf("SELECT *
+                   FROM  correlation1
+                   WHERE  `X0.2.2` < '-0.5'")
> high_corr_neg
       Ã¯..8           X1      X0.19      X0.33      X0.02      X0.9      X0.
12      X0.17
1 0.21447501 -0.003968423 -0.3012689 -0.2357223 -0.7943502 0.0000000 -0.27024
32 -0.4442412
2 0.05920958  0.019317433 -0.1511487 -0.1549004 -0.4928206 0.5959960  0.16634
02 -0.4172316
3 0.07936640  0.032535415 -0.2662619  0.2829976 -0.7007769 0.6382341  0.14631
05 -0.1372929
4 0.10678440  0.028088015 -0.2735567  0.2056399 -0.7363685 0.7021441  0.13022
62 -0.2050497
5 0.04637893  0.044882801 -0.2266461  0.1995790 -0.6557267 0.5969622  0.19218
03 -0.1417756
6 0.08930581  0.016482195 -0.2633579  0.2697645 -0.6900130 0.6142494  0.11150
68 -0.1058174
7 0.08068734  0.026846152 -0.2478890  0.1380023 -0.3766611 0.5085811 -0.12463
83 -0.3265874
       X0.34      X0.47      X0.29       X0.32       X0.2        X1.1     X0.
37     X0.72
1 -0.1938834 -0.2668278 -0.1837409  0.13667976 -0.2956658 -0.05248967 0.30870
10 0.1170017
2 -0.2789763 -0.3571418 -0.2214847  0.07590578 -0.1239754  0.22718671 0.75794
98 0.3086400
3 -0.1393865 -0.2553592 -0.2326677 -0.25652402 -0.2481882  0.10417254 0.73434
99 0.5539614
4 -0.1489226 -0.2482760 -0.2209061 -0.23738395 -0.2555682  0.09850397 0.72002
04 0.5404081
5 -0.1664931 -0.2095139 -0.1970719 -0.24082059 -0.2018733  0.17914292 0.72214
32 0.5629612
6 -0.1236205 -0.2533148 -0.2276385 -0.19885028 -0.2508706  0.04290326 0.62792
19 0.4585570
7 -0.2742036 -0.5784737 -0.4780638  0.04979183 -0.2300267  0.06952923 0.62393
46 0.2275125
      X0.34.1      X0.6     X0.29.1      X0.15         X0.43     X0.39      X
0.4   X0.39.1
```

```
1 0.096920513 0.5959960  0.06754244 -0.5894483  2.284516e-01 0.3433460 0.3150
386 0.1232983
2 0.007267005 0.0000000 -0.08578649 -0.7510263  2.030853e-01 0.8132933 0.8116
246 0.7223613
3 0.183964477 0.7027447 -0.32897290 -0.7375859 -8.942090e-03 0.7102406 0.5749
521 0.4327121
4 0.174153033 0.7444702 -0.32368447 -0.7604874 -3.519169e-05 0.7099638 0.5873
859 0.4348219
5 0.131330446 0.7065899 -0.34211881 -0.7755670 -1.273811e-02 0.7139127 0.6016
268 0.4705015
6 0.171641877 0.6099275 -0.25052604 -0.6297143  2.845367e-02 0.6037084 0.4678
285 0.3252605
7 0.081989351 0.5938792  0.03192751 -0.5384948  2.390638e-01 0.5825484 0.4854
128 0.3863299
    X0.32.1      X0.27   X0.27.1     X0.41      X0.08    X0.19.1       X0.1
X0.18     X0.48
1 0.1875813 0.03970969 0.1453008 0.2130192 -0.3765045 -0.5420719 -0.4706211 -
0.4854384 0.2180271
2 0.4975378 0.19571085 0.3875836 0.5508830 -0.2691251 -0.7216090 -0.6853831 -
0.7782773 0.7358098
3 0.4615757 0.16490713 0.2947867 0.4232872 -0.3909027 -0.7437712 -0.5143343 -
0.6177523 0.4558612
4 0.4611632 0.15654090 0.2890214 0.4274210 -0.3998264 -0.7586968 -0.5725636 -
0.6755187 0.4893844
5 0.4790930 0.18456103 0.2867935 0.4399953 -0.3589879 -0.7610251 -0.5511472 -
0.6505132 0.4983265
6 0.3778411 0.12409549 0.2563188 0.3410411 -0.3745122 -0.6650296 -0.4175446 -
0.5064249 0.3391493
7 0.3671843 0.15287785 0.3167230 0.4170623 -0.3258015 -0.6310650 -0.4250183 -
0.4316570 0.2636387
     X0.27.2     X0.68       X0.23     X0.41.1      X0.25     X0.52    X0.68.
1     X0.4.1
1 -0.5174180 0.2551544  0.03846747  0.02755175 -0.2631179 0.2603429 -0.342303
3 -0.3780559
2 -0.7311870 0.4120338 -0.13168338  0.30962137 -0.6712852 0.7692166 -0.576979
2 -0.1688775
3 -0.6516353 0.5412780 -0.01721401 -0.02070139 -0.4701508 0.5012798 -0.730586
5 -0.4060077
4 -0.6793581 0.5545866 -0.03108138  0.02408855 -0.4977510 0.5295894 -0.710309
1 -0.3873002
5 -0.6859502 0.5715885 -0.07797244  0.02157811 -0.5309158 0.5354928 -0.672013
3 -0.3114856
6 -0.5492898 0.4410369  0.03397016 -0.06221069 -0.3543916 0.3897879 -0.655846
0 -0.4074112
7 -0.4755634 0.2699102  0.04419377 -0.02380189 -0.3197407 0.3688679 -0.549953
4 -0.5923676
      X0.75    X0.75.1       X0.35     X0.55     X0.59     X0.61     X0.56
X0.74
1 -0.4474573 -0.4082193 -0.39667615 0.6382341 0.7021441 0.5969622 0.6142494
0.009656607
2 -0.6316394 -0.6195020 -0.33690309 0.7027447 0.7444702 0.7065899 0.6099275 -
0.025508809
3 -0.7490183 -0.7609100  0.11425025 0.0000000 0.9853635 0.9356144 0.9170302 -
0.112637831
4 -0.7302256 -0.7403962  0.03508533 0.9853635 0.0000000 0.9311555 0.9076512 -
0.089418942
5 -0.6710509 -0.6898949  0.03627826 0.9356144 0.9311555 0.0000000 0.8368215 -
0.056214728
6 -0.6860700 -0.6908935  0.12725337 0.9170302 0.9076512 0.8368215 0.0000000 -
0.107567775
7 -0.6167589 -0.5957913  0.03998954 0.7326860 0.7054657 0.6453264 0.6797319 -
0.024010398
```

```
          X0.76      X0.04      X0.14      X0.03      X0.24    X0.27.3    X0.
37.1    X0.39.2
1  0.1586819005 -0.4208089 -0.8034266 -0.3084775 -0.2354153 -0.2971986 -0.356
6569 -0.4161151
2  0.1260711536 -0.2520149 -0.6345316 -0.1308604 -0.1350704 -0.1974601 -0.217
6716 -0.2777235
3 -0.0003180184 -0.4168983 -0.8433742 -0.1503865 -0.2342009 -0.2759348 -0.285
2660 -0.3027884
4  0.0355215426 -0.4256268 -0.8702888 -0.1751090 -0.2161108 -0.2653851 -0.281
1649 -0.3077488
5  0.0566824993 -0.3828224 -0.8124013 -0.1101094 -0.1866945 -0.2241306 -0.231
2267 -0.2504365
6 -0.0150972460 -0.4040393 -0.7985383 -0.1435116 -0.2387830 -0.2754585 -0.292
1622 -0.3093253
7  0.0760122685 -0.3017209 -0.6210126 -0.2693250 -0.4287854 -0.4797743 -0.502
2852 -0.5246540
         X0.07     X0.07.1     X0.08.1     X0.08.2      X0.89      X0.06    X
0.14.1       X0.13
1 -0.403522425 -0.42397693 -0.43809385 -0.45029587 0.42141529 -0.4543925 -0.5
917993 -0.52268219
2 -0.094883665 -0.11836931 -0.11644885 -0.13596723 0.24320579 -0.3471755 -0.5
075675 -0.45204525
3 -0.070377679 -0.08019739 -0.07164282 -0.07459439 0.05127809 -0.1443716 -0.2
200397 -0.09862025
4 -0.098559081 -0.11262942 -0.10706492 -0.11356120 0.11254413 -0.2030869 -0.2
957153 -0.18061216
5 -0.005828262 -0.01796300 -0.01037122 -0.01488356 0.03775471 -0.1271463 -0.2
434311 -0.13933573
6 -0.079402092 -0.08625818 -0.07986470 -0.08129929 0.03900726 -0.1141535 -0.1
762853 -0.06209562
7 -0.412945691 -0.41111380 -0.39355926 -0.38646837 0.29862750 -0.3736194 -0.2
662021 -0.15243648
     X0.33.1     X0.39.3       X0.28   X0.55.1      X0.09      X0.51      X0.
5      X0.21
1 -0.2143172 -0.11652609 -0.47046485 0.5085811 -0.6397485 -0.3689689 0.279775
5 -0.2812718
2 -0.1483604 -0.03371829 -0.50435893 0.5938792 -0.5682215 -0.4863344 0.348365
9 -0.1841899
3  0.3524128  0.41886033 -0.06937780 0.7326860 -0.3122989 -0.6550193 0.496428
2 -0.3438416
4  0.2660260  0.35657279 -0.15954536 0.7054657 -0.3834042 -0.6320695 0.479294
9 -0.3457470
5  0.2550597  0.34235143 -0.13320652 0.6453264 -0.3043220 -0.5507918 0.416641
5 -0.2994614
6  0.3418179  0.39856515 -0.04027931 0.6797319 -0.2682484 -0.5930308 0.450128
3 -0.3383389
7  0.2747053  0.27547272 -0.13507493 0.0000000 -0.4716026 -0.7896595 0.624844
0 -0.2614357
      X0.71   X0.52.1      X0.05        X0.26        X0.65    X0.14.2    X0.0
6.1      X0.22
1 0.1781540 0.4409795 -0.4508489  0.007541207  0.017176256 -0.4809957 -0.4189
938 0.09124756
2 0.3432299 0.5200140 -0.4530211 -0.137967505 -0.009546433 -0.7526411 -0.5073
775 0.56261674
3 0.3830244 0.6912545 -0.5096178 -0.111482916  0.284034557 -0.6798300 -0.4290
304 0.45513436
4 0.3939552 0.6502910 -0.5386885 -0.126133172  0.250172832 -0.7143660 -0.4656
118 0.44525428
5 0.3666033 0.5944266 -0.5147505 -0.178605844  0.266928994 -0.7243631 -0.4463
807 0.49676213
6 0.3489851 0.6430552 -0.4590395 -0.079386000  0.229437018 -0.5894340 -0.3701
809 0.36746179
```

```
7 0.2375353 0.9819005 -0.2552098  0.147841774  0.169157788 -0.4947639 -0.3543
726 0.22038286
     X0.19.2    X0.18.1   X0.36.1   X0.35.1     X0.38   X0.34.2    X0.38.1
X0.46
1 0.07307836 0.06134554 0.1280709 0.1267758 0.1208180 0.1259960 -0.3395815 -0
.17332401
2 0.55939728 0.56286185 0.5697308 0.5996884 0.6062734 0.5942696 -0.2561731  0
.07251067
3 0.43757457 0.41650489 0.5149780 0.5202562 0.5186475 0.5299800 -0.3579072  0
.13661911
4 0.42725219 0.40699134 0.5051008 0.5056475 0.5007203 0.5095699 -0.3739629  0
.10751148
5 0.47938180 0.46001017 0.5707976 0.5660871 0.5631983 0.5680419 -0.3320248  0
.17753716
6 0.34970821 0.32883467 0.4203353 0.4235158 0.4183664 0.4309573 -0.3421308  0
.06793573
7 0.20471561 0.19610159 0.2751646 0.3114316 0.3135551 0.3564984 -0.3330185 -0
.04308727
       X0.25.1    X0.04.1         X0     X0.12.1       X0.42    X0.5.1     X0
.51.1       X0.64
1 -0.059132573 -0.2778000 -0.2388810 -0.37284922  0.11411134 0.1653601 -0.019
50520  0.03243514
2 -0.058343580 -0.1380348 -0.1249000 -0.03715397 -0.13497270 0.2545298 -0.054
29376 -0.07430237
3 -0.136720010 -0.3098566 -0.2256542  0.03105432 -0.08161055 0.2137435 -0.070
51825 -0.02020436
4 -0.139794782 -0.3094853 -0.2314950 -0.01431322 -0.07202645 0.1850163 -0.093
96719 -0.03866709
5 -0.136136185 -0.2714346 -0.1814891  0.08261422 -0.13796525 0.1637306 -0.110
27934 -0.06093994
6 -0.143234979 -0.2991632 -0.2144082  0.01951047 -0.03514378 0.2263001 -0.021
74535  0.03254943
7 -0.006894834 -0.2683821 -0.2350786 -0.25557362  0.16120593 0.5445555  0.278
79378  0.29067831
      X0.12.2    X0.26.1       X0.2.1    X0.32.2     X0.2.2
1 -0.13155990 -0.3375298 -0.215706858 -0.2766034 -0.6847869
2 -0.07332342 -0.1139660  0.161235825 -0.1544003 -0.5763292
3 -0.08315071 -0.2569083 -0.077425148 -0.3065492 -0.7067130
4 -0.09872784 -0.2513098 -0.065456499 -0.3141711 -0.7384450
5 -0.08436622 -0.1620683 -0.004969813 -0.2748978 -0.6660938
6 -0.08855138 -0.2504535 -0.112383351 -0.3109410 -0.6615982
7 -0.04395923 -0.4301326 -0.149349030 -0.2818567 -0.5255004
```