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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)

## speed dist

## Min. : 4.0 Min. : 2.00

## 1st Qu.:12.0 1st Qu.: 26.00

## Median :15.0 Median : 36.00

## Mean :15.4 Mean : 42.98

## 3rd Qu.:19.0 3rd Qu.: 56.00

## Max. :25.0 Max. :120.00
```

Including Plots

You can also embed plots, for example:

Note that the echo = FALSE parameter was added to the code chunk to prevent printing of the R code that generated the plot.

```
create a vector for rainfall amounts
```

```
rainfall <- c(0.1,0.6,33.8,1.9,9.6,4.3,33.7,0.3,0.0,0.1)
```

calculate the mean and standard deviation

```
mean_rainfall <- mean(rainfall)
sd_rainfall <- sd(rainfall)
print(mean(rainfall))
## [1] 8.44
print(sd(rainfall))
## [1] 13.66473</pre>
```

display the cumulative rainfall

```
cum_rainfall <- cumsum(rainfall)
cum_rainfall
## [1] 0.1 0.7 34.5 36.4 46.0 50.3 84.0 84.3 84.4</pre>
```

find the day with the highest and lowest rainfall

```
max_rainfall_day <- which.max(rainfall)
min_rainfall_day <- which.min(rainfall)
print(max_rainfall_day)

## [1] 3

print(min_rainfall_day)

## [1] 9

cat("Day with highest rainfall:", max_rainfall_day, "\n")

## Day with highest rainfall: 3

cat("Day with lowest rainfall:", min_rainfall_day)

## Day with lowest rainfall: 9</pre>
```

create a vector of 20 random letters from the alphabet

```
rand_letters <- sample(LETTERS, 20, replace = TRUE)
sort(rand_letters)
## [1] "B" "E" "F" "G" "J" "J" "K" "M" "M" "N" "O" "Q" "T" "U" "V" "V" "W" "
X" "X"
## [20] "Z"</pre>
```

create a 10 x 10 matrix with random numbers

```
mat <- matrix(runif(100), nrow = 10, ncol = 10)</pre>
print(mat)
##
                                                 [,4]
               \lceil,1\rceil
                          [,2]
                                     [,3]
                                                            [,5]
                                                                         [,6]
  [1,] 0.79296025 0.51416396 0.63358872 0.74647880 0.98411602 0.4347844911
    [2,] 0.38761046 0.22135447 0.49857309 0.23284756 0.98439023 0.4407266991
## [3,] 0.20066635 0.08212493 0.62728825 0.22976597 0.69389146 0.8910958248
   [4,] 0.88823246 0.67140608 0.62539280 0.34692465 0.39423366 0.8308150028
## [5,] 0.02511417 0.62100997 0.04066743 0.04285148 0.68993119 0.0278911951
## [6,] 0.38779018 0.15322020 0.05742409 0.75349483 0.41448414 0.0003051325
## [7,] 0.24731488 0.33401500 0.67664742 0.30240736 0.16259298 0.4355343648
## [8,] 0.16756880 0.08085381 0.46323936 0.52042638 0.74439800 0.2661308106
## [9,] 0.25433035 0.48946654 0.51412499 0.94153682 0.79828213 0.2842581845
```

```
## [10,] 0.01337143 0.74813517 0.18209814 0.36097413 0.03106918 0.7038261916
## [,7] [,8] [,9] [,10]
## [1,] 0.79030941 0.03862917 0.01543523 0.371457960
## [2,] 0.35135905 0.90957524 0.26461555 0.681663033
## [3,] 0.40750759 0.25822191 0.72752595 0.568630725
## [4,] 0.37514568 0.40524413 0.96380966 0.875226646
## [5,] 0.53659972 0.72853503 0.02782917 0.799892903
## [6,] 0.68386158 0.19686830 0.91309856 0.013949384
## [7,] 0.73081073 0.04212913 0.99725161 0.661025547
## [8,] 0.03494332 0.56696772 0.40124804 0.567236558
## [9,] 0.90359552 0.91782265 0.95746477 0.006593851
## [10,] 0.77127493 0.48475840 0.56587265 0.672963007
```

calculate the column means and standard deviation

```
col_means <- colMeans(mat)
col_sd <- apply(mat, 2, sd)
print(col_means)

## [1] 0.3364959 0.3915750 0.4319044 0.4477708 0.5897389 0.4315368 0.5585408
## [8] 0.4548752 0.5834151 0.5218640

print(col_sd)

## [1] 0.2945949 0.2503553 0.2458726 0.2844662 0.3271223 0.3060157 0.2661291
## [8] 0.3267250 0.3875472 0.3018915</pre>
```

create a matrix with 100 columns and 10 rows

```
mat2 <- matrix(runif(1000), nrow = 10, ncol = 100)</pre>
print(mat2)
##
             [,1]
                       [,2]
                                 [,3]
                                            [,4]
                                                       [5]
                                                                 [,6]
[,7]
## [1,] 0.6940850 0.2209152 0.5779421 0.69396987 0.33012605 0.7484524 0.0031
74628
## [2,] 0.6546945 0.4933201 0.3378675 0.84995557 0.81765894 0.2660248 0.8922
28944
## [3,] 0.5443960 0.4983827 0.3619026 0.18816138 0.13707077 0.4564289 0.1240
47986
## [4,] 0.3445408 0.1486853 0.0819185 0.05903929 0.03561366 0.5487207 0.1825
24195
## [5,] 0.7503316 0.3628482 0.7342313 0.09783788 0.72890365 0.7312283 0.0838
## [6,] 0.9612492 0.3967256 0.6909119 0.19749596 0.97736371 0.1052921 0.3029
98376
## [7,] 0.1289783 0.8964268 0.8329291 0.35954628 0.22985008 0.4359280 0.4546
00146
## [8,] 0.6438775 0.4611763 0.3087275 0.29598362 0.19520158 0.1650254 0.9661
35830
```

```
## [9,] 0.8374568 0.6433013 0.1917307 0.19286519 0.05770870 0.7143291 0.5920
70616
## [10,] 0.9966801 0.4748866 0.0872178 0.62436092 0.31469100 0.9091927 0.8831
52833
##
                [,8]
                            [,9]
                                     [,10]
                                               [,11]
                                                         [,12]
                                                                     [,13]
##
    [1,] 0.490687585 0.502375635 0.8128828 0.9703281 0.6125858 0.09346178
    [2,] 0.265230652 0.394426199 0.3228075 0.4596078 0.5658393 0.24398362
    [3,] 0.002728684 0.339149188 0.8309328 0.2547744 0.9055787 0.54955765
    [4,] 0.216968730 0.349647458 0.8876421 0.7579221 0.9665001 0.47116958
    [5,] 0.055901779 0.629987580 0.7794107 0.5925777 0.5477447 0.14535761
    [6,] 0.270639114 0.638389613 0.1431800 0.3080115 0.9425267 0.44291778
    [7,] 0.895720202 0.502008670 0.5817457 0.5489795 0.7583329 0.66924436
    [8,] 0.461444645 0.697114531 0.1185910 0.4846590 0.8632418 0.94436416
## [9,] 0.448551648 0.099093074 0.1427674 0.9064607 0.6201646 0.80729042
## [10,] 0.060494872 0.004420717 0.9876443 0.1383889 0.8136031 0.23287198
              [,14]
                        [,15]
                                  [,16]
                                              [,17]
                                                         \lceil ,18 \rceil
##
    [1,] 0.96109490 0.2665643 0.9789867 0.514455324 0.83333529 0.331470181
    [2,] 0.77463883 0.3389773 0.3559557 0.207891406 0.87365888 0.842319412
    [3,] 0.95192073 0.9948084 0.1785805 0.479981142 0.25108263 0.001947403
  [4,] 0.57898882 0.4441860 0.4332070 0.575378937 0.48397853 0.594656484
   [5,] 0.61784114 0.7347578 0.6751732 0.379388699 0.52737748 0.105246671
    [6,] 0.54744643 0.8296356 0.5706687 0.164384989 0.81070533 0.144400635
## [7,] 0.06019295 0.1735763 0.4957477 0.739689475 0.79285468 0.304810407
    [8,] 0.25415581 0.7116077 0.3031471 0.660135350 0.06480588 0.874700640
## [9,] 0.16159758 0.8771908 0.7303648 0.688685818 0.92090390 0.586285102
## [10,] 0.22423717 0.6678228 0.9149406 0.002245452 0.90225225 0.371910805
##
                        [,21]
                                  [,22]
                                             [,23]
                                                       [,24]
             [,20]
,26]
## [1,] 0.2630959 0.67435916 0.3952196 0.75097082 0.6468302 0.7713300 0.1334
## [2,] 0.7163852 0.24017270 0.7072547 0.73775546 0.3481968 0.4735293 0.8820
2993
## [3,] 0.3166685 0.44593129 0.6938385 0.90916991 0.2078693 0.4664425 0.9702
1829
## [4,] 0.1282121 0.84205191 0.5588233 0.87119554 0.9036180 0.6801933 0.1763
6088
## [5,] 0.9424102 0.17690055 0.4450270 0.27658539 0.1226997 0.8024846 0.0673
7822
## [6,] 0.5959184 0.02872359 0.2071864 0.02470915 0.1795962 0.1881697 0.9319
2073
## [7,] 0.7144034 0.71588303 0.4282622 0.90325527 0.9160025 0.5569454 0.4069
5348
## [8,] 0.3777227 0.79493851 0.4877494 0.04770399 0.4337327 0.7861411 0.3431
4489
## [9,] 0.4398495 0.66762321 0.8713473 0.98850750 0.8751995 0.2601608 0.1539
4989
## [10,] 0.2600909 0.60253080 0.6058780 0.95089950 0.7228980 0.5207205 0.7255
9465
##
             [,27]
                         [,28]
                                    [,29]
                                               [,30]
                                                           [,31]
                                                                      [,32]
## [1,] 0.1872646 0.975650118 0.34393896 0.42309635 0.201453952 0.5854718
```

```
[2,] 0.2987034 0.768762501 0.88380455 0.05305780 0.006938243 0.2620984
   [3,] 0.8493315 0.432738375 0.98393798 0.01131146 0.396972798 0.4806373
   [4,] 0.5201671 0.871805381 0.39300908 0.95162539 0.821127277 0.5560016
   [5,] 0.6933834 0.576157495 0.08314308 0.43356657 0.332933364 0.8317118
   [6,] 0.1365618 0.183240160 0.39698286 0.71725132 0.995696991 0.2441619
    [7,] 0.6130199 0.988014789 0.15634913 0.22147942 0.882792755 0.8929520
##
   [8,] 0.6920045 0.007509455 0.32791650 0.23253059 0.670064439 0.2830646
    [9,] 0.7549443 0.809874935 0.99688604 0.32783651 0.326531829 0.8661410
## [10,] 0.3107783 0.711562739 0.11460052 0.08748975 0.654078099 0.5180202
##
                        [,34]
                                               [,36]
             [,33]
                                    [,35]
                                                          [,37]
##
    [1,] 0.8683965 0.79581750 0.597574657 0.64645582 0.77661709 0.4315616
   [2,] 0.4938217 0.12084998 0.066620457 0.76643697 0.44220544 0.6544982
   [3,] 0.6827512 0.41600275 0.720244689 0.66843907 0.31552162 0.3290291
  [4,] 0.1368306 0.03994399 0.592821714 0.50886593 0.53232743 0.3104066
   [5,] 0.5597118 0.55360100 0.434349792 0.08820682 0.51510235 0.6497889
   [6,] 0.2023848 0.41456579 0.009575784 0.26935019 0.79272952 0.1772961
   [7,] 0.8148666 0.94466514 0.825885465 0.69335727 0.45954267 0.4577791
## [8,] 0.9522772 0.99976880 0.595823101 0.82072215 0.57435298 0.9683401
## [9,] 0.3745331 0.15840994 0.092249951 0.16217713 0.09826067 0.5367046
## [10,] 0.5762985 0.67331514 0.473999475 0.10460893 0.57596510 0.5345864
##
                                           [,42]
             [,39]
                      [,40]
                                  [,41]
                                                       [,43]
                                                                  [,44]
[,45]
## [1,] 0.7302433 0.6563568 0.16394740 0.9205710 0.68134534 0.29730646 0.521
72668
## [2,] 0.1339730 0.6254746 0.46871156 0.3182410 0.37564919 0.11886593 0.410
52374
## [3,] 0.4347549 0.9591758 0.05709714 0.9331777 0.80389216 0.27265266 0.296
71606
## [4,] 0.1275520 0.4937339 0.59224021 0.8159113 0.34047157 0.19889780 0.428
46670
## [5,] 0.5553373 0.2125959 0.71195129 0.5540448 0.64646238 0.17117794 0.988
17595
## [6,] 0.2257569 0.2593579 0.53735507 0.8744097 0.29611274 0.45654809 0.066
## [7,] 0.3335739 0.4754801 0.36701810 0.9920376 0.22917434 0.65040667 0.019
53795
## [8,] 0.9489142 0.4990722 0.43449844 0.4831684 0.58950172 0.97872216 0.093
79237
## [9,] 0.4440185 0.3194024 0.25756584 0.5296261 0.03481231 0.05457376 0.381
87428
## [10,] 0.3208681 0.4810205 0.74584948 0.4693412 0.46169640 0.34699519 0.319
43932
                                                                   [,51]
##
              [,46]
                         [,47]
                                    [,48]
                                              [,49]
                                                        [,50]
[,52]
## [1,] 0.38513860 0.64701480 0.46052121 0.8849693 0.6975631 0.93094246 0.53
72669
## [2,] 0.91798718 0.14041479 0.66324852 0.4452680 0.4141231 0.89273098 0.71
13007
## [3,] 0.84930330 0.78751111 0.57451062 0.3190306 0.4832890 0.04303228 0.66
95426
```

```
## [4,] 0.37698039 0.30537800 0.06306717 0.4418509 0.6263090 0.76770369 0.33
71905
## [5,] 0.92583808 0.11654640 0.12948066 0.5033553 0.8652125 0.82989968 0.14
39231
## [6,] 0.10645529 0.15652988 0.20023392 0.1643815 0.6791292 0.86946049 0.44
97516
## [7,] 0.67569335 0.10749124 0.81981997 0.1246629 0.6129082 0.10159577 0.81
## [8,] 0.11658247 0.03515553 0.27293105 0.9920721 0.9847015 0.42374776 0.41
05507
## [9,] 0.07814432 0.81604891 0.74194324 0.4310454 0.3572170 0.35888741 0.65
## [10,] 0.13526850 0.75708898 0.88049967 0.3681143 0.3081001 0.96764125 0.34
24795
##
                                              [,56]
              [,53]
                         [,54]
                                   [55]
                                                          [,57]
                                                                     [58]
   [1,] 0.44358813 0.06886578 0.8001480 0.35253146 0.090633085 0.63465477
    [2,] 0.76143567 0.26693099 0.8625964 0.32720422 0.855261083 0.77105046
  [3,] 0.30756150 0.55629806 0.5736125 0.94509348 0.737019686 0.92561025
  [4,] 0.13728383 0.24980267 0.3807039 0.54675548 0.928776992 0.35934095
  [5,] 0.50386291 0.20652106 0.6067911 0.41955816 0.845896498 0.95202315
  [6,] 0.45081559 0.81246535 0.4153047 0.21417001 0.501070436 0.48589821
    [7,] 0.66353852 0.99949671 0.1570268 0.07329132 0.139323777 0.45073339
## [8,] 0.19826805 0.25608233 0.0979088 0.21192123 0.282516711 0.41632474
   [9,] 0.02214046 0.51728804 0.5803523 0.69651914 0.002894185 0.03639983
## [10,] 0.03768875 0.52904059 0.2885339 0.27098606 0.475929831 0.23964103
##
              [,59]
                         [,60]
                                    [,61]
                                               [,62]
                                                         [,63]
    [1,] 0.04812560 0.82553434 0.91361932 0.69152566 0.6542573 0.51728879
  [2,] 0.54298022 0.95624559 0.12563099 0.43354224 0.5281889 0.12084561
   [3,] 0.57933709 0.54902725 0.05746941 0.84608455 0.9537509 0.94035610
  [4,] 0.41470894 0.91842343 0.23072679 0.90483547 0.5566818 0.84954409
   [5,] 0.18915863 0.83117631 0.86909444 0.02400738 0.4831420 0.53669607
## [6,] 0.68969196 0.42028712 0.77019339 0.24378856 0.7363642 0.83091057
    [7,] 0.07190893 0.09123574 0.63778723 0.45553682 0.6211892 0.17539754
   [8,] 0.22212664 0.94022894 0.15852077 0.62055539 0.4161497 0.18254877
## [9,] 0.15070670 0.60696731 0.15902998 0.96398179 0.5459499 0.09248567
## [10,] 0.08689200 0.37506685 0.39386130 0.71241743 0.2132774 0.05974782
                                                       [,69]
##
             [,65]
                      [66]
                                  [,67]
                                           [,68]
                                                                  [,70]
[,71]
## [1,] 0.4117322 0.4150387 0.74739709 0.72224598 0.5057254 0.58688348 0.105
72654
## [2,] 0.7613953 0.0647350 0.04745921 0.42103357 0.8479672 0.16176266 0.292
33094
## [3,] 0.1698589 0.7706132 0.37121141 0.37971343 0.7061687 0.41217282 0.082
12308
## [4,] 0.7943168 0.8394138 0.63400040 0.29194145 0.5736905 0.79911235 0.524
71047
## [5,] 0.6542472 0.2979282 0.57737100 0.07580856 0.6547364 0.66550160 0.194
## [6,] 0.5479384 0.2584349 0.25066453 0.45948217 0.6924495 0.44295607 0.949
20607
```

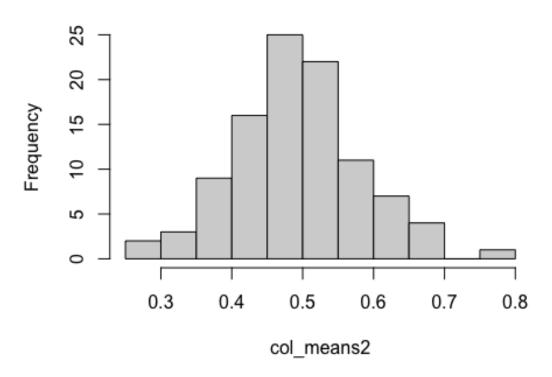
```
## [7,] 0.4452262 0.6121112 0.95592830 0.23370022 0.1106685 0.58877676 0.248
25637
## [8,] 0.9197675 0.2536316 0.36602018 0.88104449 0.6493505 0.16633549 0.014
39489
## [9,] 0.6785327 0.8839213 0.28253788 0.52555721 0.3612936 0.08849266 0.179
76158
## [10,] 0.4493415 0.4626944 0.13499130 0.56870766 0.1844130 0.40467559 0.342
49265
##
             [,72]
                        [,73]
                                   [,74]
                                             [,75]
                                                       [,76]
                                                                 [,77]
78]
## [1,] 0.7190033 0.82292815 0.20088737 0.4299885 0.6989402 0.1020061 0.7097
781
## [2,] 0.8861488 0.80813775 0.18131271 0.3909707 0.4346354 0.5724918 0.2956
427
   [3,] 0.5152644 0.12325852 0.63472136 0.9071144 0.3466691 0.6316228 0.2686
##
038
##
   [4,] 0.3369693 0.06441379 0.65163306 0.6254270 0.8762815 0.3710296 0.3771
037
##
   [5,] 0.9288070 0.87829979 0.67842036 0.3790910 0.3139787 0.5866750 0.4227
334
   [6,] 0.7232143 0.98578612 0.01240999 0.2159221 0.1138316 0.2924698 0.6242
##
283
## [7,] 0.3593386 0.44454524 0.40767418 0.8211767 0.7329546 0.2629601 0.7970
047
   [8,] 0.5319121 0.09449713 0.61995079 0.5227283 0.7281067 0.7217499 0.2044
##
795
## [9,] 0.6735981 0.45307232 0.31589367 0.5019773 0.4071566 0.4574028 0.5196
846
## [10,] 0.7014809 0.86791737 0.95624248 0.4982598 0.1896143 0.5368629 0.3118
005
              [,79]
##
                         [,80]
                                   [,81]
                                               [,82]
                                                         [,83]
                                                                    [,84]
    [1,] 0.01426686 0.02089614 0.3492654 0.795370573 0.9125466 0.93348882
    [2,] 0.81416174 0.77991382 0.8752830 0.186887145 0.6351638 0.53237041
   [3,] 0.35856752 0.01900692 0.7414805 0.106054979 0.8263770 0.87806085
    [4,] 0.07026246 0.39942080 0.4878626 0.798415765 0.8710860 0.77240909
    [5,] 0.68953521 0.40175120 0.1830313 0.657256993 0.6366606 0.95174454
    [6,] 0.89556072 0.11858747 0.3344057 0.719474653 0.2699288 0.04575926
##
    [7,] 0.86222067 0.51877894 0.1867456 0.002331312 0.9204148 0.20968084
   [8,] 0.18097587 0.63080907 0.8438168 0.886152730 0.2505960 0.31148357
    [9,] 0.12327542 0.25127962 0.3770296 0.672755881 0.4232704 0.07796950
## [10,] 0.75015346 0.76795550 0.5125887 0.485776970 0.9536752 0.52986078
##
              [,85]
                         [386]
                                    [,87]
                                               [88,]
                                                         [,89]
   [1,] 0.58452995 0.23835680 0.74447875 0.85379550 0.9736764 0.23444097
##
    [2,] 0.62096139 0.05332176 0.04817440 0.43763973 0.4597008 0.07465879
    [3,] 0.05201525 0.76799408 0.54543274 0.33180913 0.2848437 0.34506978
    [4,] 0.41149495 0.56262376 0.05169838 0.07082424 0.9297528 0.03214265
    [5,] 0.93217612 0.52324673 0.19216032 0.09206398 0.6297293 0.58038085
   [6,] 0.37646909 0.65108195 0.03274631 0.97249158 0.1197581 0.40596923
    [7,] 0.81385159 0.16398310 0.14900745 0.26385000 0.4945350 0.81881146
## [8,] 0.17779874 0.70992820 0.53919372 0.52443367 0.3497906 0.64771406
```

```
[9,] 0.13230181 0.75281664 0.86012273 0.40404181 0.3557529 0.24047302
## [10,] 0.42322901 0.15289027 0.16009662 0.97199935 0.3233004 0.59214289
##
             [,91]
                       [,92]
                                 [,93]
                                            [,94]
                                                      [,95]
                                                                 [,96]
                                                                           [,9
7]
    [1,] 0.3914620 0.5961938 0.4525801 0.91628487 0.7246681 0.7680214 0.95660
##
09
    [2,] 0.8520751 0.4709524 0.9491827 0.13996697 0.4915882 0.2779077 0.24763
##
11
    [3,] 0.9678615 0.1848064 0.5979029 0.24798466 0.8727499 0.6478184 0.78003
##
46
##
    [4,] 0.5295068 0.2734480 0.2765825 0.21164072 0.4851234 0.5619787 0.58435
45
##
    [5,] 0.1363955 0.2888221 0.4639225 0.95354080 0.9841274 0.7050281 0.87131
66
##
    [6,] 0.6819981 0.3489549 0.0249804 0.04365961 0.1141480 0.5555732 0.65422
47
##
    [7,] 0.2844347 0.3577802 0.7336735 0.39065351 0.4335011 0.4746849 0.41662
50
    [8,] 0.8003130 0.4445308 0.7782475 0.51845128 0.2828192 0.8016486 0.67007
##
46
    [9,] 0.6753571 0.6053286 0.6753670 0.48724419 0.4443511 0.1769967 0.25101
##
50
## [10,] 0.1224540 0.8476749 0.6854628 0.69858106 0.4700080 0.1716566 0.16119
22
##
              [,98]
                        [,99]
                                  [,100]
##
    [1,] 0.42025806 0.9238177 0.15652166
    [2,] 0.69836382 0.1963816 0.09810779
    [3,] 0.60960630 0.5575990 0.22024000
    [4,] 0.85403597 0.9941970 0.20795504
    [5,] 0.08952925 0.4080194 0.82124998
    [6,] 0.75635949 0.1525223 0.97541197
   [7,] 0.22337009 0.1759606 0.19000486
## [8,] 0.89586624 0.2254886 0.17670986
## [9,] 0.72429069 0.8479800 0.21394136
## [10,] 0.11922461 0.6003535 0.82437007
```

calculate the column means and plot a histogram

```
col_means2 <- colMeans(mat2)
hist(col_means2)</pre>
```

Histogram of col_means2



create another matrix with 1000 columns and 10 rows

```
mat3 <- matrix(runif(10000), nrow = 10, ncol = 1000)</pre>
print(mat3)
##
               [,1]
                          [,2]
                                      [,3]
                                                 [,4]
                                                             [,5]
                                                                        [,6]
    [1,] 0.10156079 0.79968129 0.30280021 0.89655046 0.793691647 0.8035050
    [2,] 0.04489294 0.70670503 0.34232619 0.96352405 0.078825275 0.6158124
    [3,] 0.45491655 0.47260635 0.13582990 0.97869220 0.334778245 0.1896576
    [4,] 0.34091175 0.85125334 0.05970235 0.80933179 0.783350040 0.3412621
    [5,] 0.59291285 0.50371671 0.20370346 0.45555812 0.845704398 0.3721758
    [6,] 0.24021457 0.79446214 0.69082311 0.07785792 0.074140599 0.3940628
    [7,] 0.91462417 0.04938493 0.50111504 0.24637282 0.007483684 0.9034710
    [8,] 0.57604347 0.35395315 0.89401585 0.24451436 0.685910305 0.9625328
  [9,] 0.11189221 0.81913190 0.09776951 0.38072212 0.348031046 0.6691180
## [10,] 0.55312108 0.44949393 0.94398595 0.22760555 0.272375512 0.6626604
                                     [,9]
##
                         [,8]
                                              [,10]
               [,7]
                                                         \lceil,11\rceil
                                                                    [,12]
[,13]
## [1,] 0.97730964 0.6855926 0.42371990 0.7402915 0.29293874 0.2066974 0.897
79062
## [2,] 0.04620366 0.1430697 0.75453891 0.6098047 0.61835883 0.2621545 0.688
91916
## [3,] 0.31913706 0.9440593 0.64390567 0.4109779 0.13393124 0.9142239 0.973
```

```
48071
## [4,] 0.67026470 0.6351494 0.08173876 0.9106263 0.55696721 0.9722272 0.848
## [5,] 0.24519331 0.3992745 0.24004204 0.2115882 0.03268521 0.2127992 0.060
61005
## [6,] 0.67505972 0.3667505 0.06021848 0.5750363 0.94412762 0.6592554 0.424
## [7,] 0.53831873 0.6003387 0.46643311 0.8987145 0.03633879 0.9156305 0.514
23272
## [8,] 0.72873497 0.4277766 0.59085864 0.5652632 0.87322017 0.9482562 0.604
75812
## [9,] 0.44837199 0.4261374 0.51259952 0.3682577 0.27873968 0.4573371 0.648
19758
## [10,] 0.54711117 0.2635389 0.07645580 0.4397074 0.55375573 0.1978588 0.650
31293
##
              [,14]
                        [,15]
                                  [,16]
                                             \lceil ,17 \rceil
                                                        [,18]
[,20]
## [1,] 0.02298611 0.2684328 0.1828084 0.69123440 0.65254197 0.4094963 0.371
17792
## [2,] 0.19953243 0.7573018 0.3181489 0.93893966 0.13113588 0.3728470 0.114
84146
## [3,] 0.23796948 0.4359194 0.6409009 0.09737046 0.97577449 0.7079715 0.446
43036
## [4,] 0.73991867 0.6993183 0.6876764 0.84597485 0.65101579 0.6050330 0.474
## [5,] 0.59861270 0.6696855 0.7023075 0.57165366 0.61502636 0.7990193 0.765
81238
## [6,] 0.37157292 0.1479933 0.3544830 0.10729864 0.11695099 0.5200085 0.510
17891
## [7,] 0.41834293 0.1384505 0.9538098 0.21942977 0.08275742 0.7648788 0.446
69904
## [8,] 0.93224272 0.4835332 0.9324695 0.10565577 0.30159542 0.1574781 0.156
52552
## [9,] 0.80553699 0.8610669 0.4845795 0.22448377 0.75933280 0.3015962 0.039
14219
## [10,] 0.03648900 0.2929889 0.6081847 0.27993500 0.65670642 0.1100864 0.570
46185
##
                        [,22]
                                  [,23]
                                             [,24]
                                                        [,25]
                                                                   [,26]
              [,21]
   [1,] 0.16311893 0.3010244 0.4114239 0.48104674 0.55366287 0.67514508
    [2,] 0.90029484 0.1543768 0.3577854 0.76582469 0.29782322 0.59350064
## [3,] 0.46715854 0.8609780 0.4056074 0.48945305 0.74161447 0.33256048
    [4,] 0.35751264 0.5419226 0.8691770 0.55183850 0.90147529 0.99059253
   [5,] 0.08321764 0.6311294 0.6698205 0.52733029 0.32552671 0.36350440
    [6,] 0.09845548 0.1333917 0.2745310 0.69942029 0.95005349 0.28753097
    [7,] 0.27108632 0.6764249 0.6107062 0.90330996 0.72653807 0.06872499
## [8,] 0.55924022 0.9160353 0.1057959 0.43758742 0.06104605 0.82489711
   [9,] 0.94762900 0.6861723 0.9397011 0.24455223 0.51604778 0.28812272
## [10,] 0.69497328 0.5967555 0.1054001 0.08725962 0.80851567 0.22989336
##
              [,27]
                         [,28]
                                    [,29]
                                              [,30]
                                                         [,31]
                                                                    [,32]
## [1,] 0.81323312 0.51623579 0.21421521 0.2310049 0.81890405 0.54100234
```

```
[2,] 0.20181823 0.74353457 0.43895903 0.3051957 0.90365710 0.16870103
   [3,] 0.96708532 0.65710145 0.17854668 0.2637347 0.65944404 0.90190107
   [4,] 0.33216530 0.51179433 0.21491795 0.6807116 0.51109838 0.26699383
   [5,] 0.32937813 0.89383515 0.31346588 0.7126383 0.09500005 0.07193952
   [6,] 0.98112424 0.72533277 0.29210071 0.3650182 0.05805381 0.51350914
    [7,] 0.04063330 0.29199644 0.08158373 0.4145835 0.58530068 0.72981669
##
   [8,] 0.80974784 0.81701384 0.28581091 0.2008666 0.05133736 0.29530782
    [9,] 0.07808901 0.54539378 0.46520883 0.4794701 0.41901732 0.05817527
## [10,] 0.61344714 0.05970047 0.72746518 0.6605301 0.06687291 0.26027826
##
                          [,34]
                                     [,35]
                                                 [,36]
                                                           [,37]
##
    [1,] 0.4769234 0.4587560827 0.90548656 0.103219050 0.2775053 0.64541335
   [2,] 0.6230530 0.3590674154 0.15151862 0.478077400 0.6944508 0.33042207
  [3,] 0.5238068 0.9960377642 0.64851351 0.005306835 0.8774250 0.03475272
## [4,] 0.2817463 0.2247124466 0.17897257 0.356742715 0.3557721 0.35138513
   [5,] 0.1753180 0.4235258431 0.30938505 0.759835219 0.9558852 0.14527446
  [6,] 0.3278584 0.6834143782 0.31136349 0.184455398 0.3504488 0.10490448
   [7,] 0.1031842 0.1773697974 0.79787601 0.924145037 0.4175405 0.93215533
## [8,] 0.1522953 0.2485398047 0.30133251 0.553661297 0.5878824 0.02563348
## [9,] 0.2911225 0.0008431601 0.01113271 0.862936141 0.5661148 0.80143310
## [10,] 0.8434905 0.2854737239 0.36452280 0.714832564 0.3662143 0.42819071
##
              [,39]
                                [,41]
                       [,40]
                                           [,42]
                                                        [,43]
                                                                 [,44]
[,45]
## [1,] 0.93355912 0.3613833 0.8192571 0.57668170 0.70679157 0.4078256 0.821
91978
## [2,] 0.36574244 0.9136172 0.6640807 0.90833434 0.06775625 0.5458791 0.764
78860
## [3,] 0.80586551 0.7707853 0.2152290 0.50943763 0.82982716 0.3000023 0.334
93205
## [4,] 0.07878133 0.9010250 0.9128430 0.98305361 0.74324831 0.3192600 0.406
## [5,] 0.53668912 0.9566556 0.7133869 0.28229924 0.88505776 0.1220029 0.143
## [6,] 0.26681707 0.3333723 0.7602078 0.91260155 0.64400771 0.3434858 0.607
80186
## [7,] 0.11262143 0.2822075 0.4796987 0.71271520 0.43522069 0.4464483 0.089
02879
## [8,] 0.05515026 0.3664779 0.2532570 0.59163356 0.05538823 0.4645516 0.018
56955
## [9,] 0.37648313 0.7778754 0.4585168 0.79169681 0.46778141 0.1363092 0.568
44441
## [10,] 0.72243336 0.3589850 0.4011075 0.03740552 0.64566505 0.6744643 0.872
81717
##
             [,46]
                        [,47]
                                  [,48]
                                              [,49]
                                                         [,50]
   [1,] 0.7935106 0.06807246 0.3318787 0.781506036 0.48535147 0.86599719
##
  [2,] 0.6403142 0.79620798 0.1320366 0.615030552 0.81010405 0.79454532
## [3,] 0.9441865 0.71261589 0.4576835 0.564594868 0.46753528 0.38308506
   [4,] 0.5536721 0.02193411 0.8876226 0.133203792 0.14144055 0.04313515
## [5,] 0.3110416 0.17125220 0.6858035 0.870151915 0.05386238 0.38769054
## [6,] 0.9614670 0.70722397 0.5416757 0.643038405 0.52075120 0.99644612
## [7,] 0.6020282 0.52785001 0.4927235 0.445141108 0.44691919 0.40631989
```

```
[8,] 0.1709633 0.50019854 0.8338479 0.775315528 0.31613000 0.74278600
   [9,] 0.5944586 0.66648212 0.1183257 0.871890818 0.21255005 0.51070350
## [10,] 0.3273373 0.29737240 0.8119731 0.007571928 0.33349692 0.32829866
##
                       [,53]
             [,52]
                                 [,54]
                                            [55]
                                                      [,56]
                                                                [,57]
                                                                           [,5
8]
    [1,] 0.4638037 0.6167619 0.6444238 0.42589497 0.6583360 0.2480533 0.67686
##
52
    [2,] 0.4761736 0.4744820 0.9391104 0.39236495 0.6845155 0.9262438 0.82694
##
99
##
    [3,] 0.4937104 0.2827855 0.1743744 0.33742117 0.6044868 0.3455860 0.41314
81
##
    [4,] 0.8966490 0.6631656 0.6109761 0.23804612 0.8728922 0.1302792 0.15606
23
##
    [5,] 0.8704330 0.1583249 0.3462612 0.24483550 0.1417496 0.4984102 0.80873
96
    [6,] 0.3316627 0.3512247 0.1275875 0.48565658 0.1746605 0.9728482 0.88076
##
48
    [7,] 0.7500843 0.8873562 0.4467911 0.47760795 0.5069196 0.8658846 0.62058
##
49
    [8,] 0.1843490 0.1545264 0.3195387 0.01828528 0.1575233 0.2785578 0.86387
##
39
    [9,] 0.2539115 0.9517928 0.5231834 0.44322436 0.9997362 0.4941368 0.20184
##
91
## [10,] 0.7609260 0.7612335 0.1901106 0.20991384 0.3008763 0.7868688 0.74169
42
##
              [,59]
                         [,60]
                                   [,61]
                                             [,62]
                                                         [,63]
    [1,] 0.95371498 0.10361457 0.8294709 0.2201710 0.51814285 0.41974486
    [2,] 0.37360309 0.04364968 0.2543386 0.6679346 0.82239472 0.22222565
    [3,] 0.02345699 0.46536417 0.2230102 0.8883924 0.58689743 0.20169865
    [4,] 0.75447109 0.02558765 0.9106652 0.1281357 0.17726535 0.08345466
    [5,] 0.94911463 0.93846634 0.5137404 0.7787936 0.37613684 0.27727765
    [6,] 0.74356838 0.17322061 0.2578095 0.1296991 0.95351077 0.52366766
    [7,] 0.24465786 0.43671654 0.9990363 0.1471806 0.47877752 0.30259090
    [8,] 0.75194600 0.13483364 0.4587888 0.9869386 0.43480018 0.96353829
    [9,] 0.86108058 0.83966262 0.3566901 0.2650462 0.01855023 0.51975203
## [10,] 0.21907668 0.52935484 0.3765033 0.2594007 0.63412794 0.30112705
##
              [,65]
                        [,66]
                                   [,67]
                                              [,68]
                                                           [,69]
##
    [1,] 0.89884767 0.8466142 0.09095016 0.98325831 0.189386075 0.3454800
   [2,] 0.30016237 0.4905176 0.67878109 0.02914005 0.821110737 0.6713274
    [3,] 0.37374085 0.1321680 0.46845946 0.16202242 0.728785711 0.4376178
   [4,] 0.15203480 0.5324104 0.12258711 0.20728298 0.220351940 0.8265984
    [5,] 0.22531908 0.6568944 0.68514454 0.31315746 0.006676843 0.8014859
   [6,] 0.61018339 0.6184595 0.50709132 0.03876047 0.966867635 0.3095302
    [7,] 0.80527032 0.1150491 0.81496401 0.32949010 0.241335429 0.1511967
   [8,] 0.80371020 0.2968978 0.10602066 0.58961647 0.071386484 0.6273350
## [9,] 0.67465949 0.1902922 0.94378069 0.17082750 0.013618791 0.9215544
## [10,] 0.08039433 0.9803112 0.25001088 0.25091329 0.725247247 0.2283693
##
             [,71]
                       [,72]
                                  [,73]
                                           [,74]
                                                       [,75]
                                                                    [,76]
[,77]
## [1,] 0.1316328 0.6616348 0.01472488 0.9341626 0.52734626 0.003844947 0.61
```

```
75925
## [2,] 0.4653104 0.6100120 0.93341511 0.5479300 0.85866191 0.765712708 0.45
## [3,] 0.5845750 0.9821014 0.72819102 0.7638327 0.26659459 0.669706674 0.67
25702
## [4,] 0.6728232 0.1650193 0.77577821 0.6252315 0.12839262 0.103127067 0.15
## [5,] 0.3651959 0.8683808 0.41084707 0.8538103 0.88652700 0.454594284 0.17
48206
## [6,] 0.3722022 0.9867991 0.64351741 0.6182595 0.77674122 0.045786259 0.58
63987
## [7,] 0.2497307 0.2031547 0.57848517 0.9342500 0.61378085 0.661472438 0.53
05638
## [8,] 0.3221934 0.8294581 0.57514909 0.7418560 0.07571627 0.790014962 0.46
47239
## [9,] 0.7610959 0.3269060 0.47225795 0.7297793 0.51713040 0.144011344 0.53
## [10,] 0.5695126 0.1094099 0.14854064 0.2090283 0.13256136 0.553011394 0.86
61585
##
                                                         [,82]
                                                                    [,83]
               [,78]
                          [,79]
                                    [,80]
                                               [,81]
##
    [1,] 0.571393562 0.27169321 0.1808085 0.81698649 0.6320647 0.38871949
    [2,] 0.955400291 0.66516599 0.5565934 0.89801695 0.4658935 0.46010570
   [3,] 0.005447305 0.32130541 0.6929259 0.03232277 0.5492288 0.38947071
    [4,] 0.783370983 0.33059999 0.6741037 0.47714784 0.4263059 0.49002308
    [5,] 0.375195556 0.21362658 0.7715002 0.42566004 0.8750129 0.93521635
    [6,] 0.609981678 0.08424854 0.6820963 0.70253285 0.8870451 0.06651351
    [7,] 0.697749478 0.89559674 0.4193148 0.24128338 0.4768209 0.78020943
    [8,] 0.731552187 0.49855118 0.7506323 0.90153536 0.7264480 0.99071867
    [9,] 0.024235216 0.25672032 0.3808432 0.21181074 0.8980296 0.01952307
## [10,] 0.936140273 0.68221849 0.6785270 0.72582034 0.8750078 0.51554715
##
              [,84]
                         [,85]
                                     [,86]
                                                [,87]
                                                          [88,]
    [1,] 0.05612455 0.93535000 0.658612310 0.71630450 0.9788826 0.30079495
    [2,] 0.73939046 0.26209873 0.565017798 0.25103546 0.7676469 0.57743318
    [3,] 0.50518876 0.06995274 0.813893751 0.32741292 0.3068359 0.75273548
    [4,] 0.06122089 0.47521033 0.655917665 0.33518643 0.1704147 0.94475370
    [5,] 0.70636900 0.52665661 0.072299824 0.32743771 0.1095694 0.60701717
    [6,] 0.06055305 0.21508672 0.599963907 0.79675156 0.9909721 0.28493703
    [7,] 0.47664754 0.49499801 0.004109929 0.14444166 0.2086434 0.03401774
   [8,] 0.46932159 0.81373016 0.973318886 0.29703535 0.1186536 0.29694343
    [9,] 0.47367221 0.20771057 0.913542704 0.48416217 0.9872917 0.69371983
## [10,] 0.38182314 0.16636725 0.425220684 0.06075092 0.9946605 0.85252087
##
             [,90]
                        [,91]
                                   [,92]
                                              [,93]
                                                         [,94]
    [1,] 0.8890951 0.99247588 0.63783105 0.06517143 0.61713076 0.5951345
##
    [2,] 0.4053873 0.19200137 0.73705034 0.08136156 0.31367357 0.3776634
    [3,] 0.8757945 0.68743266 0.31231538 0.42587082 0.97326070 0.3622447
    [4,] 0.4305975 0.86855628 0.39599951 0.28041190 0.86389929 0.6076846
    [5,] 0.9966011 0.45463367 0.09455434 0.50138306 0.06102049 0.3320604
   [6,] 0.3803305 0.09919141 0.68480260 0.16051936 0.09638476 0.2908119
    [7,] 0.2859099 0.59007572 0.21619212 0.87435265 0.65946041 0.5131602
## [8,] 0.4786864 0.33519167 0.16632854 0.91274220 0.19491062 0.8324182
```

```
## [9,] 0.5639517 0.06785678 0.10863166 0.76149178 0.29334461 0.5410767
## [10,] 0.8075840 0.28389296 0.25548094 0.23209287 0.96275835 0.3547797
                                              [,99]
##
              [,96]
                         [,97]
                                   [,98]
                                                         [,100]
##
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    [2,] 0.05866178 0.04196882 0.5963716 0.23085967 0.58637273 0.57765397
    [3,] 0.57752982 0.41763633 0.3029466 0.14546599 0.16772591 0.61257004
    [4,] 0.41252157 0.66499468 0.6310459 0.17037624 0.22163692 0.22114774
    [5,] 0.67943735 0.02313183 0.7648455 0.06688791 0.17250191 0.16209908
    [6,] 0.92385418 0.65444466 0.7992997 0.65840682 0.38833072 0.21887193
    [7,] 0.96447830 0.86149055 0.6752518 0.76487078 0.03320726 0.43161567
  [8,] 0.79669024 0.04278903 0.7032480 0.75394588 0.98257352 0.09741250
## [9,] 0.68413178 0.33750827 0.4516904 0.61363025 0.61042613 0.79201142
## [10,] 0.01616851 0.61810542 0.2478304 0.69020218 0.83964394 0.03041055
##
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                                  [,104]
                                            [,105]
                                                       [,106]
                                                                  [,107]
108]
## [1,] 0.3064736 0.31614981 0.54751427 0.8360141 0.8287901 0.74655142 0.267
## [2,] 0.5183043 0.95168150 0.64267514 0.6517397 0.4537177 0.34498587 0.893
8573
## [3,] 0.3986978 0.89421901 0.72439617 0.3925599 0.3820337 0.70424420 0.853
3361
## [4,] 0.0458073 0.06968551 0.69082209 0.6779541 0.7875612 0.53124294 0.828
6497
## [5,] 0.5879251 0.94321561 0.19491866 0.6701344 0.6804868 0.09480751 0.656
## [6,] 0.7312148 0.31282993 0.13798497 0.1355937 0.3300752 0.91620531 0.928
7641
## [7,] 0.4873547 0.37623144 0.92917207 0.7564043 0.3413950 0.73694283 0.158
6000
## [8,] 0.4931982 0.62166503 0.07915104 0.5818807 0.4634570 0.93627699 0.927
9049
## [9,] 0.8442288 0.10605944 0.52766921 0.3956767 0.3485232 0.11729774 0.725
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## [10,] 0.5776665 0.05486836 0.59864389 0.9500120 0.8593876 0.37725718 0.465
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##
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                                             \lceil ,112 \rceil
                                                          \lceil ,113 \rceil
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    [2,] 0.67149122 0.5318407 0.29852794 0.10792801 0.194507018 0.6735432
   [3,] 0.41528438 0.6741574 0.30673941 0.12957656 0.052906832 0.8855592
    [4,] 0.18029885 0.3764057 0.48908305 0.23665156 0.386286441 0.3362920
## [5,] 0.34939198 0.1299121 0.12555261 0.75101365 0.002208187 0.8376701
    [6.] 0.92579068 0.7419303 0.07225743 0.14230197 0.003601346 0.3659451
   [7,] 0.53448675 0.5536759 0.17904294 0.88675029 0.308688512 0.4519235
    [8,] 0.24533912 0.5378678 0.29268985 0.88639777 0.880439038 0.4403886
## [9,] 0.62593764 0.8478576 0.63026247 0.11821515 0.544731562 0.7231889
## [10,] 0.14692702 0.4895834 0.11549325 0.49612356 0.716431044 0.2255286
##
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            [,115]
## [1,] 0.1123782 0.57862874 0.51442705 0.4111981 0.3985861 0.660144180
    [2,] 0.3142145 0.04128519 0.27388017 0.8831841 0.7078891 0.422485422
## [3,] 0.8457725 0.75433039 0.79838775 0.8476102 0.4819083 0.153729096
```

```
[4,] 0.6391663 0.16499544 0.08495869 0.5504094 0.5588604 0.555644776
   [5,] 0.3540693 0.63544894 0.27134296 0.1921640 0.1471238 0.224722389
## [6,] 0.8962202 0.25039466 0.81210246 0.3846244 0.4914785 0.232528585
## [7,] 0.3319944 0.62501851 0.53082229 0.8559307 0.5373291 0.742731164
## [8,] 0.9378135 0.72707710 0.05531741 0.6630023 0.6527566 0.003890841
## [9,] 0.9110071 0.30762838 0.86491973 0.3738274 0.6953615 0.795364015
## [10,] 0.4969169 0.62214625 0.41984453 0.4390434 0.1885167 0.567684121
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##
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                                                                           [,
127]
## [1,] 0.83469187 0.25166354 0.7678887 0.1137573 0.86987745 0.6130695 0.910
7044
## [2,] 0.03411084 0.30036990 0.7368912 0.6638816 0.66158844 0.4756533 0.449
8375
## [3,] 0.41213223 0.47161594 0.1779449 0.1630401 0.91840521 0.1742835 0.158
2700
## [4,] 0.45464313 0.24072730 0.5702669 0.6165785 0.62440100 0.4701293 0.586
3871
## [5,] 0.01762437 0.17215100 0.8909078 0.1706793 0.40654397 0.5010564 0.772
6564
## [6,] 0.46185219 0.98899633 0.6433662 0.4151383 0.08369023 0.1484614 0.923
0869
## [7,] 0.90682391 0.66235784 0.7165889 0.6583562 0.95223496 0.9602513 0.627
1219
## [8,] 0.21204953 0.32411287 0.5812192 0.4043133 0.57489070 0.6137202 0.351
7042
## [9,] 0.99929348 0.03632479 0.5933916 0.7425331 0.94898375 0.9307987 0.806
7854
## [10,] 0.33899539 0.02026820 0.5810688 0.8001798 0.50063538 0.2344233 0.554
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##
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##
  [2,] 0.301997660 0.2201166 0.67646356 0.45271625 0.2445673 0.838839846
   [3,] 0.134936781 0.6850143 0.81105287 0.43985640 0.8339875 0.186442773
  [4,] 0.155165818 0.2406249 0.37285698 0.27001484 0.6187046 0.007986463
   [5,] 0.498830264 0.9667107 0.67164095 0.05035661 0.6722649 0.846688762
## [6,] 0.510536544 0.5994029 0.13846477 0.63307962 0.7996011 0.740503183
## [7,] 0.427243020 0.3532208 0.14867792 0.13781065 0.9478839 0.734135319
## [8,] 0.086731381 0.2256025 0.35213626 0.50554257 0.6022137 0.894453156
## [9,] 0.610269685 0.3162181 0.16042815 0.04088686 0.1674052 0.162433056
## [10,] 0.009923314 0.8148264 0.04391219 0.16527664 0.1846064 0.427529088
##
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   [1,] 0.6650820 0.53907251 0.16198728 0.4505810 0.3717437 0.02793309 0.669
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## [2,] 0.1227726 0.42344364 0.24394161 0.2280303 0.9002607 0.29053881 0.425
5107
## [3,] 0.3683403 0.50982029 0.48585571 0.5669291 0.7236984 0.37299756 0.977
## [4,] 0.7098579 0.61748306 0.87942529 0.1974613 0.4232049 0.48770784 0.283
5089
```

```
## [5,] 0.1198629 0.70241807 0.74587219 0.7790827 0.6225802 0.75510293 0.753
4804
## [6,] 0.3540374 0.96937551 0.02208238 0.1486491 0.4081825 0.85818960 0.691
4807
## [7,] 0.9276871 0.59226777 0.34979062 0.2202312 0.6603121 0.14923000 0.523
2435
## [8,] 0.4707299 0.53947717 0.40049991 0.6282929 0.7747844 0.23941059 0.333
0090
## [9,] 0.3031260 0.36561130 0.67003254 0.2276191 0.1499285 0.48064867 0.375
9178
## [10,] 0.2964297 0.01391656 0.91200814 0.9747327 0.9307211 0.80800064 0.599
7882
##
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                                           [,144]
                                                       [,145]
           [,141]
                                                                 [,146]
                                                                            Γ
,147]
## [1,] 0.4605460 0.56458649 0.2693157 0.37901495 0.99554067 0.6312846 0.807
## [2,] 0.5023240 0.61803913 0.7821616 0.28541918 0.84745059 0.9258991 0.068
66272
## [3,] 0.9561194 0.61457392 0.9897410 0.49013515 0.07106916 0.4703431 0.791
37495
## [4,] 0.9367620 0.03703705 0.3049400 0.62317101 0.11660615 0.3412102 0.103
09080
## [5,] 0.5733940 0.80958619 0.5706129 0.11048959 0.38273949 0.6310951 0.653
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## [6,] 0.4791811 0.12146922 0.4410708 0.58260832 0.54743127 0.8532339 0.556
49531
## [7,] 0.8620765 0.08601803 0.1220603 0.14353100 0.91039224 0.8950896 0.329
26679
## [8,] 0.8319457 0.60646924 0.1378314 0.83256792 0.84268484 0.9240050 0.122
94309
## [9,] 0.2619849 0.94610311 0.6972135 0.64126069 0.69923028 0.2730069 0.617
## [10,] 0.9170360 0.75426226 0.9311240 0.06707797 0.92020338 0.4151450 0.234
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##
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   [2,] 0.01742339 0.06957393 0.6240499527 0.2045233 0.7698480 0.75945025
##
   [3,] 0.02065380 0.60037317 0.5719757776 0.3470986 0.3399190 0.20299393
   [4,] 0.14561224 0.31314376 0.8082595316 0.7238380 0.3082056 0.23737737
    [5,] 0.15281620 0.01576195 0.0001724965 0.5579495 0.8471154 0.98705940
   [6,] 0.22682846 0.75012188 0.6105769826 0.6449241 0.7957609 0.12267038
    [7,] 0.79263530 0.38884888 0.5895154879 0.4212323 0.6659484 0.03632168
   [8,] 0.80736705 0.23547003 0.6526801584 0.9061903 0.7656835 0.16130317
   [9,] 0.23280008 0.93469418 0.6618207551 0.5237471 0.5545818 0.10193104
## [10,] 0.32460193 0.61467030 0.1590476406 0.5888257 0.1642105 0.74838001
##
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   [2,] 0.8493528 0.1168060 0.7849481 0.91701514 0.801152006 0.35894098
## [3,] 0.8662823 0.1103496 0.9446361 0.25793198 0.999662833 0.28873352
## [4,] 0.5194168 0.8495370 0.3149656 0.98170599 0.950880962 0.65681516
```

```
[5,] 0.8100130 0.5917970 0.3813926 0.76886127 0.003604003 0.56647458
    [6,] 0.1940605 0.7080923 0.8077215 0.30908754 0.001705688 0.21762973
    [7,] 0.7349313 0.7385895 0.4923891 0.99630935 0.200683880 0.05201002
##
    [8,] 0.8817971 0.5619283 0.8275988 0.76711391 0.177689748 0.40003283
##
    [9,] 0.6318572 0.8693507 0.6167136 0.58705355 0.459044560 0.52794156
   [10,] 0.1910849 0.2852222 0.7737310 0.85886763 0.746296069 0.75117305
##
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                                              [,163]
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##
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    [2,] 0.03925155 0.007399294 0.8492763 0.29408041 0.2633005 0.18981308
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    [5,] 0.23993173 0.057872030 0.8122334 0.22968922 0.7339976 0.91305719
##
    [6,] 0.47807382 0.757755460 0.8377187 0.54672993 0.6624521 0.84355475
    [7,] 0.66651426 0.662832948 0.5536579 0.65164685 0.9124582 0.17831281
    [8,] 0.37581267 0.344318763 0.1206550 0.98842468 0.8172698 0.43709688
##
    [9,] 0.34675812 0.569243087 0.3411959 0.56164586 0.5269870 0.51963831
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##
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    [3,] 0.4136881 0.7217227 0.9391102 0.44473913 0.253157775 0.81970546
##
##
    [4,] 0.9632185 0.3471358 0.9431971 0.88357256 0.983660441 0.50762168
    [5,] 0.7556317 0.8825192 0.1829649 0.89152708 0.947448178 0.15951026
    [6,] 0.3707470 0.9570121 0.4163936 0.18366581 0.220189201 0.01363363
##
    [7,] 0.4477446 0.5469394 0.6427836 0.72702100 0.935504639 0.10382998
    [8,] 0.6259034 0.4888924 0.3527389 0.24248828 0.134665592 0.46151291
    [9,] 0.7474527 0.5010762 0.6174005 0.58749411 0.441853522 0.49854257
   [10,] 0.5138067 0.8842988 0.1487786 0.06188215 0.933576507 0.79391061
##
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##
    [2,] 0.89434251 0.7882952 0.8834217 0.728650065 0.3837984 0.96501185
##
    [3,] 0.95555262 0.9372922 0.7368441 0.182414302 0.5838595 0.59793953
##
    [4,] 0.42200032 0.7925080 0.1266908 0.651210981 0.1593681 0.37509211
    [5,] 0.10574985 0.1105528 0.6829225 0.005500113 0.8869422 0.52196270
    [6,] 0.05746682 0.3067193 0.2424450 0.138630183 0.1165756 0.06231971
    [7,] 0.26844499 0.2709964 0.4136599 0.548581970 0.7739473 0.04281699
    [8,] 0.68435528 0.8333012 0.7633490 0.841058819 0.2530876 0.08617212
##
    [9,] 0.31634536 0.5625607 0.6043021 0.248652565 0.2858903 0.14363955
   [10,] 0.43383881 0.3996546 0.8183386 0.126946334 0.4119126 0.19915180
##
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##
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##
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##
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    [3,] 0.52956198 0.52085327 0.64100986 0.79194012 0.4037757 0.05245249
    [4,] 0.20716231 0.72003435 0.56331857 0.31696838 0.1470539 0.01882209
    [5,] 0.98217180 0.31493197 0.55555702 0.87081105 0.8405689 0.38096248
    [6,] 0.16016557 0.52994775 0.06654735 0.32345453 0.8546264 0.66356073
##
    [7,] 0.98295946 0.46257847 0.65604711 0.64618597 0.9755988 0.98232552
    [8,] 0.90739663 0.56598125 0.35304868 0.01351453 0.1276000 0.44304105
    [9,] 0.67717182 0.27712741 0.75953421 0.99160699 0.1058211 0.81576382
## [10,] 0.08318818 0.76812339 0.75376563 0.38130195 0.1802010 0.10047429
```

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    [2,] 0.7905131 0.04426299 0.87864836 0.43355817 0.05892941 0.3863215
##
    [3,] 0.6957383 0.07580810 0.57487062 0.94979793 0.07861953 0.2393265
    [4,] 0.6792070 0.45359831 0.15817808 0.31564314 0.97013552 0.1438573
    [5,] 0.9208727 0.70150885 0.67127215 0.23523875 0.11297906 0.9404634
##
    [6,] 0.2080546 0.73684797 0.14999518 0.44541808 0.17402771 0.4999785
    [7,] 0.8942670 0.31973916 0.04006234 0.02610088 0.62158394 0.1472479
    [8,] 0.8505347 0.67077460 0.62766834 0.01042594 0.20542860 0.2088666
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##
    [2,] 0.90158113 0.30138814 0.05540889 0.697441297 0.8966505 0.50571430
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##
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    [9,] 0.39769081 0.43656852 0.92758329 0.797334989 0.1071740 0.94835807
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    [3,] 0.250544949 0.0754019 0.3985727 0.10550150 0.3815420 0.73817554
    [4,] 0.447754082 0.9932604 0.3159119 0.81571320 0.5413987 0.53243525
    [5,] 0.238547214 0.7292721 0.9313680 0.69725938 0.8143805 0.58774464
##
    [6,] 0.556708573 0.8798074 0.7207555 0.05102890 0.7037768 0.32934561
    [7,] 0.951453618 0.3484288 0.9183472 0.38030021 0.9570358 0.03515979
    [8,] 0.765610334 0.3737844 0.9560508 0.12361799 0.7250782 0.61640990
   [9,] 0.068829233 0.3501820 0.6443108 0.67214803 0.1627551 0.23250670
   [10,] 0.076830490 0.9862746 0.9538307 0.05957291 0.2129374 0.98517842
##
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                                  [,204]
                                             [,205]
                                                       [,206]
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    [2,] 0.30623493 0.5970947 0.40953613 0.63563940 0.7914266 0.76270230
    [3,] 0.33686557 0.6718838 0.35857148 0.20981263 0.7302392 0.24413598
##
    [4,] 0.56694790 0.7334286 0.61795590 0.83024868 0.9456550 0.73614616
    [5,] 0.51668237 0.2456149 0.36123523 0.07473013 0.8055736 0.09517892
    [6,] 0.44620574 0.2980284 0.38688200 0.25601267 0.8698656 0.73525420
    [7,] 0.86657356 0.9060524 0.01567752 0.01930970 0.4773083 0.23205263
    [8,] 0.54563998 0.8536633 0.22658988 0.52438486 0.0572355 0.56460078
   [9,] 0.54648139 0.2042273 0.06070175 0.58737233 0.2240479 0.16106744
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##
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14]
##
    [1,] 0.66706594 0.9797958 0.9000270 0.46229550 0.2959712 0.3391668 0.7598
    [2,] 0.01198020 0.5667140 0.9326127 0.37585489 0.6263163 0.0713006 0.6153
##
614
```

```
## [3,] 0.86299144 0.6067647 0.9985358 0.79430518 0.9378447 0.5769069 0.5105
888
## [4,] 0.64618464 0.3705023 0.0877048 0.35710074 0.6935562 0.2225228 0.4815
729
## [5,] 0.38328416 0.8157271 0.8497699 0.76643322 0.8085172 0.1891042 0.5255
293
## [6,] 0.04070979 0.8866845 0.2943844 0.79341428 0.7132728 0.2252417 0.3751
221
## [7,] 0.40498191 0.7349616 0.2280863 0.91393262 0.1161112 0.2327052 0.4714
624
   [8,] 0.37269132 0.1914489 0.8786181 0.60560702 0.1713600 0.6163697 0.9169
##
819
## [9,] 0.28062317 0.1357138 0.1364549 0.04846562 0.2682431 0.2051131 0.5461
548
## [10,] 0.01629771 0.2261469 0.2569596 0.84629610 0.5138541 0.2522750 0.7402
137
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##
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2040
## [2,] 0.6259652 0.37224388 0.7767646 0.84206050 0.04645523 0.8228820 0.674
5456
## [3,] 0.0414920 0.29171853 0.6533328 0.11979195 0.13563980 0.2353395 0.205
6338
## [4,] 0.9194663 0.63586550 0.3435247 0.45456330 0.77042129 0.4515769 0.305
2095
## [5,] 0.2889492 0.88835058 0.9921347 0.21770897 0.86658659 0.2508401 0.386
8355
## [6,] 0.5107787 0.52731624 0.9607309 0.61168545 0.60504143 0.7998309 0.330
7606
## [7,] 0.8172512 0.01320101 0.6696070 0.74797010 0.47220036 0.4473622 0.332
4866
## [8,] 0.3402459 0.86324660 0.1158696 0.09119835 0.51610348 0.4068060 0.302
8392
## [9,] 0.9608925 0.74638743 0.8019282 0.36893515 0.84408669 0.9034573 0.354
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## [10,] 0.9223561 0.19837778 0.3194236 0.45016516 0.53897668 0.4248028 0.445
5817
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## [1,] 0.3603080 0.651573684 0.97666985 0.33187670 0.966051979 0.3839958
## [2,] 0.5077181 0.385300362 0.52950626 0.84573898 0.612723368 0.8395418
   [3,] 0.2274549 0.684203631 0.86602911 0.89821871 0.002010103 0.5455359
## [4,] 0.4333780 0.938078733 0.65003749 0.17482335 0.685650171 0.2032710
   [5,] 0.1794739 0.037044391 0.37047395 0.14534547 0.979375870 0.2401063
## [6,] 0.5595452 0.096581924 0.98058062 0.11501860 0.218098128 0.3117400
   [7,] 0.4139764 0.814686867 0.94272550 0.31738506 0.868626960 0.5514975
   [8,] 0.9033785 0.267363401 0.04468487 0.05963258 0.612671898 0.7447733
## [9,] 0.4255343 0.003516281 0.66937345 0.23090896 0.056915656 0.8894753
## [10,] 0.5805284 0.997330646 0.66361947 0.75960294 0.346565030 0.1508485
## [,228] [,230] [,231] [,232] [,233] [
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## [3,] 0.2644600 0.9939518 0.03230665 0.89724343 0.9462967 0.09293761 0.542
## [4,] 0.6403849 0.2332649 0.21114539 0.76866826 0.1202121 0.23924312 0.821
16055
## [5,] 0.4472282 0.5719293 0.77417755 0.74233150 0.8984577 0.14960884 0.193
71019
## [6,] 0.6238611 0.9527807 0.42354175 0.03204472 0.6438544 0.65313602 0.049
07113
## [7,] 0.8571754 0.4215144 0.92756559 0.29694697 0.2396276 0.37990313 0.049
62943
## [8,] 0.9184559 0.8365187 0.32054064 0.57325387 0.3116876 0.21878175 0.231
03600
## [9,] 0.7993657 0.9854850 0.67524715 0.31479381 0.9672888 0.49109952 0.722
29499
## [10,] 0.7659520 0.3482637 0.24223841 0.92268456 0.6901436 0.07542064 0.423
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##
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    [2,] 0.3456732153 0.1812789 0.2189729 0.39194652 0.5683709 0.12717094
   [3,] 0.5672760438 0.6941427 0.4440678 0.25019402 0.9572780 0.20487522
    [4,] 0.1424514505 0.3649275 0.8378923 0.34187838 0.8298102 0.53022377
   [5,] 0.2521215370 0.7193078 0.5616830 0.51732307 0.3828368 0.30675354
   [6,] 0.1744491835 0.1966430 0.8469860 0.30779531 0.6448745 0.62907879
    [7,] 0.3189148637 0.6304802 0.9069747 0.88658484 0.1603201 0.23876266
   [8,] 0.2707327115 0.6906429 0.9950184 0.15558722 0.5878053 0.57990867
   [9,] 0.7597058401 0.8914149 0.9720444 0.13051993 0.0352652 0.02827823
## [10,] 0.0003726946 0.3835929 0.1165237 0.33244982 0.1092783 0.63405817
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   [2,] 0.348505127 0.4772774 0.91999615 0.61509468 0.10006434 0.32545680
   [3,] 0.251361825 0.1065894 0.80345526 0.45695097 0.76797597 0.54093612
   [4,] 0.052895680 0.1777186 0.43707637 0.61250136 0.20586782 0.07369570
##
   [5,] 0.243918078 0.1786982 0.97132947 0.46536943 0.01375952 0.38398586
   [6,] 0.118362219 0.4628896 0.55564468 0.35393551 0.72484847 0.76517042
    [7,] 0.008505436 0.6867216 0.02816274 0.02315428 0.33990466 0.40103851
  [8,] 0.080751225 0.5458109 0.06502306 0.45719802 0.46784546 0.98055163
  [9,] 0.057010542 0.2879836 0.54980466 0.53100438 0.93065179 0.06795755
## [10,] 0.134612589 0.2402930 0.24658709 0.24300793 0.78528883 0.26050808
##
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                                         [,250]
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## [1,] 0.84745082 0.0120546 0.0163089 0.4713931 0.9834836 0.7243673 0.47882
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   [2,] 0.59041470 0.3283288 0.2598338 0.2345269 0.5326293 0.3370505 0.11031
##
215
## [3,] 0.41541441 0.9076639 0.5829169 0.9606767 0.4493705 0.6826602 0.01109
```

```
723
## [4,] 0.47338952 0.9712872 0.8137693 0.6969141 0.1063990 0.4204091 0.71486
111
## [5,] 0.85230463 0.9419741 0.3718283 0.7966200 0.7112313 0.8853464 0.03963
275
## [6,] 0.48698691 0.7439503 0.1505343 0.5617669 0.4853978 0.2322519 0.99081
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## [7,] 0.07748159 0.1871675 0.8698411 0.4660958 0.6627622 0.4602652 0.13371
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## [8,] 0.17139629 0.5308756 0.9587700 0.8153417 0.6845628 0.3586542 0.77486
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## [9,] 0.11768144 0.6354602 0.7058255 0.3403281 0.8411867 0.5819517 0.05951
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## [10,] 0.66072795 0.5766368 0.2526828 0.0459759 0.8540230 0.8333048 0.24458
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## [2,] 0.96678634 0.5435713 0.06078851 0.9888251 0.45400951 0.53770739 0.87
## [3,] 0.25825188 0.9784353 0.91358426 0.9536852 0.06123074 0.64395155 0.56
30635
## [4,] 0.53619366 0.1960484 0.39373104 0.1109559 0.01259519 0.08509002 0.62
## [5,] 0.58503399 0.6331380 0.85610090 0.7080871 0.66922095 0.36130138 0.20
01772
## [6,] 0.22815816 0.5777858 0.02739164 0.7530557 0.72915395 0.39917944 0.18
55922
## [7,] 0.45685394 0.7895031 0.46635574 0.3208931 0.56093608 0.11873968 0.76
16338
## [8,] 0.47956879 0.9955976 0.97797745 0.3775372 0.81469608 0.98485659 0.83
79143
## [9,] 0.39793795 0.9415135 0.52291720 0.9475827 0.81141253 0.10252549 0.54
45845
## [10,] 0.78669694 0.1978782 0.61461967 0.9091803 0.09651895 0.68240915 0.78
12152
##
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## [3,] 0.08183855 0.69423644 0.79958692 0.1246708 0.803962915 0.06746474
   [4,] 0.13078503 0.05247256 0.69043439 0.4310274 0.250020218 0.58018699
   [5,] 0.31609718 0.80328064 0.56804993 0.2324476 0.006048359 0.87615845
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## [8,] 0.74659845 0.60734272 0.82467441 0.7163180 0.477731570 0.09388469
   [9,] 0.68448987 0.47809125 0.66560055 0.8192100 0.185489672 0.14081614
## [10,] 0.17137799 0.69000124 0.43285017 0.6012792 0.256941299 0.33161832
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##
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## [1,] 0.09117955 0.1983554 0.21596835 0.4005166 0.36690816 0.9977724
```

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    [3,] 0.28519953 0.7059433 0.51398984 0.8737114 0.62257010 0.2145192
    [4,] 0.45988582 0.5050658 0.90139524 0.5445274 0.28561191 0.1313771
    [5,] 0.89695594 0.3549850 0.15429727 0.9425058 0.87137277 0.8520454
    [6,] 0.87538186 0.7024976 0.37249508 0.1919548 0.77664214 0.2921662
    [7,] 0.38039578 0.4557128 0.22282896 0.2932229 0.98269503 0.8117770
##
    [8,] 0.84811034 0.5801262 0.40095559 0.1378748 0.89932212 0.7808281
    [9,] 0.28478465 0.8659445 0.65670595 0.1678140 0.77365648 0.5220114
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                                                          [,277]
              [,273]
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    [2,] 0.371041124 0.009416983 0.3587075 0.2778134 0.848978827 0.02238115
    [3,] 0.109933837 0.232264125 0.1705866 0.2123820 0.749317782 0.92999537
    [4,] 0.401149197 0.462065384 0.3249364 0.6087628 0.169361776 0.55373489
    [5,] 0.690811560 0.773069662 0.5598605 0.7642899 0.457361114 0.16868733
    [6,] 0.001114712 0.812135707 0.1180082 0.4329400 0.007325636 0.62445074
    [7,] 0.771293664 0.343814147 0.1864571 0.8962657 0.097124767 0.21011632
    [8,] 0.611494262 0.852858790 0.8061640 0.9086691 0.975143448 0.92751977
    [9,] 0.650786574 0.140176043 0.8285266 0.8599567 0.544645206 0.12903814
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##
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##
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    [4,] 0.73802413 0.4355503 0.70105689 0.6355957 0.3669269 0.4725624
    [5,] 0.66835473 0.8124455 0.06445826 0.4588591 0.9653990 0.3176587
    [6,] 0.61344251 0.6762649 0.39109422 0.7064644 0.8278268 0.6644314
    [7,] 0.43462672 0.8500911 0.75386418 0.3432489 0.7031504 0.9308085
##
    [8,] 0.25139731 0.1341002 0.65655363 0.3424323 0.6460278 0.9004767
    [9,] 0.09671032 0.5735031 0.47612119 0.5630701 0.5246516 0.3744763
## [10,] 0.20153288 0.4117027 0.62104092 0.8736067 0.3985250 0.7252377
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##
    [2,] 0.5679845482 0.20649513 0.28896315 0.6200798 0.85015477 0.48907442
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    [4,] 0.1281997904 0.31628104 0.80829019 0.1596423 0.80336906 0.03062805
    [5,] 0.3185154253 0.19392802 0.79316961 0.8511412 0.91959924 0.19110983
    [6,] 0.0006649231 0.19606103 0.68925879 0.9029720 0.84338098 0.07466945
   [7,] 0.3171166216 0.18637231 0.09205538 0.3311565 0.04624967 0.54776929
    [8,] 0.4069810424 0.04256956 0.61014175 0.3115479 0.98970149 0.93370587
## [9,] 0.4821681869 0.75483158 0.94183150 0.6422202 0.55609822 0.50660874
## [10,] 0.5479478934 0.26504697 0.98251501 0.2470854 0.44990349 0.85185073
##
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63234
## [2,] 0.1997516 0.7253574 0.08405425 0.1647171 0.96732572 0.9661584 0.9669
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98286
```

```
## [4,] 0.9915308 0.3022107 0.58486460 0.3399261 0.20165692 0.2619009 0.0063
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## [5,] 0.9056791 0.5157383 0.13794616 0.1785556 0.73219487 0.4236670 0.3824
59513
## [6,] 0.1936618 0.7580591 0.66854005 0.5723109 0.27742393 0.7416159 0.5139
88580
## [7,] 0.5896906 0.8644712 0.21245243 0.8446074 0.78242456 0.1144760 0.3679
42631
## [8,] 0.7914984 0.5053494 0.37487845 0.7966177 0.17619747 0.4511698 0.3734
55981
## [9,] 0.7127873 0.4402840 0.05030597 0.1697936 0.89051944 0.8979739 0.0686
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##
   [2,] 0.49798700 0.10635625 0.153069928 0.568978121 0.4179129 0.02133063
## [3,] 0.38897928 0.02538364 0.332767426 0.538556358 0.0745824 0.35399826
## [4,] 0.20537959 0.16784496 0.089324884 0.651971000 0.3553173 0.56704896
   [5,] 0.04872041 0.70946460 0.064213024 0.918002470 0.3080222 0.06166080
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   [7,] 0.53066258 0.51121065 0.556339289 0.378393862 0.1365571 0.01570694
## [8,] 0.11787793 0.41053640 0.186933394 0.006710127 0.1837295 0.90740139
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##
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10]
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## [2,] 0.4218477 0.8248714 0.17035766 0.7934859 0.9127205 0.59758413 0.5189
914
## [3,] 0.3540646 0.8939838 0.98521779 0.9869889 0.8858478 0.49982478 0.1772
663
## [4,] 0.2638997 0.1323491 0.06381435 0.5140513 0.1708992 0.78782462 0.6127
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## [5,] 0.8666611 0.6335904 0.22523482 0.4286772 0.3788303 0.28790267 0.8529
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   [6,] 0.9238898 0.4293740 0.12803350 0.2381449 0.1426421 0.93566054 0.3424
##
413
##
   [7,] 0.9397831 0.1515060 0.76527600 0.4413679 0.8487947 0.19925038 0.9543
815
   [8,] 0.1361785 0.1028856 0.79054375 0.2320476 0.3621620 0.35982103 0.9427
##
326
## [9,] 0.4146531 0.2621305 0.78378520 0.4347820 0.4524028 0.78522566 0.5684
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## [10,] 0.6217818 0.8644772 0.42644180 0.2236106 0.1169383 0.03605265 0.8121
913
##
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                                           [,314]
                                                       [,315]
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## [2,] 0.14213966 0.84200013 0.87774841 0.7915667 0.6763752 0.67122495
```

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[3,] 0.06449774 0.40598636 0.15885084 0.8632550 0.7069400 0.04826938
    [4,] 0.86245723 0.33750089 0.19864614 0.5601649 0.8749753 0.72710316
    [5,] 0.18225897 0.67606833 0.46019558 0.7489612 0.1236666 0.21740074
##
    [6,] 0.92730249 0.41993293 0.95098659 0.6393795 0.2992868 0.85761896
##
##
    [7,] 0.84300697 0.74320596 0.27090505 0.7319093 0.1877878 0.43880095
    [8,] 0.42245744 0.55426075 0.75384261 0.7049157 0.7378061 0.75072308
##
    [9,] 0.31639362 0.52728180 0.04324237 0.7686879 0.5038377 0.60527764
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##
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                                    [,319]
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##
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##
    [2,] 0.341880565 0.54209966 0.64497742 0.95822532 0.51349353 0.3796988
    [3,] 0.461176390 0.13058669 0.07386795 0.32344948 0.38235046 0.6066125
##
    [4,] 0.860155152 0.73704474 0.67645673 0.18863452 0.56996723 0.8455636
    [5,] 0.793777793 0.75007334 0.50122217 0.33994918 0.05842757 0.2476803
    [6,] 0.576117574 0.52040696 0.68233721 0.65848711 0.26209008 0.2030989
##
    [7,] 0.537616916 0.88781271 0.96464643 0.81304189 0.30184696 0.2892969
    [8,] 0.059671071 0.47888596 0.21917622 0.26525379 0.34674048 0.0569670
    [9,] 0.720633869 0.06909927 0.94007600 0.02404105 0.58010436 0.3533736
   [10,] 0.004569708 0.82453473 0.56528055 0.82419039 0.99524825 0.7864043
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##
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##
    [3,] 0.42310411 0.48265803 0.560412233 0.7486693 0.7871455 0.72481249
##
    [4,] 0.22267598 0.03026145 0.189952976 0.3870709 0.1369092 0.97323266
    [5,] 0.62482483 0.29204454 0.797877914 0.9658287 0.6905207 0.78854258
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    [7,] 0.35569001 0.66574382 0.714491616 0.8490600 0.3093385 0.02451265
    [8,] 0.39101455 0.17811748 0.501197626 0.8402618 0.5551940 0.72055818
##
    [9,] 0.06775001 0.65559964 0.918681255 0.6859789 0.8734636 0.99642018
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##
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    [6,] 0.28650727 0.2451190 0.37571383 0.68655066 0.80795432 0.1155692
##
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##
    [8,] 0.15775077 0.7302160 0.06961116 0.47657650 0.28043810 0.2680741
    [9,] 0.36550202 0.5936919 0.77586139 0.03614561 0.44853529 0.5089951
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    [3,] 0.78518426 0.8146455 0.172082398 0.15054826 0.5738111 0.9375111
    [4,] 0.47372053 0.6565011 0.109949302 0.77687644 0.8591641 0.5862368
    [5,] 0.35593491 0.4309796 0.189791234 0.90314201 0.5757356 0.1022940
    [6,] 0.62011089 0.4951065 0.645228282 0.89614338 0.7215528 0.3939013
    [7,] 0.55010526 0.6655622 0.065452774 0.44005781 0.5309012 0.6877498
## [8,] 0.80695145 0.2397619 0.006059012 0.83034842 0.3463478 0.3276261
```

```
## [9,] 0.05369516 0.5133889 0.410995672 0.75674280 0.9424011 0.2366179
## [10,] 0.31006112 0.4909889 0.096643012 0.16252905 0.4790730 0.8211579
##
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47197
## [2,] 0.04239714 0.6435758 0.08848277 0.9355885 0.03835341 0.09333771 0.29
60869
## [3,] 0.02862006 0.5323117 0.89714041 0.6711394 0.38837091 0.53015631 0.63
24479
## [4,] 0.09977301 0.5529951 0.99645959 0.1068884 0.96265963 0.07706839 0.48
32382
## [5,] 0.57070944 0.8614699 0.87353812 0.6983117 0.98373380 0.66917701 0.51
16099
## [6,] 0.82441343 0.5294557 0.44773252 0.3465790 0.71367665 0.07273490 0.22
## [7,] 0.96454462 0.2937983 0.53651565 0.6122806 0.75674837 0.28740183 0.20
37869
## [8,] 0.25299692 0.5331860 0.91261147 0.9508020 0.79580057 0.62444590 0.57
95088
## [9,] 0.13472427 0.8109798 0.51898670 0.2277832 0.46917128 0.61754128 0.44
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## [10,] 0.94142720 0.5713138 0.39195012 0.6909915 0.97495838 0.47953380 0.31
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##
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## [2,] 0.82602674 0.4276749 0.57807945 0.2523911 0.1108960 0.4111999 0.3565
4298
## [3,] 0.12053704 0.3806690 0.08383422 0.4874555 0.2941008 0.1335484 0.2875
3600
## [4,] 0.84838584 0.8960882 0.49611649 0.5987282 0.4512024 0.1089956 0.1336
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## [5,] 0.93284247 0.5663539 0.52065756 0.3245444 0.2402538 0.3042970 0.3416
2384
## [6,] 0.08207176 0.7625846 0.84245778 0.7942575 0.0899105 0.5097619 0.8433
2250
## [7,] 0.22384965 0.7665546 0.89756172 0.2757666 0.6099579 0.7597911 0.0164
6198
## [8,] 0.37446007 0.5976463 0.32725898 0.7616235 0.5998616 0.2613595 0.7676
5520
## [9,] 0.31156559 0.3344279 0.49760775 0.1723887 0.8800818 0.2366018 0.3765
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## [10,] 0.85772102 0.7297487 0.31449258 0.4868698 0.4756019 0.7227150 0.5476
1667
##
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## [2,] 0.936672632 0.8693073 0.32195453 0.69496354 0.26881936 0.842856202
## [3,] 0.138756423 0.7730343 0.05354586 0.49794049 0.13500381 0.883834566
```

```
[4,] 0.389763368 0.9456354 0.54964644 0.17485449 0.22271983 0.652976057
    [5,] 0.343428202 0.9252221 0.91838509 0.17983915 0.51466962 0.002440394
    [6,] 0.910978316 0.6724691 0.59424712 0.20591131 0.28592123 0.110375687
    [7,] 0.704141502 0.5920968 0.42654933 0.39645104 0.48419161 0.749840154
   [8,] 0.167934891 0.2068380 0.37608225 0.15289210 0.46859071 0.195240610
   [9,] 0.528123782 0.2952410 0.52395104 0.09645944 0.79664914 0.365982683
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  [4,] 0.44861842 0.81997380 0.39443311 0.5499787 0.165540961 0.37577973
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  [6,] 0.73993584 0.63646503 0.96320514 0.7228323 0.405656748 0.01039672
    [7,] 0.02810995 0.91105640 0.59881684 0.3941348 0.016335373 0.03543967
  [8,] 0.36706023 0.12263397 0.79701683 0.6674386 0.216331096 0.82802199
## [9,] 0.17880427 0.12038581 0.07224874 0.1432238 0.418905349 0.83112575
## [10,] 0.14152971 0.25040961 0.94668942 0.3469032 0.003143579 0.91883484
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## [2,] 0.76332046 0.66783046 0.5096220 0.4626951 0.16845323 0.87661595 0.22
01458
## [3,] 0.35716238 0.16838517 0.6488331 0.9751221 0.34701266 0.09705088 0.76
80644
## [4,] 0.80425339 0.62606597 0.8147930 0.1266556 0.70926438 0.65718234 0.78
79935
## [5,] 0.01417769 0.07806942 0.1307751 0.8951575 0.89552991 0.69996525 0.42
49788
## [6,] 0.14034772 0.18522623 0.1561077 0.3549357 0.14839468 0.66880576 0.26
62904
## [7,] 0.73658245 0.21732200 0.1002508 0.3946074 0.67590983 0.43889846 0.51
## [8,] 0.55569783 0.19089028 0.5347700 0.9275846 0.20096294 0.80994517 0.79
40486
## [9,] 0.32321827 0.53711191 0.1913931 0.2228278 0.07857678 0.59011582 0.95
80383
## [10,] 0.99948870 0.28354179 0.1291704 0.6336558 0.94599255 0.15798195 0.90
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##
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    [3,] 0.35048633 0.9079509 0.14570611 0.7424728 0.79426480 0.29478367
  [4,] 0.79465218 0.8273808 0.80398689 0.9325195 0.48814539 0.86236430
## [5,] 0.03537139 0.5397552 0.83510202 0.8813803 0.14373537 0.50709941
   [6,] 0.12470137 0.5566087 0.24427956 0.9123769 0.88356661 0.46644594
## [7,] 0.02045283 0.6064517 0.21619658 0.7887645 0.02755764 0.26290269
    [8,] 0.82624442 0.1550797 0.03817182 0.9589060 0.64309639 0.01573271
## [9,] 0.83849398 0.8386714 0.90303410 0.2103750 0.58551555 0.36165797
```

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## [10,] 0.56782221 0.7153220 0.33200027 0.9345222 0.48665017 0.51150656
##
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    [3,] 0.67134073 0.57413143 0.245410999 0.7022030 0.03870717 0.60201489
    [4,] 0.22617434 0.07966298 0.002708061 0.7168128 0.07497340 0.74672705
    [5,] 0.06065621 0.69008327 0.946524968 0.8675232 0.46551248 0.77122775
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## [10,] 0.21570593 0.24499444 0.682547294 0.9443739 0.02617653 0.31846999
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##
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   [3,] 0.2858349 0.98509913 0.02604500 0.209080749 0.52419765 0.47671536
    [4,] 0.5137047 0.85919029 0.95581041 0.007983506 0.21880388 0.32733687
    [5,] 0.1903731 0.15520473 0.80460929 0.995153171 0.65403340 0.38014811
    [6,] 0.9347144 0.32989777 0.27278594 0.241798746 0.08811068 0.37346330
    [7,] 0.3633697 0.06912222 0.64966093 0.236030007 0.52073187 0.42343210
    [8,] 0.1746272 0.60790171 0.08343888 0.152813338 0.29473026 0.00873613
## [9,] 0.8950281 0.03917811 0.08103709 0.184440879 0.16294933 0.69801084
## [10,] 0.9286520 0.27125671 0.54928762 0.726464125 0.07506866 0.44066763
##
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98]
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413
##
   [2,] 0.9248185 0.5118678 0.5635764 0.4046111 0.9621209 0.06771722 0.57046
611
##
    [3,] 0.1462702 0.7546043 0.8440048 0.2698612 0.7578923 0.40219684 0.50248
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993
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##
603
##
    [7,] 0.1970506 0.5698207 0.4614540 0.1913164 0.2550037 0.96149507 0.73871
259
##
    [8,] 0.4393385 0.8657104 0.4564611 0.4220944 0.9369857 0.63674983 0.42832
155
    [9,] 0.4570636 0.2157496 0.8589548 0.0588504 0.4188566 0.59766562 0.50253
##
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## [10,] 0.4880804 0.6903031 0.7965269 0.9807535 0.2654718 0.77587592 0.79873
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##
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    [3,] 0.4367744 0.21040829 0.14367793 0.63380441 0.04169172 0.47563447
## [4,] 0.3647619 0.48191989 0.54896143 0.98530466 0.36004727 0.90454239
```

```
## [5,] 0.8134966 0.08616951 0.58302842 0.84029611 0.49625911 0.80656579
## [6,] 0.1541427 0.56372460 0.98680893 0.85390729 0.71655920 0.06306322
## [7,] 0.1563232 0.28947941 0.65725462 0.04707064 0.40828429 0.33826590
## [8,] 0.9946481 0.94789251 0.54660146 0.53939935 0.56301088 0.91403492
## [9,] 0.8878583 0.69465604 0.72719578 0.89841087 0.95417692 0.07945214
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                                                                           Γ
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05149
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92835
## [3,] 0.09192595 0.59298147 0.1720676 0.001895079 0.3504662 0.3789366 0.66
65433
## [4,] 0.42168973 0.59679770 0.8367970 0.691141621 0.6078925 0.1030056 0.54
## [5,] 0.24647650 0.87638108 0.5386526 0.330921250 0.7482712 0.3110229 0.82
83949
## [6,] 0.49815152 0.90248775 0.2204701 0.521036534 0.3307774 0.8896335 0.94
39723
## [7,] 0.52162955 0.93665033 0.9195155 0.040251176 0.9792817 0.2846086 0.67
70411
## [8,] 0.06760242 0.25730170 0.3753294 0.206917288 0.5576657 0.4487653 0.84
37641
## [9,] 0.99302398 0.55732046 0.2690744 0.093212876 0.4860006 0.7899903 0.69
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94276
##
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## [2,] 0.3384754 0.57721974 0.59964588 0.78102283 0.312957387 0.25034800
## [3,] 0.9983182 0.49518683 0.83587866 0.32798012 0.385713357 0.69122403
    [4,] 0.9872182 0.21242334 0.04504631 0.93247581 0.148225192 0.46196466
  [5,] 0.5731364 0.33296818 0.50987976 0.93515834 0.048644750 0.66753430
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   [5,] 0.92102601 0.16220493 0.54195863 0.72939539 0.72785393 0.4030892
   [6,] 0.48672753 0.46962238 0.07545275 0.25441813 0.43625745 0.1544173
    [7,] 0.26458193 0.25069565 0.84444427 0.69970326 0.73719423 0.1734410
## [8,] 0.61825587 0.52453219 0.47567459 0.45976735 0.21433969 0.7972450
    [9,] 0.29601444 0.88547409 0.02878969 0.39320702 0.07365863 0.4357971
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```

```
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  [3,] 0.794913026 0.41502062 0.08795911 0.18259498 0.77664463 0.523410003
  [4,] 0.961212641 0.11068894 0.38276650 0.88522241 0.45019296 0.907376357
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## [2,] 0.7997858 0.3047711 0.5288009 0.63031613 0.96402997 0.68067499 0.903
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## [3,] 0.7513815 0.4152704 0.7591149 0.21982847 0.02801214 0.63081964 0.989
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## [4,] 0.7912235 0.4265435 0.8959036 0.77666934 0.36665319 0.17192569 0.604
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## [6,] 0.1692699 0.4478223 0.7601071 0.17673000 0.30251031 0.91868482 0.326
## [7,] 0.1736969 0.6963983 0.5459132 0.87089435 0.84866486 0.80833929 0.276
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## [8,] 0.6682929 0.2470423 0.8216689 0.68113177 0.70227399 0.95513514 0.329
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## [9,] 0.4560487 0.3218963 0.4855968 0.87405319 0.09285187 0.20854811 0.144
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## [3,] 0.291854999 0.5182867 0.20091722 0.88154310 0.51260669 0.94786258
## [4,] 0.146218012 0.9872262 0.80174609 0.56650929 0.60732249 0.35609588
## [5,] 0.948559806 0.5940425 0.42801449 0.39118505 0.70760760 0.56847315
   [6,] 0.439471201 0.4404081 0.57496536 0.02631262 0.56533389 0.34973133
## [7,] 0.128649786 0.4244636 0.02091909 0.25977364 0.34155272 0.08421640
   [8,] 0.008045549 0.2088675 0.92279403 0.30656175 0.08194178 0.55733539
## [9,] 0.456506587 0.8762823 0.17267828 0.54760045 0.67722411 0.42131895
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##
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                                                  [,447]
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## [2,] 0.2913127 0.7889938 0.4768724 0.56707043 0.2130872 0.8576902 0.85865
187
```

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## [3,] 0.9104215 0.4046037 0.6992507 0.28826873 0.6705171 0.9142340 0.86432
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   [4,] 0.9513486 0.6011858 0.2348616 0.36662939 0.6233963 0.1328987 0.96085
##
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## [5,] 0.8798888 0.8673119 0.8962528 0.88539596 0.1692353 0.1932908 0.12409
636
   [6,] 0.4523243 0.3700783 0.8548698 0.78837214 0.1710014 0.9767434 0.07480
##
877
   [7,] 0.7839019 0.3031334 0.7515225 0.91739099 0.2321362 0.5171115 0.06562
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    [8,] 0.7942048 0.1606303 0.5190694 0.00549573 0.7532827 0.9801970 0.05676
##
954
## [9,] 0.3492607 0.7746540 0.8623769 0.81611943 0.6954323 0.8888242 0.93244
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## [10,] 0.6927843 0.9715701 0.7757687 0.53365695 0.6386444 0.6827881 0.72371
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##
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    [2,] 0.9549803 0.10310557 0.64835536 0.01116991 0.73499377 0.8892882
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   [4,] 0.7151733 0.68802108 0.36571522 0.14582700 0.33200180 0.1642474
    [5,] 0.8571234 0.23851744 0.09101945 0.90533355 0.05147188 0.7549237
   [6,] 0.6072440 0.44271496 0.52794068 0.28577768 0.32590501 0.4387667
    [7,] 0.7359686 0.76043493 0.92508007 0.85180599 0.22943643 0.2425435
   [8,] 0.4635446 0.28661569 0.94884252 0.82874374 0.16430760 0.7839597
    [9,] 0.6458135 0.93035663 0.93255958 0.24580937 0.20774109 0.5861744
## [10,] 0.9546032 0.02089734 0.62727678 0.93076718 0.36593762 0.8267781
##
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##
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   [4,] 0.51410357 0.70743678 0.4486561 0.84496047 0.02225786 0.7066818
    [5,] 0.57508862 0.34499302 0.5277551 0.56920743 0.19499362 0.5155559
   [6,] 0.03191355 0.58652560 0.8626904 0.29087111 0.37419342 0.1373436
    [7,] 0.85728394 0.97344718 0.8105381 0.51525144 0.76093656 0.2156223
   [8,] 0.04016367 0.46341408 0.3430350 0.26938001 0.59839783 0.6065723
   [9,] 0.35589031 0.55826114 0.7021150 0.11705393 0.27915624 0.4777453
## [10,] 0.73983841 0.01013549 0.1474803 0.72434691 0.18766844 0.8475935
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##
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    [3,] 0.90548552 0.81830434 0.7059661 0.28142172 0.9919469 0.40547052
   [4,] 0.70778879 0.31307469 0.5574820 0.84252505 0.8371178 0.26353807
    [5,] 0.65591362 0.81244211 0.0775328 0.98396283 0.2392590 0.28612579
   [6,] 0.53129358 0.63634405 0.1225042 0.70373554 0.2641510 0.03014693
   [7,] 0.90726580 0.65776179 0.5663724 0.17011929 0.3198437 0.40491387
   [8,] 0.07956205 0.05722353 0.7097402 0.60004776 0.2447403 0.81437713
## [9,] 0.65107824 0.78022091 0.5241641 0.01917678 0.2539935 0.35318282
## [10,] 0.07898494 0.52840969 0.2914436 0.25760630 0.7618090 0.65147136
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   [2,] 0.20714310 0.88575960 0.421086435 0.1694990 0.008391336 0.256834774
  [3,] 0.40890201 0.81310796 0.751851710 0.6657555 0.017083659 0.654766857
## [4,] 0.78791991 0.88523766 0.584143414 0.7820844 0.605030744 0.374453776
## [5,] 0.99433574 0.27025615 0.002203811 0.6214340 0.368198482 0.009429671
    [6,] 0.04189807 0.68866759 0.664763146 0.9051365 0.761448910 0.703503121
   [7,] 0.85058042 0.08035244 0.607356442 0.3516341 0.642991925 0.839370793
   [8,] 0.18027286 0.97518145 0.516252480 0.4167436 0.103078348 0.307023025
## [9,] 0.30543368 0.87403812 0.332510527 0.9773073 0.609246916 0.354925542
## [10,] 0.16007105 0.23025959 0.357639063 0.9918065 0.130521344 0.520598138
##
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18013
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## [3,] 0.5502829 0.3652326 0.73013723 0.733843325 0.02160132 0.5262418 0.65
68025
## [4,] 0.2081653 0.5247671 0.31619046 0.065316901 0.46392438 0.1645544 0.26
82849
## [5,] 0.8974098 0.2316158 0.70694378 0.559220688 0.20507460 0.5715136 0.30
81635
## [6,] 0.9039150 0.9788229 0.21251217 0.006078446 0.72542683 0.2376003 0.99
48052
## [7,] 0.2764249 0.9973323 0.70813591 0.152266906 0.51309279 0.1713543 0.22
83839
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53038
  [9,] 0.3096516 0.1038281 0.27183193 0.126027330 0.23544563 0.4348796 0.95
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## [8,] 0.9114399 0.020980859 0.68303482 0.3320394 0.39959344 0.06819906
## [9,] 0.8267658 0.432020846 0.02667605 0.5395587 0.55435647 0.72050243
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37269
## [2,] 0.73725582 0.25201090 0.89202319 0.6171974 0.01194033 0.6602659 0.38
78125
## [3,] 0.24286398 0.45410302 0.40755032 0.6364517 0.49623299 0.8706631 0.15
```

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## [5,] 0.06413764 0.07527126 0.74387394 0.3336555 0.73283467 0.6314386 0.42
69670
## [6,] 0.13967694 0.48448529 0.28446805 0.7032423 0.63750654 0.6596681 0.52
## [7,] 0.98903613 0.95471329 0.74099194 0.7466861 0.46839552 0.5440849 0.97
35236
## [8,] 0.37133331 0.14657437 0.88775124 0.2855304 0.36016881 0.9179923 0.33
55721
## [9,] 0.68899652 0.48102105 0.04879049 0.1150339 0.60397958 0.7103192 0.13
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## [3,] 0.98329768 0.5839642 0.54391207 0.77274258 0.15459169 0.9444698 0.56
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37157
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## [3,] 0.3404902 0.06079572 0.30577276 0.1220424 0.3780006 0.77738050 0.153
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8906
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5419
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## [9,] 0.270613349 0.001090947 0.6494017 0.1768218 0.1126147239 0.9224986
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##
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## [3,] 0.54319136 0.4581329 0.5267114 0.82124925 0.8491886 0.75687081 0.224
2574
```

```
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5187
## [5,] 0.52136921 0.9878659 0.9084947 0.01595724 0.7525721 0.63133610 0.787
4054
## [6,] 0.05981699 0.4561911 0.9541406 0.93749281 0.8158114 0.68936358 0.956
1203
## [7,] 0.62344116 0.7307065 0.9335013 0.70753338 0.4615798 0.38615144 0.377
5023
## [8,] 0.44179590 0.6725674 0.1632846 0.86484158 0.7435661 0.89216736 0.523
9232
## [9,] 0.10934625 0.1286012 0.5061065 0.39619952 0.6393986 0.93254300 0.749
8049
## [10,] 0.73040148 0.9013063 0.4004705 0.90941310 0.9731453 0.44294108 0.904
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##
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## [4,] 0.91896847 0.147614945 0.13095476 0.003745253 0.4412348 0.2860686
  [5,] 0.49772502 0.003570839 0.24148123 0.959153795 0.5206836 0.1605268
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## [8,] 0.68411004 0.208136100 0.98130768 0.194685459 0.8804977 0.1215671
## [9,] 0.60781174 0.938547309 0.52684322 0.293591755 0.5572300 0.7482227
## [10,] 0.05487572 0.190652837 0.01680138 0.131367562 0.5636757 0.6250043
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## [4,] 0.1387023 0.46246109 0.96605312 0.6701829 0.9553015 0.04898998 0.565
35518
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62258
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## [7,] 0.3855701 0.90724338 0.41597376 0.7196802 0.2119458 0.28729549 0.621
41829
## [8,] 0.8156935 0.44044794 0.38892252 0.1486257 0.1651003 0.71687666 0.936
97363
## [9,] 0.0961791 0.12638336 0.15748465 0.6461179 0.9295294 0.28879066 0.210
33777
## [10,] 0.6136457 0.91465773 0.05637017 0.9614287 0.4679903 0.86749763 0.783
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##
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## [1,] 0.8981962 0.14139506 0.8128398799 0.669176444 0.43680040 0.44971756
## [2,] 0.1830583 0.19512775 0.9688290805 0.792132105 0.56298227 0.48432808
```

```
[3,] 0.7854460 0.60322378 0.7128575167 0.824997805 0.42381431 0.79837790
    [4,] 0.2047199 0.55713335 0.5189491250 0.478275330 0.67793160 0.36220519
    [5,] 0.6482384 0.82861291 0.1746107352 0.933355944 0.04297117 0.89709496
##
    [6,] 0.6094949 0.02361525 0.8277748779 0.038315376 0.10973394 0.63420235
##
    [7,] 0.2186784 0.80568844 0.1689956097 0.004195902 0.70189673 0.11841125
##
    [8,] 0.3835914 0.20535301 0.0005204994 0.149107892 0.74181926 0.36259004
##
    [9,] 0.1210930 0.34354312 0.9975178216 0.287396941 0.71042985 0.02816645
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##
##
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    [3,] 0.19118775 0.04786229 0.65089329 0.4895443 0.3979545 0.695859626
##
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    [5,] 0.57042035 0.96824170 0.37511771 0.9381888 0.3567482 0.060837671
    [6,] 0.77386242 0.90761360 0.17488377 0.4639317 0.1765973 0.644641545
##
    [7,] 0.73745691 0.23672578 0.23550307 0.1843257 0.3764385 0.532639170
    [8,] 0.33345259 0.85021807 0.02195277 0.3921224 0.4876732 0.004850307
    [9,] 0.23310272 0.04474810 0.27784025 0.3950810 0.7696610 0.733156133
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    [3,] 0.0806856626 0.02362284 0.8530053 0.8912983 0.5960830 0.25395318
    [4,] 0.7970582533 0.31862811 0.3370345 0.8439008 0.7696656 0.73520636
##
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    [6,] 0.7112826167 0.21061920 0.6498966 0.5004765 0.8897576 0.65041306
    [7,] 0.3795725082 0.77285467 0.8553508 0.4627533 0.9883259 0.09999496
    [8,] 0.2792935974 0.56311086 0.4636395 0.7156843 0.2728348 0.73551728
##
    [9,] 0.5442585009 0.28694797 0.2852271 0.4062860 0.4623067 0.02153337
   [10,] 0.5607964892 0.14506783 0.2261318 0.9582548 0.2323981 0.46046564
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##
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##
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    [4,] 0.12682718 0.5563353810 0.38794626 0.75003477 0.04373288 0.9733747
    [5,] 0.58535575 0.9569129655 0.98726604 0.44571214 0.76941784 0.8576147
    [6,] 0.64682305 0.7824553198 0.83036019 0.11511269 0.93993367 0.6241688
##
    [7,] 0.95572005 0.0008602093 0.93439306 0.74590514 0.05043794 0.3496250
##
    [8,] 0.31334250 0.8399484127 0.71419292 0.53207199 0.17849813 0.2151463
    [9,] 0.94804129 0.1373303309 0.38840068 0.67425264 0.62747006 0.9615392
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    [3,] 0.2207292 0.78764304 0.47857435 0.52169766 0.9108304 0.212373244
    [4,] 0.9723004 0.52911674 0.25983621 0.13241068 0.1233966 0.142620781
    [5,] 0.2493511 0.20902324 0.77358943 0.41601628 0.7787246 0.688491356
    [6,] 0.3952672 0.03413251 0.89682910 0.96325138 0.6316134 0.001114627
    [7,] 0.5699537 0.63156299 0.18448457 0.09429598 0.1082248 0.908238163
## [8,] 0.2283900 0.51446718 0.71304787 0.75479699 0.9516618 0.950438007
```

```
## [9,] 0.2618232 0.75933373 0.50898129 0.50149249 0.5930596 0.859468816
## [10,] 0.5522678 0.24606034 0.03065971 0.46808057 0.5189424 0.634301574
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  [2,] 0.3598952 0.04665304 0.63815642 0.5136410 0.89399414 0.61277006
    [3,] 0.9380799 0.85811066 0.51633516 0.6911891 0.79157905 0.77233541
   [4,] 0.6269144 0.50678116 0.12525206 0.8185417 0.98903313 0.79530165
    [5,] 0.4643158 0.82850824 0.38852037 0.2028218 0.08801232 0.85613305
  [6,] 0.6236194 0.05913990 0.83270739 0.4988558 0.43216962 0.86363815
   [7,] 0.2241813 0.87902366 0.19978613 0.2147655 0.10227060 0.90784925
## [8,] 0.1601717 0.64273697 0.06657508 0.5863287 0.53098610 0.45310835
## [9,] 0.4380492 0.19348781 0.33947662 0.9633952 0.74328256 0.30946262
## [10,] 0.3984213 0.26445391 0.29505501 0.9335520 0.25128788 0.66389521
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                                                                            Γ
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## [2,] 0.17146410 0.1789776 0.41844398 0.61733001 0.9904054 0.85702753 0.59
47438
## [3,] 0.23073074 0.2973780 0.40690358 0.47596416 0.6344343 0.05771705 0.12
## [4,] 0.19271509 0.0303648 0.40991531 0.29677480 0.7866528 0.07126032 0.99
95028
## [5,] 0.88531738 0.4833984 0.43241412 0.15735144 0.7478526 0.35082540 0.78
## [6,] 0.50609646 0.4866869 0.36868435 0.65018685 0.6699333 0.99280752 0.34
19897
## [7,] 0.27315995 0.8939765 0.08308301 0.20085320 0.5983897 0.18824964 0.89
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## [8,] 0.21682887 0.2692451 0.68723358 0.81221292 0.9952492 0.23545249 0.45
60032
## [9,] 0.86310993 0.7177373 0.20315741 0.97656085 0.3580069 0.75592377 0.93
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   [6.] 0.70282493 0.30949294 0.711070563 0.7046758 0.24594606 0.48337680
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## [9,] 0.63157239 0.07207747 0.839952225 0.2454442 0.41691536 0.36550320
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```

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[4,] 0.31199948 0.7138477 0.615011135 0.71380361 0.35238717 0.27173864
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   [6,] 0.29939971 0.04742214 0.59665889 0.1557317 0.4511308 0.21627406
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##
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## [4,] 0.79073562 0.02080847 0.01773311 0.5104709 0.2109700 0.8160244 0.092
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54236
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712
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##
862
```

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##
298
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## [5,] 0.441853079 0.87041253 0.98019988 0.76432205 0.1977152 0.9070388
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## [8,] 0.124632701 0.81704290 0.22711653 0.64662916 0.2515161 0.3118794
## [9,] 0.512934101 0.41650835 0.85089479 0.41472596 0.7598515 0.7786247
## [10,] 0.350505382 0.78166523 0.89072205 0.78020783 0.7659937 0.3125482
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## [3,] 0.1119165 0.60000819 0.35500688 0.3300329 0.5478136 0.57649319 0.595
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## [5,] 0.4729155 0.52643374 0.02910598 0.6633255 0.6064661 0.06543684 0.246
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## [7,] 0.4492988 0.64478917 0.79712834 0.8148447 0.9510381 0.77301177 0.767
1696
## [8,] 0.6809778 0.56135667 0.10306033 0.5417993 0.5627712 0.12114945 0.155
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## [9,] 0.7013012 0.09975353 0.54069087 0.8880717 0.5335474 0.60947534 0.299
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1173
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## [3,] 0.23328430 0.9509187 0.90135642 0.54968147 0.78985774 0.03246212
## [4,] 0.70460608 0.8929074 0.45488894 0.65728486 0.12631195 0.80867579
```

```
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   [7,] 0.18504890 0.6837975 0.47633009 0.56359370 0.84105657 0.364263328
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##
474
##
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429
## [4,] 0.3677793 0.4413299 0.82249905 0.3337468 0.8872455 0.2615945 0.32172
732
##
   [5,] 0.7532870 0.1010391 0.76834321 0.4318127 0.1895544 0.5969600 0.04785
838
##
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928
   [7,] 0.2277866 0.5932604 0.59710581 0.5313351 0.1352126 0.9432111 0.99481
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659]
## [1,] 0.64661205 0.22758927 0.5777918 0.3145268 0.8509581 0.04049942 0.227
6719
## [2,] 0.24503924 0.75730906 0.6894917 0.3680017 0.7187837 0.78359349 0.689
2942
## [3,] 0.77359859 0.05775361 0.4250467 0.9536653 0.2775755 0.66275602 0.293
0241
## [4,] 0.38756739 0.61985791 0.7543810 0.5681149 0.8994705 0.09831588 0.510
4302
## [5,] 0.30009843 0.47133415 0.4751515 0.9138074 0.5551896 0.06452279 0.781
```

```
8896
## [6,] 0.98242222 0.58254314 0.1463666 0.1206795 0.4332241 0.52136626 0.667
1063
## [7,] 0.78844773 0.41735549 0.5776401 0.1476512 0.3394390 0.78456542 0.841
7624
    [8,] 0.09512647 0.70429648 0.1517561 0.5015621 0.9563888 0.31434217 0.180
## [9,] 0.14885321 0.74799212 0.2227759 0.4055394 0.6648834 0.43001862 0.683
5066
## [10,] 0.92953881 0.69396874 0.4650254 0.2269349 0.5097418 0.98264137 0.283
8837
##
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##
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    [3,] 0.77597115 0.37396712 0.68831761 0.77827889 0.89774415 0.78838674
##
    [4,] 0.04058781 0.38685768 0.32976930 0.62338344 0.66767804 0.37148344
    [5,] 0.99610439 0.67240932 0.02536321 0.05018848 0.96065378 0.42421556
    [6,] 0.58496908 0.73044223 0.06797381 0.20800728 0.16836738 0.98454785
    [7,] 0.64262252 0.71395095 0.14919054 0.07460159 0.78841881 0.61206313
    [8,] 0.42418656 0.09099914 0.75070501 0.74184738 0.82820173 0.82423357
    [9,] 0.13992590 0.36738509 0.26186233 0.13737154 0.80132391 0.16108542
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    [2,] 0.14330860 0.85448621 0.8325592 0.85717899 0.1763473 0.67311918
    [3,] 0.12813430 0.55389827 0.3199209 0.29921909 0.7571224 0.48113700
    [4,] 0.37904487 0.99720097 0.1784646 0.82808687 0.5288366 0.19192307
    [5,] 0.52952786 0.06679980 0.5340171 0.84047196 0.4536501 0.83046367
    [6,] 0.14596657 0.90764089 0.7356651 0.03373825 0.2589065 0.51019642
    [7,] 0.05412104 0.81879998 0.9345891 0.76689815 0.6259576 0.29995530
    [8,] 0.26919090 0.81678755 0.1909417 0.46720347 0.8717941 0.07773209
   [9,] 0.21343023 0.06520248 0.2073810 0.97740997 0.1797464 0.77887136
   [10,] 0.88360653 0.25591884 0.9453819 0.10955662 0.1533133 0.08958594
##
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    [2,] 0.75883663 0.549183158 0.9817901 0.01460025 0.9694562 0.98313743
    [3,] 0.53107108 0.980505929 0.3407535 0.61912547 0.2359789 0.77516480
##
    [4,] 0.98696658 0.227048203 0.9683351 0.15390290 0.4565950 0.07414559
    [5,] 0.05526015 0.410612934 0.6058538 0.06939012 0.4321977 0.56129050
    [6,] 0.85838373 0.812318814 0.6957610 0.73009625 0.2777597 0.91484387
    [7,] 0.43512425 0.706041627 0.5817233 0.72355810 0.5092484 0.49549374
    [8,] 0.02277839 0.682164030 0.8327563 0.70372245 0.4793118 0.11397934
    [9,] 0.77090047 0.112246850 0.2632474 0.90617278 0.5088142 0.23629560
## [10,] 0.98968332 0.003320142 0.1262350 0.37021808 0.3479002 0.15190222
##
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##
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##
    [2,] 0.36757929 0.2874808 0.57473603 0.52221121 0.31817969 0.79622582
    [3,] 0.16050190 0.6765372 0.37952751 0.60933485 0.08475843 0.72615496
    [4,] 0.88110441 0.4411115 0.21163694 0.05431038 0.70592929 0.74440798
## [5,] 0.84529040 0.1079167 0.31046166 0.74245850 0.99024404 0.95634792
```

```
[6,] 0.55338164 0.9010746 0.04381065 0.43495914 0.42076164 0.70561645
    [7,] 0.62710299 0.3241485 0.73981871 0.85734328 0.62661718 0.14227267
    [8,] 0.95197234 0.7341568 0.96117018 0.96988036 0.22959930 0.05664678
    [9,] 0.75592735 0.3492936 0.80546231 0.62910402 0.78377109 0.39785809
## [10,] 0.54733301 0.6325528 0.47257421 0.24423562 0.69378262 0.78669979
##
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                                                          [,688]
##
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    [2,] 0.87631116 0.6542699845 0.28938908 0.66360717 0.6630224 0.005511171
##
    [3,] 0.98632487 0.4722780602 0.49091528 0.88189824 0.2791176 0.081751504
    [4,] 0.29698120 0.0209429171 0.04161759 0.63562800 0.0986035 0.859925044
    [5,] 0.28986192 0.9901419862 0.66094093 0.08675562 0.6799170 0.028322095
    [6,] 0.14633755 0.4388368337 0.19430992 0.48037179 0.2238766 0.524143295
    [7,] 0.06743318 0.8209726466 0.25375388 0.95561268 0.7542186 0.415328509
    [8,] 0.52859190 0.2297784768 0.11367481 0.49209918 0.1665687 0.389630841
    [9,] 0.07995077 0.2830771985 0.69377829 0.46978594 0.1622315 0.317469343
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##
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                                             [,693]
                                                        [,694]
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    [2,] 0.7550417 0.73751846 0.02445755 0.23568557 0.13789907 0.6294100
    [3,] 0.1468013 0.86601649 0.72574980 0.75111523 0.86617024 0.4138707
    [4,] 0.6323721 0.70240500 0.32202823 0.23174232 0.65964676 0.5651440
    [5,] 0.1668149 0.08052723 0.81780429 0.25579929 0.98384961 0.7065932
    [6,] 0.7006802 0.46631517 0.62271147 0.62964140 0.53115404 0.1204821
    [7,] 0.3900649 0.03261967 0.49273751 0.37080030 0.54270208 0.9069889
    [8,] 0.8277460 0.72373917 0.12980124 0.17248544 0.45387073 0.3944966
    [9,] 0.1322284 0.37003934 0.96110607 0.09096181 0.90288720 0.2840234
## [10,] 0.3722086 0.29943463 0.35618427 0.05621976 0.01866931 0.8620646
##
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##
    [2,] 0.706808841 0.9679890 0.31280763 0.68134412 0.15342989 0.8077565
    [3,] 0.195151138 0.2758808 0.50989177 0.06434253 0.19906241 0.3059186
   [4,] 0.719476803 0.3657982 0.99415340 0.51704124 0.14826570 0.6822436
    [5,] 0.601163600 0.1484090 0.98430251 0.66064924 0.29734046 0.5697026
    [6,] 0.030242628 0.4043461 0.09113198 0.31384249 0.50766610 0.9533934
    [7,] 0.587547639 0.7813298 0.65937733 0.52673693 0.89277483 0.2085304
  [8,] 0.108329987 0.8538065 0.41901151 0.32443524 0.70208906 0.4832616
## [9,] 0.002277681 0.9062411 0.31976779 0.35677799 0.95119328 0.1258354
## [10,] 0.952501364 0.6822934 0.50627416 0.31738033 0.60390698 0.9055287
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                                                                            Γ
##
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                                                                 [,707]
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## [2,] 0.2382114 0.9097160 0.7066044 0.36206119 0.54187437 0.45332369 0.488
40937
## [3,] 0.5932909 0.3773000 0.7448333 0.85144558 0.57288277 0.61541562 0.572
11969
## [4,] 0.7495660 0.9140997 0.3280257 0.54366849 0.77727116 0.68057922 0.020
## [5,] 0.1965529 0.3872801 0.7347193 0.04703026 0.03287233 0.77627554 0.505
06963
```

```
## [6,] 0.2876025 0.8065896 0.4320021 0.05575426 0.65539672 0.99242420 0.882
28151
## [7,] 0.4633001 0.4366493 0.5171299 0.49850194 0.25538416 0.92578922 0.906
05148
## [8,] 0.2989329 0.1803071 0.5342432 0.12776019 0.28004601 0.09032078 0.352
12588
## [9,] 0.8900619 0.4922323 0.1174112 0.26640657 0.22551979 0.42061392 0.802
95439
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76712
##
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                                           [,712]
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##
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## [3,] 0.2878723 0.13679333 0.11371446 0.6715774 0.1750765 0.799483414
   [4,] 0.6269002 0.37473560 0.24381290 0.3176208 0.7123890 0.850097259
  [5,] 0.1923882 0.15766197 0.17605306 0.6306539 0.3753614 0.071084874
   [6,] 0.3964253 0.73809280 0.24484304 0.4672314 0.5445379 0.009185116
## [7,] 0.6497661 0.68565728 0.84070976 0.1773808 0.5127438 0.055314601
  [8,] 0.2262504 0.04543406 0.19844084 0.5543188 0.4233529 0.639792327
   [9,] 0.2773309 0.20554272 0.77268667 0.9869635 0.6611180 0.213804911
## [10,] 0.4764076 0.43229522 0.03628262 0.1686072 0.8215125 0.914176036
##
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##
   [2,] 0.78433804 0.10299971 0.29883233 0.200746261 0.6943955 0.37680744
  [3,] 0.79012712 0.35591380 0.66630734 0.984207750 0.6317677 0.06919524
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  [5,] 0.36281883 0.08191077 0.75988410 0.770258872 0.5280235 0.82706616
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   [7,] 0.28168367 0.24401977 0.43439505 0.249767391 0.4451166 0.80101817
## [8,] 0.80023555 0.16529510 0.98498694 0.005471148 0.2000954 0.56374670
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## [10,] 0.77524857 0.60979903 0.13051570 0.330303170 0.5602323 0.12509624
##
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9178
## [2,] 0.31616099 0.37198772 0.4767899 0.7046023 0.80322092 0.2769664 0.807
3261
## [3,] 0.96126215 0.74784405 0.9521277 0.2483915 0.82605122 0.6688026 0.901
3879
## [4,] 0.09003387 0.49105047 0.6254917 0.5916460 0.02701175 0.4709268 0.158
7854
## [5,] 0.24402778 0.51755567 0.2946668 0.5923383 0.05819920 0.6055539 0.612
2879
## [6,] 0.39302837 0.95650973 0.8367991 0.6028936 0.73798291 0.3323901 0.561
3489
## [7,] 0.90700577 0.48837174 0.9076573 0.9653493 0.80252828 0.7173064 0.572
## [8,] 0.99652474 0.07436544 0.9546571 0.3427218 0.54393565 0.7542691 0.760
8964
```

```
## [9,] 0.55197058 0.04150621 0.4268868 0.0339125 0.12237776 0.7731379 0.116
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## [10,] 0.28377269 0.30227493 0.4632228 0.9030562 0.18257938 0.4512390 0.146
2502
##
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  [7,] 0.2317804 0.77693930 0.874334798 0.45142637 0.49816484 0.4616402
## [8,] 0.1654732 0.27716496 0.371066339 0.76902781 0.70585668 0.1627255
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##
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                                                                            Γ
                                                                 [,739]
,740]
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37032
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53907
## [3,] 0.4799215 0.01710850 0.054963857 0.28673687 0.6453881 0.1979132 0.68
04750
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## [5,] 0.6144216 0.48915190 0.005655432 0.49420951 0.4261190 0.7433006 0.53
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47836
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74717
## [8,] 0.6911865 0.91663304 0.460292843 0.62946179 0.2822965 0.3750251 0.80
79656
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67401
##
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## [3,] 0.19756300 0.15905295 0.31498092 0.71134442 0.4759556 0.6349623
   [4,] 0.41193185 0.88959035 0.67929522 0.71023913 0.1824065 0.9373216
## [5,] 0.11230460 0.11472292 0.20364479 0.81804789 0.5161258 0.5576943
## [6,] 0.55489359 0.04505627 0.66462629 0.94944440 0.2518882 0.5931172
## [7,] 0.33417574 0.11165214 0.68575241 0.06555195 0.4793850 0.5666446
## [8,] 0.73242286 0.02287560 0.34458673 0.44593976 0.8634990 0.6163706
## [9,] 0.40166964 0.37968215 0.40256341 0.91064759 0.6863603 0.9097647
## [10,] 0.06215668 0.40038952 0.85445496 0.59872802 0.6373059 0.8966835
##
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```

```
## [1,] 0.817539669 0.42327906 0.9123379 0.1391055 0.82225185 0.7892203 0.11
72402
## [2,] 0.801293211 0.65119133 0.5822002 0.6695573 0.97167979 0.7401730 0.88
57714
## [3,] 0.004534275 0.83637930 0.7054714 0.3957564 0.93660388 0.2524032 0.31
14351
## [4,] 0.163116379 0.92973458 0.4936346 0.7361792 0.83662276 0.9044282 0.60
87059
## [5,] 0.193770366 0.47189963 0.6750641 0.3249873 0.76239367 0.9465011 0.43
15091
## [6,] 0.301188780 0.51961741 0.7090441 0.6558524 0.58895203 0.1826958 0.68
99020
## [7,] 0.848971064 0.50810742 0.5509912 0.1618450 0.73687934 0.2783735 0.13
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## [8,] 0.959281472 0.92512610 0.7709633 0.1706472 0.30740448 0.6364361 0.64
33577
## [9,] 0.076214853 0.06803527 0.0893304 0.6160518 0.65873809 0.2457252 0.90
20890
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91755
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                      [,755] [,756]
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                                                               [,759]
                                                                           Γ
##
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37391
## [3,] 0.38952235 0.94086429 0.5615024 0.07143739 0.5687544 0.7111889 0.120
55105
## [4,] 0.25298668 0.78038391 0.6464453 0.31770280 0.2952840 0.7948317 0.593
67098
## [5,] 0.51581556 0.69352696 0.1656476 0.43677828 0.2761471 0.9740299 0.097
51513
## [6,] 0.56625206 0.01393506 0.2117840 0.76837429 0.4761470 0.2832752 0.302
47109
## [7,] 0.13375932 0.77310818 0.4549295 0.56428283 0.6394908 0.4983130 0.144
35652
## [8,] 0.26569123 0.79892498 0.8592296 0.22127578 0.3938205 0.5998755 0.382
79455
## [9,] 0.86017150 0.59468168 0.1270723 0.60700445 0.7939401 0.9630494 0.747
84598
## [10,] 0.56091144 0.72683517 0.9682288 0.78039260 0.3684686 0.8069607 0.290
11782
##
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                                     [,763]
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   [6,] 0.365030249 0.1456620870 0.18829467 0.9422608 0.003669812 0.59991807
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```

```
[8,] 0.982715646 0.0344894198 0.65684703 0.5824374 0.772534678 0.92176204
   [9,] 0.589764015 0.7607736904 0.57779506 0.1202265 0.302698900 0.84246433
## [10,] 0.044609453 0.9193500723 0.04781717 0.6747306 0.427530752 0.35568449
##
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##
    [3,] 0.21065378 0.14876312 0.68035542 0.70641844 0.07654814 0.990180419
    [4,] 0.09476574 0.03925476 0.96639891 0.99050241 0.37248842 0.501262171
    [5,] 0.34583416 0.26144394 0.82544168 0.78310388 0.76386005 0.006984079
    [6,] 0.28749172 0.13749542 0.01054037 0.22716826 0.87103867 0.369410580
    [7,] 0.32593508 0.85330700 0.25035748 0.31845372 0.12013097 0.212534561
    [8,] 0.45525905 0.83262481 0.10574197 0.70202851 0.11087963 0.994798976
    [9,] 0.61287263 0.89468142 0.17847152 0.62525541 0.60924230 0.808449958
## [10,] 0.24781384 0.90733029 0.40225741 0.05327583 0.11909800 0.971517225
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    [6,] 0.09631540 0.2523012 0.672282501 0.4409932 0.055107204 0.53960205
    [7,] 0.75235837 0.8884864 0.661038290 0.4047602 0.020094979 0.12369037
   [8,] 0.74941363 0.6782346 0.447459655 0.5479213 0.246469106 0.45294210
    [9,] 0.48366681 0.8965074 0.143960151 0.8839893 0.606778083 0.03079750
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##
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    [3,] 0.2806540 0.68271316 0.04780007 0.47994138 0.1243516 0.39383705
   [4,] 0.1514780 0.04313593 0.25655651 0.92057818 0.7944508 0.11094869
    [5,] 0.5181141 0.97613749 0.42162415 0.37833941 0.6736947 0.61823522
  [6,] 0.3198507 0.61872813 0.07955013 0.94681894 0.5507489 0.73546444
    [7,] 0.5308054 0.55933223 0.51085208 0.02778405 0.4066918 0.26273918
   [8,] 0.9657041 0.95570994 0.58599437 0.34060162 0.1060631 0.46379854
## [9,] 0.3142006 0.61393930 0.91457150 0.32244634 0.9890976 0.99964786
## [10,] 0.1870238 0.37775123 0.58531787 0.26501317 0.8422128 0.88961528
##
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## [2,] 0.56253721 0.26196948 0.1725929 0.10491636 0.4815872 0.9937809 0.101
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## [3,] 0.35923574 0.40080596 0.6722593 0.64104667 0.9267151 0.5942911 0.157
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## [4,] 0.09047153 0.09594887 0.2705044 0.67231192 0.1909632 0.9713334 0.551
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## [5,] 0.35052328 0.03615154 0.1593617 0.01353686 0.7089937 0.5884087 0.899
## [6,] 0.30296448 0.98821062 0.7066880 0.37685570 0.6089396 0.7378724 0.589
2473
```

```
## [7,] 0.89115320 0.28830073 0.2198493 0.63543301 0.4676583 0.2319000 0.670
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##
9407
## [9,] 0.10593930 0.53275493 0.7589041 0.23443850 0.3576675 0.8658847 0.158
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## [10,] 0.11094930 0.51881227 0.3128437 0.09345461 0.2007273 0.7564983 0.711
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##
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   [1,] 0.3160903 0.99741992 0.30089063 0.5614024 0.2690009 0.13848500 0.928
##
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## [2,] 0.1170812 0.19539964 0.63769707 0.8613314 0.4657448 0.04715373 0.799
1893
## [3,] 0.5228490 0.65920873 0.47544487 0.5674950 0.9958861 0.10681437 0.514
7573
   [4,] 0.9242622 0.72835891 0.20492702 0.4579718 0.4003371 0.16281952 0.603
4484
## [5,] 0.7638667 0.15426152 0.92566050 0.8094589 0.3847197 0.03188368 0.764
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9902
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   [8,] 0.6074895 0.56588454 0.04347373 0.8920594 0.1379145 0.26243456 0.998
2314
## [9,] 0.5793846 0.57455674 0.13675486 0.5162601 0.7278585 0.88465315 0.154
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##
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##
   [2,] 0.3882741 0.5140120 0.4383305 0.2704930 0.41478513 0.3548402 0.61128
58
   [3,] 0.3041619 0.7620878 0.2346914 0.8486789 0.80359808 0.9715254 0.20788
##
02
##
   [4,] 0.4671374 0.9210379 0.6682065 0.6696128 0.65275676 0.8376985 0.67638
34
   [5,] 0.2767840 0.7398041 0.8163457 0.4472747 0.71198763 0.1385221 0.67024
##
39
    [6,] 0.1856873 0.2689785 0.5862035 0.7546415 0.08241292 0.2769285 0.34700
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69
    [7,] 0.2594751 0.6379195 0.8639224 0.3538291 0.90689374 0.3182252 0.60953
##
40
##
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17
##
   [9,] 0.1635059 0.3476726 0.4056877 0.2343942 0.54391563 0.3512401 0.91011
64
```

```
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## [8,] 0.7363381 0.66855265 0.52005715 0.39880282 0.80878053 0.74714744
## [9,] 0.3730644 0.00336994 0.55520947 0.03134603 0.50825864 0.59853785
## [10,] 0.8502623 0.89354892 0.12159956 0.26313921 0.41902957 0.10459388
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818]
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0369
## [3,] 0.4431279 0.99766021 0.8003463 0.88062510 0.5930762 0.36915906 0.373
9752
## [4,] 0.8195283 0.98984567 0.9104950 0.90624924 0.2686284 0.20454154 0.428
8702
## [5,] 0.1767424 0.20427548 0.3053257 0.09339622 0.3558037 0.64637517 0.305
## [6,] 0.5833966 0.06582558 0.9014367 0.04742365 0.6169146 0.69592565 0.893
1733
## [7,] 0.0519115 0.62547599 0.1271830 0.43512256 0.7900040 0.46177826 0.621
5130
## [8,] 0.9809166 0.26508872 0.2439588 0.71806402 0.1505250 0.02793843 0.181
5275
## [9,] 0.9074575 0.16107946 0.5511782 0.86852130 0.9603956 0.73576030 0.235
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## [10,] 0.9679404 0.60401979 0.3830012 0.67181623 0.1343503 0.73357847 0.862
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    [4,] 0.2927705 0.87751370 0.1986412 0.007268694 0.85250839 0.25196860
## [5,] 0.6179570 0.93668271 0.8576735 0.899591197 0.97225716 0.85351636
    [6.] 0.4589084 0.92590151 0.5693328 0.239808445 0.16921048 0.83578559
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  [8,] 0.9852189 0.47984079 0.9469920 0.601823182 0.98052646 0.01881536
## [9,] 0.6301623 0.14380415 0.9129999 0.454720980 0.80635109 0.35462347
## [10,] 0.7408096 0.69383284 0.9939913 0.950119544 0.40882886 0.99479507
##
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    [2,] 0.6913205 0.44705163 0.92616594 0.6208266 0.6619870 0.12326752
## [3,] 0.3994045 0.35104794 0.63917102 0.8610534 0.4807891 0.17618547
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    [6,] 0.9440226 0.66591131 0.02576783 0.2643310 0.6337254 0.08197501
##
    [7,] 0.3434897 0.87838214 0.36146828 0.3681135 0.5847944 0.23451928
##
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    [3,] 0.724538353 0.569837385 0.21994585 0.83011698 0.7795442 0.9230063
##
    [4,] 0.028307922 0.455383455 0.65067846 0.74515876 0.8339935 0.8067026
    [5,] 0.516215683 0.946551474 0.27902514 0.72496019 0.7903202 0.5205640
    [6,] 0.715302292 0.369080188 0.04563126 0.40805720 0.2382070 0.6975041
    [7,] 0.005264425 0.002055249 0.68123490 0.76831507 0.7780421 0.7622577
##
    [8,] 0.853620760 0.700693597 0.92105271 0.14070235 0.3494153 0.5350327
    [9,] 0.049478519 0.340685043 0.58037847 0.81275016 0.5124389 0.9388346
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##
    [3,] 0.66596099 0.38306036 0.61094493 0.16786974 0.27619022 0.9112220
##
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    [6,] 0.44620363 0.26726537 0.72364911 0.89048148 0.08784383 0.4662901
    [7,] 0.06945008 0.17623931 0.02315529 0.89547217 0.34090272 0.3725284
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##
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    [5,] 0.64949334 0.75621271 0.02305822 0.53384642 0.6173871 0.3515219
    [6,] 0.45368460 0.95849752 0.74150471 0.41672345 0.6162812 0.9404841
    [7,] 0.08131992 0.74504728 0.94574385 0.63496776 0.2180327 0.8384754
##
    [8,] 0.59077288 0.01277321 0.72142177 0.65825988 0.2484385 0.1843881
##
    [9,] 0.92572665 0.41470186 0.03737932 0.40955482 0.3127818 0.2393725
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##
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    [4,] 0.47393212 0.5665153586 0.3472717 0.48408500 0.3729817 0.95159179
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##
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    [8,] 0.35513143 0.4307445670 0.1082893 0.32964474 0.8927571 0.76825921
## [9,] 0.80322299 0.6656682175 0.7539998 0.59011029 0.7315177 0.04066325
```

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## [10,] 0.86754431 0.7718075635 0.4444540 0.04678204 0.5633719 0.71923875
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##
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    [4,] 0.53148223 0.69908448 0.07526345 0.23699582 0.8180651 0.49759477
##
    [5,] 0.94384611 0.04088281 0.52988483 0.87560894 0.9459006 0.32621813
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    [7,] 0.59795950 0.60265071 0.84645705 0.39862556 0.2836715 0.13908669
    [8,] 0.39761696 0.99684969 0.46181706 0.75123081 0.6169574 0.08274760
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   [10,] 0.26477041 0.83815171 0.60524156 0.86274492 0.5113227 0.96681952
##
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##
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    [6,] 0.33584615 0.8358267 0.04838978 0.3566459 0.425132011 0.83207788
    [7,] 0.07337617 0.4250159 0.51089711 0.1269585 0.684023198 0.24439080
    [8,] 0.37938262 0.9078343 0.48169517 0.4116369 0.300114083 0.48838793
    [9,] 0.18112571 0.8150385 0.88214169 0.2532725 0.802219225 0.07994411
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    [5,] 0.46042569 0.7483115 0.4450870 0.7617060 0.738894898 0.17689508
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    [7,] 0.53892831 0.4588314 0.8049677 0.8909117 0.614126912 0.88654280
##
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##
    [8,] 0.97879743 0.76277657 0.67742873 0.7075691 0.5123080 0.46572372
    [9,] 0.22842272 0.08911949 0.71962152 0.8965971 0.3158153 0.02959476
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```

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  [8,] 0.65940038 0.23515056 0.7278039 0.82224795 0.91973440 0.43285263
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##
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##
290
    [5,] 0.05120123 0.7210396 0.9653571 0.3311273 0.1400924 0.6819385 0.06161
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##
    [6,] 0.85820281 0.5164430 0.1800667 0.5564039 0.9188629 0.8988023 0.78301
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##
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## [8,] 0.75196067 0.5138745 0.4050475 0.9483771 0.9691876 0.6799764 0.73315
504
   [9,] 0.48606405 0.8234388 0.2623188 0.6181779 0.2526759 0.7737670 0.65944
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## [10,] 0.568432819 0.44159346 0.48079884 0.3551350 0.8733027 0.44695523
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##
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##
809
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##
819
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```

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##
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8532
## [4,] 0.3932723 0.64895660 0.5356494 0.60571085 0.9393997 0.10744067 0.615
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2987
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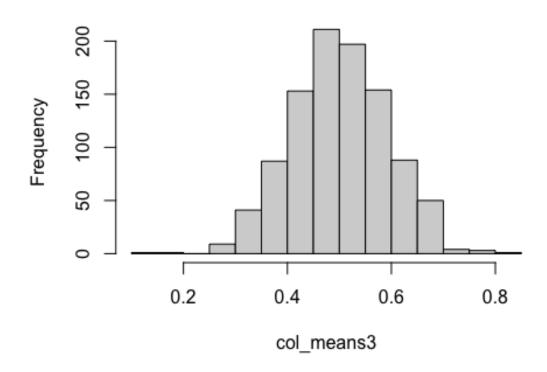
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                      [,986]
,991]
## [1,] 0.97031276 0.9611679 0.746090162 0.6141474 0.1997749 0.38237768 0.11
70580
## [2,] 0.71365237 0.3969078 0.561878989 0.7535425 0.3397765 0.26818018 0.19
26719
## [3,] 0.02984127 0.2407052 0.818389735 0.5620701 0.7518878 0.99102924 0.62
09249
## [4,] 0.91438335 0.3794578 0.980649503 0.3434587 0.8585476 0.06087180 0.53
05865
## [5,] 0.07638301 0.1855066 0.580196426 0.6494996 0.3097781 0.00520480 0.26
58470
## [6,] 0.29976729 0.2127166 0.277310534 0.1344779 0.1091256 0.40884093 0.66
19729
## [7,] 0.06410615 0.3134410 0.825942634 0.1910928 0.8487270 0.05565646 0.61
39392
## [8,] 0.44208397 0.4007249 0.960654536 0.5497322 0.9877679 0.91426284 0.37
92675
## [9,] 0.98748198 0.2634993 0.345594455 0.5300868 0.4236618 0.01958947 0.16
89446
## [10,] 0.63612546 0.7926735 0.008384567 0.8078801 0.3958777 0.59292136 0.85
59690
##
             [,992]
                        [,993]
                                   [,994]
                                              [,995]
                                                         [,996]
                                                                    [,997]
## [1,] 0.84824794 0.77509153 0.98368768 0.72284621 0.86875679 0.41265494
```

```
[2,] 0.03591975 0.35326757 0.44986663 0.06557738 0.90083068 0.41722500
    [3,] 0.77408477 0.90246080 0.13102911 0.20744768 0.62080232 0.68643297
##
    [4,] 0.49279642 0.25460615 0.45144692 0.02546096 0.21495990 0.56956513
    [5,] 0.56712780 0.30111162 0.77804931 0.23269154 0.23845899 0.08241912
    [6,] 0.05253266 0.35975546 0.39685873 0.61820571 0.26083126 0.63692430
    [7,] 0.08922068 0.17887191 0.57535802 0.32543797 0.60636323 0.75007332
##
    [8,] 0.86270827 0.56344834 0.04731499 0.39245094 0.22169108 0.86932908
    [9,] 0.54933955 0.05777401 0.65615264 0.08281456 0.09573569 0.85667416
  [10,] 0.11582108 0.94940743 0.90663778 0.73395432 0.72379374 0.44723256
##
                       [,999]
                                [,1000]
            [,998]
##
    [1,] 0.5523198 0.07504967 0.9198661
##
    [2,] 0.1382886 0.86464866 0.9448651
    [3,] 0.8816831 0.40155115 0.6879503
    [4,] 0.5034373 0.54576171 0.3955416
    [5,] 0.7796034 0.90588227 0.7161537
##
   [6,] 0.6972451 0.48876053 0.5025456
    [7,] 0.1752195 0.36663761 0.2946217
  [8,] 0.6054593 0.84339773 0.5832847
## [9,] 0.8940558 0.97189422 0.9789215
## [10,] 0.7348586 0.45156677 0.9105780
```

calculate the column means and plot a histogram

Histogram of col_means3



read the rainfall data from problem 1

```
rainfall \leftarrow c(0.1,0.6,33.8,1.9,9.6,4.3,33.7,0.3,0.0,0.1)
```

subset of data where rainfall is larger than 20

```
rainfall_subset <- rainfall[rainfall > 20]
print(rainfall_subset)
## [1] 33.8 33.7
```

mean rainfall for days where rainfall was at least 4

```
mean_rainfall_subset <- mean(rainfall[rainfall >= 4])
print(mean_rainfall_subset)
## [1] 20.35
```

subset where rainfall is either 0 or 0.6

```
rainfall_subset2 <- rainfall[rainfall == 0 | rainfall == 0.6]
print(rainfall_subset2)
## [1] 0.6 0.0</pre>
```