Practical 7: Perform SVD analysis on network

Code:

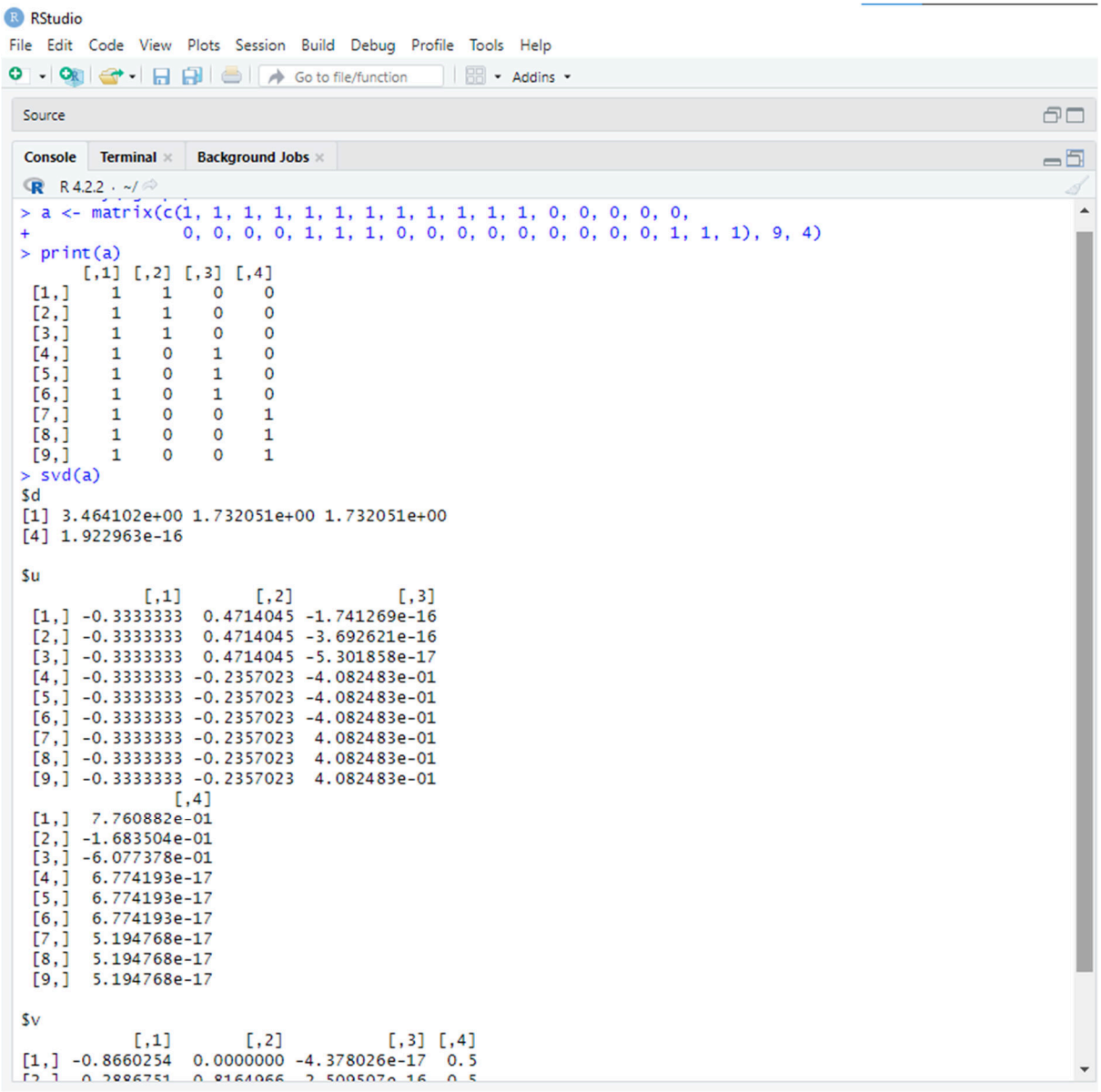
```
# Load the igraph library
library(igraph)

# Create a 9x4 matrix with specific values
a <- matrix(c(1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0,
              0, 0, 0, 0, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1), 9, 4)

# Print the matrix to the console
print(a)

# Perform singular value decomposition on the matrix
svd(a)
```

OUTPUT


RStudio
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R 4.2.2 · ~/
> a <- matrix(c(1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0,
+ 0, 0, 0, 0, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1), 9, 4)
> print(a)
[,1] [,2] [,3] [,4]
[1,] 1 1 0 0
[2,] 1 1 0 0
[3,] 1 1 0 0
[4,] 1 0 1 0
[5,] 1 0 1 0
[6,] 1 0 1 0
[7,] 1 0 0 1
[8,] 1 0 0 1
[9,] 1 0 0 1
> svd(a)
$d
[1] 3.464102e+00 1.732051e+00 1.732051e+00
[4] 1.922963e-16
$u
[,1] [,2] [,3]
[1,] -0.3333333 0.4714045 -1.741269e-16
[2,] -0.3333333 0.4714045 -3.692621e-16
[3,] -0.3333333 0.4714045 -5.301858e-17
[4,] -0.3333333 -0.2357023 -4.082483e-01
[5,] -0.3333333 -0.2357023 -4.082483e-01
[6,] -0.3333333 -0.2357023 -4.082483e-01
[7,] -0.3333333 -0.2357023 4.082483e-01
[8,] -0.3333333 -0.2357023 4.082483e-01
[9,] -0.3333333 -0.2357023 4.082483e-01
[,4]
[1,] 7.760882e-01
[2,] -1.683504e-01
[3,] -6.077378e-01
[4,] 6.774193e-17
[5,] 6.774193e-17
[6,] 6.774193e-17
[7,] 5.194768e-17
[8,] 5.194768e-17
[9,] 5.194768e-17
$v
[,1] [,2] [,3] [,4]
[1,] -0.8660254 0.0000000 -4.378026e-17 0.5