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Projections Exercises

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Homework due Nov 13, 2023 10:13 CST

We will continue to use this dataset:

```
library(Biobase)
library(GSE5859Subset)
data(GSE5859Subset)
```

Projections Exercises #1

1/1 point (graded)

Suppose you want to make an MA plot of the first two samples `y = geneExpression[,1:2]`. Which of the following projections of y gives us new coordinates such that column 2 versus column 1 is an MA plot?

○ $y \begin{pmatrix} 1/\sqrt{2} & 1/\sqrt{2} \\ 1/\sqrt{2} & -1/\sqrt{2} \end{pmatrix}$

◉ $y \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$

○ $\begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} y$

○ $\begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix} y'$

✔

Submit   You have used 1 of 2 attempts

ⓘ Answers are displayed within the problem

Projections Exercise #2

1/1 point (graded)

Say Y is $M \times N$, in the SVD $Y = UDV^\top$ which of the following is **NOT** correct?

○ $DV^\top$ are the new coordinates for the projection $U^\top Y$

○ UD are the new coordinates for the projection YV

◉ D are the coordinates of the projection $U^\top Y$

○ $U^\top Y$ is a projection from an M-dimensional to N-dimensional subspace.

✔

Submit   You have used 1 of 2 attempts

ⓘ Answers are displayed within the problem

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