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I already knew the basics about numpy and panda libraries so it was a good task that helped me learn more about both libraries. I have written my code in a google collab file.

The following observations I made after task 1 were

1. You need to drop the unnamed column as it just the denotation of rows and not the part of dataset
2. Secondly, about different memory usage determination functions for the whole dataset or just a single column.
3. Thirdly, about calculating null vectors if we have a larger dataset it will be very easy to determine by just one line of code.
4. Rather than using if else statements we can create another dataset satisfying those conditions and simplifying the code.
5. This was something I didn't know earlier that we can know whether the column has numerical or categorical features.

The following observations I made after task 2 were

1. I learnt about making random arrays within a range of different sizes.
2. Calculating standard deviation and mean.
3. To make a symmetric matrix and find eigenvectors and eigenvalues.
4. I learnt how a simple one line code can find out the determinant and inverse of a matrix.

Resources used for completing this task

1. <https://www.youtube.com/watch?v=FniLzpaSFGk&t=1445s>
2. <https://pandas.pydata.org/docs/>
3. <https://numpy.org/doc/stable/>