Problem 3 (10 pts.)

When answering a numerical value, enter only the numerical value in the answer box. No unit required. If it says “up to N decimal places”, please answer by rounding off the N+1 decimal places.

The features of iris flowers are recorded in dm-end1-3.csv. Perform a factor analysis with 2 factors on this data and answer the following questions. Include rotation='varimax', method='ml' in the argument. If necessary, use dm-end1-3.ipynb.

1.

Compute the eigenvalues of the data's correlation matrix and answer the largest and second largest eigenvalues up to the second decimal place.

The largest eigenvalue (up to the second decimal place)

The second largest eigenvalue (up to the second decimal place)

2.

Find the loading of the first factor against the petal length up to the third decimal place.

The loading (up to the third decimal place)

3.

Answer the ratio of the unique factor of the petal width, from 0 to 1, up to the third decimal place.

4.

How much of the total variance can be explained by the second factor? Answer the ratio, from 0 to 1, up to the third decimal place.

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