The eigenanalysis of the covariance matrix provides us with Principal Components (PCs) which are linear combinations of the original variables. These PCs are orthogonal and aim to capture the maximum variance in the data.

1. **Eigenvalues**: The eigenvalues represent the amount of variance explained by each PC. In this case, PC1 explains 2.9048 units of variance, PC2 explains 0.9259 units, PC3 explains 0.1485 units, and PC4 explains 0.0208 units.
2. **Proportion**: This is the proportion of the total variance explained by each PC. PC1 explains 72.6% of the total variance, PC2 explains 23.1%, PC3 explains 3.7%, and PC4 explains 0.5%.
3. **Cumulative**: This is the cumulative variance explained by the PCs. It shows that PC1 and PC2 together explain 95.8% of the total variance, and adding PC3 increases this to 99.5%. All four PCs together explain 100% of the total variance.
4. **Eigenvectors**: The eigenvectors (also known as loadings) indicate how much each variable contributes to each PC. For example, ‘sepal length\_1’ contributes positively to PC1 and PC4, but negatively to PC2 and PC3. On the other hand, ‘sepal width\_1’ contributes negatively to all PCs except PC3.

Graphs :-



