Brain Tissue Protein Analysis

This project analyzes protein quantity measurements from brain tissue samples across multiple regions using Principal Component Analysis (PCA).

Setup

1. Ensure you have Python 3.7+ installed.
2. Install the required packages:
3. Place your 'ProteinAndPathologyQuantifications.csv' file in the same directory as the script.

Usage

Run the Jupyter notebook to perform the following steps:

1. Data loading and cleaning
2. Pre-processing (imputation and normalization)
3. PCA
4. Visualization of results (scatter plots, heatmap, biplot)

Output

The script generates the following plots:

- PCA scatter plots
- Cumulative explained variance plot
- PCA loadings heatmap
- Biplot
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