Core Python Dependencies

Data Processing & Scientific Computing:

pandas (as pd) - Data manipulation and analysis

numpy (as np) - Numerical computing

scipy - Scientific computing (for signal processing functions)

wfdb - For working with PhysioNet's Waveform Database format

Machine Learning & Deep Learning:

torch (PyTorch) - Deep learning framework

torch.nn - Neural network modules

torch.optim - Optimization algorithms

torch.utils.data - Data loading utilities

sklearn (scikit-learn) - Machine learning utilities

LabelEncoder

Various metrics (precision\_score, recall\_score, etc.)

train\_test\_split

**Visualization:**

matplotlib - Plotting library

seaborn (as sns) - Statistical data visualization

System & Utilities:

pathlib - Object-oriented filesystem paths

random - Random number generation

datetime - Date/time operations

collections - Container datatypes (specifically Counter)