- \*\*Problem Objective:\*\* Predicting an organism's health based on biological sensor measurements using regression models.

- \*\*Dataset:\*\*

- Training: `p1\_train.csv`

- Testing: `p1\_test.csv`

- Last column represents the target variable.

- \*\*Linear Regression Workflow:\*\*

- Load data and preprocess:

- Load CSV files into pandas DataFrames.

- Separate features and target variable.

- Impute missing values with the mean and scale the data.

- Train the Linear Regression model:

- Initialize the Linear Regression model.

- Fit the model on the training data.

- Model Evaluation:

- Predict the target variable on the test set.

- Calculate Mean Squared Error (MSE) and Mean Absolute Error (MAE).

- Visualize the predicted vs actual values using a scatter plot.

- \*\*Support Vector Regression (SVR) Workflow:\*\*

- Load data and preprocess:

- Similar steps as with Linear Regression.

- Initialize SVR and Hyperparameter Tuning:

- Define hyperparameters for SVR.

- Perform GridSearchCV for hyperparameter tuning.

- Train the SVR model:

- Get the best model from GridSearchCV.

- Fit the best SVR model on the training data.

- Model Evaluation:

- Predict the target variable on the test set.

- Calculate Mean Squared Error (MSE) and Mean Absolute Error (MAE).

- Visualize the predicted vs actual values using a scatter plot for evaluation.