**Software description**

This script is designed to train a machine learning model using the ElasticNet algorithm on a dataset of COVID-19 data. The script is divided into several sections, each of which performs a specific task.

The **Import libraries** section imports the necessary libraries for the script to run. These libraries include pandas and numpy for data manipulation, warnings to ignore warning messages, and several modules from sklearn for machine learning tasks.

The **import data** section reads in the data from a CSV file and stores it in a pandas DataFrame. The script then sets the variables to be used in the model and separates the data into predictor variables (x) and the target variable (Y).

The **setting parameters** section sets the parameters for the model. This includes defining the cross-validation method and setting the hyperparameter grid for the ElasticNet algorithm.

The **model training** section trains the model using the defined parameters. The script defines evaluation and post-processing criteria, creates a pipeline for scaling the data and applying the ElasticNet algorithm, and performs a Bayesian search to find the best hyperparameters for the model. The results of the search are then displayed.

The **results visualization** section visualizes the results of the model training. This includes printing the mean squared error (MSE) and settings for the optimal model, as well as displaying a table of variable coefficients.

The **predict a real case** section of the script allows for making predictions on new data. The user can input data in matrix format and receive a prediction of deaths per 1000 inhabitants for that data.

Overall, this script provides a complete workflow for training an ElasticNet machine learning model on COVID-19 data and making predictions on new data.