Project Name: Deployment of ADWIN for classifying medical data stream

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Pre-request knowledge: Fundamentals of Machine learning, Python

Framework: Python (Anaconda, Spyder) including: pandas, numpy, sklearn, skmultiflow.

Summery:

Machine learning is concerned with improving the learning ability of the computer to make (intelligent) decisions and to distinguish different patterns based on the given data [1]. Stream data represents a significant source for a vast amount of data, especially in medical-related applications in which wearable devices, diagnosing tools, mobile phones, and monitoring devices can provide continuous data samples. Accumulating this amount of data represents a serious challenge for typical classification techniques due to the limitation of computation resources and the complexity of the classification model.   In Adaptive Machine Learning AML, instead of building a fixed classifier during the learning process, AML continuously modifies the classifier as a response to the change in the distribution of a data stream. ADWIN (ADaptive sliding WINdow) is an estimation technique that aims to detect the change in a data stream based on a sliding window with adaptive size [2].

Main Objective: Implementation of Adaptive Window ADWIN for handling the concept Drift in a medical data stream, thereby improving the classification performance.

References:

[1] Han J, Pei J, Tong H. Data mining: concepts and techniques. Morgan kaufmann; 2022 Jul 2.

[2] Joao Gama. Knowledge discovery from data streams. CRC Press, 2010

Useful links:

- https://www.kaggle.com/datasets.
- https://physionet.org
- https://archive.ics.uci.edu/datasets