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Development of the computing framework for monitoring the quality of ProtoDUNE offline data

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ProtoDUNE is a Liquid Argon Time Projection Chamber (LArTPC) and one of the prototypes for the future Deep Underground Neutrino Experiment (DUNE). Besides testing and improving LArTPC detection performance, ProtoDUNE goals also reside in exploring the interaction of charged particles with Liquid Argon to enhance the particle reconstruction capabilities for the future neutrino interactions in DUNE. In view of the upcoming data taking campaign for ProtoDUNE Vertical Drift, we are looking forward to developing and improving the Offline Data Quality Monitoring framework to evaluate the quality of data recorded by the detector and the performance of its current processing algorithms. By monitoring offline data, we identify the metrics that determine the data quality, make relevant plots and release this information for the collaborators in a graphic user interface. In this talk, we present the DUNE computing infrastructure used for developing the framework, from data processing to visualization in the front-end website, highlighting the flexibility of the tool in retrieving processed data from different sources across the Collaboration working groups. Finally, we will also discuss the plans for extending the offline data quality monitoring to the Monte Carlo samples from production campaigns.

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