## A Text Classification Approach Based on Natural Language Processing and Machine Learning Techniques

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**Abstract:** Automatic text classification applies mostly natural language processing (NLP) and other AI-guided techniques to automatically classify text in a faster and more accurate manner. This paper discusses the subject of using predictive maintenance to manage incident tickets inside the sociality. It focuses on proposing a tool that treats and analyses comments and notes written by administrators after resolving an incident ticket. The goal here is to increase the quality of these comments. Additionally, this tool is based on NLP and machine learning techniques to realize the textual analytics of the extracted data. This approach was tested using real data taken from the French National Railways (SNCF) company and was given a high-quality result.

**Keywords:** machine learning, text classification, NLP techniques, semantic representation

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