

USING MACHINE LEARNING METHODS TO ANALYSE THE EFFICIENCY OF SQL QUERIES

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Structured Query Language (SQL) is a database language that is widely studied in computer science, data science, and software engineering applications. Despite its high expressiveness, SQL could be difficult to learn for beginners. Several studies have examined the mistakes made by SQL users. It has been found that specific attributes of SQL, such as the number of tables and the degree of nesting, affect its understandability and maintainability [1]. Moreover, previous studies have discovered that beginners have significant problems with the correct use of SQL due to factors such as ease of expression, existing knowledge and errors, and the impact of cognitive load [1].

Machine Learning (ML) is a field of knowledge in Artificial Intelligence (AI) that deals with the development of algorithms and statistical models that can approximate data, learn from it, generalize it to unseen dependencies, and thus perform tasks without explicit instructions. ML is a key component of AI that allows computer programs to perform various tasks without explicit programming, instead relying on patterns and dependencies inferred from data. This trend in AI, is based on the idea that computer systems can learn from data, identify patterns and make decisions with minimal human intervention. ML can be applied to a variety of tasks. Predict values of a certain value based on a set of data. Use on websites to recommend content or products. Help identify anomalies in financial transactions and predict market trends. Recognize any objects and make decisions because of that. Overall, ML allows computer systems to learn and adapt to new data, making it a powerful tool in a variety of fields [2].

An ML model is a set of algorithms, parameters, and data structures that enable the model to operate and learn by changing its parameters in a particular way. In other words, it is a system that changes the values of its parameters, thereby changing its transformation of input data into output data [2].

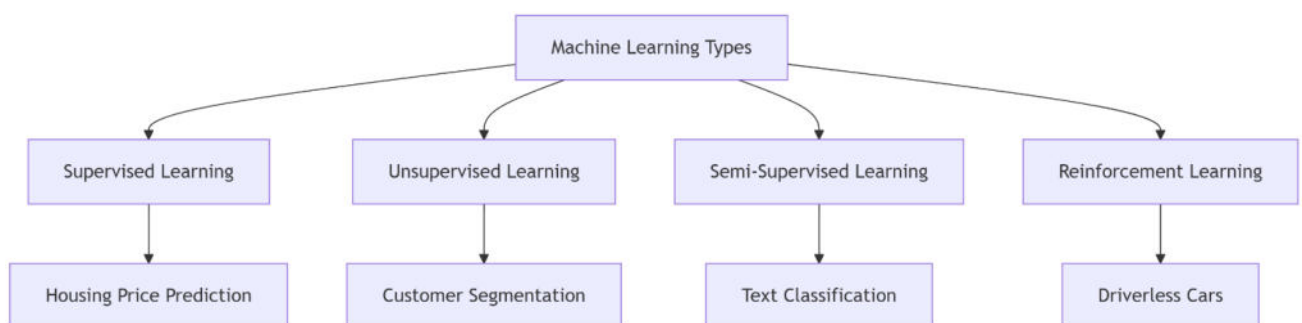


Fig. 1. – Machine Learning types and applications [2]

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1. Kumar R., Sharma A. A review on machine learning algorithms // International Journal of Advanced Research in Computer Science. – 2020. – Vol. 11, № 5. – P. 1–5.
2. Kabanda G., Chipfumbu C. T., Chingoriwo T. A Reinforcement Learning Paradigm for Cybersecurity Education and Training // Oriental Journal of Computer Science and Technology. – 2023. – Vol. 16, No. 1. – P. 12–45.