Building a prediction model for bar exam results using student data, such as GPA, LSAT scores, and study hours, is the main goal of this research. The software trains a linear regression model using Rust and incorporates machine learning techniques through the linfa crate. To forecast whether students will pass or fail the bar test, it processes a CSV file that contains student information, gets the data ready for regression, trains the model, and then applies the model. The platform also logs comprehensive student records, including performance categories and expected outcomes, and assigns students to performance tiers according to their GPA.

Use the command git clone in your terminal to first clone the repository to your local computer so that you may read and execute the code from it. Once the cloning process is complete, go to the project directory to find the code. Make sure your machine has Rust installed. You will need to rebuild the project because the target directory was deleted to reduce the size of the repository. The project can be compiled using the cargo build command and run using the cargo run command. Student data containing fields like ID, GPA, LSAT score, study hours, expected results for the bar test, and performance levels are included in the output. You should also execute cargo tests in the terminal to ensure everything functions as it should.

The code's design prioritizes extensibility, modularity, and clarity. The functionality is divided into reusable, appropriately named functions that manage different activities, such as allocating performance tiers, loading data, scaling features, and training the model. Strong and maintainable code is guaranteed by Rust's type safety features, such as enums and iterators. The project's goal of examining the connection between the

provided characteristics and bar exam results is reflected in the model's selection of linear regression.

The model's predictions did not generalize well, which does not make the effort less valuable. The main objectives were demonstrating the use of Rust in machine learning workflows and investigating the connection between student measures and their results. The failure emphasizes the necessity of greater feature engineering, more data, or more complex modeling methodologies. Despite this, the project offers insight into Rust machine learning, data processing, and the significance of testing and refining prediction models. Failures are an essential part of the process of creating dependable and efficient systems, and the process itself is a valuable learning opportunity.