Linear models - Lesson overview

Understanding **linear models** provides a foundation for **regression analysis** and **predictive modelling**.

In this lesson, we delve into the basics of **simple linear regression** and its application in modelling the relationship between two variables to make predictions. We then look at the **least squares method** and how it is used to find the **line of best fit**. Finally, we learn how to **implement a linear regression model** using Python's scikit-learn library, **evaluate its performance** and **interpret the results**.

By the end of this lesson, you'll possess the skills to **apply simple linear regression** effectively for insightful data analysis.

Learning objectives

- Understand the fundamentals of Simple Linear Regression and how it uses the relationship between two variables to predict outcomes.
- Understand what Least Squares Regression is and how this method is used to find the line of best fit.
- Know how to utilise Python's scikit-learn library to build and apply simple linear regression models, including data preparation, model fitting and making predictions.
- Understand how to assess the performance of a linear regression model using metrics like RSS, MSE, and R^2, to ensure model reliability and improve prediction outcomes.

Video **Knowledge questions**

Examples **Exercise**