SUMMARY

Analysis of CO$_2$ Emissions from New Passenger Cars in the European Union
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This thesis analysed new passenger car CO$_2$ emissions in the EU from 2000 to 2023 using datasets from the European Environment Agency (EEA). The data manipulation was performed in Google Colab using Python, focusing on statistical analysis and visualisations to reveal regional trends and differences in emissions across EU member states. While some countries managed to reduce their level of emissions, others still face some issues achieving the goal of climate neutrality by the year 2050 as set in the European Green Deal. Denmark, Sweden, and the Netherlands are some of the most successful in Northern and Western Europe. These countries relied on shifting to cleaner automotive technology, offering tax subsidies and incentives on electric vehicles, driving the reduction of CO$_2$ emissions below the EU average of 132.30 g/km. The study found that this decrease reflects a shared interest between the community and the government in countries with high Gross Domestic Product (GDP). However, countries like Hungary, Bulgaria, Romania, Slovenia, Slovakia, Poland, and the Czech Republic still prioritised individual affordability over general environmental impact. Consequently, challenges on reducing CO$_2$ emissions from passenger cars towards the years were observed. The study also identified that this is likely due to the population's willingness to afford and invest in solutions such as electric and hybrid vehicles, influenced by lower income levels and barriers to establishing the charging infrastructure. Despite the recent partial improvement in the European Union, supporting investments and policies are required for those countries that have not progressed well, contributing to the long-term EU climate objectives.

Keywords: emission of carbon dioxide (CO$_2$), passenger cars, climate change.