我们的项目旨在利用布里斯班当地加油站的历史燃油价格数据以及国际原油价格数据来分析布里斯班的燃油价格波动情况。 为了确保得出有意义的见解，已确定了四个关键的成功目标。 首先，量化布里斯班燃油价格变化的时空特征将有助于识别不同地区和时间段内的模式。 通过衡量价格波动并分析每日和季节性周期内的变化，这一目标将为燃油价格动态提供基础理解。 其次，评估国际原油价格与当地燃油价格之间的相关性和滞后效应将确定全球石油市场变化对布里斯班燃油成本的影响。 这将涉及时间序列分析，以确定原油价格对当地价格影响的程度和时间延迟。 第三，基于历史数据预测未来燃油价格趋势将有助于开发预测模型，可以使用机器学习方法等统计技术来估计未来价格走势，并帮助优化消费者的加油策略。 第四，识别数据局限性并提出补充数据源，将解决缺失值、潜在偏差以及可能影响燃油价格分析准确性的外部因素。

本研究获得的见解在未来的多个领域都有广泛应用。 消费者燃油成本优化可以帮助司机确定最佳加油时间和地点，减少不必要开支。 城市交通和能源政策制定可以利用燃油价格趋势来评估燃油成本波动对于社会的经济影响。 市场竞争和定价策略分析将使燃油零售商能够完善定价模型，并评估不同地区和品牌之间的竞争优势。 燃油价格预测和风险管理能够支持企业、政府机构和消费者做出基于数据的决策，从而实现更有效的预算规划和风险缓解策略。 这些应用为未来关于布里斯班燃油价格动态的研究和政策讨论奠定了坚实的基础。

Our project aims to analyze fuel price volatility in Brisbane using historical fuel price data from local gas stations in Brisbane as well as international crude oil price data. To ensure that meaningful insights are derived, four key success objectives have been identified. Firstly, quantifying the spatiotemporal characteristics of fuel price changes in Brisbane will help identify patterns across regions and time periods. This objective will provide a fundamental understanding of fuel price dynamics by measuring price volatility and analyzing changes within daily and seasonal cycles. Second, assessing the correlation and lag effects between international crude oil prices and local fuel prices will determine the impact of changes in the global oil market on fuel costs in Brisbane. This will involve time series analysis to determine the extent and time delay of the impact of crude oil prices on local prices. Third, forecasting future fuel price trends based on historical data will help develop predictive models that can use statistical techniques such as machine learning methods to estimate future price movements and help optimize consumer refueling strategies. Fourth, identifying data limitations and proposing supplementary data sources will address missing values, potential bias, and external factors that may affect the accuracy of fuel price analysis.

The insights gained in this study have wide applications in several fields in the future. Consumer fuel cost optimization can help drivers determine the best time and place to refule and reduce unnecessary expenses. Urban transportation and energy policy making can use fuel price trends to assess the economic impact of fuel cost fluctuations on society. Market competition and pricing strategy analysis will enable fuel retailers to refine pricing models and evaluate the competitive advantages between different regions and brands. Fuel price forecasting and risk management can support businesses, government agencies, and consumers in making data-based decisions that enable more effective budget planning and risk mitigation strategies. These applications form a solid foundation for future research and policy discussions on fuel price dynamics in Brisbane.