Based on our preliminary analysis and domain understanding, we propose the following research hypotheses to guide our research. First, we assume that local fuel prices in Queensland are positively correlated with international crude oil price fluctuations, reflecting a highly integrated market. Second, we expect the availability of fuel types to vary significantly from station to station, which could impact consumers with specific vehicle needs. Third, we assume that differences in fuel quality and service experience show up in user-generated reviews and ratings, indicating different levels of consumer satisfaction. Finally, we propose that the presence and quality of ancillary facilities, such as air pumps, restrooms, and convenience stores, are different across stations and may influence station preferences and usage behavior. These assumptions are designed to structure our analytics and align our data exploration with the concerns of real-world users.

Our research questions are designed to reflect the real-world needs of key user groups (commuters, long-distance drivers, and special vehicle owners) by examining how fuel prices, product availability, service quality, and gas station facilities affect their fueling decisions.

To ensure the practical value of our analysis, we identified three main user groups based on fuel use patterns and demand:

Daily commuters: These users rely on fuel for short daily trips, such as commuting to and from work or school." Their priorities are fuel price stability, proximity and efficient service.

Long-distance drivers: This group includes individuals or logistics operators who travel between regions. They put more emphasis on fuel availability (especially diesel), station reliability, and additional services such as food or rest facilities.

Special vehicle users: Vehicle owners who require specific fuel types (e.g., 98 octane or E10) are more sensitive to fuel quality and availability of suitable filling stations." Their decisions are influenced by product availability and service reputation.