Group 4: Feedback (14/09/25) Grade: 70/100

Assessment of Group 4's Airbnb Project Report

Substantive Question (5%) 4/5

Commendable: The group clearly posed two connected business questions: How accurately can Airbnb prices be predicted based on property and location features? Can Airbnb customers be segmented according to behaviour to inform pricing strategies? These are relevant, well-scoped, and aligned with Airbnb's operational needs.

Needs Further Work: The questions could have been sharpened by specifying the practical applications more explicitly (e.g., forecasting revenue, designing host dashboards).

Rational/Arguments for the Business Question (5%) 4/5

Commendable: The rationale for using regression and clustering was coherent, with regression addressing predictive accuracy and clustering adding customer segmentation insights. The group tied this to broader business goals such as maximising revenue and enhancing Airbnb's competitive edge.

Needs Further Work: While references were included, the rationale would be stronger if it engaged more deeply with recent post-pandemic market shifts or broader industry trends affecting Airbnb pricing.

Expected Business Impact (5%) 3/5

Commendable: The report highlighted two significant impacts: optimised pricing through Random Forest predictions and enhanced customer targeting through segmentation into behavioural clusters (e.g., budget, long-stay, high-demand reviewers). These are directly actionable and tied to Airbnb's strategy.

Needs Further Work: The expected impact could have been quantified with examples — for instance, estimating potential revenue gains from adjusting pricing within each identified cluster.

Methodology (40%) 27/40

Knowledge and Understanding (10%) 8/10: The group demonstrated good knowledge of regression techniques (Ridge and Random Forest) and clustering (K-Means). They described preprocessing steps such as cleaning, encoding, and standardisation.

Application of Knowledge and Understanding (10%) 8/10: Models were applied correctly, with Random Forest outperforming Ridge Regression (MAE 48.29 vs. 54.32, R^2 0.47 vs. 0.37). Clustering was implemented with validation using both the Elbow Method and silhouette scores.

Criticality (20%) 11/20: The group has recognised the trade-off between interpretability (Ridge) and predictive power (Random Forest) and situated this

within industry practices. You have also noted the role of clustering in identifying actionable customer personas.

Needs Further Work: Critical reflection could have gone further by interrogating why Random Forest improved accuracy, what its limitations were with extreme outliers, and how clustering assumptions (spherical clusters, sensitivity to outliers) might have biased results.

Visualisations of Results (40%) 29/40

Commendable: A broad set of visualisations was included: correlation heatmaps, feature importance plots, regression predicted vs actual charts, clustering scatter plots, and heatmaps linking clusters with neighbourhoods and room types. These strengthened the analysis and interpretation.

Knowledge and Understanding (10%) 8/10: The visualisations demonstrated understanding of how to represent both feature-level drivers and segmentation outcomes.

Application of Knowledge and Understanding (10%) 8/10: Figures such as feature importance and predicted vs actual comparisons directly supported methodological conclusions. Clustering scatterplots and heatmaps clearly illustrated behavioural segments.

Structure and Presentation (20%)- 13/20: The report was well-structured, with visuals placed logically to support each section.

Needs Further Work: Some figures were descriptive without deeper interpretation. For example, cluster heatmaps were presented but not thoroughly analysed in terms of strategic implications for Airbnb.

Overall Presentation Style (5%) 3/5

Commendable: The report is clearly written, logically structured, and supported by references. The integration of methods and results is smooth, and the executive orientation is evident.

Needs Further Work: The writing could be more concise in places, and the link between technical outputs and business recommendations could be strengthened for an executive reader.

General Feedback

This was a well-rounded submission, combining regression and clustering effectively and producing actionable insights. The use of Random Forest was justified and supported with results, while Ridge Regression provided interpretability. The segmentation into customer personas (budget, long-term, high-demand reviewers) is strategically sound. To push further into higher distinction, the group would need stronger critical interrogation of model limitations, clearer quantification of business impact, and tighter integration of visuals into the business narrative.

Final Thoughts

This is a strong report showing technical competence, clear structure, and relevant insights for Airbnb's strategy.