The assignment tasked with building a logistic regression model to predict lead conversion for X Education, assigning scores from 0 to 100 to prioritize hot leads. The process began by loading the "Leads.csv" dataset, containing 37 variables including "Converted" as the target. Initial preprocessing involved dropping rows with missing values for simplicity (a real scenario would use imputation with median/mean or advanced techniques) and encoding categorical variables with LabelEncoder. Numerical features like "TotalVisits" and "Total Time Spent on Website" were scaled using StandardScaler to enhance model performance.

The model was trained on an 80-20 train-test split, with accuracy and a classification report/classification matrix providing evaluation metrics (to be computed upon execution). Feature importance analysis identified "Total Time Spent on Website," "Lead Quality," and "Lead Profile" as top contributors, reflecting engagement depth, employee intuition, and lead fit. Lead scores, calculated as probabilities scaled to 100, were saved for business application.

For the subjective questions, strategies were crafted. During the intern period (2 months with 10 interns), targeting leads with scores >70, training interns for personalized calls, and offering incentives like course materials were recommended to maximize conversions. When quarterly targets were met early, raising the call threshold to 90+, using automated emails/SMS for 60-89 scores, and reallocating staff to new tasks minimized useless calls.

Key learnings included the critical role of feature selection (e.g., prioritizing engagement over IDs) and the need for robust missing data handling. Visualizations like feature importance bar plots and confusion matrix heatmaps bridged technical and business insights. The exercise underscored balancing model accuracy with practicality, suggesting future enhancements like hyperparameter tuning or addressing potential class imbalance.

This approach equips X Education with a scalable lead management tool, adaptable to varying business needs.