

QBUS6600 Project 2 Outline: UNICEF Australia – Predicting Single-to-Regular Giver Conversion

Background

UNICEF Australia is a dedicated children's charity committed to delivering lasting impact for every child. It works in over 190 countries and territories to save children's lives, to defend their rights, and to help them fulfil their potential, from early childhood through adolescence.

To strengthen its vital programs, UNICEF Australia is continuously improving its fundraising strategies through innovative campaigns, community engagement, and partnerships. By offering various fundraising initiatives such as charity events and digital marketing campaigns, UNICEF enables individuals and organizations to contribute in meaningful ways.

UNICEF Australia is leveraging the use of data analytics to enhance propensity modelling, while also exploring how external data sources can improve the predictive performance. This data-driven approach enables more targeted and timely engagement with the appropriate audience, ultimately enhancing supporter experience and optimising long-term support. The potential benefits include greater marketing efficiency, leading to a huge impact on resources allocated efficiently to support children in need.

Problem Description

Use the available data (see 'Data Description' below) to develop a model for predicting whether a donor will convert from making a non-regular gift to becoming a **regular** giver within the 6-month period after their first donation (this conversion happens when a donor purchases/subscribes to a product with 'RG' in the product name). Your model will use the donor information available at the time of the first donation (including the information about this first donation) to make the prediction. You can frame this task as a classification problem for predicting the likelihood of conversion.

The project presents a unique opportunity to apply your data analytics skills to a real-world business challenge and contribute to the ongoing success of UNICEF Australia. Your work will provide valuable insights and drive impactful results for UNICEF. Your contributions to the project will play a crucial role in helping UNICEF Australia continue to make a positive impact on the lives of children both locally and globally.

In this project, you should:

- Conduct Exploratory Data Analysis (EDA) to identify the top behaviours and attributes that are likely to predict whether a donor will convert to a regular giver.

You should aim to find or reveal all relevant properties, characteristics, patterns, and statistics hidden in the datasets.

- Develop a classification model for predicting the likelihood of donors to convert to a regular giver.

You can implement any statistical or machine learning approaches that you feel are appropriate. Ensure that you justify the selection of your model and interpret the model in terms of the key attributes for predicting the likelihood of conversion. Use the F1-Score to evaluate the performance of your final model.

- Based on your analysis, outline a strategy to help UNICEF Australia prioritise donors, enabling better targeting and personalisation of marketing efforts and services, and improving their donation performance.

You should design a specific potential project for the UNICEF Australia team to execute, to take advantage of the key behaviours and attributes that you have identified, and the models that you have built and validated. The project could include marketing programs, product enhancements and/or other interventions or changes. The project should be backed by high-level revenue and cost estimates, accompanied by assumptions and/or supporting data.

Data Description

UNICEF Australia has provided you with a dataset in CSV format (~260MB), with information on donation transactions, campaign details, and descriptive features of the donors. Augment the UNICEF data with the MOSAIC data provided by Experian (and, optionally, open-source external data) to improve the accuracy of your predictions. UNICEF Australia has made efforts to ensure the data is relatively clean, however, we encourage you to perform checks and conduct the necessary data processing and feature engineering.

Useful Tips

Data Processing: Review the provided data dictionary to understand each variable.

Train-Test Split: Validate your model's performance on a test set to prevent overfitting.

Feature Engineering: Perform feature engineering to enhance model performance. Creating and transforming features can uncover hidden patterns.

Experiment with Models: Test various classification models to find the most suitable one. This experimentation is key to achieving high model performance.