# Boosting revenue from Russian guests using a predictive algorithm.

Guests coming from Russia are a particular profitable group. But they are also more likely than other nationalities to cause damage to our hotel, hurt our staff or hurt other guests. The cost that we incur because of this behavior is often not recoverable form these Russian guests. So, an accurate screening is a bit more important than with other guests. Because of the higher potential for profit, but also higher risks involved. To aid our staff in selecting each season from the Russian applicants, those with the most attractive balance between profit and the anticipated cost for the damages, we tasked our data scientists to develop a predictive algorithm.

Afbeelding met tekst, schermopname, diagram, Kleurrijkheid

Automatisch gegenereerde beschrijvingThe data scientists used data on Russian guests from previous seasons, including financial information, previous contacts with our hotel chain, booking information and personal information. They created a machine learning algorithm that can predict the revenue for each of the Russian guests for the next season. Besides predicting the revenue directly, the data scientist where also able to predict how much profit the hotel will earn from a certain guest, if the guest will cause damage and the cost of that damage.

For a selection of 200 of the highest revenue generating guests, form **next seasons** 500 applicants, a **total revenue** of **427.000 US Dollars** is predicted. A random selection of 200 applicants for next season is on average predicted to result in around 347.000 US Dollars of revenue. By using the algorithm, to support the screening process we are predicted to **increase our revenue** on the Russian guests by around **80.000 US Dollars**.

The data scientist identified information from previous stays of the guest, certain booking information and the score given by other hotels in our chain as critical information to make the revenue predictions. The data scientist also used previous seasons data to determine that their algorithm underestimates the actual revenue by around 7.5%. This means that because of the conservative estimates of the model an extra safety margin of around 30.000 US Dollars is present in the prediction of the revenue for the 200 applicants that are selected by the model.

Given these results we recommend that the hotel manager, starting from the applicant screening for this season, **implements the algorithm to assist** our **screening team** in selecting the Russian guests. By adjusting our current approach, we can select those guests that allow us to optimize our profitability on this specific nationality. To ensure that we can continue to make these predictions in the future we recommend to **keep collecting data** on our guest, especially the data identified as critical information by the data scientists. We also recommend to not incorporate the safety margin in the revenue predictions and budget of the hotel next year, as the algorithm is not able to 100% accurately predict future seasons revenue and safety margin should be used to buffer the missing’s by the algorithm.