In-Flight Media Content Optimization

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In collaboration with Panasonic and Black Swan Data

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Abstract

Airlines invest in media content to be loaded on their aircraft with the goal of creating passenger experiences that are not only enjoyable, but develop customer loyalty. The media items loaded on the aircraft is called 'media load'. While there are many factors that go into making a flight enjoyable for passengers, the media options available plays a role in their experiences. Our team has created a media load recommendation algorithm that predicts proportion of views for each media item. Through generalized linear modeling and k-fold cross validation using proportions of views as our response variable trained on correlation squared, we obtain models that increase the probability of removing media items that are not desired by passengers and add media items that will have high proportion views on future flights.

1 Introduction

Our goal is to provide a media load recommendation for in-flight entertainment by predicting which items are preferred by passengers. In specific we developped recommendations that suggest items to remove from the media load as well as which to add. These will later be identified as Recommendation I and Recommendation II respectively. Strategically suggesting which items should no longer be invested in will cut overall costs without sacrificing quality in-flight entertainment. We will provide simulations that demonstrate this result.

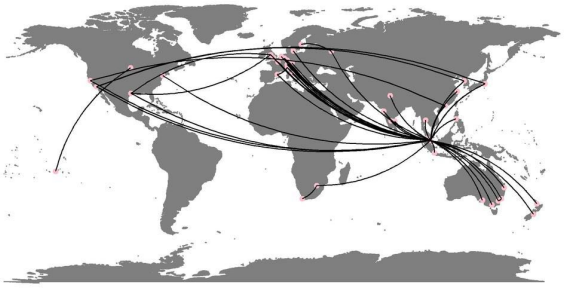

Figure 1: Singapore Airlines Routes (Oct. 2018 - Feb. 2019)

The history data we will analyze is from 5 months of previous flights for Singapore Airlines. These routes from October 2018 to February 2019 are mapped in Figure 1. While the data has been cleaned slightly, Table 1 and Table 2 display a sample of variables which we utilize to predict *proportion views*. Ultimately, after organizing the data, we are able to fit a Generalized Linear Model to the response variable *prop_views* with the provided media variables as explanatory variables. From this prediction we are able to predict the success of new media items that have never been tested on the airline media load. This will offer as a recommendation of items to add. A strategic data analysis of the data history couple with data engineering, we are able to provide a 'remove' list for which media to remove from the current media load on planes. Before we began our analysis, we needed to do some data organizing including: dimension reduction, data manipulation, aggregation and develop methodologies for replacing missing data and augmenting the given dataset.