

Marketing to frequent fliers

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Introduction

The objective of this project is to create a set of **meaningful segments** for the customers of an airline company. Management at EastWest Airlines plans to identify clusters of passengers the **Frequent Flier** program that have similar characteristics. This will allow targeting the different segments for different types of mileage offers. Key issues are their flying patterns, earning and use of frequent flier rewards, and use of the different EastWest's credit cards.

The data set

The data set (file `fliers.csv`) contains information from 3,999 passengers of the Frequent Flier program. The features included are:

- `id`, a unique customer ID.
- `balance`, number of miles eligible for award travel.
- `qual_miles`, number of miles counted as qualifying for Topflight status.
- `cc1_miles`, number of miles earned with Frequent Flier credit card in the past 12 months, coded as 1 (under 5,000), 2 (5,000–10,000), 3 (10,001–25,000), 4 (25,001–50,000).
- `cc2_miles`, number of miles earned with Rewards credit card in the past 12 months, coded as above.
- `cc3_miles`, number of miles earned with Small Business credit card in the past 12 months (1 = under 5,000, 2 = 5,000 – 10,000, 3 = 10,001 – 25,000, 4 = 25,001 – 50,000).
- `bonus_miles`, number of miles earned from non-flight bonus transactions in the past 12 months.
- `bonus_trans`, number of non-flight bonus transactions in the past 12 months.
- `flight_miles_12mo`, number of miles flight miles in the past 12 months.
- `flight_trans_12`, number of flight transactions in the past 12 months.
- `days_since_enroll`, number of days since the customer was enrolled.
- `award`, a dummy for having an award.

Source: G Shmueli and PC Bruce (2016), based upon a real business case and real data. The company name has been changed.

Questions

- Q1.** Group the customers in four segments using the information available. Can you describe the segments in a few words?
- Q2.** The same, but after normalizing the variables.

- Q3.** Would you prefer to have five segments instead of four?
- Q4.** Or maybe three segments?
- Q5.** Suppose that the company is already using the segments for targetting purposes, and they discover an additional customer who was not included in the data set. Her data are as follows: `balance = 63000`, `qual_miles = 157`, `cc1_miles = 1`, `cc2_miles = 1`, `cc3_miles = 1`, `bonus_miles = 1200`, `bonus_trans = 15`, `flight_miles_12mo = 764`, `flight_trans_12 = 1`, `days_since_enroll = 1214`, `award = 0`. How will you assign this customer to one of the current segments?