

Dataset Description

Introduction

This synthetic dataset includes information regarding the initial slot allocations for a Brazilian airport during the summer scheduling season of 2019, based on the information obtained from the databases of Brazilian Civil Aviation Agency Slot Database (“Coordenação de Slots ANAC,” 2019).

The modifications made in the original dataset to create the synthetic dataset are described in the subsequent sections of this file. A description of the pre-processed data is also available.

The way the synthetic data was produced reflects the authors’ views. ANAC is not responsible for or endorses the conclusions or results obtained from the data used from their databases.

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Synthetic Slot Request Data

The concerned data correspond to the allocations provided for a Brazilian airport during the summer season of 2019 and are obtained from the Brazilian Civil Aviation Agency Slot Database (“Coordenação de Slots ANAC,” 2019).

Since the concerned dataset solely contained allocation data, we created a synthetic dataset that assumes that the airlines’ requested slots deviate from the allocated times based on a normal distribution with a mean of 0 x 5-minute intervals and a standard deviation of 12 x 5-minute intervals.

Furthermore, we made some amendments to the original initial slot allocation data to make suitable for the airport slot allocation problem we considered. These amendments are:

- Since the data does not specify the historic rights, we compared the allocations with the previous year’s allocations and tried to match the requests by using their attributes such as flight IDs, operating days, and operating airports.
- As the data does not have the information on the paired requests, i.e., the departure request at the origin airport and the corresponding arrival request at the destination airport, we matched the individual requests according to their allocated times, operating dates, and flight IDs. Even after this, there are still requests that remain unpaired. Unpaired requests are identified in the dataset by “----” in the AC column.
- All airline name data are anonymised, whilst the origin/destination airport names for each slot are removed.

Data description

A description of the resulting data is provided in **Figure 1**: Description of the dataset.

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Label	AC	ANU	DC	DNU	HF	MHF	HT	MHT	M	T	W	H	F	S	U	SEN
1	A1	1111	A1	1112	16	JUN	13	OCT	0	2	0	4	0	0	0	231
...
[M]	AN	9998	AN	9999	30	MAY	03	OCT	0	0	0	0	0	6	0	167
ID	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	21
Label	TYP	AFR	BFR	AH	AM	DH	DM	V	ADE	BDE	FY	Q	ADOF	ADOT	AAOF	AAOT
1	737	PRG	PRG	12	55	13	55	0	PRG	PRG	JJ	3	0	0	0	0
...
[M]	321	BLL	BLL	08	40	9	40	0	BLL	BLL	CC	1	0	0	0	0

Notes:
Arrival / Departure Company (AC/DC), Arrival/ Departure Number (ANU/DNU), first/ last day of operations (HF/HT), first/ last month of operations (MHF/MHT), Monday (M), Tuesday (T), Wednesday (W), Thursday (H), Friday (F), Saturday (S), Sunday (U), Seats Expected (SEN), type of aircraft (TYP), airport of origin (AFR), last stopover airport (BFR), Arrival/Departure Hour (AH/DH), Arrival/ Departure Minute (AM/DM), Overnight indicator (can be 1 if the aircraft will depart the next day, or 0 if it departs the same day) (V), next stopover airport (ADE), destination airport (BDE), Service codes for the arrival and departure flights (FY where J/F: schedule passenger/ cargo flight, C/H: chartered passenger/cargo flight, P: positional, X: technical, D: general or private, N: Business aviation/ air taxi), frequency indicator (Q), Alternative Departure/Arrival Offers From (To) (ADOF(T)/AAOF(T)).

Figure 1: Description of the dataset

References

- Coordenação de Slots ANAC [WWW Document], 2019. Agência Nacional de Aviação Civil (ANAC). URL <https://www.gov.br/anac/pt-br/assuntos/regulados/empresas-aereas/slot/coordenacao-de-slots-anac> (accessed 1.1.24).