

Client: Business Case

Pricing & Data Analyst

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Task 1

Data Ingestion & binding

- The Code for Looping through all the CSVs and XLXs are attached herewith. The script is in R (as an R markdown File) because that is the only Data manipulation IDE that i have on my local. But the logic for doing the same in python should be pretty similar
- It is scalable since all one has to do to replicate the process for 365 days is change the end sequence date in the Code
- Once I have the aggregated data I have used SQL & Google Sheets (both of which are attached) to generate the insights since graphing in R can be quite troublesome at times

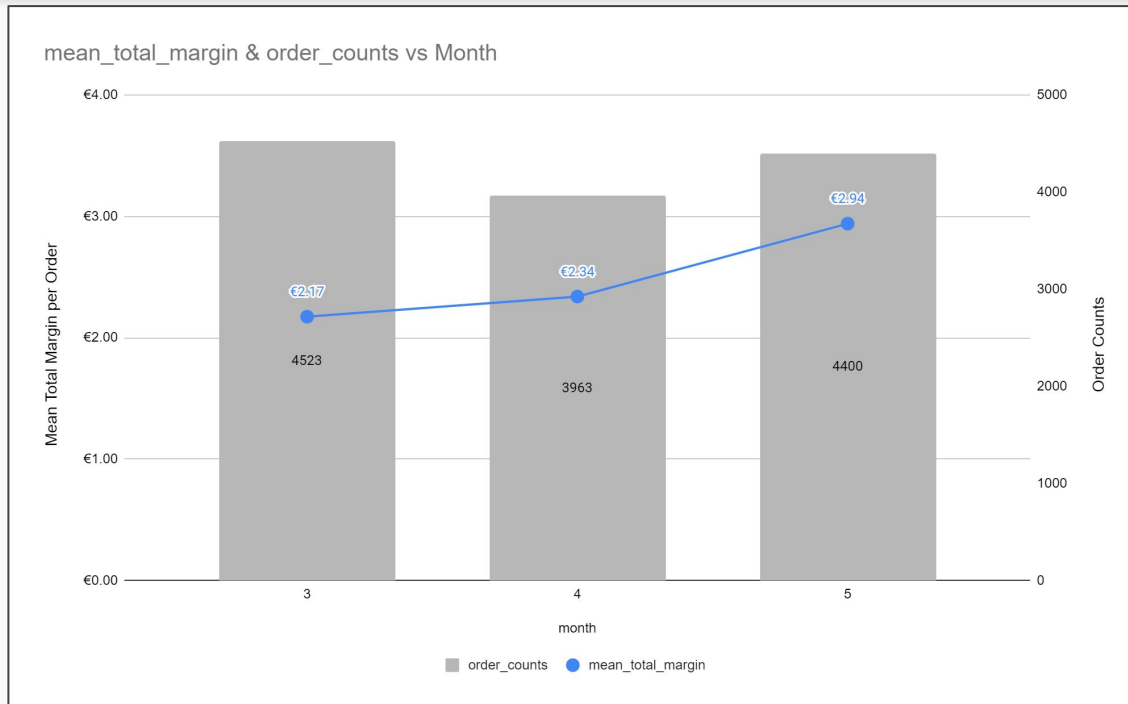
Findings & Scope for improvement in profitability

- My main hypothesis for improvement in total margin per order is that progressively the flights booked are probably more for vacation purposes and hence the increase in Lead time and also the number of passengers. This could be checked by checking if the vacation destinations do have an uptick in flights booked

	total_margin	sum_top_20_percentile	sum_top_10_percentile	sum_top_1_percentile
Month 3	€9,827.17	€30,395.28	€27,813.39	€10,854.96
Month 4	€9,267.07	€27,639.33	€24,999.35	€8,504.84
Month 5	€12,932.05	€32,676.71	€29,101.54	€10,078.42

- The sum total margin made from top 1% (in terms of total margin per order) orders is almost equivalent to sum of the total margin made per month. So almost the entire profitability comes from this 1% orders.
- For a lot of these low value Orders (like a one way ticket booked for a single passenger on the same day of the flight) if possible, the gross purchase price could be set to at least try and ensure that the total margin is ≥ 0 . In this way a lot of the negative valued transactions can be weeded out. The gross order volumes are going down but profitability will improve. The variable cost associated with handling the order volumes will also decrease
- Return Tickets seem to be way more valuable than one way tickets. Incentives on the platform to convert one way tickets to return tickets may improve profitability

Task 2: Analysis



- The mean total margin per order seems to be improving by months
- Even though the Order Counts are fairly consistent
- So something probably has changed that should be able to explain this improvement in the total margin per Order

Total Margin per Order vs categorical variables

	Avg total margin	Order Counts
Mobile	€0.06	6095
Desktop	€4.66	6791

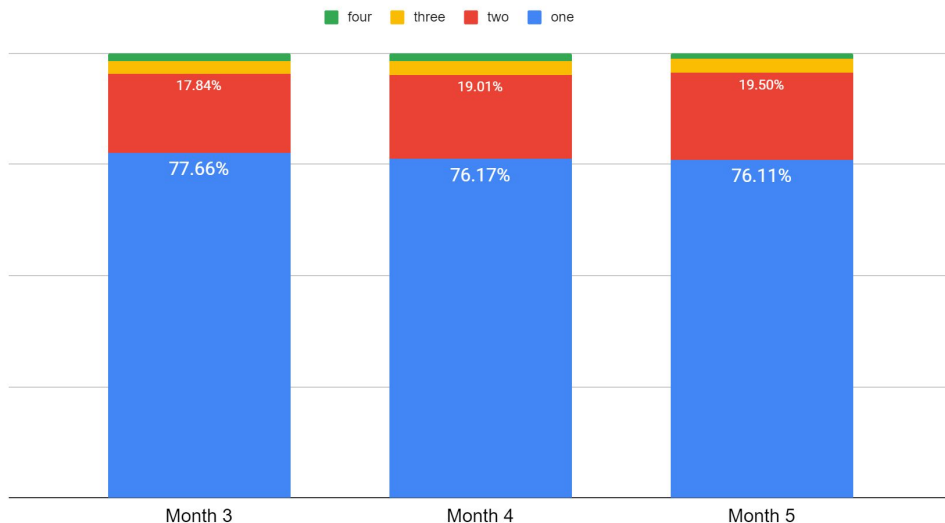
	Avg total margin	Order Counts
One Way	-€0.55	7390
Return	€6.56	5496

no_of_pax		Avg total margin	Order Counts
	1	-€0.60	9825
	2	€8.52	2405
	3	€17.66	390
	4	€39.31	194

- Looking at the Avg total margin across the levels of the categorical variables
- Orders from Desktop devices is likely to have a higher total margin
- Similarly, return flights fetch a higher total margin as opposed to one way flights
- As the number of passengers increase so is the total margin made
- If any of these improve in the subsequent months then that may explain the improvements in Mean total margin

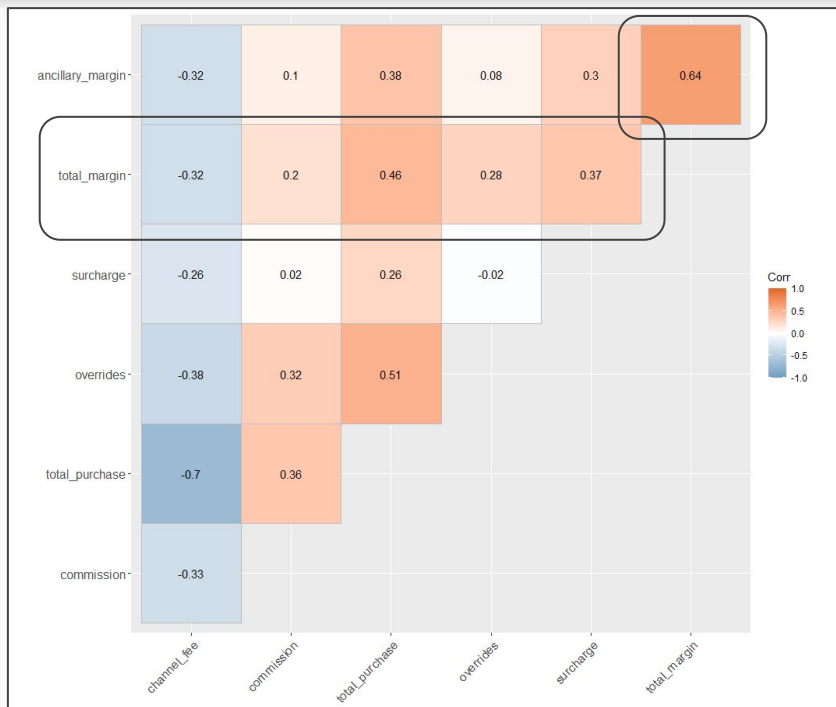
No of Passengers, booking device flight type & its impact on Total Margin per Order

Distribution of Number of Passengers



- Looking at the distribution of the number of passengers per Ticket it seems that in the progressively the share of tickets with more than one passenger has gone up which likely explains the improvement in total margin per order
- Share of Desktop Orders as a percent of total orders (**Month 3 - 53%, Month 4 - 51% , Month 5 - 54%**) doesn't seem to be improving monotonically so is not likely to be the causal factor for margin increase
- Share of Return Flights as a percent of total Flights (**Month 3 - 43%, Month 4 - 44% , Month 5 - 41%**) also doesn't seem to be improving monotonically so is not likely to be the causal factor for margin increase

Total Margin per Order vs other continuous variables



- A corellogram visualizes the association between the Total Margin and the other factors like channel fee, total purchase etc.
- A high channel fee is likelier to cause lower total margin while a higher total purchase, surcharge is likely to mean higher total margin
- Higher ancillary margin means higher chances of total margin is something that is expected and not new info
- The next steps is to investigate the reasons why these may have improved in the subsequent months to explain the movement of total margin

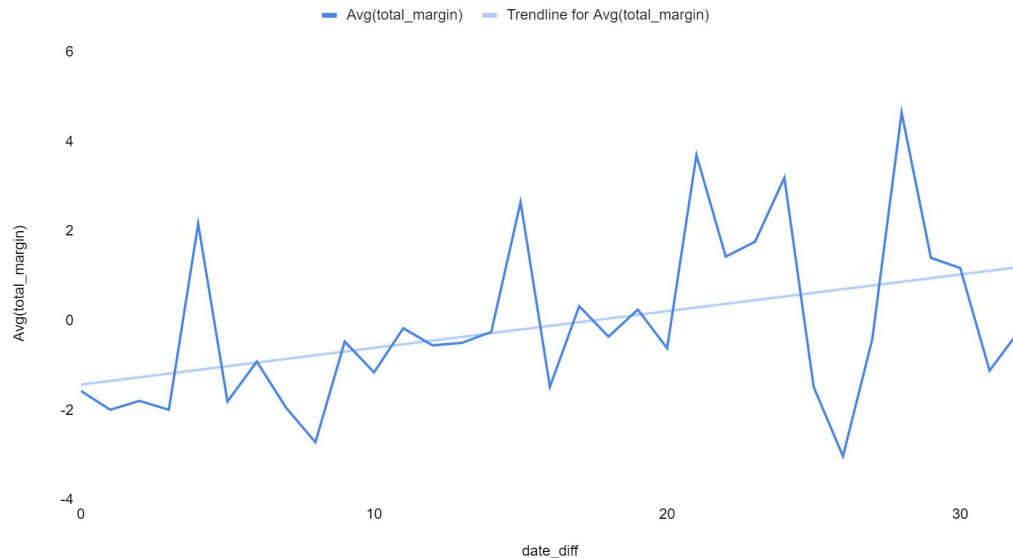
Possible factors affecting the total margin per order

month	average_total_purchase	average_surcharge	Channel fee avg	%Client clicks (on Aeroprince)
3	€306.78	€1.80	-€7.44	29.4%
4	€324.98	€1.40	-€7.55	29.4%
5	€316.32	€2.40	-€7.75	30.3%

- It doesn't seem to be the case the average total purchase has increased progressively and that has improved the total margin
- Average surcharge also hasn't gone up monotonically to explain the progressive increase in total margin
- Channel fee has actually increased which would suggest that total margin should decrease so that too doesn't seem to be a causal reason for the margin improvement
- The proportion of clicks Client receives on Aeroprince also doesn't seem to have improved so it's unlikely that Client is running some sort of a campaign on Aeroprince

Total Margin per Order vs Lead Time

Mean(total_margin) vs. date_diff



- **Def: Lead time** is the date difference between order time and departure time
- Higher Lead time likely means higher expected total margin
- Month 3 - 23 days, Month 4 - 25 days , Month 5 - 27 days of lead time (taking into account orders which have at max 100 days of lead time)
- Clearly this could also seem to explain as to why the months progressively have higher average total margin per order

Thanks!

-Subhra

