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Portfolio - Intensive Bootcamp

Analytical Thinking Process

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Contoh Analytical Thinking Process



Konteks: Data Analyst at Ecommerce

Background

- Diketahui terjadi penurunan penjualan pada tanggal 11 November 2023 sebanyak 10%
- Product yang mengalami penurunan terbesar adalah Kosmetik dan Kecantikan

Objective

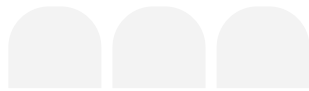
- Mengetahui penyebab terjadinya penurunan pada kasus kosmetik dan kecantikan pada event 11.11

Data

- Rentang waktu Nov'2023 saja
- Rayon area Jabodetabek saja
- Untuk semua user yang join dan bertransaksi sekurang-kurangnya 1 kali

Point to be checked/ Initial Hypotheses

- Terjadi penurunan akibat system down di pukul 20.00 -21.00 pas event 11-11
- Terjadi penurunan diakibatkan ada promo code yang gagal



Example of Analytical Thinking Process



Context: Data Analyst at an E-commerce company

Background

- A decrease of 10% in sales was happened on November 11, 2023
- The most affected products were the ones in beauty and cosmetics category

Objective

- To find out the cause of the decrease in sales on November 11, 2023 (the 11.11 sales event)

Data

- Time range: Only in November 2023
- Area: Only on Jabodetabek (because a large part of users are from these area)
- Target: All users that registered and did transaction at least once

Point to be checked/ Initial Hypotheses

- The system was downed at 8–9 PM during the 11.11 event. This may or may not be the cause of the decrease and needs to be checked
- The launched promo code during the event also needs to be checked in case of failures



Problem 1

Konteks:

- Di salah satu Online Travel Agent Company kalian berperan sebagai data analyst untuk product Flight.
- Ditemukan sebuah anomali bahwa terjadi lonjakan penjualan pada tanggal 3 November 2023.
- Lonjakan terjadi sebesar 50% dibanding hari sebelumnya dan 25% dibanding tanggal yang sama bulan lalu.
- Dilain sisi, terdapat 2 promo marketing campaign yang sedang berjalan:
 - Promo Flight 50% dengan max. 200 ribu untuk pelanggan baru
 - Promo Flight 10% dengan max 500 ribu untuk pelanggan lama
- Dilain sisi, ada promo referral yang sedang berjalan dibulan ini dimana
 - Setiap user yang join / bertransaksi untuk pertama kali, akan mendapatkan hadiah IDR 50k untuk orang yang diajak dan mengajak.
- User datang ke kalian untuk mencari tahu apa penyebab terjadinya kejadian diatas.

Buatkan Analytical Thinking Framework untuk case diatas yang mencakup:

- *Background*
- *Objective*
- *Data*
- *Point to be checked/ Initial Hypotheses*

Problem 1

Context:

- You are a data analyst in an online travel agent company for Flight product.
- An anomaly was found: there was a surge of sales on November 3, 2023.
- The surge happened to be 50% more than the day before and 25% more on the same date of last month.
- On the other hand, there are 2 ongoing promos as marketing campaign:
 - Flight 50% promo with 200k IDR maximum for new customers
 - Flight 10% promo with 500k IDR maximum for old customers
- Besides that, there is also an ongoing referral promo this month:
 - Every first-transaction users and inviters will get 50k IDR
- User ask you to find out what causes the anomaly.

Make an Analytical Thinking Framework for above case that include:

- *Background*
- *Objective*
- *Data*
- *Point to be checked/ Initial Hypotheses*

Answer Form for Problem 1

Background

- Terjadi lonjakan penjualan pada tanggal 3 November.
- Lonjakan sebesar 50% lebih banyak dibandingkan kemarin dan sampai 25% lebih dari bulan lalu di tanggal yang sama.

Objective

- Mengetahui penyebab terjadinya lonjakan pada tanggal 3 November tersebut.

Data

Dibutuhkan data pada tanggal 2–3 November dan 3 Oktober

- Data flight
- Data penggunaan semua promo
- Data promo yang tersedia

Point to be checked/ Initial Hypotheses

- Cek engine promo apakah rusak, sehingga memberikan promo berlebihan.

Answer Form for Problem 1

Background

- There was surge of sales on November 3.
- The surge happened to be 50% more than yesterday and 25% more than the same date of last month.

Objective

- To know the cause of the surge on November 3.

Data

Some data were needed on November 2–3 and on October 3:

- Flight data
- Promo usage data
- All available promo data

Point to be checked/Initial Hypotheses

- Engine promo need to be checked whether it's broken or not (a broken one can make promo).

Problem 2

Konteks:

- Di salah satu Money Transfer company, ditemukan lonjakan pada rata-rata waktu tunggu transaksi.
- Hal ini menyebabkan banyak user yang complaint.
- Kejadian terjadi selama periode 1–5 Nov 2023.
- Belum diketahui penyebab dari insiden di atas.

Buatkan Analytical Thinking Framework untuk case diatas yang mencakup:

- *Background*
- *Objective*
- *Data*
- *Point to be checked/ Initial Hypotheses*

Problem 2

Context:

- In a money transfer company, a rise in average waiting time of transaction was found.
- This problem caused many complaints from users.
- This happened during November 1–5, 2023.
- The cause of above incident hasn't been known yet.

Make an Analytical Thinking Framework for above case that include:

- *Background*
- *Objective*
- *Data*
- *Point to be checked/ Initial Hypotheses*

Answer Form for Problem 2

Background

- Terjadi lonjakan rata-rata waktu tunggu transaksi selama 1–5 November 2023 yang menyebabkan banyak komplain dari pengguna.

Objective

- Mengetahui penyebab terjadinya lonjakan rata-rata waktu tunggu transaksi pada tanggal 1–5 November.

Data

Dibutuhkan data pada tanggal 1–5 November dan seminggu sebelum dan sesudahnya berupa:

- Data transaksi pengguna, termasuk nama bank dan metode transfer

Point to be checked/Initial Hypotheses

- Analisis data transaksi. Cek apakah gangguan hanya terjadi pada bank tertentu, metode transfer tertentu, atau semuanya terganggu. Cek lebih lanjut berdasarkan hasil temuan analisis data.

Answer Form for Problem 2

Background

- A rise in average transaction waiting time happened from 1 to 5 November 2023.
- This problem caused many complaints from users.

Objective

- Find out the cause of the rise in average transaction waiting time from 1 to 5 November 2023

Data

Some data from 1 to 5 November 2023, also a week before and after those dates, is needed, in form of:

- User transaction data, including banks and transfer methods

Point to be checked/Initial Hypotheses

- Analyze those transaction data. Check whether the rise only happened on certain banks or transfer methods, or whether it happened on all kinds of transactions. Investigate further based on the findings on the data.

Problem 3

Konteks:

- Anda merupakan salah satu Marketing Data Analyst di salah satu Tech Company.
- Ditemukan bahwa terjadi penurunan jumlah akuisisi customer*, padahal secara budget iklan yang dikeluarkan cenderung stagnan.
- Hal ini menyebabkan biaya akuisisi pelanggan (CAC, Customer Acquisition Cost) menjadi lebih mahal.
- Kejadian terjadi di sepanjang pekan ke-3 dan ke-4 akhir tahun 2023 kemarin.

* akusisi customer: jumlah customer yang mendaftar kedalam app / platform

Buatkan Analytical Thinking Framework untuk case diatas yang mencakup:

- *Background*
- *Objective*
- *Data*
- *Point to be checked/ Initial Hypotheses*

Problem 3

Context:

- You are a Marketing Data Analyst in a tech company.
- A decrease in number of customer acquisition was found.
- The fund used for advertisements is stagnant.
- This problem caused increase in Customer Acquisition Cost (CAC)
- This happened during the 3rd and 4th week of December 2023.

* customer acquisition: number of customers that register to the app/platform

Make an Analytical Thinking Framework for above case that include:

- *Background*
- *Objective*
- *Data*
- *Point to be checked/ Initial Hypotheses*

Notes for Self

For this problem, I learned new terms:

CAC	CPA
Customer Acquisition Cost	Cost Per Acquisition
=	=
$\frac{\text{total marketing spend}}{\text{\# of new customers}}$	$\frac{\text{total campaign spend}}{\text{\# of campaign conversions}}$
	Where conversions = content downloads, consultations, email signups, etc.)

Answer Form for Problem 3

Background

- Terjadi kenaikan biaya akuisisi pelanggan (CAC) akibat penurunan jumlah pelanggan baru (n) [biaya iklan stagnan] sepanjang pekan 3 dan 4 akhir tahun 2023.

$$CAC = \frac{\text{Marketing Budget}}{n}$$

Objective

- Mengetahui penyebab turunnya jumlah pelanggan baru pada pekan 3 dan 4 akhir tahun 2023.

Data

Dibutuhkan data bulan Desember 2023, Januari 2024, Desember 2022, dan Januari 2023 (jika ada):

- Data jumlah pelanggan baru (n)
- Data event/hari besar penting yang terjadi (event bisa juga berbentuk bencana atau krisis skala nasional/yang mempengaruhi target pasar)

Point to be checked/ Initial Hypotheses

- Cek apakah ada event/hari besar tertentu dalam rentang waktu pekan 3 dan 4 akhir tahun 2023 yang mempengaruhi n
- Cek apakah penurunan jumlah pelanggan baru juga terjadi pada tahun sebelumnya

Answer Form for Problem 3

Background

- A rise in Customer Acquisition Cost (CAC) happened because a decrease in number of new customers (n) during the 3rd and 4th week of December 2023.
- Marketing budget is stagnant.

$$CAC = \frac{\text{Marketing Budget}}{n}$$

Objective

- To find out the cause of a decrease in number of new customers during the 3rd and 4th week of December 2023.

Data

Some data in December 2023, January 2024, December 2022, January 2023 is needed, in form of:

- Data of new customers (n)
- Events or holidays in 3rd and 4th week of December 2023 (The events can also be a disaster or crisis in a national scale/that affect the target market)

Point to be checked/ Initial Hypotheses

- Check if there were certain events or holidays during 3rd and 4th week of December 2023 that affect n
- Check if the decrease of n also has happened the year before

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