Bank Service Positional Mapping

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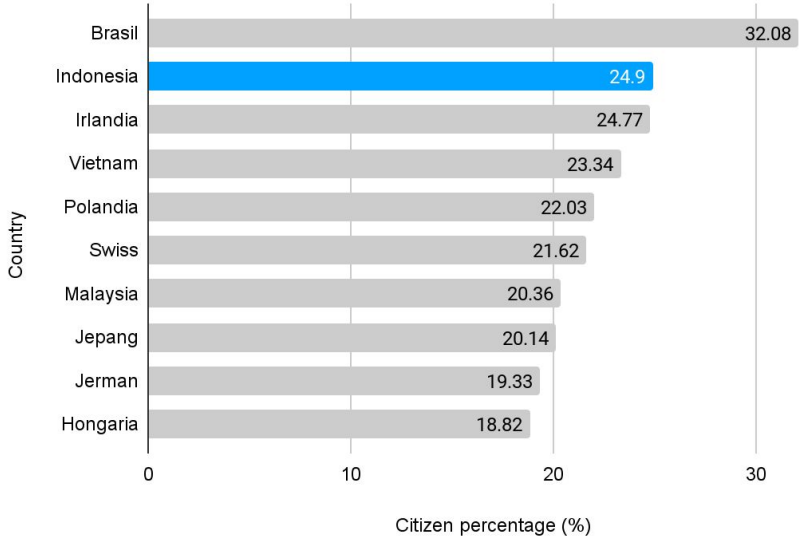
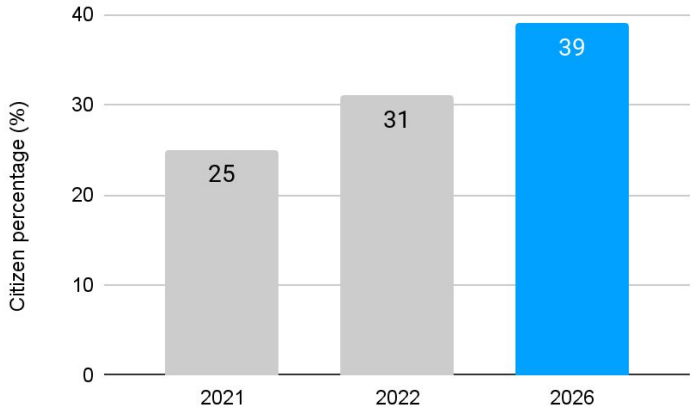
Indonesia has great potential for digital bank growth

The **second largest** digital bank customer as year 2021



Source: Databoks (2021)

Projected grow up to **39%** at **the end of 2026**



Source: Databoks (2021)

Background

Digital banks must strengthen their competitive advantage to maintain their existence in the market by knowing their current position in the market

Digital banks faces the **same threat** as conventional banks:

They tend to go for the **same target market**

Most useful strategy: **Strengthen Competitive Advantage**

Digital banks must know where they **currently stand** amongst competitors

For this report scope: **Jenius'** position

Background

Digital banks position can be determined based on customer perception that can be gathered from consumer reviews

Position

How consumer **perceive** brand or products based on certain **attributes**

Can be gathered by...

Conventional

Interview, discussion, questionnaire.
Pros : Specific
Cons : Time and money consuming

Consumer Review

We are going to use this!

Pros : Free, less time
Cons : Not specific → Required a lot of data

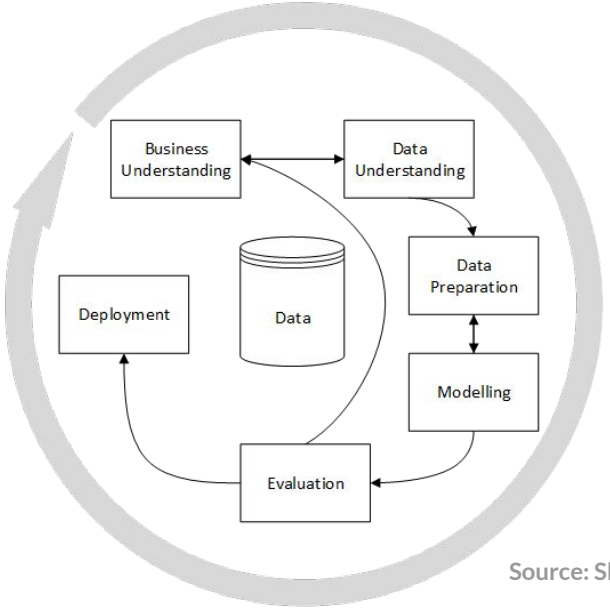
To process consumer reviews, text mining approach is going to be utilized

Text Mining

Data processing to turn into meaningful insights

Common used methodology:

Cross Industry Standard Procedure for Data Mining (CRISP DM)



Source: Shearer (2000)

The modelling stage will be based on research by Hu and Trivedi (2022)

	Step	Description	Method
1	Defining attributes	The competitive attributes are defined by the keyword frequency	Jaccard Similarity
2	Mapping based on associated attributes	To identify main competitors, banks are mapped based on their associative attributes	Principal Component Analysis
3	Identifying Main Competitors	Main competitors are identified to focused the strategy	Slater Analysis
4	Identifying Attribute Performance	To make a more directed strategy, attributes are scored based on their performance	Binomial Proportion Test
5	Mapping based on attribute performance	Banks are mapped based on their attribute performance to make a directed strategy	Principal Component Analysis

To sum up, this is the methodology that is going to be used

1 Business Understanding

- Background search
- Methodology design

2 Data Understanding

- Data collection
- Data exploration

3 Data Preparation

- Data selection
- Data transformation

4 Modelling

Defining attributes › Mapping based on associated attributes › Identifying main competitors › Identifying attribute performance › Mapping based on attribute performance

5 Evaluation

Evaluation based on Cumulative Percentage Value

6 Deployment

Dashboard prototype for easier reporting

The data is collected from Google Playstore using web scraping technique

Collected Banks

1. Jenius
2. Neobank
3. Seabank
4. Jago
5. Digibank
6. TMRW
7. Blu

These banks are the most popular digital bank in Indonesia and has higher rating than Jenius in Google Playstore

Banks	Rows
Neobank	143480
Jenius	113371
Seabank	35897
Jago	27974
Digibank	27313
TMRW	14335
Blu	13441

The collected data then is selected based on research limitations

Based on Time

Data are selected based on certain time to **avoid social trend** or phenomenon difference

1 July 2021 → 26 August 2022

All apps are launched in Google Playstore

Data collection time

Based on Available Storage

To fit the available RAM storage from the hardware used for the research

The maximum row for each bank is 20.000, **selected randomly**

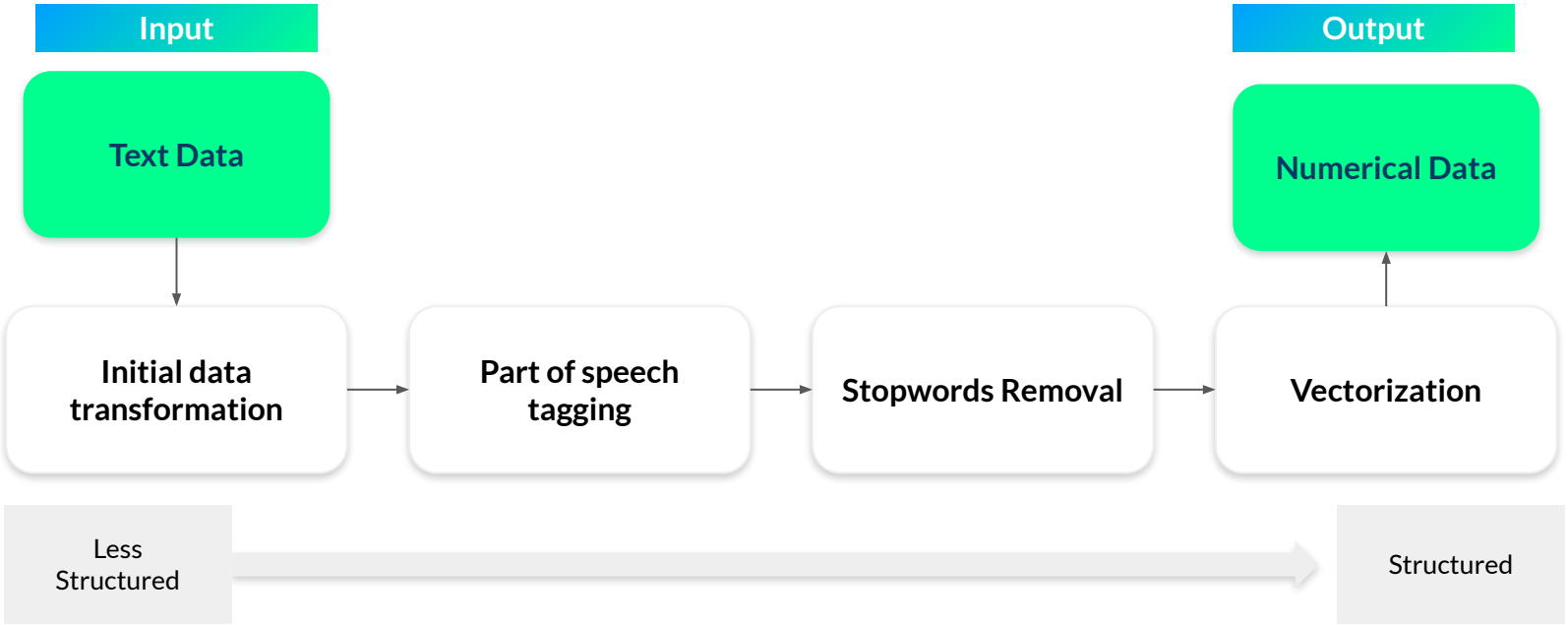
Bank	Before	After
Neobank	130648	20000
Jenius	39161	20000
Seabank	35792	20000
Jago	26202	20000

Columns Selection

Selecting the **relevant** columns only

Content	Uploaded review
Score	*Rating score*

The data is then transformed to a structured data



The structured data is then used to identify digital bank service attributes

The attributes are selected by their associative level to each brand

Jaccard Similarity → Jaccard Coefficient

$$\frac{a}{F1 + F2 - a}$$

a : Attribute frequency on brand

F1: Document frequency on brand

F2: Attribute frequency on all brands

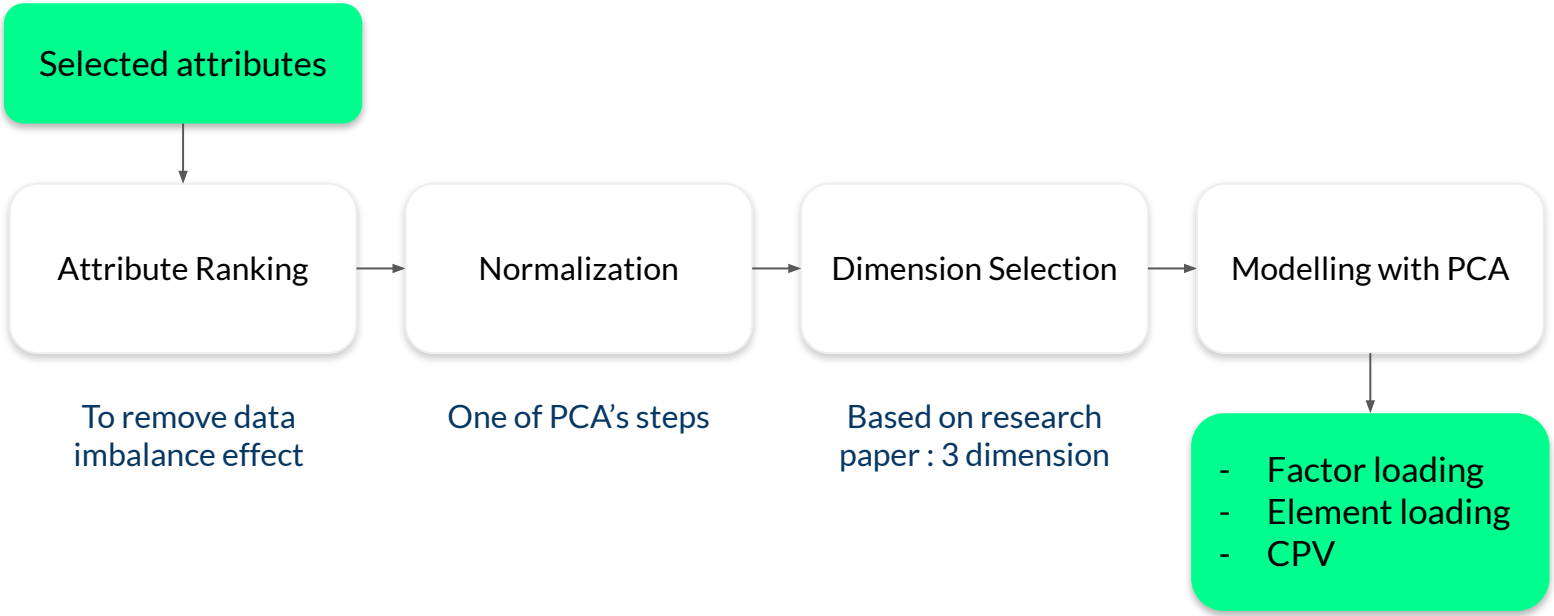
The attribute selection is based on the highest Jaccard Coefficient

30 attributes that can portray the competitiveness of digital bank industry are selected

Selected Attributes

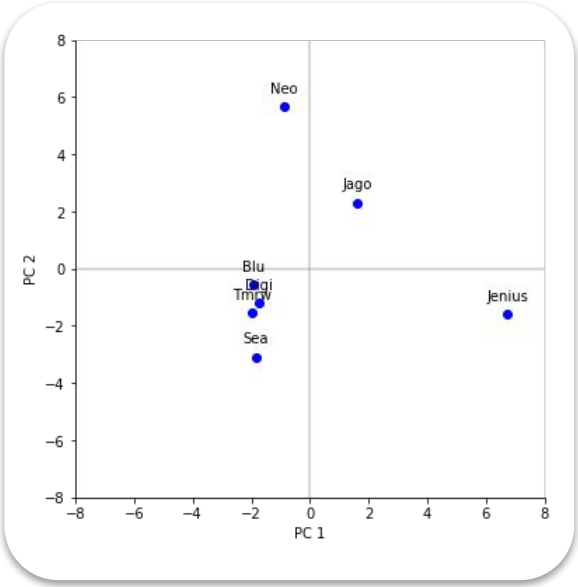
Akun	Hp	Pin
Biaya	Isi	Promo
Cs	Jam	Proses
Daftar	Kartu	Rekening
Dana	Kode	Tabungan
Data	Login	Tampilan
Download	Nasabah	Tarik
Email	Nomor	Transaksi
Eror	Pelayanan	Uang
Fitur	Pembayaran	Verifikasi

By using Principal Component Analysis, the banks are mapped based on their attributes' score of Jaccard Coefficient

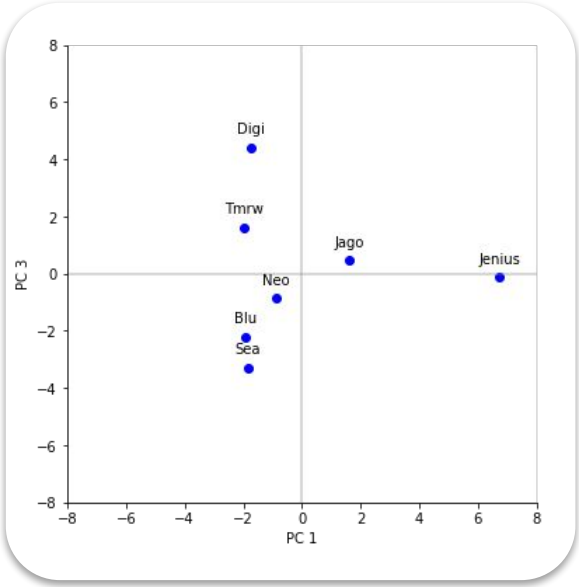


The modelling process generated three perceptual maps

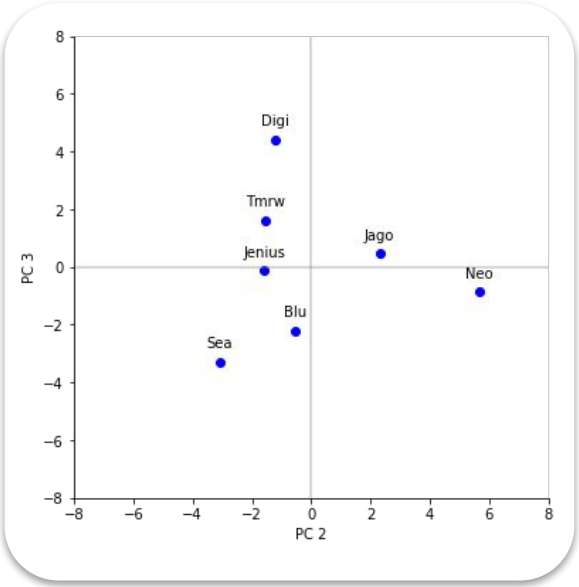
PC 1 vs PC 2



PC 1 vs PC 3



PC 2 vs PC 3



Those perceptual maps are then used to identify main competitors

Slater Method

Based on normalized Euclidean distance

Normalization

To remove outliers effect, so every bank could have their own main competitors

Euclidean Distance

Hypotenuse length of every point in every dimension. Calculated based on **Element Loading** score

Kompetitor

Banks	Kompetitor 1	Kompetitor 2
Blu	Sea	Tmrw
Digi	Jago	Tmrw
Jago	Blu	Neo
Jenius	**Jago**	**Tmrw**
Neo	Blu	Jago
Sea	Blu	Tmrw
Tmrw	Blu	Digi

The performance of the attributes of Jenius and its main competitors then were assessed

Binomial Proportion Test

To see the distribution of customers' sentiment toward the attributes

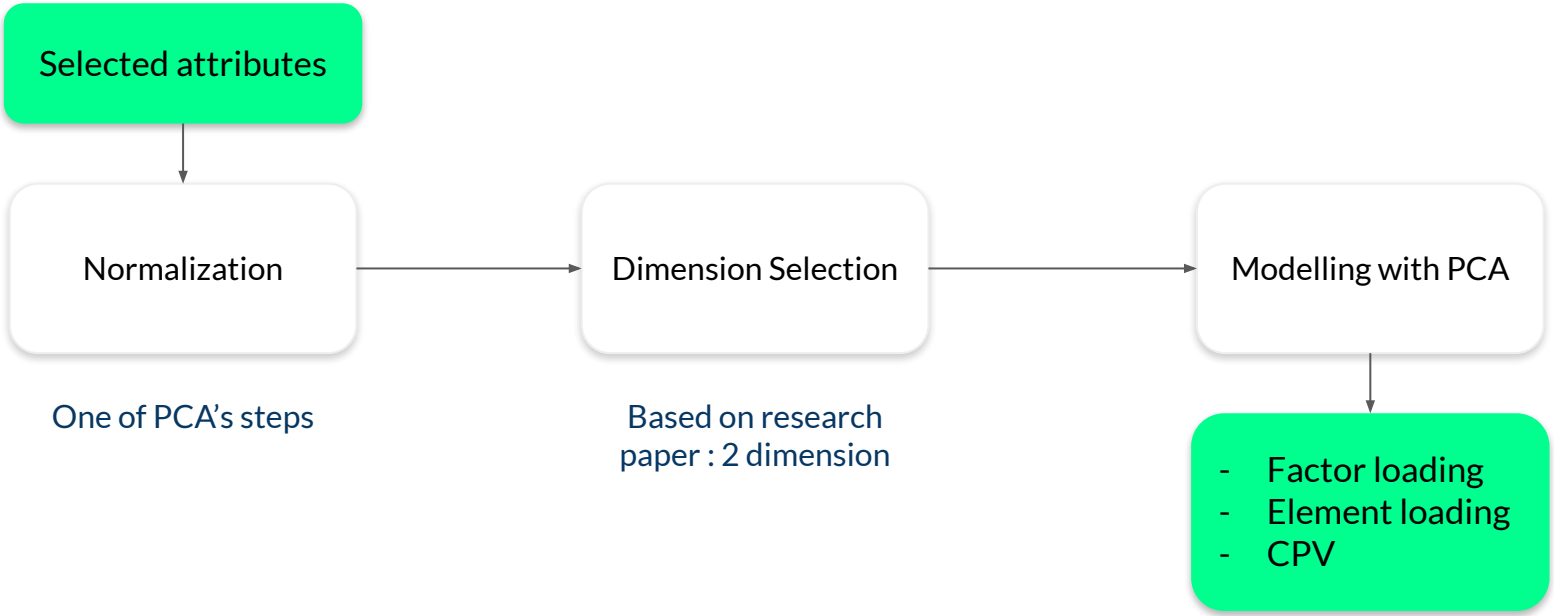
Z Score

- **Positive**:
  The higher, the better the performance is
- **Negative**:
  The higher, the worse the performance is

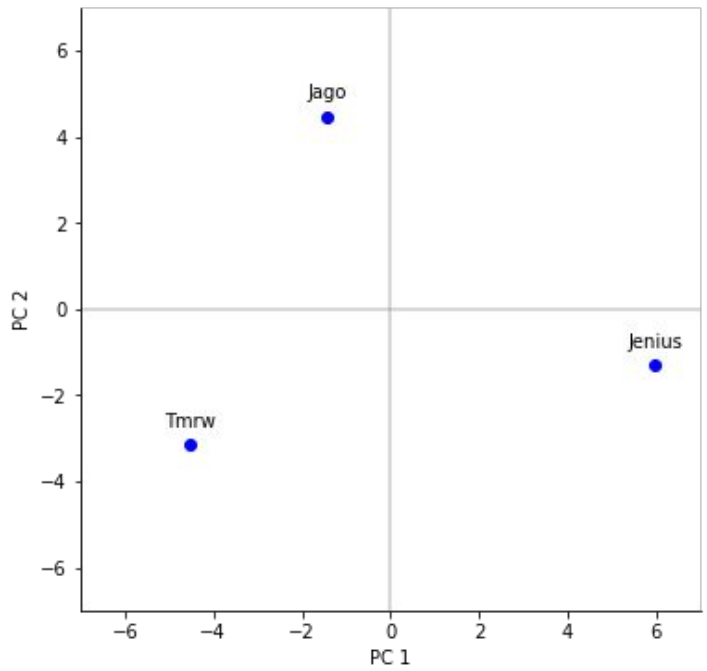
Attributes Z Score

Attributes	Jenius	Jago	Tmrw
Akun	-15.92	-22.64	-10.29
Biaya	-7.17	6.11	11.69
Cs	-20.2	-14.39	-7.62
Daftar	-12.03	-17.67	-12.57
...	...	...	...
Verifikasi	-13.36	-19.17	-18.25

The banks then are mapped based on their attributes performances



The model generated Element Loadings that can be used to make a perceptual map for the banks



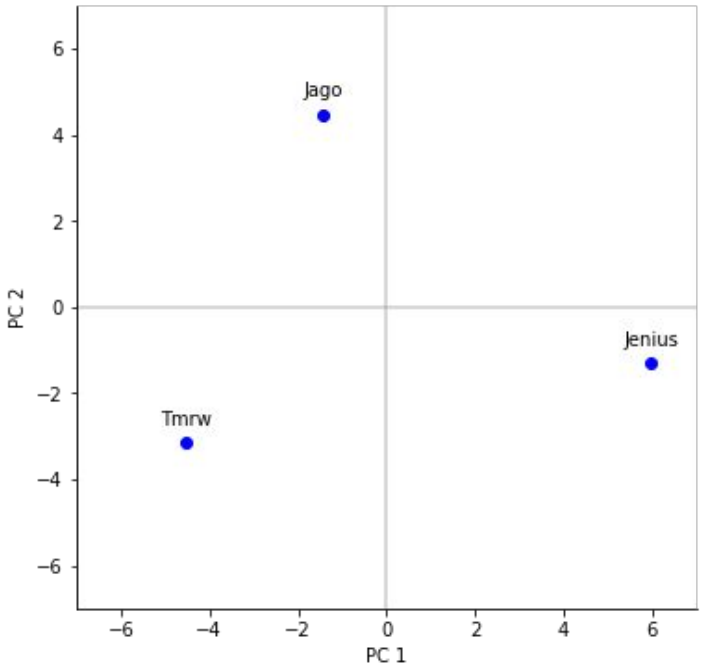
PC 1	
Biaya	-0.9798
Login	-0.972
Pin	-0.9576
...	...

PC 1	
Rekening	0.9724
Tabungan	0.9689
Proses	0.9654
...	...

PC 2	
Akun	-0.9516
Dana	-0.9484
Daftar	-0.9303
...	...

PC 2	
Kartu	0.9062
Eror	0.7921

These are the interpretation of the perceptual mapping resulted by the modelling process



PC 1	
Biaya	-0.9798
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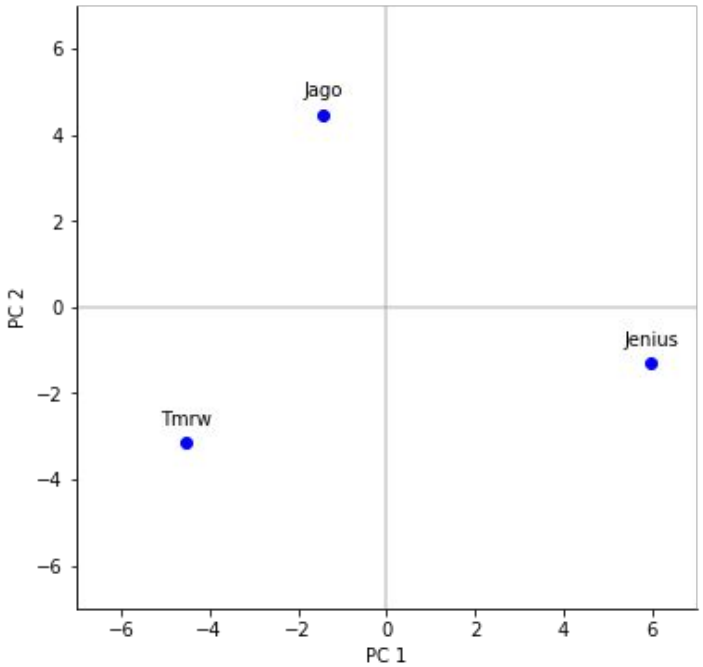
Pin	-0.9576
…	…

PC 1	
Rekening	0.9724
Tabungan	0.9689
Proses	0.9654
…	…

Related to TWRW and Jago:

- Jenius is better at fee (biaya), login, and pin
- Jenius is worse at bank account (rekening), savings (tabungan), and process (proses)

These are the interpretation of the perceptual mapping resulted by the modelling process



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Akun	-0.9516
Dana	-0.9484
Daftar	-0.9303
...	...

PC 2	
Kartu	0.9062
Eror	0.7921

Relative to TMRW:

- Jenius is better at Account (akun), fund (dana), and registration (daftar)
- Jenius is worse at card (kartu) and error (eror)

Relative tp Jago:

- Jenius is better at card (kartu) and error (eror)
- Jenius is worse at Account (akun), fund (dana), and registration (daftar)

The generated models then evaluated to see the performance of the models

Mapping based on associated attributes

CPV Score	74%
Threshold	50%
Summary	The model performance is **good**

Mapping based on attribute performance

CPV Score	100%
Threshold	50%
Summary	The model performance is **good**

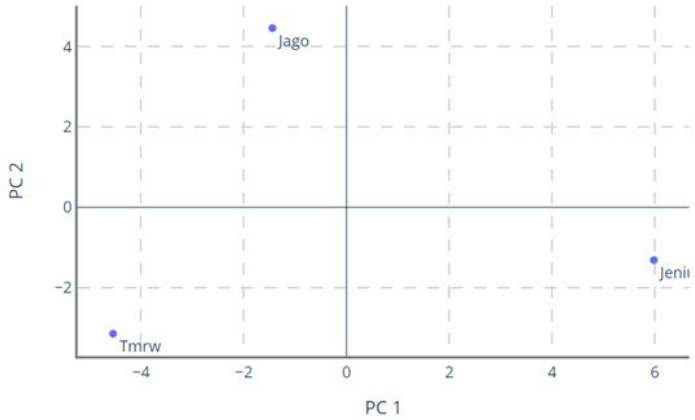
For easier interpretation, a simple dashboard is made by using Dash and Heroku

Dash	Python package to make interactive dashboard
Heroku	*Server* that can save the model and the prototype https://komp-jenius.herokuapp.com/

DASHBOARD PETA PERSEPTUAL

Atribut PC 2	Korelasi
Kartu	0.906
Eror	0.792

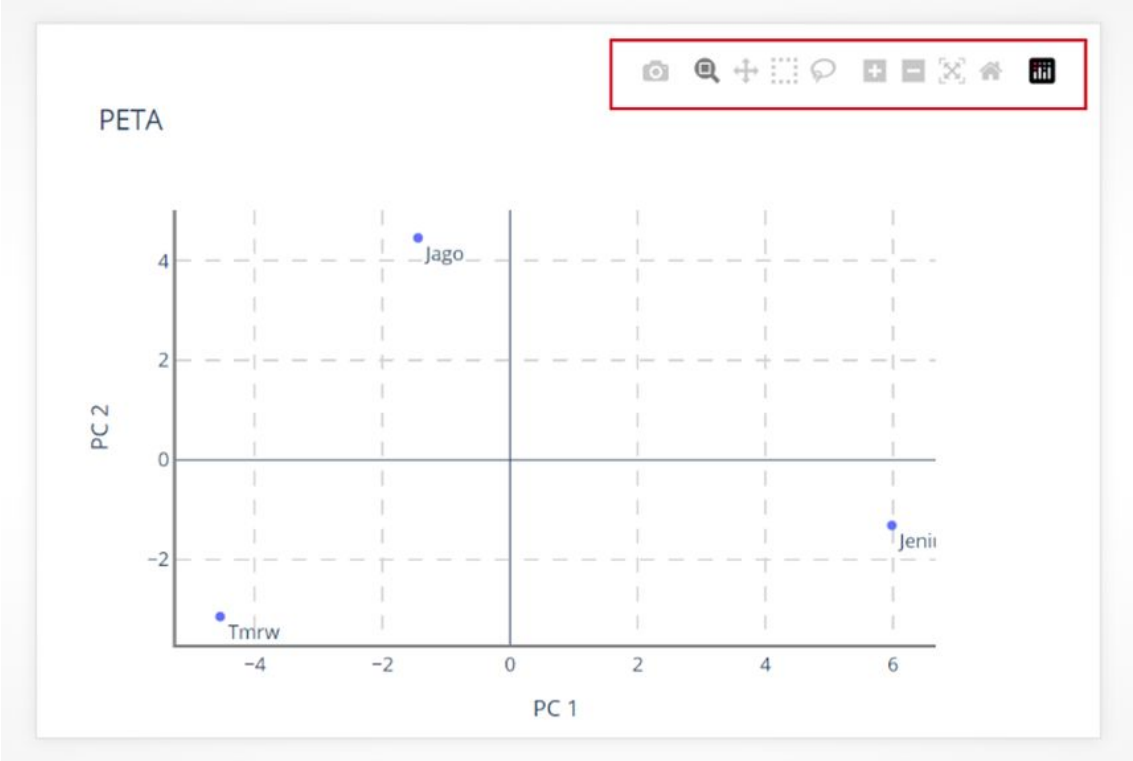
PETA



Atribut PC 1	Korelasi
Biaya	-0.98
Login	-0.972
Pin	-0.958
Cs	-0.943

Atribut PC 1	Korelasi
Rekening	0.972
Tabungan	0.969
Proses	0.965
Fitur	0.962

Atribut PC 2	Korelasi
Akun	-0.952
Dana	-0.948
Daftar	-0.93
Nomor	-0.915


PETA
Jago
Tmrw
Jeni
4
2
0
−2
−4
−2
0
2
4
6
PC 2
PC 1