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ECOMMERCEU

Customer Segmentation

Revou Labs May 2022 Division 2 - Team 4

Overview

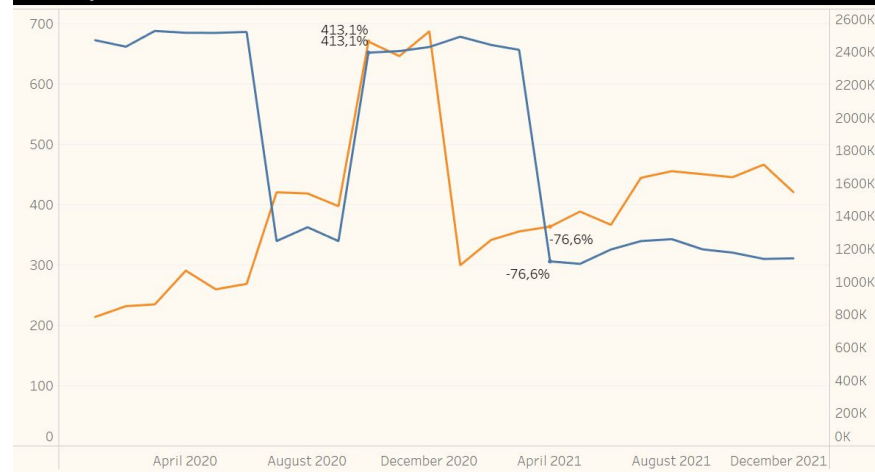


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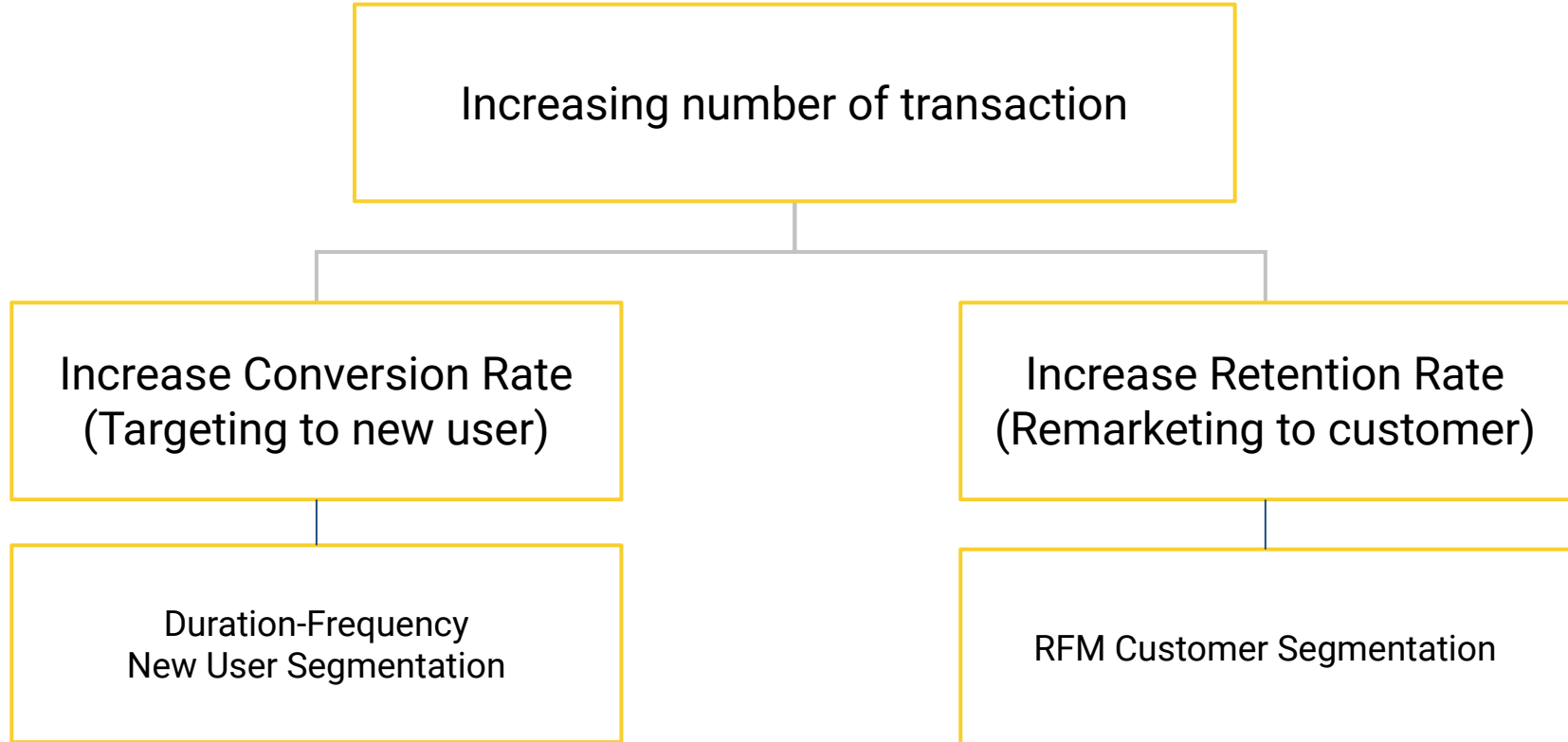
Monthly Sales



Monthly Transaction & AOV



Monthly Sales have fluctuate trend, affected by monthly transaction and Average order value. So further for customer segmentation are based on this fact.



New User



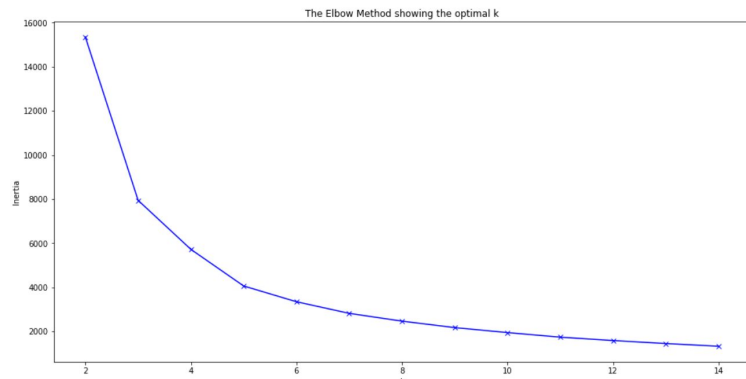
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Registered User but not transaction yet

Variable:

- **Duration** (from registered date until last day activity on app) : knowing how long they have been user
- **Frequency** in using app: knowing how actively they use the app



```
from silhouette import silhouette_analysis  
silhouette_analysis(df_newusercluster, list(range(2,10)))
```

For n_clusters = 2 The average silhouette_score is : 0.4587940468032122
For n_clusters = 3 The average silhouette_score is : 0.4802970661115538
For n_clusters = 4 The average silhouette_score is : 0.4443329732031215
For n_clusters = 5 The average silhouette_score is : 0.43460059349645047
For n_clusters = 6 The average silhouette_score is : 0.41137070574472806
For n_clusters = 7 The average silhouette_score is : 0.3853565148627528
For n_clusters = 8 The average silhouette_score is : 0.40021053125606654
For n_clusters = 9 The average silhouette_score is : 0.3850892794216085

Based on elbow method and silhouette score, there are **4 clusters** of new user with different behaviour

New User



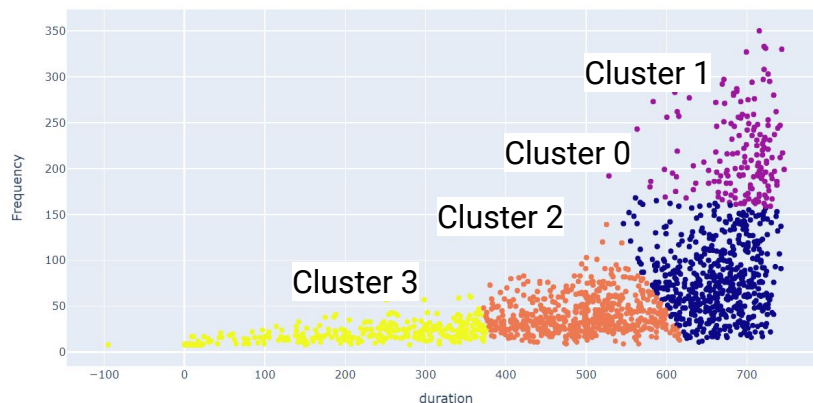
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Registered User but not transaction yet

Based on their **duration** (from registered date until last day activity on app) and **frequency** in using app.
There are **4 clusters** of new user with different behaviour

	duration	Frequency
Cluster		
0	660.0	97.0
1	690.0	226.0
2	497.0	51.0
3	250.0	28.0



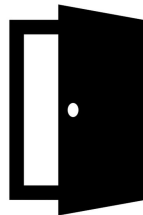
Take action for two most promising cluster



Window Shopper

(10%)

Longest duration since registered : **690 days**
The most active using App :
226 times
(more than 2 times compare previous cluster)



Newcomers

(20%)

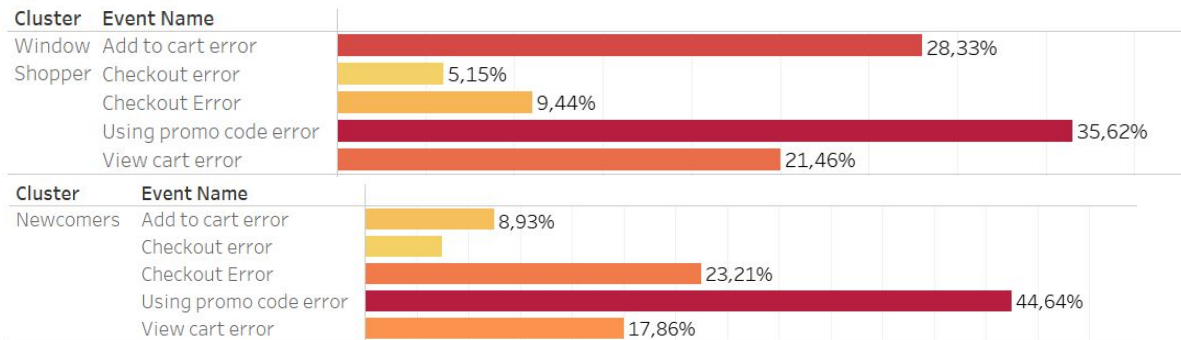
Newest since registered :
250 days
(still under average of conversion time **289 days**)
Lowest frequency using App:
28 times

New User based on App Event

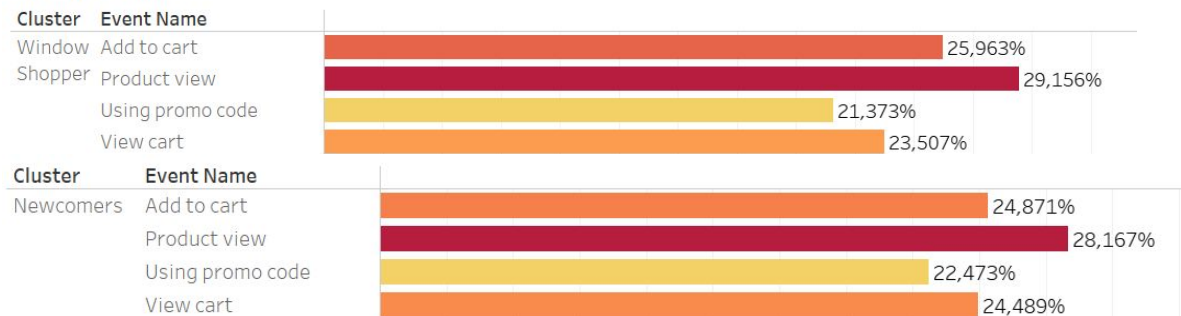


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Spot the Error



Most Visited



The most errors are detected in the promo code.

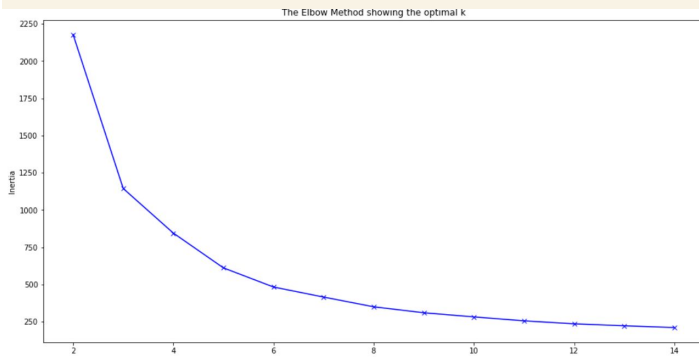
The most visited feature channels are product view



User who already completed their transaction

Variable:

- **Recency** : knowing how long since they last transaction
- **Frequency** : knowing how often do they make transactions
- **Monetary** : knowing their buying power in making transactions



```
from silhouette import silhouette_analysis  
silhouette_analysis(data_norm, list(range(2,10)))
```

```
For n_clusters = 2 The average silhouette_score is : 0.5937240946234932  
For n_clusters = 3 The average silhouette_score is : 0.5422274532223517  
For n_clusters = 4 The average silhouette_score is : 0.5197964571815381  
For n_clusters = 5 The average silhouette_score is : 0.44229877372448584  
For n_clusters = 6 The average silhouette_score is : 0.43916983801791803  
For n_clusters = 7 The average silhouette_score is : 0.4262070925399872  
For n_clusters = 8 The average silhouette_score is : 0.421853156377336  
For n_clusters = 9 The average silhouette_score is : 0.39245567183765273
```

Based on elbow method and silhouette score, there are **3 clusters** of customer with different behaviour

Customer



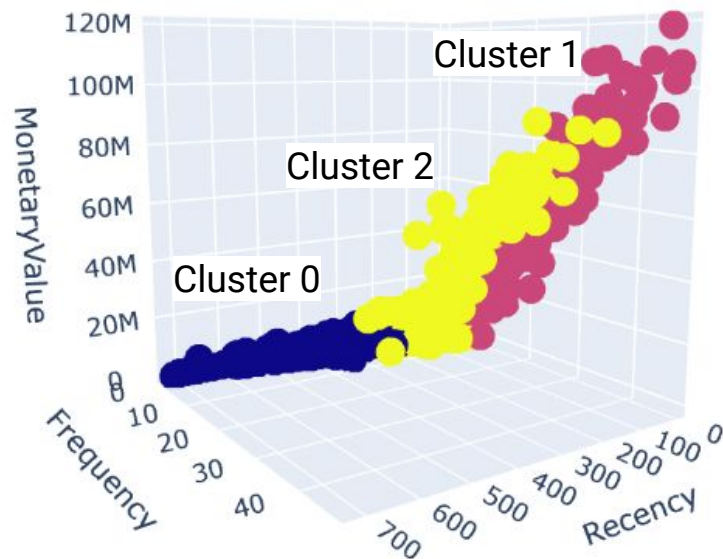
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User who already completed their transaction

Based on their **Recency, Frequency, Monetary**, there are **3 clusters** of customer with different behaviour

	Recency	Frequency	MonetaryValue
Cluster			
0	248.0	3.0	780181.6
1	29.3	20.4	43031763.6
2	84.4	8.9	11837650.6



Customer Profile



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Commoner

(42,65%)

Lowest average of **spending**
(**780 K/ person**)

Lowest average **frequency**
(**3 times/ person**)

Longest **recency**: **248 days**



Royal

(22,45%)

Highest average of **spending**
(**43 M/ person**)

Highest average **frequency**
(**20,4 times/ person**)

Quickest **recency**: **29,3 days**



Noble

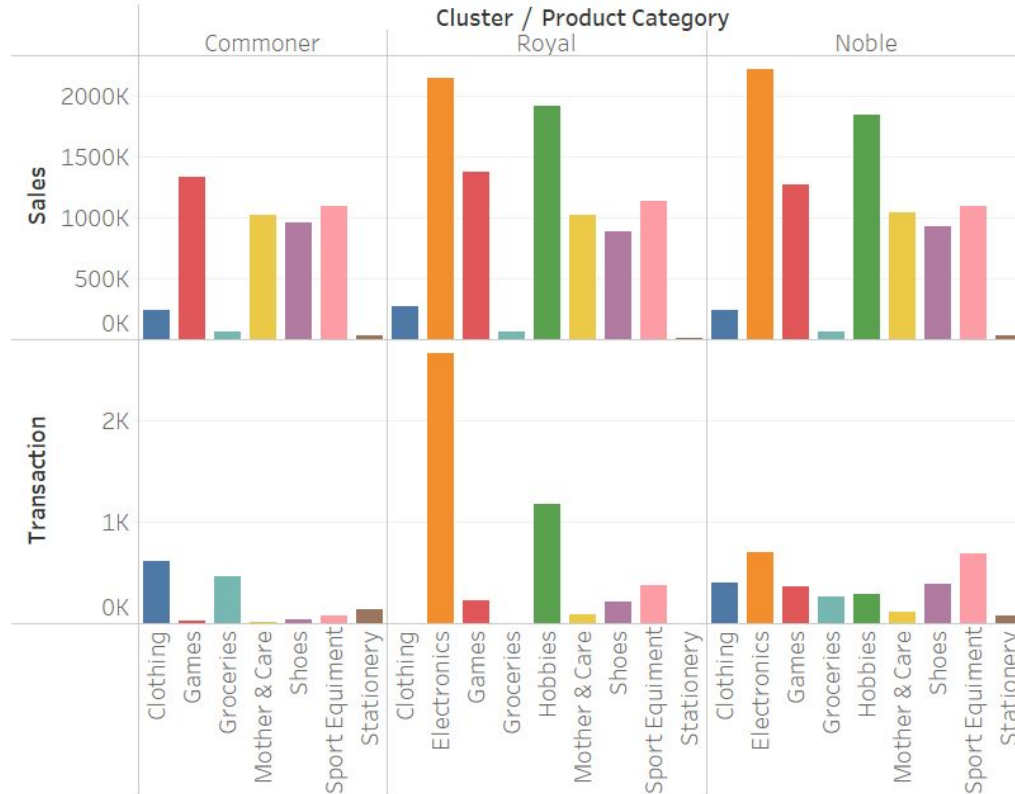
(34,99%)

Quiet high average of
spending (11 M/ person)
Quiet low average **frequency**
(**8,9 times/ person**)
Medium **recency**: **84,4 days**

Customer Cluster on Product Category



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Royal: top product electronics & hobbies

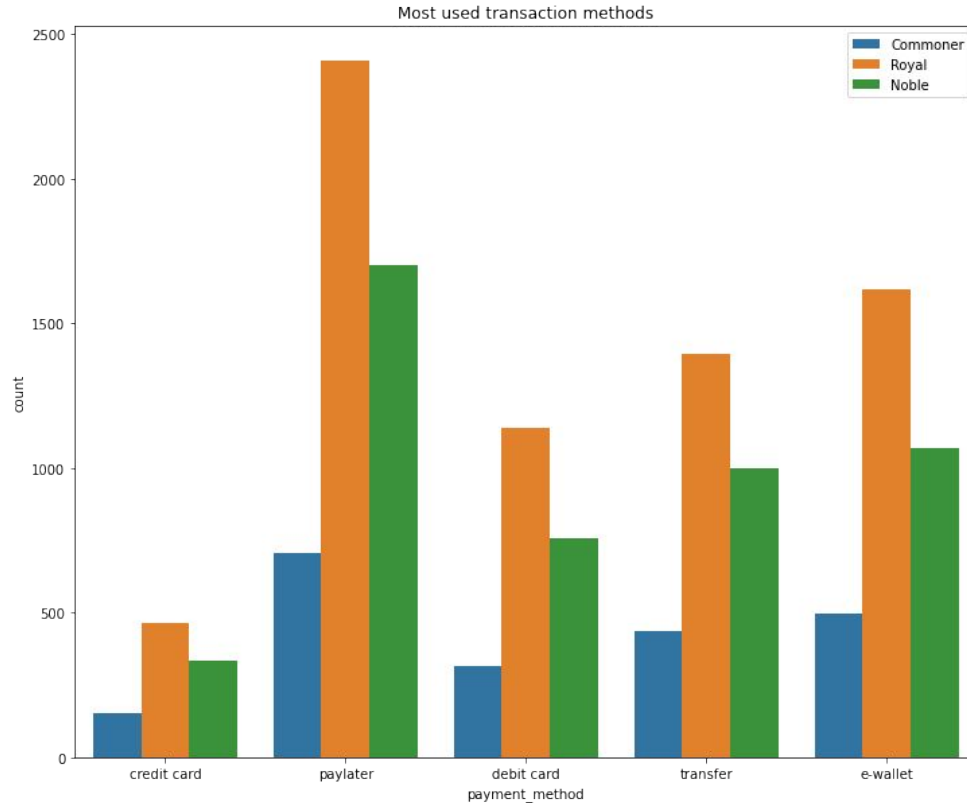
Noble: buy huge amount of electronics & sport equipment, but spend more money on electronics & hobbies

Commoner: buy huge amount of clothing & groceries, but spend more money on games & sport equipment

Customer Cluster on Payment Method



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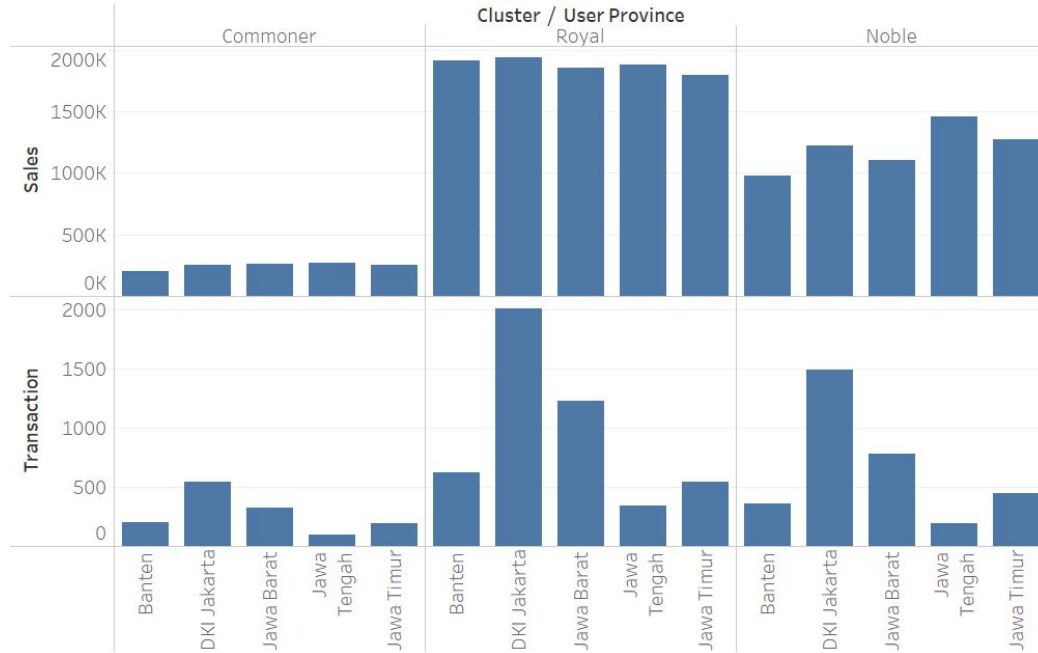


Paylater is most used payment method by each cluster

Customer Cluster on Geographical



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The most transaction amount of all cluster from DKI Jakarta

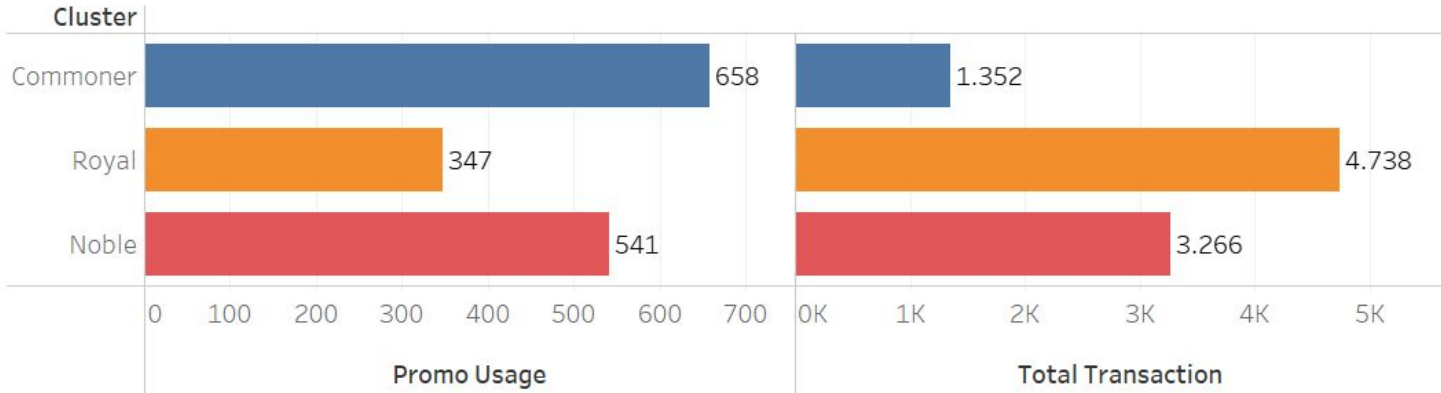
But the highest spender of **Royal & Noble** customers are from DKI Jakarta & Jawa Tengah

Meanwhile the highest spender of **Commoner** customers are from Jawa Timur

Customer Cluster on Promo Event



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Commoner : 48% transaction using promo. Promo is essential to encourage commoners make purchases

Royal: 7% transaction using promo. Royal make purchases whether there is a promo or not

Noble: 16% transaction using promo. Promo can increase purchases

Recommendation to gain Sales



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New Customer Conversion

Window Shopper

Improve app feature, especially minimize errors, the most errors are detected in the promo code. It will reduce customers who run away and increase conversion.

Newcomers

Optimize the most visited feature channels (Product View), to make marketing program.

Recommendation to gain Sales



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Customers Characteristics Campaign

Commoners:

Focus on returning them to purchase. Give promo discount promotions e.g (mid season sales) to particular products that sold well in this cluster.

Noble Customer:

Prevent it from going churned. Give promo / discount promotions to encourage more transactions.

Royal Customer:

Focused to maintain and prevent it from going churned, with loyalty program and provide their needs.

Sales on the hobbies & electronic products can be leverage more by adding more varieties .



Commoner

Comeback Program:

- Remarketing ads to remind customer
- Comeback gift : "We miss you" gift
- Promo reminder



Noble

Retain Program:

- Frequency Point
- Promo



Royal

Loyalty Program:

- Loyalty Point
- Reward Catalog
- Membership Program

Recommendation to gain Sales



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Cross Selling to increase Sales

Give suggestion for the complementary product that customer tend to buy, based on customers purchase history. Such as bundling program or coupon for selected items.



37,5% customer who bought Diecast Avengers also bought Diecast Toystory

Give product recommendation by suggesting complementary product that is likely be bought

By optimize cross-selling will help increase transaction

Thank You



Code Clustering New User:

<https://colab.research.google.com/drive/1OaLCOZqgUbfAS5yH-TsZv0iav9k03vXy?usp=sharing>

Code Clustering Customer:

<https://colab.research.google.com/drive/1Vkv42bnFiQlzAhEuoS8Z9vFj4NsT9eba?usp=sharing>

Tableau Visualization:

https://public.tableau.com/views/newuserncustomer/Sheet72?:language=en-US&:display_count=n&:origin=viz_share_link

https://public.tableau.com/views/Trialwevent/PromoUsage?:language=en-US&:display_count=n&:origin=viz_share_link