

# DATA ANALYST DUO (EXCEL PROJECT WORK) \_ COHORT 2

Name: Vishnupriya.K

## Problem Statement:

### 1. Primary Objective:

Design a data-driven Instagram engagement analysis dashboard to gain insights into the performance of different post types on Data Analyst Duo's Instagram account (@dataanalystduo) with approximately 106,000 followers.

### 2. Data Cleaning and preparation:

The raw data available for this analysis is in 2 types:

- The Instagram reach, new followers visit & no. of new followers' daily data was available from 9/01/2022 to 27/10/2023.
- The type of post, likes, shares, comments, description, impressions, reach, post links etc., was available from 01/12/2022 to 27/10/2023.
- All the available data was combined (based on possible joins) for easy analysis and was considered from 01/12/2022 to 27/10/2023 for further analysis.
- Few columns are added for further analysis:

#### 1. **Engagement rate:**

Interaction to each type of post by the users. It can be measured based on likes, shares, comments and saves of particular post.

**Engagement rate% = (sum of likes, shares, comments and saves) \*100/ (No. of followers)**

#### 2. **Growth Rate:**

The number of followers gained over a period of time

**Growth rate = (Followers on last day – Followers on first day) \*100 / Followers on first day.**

#### 3. **Retention rate:**

It was calculated to identify the % users are having greater than 3s views.

**Retention rate % = No. of 3s views/impressions.**

#### 4. **Duration bucket and Impressions bucket:**

Duration bucket	Impressions bucket:
duration above 50s	Below 1 lac
duration b/w 20-30s	1 -2 lac
duration b/w 30-40s	2-3 lac
duration b/w 40-50s	3-4 lac

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duration below 20s

Above 4 lac

### 3. Analysis and Insights:

#### i. Basic statistics of data:

Followers	106100
Total Page Reach	7206419
No. of Visits	171877
New Followers	61166
Total Impressions	9130594
Engagement Rate	9%
Growth Rate	1%
Retention Rate	42%

#### ii. Engagement across different post types:

Post Type	Sum of Impressions	Sum of Reach	Sum of Shares	Sum of Follows	Sum of Likes	Sum of Comments	Sum of Saves	Avg_Engagement Rate
IG carousel	983257	725430	6456	594	34111	1809	42477	5%
IG image	479472	433393	1158	547	15981	362	8967	2%
IG reel	7667865	6802642	88669	38150	249489	4843	285342	10%
Grand Total	9130594	7961465	96283	39291	299581	7014	336786	9%

From above analysis it was clear that reels are contributing more impressions, reach & shares & more engagement rate with users followed by carousel & image type posts.

**observation:** The content posted in form of REELS was attracted by more users than image posts.

#### iii. Retention rate, Engagement rate analysis based on duration bucket:

Row Labels	Sum of Impressions	Sum of Reach	Average of Engagement Rate	Average of Retention Rate
IG reel	7667865	6802642	10%	55%
duration below 20s	2575139	2372052	7%	64%
duration b/w 20-30s	805127	711866	4%	56%
duration above 50s	2675130	2288567	10%	53%
duration b/w 30-40s	498207	450978	12%	52%
duration b/w 40-50s	1114262	979179	19%	48%
Grand Total	7667865	6802642	10%	55%

From above table, if we divide data of above 30s & below 30s, impressions, reach, and engagement rate are more for > 30 s reels but retention rate was least.

#### Observation:

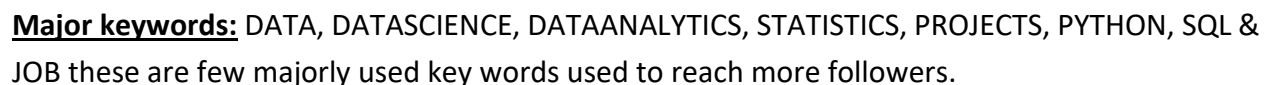
- If impressions & reach need to increase then 50 s reels can be preferred.
- If retention rate i.e., the posted content needs to watch till end, below 20s reels can be preferred.

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- iv. Analysis of impressions:

From above table, almost all type of posts are contributing below 1 lac impressions, to improve impressions various factors such as reel type, its duration and key words need to improve further.

By using word cloud generator, the following key words are identified.



Impressions range	Key words majorly used
<b>Below 1 lac</b>	DATA, DATA SCIENCE, DATA ANALYST, DATA ANALYTICS, STASTICS
<b>1 – 2 lac</b>	PROJECTS, AI, BUSSINESS ANALYTICS, INSIGHTS, DATA, DATA SCIENCE, DATA ANALYST

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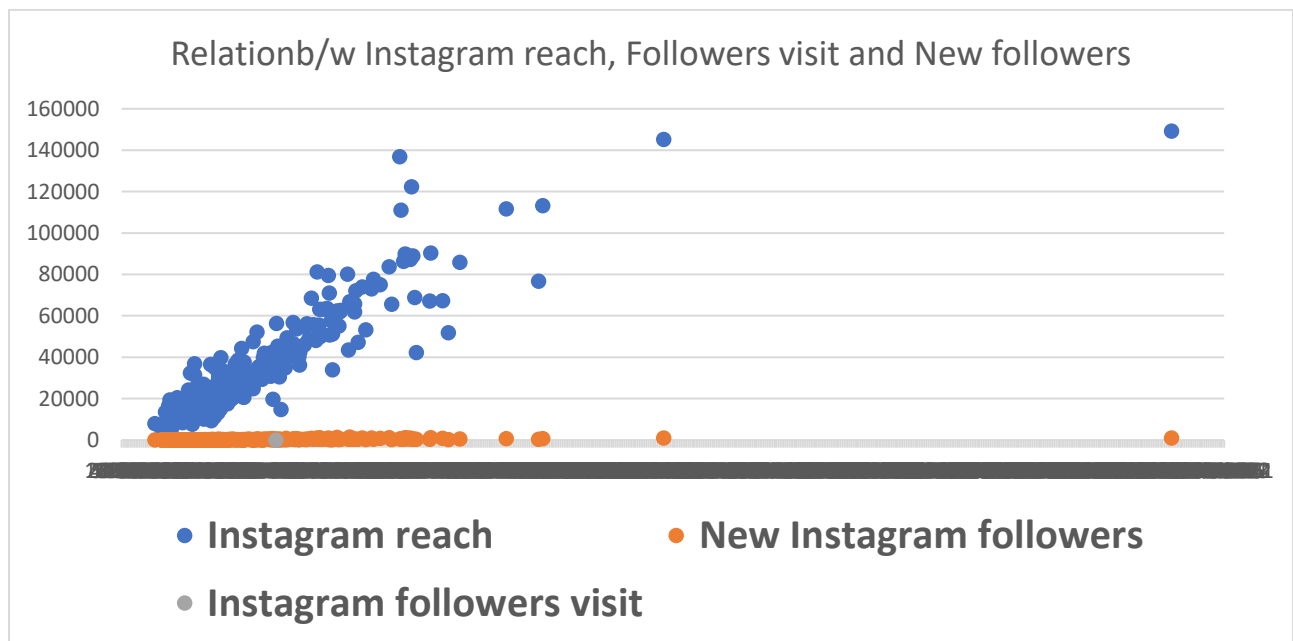
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2 – 3 lac	JOB, JOB SERCH, INTERVIEW, FAILED, STATISTICS, DATA, DATA SCIENCE, DATA ANALYST
3 – 4 lac	COURSES, BIGDATA, UDMEY, PYTHON, MICROSOFT, EXCEL, DATA, DATA SCIENCE, DATA ANALYST
Above 4 lac	NONE

If we see major impressions was there for key words related to COURSES, BIG DATA, JOB & INTERVIEW related content in data science & analytics.

### VI. HYPOTHESIS ANALYSIS:

#### 1. Relation b/w Instagram reach, followers visit & new followers:



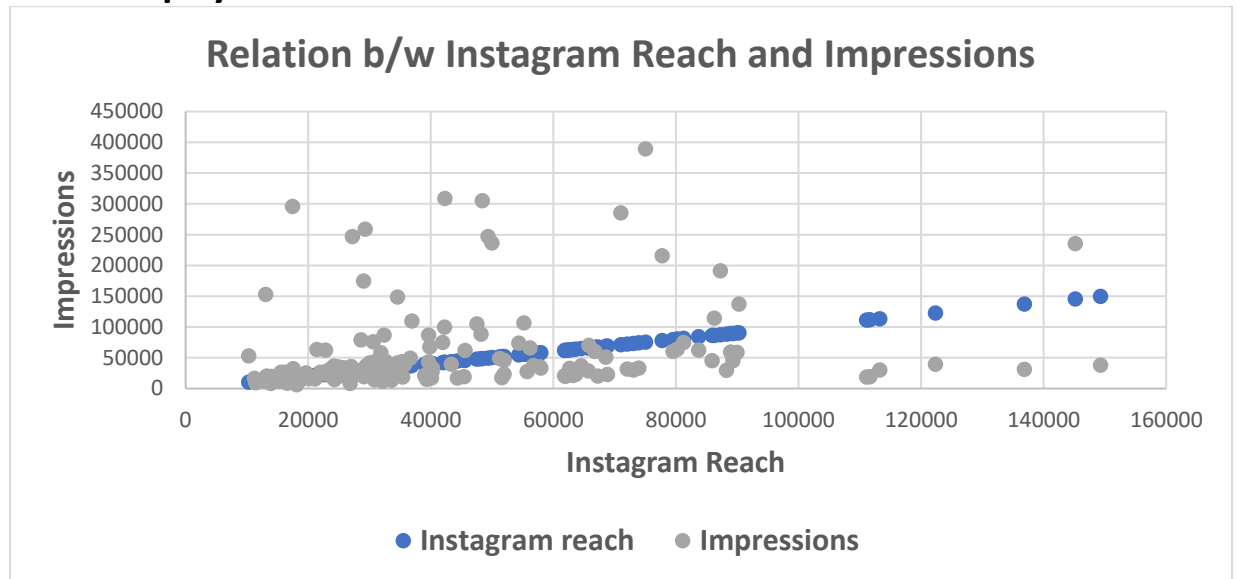
- From the above scatter plot, we can see that points are moving in forward direction, so there is a positive correlation b/w instaram reach, followers visit and new followers.
- If instagram reach increseres there can be potential increase in followers visit & to new followers.

#### 2. Relation b/w Instagram reach, Impressions:

- From below scatter plot, we can see that points are moving in forward direction, so there is a positive correlation b/w instagram reach and no of impressions.
- If impressions for posts increses, instagram reach also increses or vice-versa.

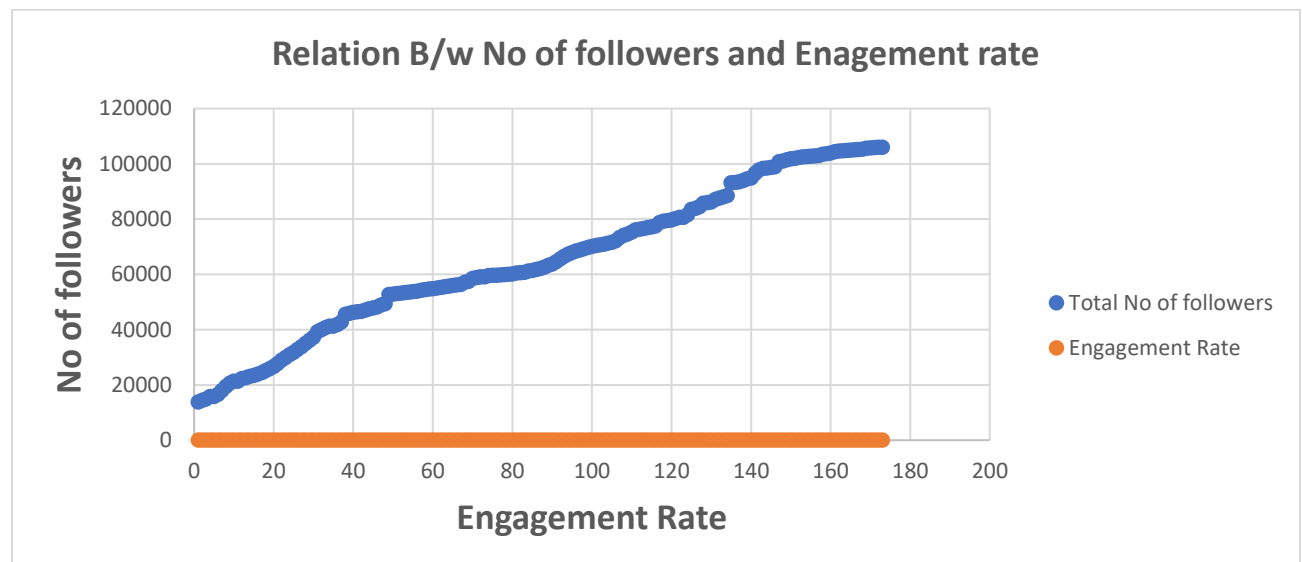
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### 3. Relation b/w followers vs engagement rate, followers vs retention rate:

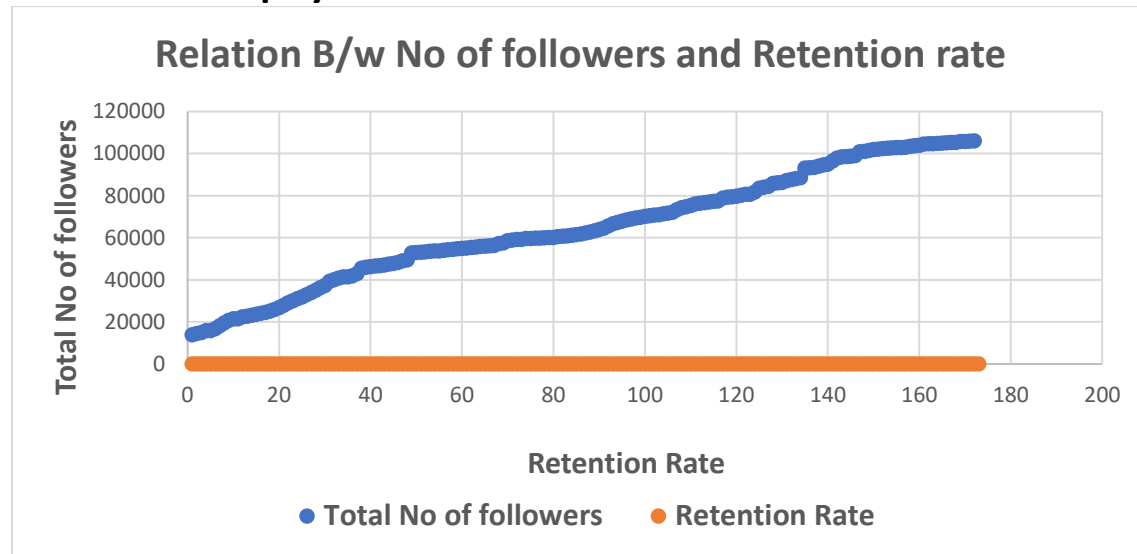
- From the below chart, we see that points are moving in forward direction, so there is a positive correlation b/w total no of followers and engagement rate.
- As engagement rate increases the followers count also increases or vice-versa.



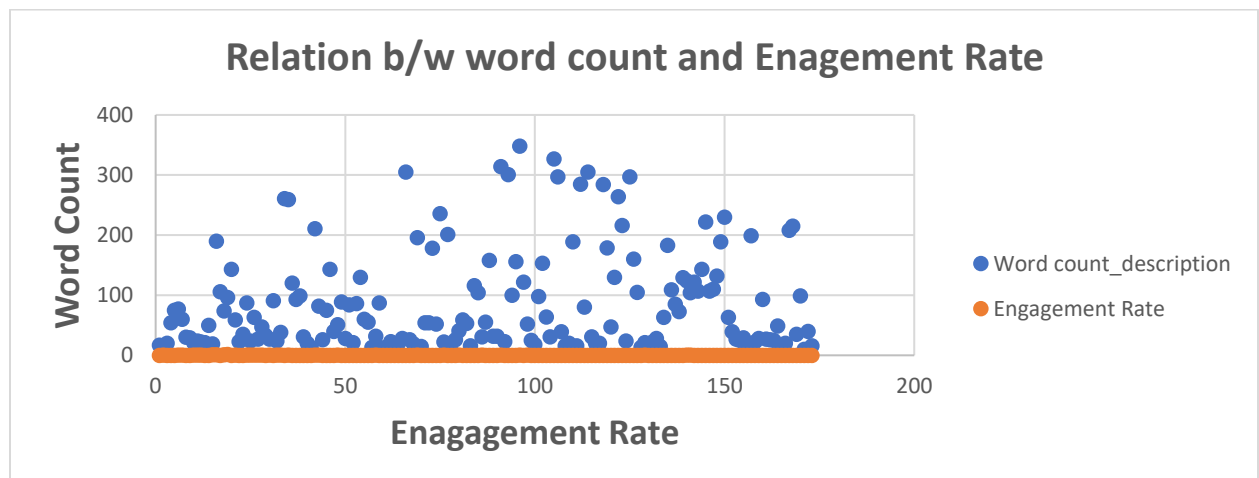
- From below chart we see that no of followers count & retention rate are moving in positive direction. As Retention rate for IG REELS increases the followers count also increases or vice-versa.

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#### 4. Word Count vs Engagement Rate:



- Approximate word count was calculated from the captions data available in excel.
- Formula used to calculate the word count by subtracting total length with length having spaces and as follows:  
**word count = Len(description) – Len(substitute(description, “ ”, “”)).**
- From above graph we see that word count was dispersed and there is no relation b/w word count and engagement rate.

#### VII. Age Group analysis:

- From below table, if we see that age group b/w 25-34 yrs have more followers followed by 18-24 yrs and least by 65+ yrs. Men followers are more compared to female.
- This means most people are at higher studies/in other jobs looking for transitions/upgrading themselves in data science field.

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Age	Women	Men
18-24	11451	22585
25-34	19298	41352
35-44	3287	5726
45-54	636	848
55-64	106	212
65+	212	318
Total followers	34990	71041

106031

### VIII. City and country wise analysis:

From below table we see that from INDIA has more followers followed by USA. In India Bangalore city holds more followers followed by Chennai, Hyderabad, Delhi & Mumbai.

Top countries		Value
India		76236
United States		8270
United Kingdom		2651
Canada		2545
Indonesia		2227
Others		14102

City	State	Country	Value
Bangalore	Karnataka	India	15363
Chennai	Tamil Nadu	India	8162
Hyderabad	Telangana	India	6401
New Delhi	NCR Delhi	India	6241
Mumbai	Maharashtra	India	5761
Others			118103

### Insights:

- Most of the followers are belongs to INDIA, USA specially from Bangalore region in INDIA.
- According to gender wise 25-34 age group people are the more followers and majority are male.
- IG Reels are contributing high impressions, reach, followers and engagement rate than other type of posts.
- Among reels, below 20s reels has high retention rate, 40-50 sec reels has more engagement rate & >50 s videos have high retention rate.
- From hypothesis analysis, there was a relation b/w no. of followers with engagement rate and retention rate.

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- As engagement rate & retention rate increases, followers count also increases.
- The overall impressions for majority no of posts are < 1 lac, to increase Instagram reach & followers impressions play major role which needs to increase.
- The captions used in various type of posts has no relation with engagement rate.
- More impressions are received for key words related to **jobs, interview preparation, BIG DATA, data science related COURSES like python, statistics and excel, AI** etc.
- To improve more impressions the content related to above mentioned key words need to increase.