

# ANUMAAN

## The Data Analytics Competition

### TEAM VSK



**VANSH JAIN**

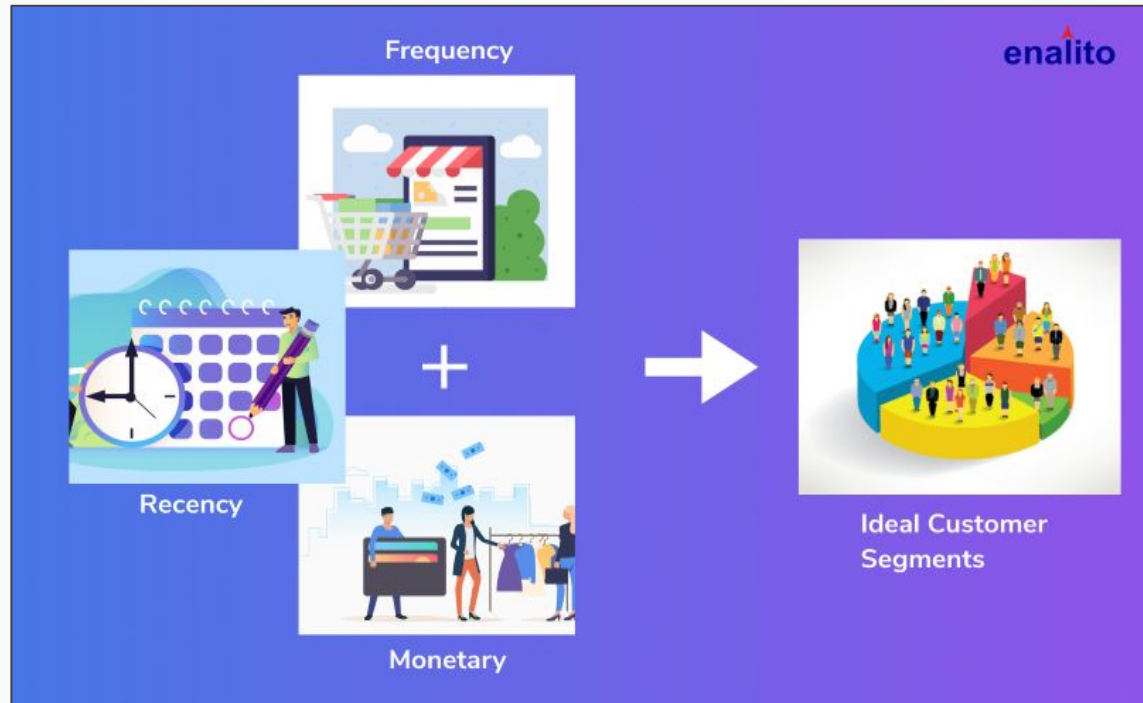


**KSHITIJ PARAB**



**SHARVARI KALGUTKAR**

# RECENCY, FREQUENCY AND MONETARY ANALYSIS



# RFM Metrics



## RECENCY

The freshness of the customer activity, be it purchases or visits

E.g. Time since last order or last engaged with the product



## FREQUENCY

The frequency of the customer transactions or visits

E.g. Total number of transactions or average time between transactions/engaged visits



## MONETARY

The intention of customer to spend or purchasing power of customer

E.g. Total or average transactions value

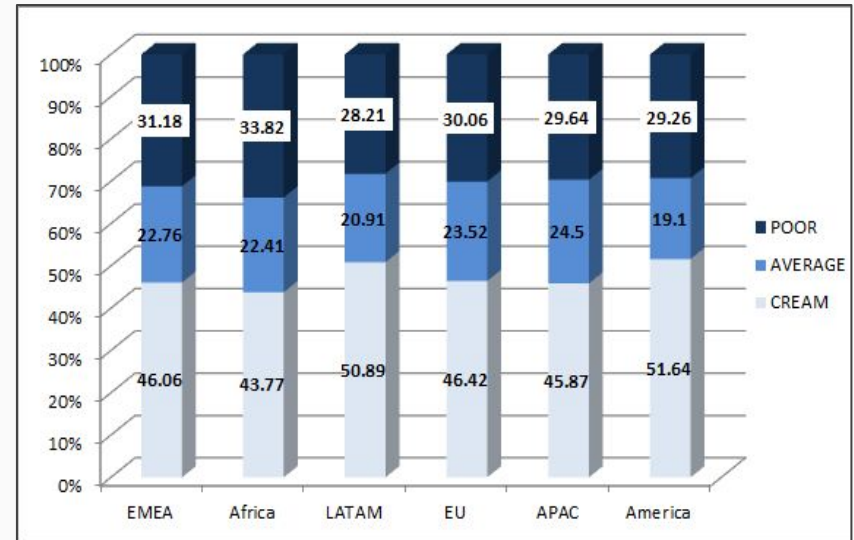
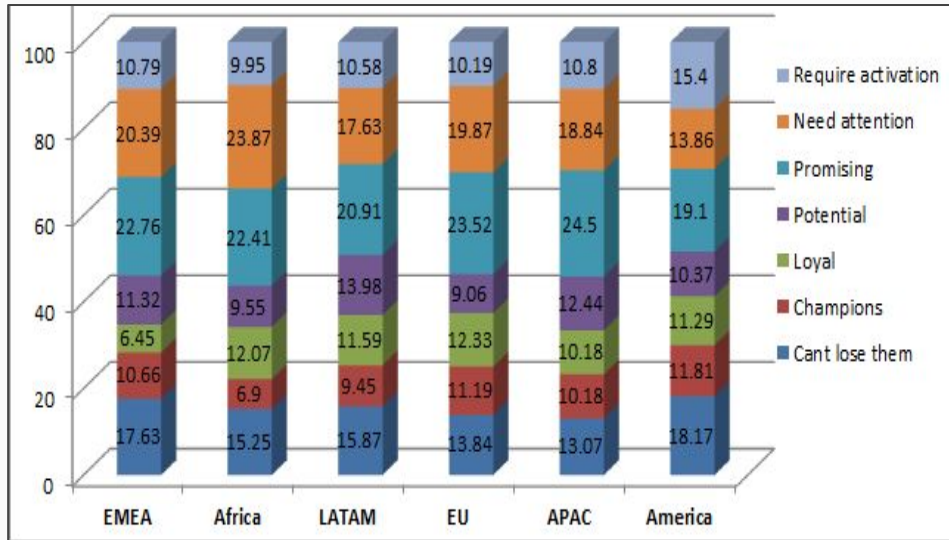
# RFM ANALYSIS : Recency | Frequency | Monetary Analysis

User ID	Recency	Monetary_Value	Frequency	r_quartile	f_quartile	m_quartile	RFM_Score	RFM_Score_sum	RFM_Level
AA-103151	8	14822	5	1	4	4	144	9	Promising
AA-103751	6	28159	4	1	4	3	143	8	Promising
AA-104801	125	27362	5	3	4	3	343	10	Needs Attention
AA-106451	28	80929	12	1	1	1	111	3	Can't Lose Them
AB-100151	113	44937	9	3	2	2	322	7	Potential
...	...	...	...	...	...	...	...	...	...
XP-218651	130	37583	7	3	3	2	332	8	Promising
YC-218951	473	21556	4	4	4	4	444	12	Require Activation
YS-218801	233	14214	4	4	4	4	444	12	Require Activation
ZC-219101	36	49338	7	2	3	1	231	6	Loyal
ZD-219251	18	18126	5	1	4	4	144	9	Promising

RFM_Level	Recency	Frequency	Monetary_Value	
	mean	mean	mean	count
Can't Lose Them	28.1	10.7	61923.2	104
Champions	60.7	9.5	52412.6	81
Loyal	71.2	8.1	46419.4	81
Needs Attention	190.1	4.7	24886.0	150
Potential	83.5	7.2	40283.1	99
Promising	100.0	5.9	32154.7	195
Require Activation	405.7	3.4	17569.0	86

- Recency, Frequency and Monetary Performance was evaluated in the range of **1-4** where more recent, more frequent and higher sales were awarded 1 each as the **RFM Score**.
- RFM score sum** was calculated by adding individual digits of the RFM Score.
- The RFM score sum was categorised into the following **7** segments :
  - Can't lose them ( $\leq 4$ )
  - Champions ( $\leq 5$ )
  - Loyal ( $\leq 6$ )
  - Potential ( $\leq 7$ )
  - Promising ( $\leq 9$ )
  - Need Attention ( $\leq 11$ )
  - Require Activation ( $> 11$ )

# RFM ANALYSIS : Recency | Frequency | Monetary Analysis



- From the graphs, we can rank the markets on the basis of the RFM analysis.
- **LATAM** shows the best performance.
- **America**, **APAC** and **EU** are second to the best.
- **EMEA** and **Africa** show a relatively poor performance

# RFM ANALYSIS : Recency | Frequency | Monetary Analysis

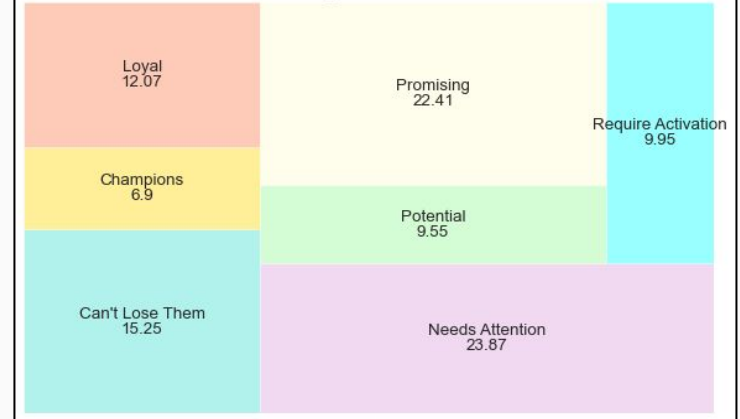
RFM Segments - EMEA



**EMEA** : Although potential and productive customers form 34.08% of the total customers in EMEA, the market has a large segment of inactive , needs attention customers. The market needs to focus on this 31.18% , converting this large segment of customers into promising candidates.

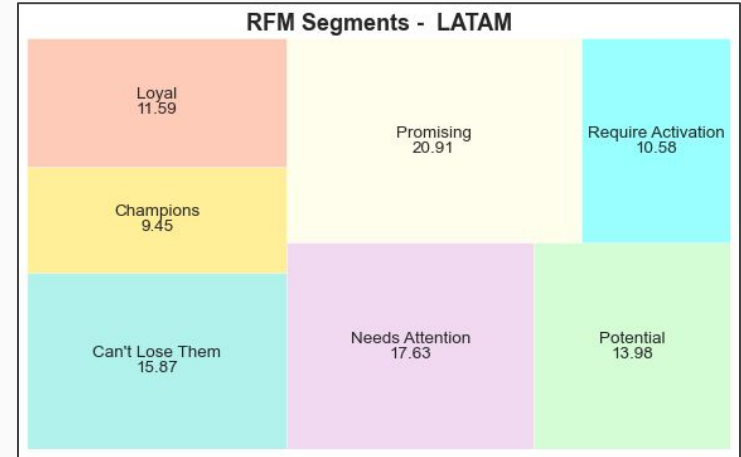
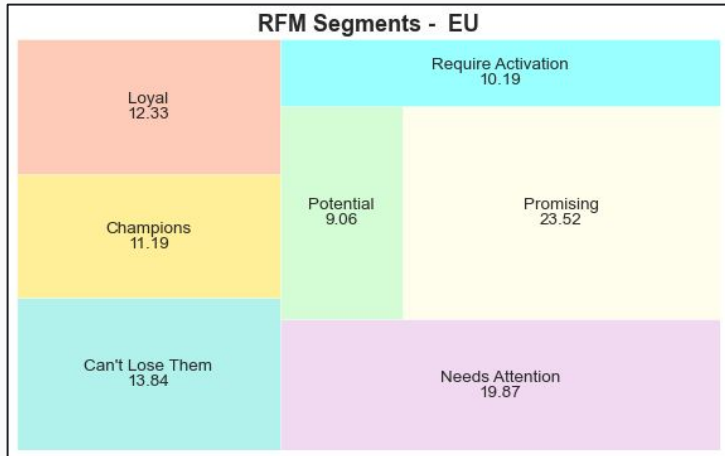
**Africa** : The percentage of loyal and promising customers can be boosted from 34.48% ensuring a better cream layer. However, there is a large proportion of customers( 33.82 %) who require attention , activation and this issue must be looked into.

RFM Segments - Africa



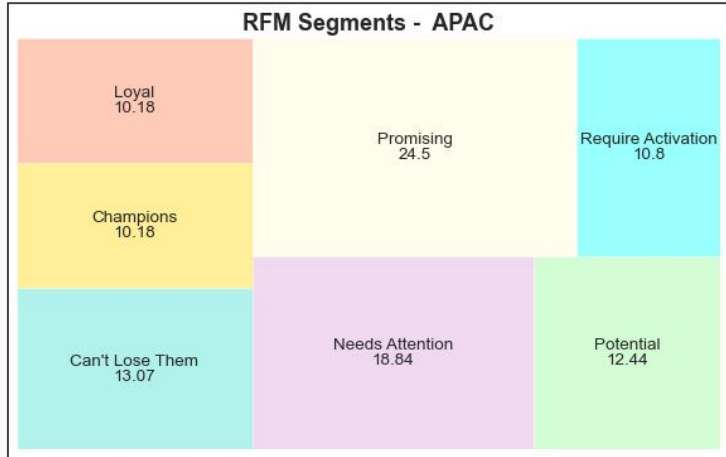
# RFM ANALYSIS : Recency | Frequency | Monetary Analysis

**LATAM:** The market has a major customer segment having a low RFM sum score. This indicates that LATAM has a high performing customer base. The distribution of customers in various segments is indicative of LATAM being a balanced market.



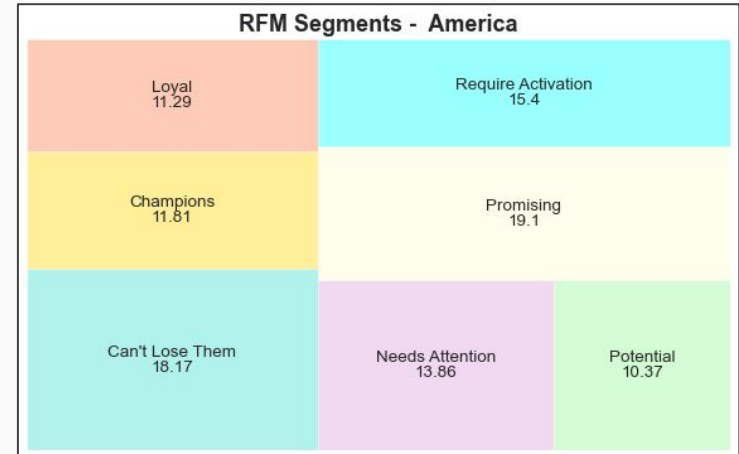
**EU :** The market has large percentage of the customers belonging to the performing segment (69.94%) . Only a small percentage of customers have a very high RFM sum score. This indicates that they do not contribute towards the growth of the market.

# RFM ANALYSIS : Recency | Frequency | Monetary Analysis



**APAC:** The market has a major customer segment having a higher RFM sum score forming 57.93 % of the total customers of APAC market .This indicates that APAC has a high performing customer base. The distribution of customers in various segments is indicative of APAC being a balanced market.

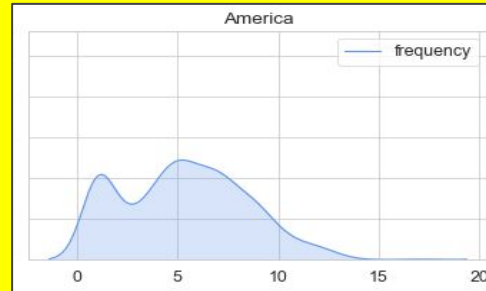
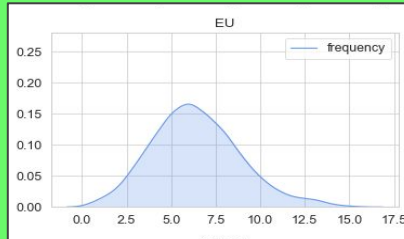
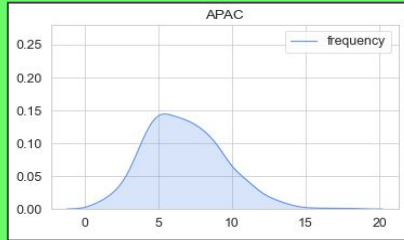
**America :** American market has majority of its customers having good recency , frequency and monetary score (70.74%) . Thus American market has a good customer base with very low percentage of below average customers . Market can boost its performance by focusing on converting its set of average customers into best performing set of customers.



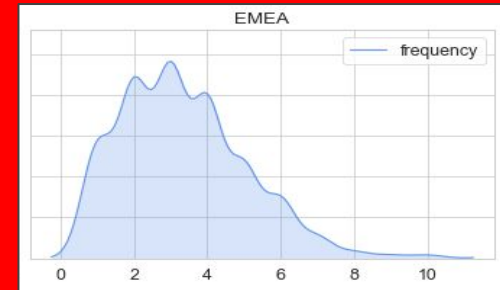
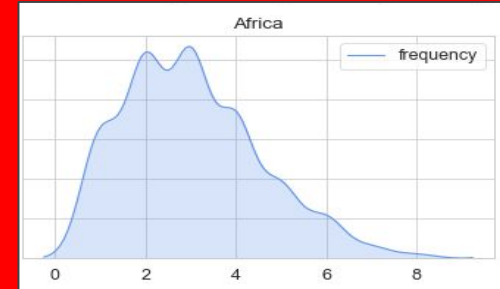


# CUSTOMER LOYALTY AND RETENTION

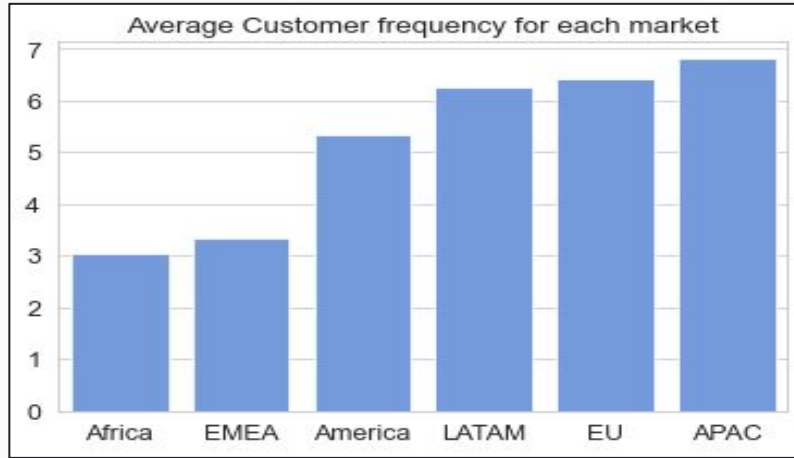




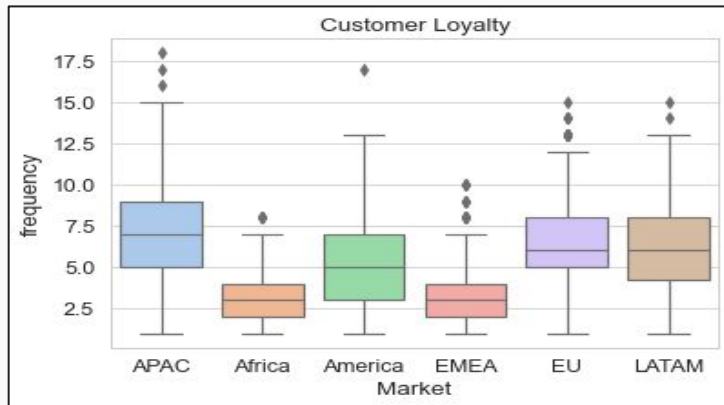
**Customer loyalty**



# CUSTOMER LOYALTY AND RETENTION



- Customer Frequency is considered as a measure to determine the customer loyalty of a particular market.
- Frequency distribution in **African** and **EMEA** market is right skewed. More number of customers have a frequency between 2 to 5. On an average, customers in the African and EMEA market have a frequency close to 3.
- **America** has an average customer frequency of 5.2.
- **APAC, EU, LATAM** have a Gaussian frequency distribution with frequency ranging from 5 to 7.5. APAC has the highest average customer frequency of 7 closely followed by EU and LATAM.



# CUSTOMER LOYALTY AND RETENTION

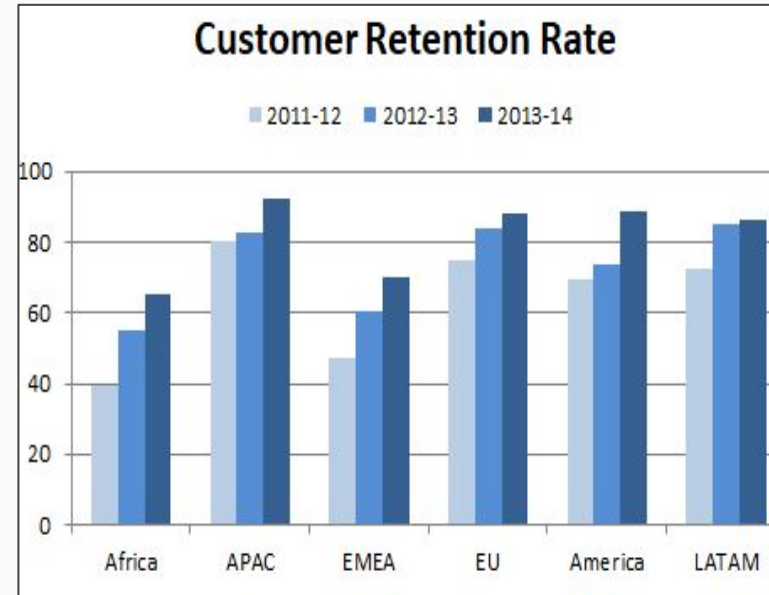
$$\text{Customer Retention Rate (CRR)} = \frac{(CE - CN)}{CS} * 100$$

CE = number of customers at the end of the period measured

CN = number of new customers during the period

CS = number of customer when the measured period began.

- Financial periods 2011-2012 , 2012-2013 and 2013-2014.
- In the period 2011-2012, the customer retention rate of **APAC** is 80% which is closely followed by **EU, America and LATAM** respectively. Africa shows the worst customer retention rate of 40%.
- **Africa and EMEA** have shown a significant growth of approximately 25% in customer retention rate.
- On the other hand LATAM , America , EU , APAC have shown an increase of less than 15% in their customer retention.
- APAC shows the highest customer retention of 92% at the end of 2014.

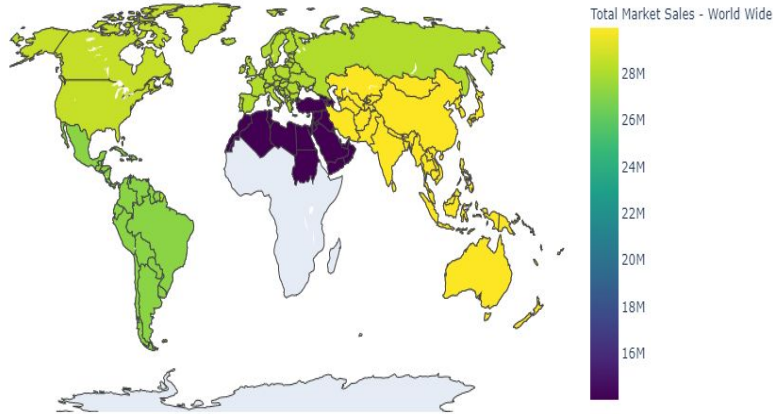


# MARKET PERFORMANCE



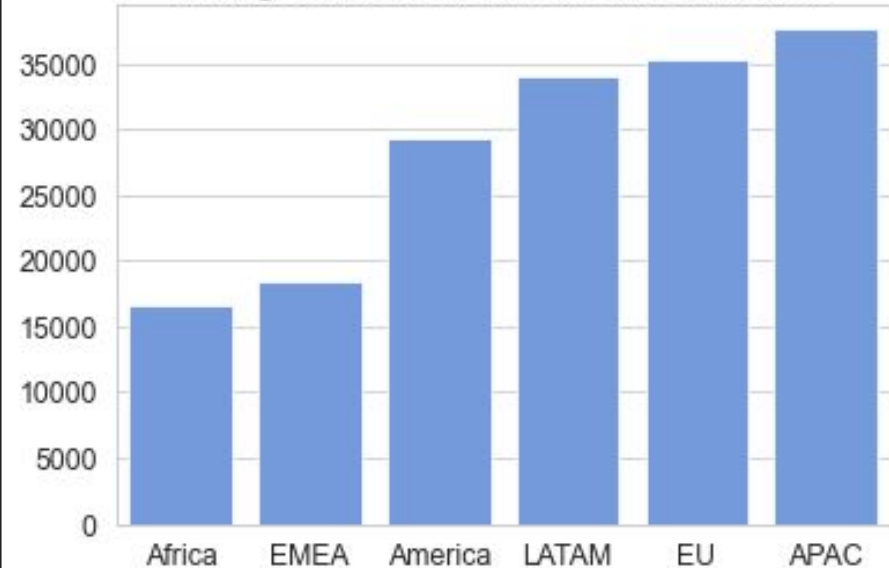
# MARKET PERFORMANCE

Total Sales Performance across various Market (2011-2014)



- **APAC** has the highest total sales (2011-2014) approximately 28 million. **African** market has the worst market performance with 18 million in sales (2011-2014).

Average Transaction Value In Different Markets



- The average transaction value for a customer in **APAC** is 37,622 closely followed by EU. **African** market has the least average transaction value of 16,603 closely followed by **EMEA**.



**APAC**

29 Million



**EU**

28 Million

**LATAM**

27 Million

**America**

28 Million



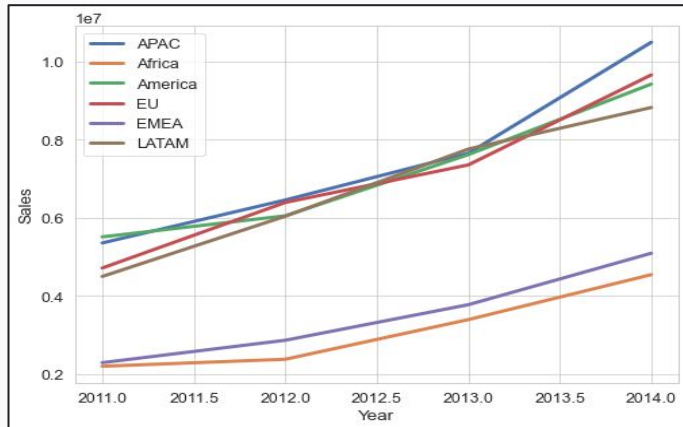
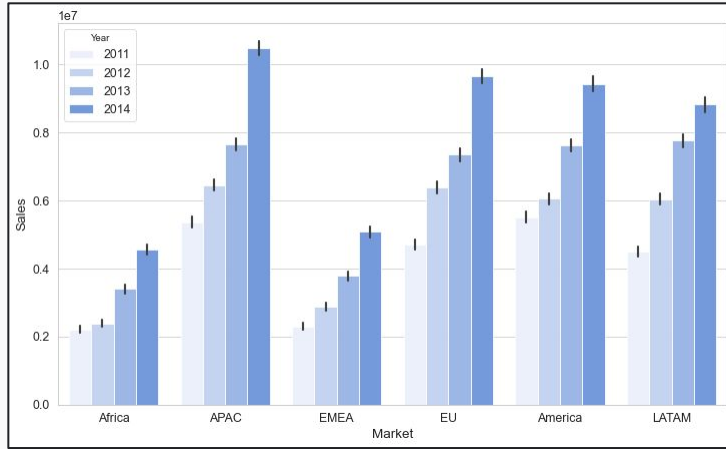
**Africa**

16 Million

**EMEA**

18 Million

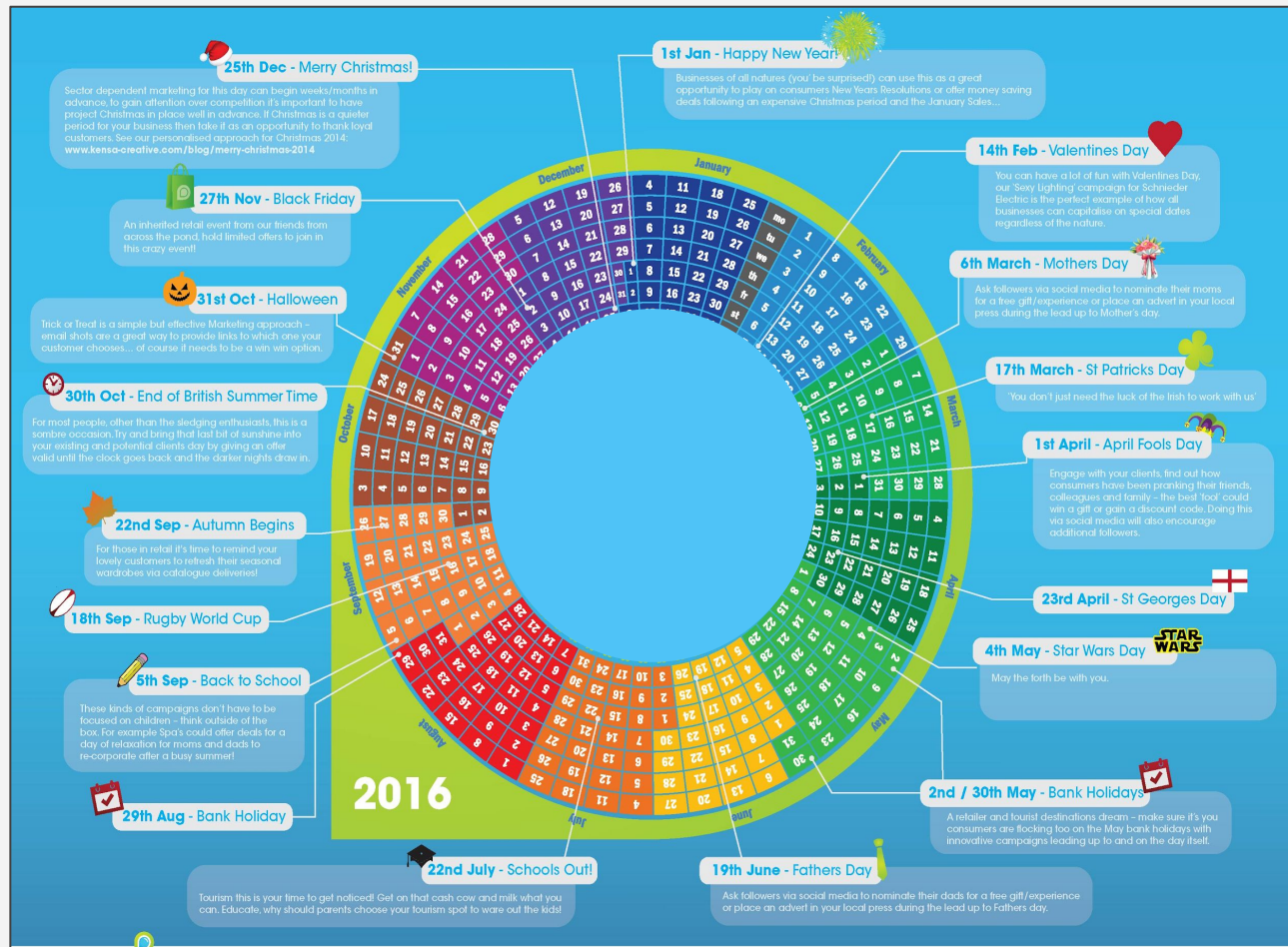
# MARKET PERFORMANCE



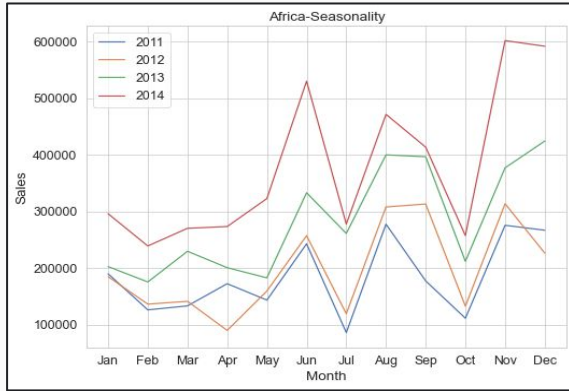
- All markets show an overall increase in sales from 2011 to 2014.
- **EMEA** and **Africa** started off 2011 with sales of approx. 2 million USD in comparison to other markets that commenced 2011 with sales of approximate 5 million USD.
- **APAC** shows a constant rate of increase in sales till 2013 and then shows a surge in the year 2014.
- **America** and **Africa** show a gradual increase till 2012 and then picks up steeply just after.
- **EU** shows a decent increase till 2012 which is followed by a decrease in the rate of rise till 2013. In 2014, the rate increases considerably.
- **LATAM** shows a gradual increase in rate till 2012 and a displays a further constant increase in rate.
- **EMEA** shows a constant increase in rate without any significant changes during the selected time period.



# MARKET SEASONALITY

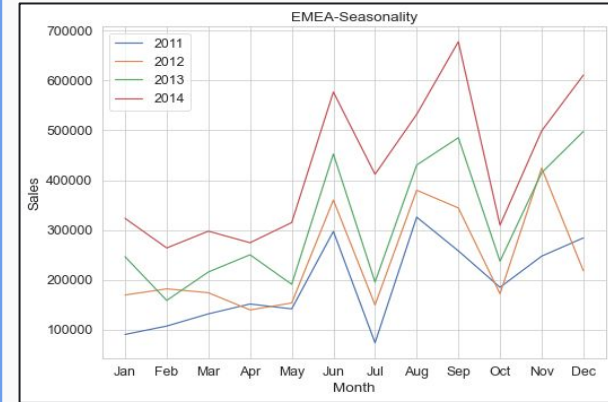
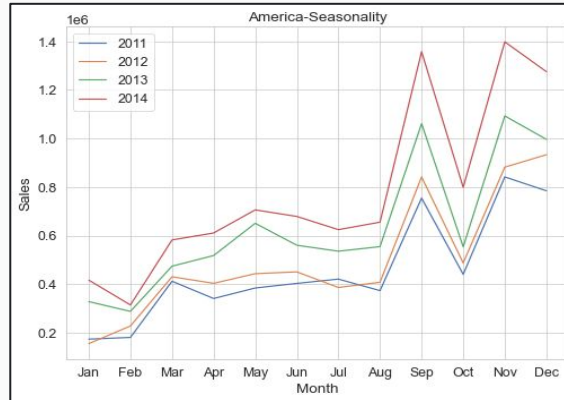


# SEASONALITY OF MARKETS



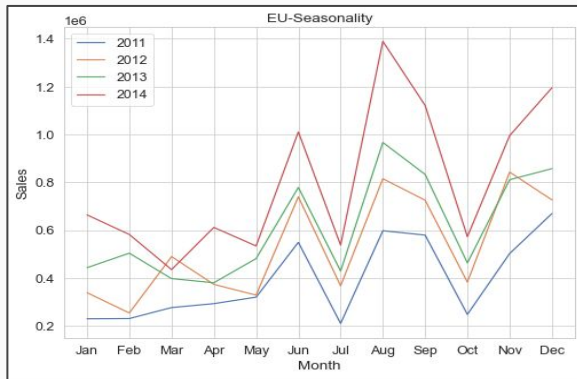
**Africa:** The following trend can be observed in the African market . Increase in sales from May to June is followed by a drop in the month of July. The total sales then show a gradual increase till the month of August.It is followed by a drop in sales till October.There after there is a gradual increase in total sales till December.

**America :** The market shows a gradual increase in sales till August. There is a significant rise in total sales till September. It is followed by a drop in the month of October . The sales rise up again in the month of November followed by a slight decrease in December.



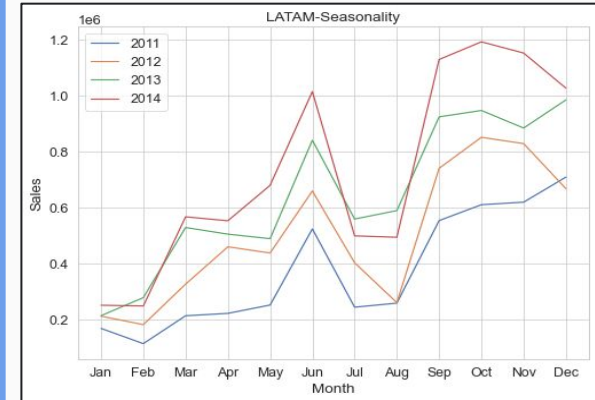
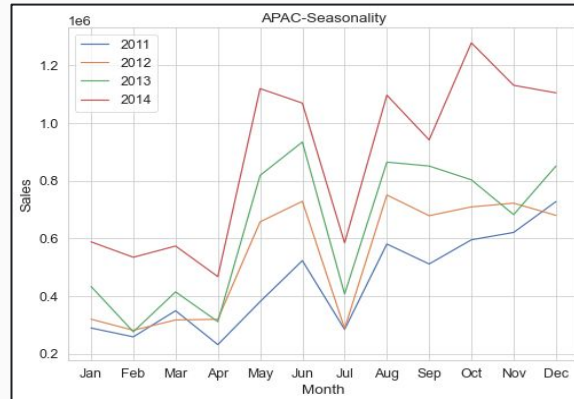
**EMEA:** EMEA market sales increases in the month of June. There is a drop in the total sales in the month of July. Total sales gradually increases from July till September. There is a sudden drop in the overall sales in October. Total sales gradually increases from October till December.

# SEASONALITY OF MARKETS



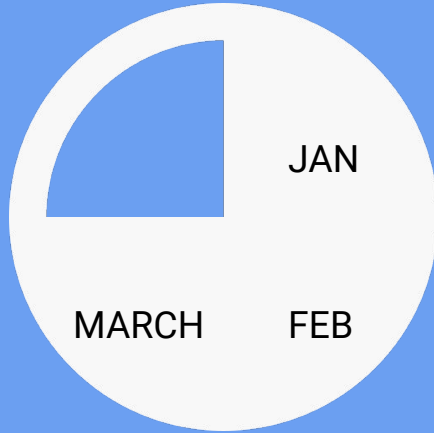
**EU:** A significant increase in sales can be seen in the month of June. It is followed by a dip in July. The sales pick up drastically in August to fall sharply in October. November and December see a substantial increase in sales to end the year on a high.

**APAC :** Sales in APAC market rise in the months of April and May. This increase is followed by a drop in the sales in the month of June. Thereafter, the overall sales of the APAC market gradually increase from August till December.



**LATAM:** Sales increases from January to June. There is a decrease in the overall sales from July to August. Thereafter there is a gradual rise in the overall sales of LATAM market from August till December.

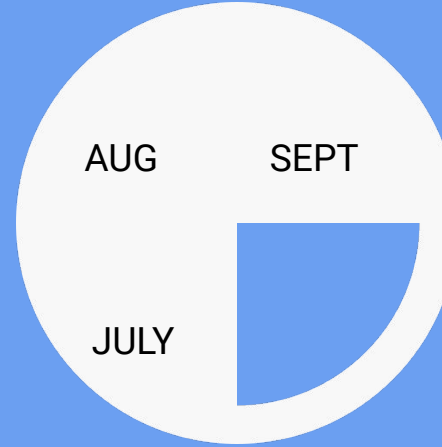
QUARTER 1



QUARTER 2



QUARTER 3



QUARTER 4



Gradual  
increase  
And no  
significant  
trend

Significant  
Increase in  
Sales till  
June

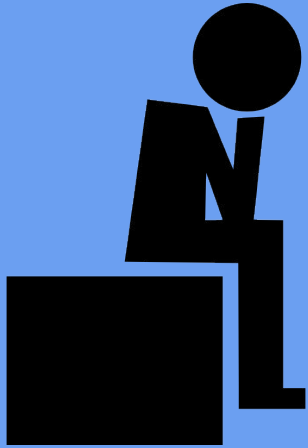
Drop in total  
sales in  
And increase  
in sales till  
August

Drop in sales in  
October and  
increase in  
sales  
November  
onwards

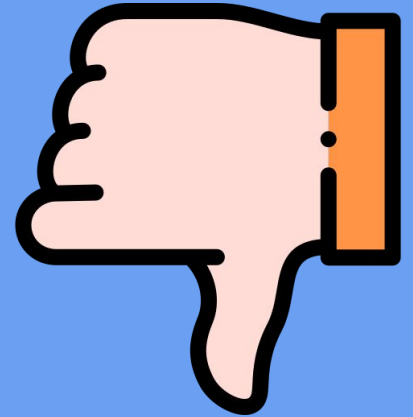
# CONCLUSION



*APAC*



*AFRICA*



**THANK YOU**