**Twilio Analysis**

The analysis done using Python to answer the questions.

1. **Total RSE by region**

df1["Period"] = pd.to\_datetime(df1["Period"])  
  
df1['Period']= df1['Period'].dt.strftime('%Y-%m')  
  
table = pd.pivot\_table(df1,  
 index=["Period" ],  
 columns=["Region"],  
 values=["RSE"],  
 aggfunc={'RSE': np.sum },  
 dropna="False",  
 margins='True',  
 margins\_name= "Grand Total",  
 fill\_value= 0)  
  
table= table.rename(columns={'RSE': ' ' })

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Region** | **APAC** | **EMEA** | **LATAM** | **NA East** | **NA Growth** | **NA Mid-Market** | **NA West** | **Grand Total** |
| **Period** |  |  |  |  |  |  |  |  |
| **2020-01** | 16.9542 | 26.585 | 1.8417 | 26.1018 | 44.0288 | 29.2061 | 29.0668 | 173.7844 |
| **2020-02** | 17.0208 | 26.535 | 1.9417 | 25.1018 | 44.1363 | 29.0936 | 28.8168 | 172.646 |
| **2020-03** | 16.8333 | 26.41 | 2.0917 | 24.9268 | 43.9863 | 29.2436 | 28.8168 | 172.3085 |
| **2020-04** | 26.4503 | 41.4672 | 3.7134 | 32.4336 | 55.73 | 42.6337 | 37.2967 | 239.7249 |
| **2020-05** | 26.5169 | 41.4672 | 3.78 | 32.4336 | 55.73 | 42.6337 | 37.2967 | 239.8581 |
| **2020-06** | 26.5169 | 41.4672 | 3.78 | 32.4336 | 55.73 | 42.6337 | 37.2967 | 239.8581 |
| **Grand Total** | 130.2924 | 203.9316 | 17.1485 | 173.4312 | 299.3414 | 215.4444 | 198.5905 | 1238.18 |

1. **Total RSE by segment**

table1 = pd.pivot\_table(df1,  
 index=["Period" ],  
 columns=["Segment"],  
 values=["RSE"],  
 aggfunc={'RSE': np.sum },  
 dropna="False",  
 margins='True',  
 margins\_name= "Grand Total",  
 fill\_value= 0)  
  
table1= table1.rename(columns={'RSE': ' ' })

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Segment** | **Enterprise** | **Enterprise Strategic** | **Growth** | **Growth Strategic** | **ISV** | **Mid-Market** | **Mid-Market Strategic** | **PRT** | **SI** | **Grand Total** |
| **Period** |  |  |  |  |  |  |  |  |  |  |
| **2020-01** | 59.5838 | 9.9599 | 44.0262 | 13.8251 | 6.5833 | 36.863 | 2.5431 | 0 | 0.4 | 173.7844 |
| **2020-02** | 58.2838 | 9.9599 | 44.1928 | 13.9326 | 6.5833 | 36.7505 | 2.5431 | 0 | 0.4 | 172.646 |
| **2020-03** | 57.9838 | 9.9599 | 44.0053 | 13.9326 | 6.5833 | 36.9005 | 2.5431 | 0 | 0.4 | 172.3085 |
| **2020-04** | 76.9505 | 13.4467 | 55.1635 | 24.9633 | 7.65 | 55.134 | 6.4169 | 0 | 0 | 239.7249 |
| **2020-05** | 76.9505 | 13.4467 | 55.2967 | 24.9633 | 7.65 | 55.134 | 6.4169 | 0 | 0 | 239.8581 |
| **2020-06** | 76.9505 | 13.4467 | 54.9334 | 24.9633 | 7.65 | 55.4973 | 6.4169 | 0 | 0 | 239.8581 |
| **Grand Total** | 406.7029 | 70.2198 | 297.6179 | 116.5802 | 42.6999 | 276.2793 | 26.88 | 0 | 1.2 | 1238.18 |

1. **Average lifecycle by each region**
2. df2['Deal\_Close\_Date'] = pd.to\_datetime(df2['Deal\_Close\_Date'], format = '%Y-%m-%d')  
   df2['Deal\_Start\_Date'] = pd.to\_datetime(df2['Deal\_Start\_Date'], format = '%Y-%m-%d')  
     
   date1= df2["Deal\_Close\_Date"]  
     
   date2 = df2["Deal\_Start\_Date"]  
     
   df2['Length']= date1.sub(date2, axis=0)  
   df2['Length']=df2['Length'].dt.days  
   df2.Length.fillna(0, inplace=True)  
     
   table2 = pd.pivot\_table(df2,  
    index=["Pipeline\_Stage" ],  
    columns=["Region"],  
    values=["Length"],  
    aggfunc={'Length': np.mean },  
    dropna="False",  
    margins='True',  
    margins\_name= "Grand Total")  
    #fill\_value= 0)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Region** | **APAC** | **EMEA** | **LATAM** | **NA East** | **NA Growth** | **NA Mid-Market** | **NA West** | **Grand Total** |
| **Closed** | 89.81623277 | 66.44944853 | 70.02325581 | 96.26947368 | 78.82595326 | 96.44161074 | 84.15654952 | 82.04131568 |
| **Omitted** | 150.6410978 | 111.342721 | 97.46614583 | 163.8385482 | 111.1477486 | 133.4239504 | 187.2069444 | 127.0563045 |
| **Grand Total** | 131.4903568 | 96.95995289 | 92.44468085 | 138.6459969 | 102.2249576 | 120.88899 | 155.982575 | 113.3161922 |

1. **Average deal size by region**
2. pd.to\_numeric(df2['eARR'])  
     
   table3 = pd.pivot\_table(df2,  
    index=["Pipeline\_Stage" ],  
    columns=["Region"],  
    values=["eARR"],  
    aggfunc={'eARR': np.mean },  
    dropna="False",  
    margins='True',  
    margins\_name= "Grand Total")  
    #fill\_value= 0)  
     
   df2['AVG\_eARR'] = df2.groupby(['Region']).eARR.transform('mean')  
     
   pd.to\_numeric(df2['AVG\_eARR'])  
     
     
     
   def func(x):  
    if x <= 40000.00:  
    return "Deal\_Size: Small"  
    elif x >= 75000.00:  
    return "Deal\_Size: Big"  
    else:  
    return 'Deal\_Size: Medium'  
     
   def func1(x):  
    if x <= 50000.00:  
    return "Deal\_Size: Small"  
    else:  
    return 'Deal\_Size: Big'  
     
   df2['Category'] = df2['AVG\_eARR'].apply(func1)  
     
   table4 = pd.pivot\_table(df2,  
    index=["Region","Pipeline\_Stage" ],  
    columns=["Category"],  
    values=["eARR"],  
    aggfunc={'eARR': np.mean },  
    dropna="False",  
    margins='True',  
    margins\_name= "Grand Total")  
    #fill\_value= 0)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Region** | **APAC** | **EMEA** | **LATAM** | **NA East** | **NA Growth** | **NA Mid-Market** | **NA West** | **Grand Total** |
| **Closed** | 39094.04 | 42914.5 | 125329 | 151908.7 | 40552.62 | 59207.75 | 151967.2 | 62729.32 |
| **Omitted** | 46551.77 | 27820.54 | 38614.51 | 57881.99 | 14494.39 | 29456.72 | 115649.5 | 33419.83 |
| **Grand Total** | 44201.43 | 32656.3 | 54481.42 | 92939.05 | 21688.06 | 39540.67 | 126653.8 | 42367.18 |

Converting the deals into small and big would generate better trends on which regions have bigger sized deals and which have small sized deals.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **eARR** | | |
|  | **Category** | **Deal\_Size: Big** | **Deal\_Size: Small** | **Grand Total** |
| **Region** | **Pipeline\_Stage** |  |  |  |
| **APAC** | **Closed** |  | 39094.04018 | 39094.04018 |
| **Omitted** |  | 46551.76918 | 46551.76918 |
| **EMEA** | **Closed** |  | 42914.49968 | 42914.49968 |
| **Omitted** |  | 27820.54136 | 27820.54136 |
| **LATAM** | **Closed** | 125328.9919 |  | 125328.9919 |
| **Omitted** | 38614.51333 |  | 38614.51333 |
| **NA East** | **Closed** | 151908.713 |  | 151908.713 |
| **Omitted** | 57881.98538 |  | 57881.98538 |
| **NA Growth** | **Closed** |  | 40552.61938 | 40552.61938 |
| **Omitted** |  | 14494.39389 | 14494.39389 |
| **NA Mid-Market** | **Closed** |  | 59207.75345 | 59207.75345 |
| **Omitted** |  | 29456.7227 | 29456.7227 |
| **NA West** | **Closed** | 151967.1507 |  | 151967.1507 |
| **Omitted** | 115649.4578 |  | 115649.4578 |
| **Grand Total** |  | 98971.53015 | 30771.55524 | 42367.17946 |

1. **Conversion rates by region**

df3 = df2[(df2["Pipeline\_Stage"] == "Closed")]  
  
table5 = pd.pivot\_table(df3,  
 index=["Pipeline\_Stage" ],  
 columns=["Region"],  
 values=["Opportunity\_ID"],  
 aggfunc={'Opportunity\_ID': len },  
 dropna="False",  
 margins='True',  
 margins\_name= "Grand Total")  
  
table5=table5[:-1]  
  
table5= table5.rename(index={'Closed': 'Grand Total' })  
  
df4 = df2[(df2["Status"] == "SQL Accepted")]  
  
table6 = pd.pivot\_table(df4,  
 index=["Status" ],  
 columns=["Region"],  
 values=["Opportunity\_ID"],  
 aggfunc={'Opportunity\_ID': len },  
 dropna="False",  
 margins='True',  
 margins\_name= "Grand Total")  
  
table6=table6[:-1]  
  
table6= table6.rename(index={'SQL Accepted': 'Grand Total' })  
  
df5 = table5.div(table6)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Region** | **APAC** | **EMEA** | **LATAM** | **NA East** | **NA Growth** | **NA Mid-Market** | **NA West** | **Grand Total** |
| **Grand Total** | 0.342063908 | 0.367319379 | 0.27044025 | 0.407375643 | 0.352711497 | 0.38541128 | 0.331216931 | 0.360182041 |

1. **The conversion rates per Segment**
2. table7 = pd.pivot\_table(df3,  
    index=["Pipeline\_Stage" ],  
    columns=["Segment"],  
    values=["Opportunity\_ID"],  
    aggfunc={'Opportunity\_ID': len },  
    dropna="False",  
    margins='True',  
    margins\_name= "Grand Total")  
     
   table7=table7[:-1]  
     
   table7= table7.rename(index={'Closed': 'Grand Total' })  
     
     
   table8 = pd.pivot\_table(df4,  
    index=["Status" ],  
    columns=["Segment"],  
    values=["Opportunity\_ID"],  
    aggfunc={'Opportunity\_ID': len },  
    dropna="False",  
    margins='True',  
    margins\_name= "Grand Total")  
     
   table8=table8[:-1]  
     
   table8= table8.rename(index={'SQL Accepted': 'Grand Total' })  
     
   df6 = table7.div(table8)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Segment** | **Enterprise** | **Enterprise Strategic** | **Growth** | **Growth Strategic** | **ISV** | **Mid-Market** | **Mid-Market Strategic** | **Grand Total** |
| **Grand Total** | 0.356973193 | 0.412060302 | 0.318136 | 0.487667 | 0.458647 | 0.375203384 | 0.429688 | 0.360182 |

**Insight Analysis Conclusion:**

The conversion rates of all the regions range between 0.3 to 0.4 values except Latam. Similarly, all the segments conversion rates take these values with Growth strategic having the highest at 0.488. Therefore, most of the regions and segments have good conversion rates since they range between 3% and 5%. However, Latam has a conversion rate lower than 3% thus I would recommend that more strategies to be put in place in Latam region to improve the conversion rates hence boost the amount of sales.