

```
In [1]: import pandas as pd

In [16]: data=pd.read_excel(r"/content/Data set for BA.xlsx",sheet_name=['User Acquisition','Traffic Aquisition','Event
```

## Descriptive Statistics

```
In [17]: data['User Acquisition'].info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 6 entries, 0 to 5
Data columns (total 9 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   First user default channel group      6 non-null     object
1   New users                             6 non-null     int64
2   Engaged sessions                      6 non-null     int64
3   Engagement rate                       6 non-null     float64
4   Engaged sessions per user             6 non-null     float64
5   Average engagement time               6 non-null     float64
6   Event count                           6 non-null     int64
7   Conversions                           6 non-null     int64
8   Total revenue                         6 non-null     int64
dtypes: float64(3), int64(5), object(1)
memory usage: 560.0+ bytes

In [18]: data['User Acquisition']
```

Out[18]:

	First user default channel group	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count	Conversions	Total revenue
0	Display	9957	12008	0.544457	1.206107	58.86209	204820	37434	0
1	Organic Search	7652	18141	0.813680	2.367041	534.31280	770710	109801	0
2	Paid Search	3025	4408	0.474284	1.458154	102.23780	81997	14770	0
3	Direct	1903	4975	0.318808	2.261364	1128.88100	227434	31093	0
4	Unassigned	325	1619	0.813159	4.981538	798.34150	33320	789	0
5	Organic Social	10	13	0.722222	1.300000	145.30000	248	27	0

```
In [19]: data['User Acquisition'].describe()

Out[19]:
```

	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count	Conversions	Total revenue
count	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000	6.0
mean	3812.000000	6860.666667	0.614435	2.262367	461.322532	219754.833333	32319.000000	0.0
std	4083.739659	6894.604867	0.201367	1.420806	437.111008	284869.104021	40929.227185	0.0
min	10.000000	13.000000	0.318808	1.206107	58.862090	248.000000	27.000000	0.0
25%	719.500000	2316.250000	0.491827	1.339538	113.003350	45489.250000	4284.250000	0.0
50%	2464.000000	4691.500000	0.633339	1.859759	339.806400	143408.500000	22931.500000	0.0
75%	6495.250000	10249.750000	0.790425	2.340622	732.334325	221780.500000	35848.750000	0.0
max	9957.000000	18141.000000	0.813680	4.981538	1128.881000	770710.000000	109801.000000	0.0

```
In [20]: data['Traffic Aquisition'].info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 6 entries, 0 to 5
Data columns (total 11 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Session default channel group          6 non-null     object
1   Users                                 6 non-null     int64
2   Sessions                              6 non-null     int64
3   Engaged sessions                      6 non-null     int64
4   Average engagement time per session    6 non-null     float64
5   Engaged sessions per user              6 non-null     float64
6   Events per session                     6 non-null     float64
7   Engagement rate                       6 non-null     float64
8   Event count                           6 non-null     int64
9   Conversions                           6 non-null     int64
10  Total revenue                         6 non-null     int64
dtypes: float64(4), int64(6), object(1)
memory usage: 656.0+ bytes

In [21]: data['Traffic Aquisition']
```

Out[21]:

	Session default channel group	Users	Sessions	Engaged sessions	Average engagement time per session	Engaged sessions per user	Events per session	Engagement rate	Event count	Conversions	Total revenue
0	Unassigned	20263	13448	1481	34.11704	0.073089	18.023130	0.110128	242375	114161	0
1	Display	9613	18292	10613	28.52198	1.104026	9.069320	0.580199	165896	20031	0
2	Organic Search	7689	21241	17814	195.94340	2.316816	29.302290	0.838661	622410	33612	0
3	Direct	4042	13220	7649	177.17060	1.892380	17.135850	0.578593	226536	18496	0
4	Paid Search	2909	6788	3452	36.65321	1.186662	8.989982	0.508544	61024	7595	0
5	Organic Social	11	16	12	60.06250	1.090909	18.000000	0.750000	288	19	0

In [22]:

data['Traffic Aquisition'].describe()

Out[22]:

	Users	Sessions	Engaged sessions	Average engagement time per session	Engaged sessions per user	Events per session	Engagement rate	Event count	Conversions	Total revenue
count	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000	6.0
mean	7421.166667	12167.500000	6836.833333	88.744788	1.277314	16.753429	0.561021	219754.833333	32319.000000	0.0
std	7162.088199	7735.416104	6665.397735	76.756564	0.772272	7.484689	0.252797	218609.598013	41704.726979	0.0
min	11.000000	16.000000	12.000000	28.521980	0.073089	8.989982	0.110128	288.000000	19.000000	0.0
25%	3192.250000	8396.000000	1973.750000	34.751083	1.094188	11.085952	0.526056	87242.000000	10320.250000	0.0
50%	5865.500000	13334.000000	5550.500000	48.357855	1.145344	17.567925	0.579396	196216.000000	19263.500000	0.0
75%	9132.000000	17081.000000	9872.000000	147.893575	1.715950	18.017347	0.707550	238415.250000	30216.750000	0.0
max	20263.000000	21241.000000	17814.000000	195.943400	2.316816	29.302290	0.838661	622410.000000	114161.000000	0.0

In [23]:

data['Event Report'].info()  
  
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 379 entries, 0 to 378  
Data columns (total 5 columns):  
# Column Non-Null Count Dtype  
--- --- -  
0 Event name 378 non-null object  
1 Event count 379 non-null int64  
2 Total users 379 non-null int64  
3 Event count per user 379 non-null float64  
4 Total revenue 379 non-null int64  
dtypes: float64(1), int64(3), object(1)  
memory usage: 14.9+ KB

In [34]:

data['Event Report'].head()

Out[34]:

	Event name	Event count	Total users	Event count per user	Total revenue
0	screen_view	694729	23254	30.865870	0
1	notification_receive	125146	1700	138.896800	0
2	user_engagement	124836	22699	5.622230	0
3	notification_dismiss	70128	1369	144.000000	0
4	session_start	61163	23226	3.121357	0

In [25]:

data['Event Report'].describe()

Out[25]:

	Event count	Total users	Event count per user	Total revenue
count	379.000000	379.000000	379.000000	379.0
mean	3478.968338	583.583113	3.220647	0.0
std	37073.635167	2791.449046	10.403279	0.0
min	0.000000	1.000000	0.000000	0.0
25%	7.000000	3.500000	1.252451	0.0
50%	63.000000	31.000000	1.750000	0.0
75%	503.500000	238.000000	2.793359	0.0
max	694729.000000	23254.000000	144.000000	0.0

In [26]:

data['Conversion Report'].info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 18 entries, 0 to 17
Data columns (total 4 columns):
#   Column          Non-Null Count  Dtype
---  -
0   Event name      18 non-null    object
1   Conversions     18 non-null    int64
2   Total users     18 non-null    int64
3   Total revenue   18 non-null    int64
dtypes: int64(3), object(1)
memory usage: 704.0+ bytes
```

In [33]: data['Conversion Report'].head()

```
Out[33]:
```

	Event name	Conversions	Total users	Total revenue
0	notification_receive	94890	1311	0
1	session_start	56203	21674	0
2	first_open	22872	23059	0
3	app_remove	12468	12538	0
4	Promilo111_otp_screen	1738	855	0

In [28]: data['Conversion Report'].describe()

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Out[28]:
```

	Conversions	Total users	Total revenue
count	18.000000	18.000000	18.0
mean	10773.000000	3468.777778	0.0
std	25160.036433	7461.269980	0.0
min	20.000000	10.000000	0.0
25%	127.250000	33.750000	0.0
50%	620.500000	246.500000	0.0
75%	1702.000000	940.500000	0.0
max	94890.000000	23059.000000	0.0

In [29]: data['Pages & Screens Report'].info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 42 entries, 0 to 41
Data columns (total 8 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Page path and screen class           42 non-null    object
1   Views                               42 non-null    int64
2   Users                               42 non-null    int64
3   Views per user                       42 non-null    float64
4   Average engagement time             42 non-null    float64
5   Event count                         42 non-null    int64
6   Conversions                         42 non-null    int64
7   Total revenue                       42 non-null    int64
dtypes: float64(2), int64(5), object(1)
memory usage: 2.8+ KB
```

In [32]: data['Pages & Screens Report'].head()

```
Out[32]:
```

	Page path and screen class	Views	Users	Views per user	Average engagement time	Event count	Conversions	Total revenue
0	Flutter	156708	8726	17.958740	83.41222	203901	328	0
1	MainActivity	44326	8978	4.937180	78.29216	53374	101	0
2	feeds	18514	4358	4.248279	61.60005	37628	253	0
3	login	16883	7291	2.315595	34.88177	40772	435	0
4	my_rewards_screen	15381	2045	7.521271	94.17995	32910	5	0

In [31]: data['Pages & Screens Report'].describe()

Out[31]:

	Views	Users	Views per user	Average engagement time	Event count	Conversions	Total revenue
count	42.000000	42.000000	42.000000	42.000000	42.000000	42.000000	42.0
mean	7081.261905	1524.761905	3.036123	48.898515	13417.547619	2145.690476	0.0
std	24926.556037	2628.069168	3.001363	58.750556	36182.217422	13652.911458	0.0
min	0.000000	2.000000	0.000000	0.001093	4.000000	0.000000	0.0
25%	69.250000	23.250000	1.510656	9.340753	146.750000	0.000000	0.0
50%	736.500000	301.000000	1.864079	35.592545	1330.500000	1.500000	0.0
75%	2734.750000	1402.500000	3.696037	67.387118	6303.750000	17.750000	0.0
max	156708.000000	9145.000000	17.958740	304.333300	203901.000000	88518.000000	0.0

In [36]:

data['Demographics Report'].info()

<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 47 entries, 0 to 46  
Data columns (total 10 columns):  
# Column Non-Null Count Dtype   
--- -  
0 Country 47 non-null object   
1 Users 47 non-null int64   
2 New users 47 non-null int64   
3 Engaged sessions 47 non-null int64   
4 Engagement rate 47 non-null float64  
5 Engaged sessions per user 47 non-null float64  
6 Average engagement time 47 non-null float64  
7 Event count 47 non-null int64   
8 Conversions 47 non-null int64   
9 Total revenue 47 non-null int64   
dtypes: float64(3), int64(6), object(1)  
memory usage: 3.8+ KB

In [37]:

data['Demographics Report'].head()

Out[37]:

	Country	Users	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count	Conversions	Total revenue
0	India	23024	22528	41479	0.593626	1.801555	334.81660	1312097	192766	0
1	United States	272	213	197	0.491272	0.724265	50.96324	3157	643	0
2	Canada	37	18	25	0.416667	0.675676	43.21622	410	121	0
3	(not set)	36	36	17	0.459459	0.472222	24.80556	241	54	0
4	United Kingdom	20	8	13	0.371429	0.650000	61.85000	289	43	0

In [35]:

data['Demographics Report'].describe()

Out[35]:

	Users	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count	Conversions	Total revenue
count	47.000000	47.000000	47.000000	47.000000	47.000000	47.000000	4.700000e+01	47.000000	47.0
mean	500.148936	486.638298	890.340426	0.561662	0.835367	48.376626	2.805381e+04	4125.829787	0.0
std	3357.099816	3285.103773	6049.238031	0.358970	0.568228	93.511799	1.913692e+05	28114.328609	0.0
min	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000e+00	0.000000	0.0
25%	1.000000	0.000000	1.000000	0.364286	0.550000	6.800000	7.000000e+00	2.000000	0.0
50%	2.000000	1.000000	1.000000	0.533333	1.000000	17.000000	2.300000e+01	4.000000	0.0
75%	7.000000	3.000000	6.000000	1.000000	1.000000	48.428570	8.650000e+01	15.500000	0.0
max	23024.000000	22528.000000	41479.000000	1.000000	2.666667	536.000000	1.312097e+06	192766.000000	0.0

In [38]:

data['Citiwise Report'].describe()

Out[38]:

	Users	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count	Conversions	Total revenue
count	574.000000	574.000000	574.00000	574.000000	574.000000	574.000000	574.000000	574.000000	574.0
mean	46.203833	39.846690	71.61324	0.489662	0.884915	94.093768	2297.088850	337.829268	0.0
std	290.091708	267.115856	656.03377	0.341660	0.750856	202.850678	26179.153773	3074.301547	0.0
min	0.000000	0.000000	0.00000	0.000000	0.000000	0.000000	1.000000	0.000000	0.0
25%	1.000000	1.000000	1.00000	0.250000	0.500000	7.000000	10.000000	2.000000	0.0
50%	2.000000	1.000000	2.00000	0.497547	1.000000	27.500000	35.000000	5.000000	0.0
75%	7.750000	5.000000	7.00000	0.724026	1.000000	98.402298	162.750000	23.000000	0.0
max	6097.000000	5685.000000	15013.00000	1.000000	7.000000	2721.000000	607200.000000	62939.000000	0.0

In [39]: data['Gender Report'].describe()

Out[39]:

	Users	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count	Conversions	Total revenue
count	3.000000	3.000000	3.000000	3.000000	3.000000	3.000000	3.000000	3.000000	3.0
mean	8434.666667	7624.000000	13835.000000	0.581626	1.601911	258.850067	439509.666667	64638.000000	0.0
std	4232.258184	4458.076828	8179.714665	0.049691	0.156300	161.608316	279116.984160	29061.744253	0.0
min	4944.000000	4304.000000	7877.000000	0.543091	1.450125	128.231900	274254.000000	35083.000000	0.0
25%	6081.000000	5090.500000	9172.000000	0.553584	1.521685	168.486300	278379.000000	50367.000000	0.0
50%	7218.000000	5877.000000	10467.000000	0.564077	1.593244	208.740700	282504.000000	65651.000000	0.0
75%	10180.000000	9284.000000	16814.000000	0.600893	1.677805	324.159150	522137.500000	79415.500000	0.0
max	13142.000000	12691.000000	23161.000000	0.637710	1.762365	439.577600	761771.000000	93180.000000	0.0

In [40]: data['User By Interest'].describe()

Out[40]:

	Users	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count	Conversions	Total revenue
count	89.000000	89.000000	89.000000	89.000000	89.000000	89.000000	89.000000	89.000000	89.0
mean	2411.044944	1911.280899	3373.932584	0.619191	1.339172	219.531871	110565.202247	19512.898876	0.0
std	2480.482385	2059.110984	3544.597874	0.081918	0.258550	366.821595	114195.875599	19401.222657	0.0
min	10.000000	3.000000	9.000000	0.450000	0.684211	54.263160	161.000000	27.000000	0.0
25%	107.000000	72.000000	142.000000	0.576499	1.218631	126.944900	5805.000000	2971.000000	0.0
50%	1942.000000	1566.000000	2608.000000	0.618416	1.345895	162.643800	90176.000000	16412.000000	0.0
75%	3652.000000	2872.000000	5443.000000	0.666153	1.459730	208.648200	174955.000000	29630.000000	0.0
max	10950.000000	9256.000000	15680.000000	0.840000	2.066351	3471.304000	491025.000000	86846.000000	0.0

In [41]: data['User by Language'].describe()

Out[41]:

	Users	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count	Conversions	Total revenue
count	24.000000	24.000000	24.000000	24.000000	24.000000	24.000000	2.400000e+01	24.000000	24.0
mean	975.916667	953.000000	1744.833333	0.535394	1.046263	65.527106	5.493871e+04	8079.750000	0.0
std	4585.079838	4482.258359	8285.991965	0.321298	0.642224	83.316618	2.647787e+05	38741.203482	0.0
min	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	4.000000e+00	1.000000	0.0
25%	1.000000	1.000000	1.000000	0.421144	0.750000	8.812500	1.075000e+01	2.000000	0.0
50%	7.000000	7.000000	7.000000	0.509036	1.000000	40.241175	1.060000e+02	21.000000	0.0
75%	21.750000	20.250000	37.750000	0.677083	1.310078	74.812500	6.312500e+02	85.000000	0.0
max	22495.000000	21990.000000	40639.000000	1.000000	2.384615	341.363500	1.297970e+06	189946.000000	0.0

In [42]: data['User By Age'].describe()

Out [42]:

	Users	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count	Conversions	Total revenue
count	7.000000	7.000000	7.000000	7.000000	7.000000	7.000000	7.000000	7.000000	7.0
mean	3763.142857	3267.428571	5929.857143	0.557245	1.323049	151.275793	188361.285714	27702.000000	0.0
std	4802.784277	4698.464389	8686.797289	0.065705	0.281679	137.114289	296206.859168	36282.992857	0.0
min	810.000000	552.000000	881.000000	0.504780	1.087654	52.306610	18661.000000	2946.000000	0.0
25%	1302.500000	882.000000	1486.000000	0.514917	1.129753	69.956920	24974.500000	4857.000000	0.0
50%	1422.000000	1081.000000	1640.000000	0.539829	1.181364	96.082360	33016.000000	8111.000000	0.0
75%	3601.000000	2919.500000	5520.000000	0.565480	1.493307	174.202220	199701.000000	36916.500000	0.0
max	14303.000000	13636.000000	24976.000000	0.695308	1.746207	422.223300	817501.000000	99310.000000	0.0

In [43]: data['Google Ads Report'].describe()

Out [43]:

	Users	Sessions	Engaged sessions	Google Ads clicks	Google Ads cost	Google Ads cost per click	Conversions	Cost per conversion	Event count	Total revenue
count	15.000000	15.000000	15.000000	15.000000	15.000000	15.000000	15.000000	15.000000	15.000000	15.0
mean	666.200000	1274.133333	756.666667	17021.200000	20089.196451	1.237784	1421.533333	12.410360	12334.933333	0.0
std	1348.253696	2721.749093	1558.314184	36934.069186	44773.537357	0.635640	3047.587755	3.915273	24145.503978	0.0
min	2.000000	5.000000	5.000000	14.000000	16.623960	0.485200	5.000000	3.324793	163.000000	0.0
25%	62.000000	100.500000	65.500000	1778.500000	1399.447500	0.745567	125.500000	12.390005	1434.000000	0.0
50%	370.000000	610.000000	425.000000	4475.000000	8839.723000	1.131950	709.000000	13.106330	7504.000000	0.0
75%	621.000000	971.000000	654.500000	14202.000000	16304.610000	1.656639	1073.500000	14.614405	10844.500000	0.0
max	5429.000000	10936.000000	6276.000000	147100.000000	179175.000000	2.415885	12257.000000	18.408230	97802.000000	0.0



In [ ]:

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