Final Presentation

December 8, 2020

Cinny Lin (ycl461)

Executive Summary

Customer Segmentation

Our group is most distinguishable by **age**, we can create different local content for different age groups (**young adults**, **middle-aged**, and **the elderly**).

Attribution & Allocation

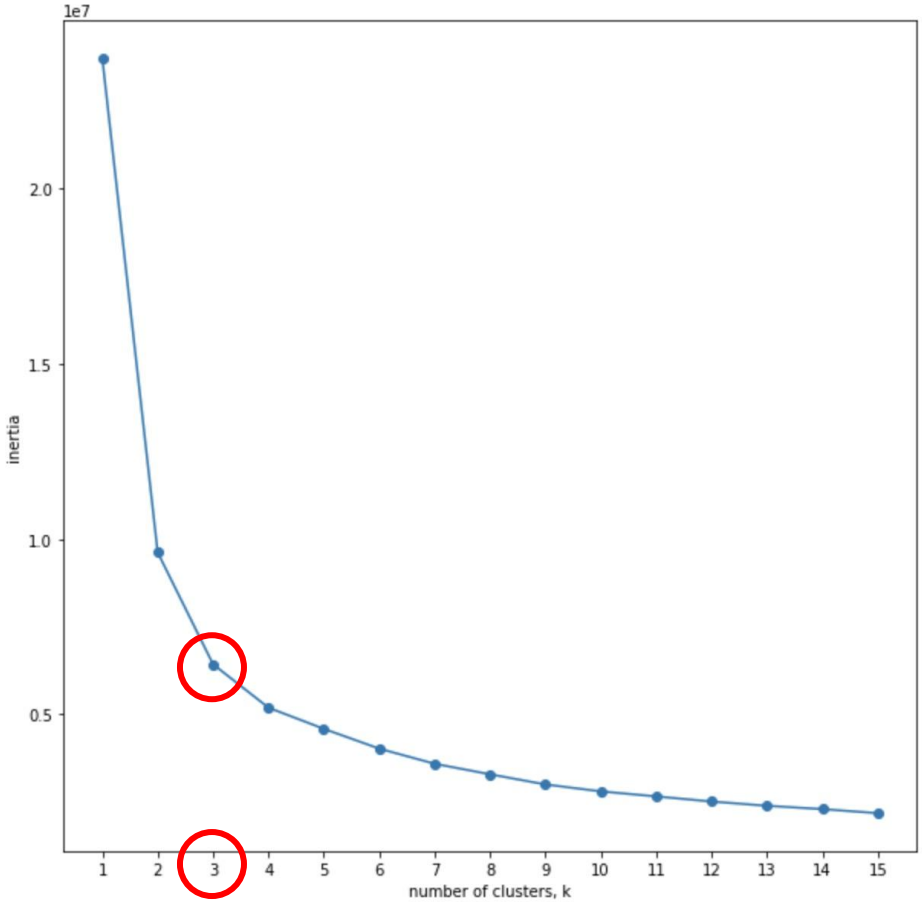
If we allocate **10%** of our current profit and invest 279,000 AED on display, 12,700 AED on facebook, and 2,200 AED on search, we can get **5,175** conversions, increasing conversion by **10%**

Customer Segmentation

K-means clustering

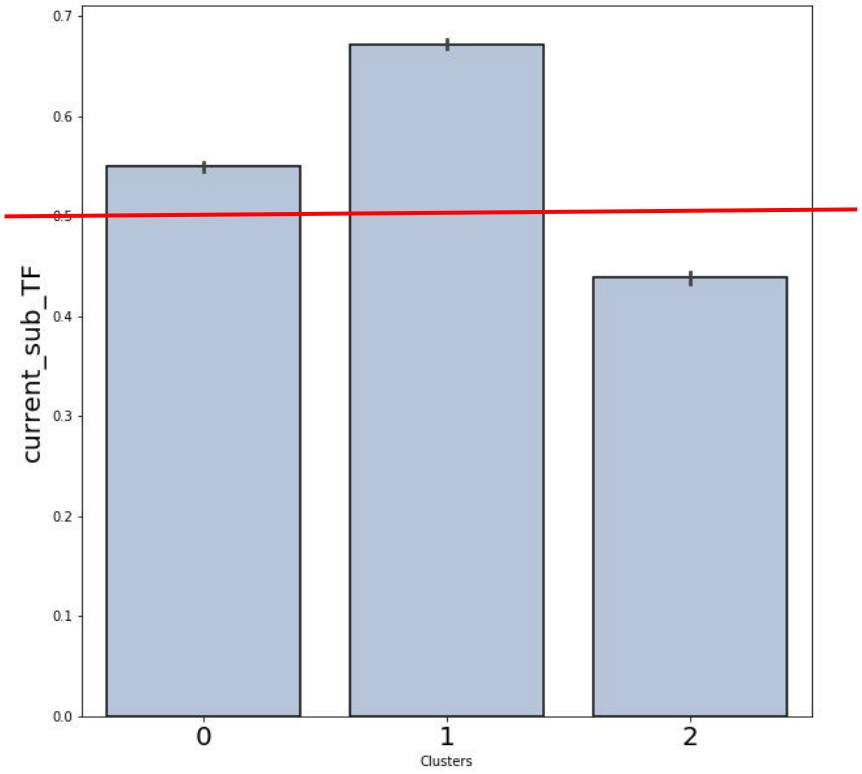
Elbow Plot

How many clusters do we need?

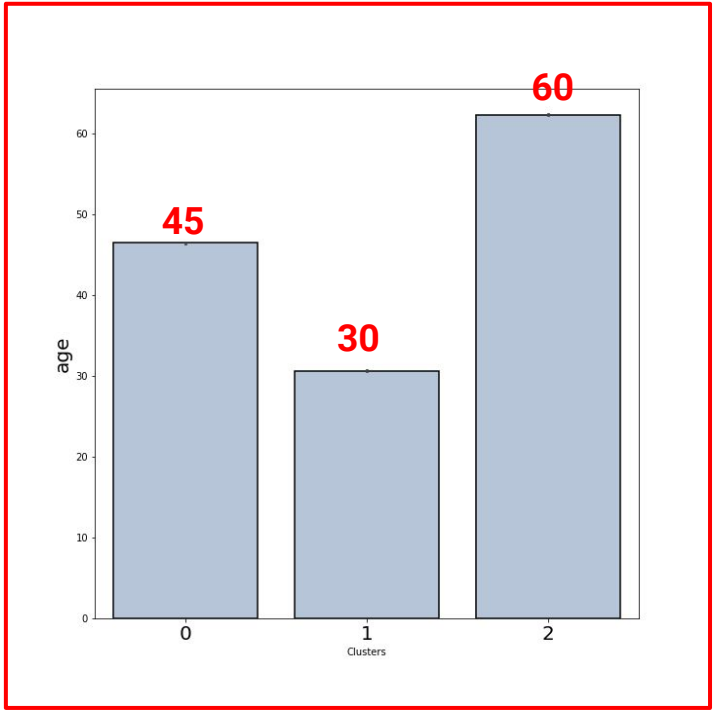


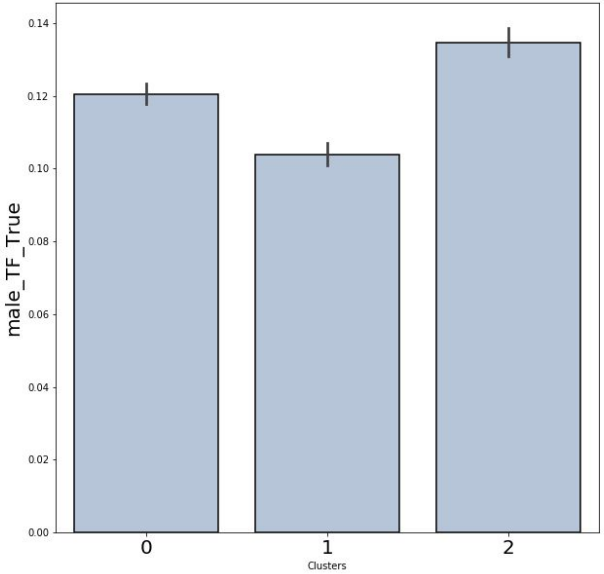
Clustering results

current_sub_TF

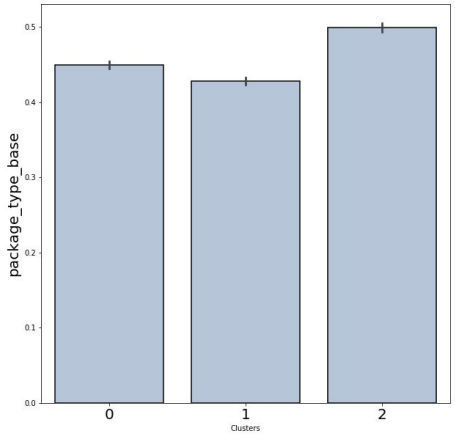


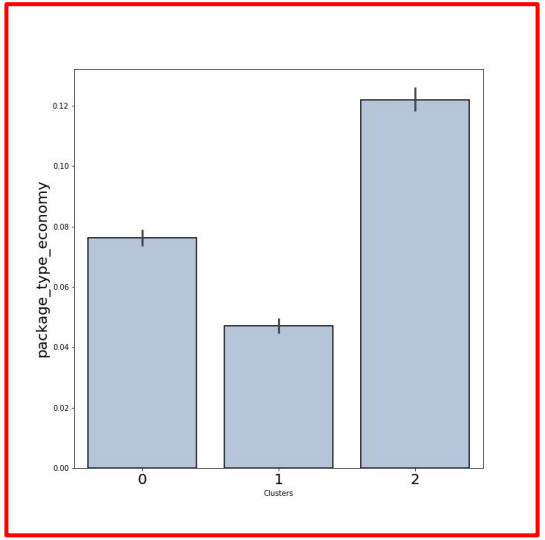
age & gender

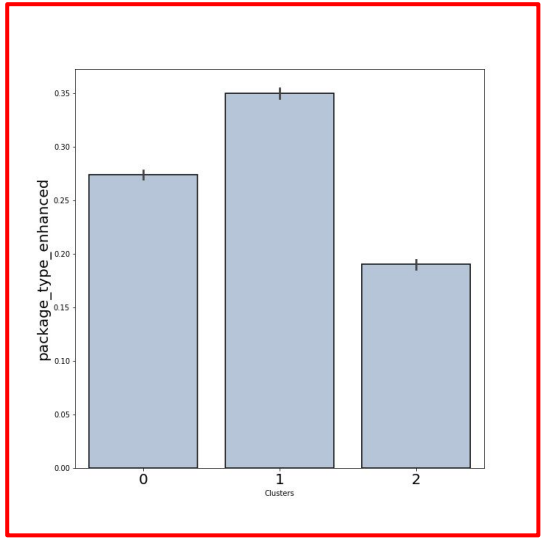

60
45
30
age
0
10
20
30
40
50
60
0
1
2
Clusters


male_TF_True
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0
1
2
Clusters

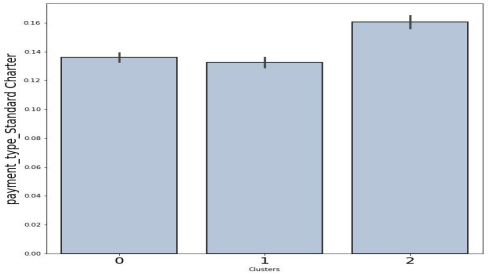
package_type

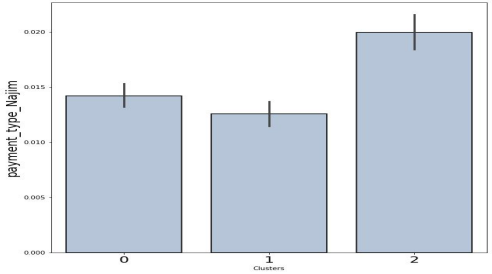


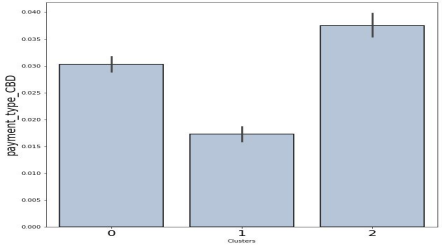


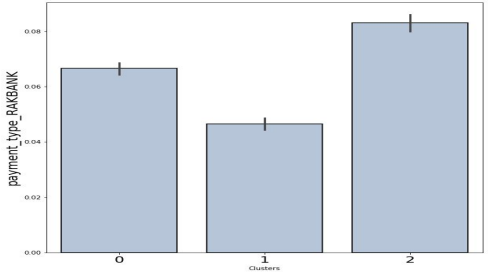


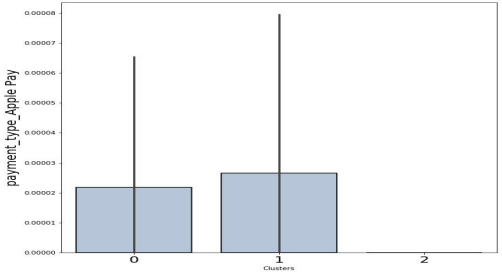
payment_type

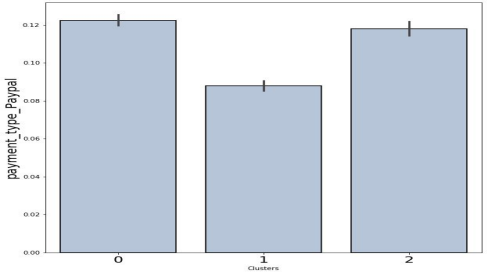




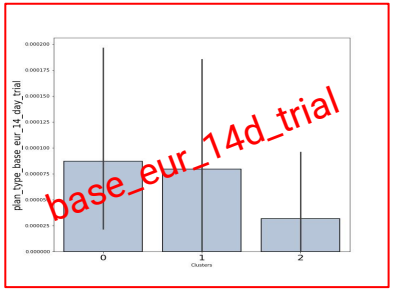


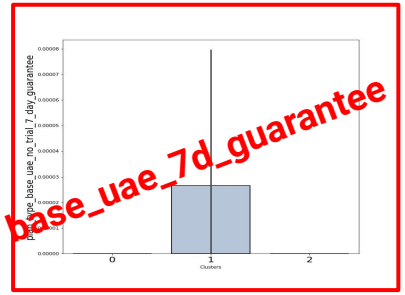


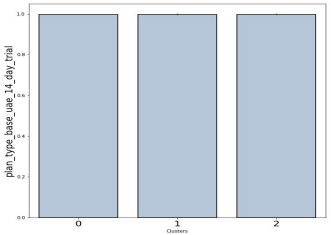


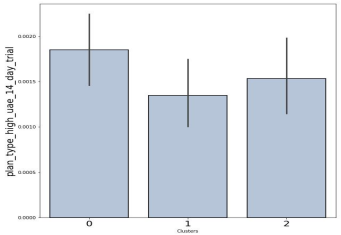


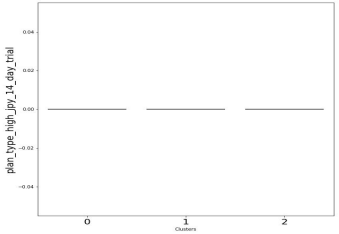
plan_type

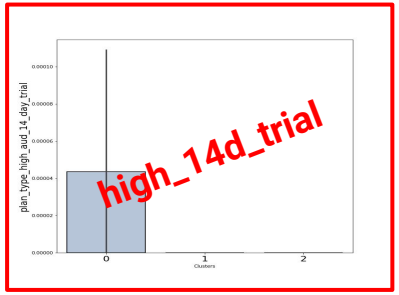

plan_type_base_eur_14_day_trial
Clusters
base_eur_14d_trial

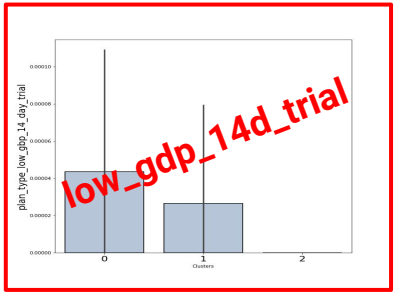

plan_type_base_uae_no_trial_7_day_guarantee
Clusters
base_uae_7d_guarantee

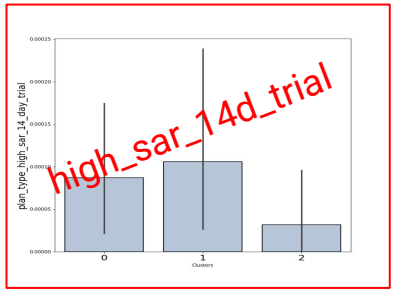

plan_type_base_uae_14_day_trial
Clusters


plan_type_high_uae_14_day_trial
Clusters

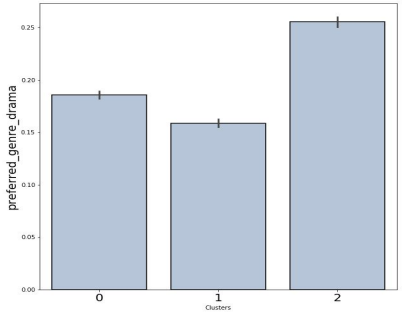

plan_type_high_jpy_14_day_trial
Clusters

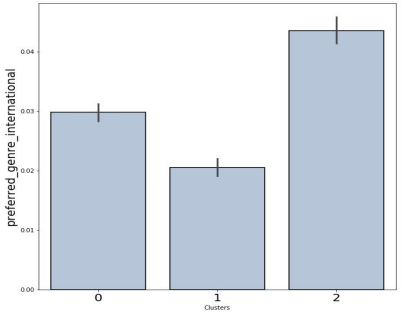

plan_type_high_aud_14_day_trial
Clusters
high_14d_trial

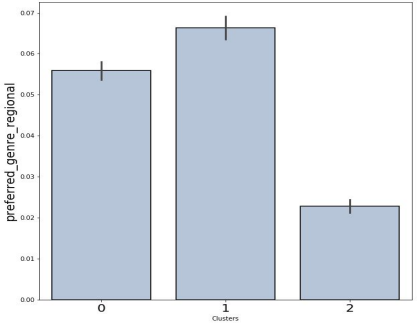

plan_type_low_gbp_14_day_trial
Clusters
low_gdp_14d_trial

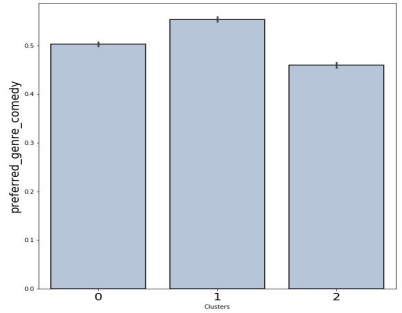

plan_type_high_sar_14_day_trial
Clusters
high_sar_14d_trial

preferred_genre









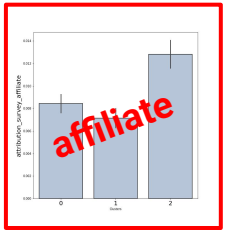
Marketing strategy

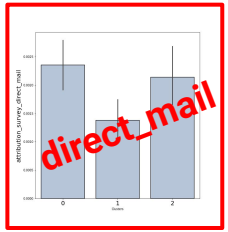
Three Groups

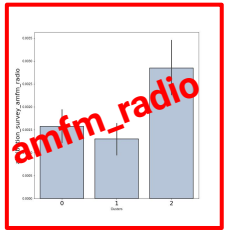
	Hard Workers	Young Players	Stay Homers
current_sub_TF	**0.55**	**0.65**	**0.45**
age	**45**	**30**	**60**
initial_card_declined	0.04	0.05	0.03
package_type	**base**	**enhanced**	**economy**
payment_type	n/a	Less CBD, Rakbank, Paypal	**No Apple Pay**
plan_type	high_14d_trial	base_uae_7d_guarantee	No base_eur, less_sar
preferred_genre	n/a	**regional**	**international**

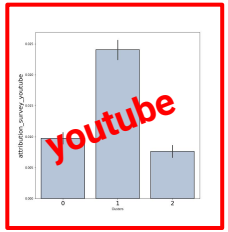
Attribution Allocation

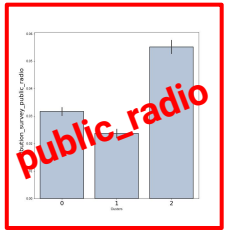
attribution_survey

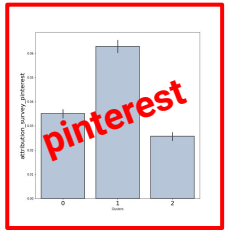


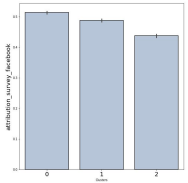


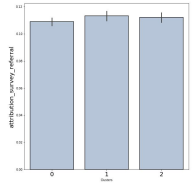


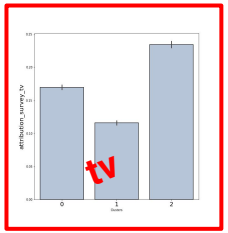


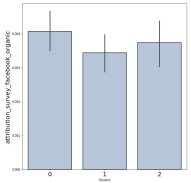


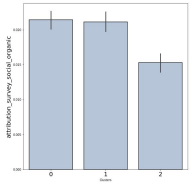


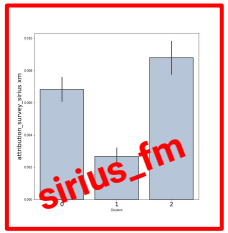


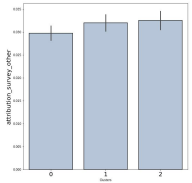


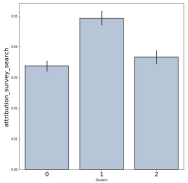


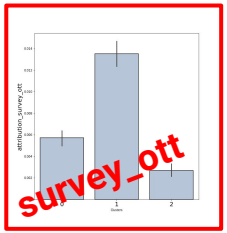


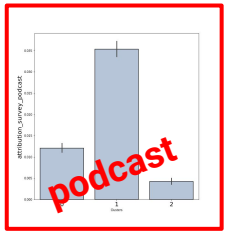




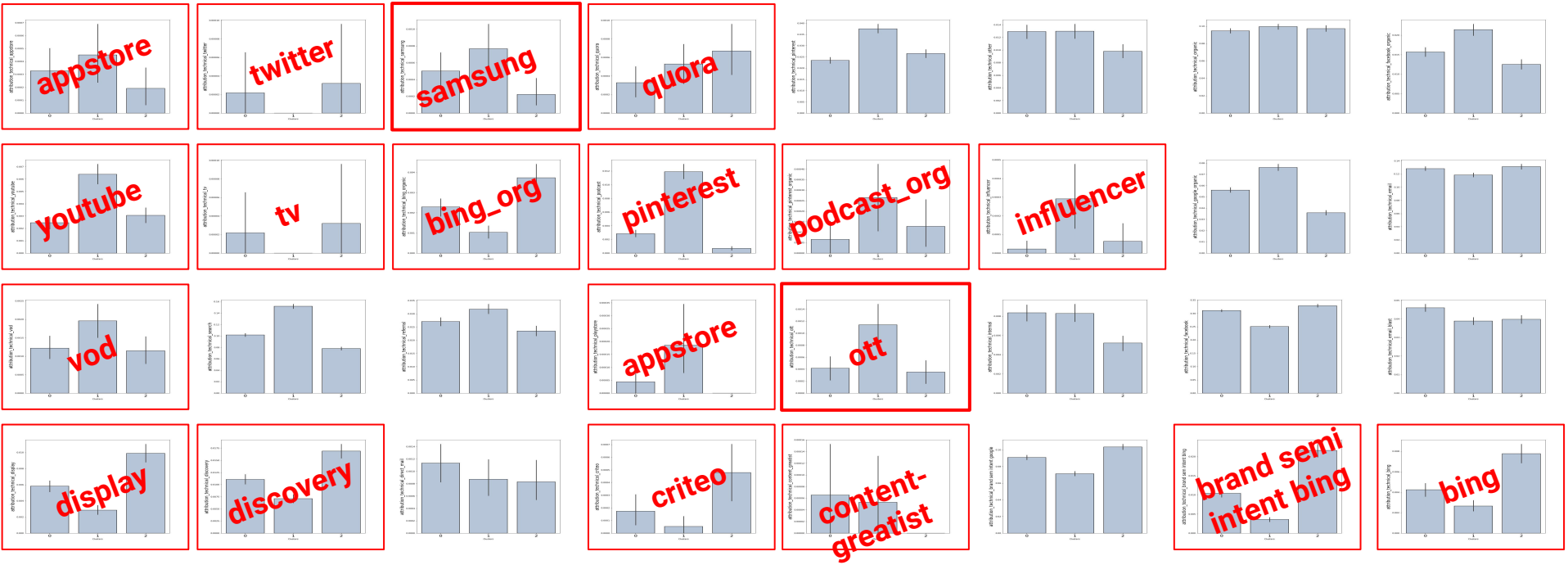






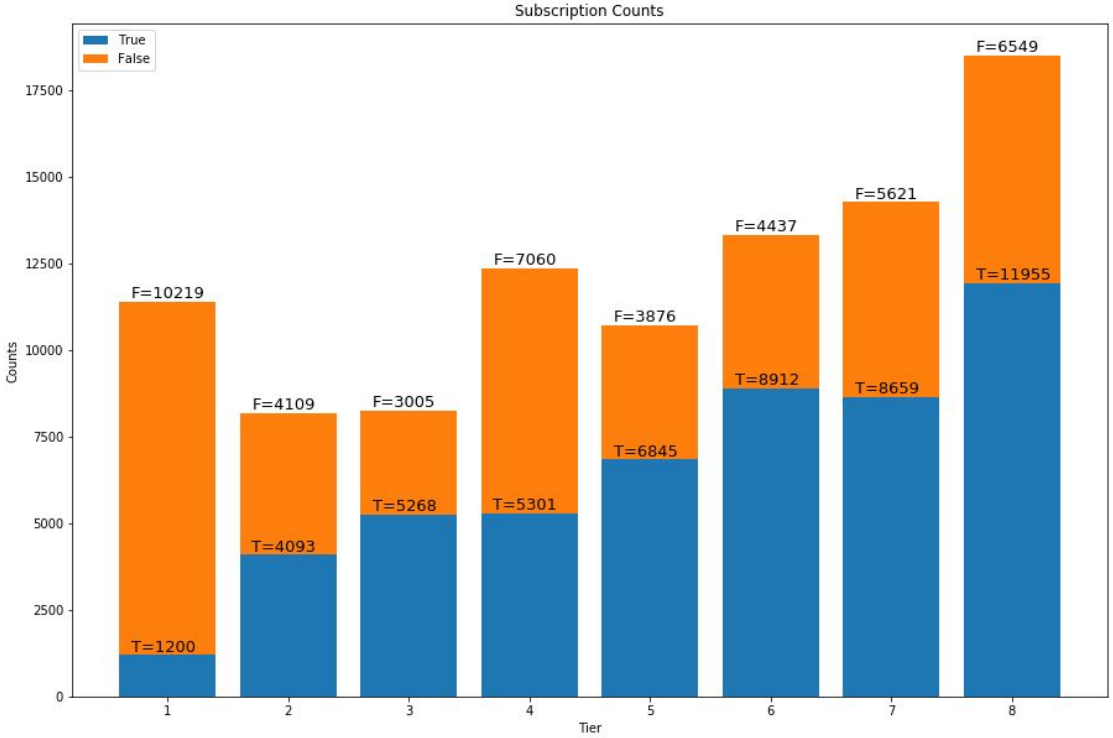


attribution_technical

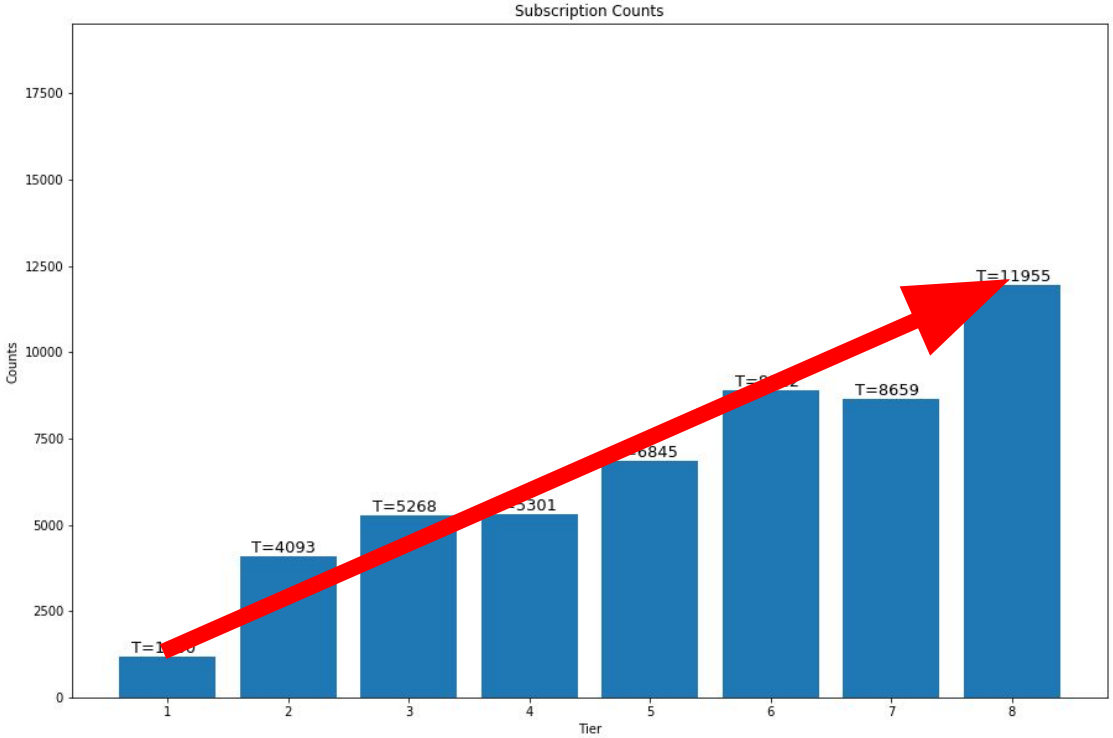


Subscriptions each Tier

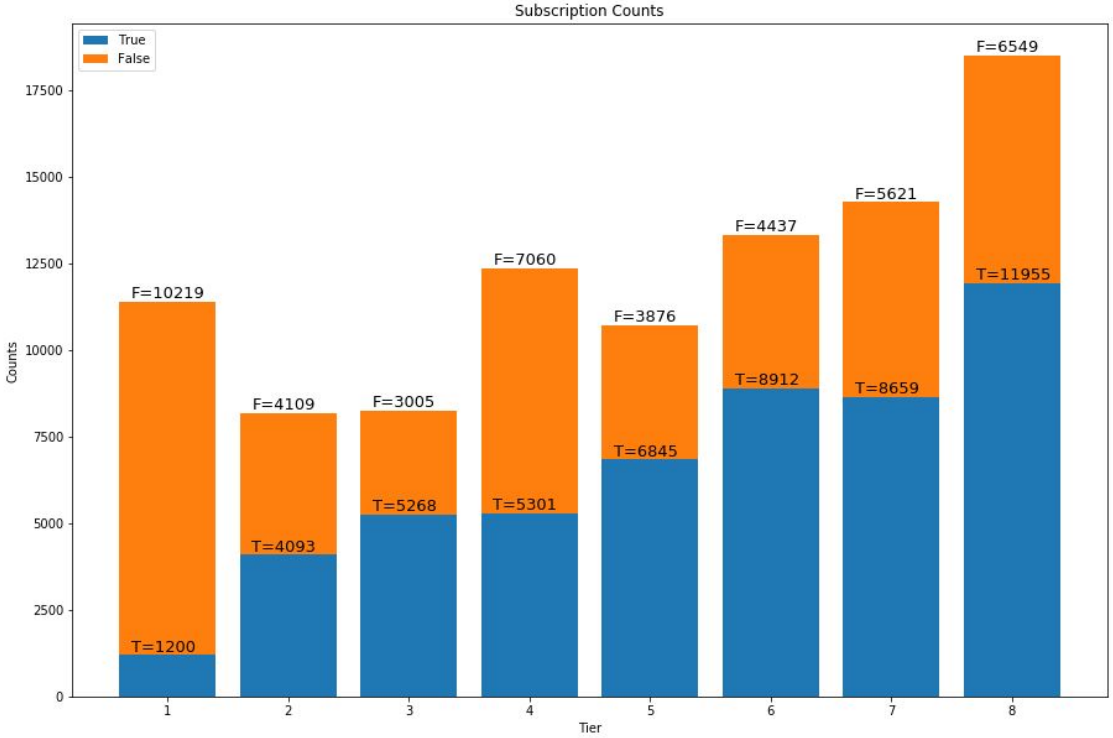
Tiers 1-8


Subscription Counts
True
False
Counts
Tier
0
2500
5000
7500
10000
12500
15000
17500
1
2
3
4
5
6
7
8
F=10219
T=1200
F=4109
T=4093
F=3005
T=5268
F=7060
T=5301
F=3876
T=6845
F=4437
T=8912
F=5621
T=8659
F=6549
T=11955

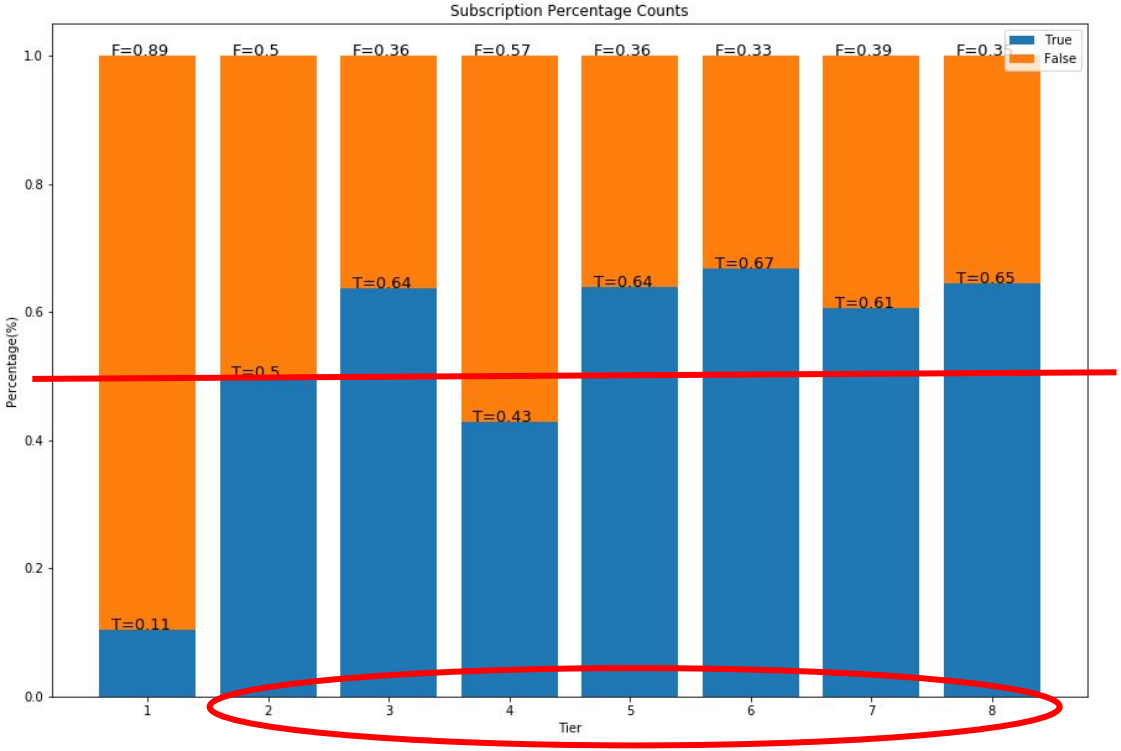
Tiers 1-8


Subscription Counts
Counts
Tier
17500
15000
12500
10000
7500
5000
2500
0
1
2
3
4
5
6
7
8
T=4093
T=5268
T=8659
T=11955

Tiers 1-8


Subscription Counts
True
False
Counts
Tier
0
2500
5000
7500
10000
12500
15000
17500
1
2
3
4
5
6
7
8
F=10219
T=1200
F=4109
T=4093
F=3005
T=5268
F=7060
T=5301
F=3876
T=6845
F=4437
T=8912
F=5621
T=8659
F=6549
T=11955

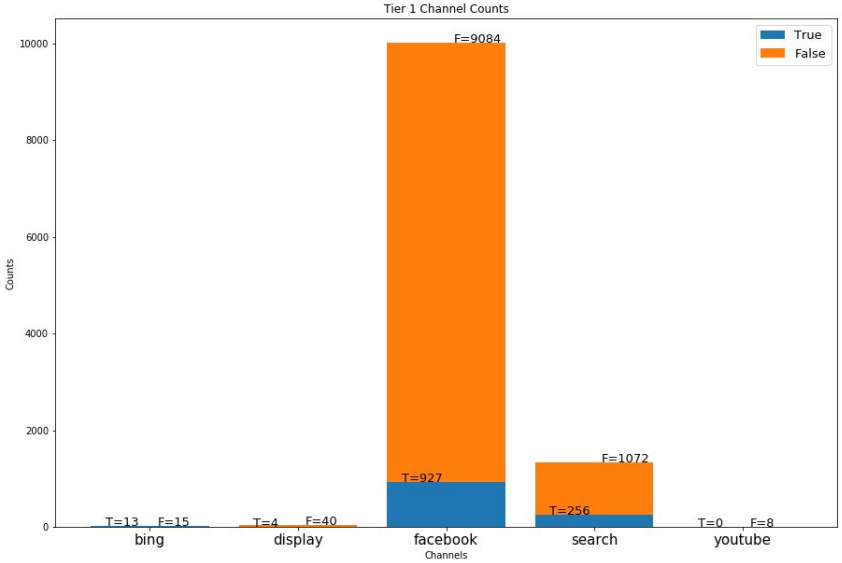
Tiers 1-8


Subscription Percentage Counts
True
False
F=0.89
F=0.5
F=0.36
F=0.57
F=0.36
F=0.33
F=0.39
F=0.3
T=0.11
T=0.5
T=0.64
T=0.43
T=0.64
T=0.67
T=0.61
T=0.65
Percentage(%)
Tier
0.0
0.2
0.4
0.6
0.8
1.0
1
2
3
4
5
6
7
8

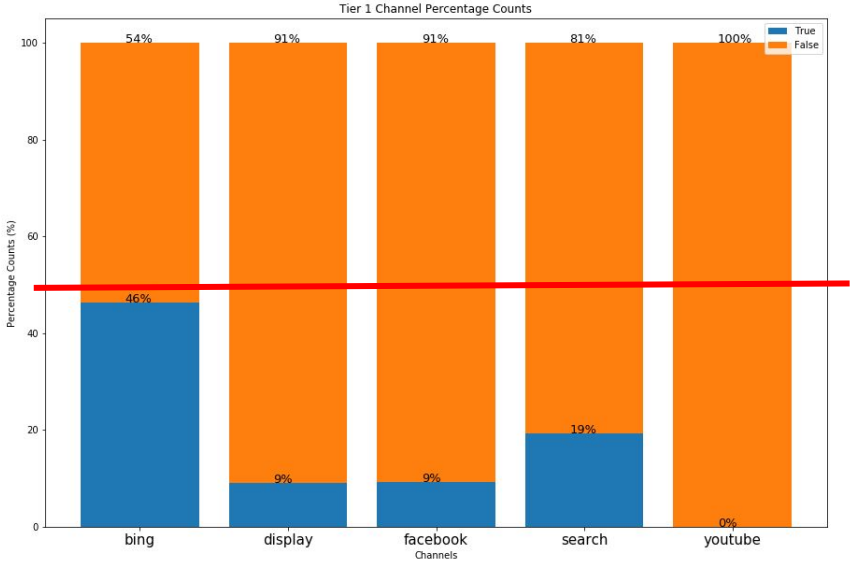
Conversions each channel/tier

Tier 1

Counts

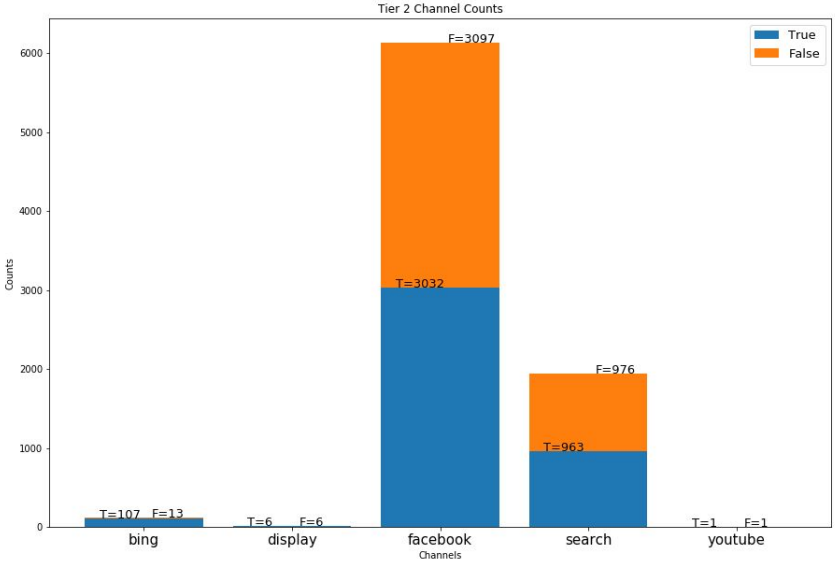


Percentage

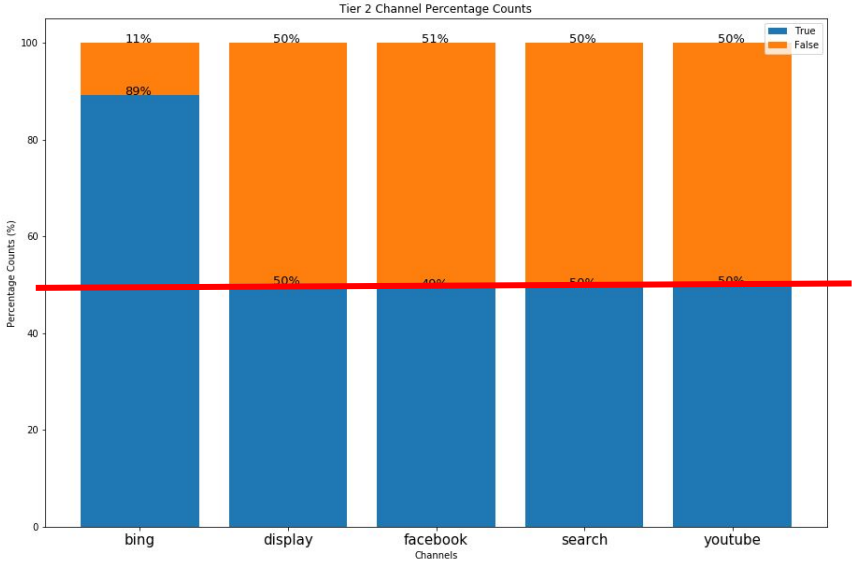


Tier 2

Counts

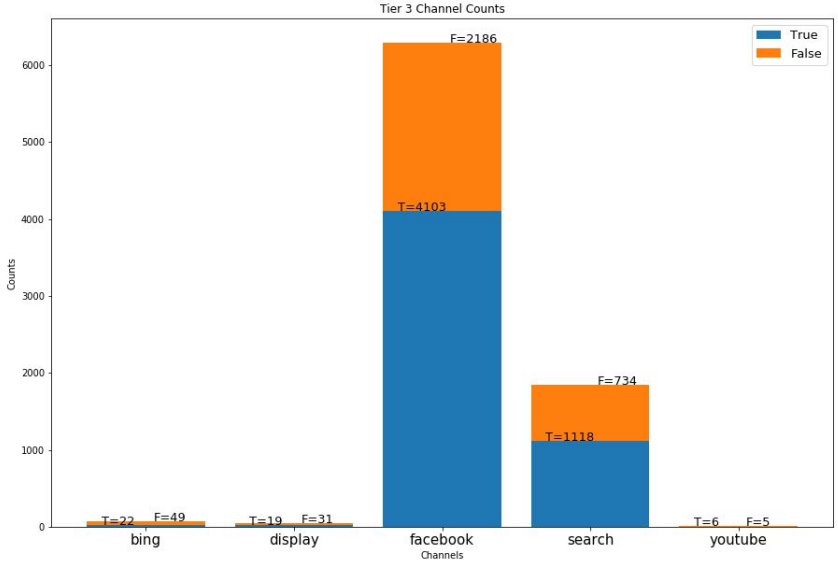


Percentage

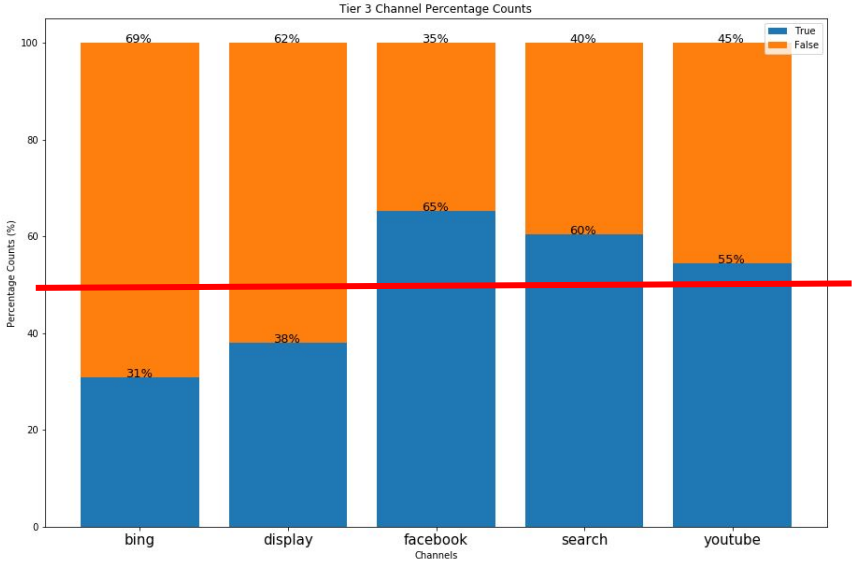


Tier 3

Counts

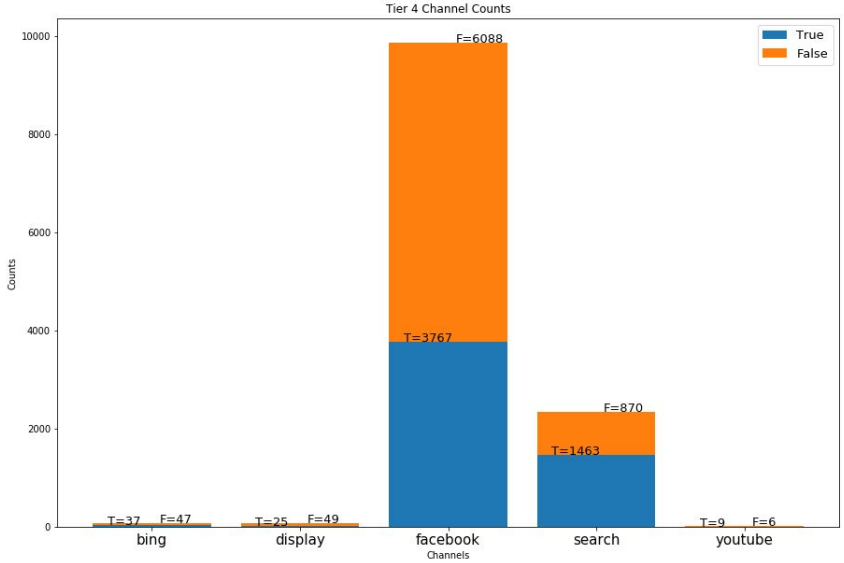


Percentage

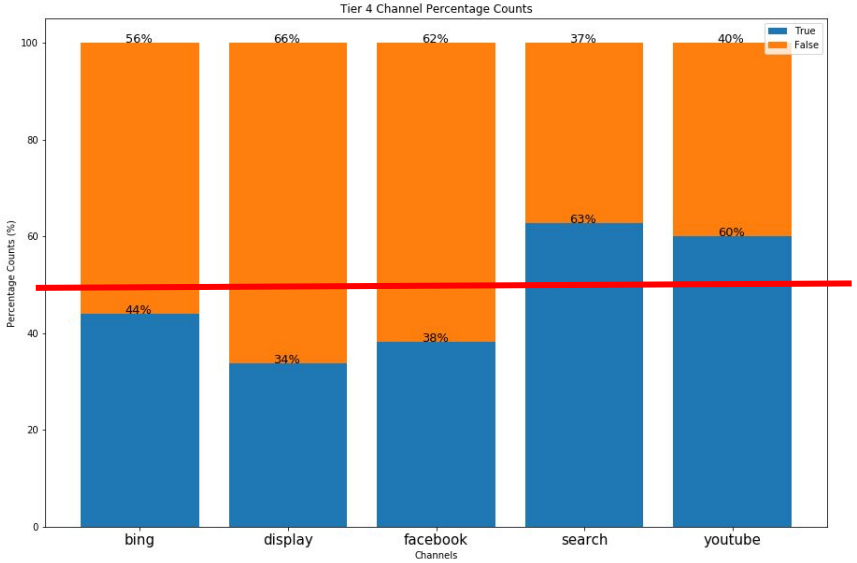


Tier 4

Counts

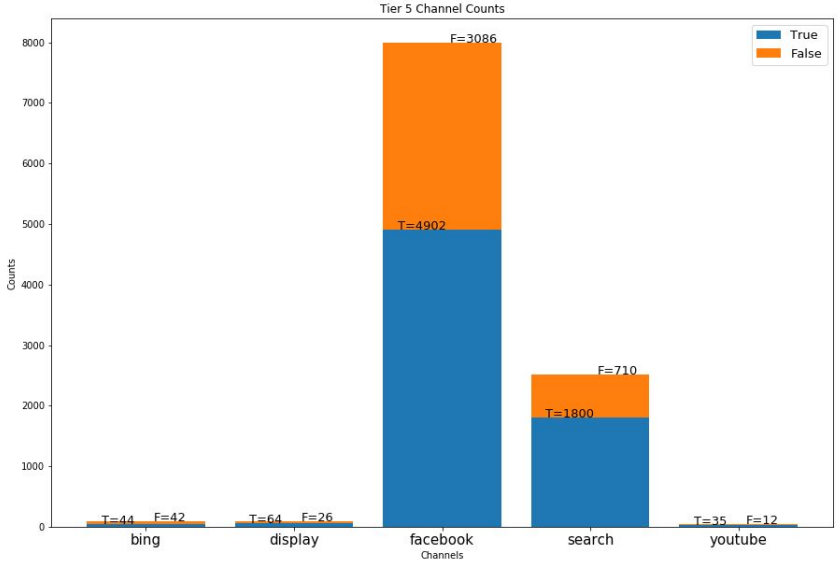


Percentage

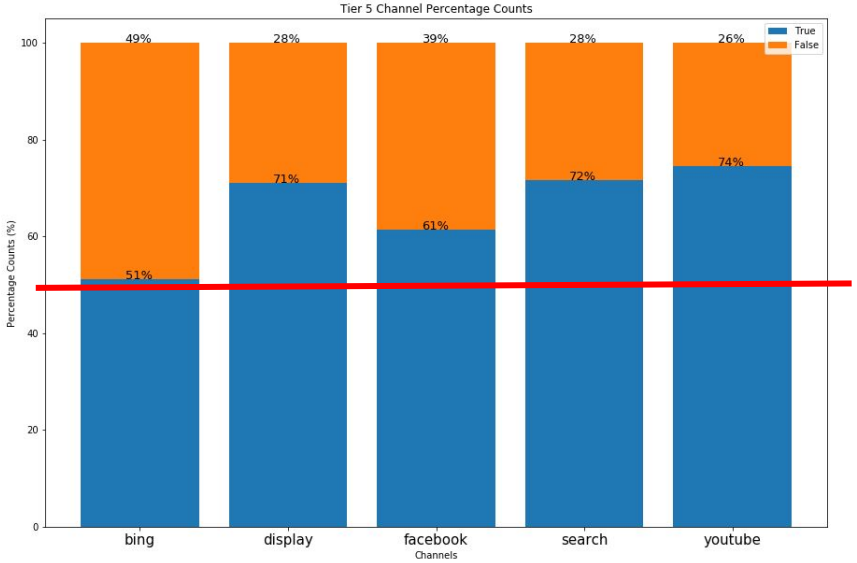


Tier 5

Counts

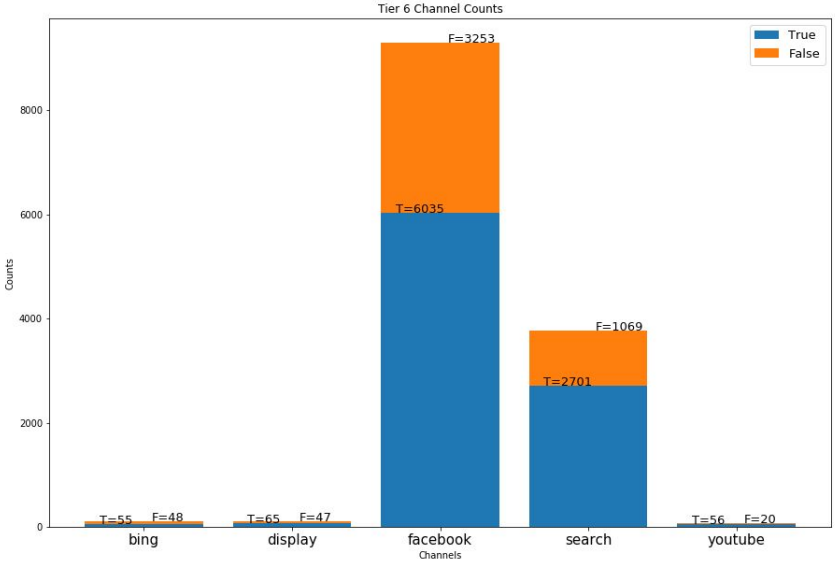


Percentage

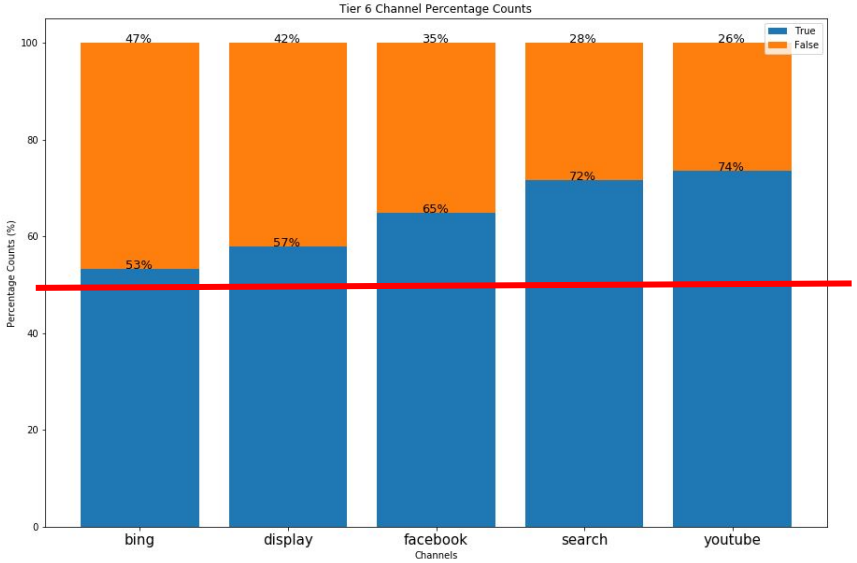


Tier 6

Counts

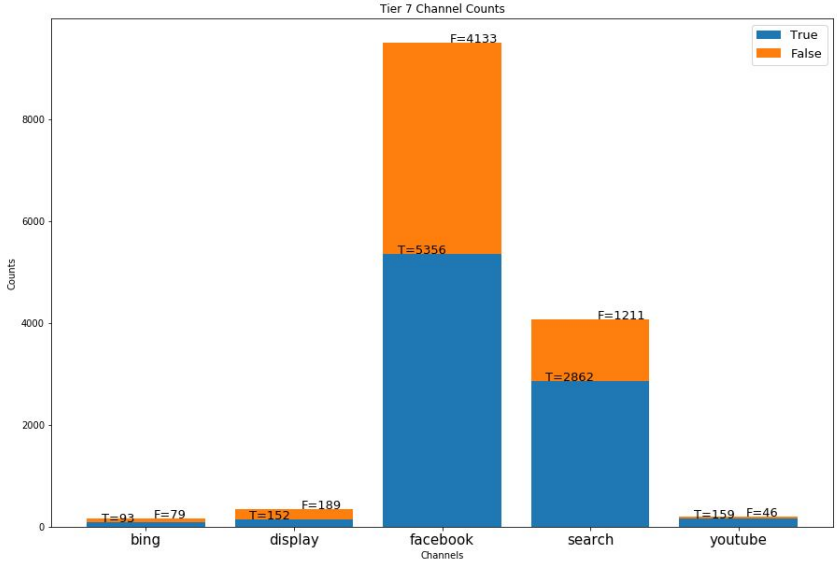


Percentage

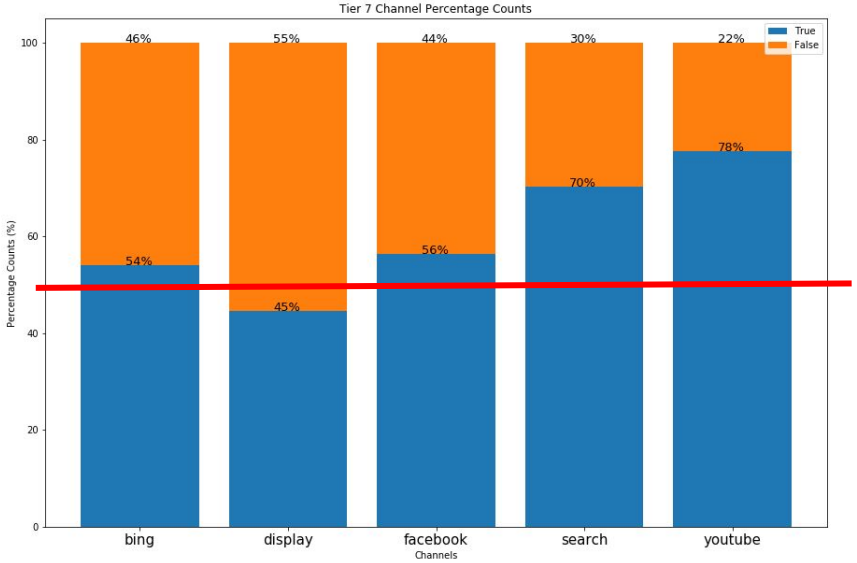


Tier 7

Counts

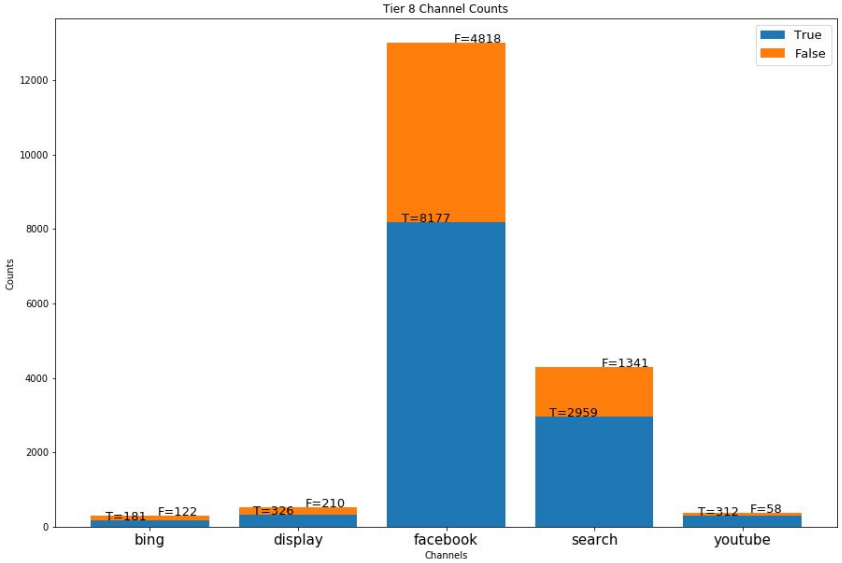


Percentage

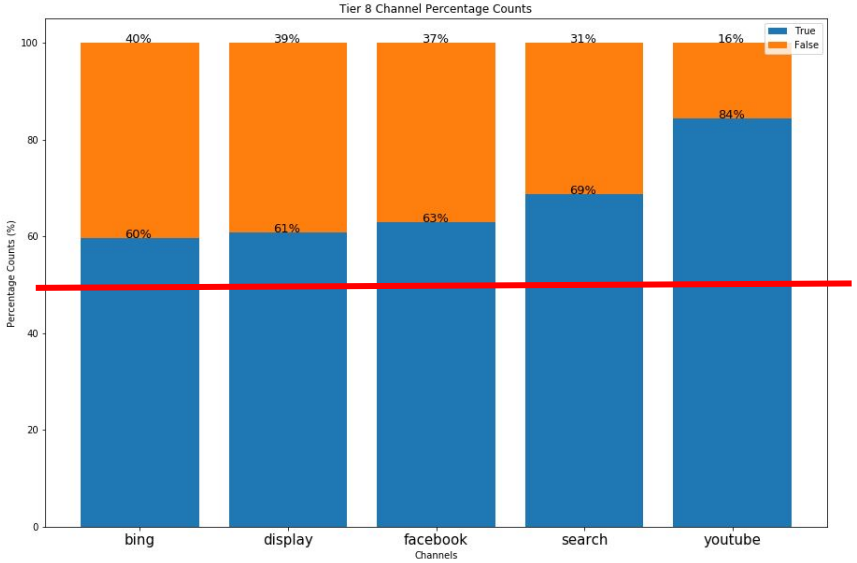


Tier 8

Counts

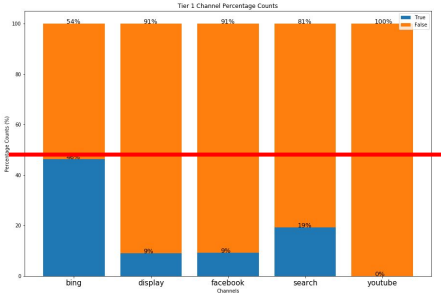


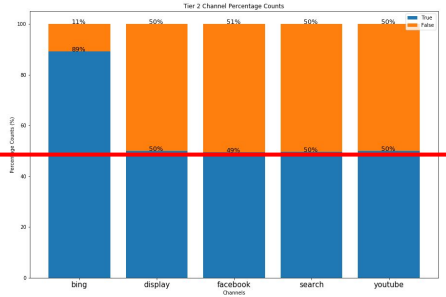
Percentage

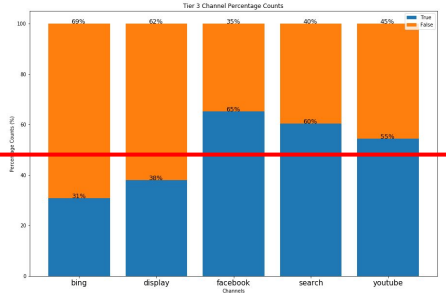


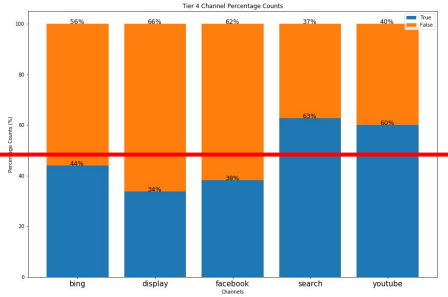
Compare across channels/tiers

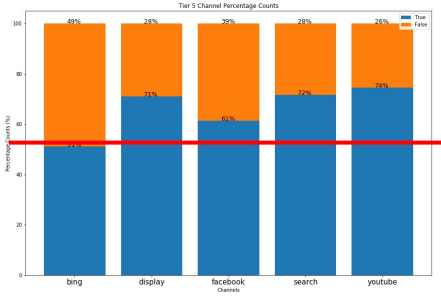
Conversion per channel across tiers

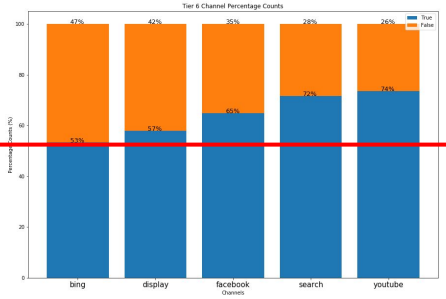


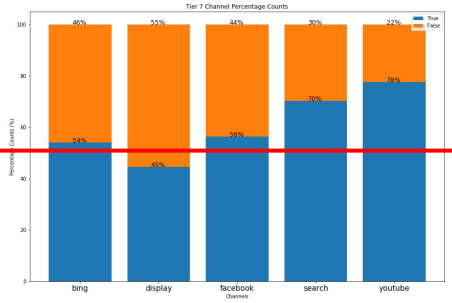


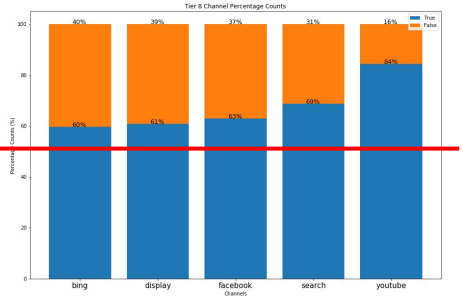






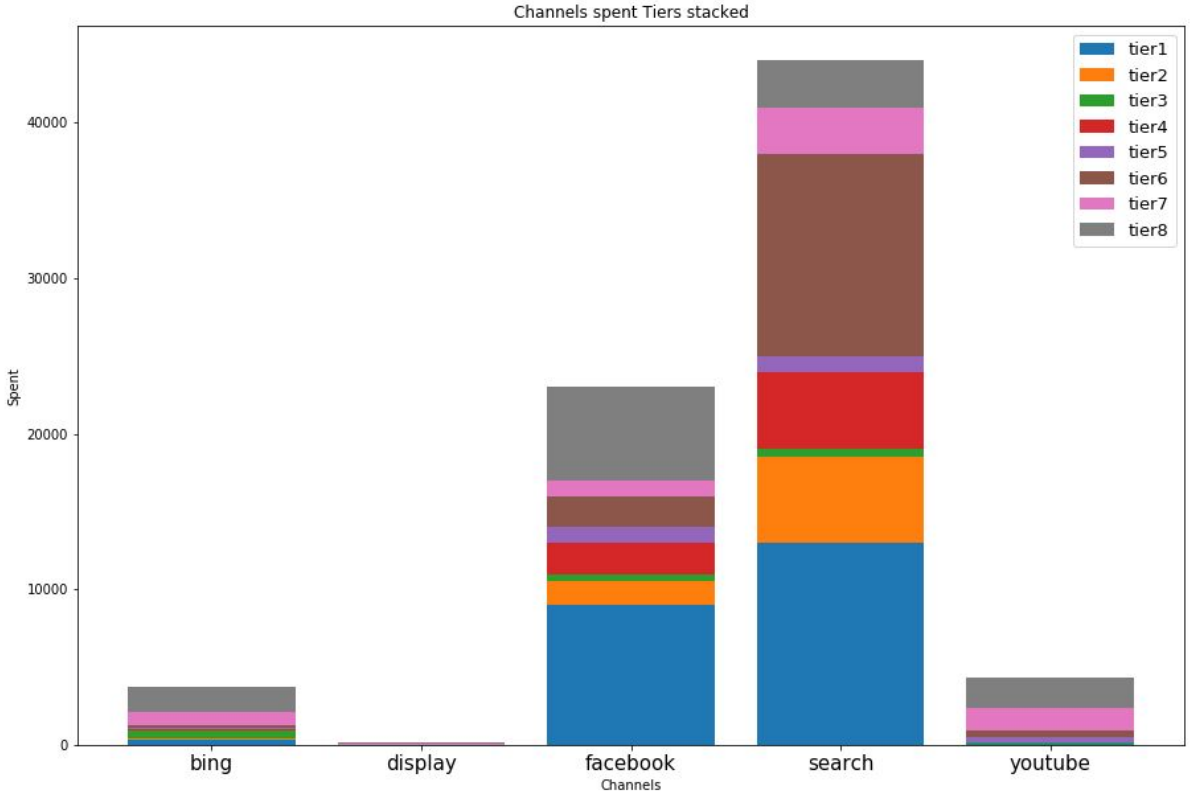




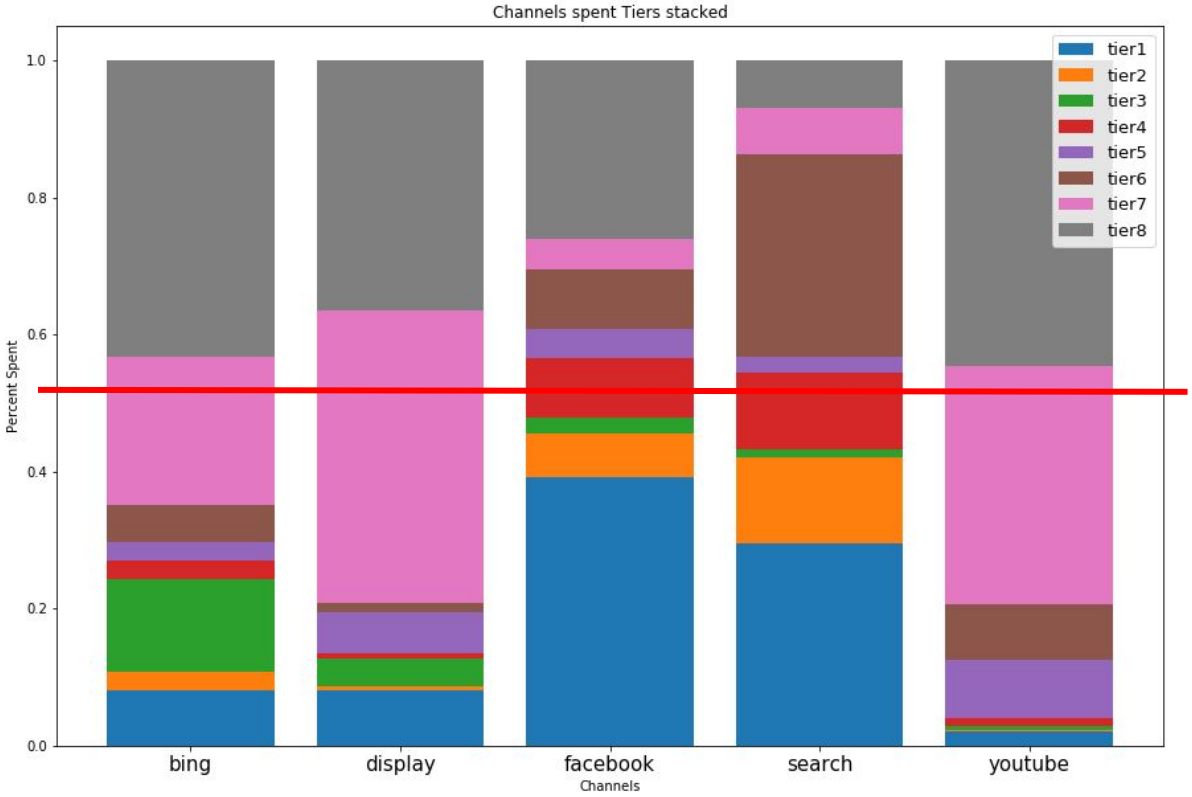


Compare across channels/tiers

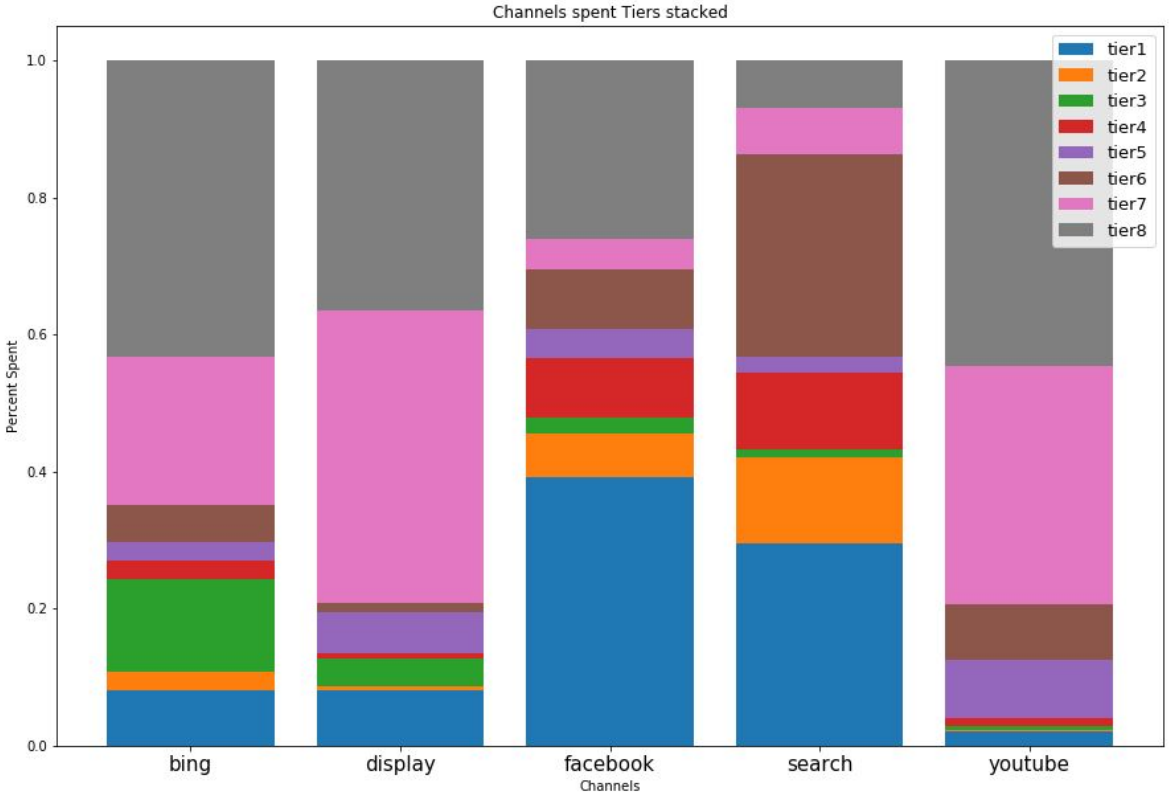
Tiers 1-8


Channels spent Tiers stacked
tier1
tier2
tier3
tier4
tier5
tier6
tier7
tier8
Spent
0
10000
20000
30000
40000
bing
display
facebook
search
youtube
Channels

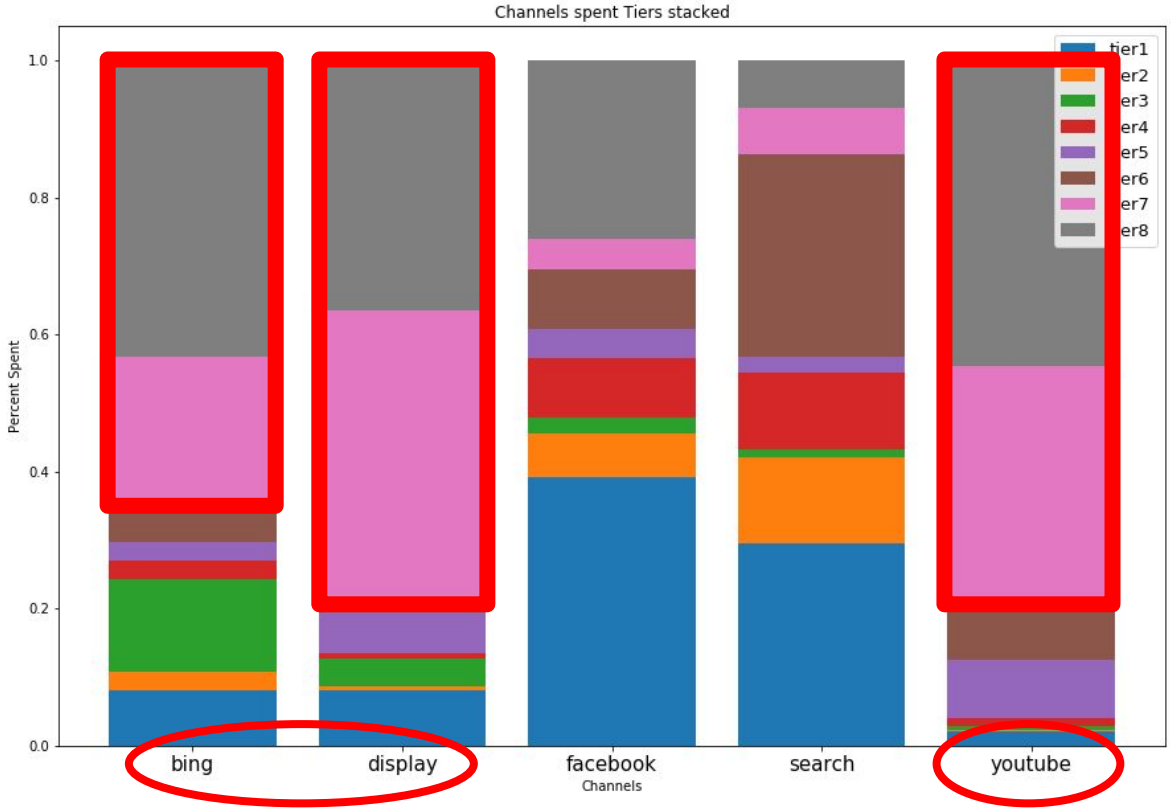
Tiers 1-8


Channels spent Tiers stacked
tier1
tier2
tier3
tier4
tier5
tier6
tier7
tier8
Percent Spent
1.0
0.8
0.6
0.4
0.2
0.0
bing
display
facebook
search
youtube
Channels

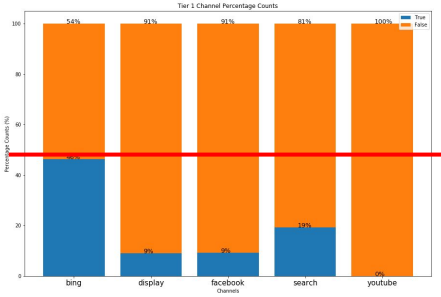
Tiers 1-8

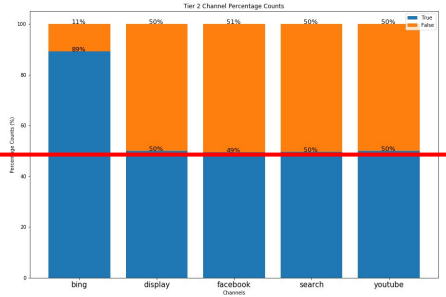

Channels spent Tiers stacked
tier1
tier2
tier3
tier4
tier5
tier6
tier7
tier8
Percent Spent
1.0
0.8
0.6
0.4
0.2
0.0
bing
display
facebook
search
youtube
Channels

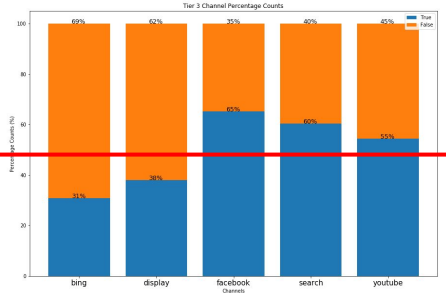
Tiers 1-8

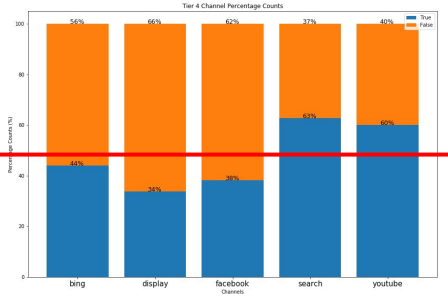

Channels spent Tiers stacked
Percent Spent
1.0
0.8
0.6
0.4
0.2
0.0
bing
display
facebook
search
youtube
Channels
tier1
er2
er3
er4
er5
er6
er7
er8

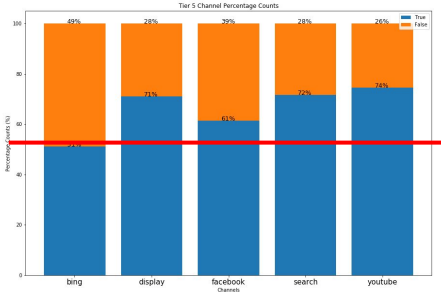
Conversion per channel across tiers

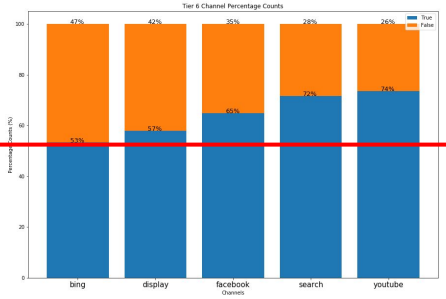


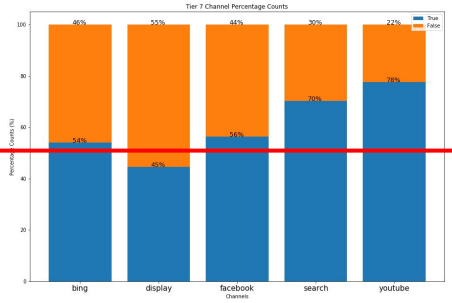


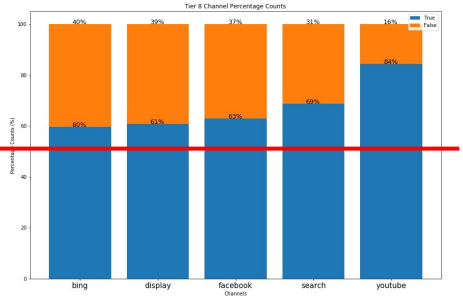




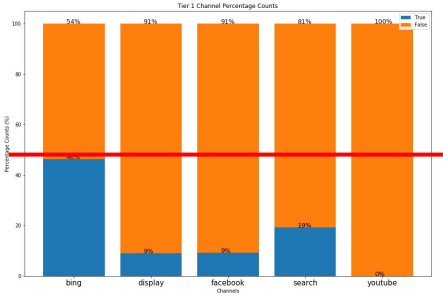


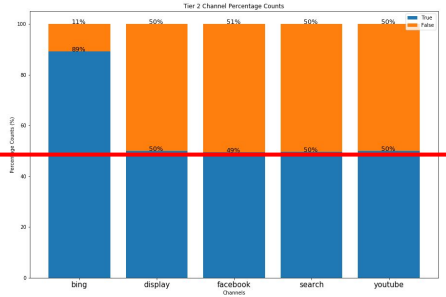


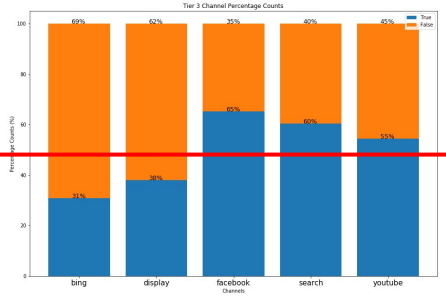


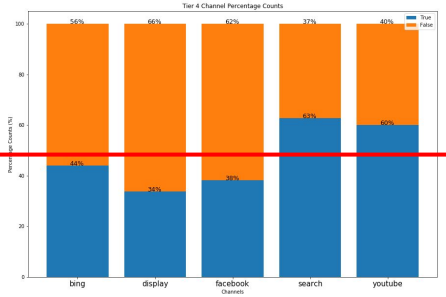


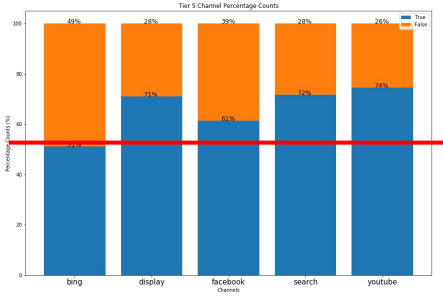
Conversion per channel across tiers

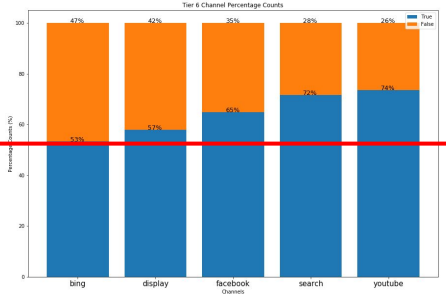


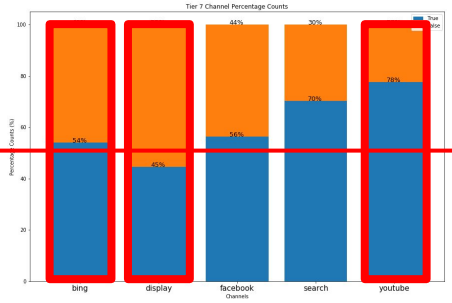


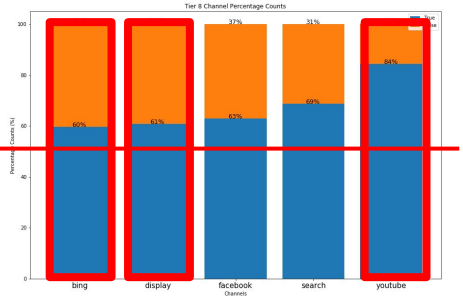




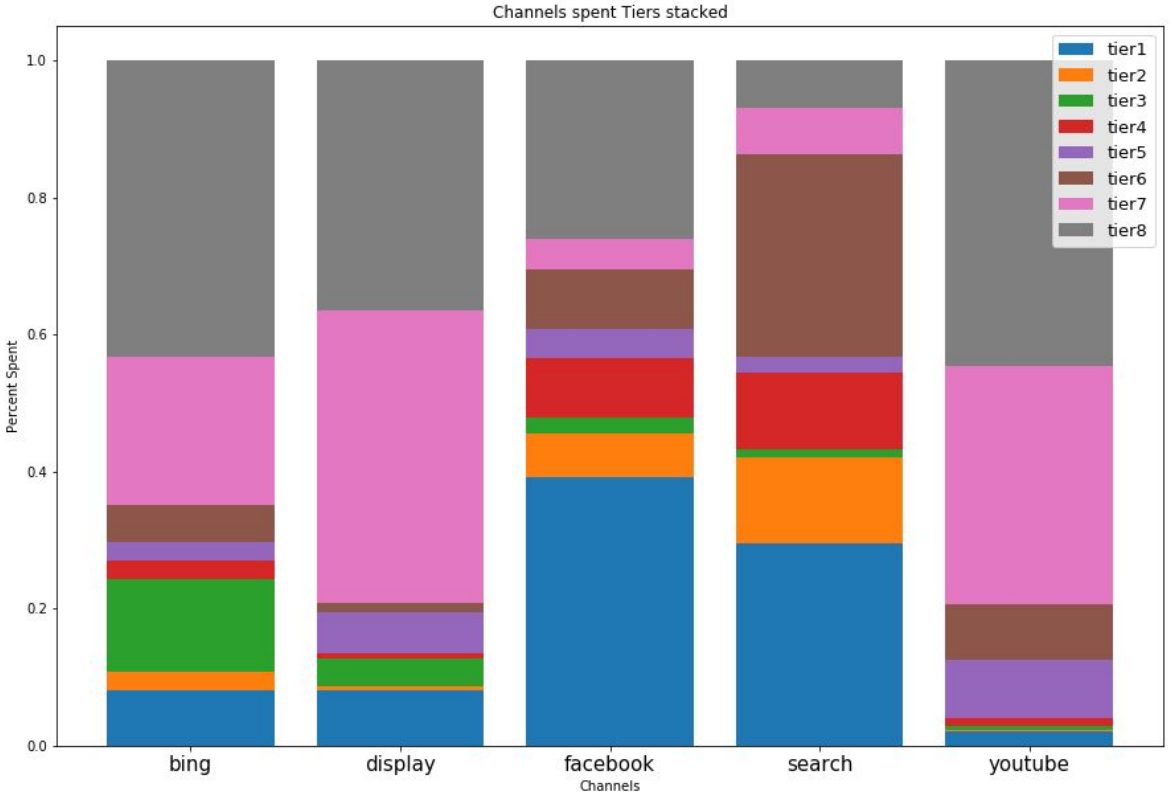




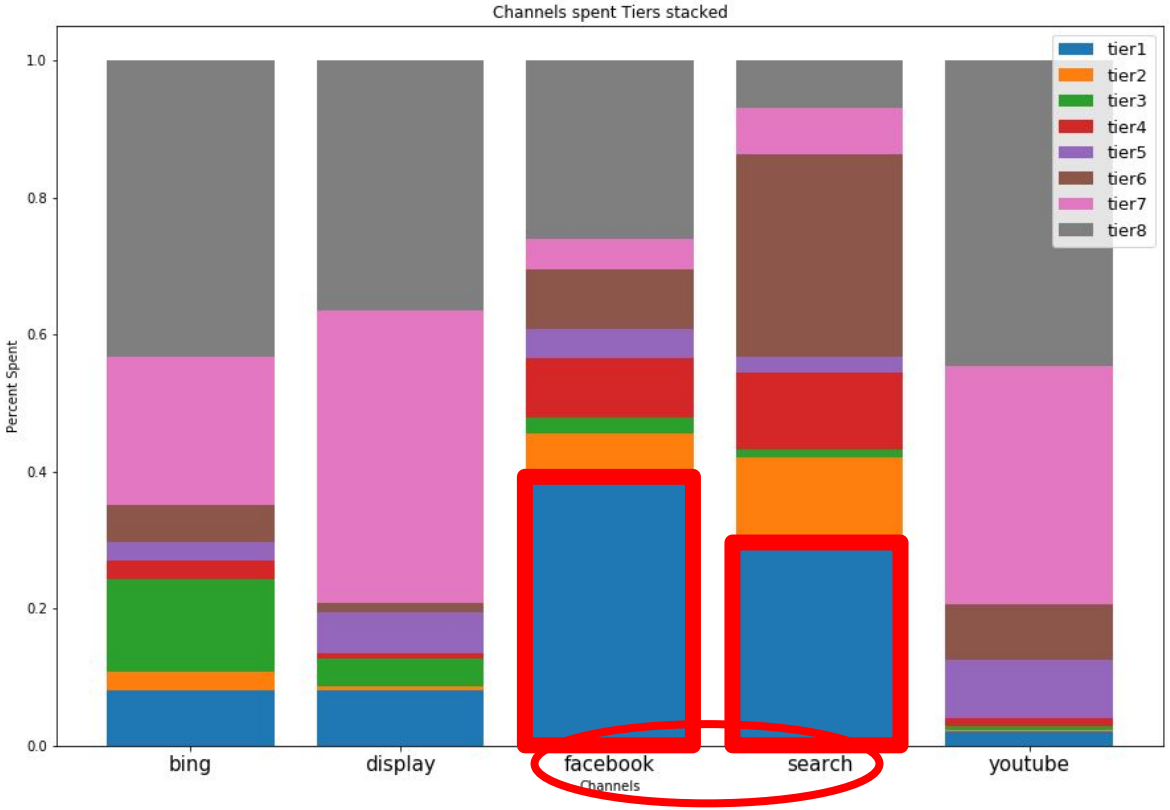




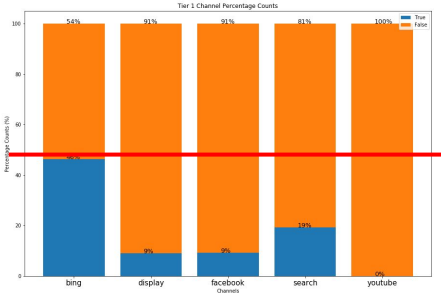
Tiers 1-8

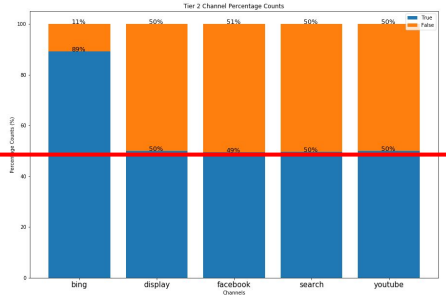

Channels spent Tiers stacked
tier1
tier2
tier3
tier4
tier5
tier6
tier7
tier8
Percent Spent
1.0
0.8
0.6
0.4
0.2
0.0
bing
display
facebook
search
youtube
Channels

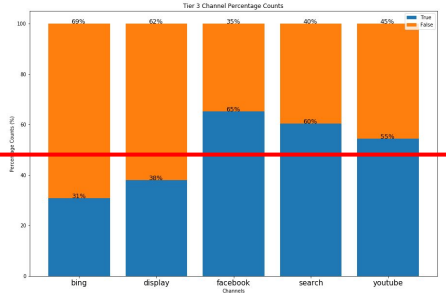
Tiers 1-8

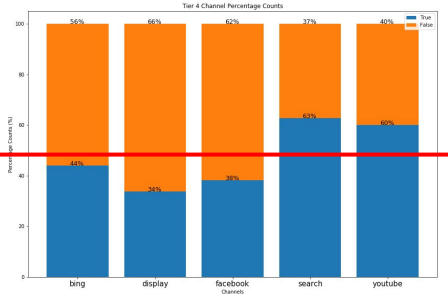

Channels spent Tiers stacked
tier1
tier2
tier3
tier4
tier5
tier6
tier7
tier8
Percent Spent
1.0
0.8
0.6
0.4
0.2
0.0
bing
display
facebook
search
youtube
Channels

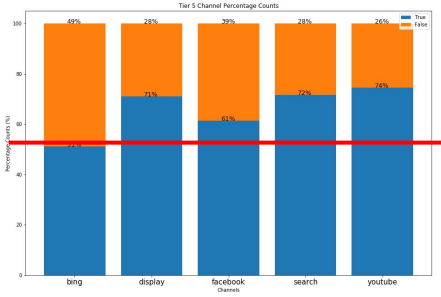
Conversion per channel across tiers

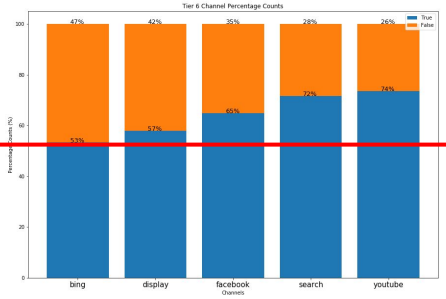


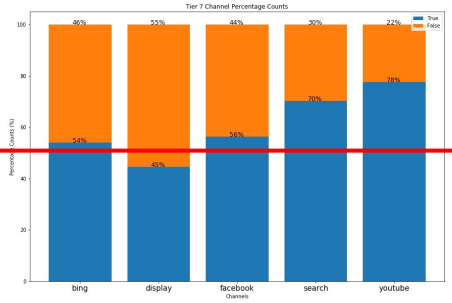


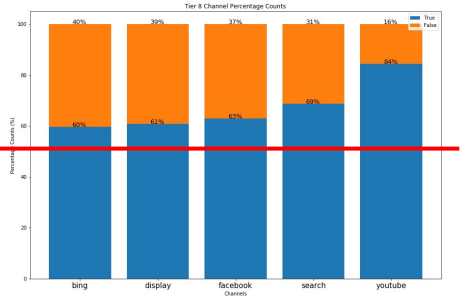




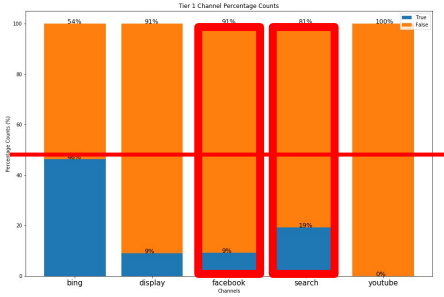


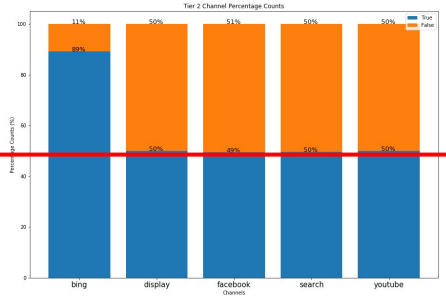


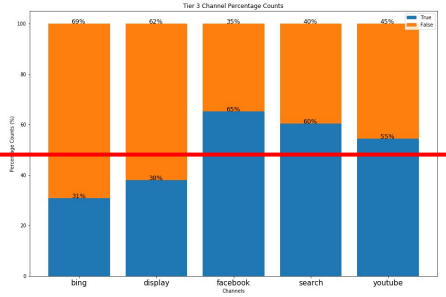


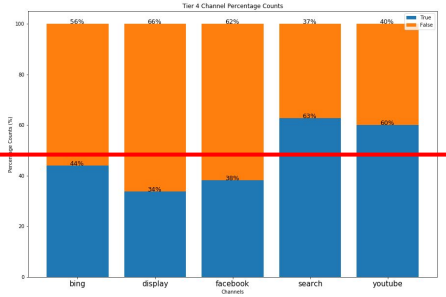


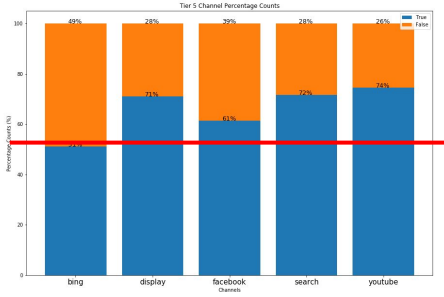
Conversion per channel across tiers

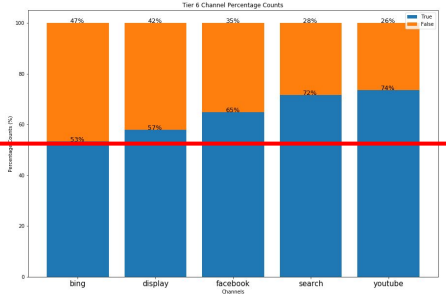


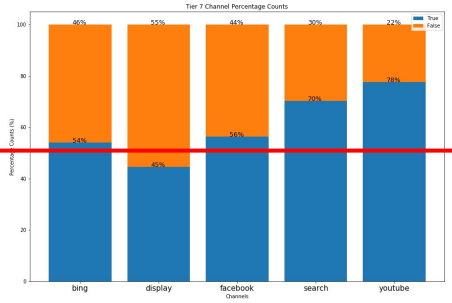


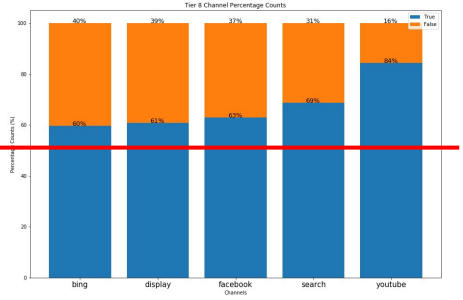












Customer Acquisition Cost (CAC)

channel cost / people converted

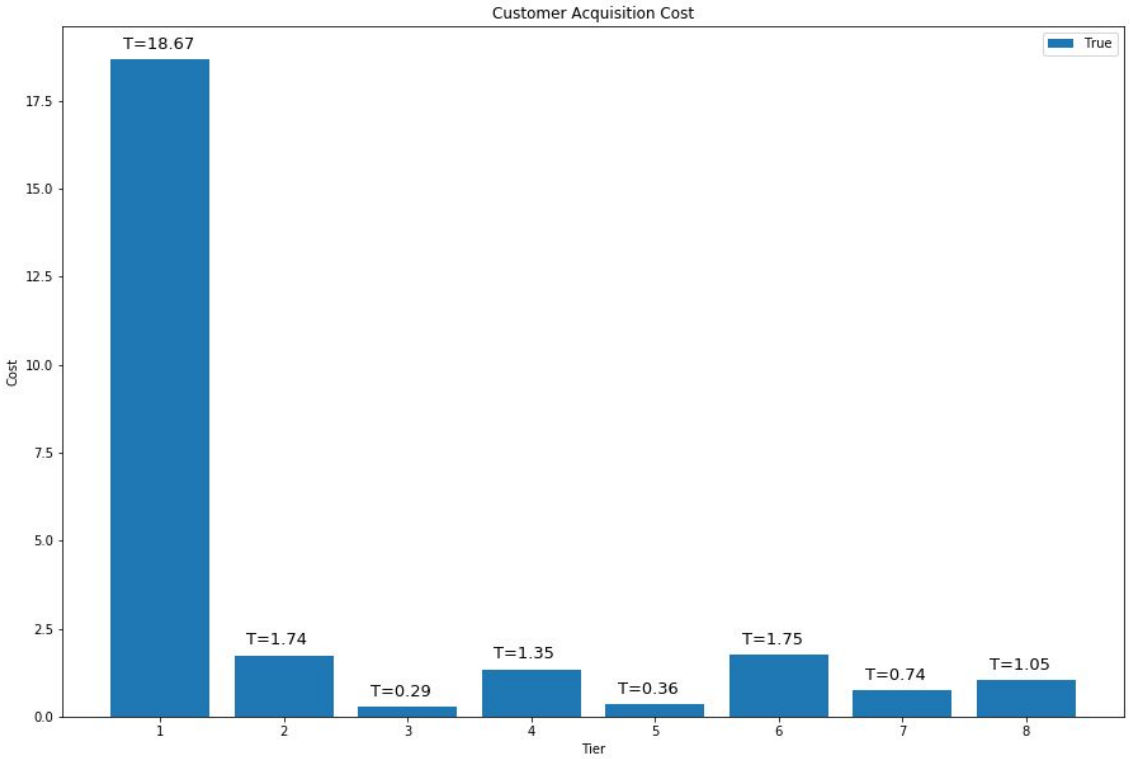
~~Average~~ CAC

~~channel cost accumulated~~ / total people converted

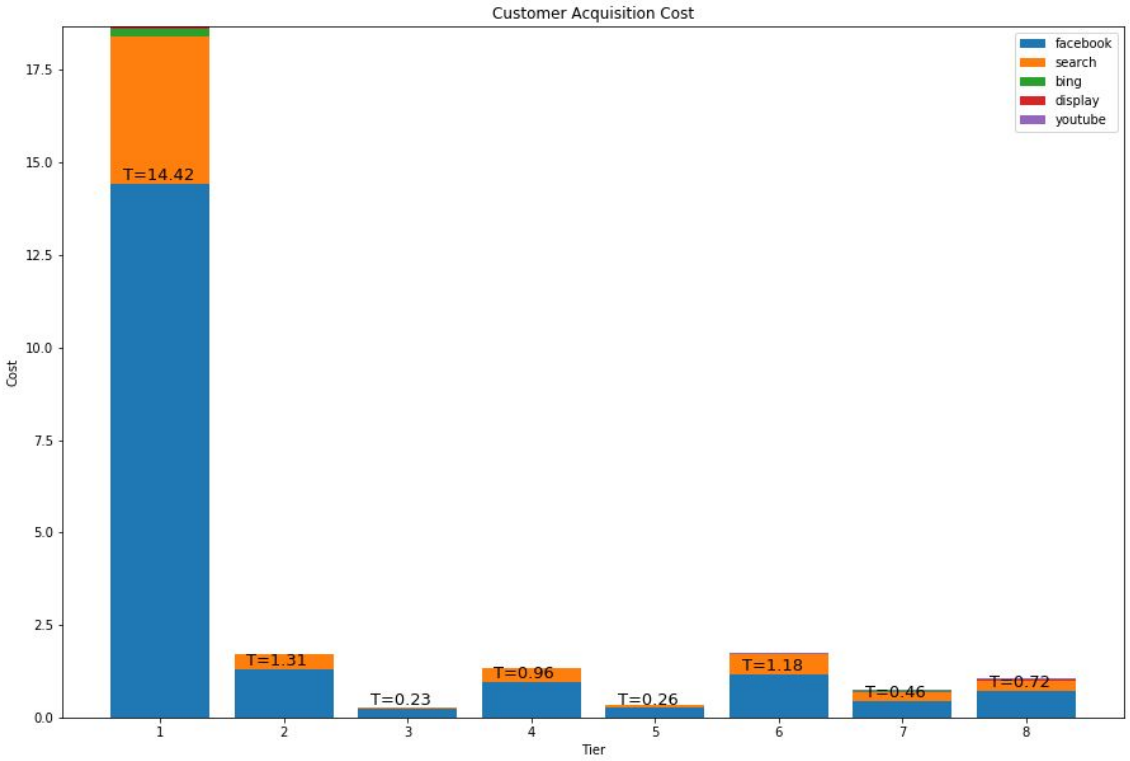
Marginal CAC

channel cost per tier / people converted per tier

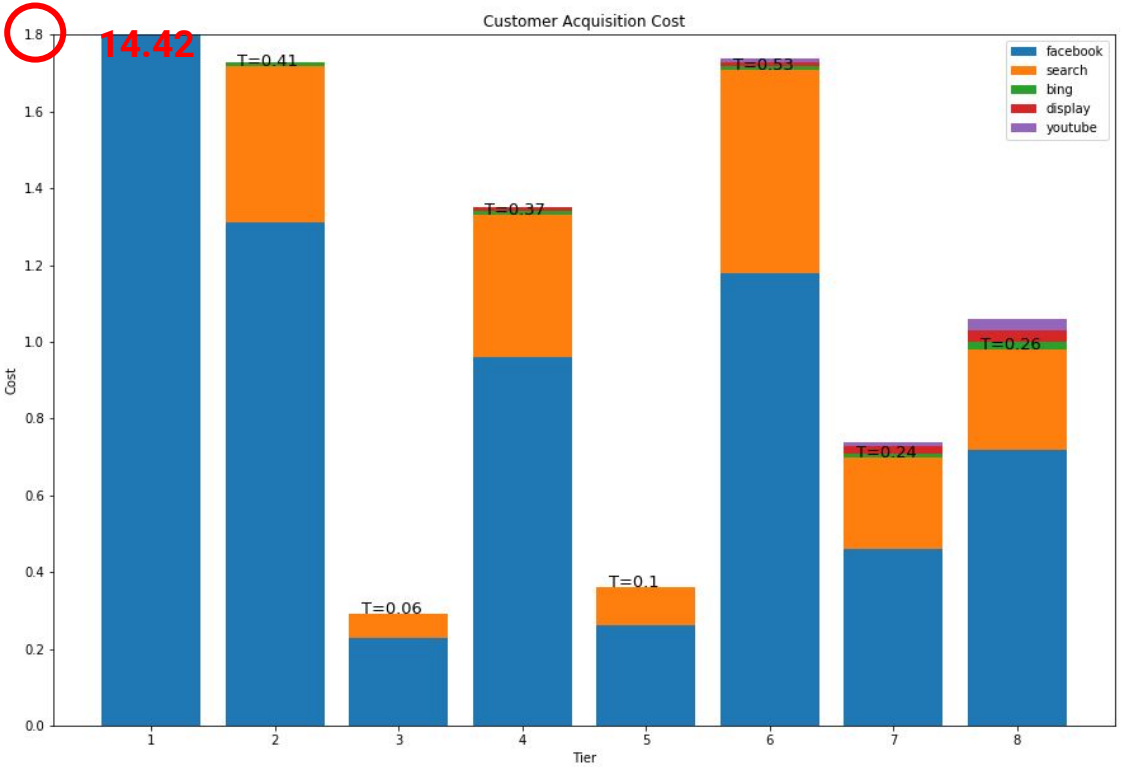
Tier 1-8


Customer Acquisition Cost
True
T=18.67
T=1.74
T=0.29
T=1.35
T=0.36
T=1.75
T=0.74
T=1.05
Cost
Tier
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
1
2
3
4
5
6
7
8

Tier 1-8

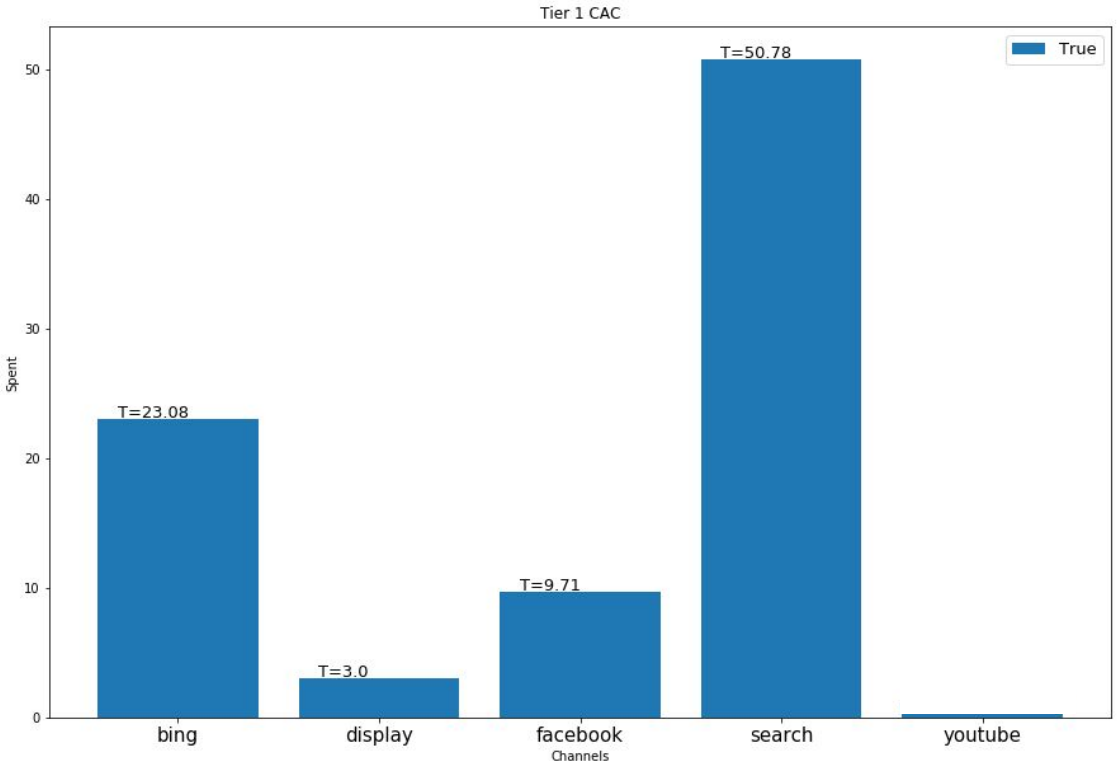

Customer Acquisition Cost
facebook
search
bing
display
youtube
Cost
Tier
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
1
2
3
4
5
6
7
8
T=14.42
T=1.31
T=0.23
T=0.96
T=0.26
T=1.18
T=0.46
T=0.72

Tier 1-8

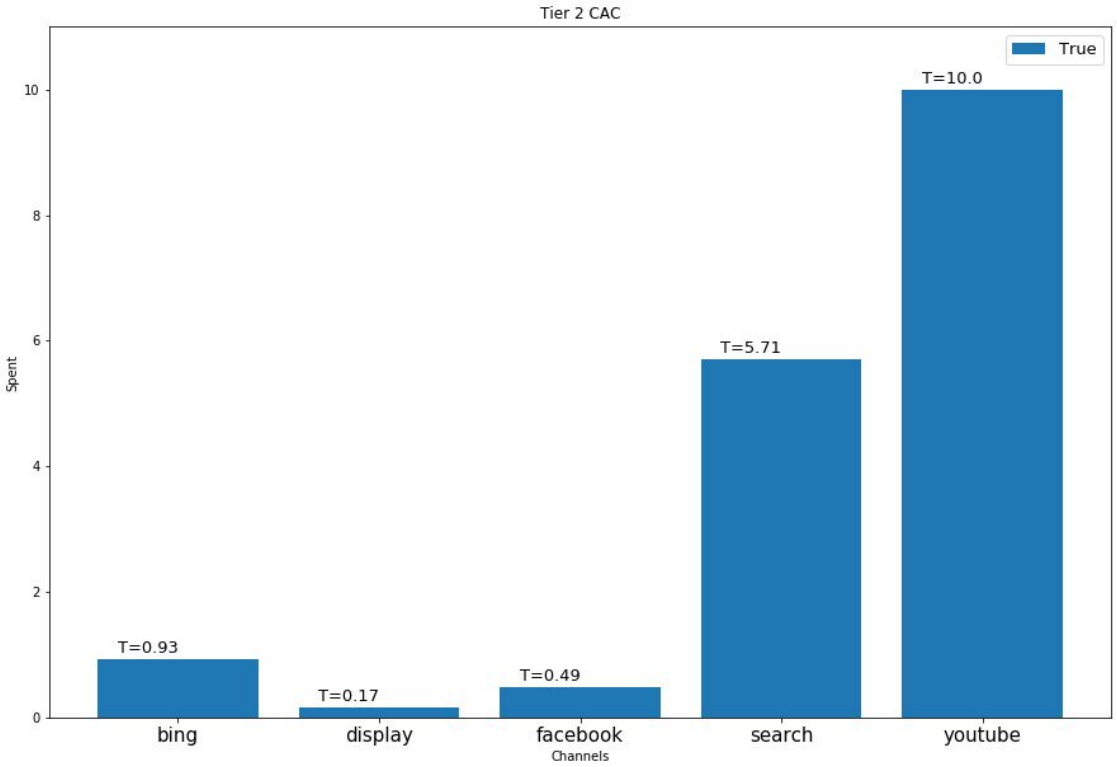

Customer Acquisition Cost
14.42
T=0.41
T=0.06
T=0.37
T=0.1
T=0.53
T=0.24
T=0.26
facebook
search
bing
display
youtube
Cost
Tier
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
1
2
3
4
5
6
7
8

Compare across channels

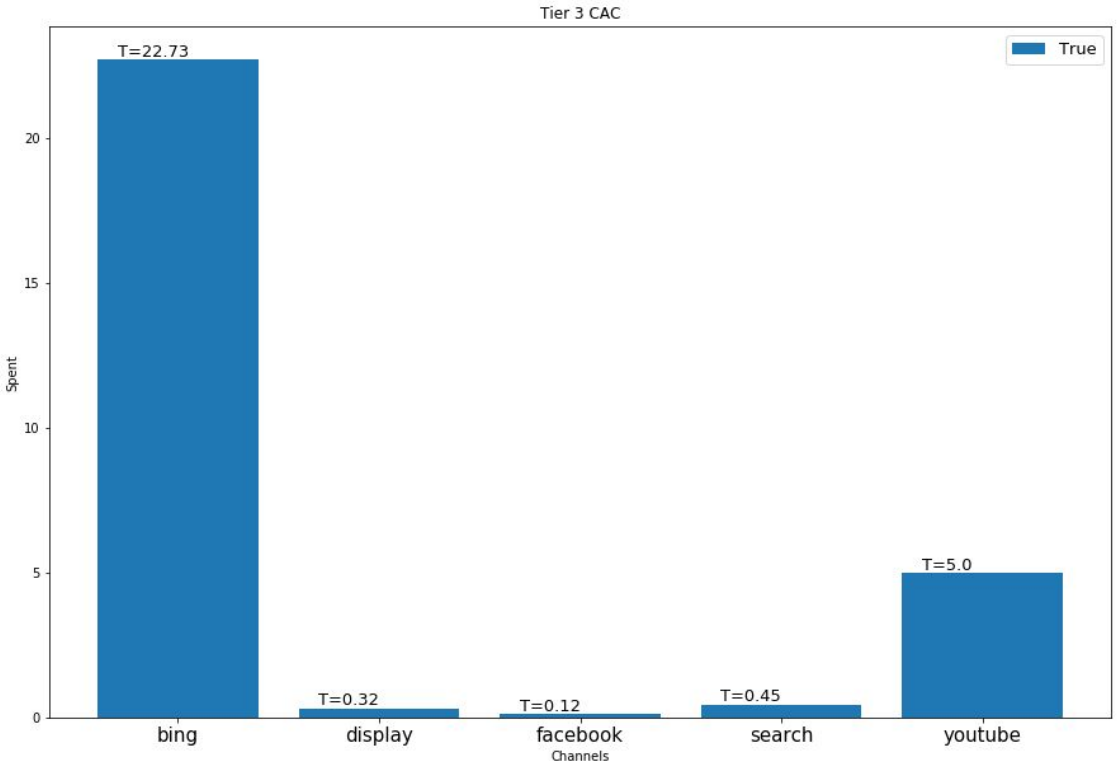
Tier 1


Tier 1 CAC
True
T=50.78
T=23.08
T=9.71
T=3.0
Spent
0
10
20
30
40
50
bing
display
facebook
search
youtube
Channels

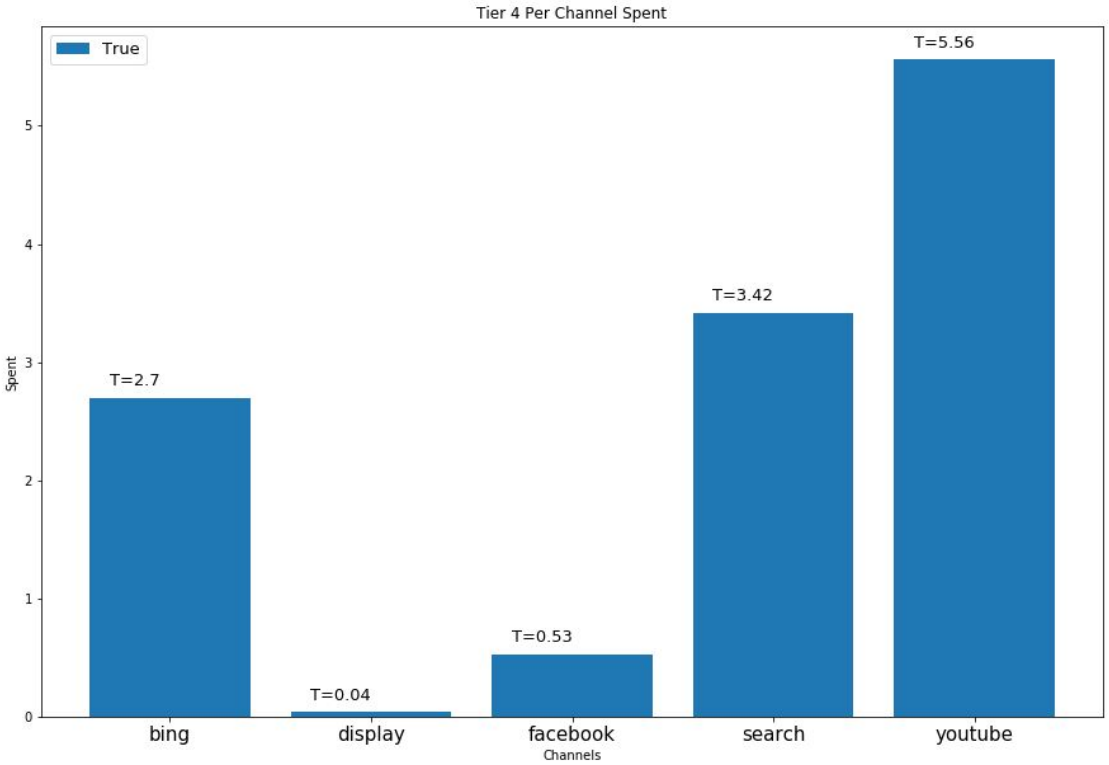
Tier 2


Tier 2 CAC
True
T=10.0
T=5.71
T=0.93
T=0.17
T=0.49
Spent
0
2
4
6
8
10
bing
display
facebook
search
youtube
Channels

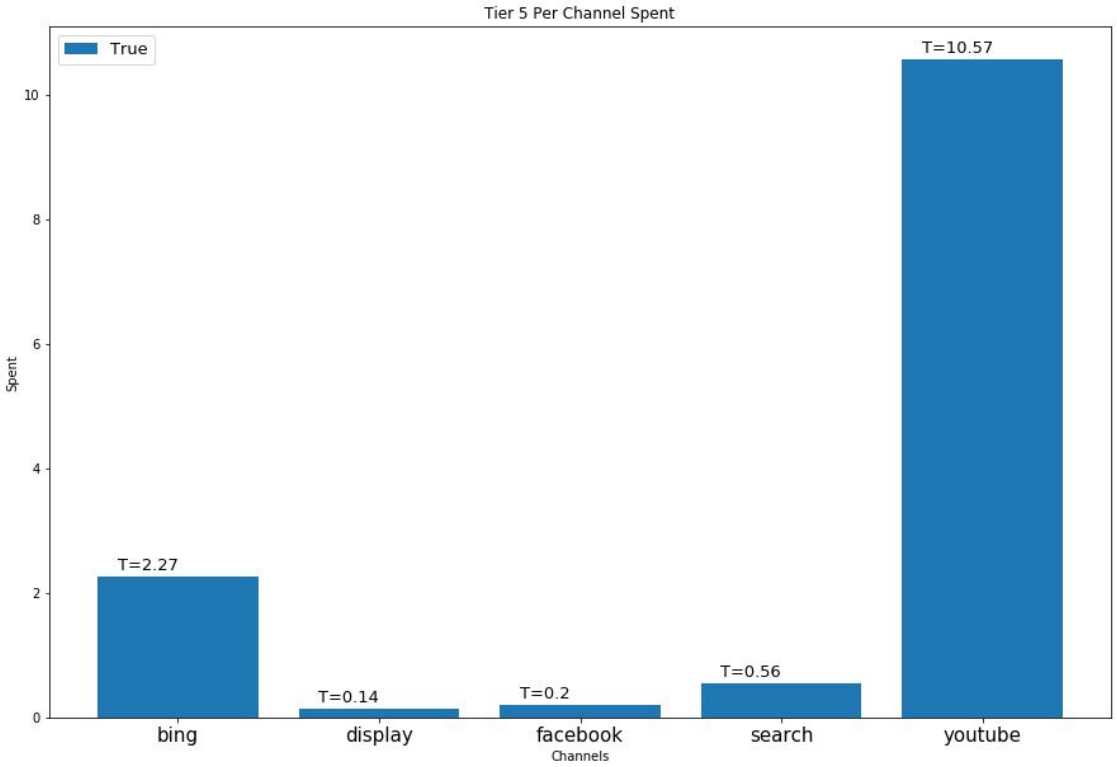
Tier 3


Tier 3 CAC
True
T=22.73
T=0.32
T=0.12
T=0.45
T=5.0
Spent
0
5
10
15
20
bing
display
facebook
search
youtube
Channels

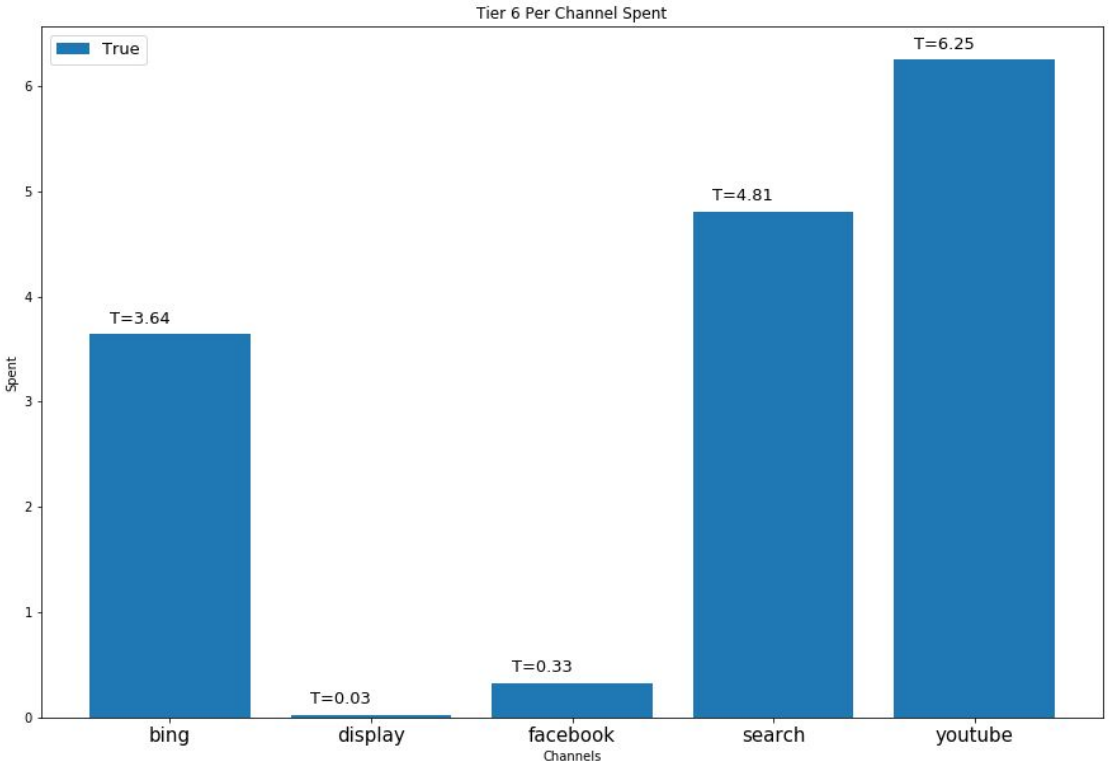
Tier 4


Tier 4 Per Channel Spent
True
T=2.7
T=0.04
T=0.53
T=3.42
T=5.56
Spent
0
1
2
3
4
5
bing
display
facebook
search
youtube
Channels

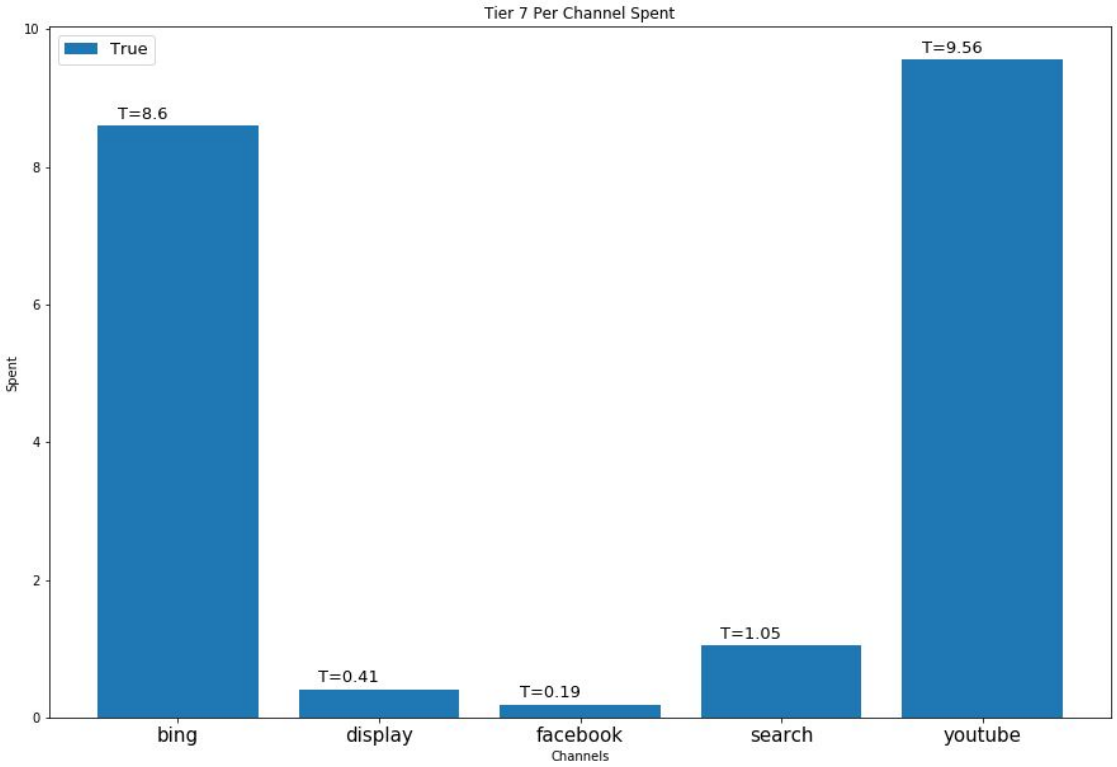
Tier 5


Tier 5 Per Channel Spent
True
T=10.57
T=2.27
T=0.14
T=0.2
T=0.56
Spent
0
2
4
6
8
10
bing
display
facebook
search
youtube
Channels

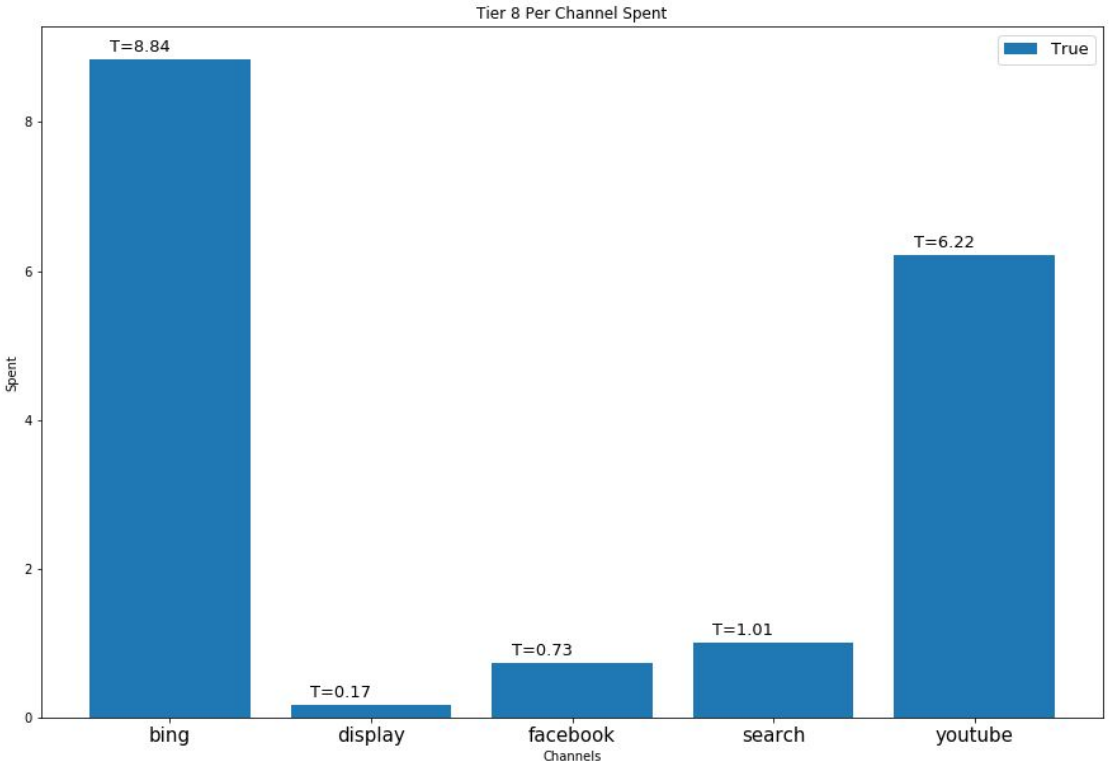
Tier 6


Tier 6 Per Channel Spent
True
T=3.64
T=0.03
T=0.33
T=4.81
T=6.25
Spent
0
1
2
3
4
5
6
bing
display
facebook
search
youtube
Channels

Tier 7

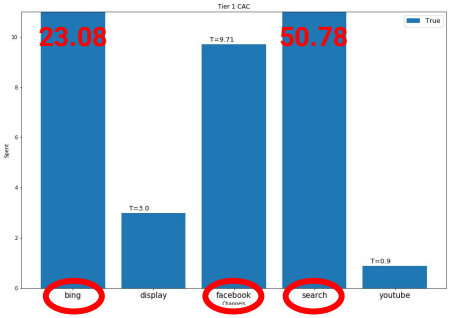

Tier 7 Per Channel Spent
True
T=8.6
T=0.41
T=0.19
T=1.05
T=9.56
Spent
Channels
bing
display
facebook
search
youtube
0
2
4
6
8
10

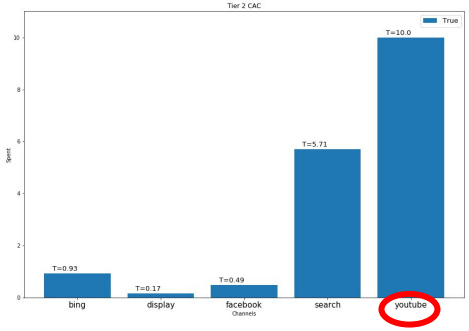
Tier 8

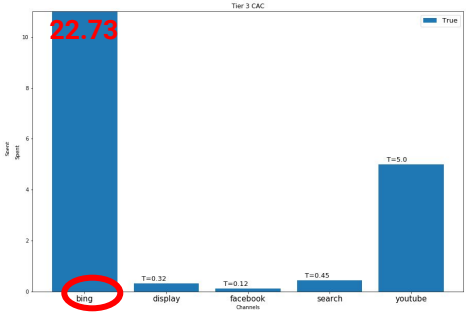

Tier 8 Per Channel Spent
True
T=8.84
T=0.17
T=0.73
T=1.01
T=6.22
Spent
0
2
4
6
8
bing
display
facebook
search
youtube
Channels

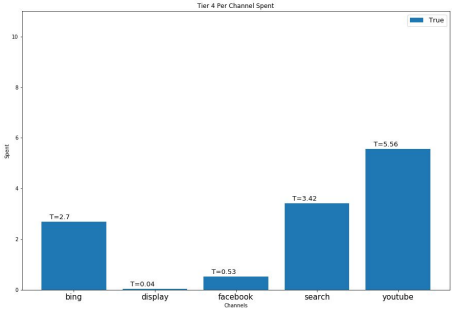
Compare across tiers

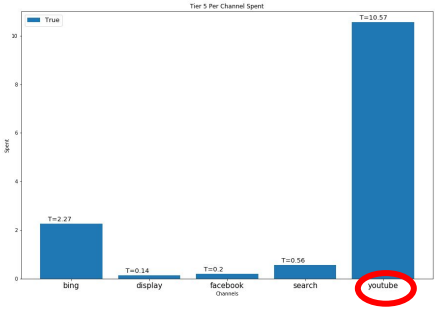
CAC per channel across tiers

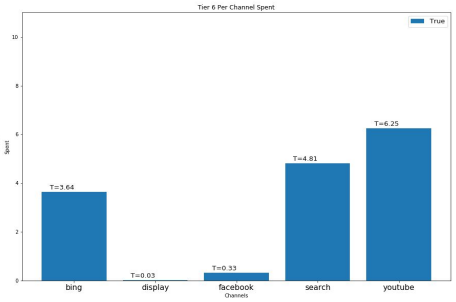


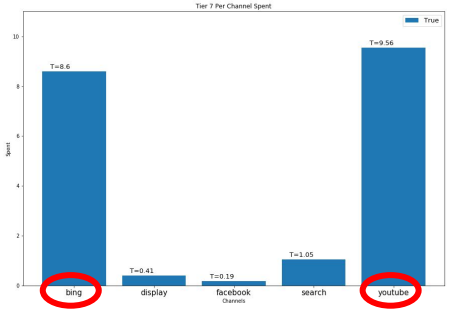


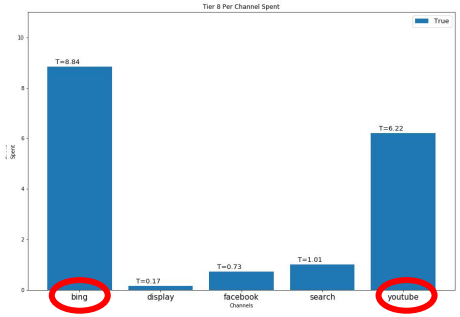








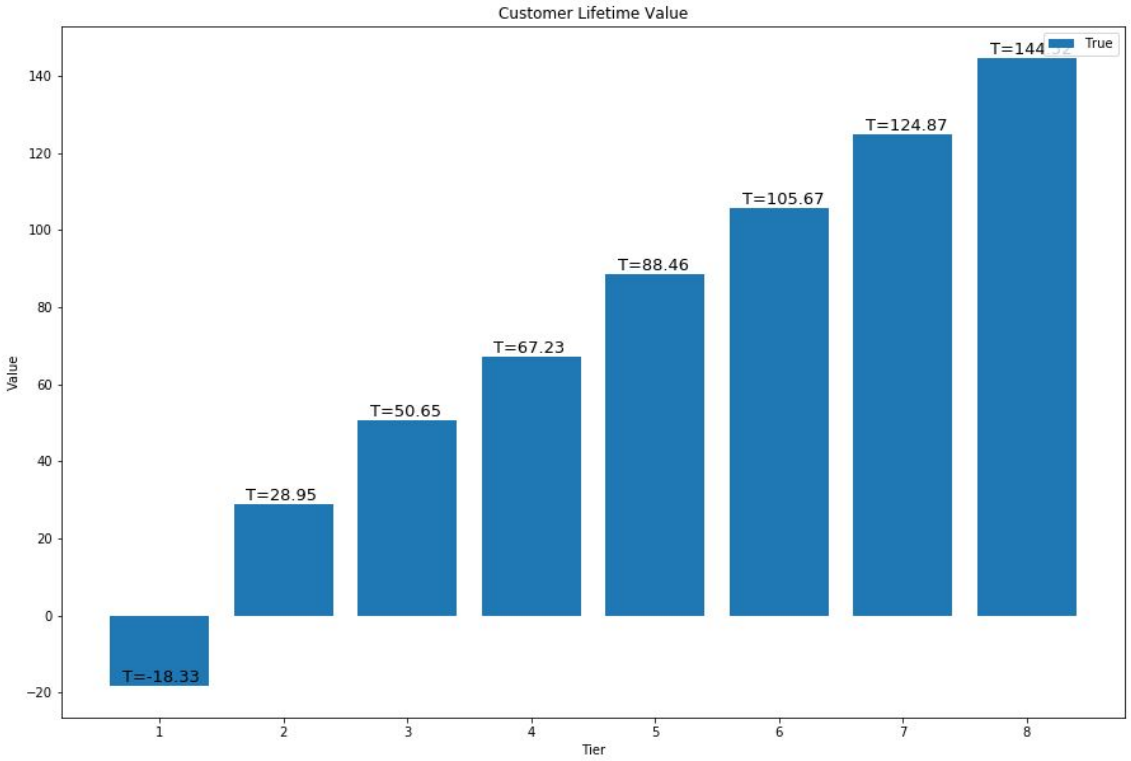




Customer Lifetime Value (CLV)

(revenue - cost) / number of customers

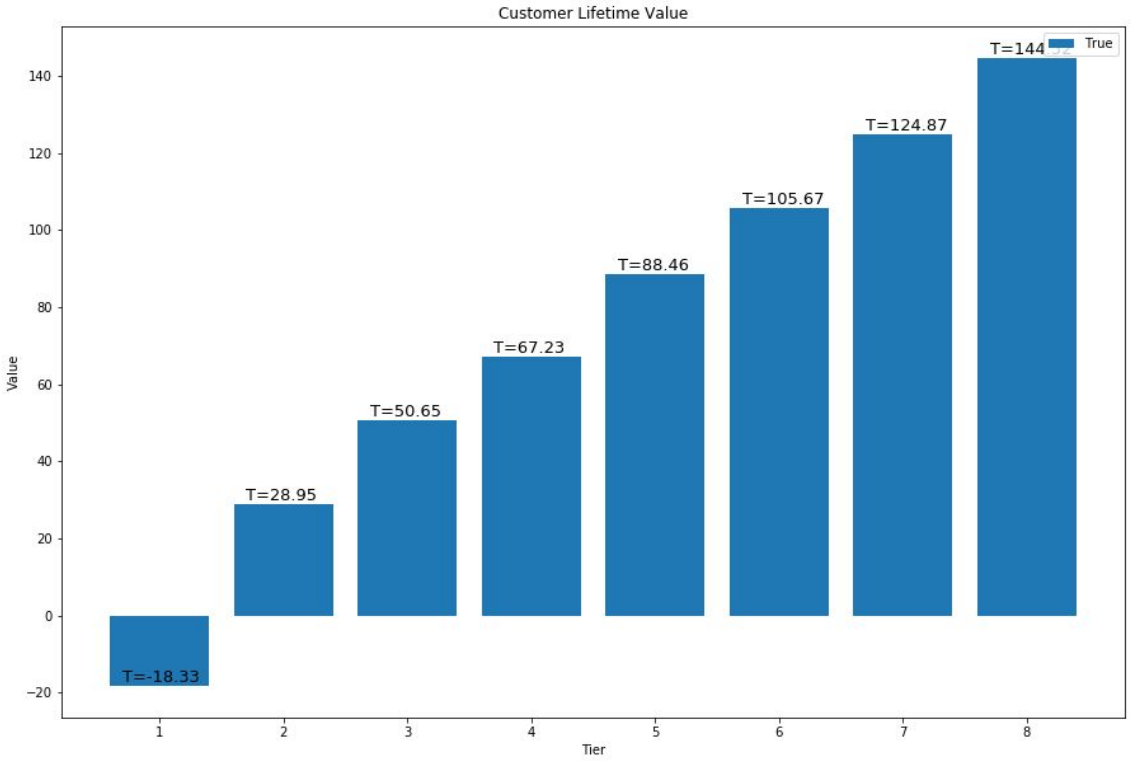
Tiers 1-8


Customer Lifetime Value
True
T=-18.33
T=28.95
T=50.65
T=67.23
T=88.46
T=105.67
T=124.87
T=144
Value
Tier
140
120
100
80
60
40
20
0
−20
1
2
3
4
5
6
7
8

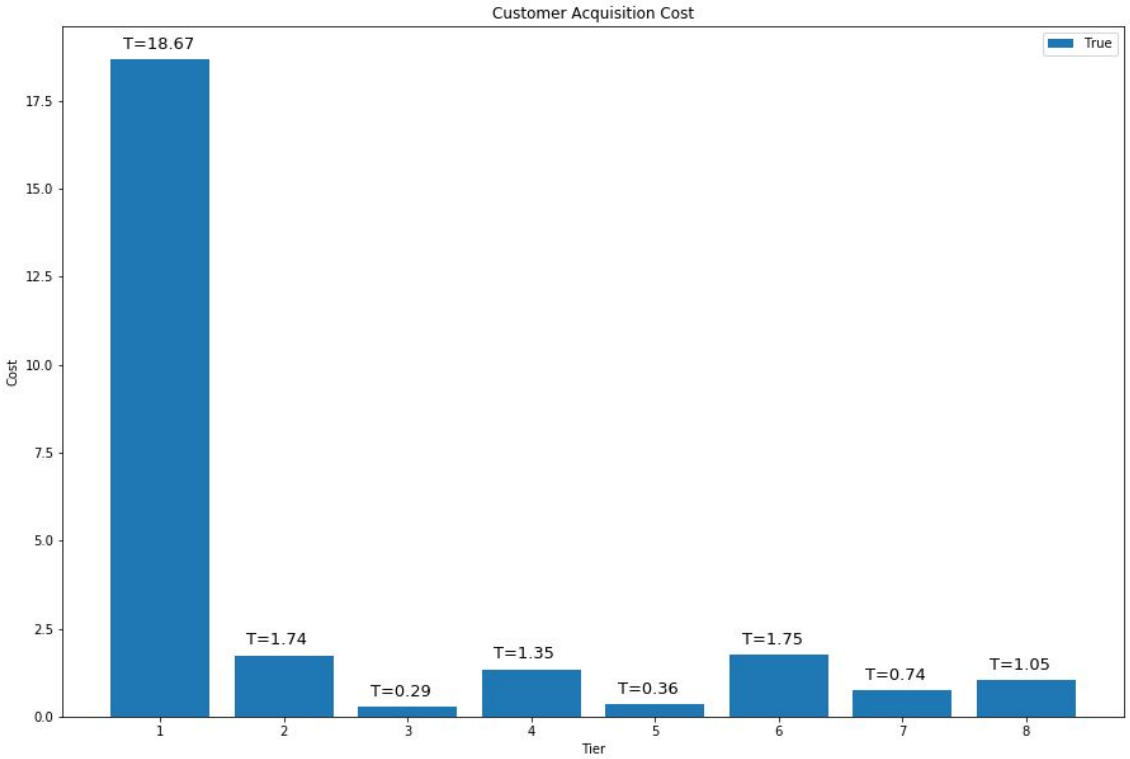
CLV / CAC

times money in return

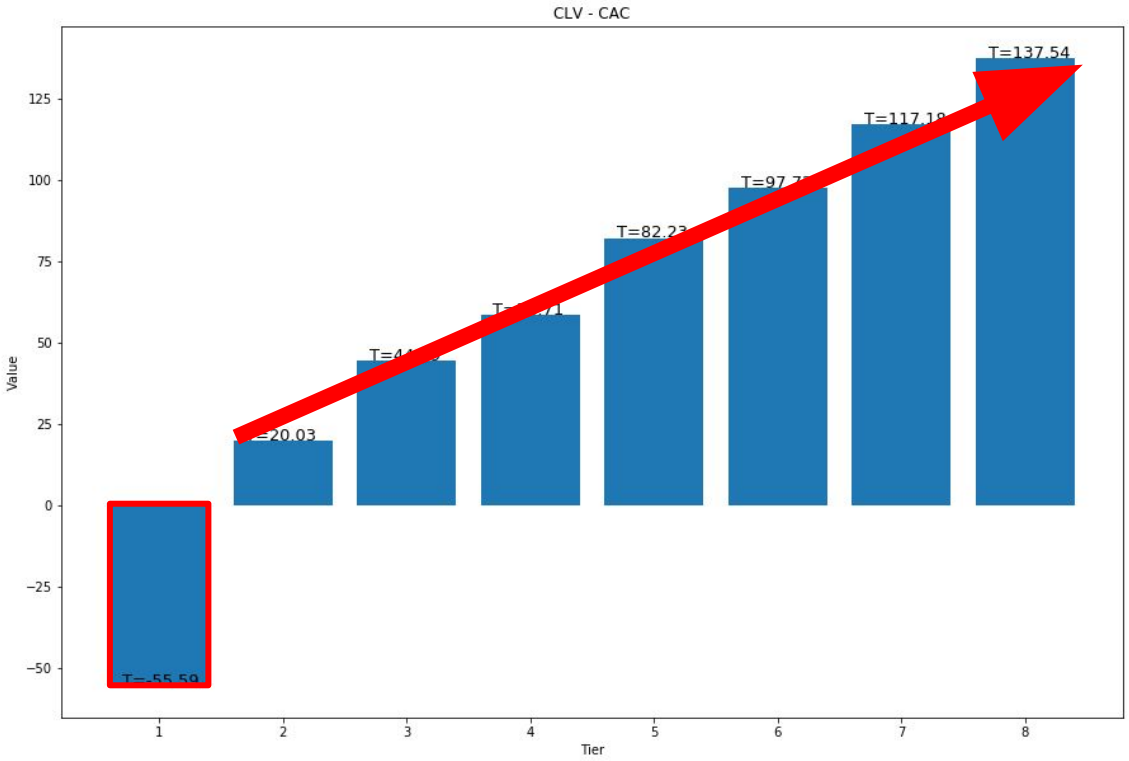
Customer Lifetime Value (CLV)



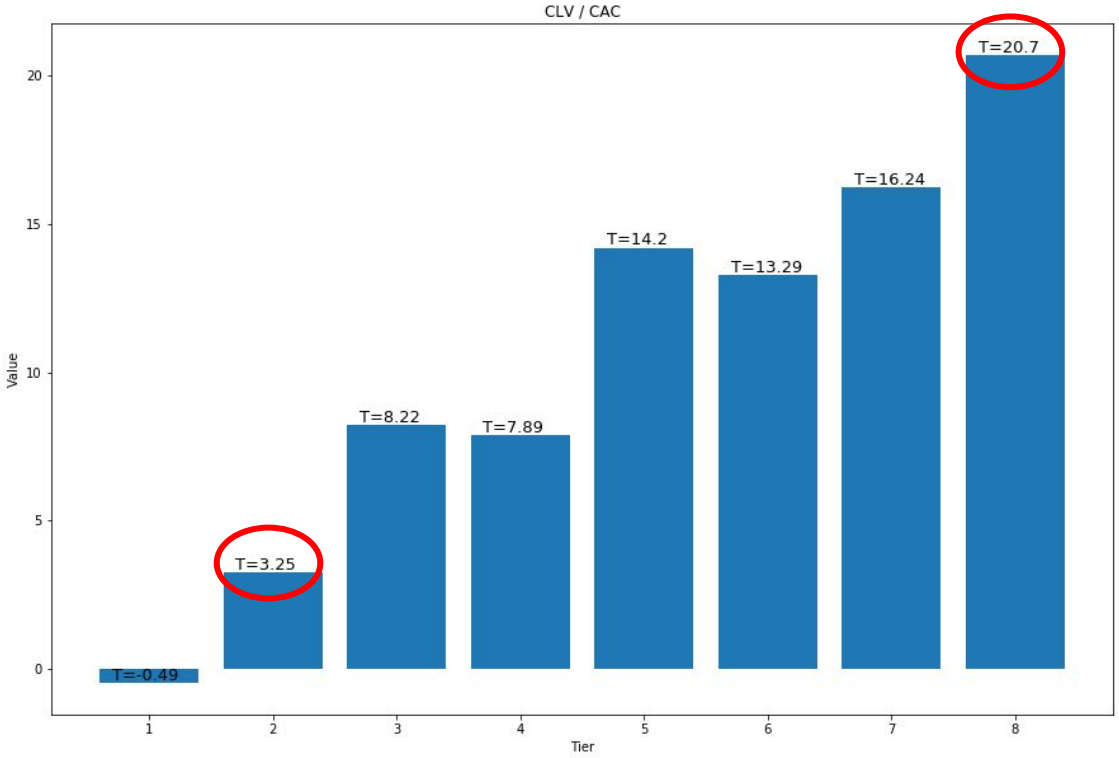
Customer Acquisition Cost (CAC)



CLV > CAC = Profit!

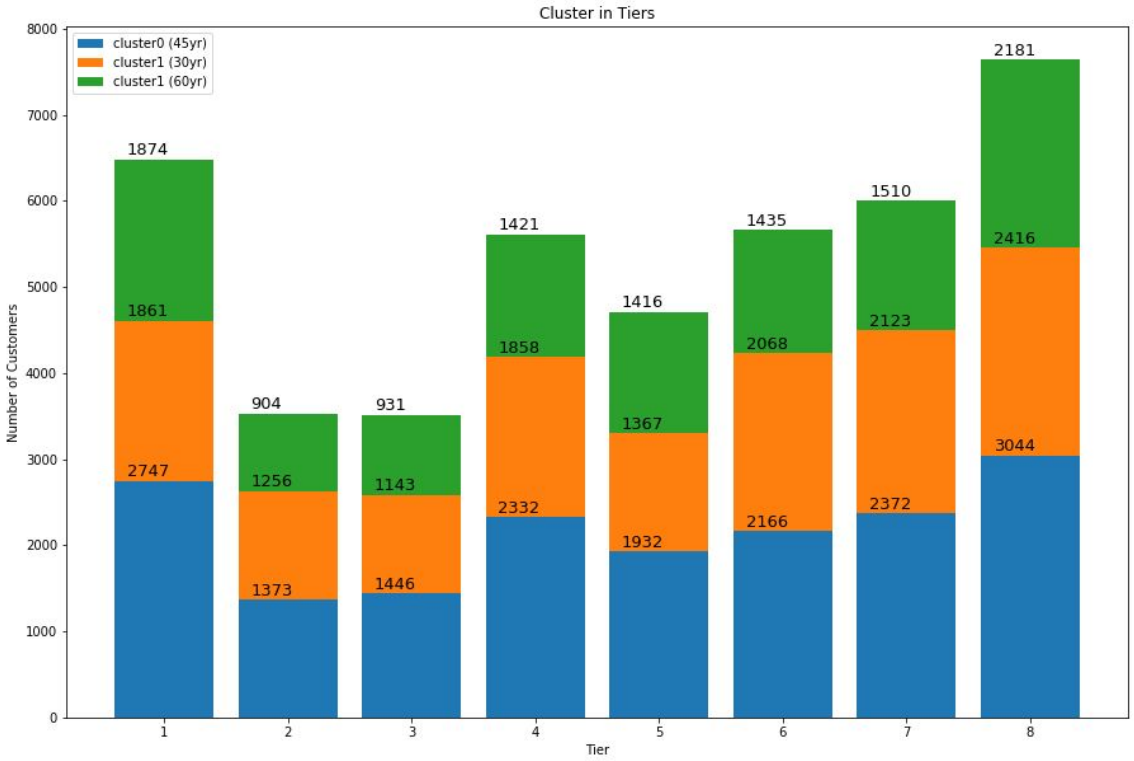


CLV:CAC Ratio

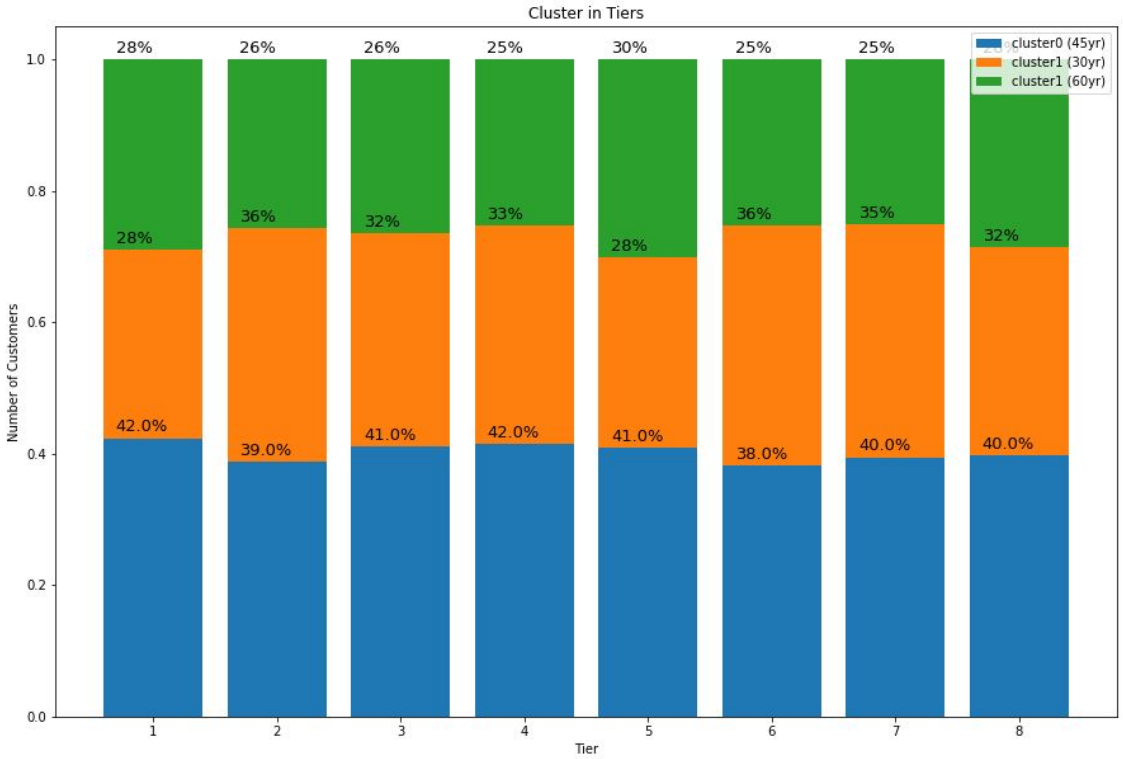


Segmentation & Allocation Strategy

Clusters in Tiers

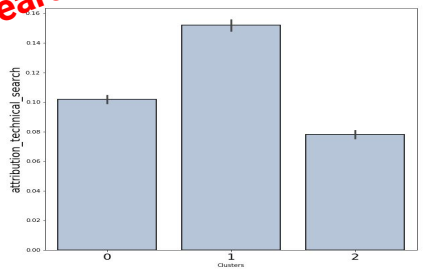


Clusters in Tiers

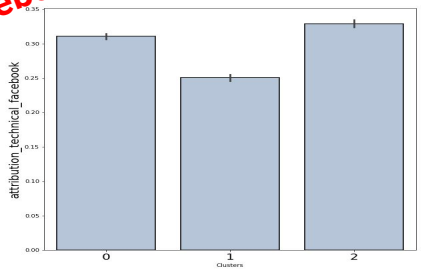


attribution_technical

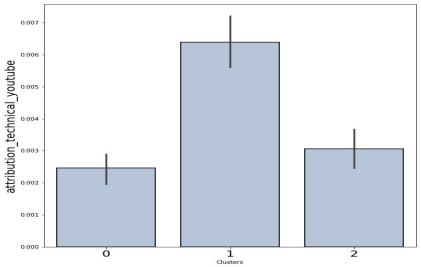
search



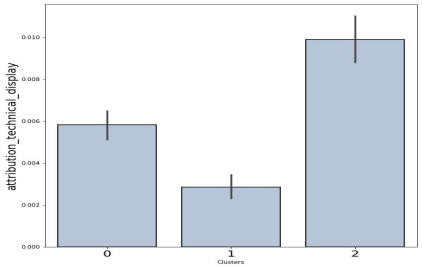
facebook



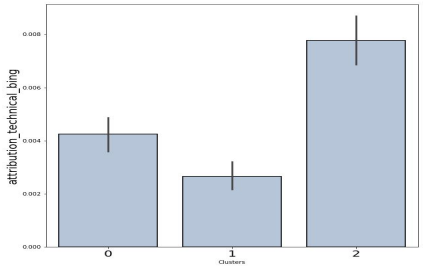
youtube



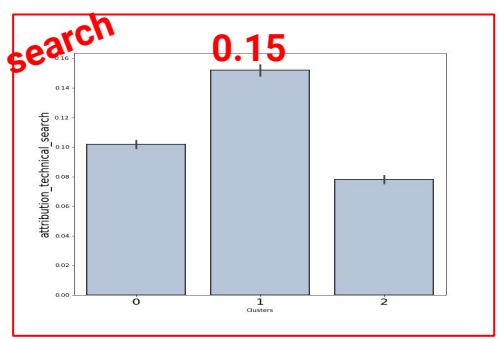
display

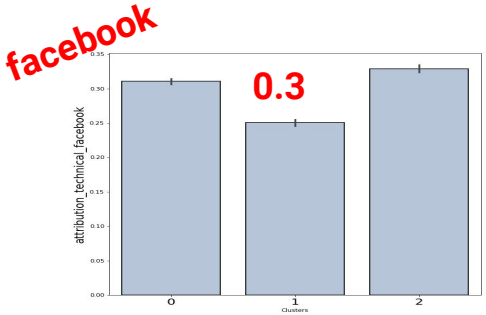


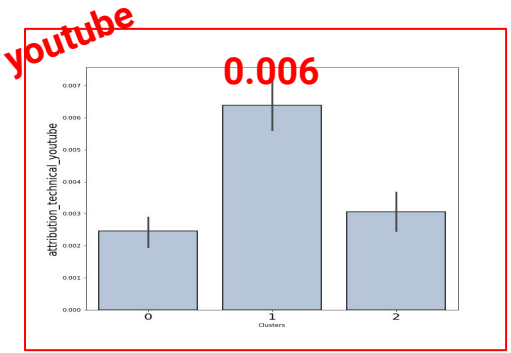
bing

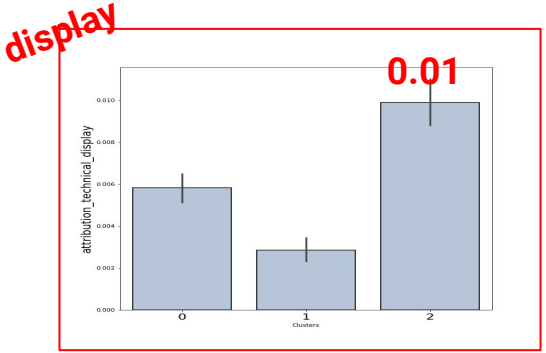


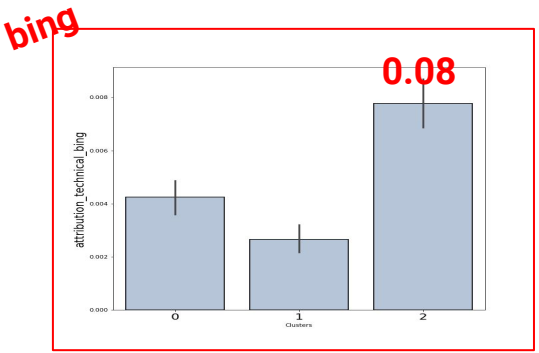
attribution_technical



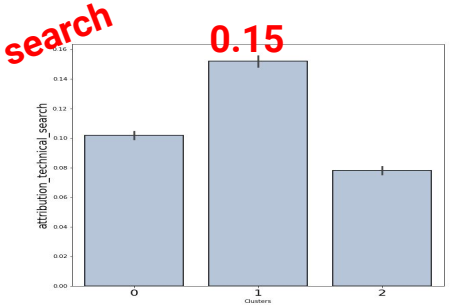


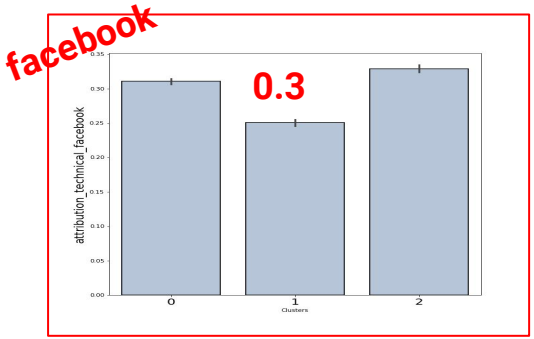


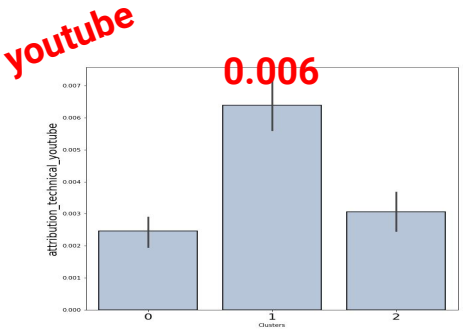


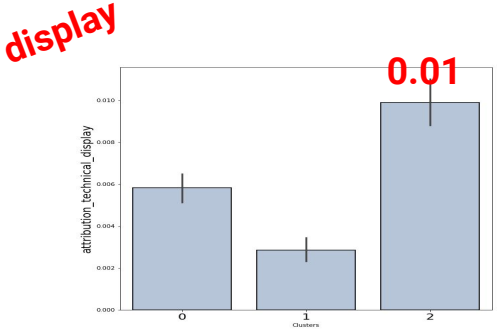


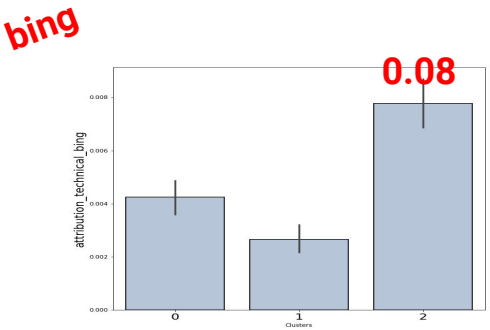
attribution_technical











CAC per channel across tiers

	channels	cac_t1	cac_t2	cac_t3	cac_t4	cac_t5	cac_t6	cac_t7	cac_t8
0	bing	23.08	0.93	22.73	2.70	2.27	3.64	8.60	8.84
1	display	3.00	0.17	0.32	0.04	0.14	0.03	0.41	0.17
2	facebook	9.71	0.49	0.12	0.53	0.20	0.33	0.19	0.73
3	search	50.78	5.71	0.45	3.42	0.56	4.81	1.05	1.01
4	youtube		10.00	5.00	5.56	10.57	6.25	9.56	6.22

Allocate 10% Profit each tier

	channels	cost_t1	cac_t1	cost_t2	cac_t2	cost_t3	cac_t3	cost_t4	cac_t4	cost_t5	cac_t5	cost_t6	cac_t6	cost_t7	cac_t7	cost_t8	cac_t8
0	bing	300.0	23.08	100.0	0.93	500.0	22.73	100.0	2.70	100.0	2.27	200.0	3.64	800.0	8.60	1600.0	8.84
1	display	12.0	3.00	1.0	0.17	6.0	0.32	1.0	0.04	9.0	0.14	2.0	0.03	63.0	0.41	54.0	0.17
2	facebook	9000.0	9.71	1500.0	0.49	500.0	0.12	2000.0	0.53	1000.0	0.20	2000.0	0.33	1000.0	0.19	6000.0	0.73
3	search	13000.0	50.78	5500.0	5.71	500.0	0.45	5000.0	3.42	1000.0	0.56	13000.0	4.81	3000.0	1.05	3000.0	1.01
4	youtube	90.0		10.0	10.00	30.0	5.00	50.0	5.56	370.0	10.57	350.0	6.25	1520.0	9.56	1940.0	6.22

Allocate 10% Profit each tier

	10%profit	-2,000		11,000		26,000		35,000		60,000		94,000		108,000			172,000
	allocation	+2,000		11,000		26,000		35,000		60,000		94,000		100,000			100,000
	channels	cost_t1	cac_t1	cost_t2	cac_t2	cost_t3	cac_t3	cost_t4	cac_t4	cost_t5	cac_t5	cost_t6	cac_t6	cost_t7	cac_t7	cost_t8	cac_t8
0	bing																
1	display		3.00		0.17		0.32		0.04		0.14		0.03		0.41		0.17
2	facebook				0.49		0.12		0.53		0.20		0.33		0.19		0.73
3	search						0.45				0.56				1.05		1.01
4	youtube																

Allocate 10% Profit each tier

	10%profit	-2,000		11,000		26,000		35,000		60,000		94,000		108,000			172,000
	allocation	+2,000		11,000		26,000		35,000		60,000		94,000		100,000			100,000
	channels	cost_t1	cac_t1	cost_t2	cac_t2	cost_t3	cac_t3	cost_t4	cac_t4	cost_t5	cac_t5	cost_t6	cac_t6	cost_t7	cac_t7	cost_t8	cac_t8
0	bing																
1	display	2,000	3.00	8,000	0.17	9,000	0.32	30,000	0.04	30,000	0.14	90,000	0.03	35,000	0.41	75,000	0.17
2	facebook			3,000	0.49	10,000	0.12	5,000	0.53	25,000	0.20	4,000	0.33	60,000	0.19	20,000	0.73
3	search					7,000	0.45			5,000	0.56			5,000	1.05	5,000	1.01
4	youtube																

Allocate 10% Profit each tier

	10%profit	-2,000		11,000		26,000		35,000		60,000		94,000		108,000		172,000	
	allocation	0		11,000		26,000		35,000		60,000		94,000		100,000		100,000	
	channels	cost_t1	cov_t1	cost_t2	cov_t2	cost_t3	cov_t3	cost_t4	cov_t4	cost_t5	cov_t5	cost_t6	cov_t6	cost_t7	cov_t7	cost_t8	cov_t8
0	bing																
1	display	0	0	8,000	47	9,000	28	30,000	750	30,000	214	90,000	3,000	35,000	85	75,000	441
2	facebook			3,000	6	10,000	83	5,000	9	25,000	125	4,000	12	60,000	315	20,000	27
3	search					7,000	15			5,000	8			5,000	4	5,000	4
4	youtube																

Allocate 10% Profit each tier

	10%profit	-2,000		11,000		26,000		35,000		60,000		94,000		108,000		172,000	
	allocation	0		11,000		26,000		35,000		60,000		94,000		100,000		100,000	
	channels	cost_t1	cov_t1	cost_t2	cov_t2	cost_t3	cov_t3	cost_t4	cov_t4	cost_t5	cov_t5	cost_t6	cov_t6	cost_t7	cov_t7	cost_t8	cov_t8
0	bing																
1	display	0	0	8,000	47	9,000	28	30,000	750	30,000	214	90,000	3,000	35,000	85	75,000	441
2	facebook			3,000	6	10,000	83	5,000	9	25,000	125	4,000	12	60,000	315	20,000	27
3	search					7,000	15			5,000	8			5,000	4	5,000	4
4	youtube																

If we allocate **10%** of our current profit and invest 279,000 AED on display, 12,700 AED on facebook, and 2,200 AED on search, we can get **5,175** conversions, increasing conversion by **10%**

Limitations and Further Work

Further Work

Segmentation

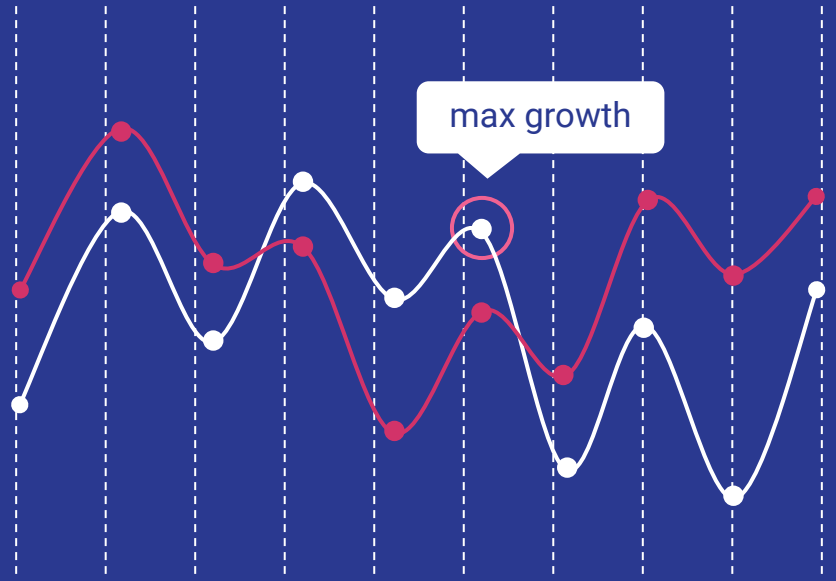
Understand the culture and propose localized marketing strategy

Allocation

Use survey result too; Collect information regarding acquisition from different channel touch-points

Addition

Predict churn rate

Impact

XX% sales increase