

Project : 4
Multi Channel Marketing Attribution Analysis.

AIM:

- ❖ Developed a model for analyzing and predicting marketing channel that lead to better conversions.
- ❖ Delivered insights on which model is better for the company's business.

PROCES

- ❖ Build a workflow and test the prototype on happay's multi channel path data from google analytics.
- ❖ Worked on various approaches including First Touch, Last Touch, Linear and Markov Models. Suggested which and why among these?

Raw Data: (2016 - 2019)

	Path	Conversion
0	Organic Search	1,14,822
1	Direct	1,09,076
2	Paid Search	81,375
3	Display	68,024
4	Direct > Direct	49,239
5	Direct > Direct > Direct	37,095
6	Direct > Direct > Direct > Direct	31,329
7	Organic Search > Direct	28,251
8	Direct > Direct > Direct > Direct > Direct	27,809
9	Direct > Direct > Direct > Direct > Direct > D...	24,702
10	Direct > Direct > Direct > Direct > Direct > D...	22,421
11	Direct > Direct > Direct > Direct > Direct > D...	20,622
12	Direct > Direct > Direct > Direct > Direct > D...	18,831
13	Direct > Direct > Direct > Direct > Direct > D...	17,371
14	Direct > Direct > Direct > Direct > Direct > D...	16,297
15	Direct > Direct > Direct > Direct > Direct > D...	15,687
16	Direct > Direct > Direct > Direct > Direct > D...	14,902
17	Direct > Direct > Direct > Direct > Direct > D...	14,137
18	Organic Search > Direct > Direct	13,523
19	Direct > Direct > Direct > Direct > Direct > D...	13,360
20	Direct > Direct > Direct > Direct > Direct > D...	12,886
21	Direct > Direct > Direct > Direct > Direct > D...	12,530
22	Direct > Direct > Direct > Direct > Direct > D...	11,928
23	Direct > Direct > Direct > Direct > Direct > D...	11,439
24	Direct > Direct > Direct > Direct > Direct > D...	11,266
25	Direct > Direct > Direct > Direct > Direct > D...	10,676
26	Direct > Direct > Direct > Direct > Direct > D...	10,429
27	Direct > Direct > Direct > Direct > Direct > D...	10,102
28	Direct > Direct > Direct > Direct > Direct > D...	10,071
29	Direct > Direct > Direct > Direct > Direct > D...	10,056

Standard Attribution Models provided by



Last Touch



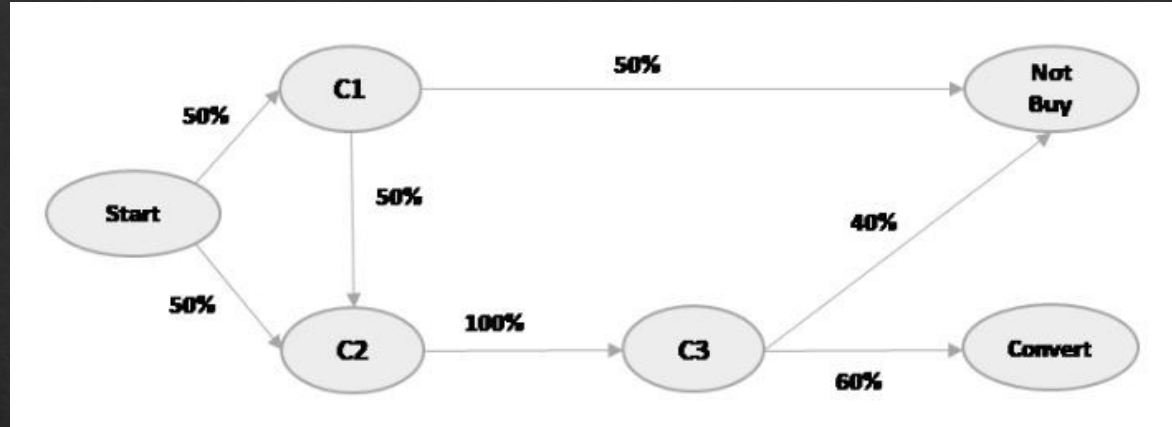
First Touch



Linear

- ❖ Last Touch is the attribution approach where any revenue generated is attributed to the marketing channel that a user last engaged with.
- ❖ While these individual approaches have its advantage in their simplicity, we run the risk of oversimplifying our attribution, as the last touch isn't necessarily the marketing activity that generates the revenue.
- ❖ The revenue generated by the purchase is attributed to the **first** marketing channel the user engaged with, on the journey towards the purchase.
- ❖ In this approach, the attribution is divided **evenly among all the marketing channels** touched by the user on the journey leading to a purchase.
- ❖ It does not distinguish between the different channels.

Advanced attribution model: Markov C

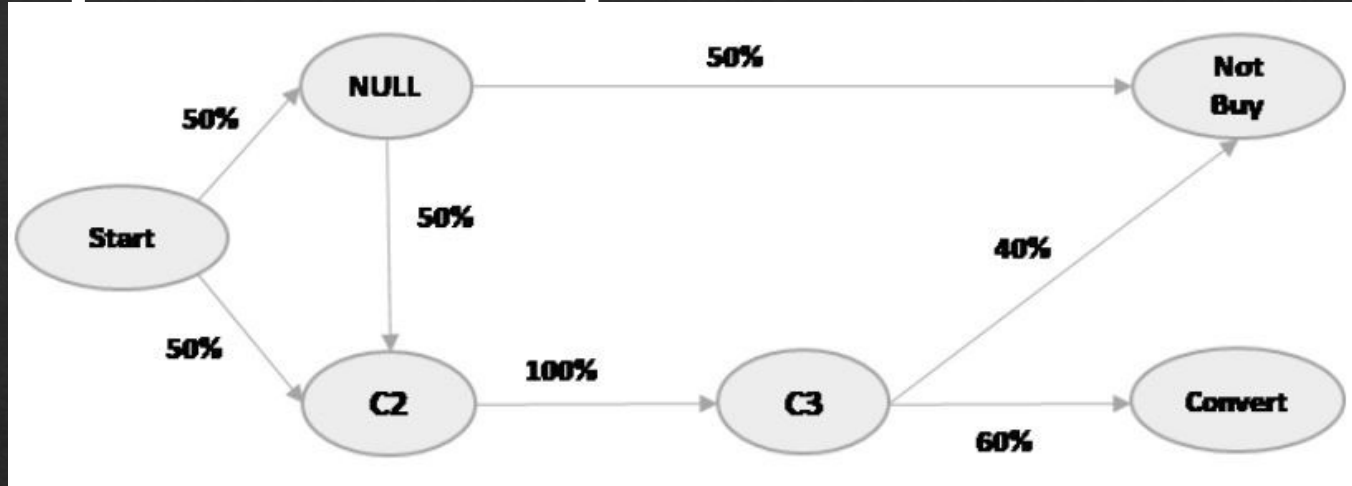


In the above scenario, a customer can either start their journey through channel 'C1' or channel 'C2'. The probability of starting with either C1 or C2 is 50% (or 0.5) each.

Let's calculate the overall probability of conversion first and then go further to see the effect of each of the channels.

$$\begin{aligned} P(\text{conversion}) &= P(C1 \rightarrow C2 \rightarrow C3 \rightarrow \text{Conversion}) + P(C2 \rightarrow C3 \rightarrow \text{Conversion}) \\ &= 0.5 * 0.5 * 1 * 0.6 + 0.5 * 1 * 0.6 \end{aligned}$$

How Important is a particular channel to the



For example, let's assume we have to calculate the contribution of channel C1. We will remove the channel C1 from the model and see how many conversions are

$$\begin{aligned} P(\text{Conversion after removing C1}) &= P(\text{C2} \rightarrow \text{C3} \rightarrow \text{Convert}) \\ &= 0.5 * 1 * 0.6 \\ &= 0.3 \end{aligned}$$

30% customer interactions can be converted without channel C1 being in place; while with C1 intact, 45% interactions can be converted. So, the removal effect of C1 is

RESULTS:

	Channel	Attribution	Conversion
1	Direct	First Touch	21347
5	Paid Search	First Touch	10416
4	Organic Search	First Touch	2144
2	Display	First Touch	601
6	Referral	First Touch	306
0	(unavailable)	First Touch	76
7	Social Network	First Touch	70
3	Email	First Touch	40

	Channel	Attribution	Conversion
1	Direct	Last Touch	25079
5	Paid Search	Last Touch	7098
4	Organic Search	Last Touch	1783
6	Referral	Last Touch	543
2	Display	Last Touch	322
0	(unavailable)	Last Touch	119
7	Social Network	Last Touch	33
3	Email	Last Touch	23

	Channel	Attribution	Conversion
1	Direct	Linear	24176.387022
5	Paid Search	Linear	7835.961433
4	Organic Search	Linear	1854.935938
6	Referral	Linear	498.325999
2	Display	Linear	427.791682
0	(unavailable)	Linear	133.451185
7	Social Network	Linear	41.519578
3	Email	Linear	31.627164

MARKOV TRANSITION PROBABILITIES - shows

	unavailable	Direct	Display	Email	Organic Search	Paid Search	Referral	Social Network	Conversion
Start	0.004802	0.601816	0.037240	0.002598	0.133745	0.195992	0.019150	0.004657	0.000000
unavailable	0.000000	0.552134	0.152032	0.006286	0.101529	0.028989	0.052016	0.010258	0.096757
Direct	0.015534	0.000000	0.024076	0.002984	0.165852	0.400501	0.082016	0.002013	0.307024
Display	0.099942	0.642004	0.000000	0.000000	0.037086	0.069322	0.002122	0.000653	0.148871
Email	0.102704	0.658098	0.000000	0.000000	0.095927	0.055636	0.003170	0.000000	0.084465
Organic Search	0.004737	0.701324	0.001235	0.001002	0.000000	0.195474	0.035829	0.001198	0.059201
Paid Search	0.002713	0.564420	0.004814	0.001756	0.280201	0.000000	0.056515	0.000714	0.088867
Referral	0.007136	0.713698	0.002198	0.001070	0.078965	0.141532	0.000000	0.001790	0.053611
Social Network	0.054024	0.549603	0.022802	0.000000	0.126577	0.087928	0.020790	0.000000	0.138276