E-Commerce Funnel

Rose Hagerty

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[Spreadsheet Link]

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Sheet Name	Description
raw_user_activity	The data pulled from the e-commerce website regarding user activity
purchase_activity	The data of user activity only including purchase events
first_purchase_activity	A compilation of user purchase activity in their first month
conversion_funnel	Data reflecting how many users particiapted in each event from the website.
retention_rate	How many users from a cohort (month of time) have remained active compared to the initial number of users.
cohort_analysis	Data showing how many users continued to participate over time after their first interaction.
cleaning_log	A log of all actions taken to clean the data

Legend

Summaries	The E-commerce company has a good conversion rate but low contention rate.
Analysis	Viewing how many users are purchasing against the mount that landed on the webite by creating a funnel
Calculations	Calculations used in this analysis were rentention rate of users over time, and conversion rate of users in each funnel
	stage and from the overal beginning number of users.
Raw Data	Data from e-commerce website user log.

Executive Summary

Results	Synopsis
Conversion Funnel	The e-commerce store has a high conversion rate, ranging from 10-29% total conversion and 29-26% conversion from each stage of the funnel. 10% of overall user on the
	website end up making a purchase.
Retention Rates	The retention rate of the E-commerce store seems to lower over time, but roughly half of the users from each cohort end up purchasing again in the next month after their first purchase.

Analysis	Description
Raw Data	The raw-data was collected from the user activity log of the E-commerce website. The data used was the user_id, event_type, and event_date. From these columns I was able to calculate
	the conversion and retention rates of purchasing customers. The category_code, price, and bran columns were not used in any of these calculations.
Conversion Funnel	The conversion- funnel was created using a simple division calculation. First counting each unique user in each funnel stage then taking those numbers and calculating total conversion and
	the conversion from each stage.
Retention Rates	The retention rates were aquired by using the raw data to find users first purchase date and tracking how many purchases were made by users in each following month. Purchase activity
	in each month (cohort) was calcualted by grouping all purchases within a given month. Then a simple dicision calucation was used to track the retention rate over time.

Preview of Raw Data:

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A	B	D	F	G	H
user_id	**event_type**	**category_code**	**brand**	**price**	**event_date**
a1515915625519014356	view	computers.peripherals.printer	pantum	113.81	2020-09-24
a1515915625519392599	view	stationery.cartrige	lomond	8.35	2020-09-24
a1515915625369253995	view	construction.tools.welding	N/A	250.63	2020-09-24
a1515915625369253995	view	construction.tools.welding	N/A	250.63	2020-09-24
a1515915625519410002	view	computers.desktop	steelseries	58.49	2020-09-24
a1515915625519413944	view	appliances.kitchen.microwave	samsung	130.11	2020-09-24
a1515915625519397646	view	computers.peripherals.camera	logitech	123.35	2020-09-24
a1515915625519397646	shopping_cart	computers.peripherals.camera	logitech	123.35	2020-09-24
a1515915625519397646	purchase	computers.peripherals.camera	logitech	123.35	2020-09-24
a1515915625519397646	view	computers.peripherals.camera	logitech	123.35	2020-09-24
a1515915625519417750	view	computers.network.router	d-link	53.14	2020-09-24
a1515915625519397646	shopping_cart	computers.peripherals.camera	logitech	123.35	2020-09-24
a1515915625519397646	purchase	computers.peripherals.camera	logitech	123.35	2020-09-24
a1515915625519397646	purchase	computers.peripherals.camera	logitech	123.35	2020-09-24
a1515915625358482476	view	computers.components.tv_tuner	perfeo	19.49	2020-09-24
a1515915625358482476	shopping_cart	computers.components.tv_tuner	perfeo	19.49	2020-09-24
a1515915625358482476	purchase	computers.components.tv_tuner	perfeo	19.49	2020-09-24
a1515915625519443407	view	computers.components.motherboard	asrock	77.73	2020-09-24
a1515915625519443407	shopping_cart	computers.components.motherboard	asrock	77.73	2020-09-24
a1515915625519443407	view	computers.components.motherboard	asrock	77.73	2020-09-24
a1515915625519446240	view	N/A	formula	35.54	2020-09-24
a1515915625519452732	view	computers.notebook	hp	27.62	2020-09-24
a1515915625519460662	view	computers.peripherals.joystick	logitech	162.51	2020-09-24
a1515915625519460662	shopping_cart	computers.peripherals.joystick	logitech	162.51	2020-09-24
a1515915625519460662	view	computers.peripherals.joystick	logitech	162.51	2020-09-24
a1515915625519460662	view	computers.peripherals.joystick	logitech	193.98	2020-09-24
a1515915625519463641	view	stationery.cartrige	hp	71.02	2020-09-24
a1515915625519463641	view	stationery.cartrige	hp	71.02	2020-09-24
a1515915625517481778	view	N/A	N/A	29.24	2020-09-24
a1515915625519463641	shopping_cart	stationery.cartrige	hp	71.02	2020-09-24
a1515915625517481778	view	N/A	N/A	29.24	2020-09-24

Task 1: Build a conversion funnel

The executive team is interested in understanding how well the website is converting product page views into purchases. Your first job is to create a conversion funnel to better understand how users interact with the website.

- Using data from the “raw_user_activity” sheet, create the funnel in a pivot table as a new sheet called “conversion_funnel”.

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- Make sure you are counting the unique users for each stage of the funnel.
- The stakeholders are looking to see total conversion rates and the conversion rates from each stage of the funnel of the website.

Conversion Funnel:

A	B	C	D	E
event_type	COUNTUNIQUE	**total_cr**	**cr_per stage**	
view	10453	29%	29%	
shopping_cart	3036	10%	36%	
purchase	1081	0%	0%	

Task 2: Prepare data for cohort analysis

The company wants you to build acquisition cohorts based on the month of a user's first purchase, and they want you to track cohort metrics month by month.

Below is a preview of the new set of data that includes only purchase events. As I performed the Cohort analysis, first purchase and cohort age were added as new columns to the purchase activity. Here are the steps I took:

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	A	B	G	H	I	J	K	L	M
1	**user_id**	**event_name**	**price**	**event_date**	**first_purchase_**	**event_month**	**first_purchase_**	**cohort_age**	
2	a151591562551	purchase	123.35	2020-09-24	2020-09-24	2020-09	2020-09	0	
3	a151591562551	purchase	123.35	2020-09-24	2020-09-24	2020-09	2020-09	0	
4	a151591562551	purchase	123.35	2020-09-24	2020-09-24	2020-09	2020-09	0	
5	a151591562535	purchase	19.49	2020-09-24	2020-09-24	2020-09	2020-09	0	
6	a151591562551	purchase	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0	
7	a151591562551	purchase	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0	
8	a151591562551	purchase	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0	
9	a151591562550	purchase	35.87	2020-09-24	2020-09-24	2020-09	2020-09	0	
10	a151591562551	purchase	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0	
11	a151591562538	purchase	24.73	2020-09-25	2020-09-25	2020-09	2020-09	0	
12	a151591562538	purchase	24.73	2020-09-25	2020-09-25	2020-09	2020-09	0	
13	a151591562551	purchase	140.63	2020-09-25	2020-09-25	2020-09	2020-09	0	
14	a151591562551	purchase	140.63	2020-09-25	2020-09-25	2020-09	2020-09	0	
15	a151591562552	purchase	29.57	2020-09-26	2020-09-26	2020-09	2020-09	0	
16	a151591562552	purchase	104.86	2020-09-26	2020-09-26	2020-09	2020-09	0	
17	a151591562552	purchase	647.29	2020-09-26	2020-09-26	2020-09	2020-09	0	
18	a151591562552	purchase	647.29	2020-09-26	2020-09-26	2020-09	2020-09	0	
19	a151591562552	purchase	647.29	2020-09-26	2020-09-26	2020-09	2020-09	0	
20	a151591562552	purchase	155.43	2020-09-27	2020-09-27	2020-09	2020-09	0	
21	a151591562552	purchase	130.73	2020-09-27	2020-09-27	2020-09	2020-09	0	
22	a151591562552	purchase	155.43	2020-09-28	2020-09-27	2020-09	2020-09	0	
23	a151591562537	purchase	20.14	2020-09-28	2020-09-28	2020-09	2020-09	0	
24	a151591562537	purchase	20.14	2020-09-28	2020-09-28	2020-09	2020-09	0	
25	a151591562537	purchase	20.14	2020-09-28	2020-09-28	2020-09	2020-09	0	
26	a151591562537	purchase	192.86	2020-09-28	2020-09-28	2020-09	2020-09	0	
27	a151591562537	purchase	20.14	2020-09-28	2020-09-28	2020-09	2020-09	0	
28	a151591562552	purchase	17.62	2020-09-28	2020-09-28	2020-09	2020-09	0	
29	a151591562552	purchase	17.62	2020-09-28	2020-09-28	2020-09	2020-09	0	
30	a151591562552	purchase	17.62	2020-09-28	2020-09-28	2020-09	2020-09	0	
31	a151591562552	purchase	17.62	2020-09-28	2020-09-28	2020-09	2020-09	0	
32	a151591562552	purchase	17.62	2020-09-28	2020-09-28	2020-09	2020-09	0	
33	a151591562551	purchase	10.78	2020-09-28	2020-09-28	2020-09	2020-09	0	

1. I took the raw data and filtered the data to only display the purchase events.
2. I created a pivot table to find the first purchase of each use by calculating the minimum date per user. See below:

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	A	B
1	*user_id*	MIN of event_da
2	a151591562535	2020-11-04
3	a151591562535	2020-09-29
4	a151591562535	2020-09-24
5	a151591562535	2020-11-20
6	a151591562536	2020-11-01
7	a151591562537	2020-09-28
8	a151591562538	2020-10-01
9	a151591562538	2020-09-25
10	a151591562539	2020-11-03
11	a151591562539	2020-10-17
12	a151591562540	2020-10-11
13	a151591562541	2020-10-09
14	a151591562541	2020-10-03
15	a151591562546	2020-10-10
16	a151591562546	2020-10-04
17	a151591562547	2020-10-10
18	a151591562548	2020-11-09
19	a151591562548	2020-10-05
20	a151591562550	2020-09-24
21	a151591562550	2020-09-29
22	a151591562550	2020-11-08
23	a151591562550	2020-10-13
24	a151591562550	2020-12-20
25	a151591562550	2020-10-03
26	a151591562551	2020-10-21
27	a151591562551	2020-11-17
28	a151591562551	2020-10-08
29	a151591562551	2020-09-29
30	a151591562551	2020-10-15
31	a151591562551	2020-10-18
32	a151591562551	2021-01-07
33		

3. Then by taking the difference between each date of purchase from the first initial purchase to display the age of purchase events on the website. This is the cohort age.

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	A	B	C	D	E	F	G
1	COUNTUNIQUE	cohort_age					
2	first_purchase_n	0	1	2	3	4	Grand Total
3	2020-09	32	4	2		1	32
4	2020-10	187	14	7	1	1	187
5	2020-11	238	13	7	1		238
6	2020-12	203	9	6			203
7	2021-01	233	16				233
8	2021-02	188					188

Task 3: Calculate retention rates

The last thing we need from this analysis is to know the retention rates for the website so we can understand how effective our commerce site is for retaining customers over the long run.

The Cohort analysis gave me the numbers needed to calculate the retention rates over time by using the following formula:

- Number of individuals retained / Number of individuals at the beginning of the period) x 100

Retention rates:

	A	B	C	D	E	F
1		cohort_age				
2	first_purchase _month	1	2	3	4	
3	2020-09	12.50%	6.25%	0.00%	3.13%	
4	2020-10	7.49%	3.74%	0.53%	0.53%	
5	2020-11	5.46%	2.94%	0.42%	0.00%	
6	2020-12	4.43%	2.96%	0.00%	0.00%	
7	2021-01	6.87%	0.00%	0.00%	0.00%	
8						