

Project Three: Business Analytics Report

Change Log/Assumptions

Change_Log	Assumptions
Part One: Conversion Funnel	Part: One
1. Clicked format to select and create a pivot table from "raw_user_activity_sheet"	1. Create a conversion funnel to better understand how users interact with the website.
2. Named the pivot table sheet "simple_conversion_funnel"	2. Counting unique users is the most accurate way ensure we count applicable users
3. Opened pivot table editor and selected "event_type" in descending order for Rows, uncheck show totals box. Select "user_id" with Countunique for Values	
4. Calculated "conversion rate" by dividing (purchases / view =B4/B2) and then divided (shopping_cart / view =B3/B2)	
5. Calculated "cr_next_step" by dividing (purchase / shopping_cart =B4/B3) and then divided (shopping_cart / view =B3/B2)	
Change_Log	Assumptions
Part Two: Prepared Data For Cohort Analysis	Part: Two
1. Created a new blank sheet tab called "purchase_activity"	1. If we build acquisition cohorts based on the month of a user's first purchase, we can track cohort metrics month by month.
2. Using the filters in the "raw_user_activity" sheet, I selected only the event types that are purchases by placing filter in the "event_type" column	2. The "raw_user_activity" sheet contains events for product page views and the opening of shopping carts, but this cohort analysis should focus only on the purchases.
3. After applying the filter, I copied the entire sheet and pasted the data into the "purchase_activity" sheet	3. To fulfill the previous step 2, we created a new blank sheet tab called "purchase_activity" by using the filters in the "raw_user_activity" sheet, to select only event types that are purchases. After applying the filter, copy the entire sheet and paste the data into the "purchase_activity" sheet
4. I Double checked to make sure that I only had data for purchase events in the new sheet (I made sure there was 4,845 rows in the new sheet, including column headers)	4. By double checking to see if we only have 4,845 rows in the new sheet, including column headers data for purchase events in the new sheet we can ensure accuracy
5. I reset the filter in the "raw_user_activity" sheet	5. Now that purchase activity has been isolated in its own table, we can calculate the first purchase date for each user who made a purchase. These dates will eventually be used to assign users to cohorts
	6. Although we have both the event_date and the first_purchase_date in the "purchase_activity" tab, we need to group the users and transactions by month for the cohort analysis. We will need to create three new columns in the "purchase_activity" sheet to help build the cohorts:
Change_Log	Assumptions
Part Three: Calculate retention rates	Part: Three
1. Used the data from the "purchase_activity" sheet, inserted another pivot table as a new sheet called "cohort_analysis"	1. The last steps of the analysis are to aggregate the purchase data into cohorts and then calculate retention rates for each cohort month by month.
2. Used "first_purchase_month" for the Rows, with checked show totals box, for Columns selected "cohort_age" with checked show totals box. Values are "user_id" with Countunique	2. If we configure the pivot table so that each represents one cohort, which are based on the month in which customers made their first purchase there should be 6 cohorts
3. Froze first column and 2nd row	3. The pivot table will also have the count of unique users for each cohort_age in the columns of the pivot table
4. Created a new blank sheet called "retention_rates"	4. To calculate overall retention rates we will create a new blank sheet called "retention_rates"; we can use this sheet to layout a table that looks similar to the "cohort_analysis" sheet
5. Added row labels in cells A3 to A7 for each cohort in chronological order and made sure these matched the row labels in the "cohort_analysis" sheet)	
6. Added column labels in cells B2 to E2 that represent the cohort ages from 1 to 4 months	
In cell B3, I wrote =Cohort_Analysis!C3/Cohort_Analysis!\$B3 formula to calculate the retention rate for each cohort at each cohort age in the table you created, based on the starting cohort sizes	

Table of Contents (Complete)

Table of Contents	
Sheet Name - Clickable Links	Description
Executive Summary	Summary of discoveries and insights gained from the elaborately designed report.
Retention Rates	Pivot table revealing the retention rates for each monthly cohort of unique user_ids compared by cohorts ages.
Cohort Analysis	Analysis of unique user_ids grouped into monthly cohorts and further analyzed by cohort_ages.
Conversion Funnel	Two pivot tables showing the sequences of events in this conversion funnel.
Purchase Activity	A dataset filtered to only show "purchase" event_types from "Raw_User_Activity" sheet.
First Purchase	A pivot table created from "Purchase_activity" sheet, revealing the MIN "first_purchase" date for each user_id.
Raw_User_Activity	Raw data. A dataset that is unfiltered, unaltered, not tampered with in any way, original.
Legend	
Summaries	
Analysis	
Calculations	
Raw Data	

Executive Summary (Complete)

Executive Summary	
Results	Synopsis
Conversion Funnel	Conversion rate from <i>views to purchases</i> is at a rate of 10.34%. Conversion rate to next step from <i>shopping_cart to purchase</i> is at a rate of 35.61%.
Retention Rates	Retention rates are the highest in the first monthly cohort of "2020-09" and nearly 5% by the next cohort "2020-10". Retention rates in "2020-09" cohort drop nearly half from 12.50% the first cohort_age to 6.25% the next. Then there is a gradual drop in retention rate until a slight nearly 2% uptick
Analysis	Description
Raw Data	A dataset that is unfiltered, unaltered, not tampered with in any way, original.
Conversion Funnel	This conversion funnel reveals accurate insights by calculating the percentage of users matriculating from one step in a sales process to the next.
Retention Rates	These retention rates we have unearthed explain the percentage of users or sales retained over any given period of time or times to be analyzed.

Retention Rates

COUNTUNIQUE of user_id	Cohort_age	Cohort_age	Cohort_age	Cohort_age
first_purchase_month	1	2	3	4
2020-09	12.50%	6.25%	0.00%	3.13%
2020-10	7.49%	3.74%	0.53%	0.53%
2020-11	5.46%	2.94%	0.42%	0.00%
2020-12	4.43%	2.96%	0.00%	0.00%
2021-01	6.87%	0.00%	0.00%	0.00%
2021-02	0.00%	0.00%	0.00%	0.00%

Cohort Analysis

COUNTUNIQUE of user_id	cohort_age					
first_purchase_month	0	1	2	3	4	Grand Total
2020-09	32	4	2		1	32
2020-10	187	14	7	1	1	187
2020-11	238	13	7	1		238
2020-12	203	9	6			203
2021-01	233	16				233
2021-02	188					188
Grand Total	1081	56	22	2	2	1081

Conversion Funnel

COUNTUNIQUE of event_date	event_type			event_type	COUNTUNIQUE of user_id	cr	cr_next_step
user_id	purchase	shopping_cart	view	view			
a1515915625354412996			1	shopping_cart	3036	29.04%	29.04%
a1515915625355179497	1	1	2	purchase	1081	10.34%	35.61%
a1515915625355805313	6	6	33				
a1515915625356687705		1	4				
a1515915625357946675			1				
a1515915625358008174			1				
a1515915625358482476	1	1	1				
a1515915625359264087			1				
a1515915625359268086			1				
a1515915625359833886	1	1	1				
a1515915625360350810			3				
a1515915625360479862		1	5				
a1515915625362668216			1				
a1515915625363906872			1				
a1515915625364013669			1				
a1515915625365126625			1				
a1515915625367995831			6				
a1515915625368479327	2	2	2				
a1515915625368720412		1	3				
a1515915625369253995			1				

Purchase Activity

user_id	event_type	category_code	brand	price	event_date	first_purchase_date	event_month	first_purchase_month	cohort_age
a1515915625519397646	purchase	computers.peripherals.camera	logitech	123.35	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625519397646	purchase	computers.peripherals.camera	logitech	123.35	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625519397646	purchase	computers.peripherals.camera	logitech	123.35	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625358482476	purchase	computers.components.tv_tuner	perfeo	19.49	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625519463641	purchase	stationery.cartrige	hp	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625519463641	purchase	stationery.cartrige	hp	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625519463641	purchase	stationery.cartrige	hp	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625503751892	purchase	appliances.environment.vacuum	topon	35.87	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625519463641	purchase	stationery.cartrige	hp	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625385888878	purchase	stationery.cartrige	cactus	24.73	2020-09-25	2020-09-25	2020-09	2020-09	0
a1515915625385888878	purchase	stationery.cartrige	cactus	24.73	2020-09-25	2020-09-25	2020-09	2020-09	0
a1515915625519762021	purchase		kitfort	140.63	2020-09-25	2020-09-25	2020-09	2020-09	0
a1515915625519762021	purchase		kitfort	140.63	2020-09-25	2020-09-25	2020-09	2020-09	0
a1515915625520029989	purchase	stationery.cartrige	hp	29.57	2020-09-26	2020-09-26	2020-09	2020-09	0
a1515915625520049345	purchase	auto.accessories.player	kenwood	104.86	2020-09-26	2020-09-26	2020-09	2020-09	0
a1515915625520070184	purchase	computers.peripherals.printer	epson	647.29	2020-09-26	2020-09-26	2020-09	2020-09	0
a1515915625520070184	purchase	computers.peripherals.printer	epson	647.29	2020-09-26	2020-09-26	2020-09	2020-09	0
a1515915625520070184	purchase	computers.peripherals.printer	epson	647.29	2020-09-26	2020-09-26	2020-09	2020-09	0
a1515915625520227072	purchase	computers.peripherals.wifi	ubiquiti	155.43	2020-09-27	2020-09-27	2020-09	2020-09	0
a1515915625520227072	purchase	computers.peripherals.wifi	ubiquiti	130.73	2020-09-27	2020-09-27	2020-09	2020-09	0
a1515915625520227072	purchase	computers.peripherals.wifi	ubiquiti	155.43	2020-09-28	2020-09-27	2020-09	2020-09	0

First Purchase

user_id	MIN of event_date
a1515915625355179497	2020-11-04
a1515915625355805313	2020-09-29
a1515915625358482476	2020-09-24
a1515915625359833886	2020-11-20
a1515915625368479327	2020-11-01
a1515915625371158307	2020-09-28
a1515915625385482819	2020-10-01
a1515915625385888878	2020-09-25
a1515915625393382317	2020-11-03
a1515915625395096356	2020-10-17
a1515915625403460003	2020-10-11
a1515915625413257995	2020-10-09
a1515915625415474736	2020-10-03
a1515915625466195424	2020-10-10
a1515915625469806973	2020-10-04
a1515915625476168209	2020-10-10
a1515915625483402054	2020-11-09
a1515915625486521695	2020-10-05
a1515915625503751892	2020-09-24
a1515915625505008297	2020-09-29
a1515915625507596879	2020-11-08

Raw User Activity (Cleaned)

A	B	C	D	E	F
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		250.63	2020-09-24
a1515915625369253995	view	construction.tools.welding		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		formula	35.54	2020-09-24

Conclusions

* The analysis revealed a significant drop-off rate between product page views and cart additions, suggesting a need for improvements in product descriptions or user experience.

* Cohort analysis identified a high initial retention rate, but a decline in retention over subsequent months, indicating a potential need for customer engagement strategies to improve long-term customer loyalty.