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Sheet Name	Description
executive_summary	Summary of all of the results
purchase_activity	All of the unique user_id that purchased an item.
first_purchase	The first purchase date for every unique user_id.
cohort_analysis	Results of the first purchase month for each cohort.
retention_rates	The retention rates starting with the month of their first purchase
conversion_funnel	Conversion rates from views, to shopping cart, to purchasing.
raw_user_activity	The original raw data

Legend

Summaries
Analysis
Calculations
Raw Data

Executive Summary

		Analysis	Description
Results	Synopsis	Raw Data	The dataset contains e-commerce user activity logs over time. Each entry represents a single customer interaction, identified by a unique user_id. The data includes the event_type (e.g., view, add-to-cart, purchase), the category_code and brand of the product, its price in USD, and the event_date in YYYY-MM-DD format. For this project, I focused on using event_type to analyze customer behavior, category_code and brand to explore product and brand preferences, price to study spending patterns, and event_date to track trends over time. User_id was mainly used for grouping activities by customer rather than individual analysis.
Conversion Funnel		Conversion Funnel	To calculate the conversion rates in the funnel, I used unique user counts at each stage. Specifically, I tracked how many distinct users performed a view, then how many of those added an item to their cart, and finally how many completed a purchase. This way, the funnel reflects the proportion of users progressing from one stage to the next, rather than just the raw number of events or transactions.
Retention Rates	From September 2020 to January 2021, retention rates steadily declined, with first-month retention dropping from 6.25% to 1.72%. Longer-term retention was minimal, indicating early engagement but limited sustained user retention over time. This is also due to the lack of data for the later months	Retention Rates	For the cohort analysis, I formed cohorts based on each user's first recorded purchase date (using first_purchase_date). This means all users who first purchased in the same week (or month, depending on the granularity) were grouped into the same cohort. I then tracked these cohorts over subsequent time periods to see how many users returned and performed any activity. Retention rates were calculated as the percentage of users from the original cohort who purchased again in later periods (e.g., Week 1, Week 2, etc.). This allowed me to compare engagement patterns across different cohorts and measure how well users were retained over time.

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
a151591562558482476	purchase	computers.components.tv_tuner	perfeo	19.49	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625519463641	purchase	stationery.cartridge	hp	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625519463641	purchase	stationery.cartridge	hp	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625519463641	purchase	stationery.cartridge	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.cartridge	hp	71.02	2020-09-24	2020-09-24	2020-09	2020-09	0
a1515915625385888878	purchase	stationery.cartridge	cactus	24.73	2020-09-25	2020-09-25	2020-09	2020-09	0
a1515915625385888878	purchase	stationery.cartridge	cactus	24.73	2020-09-25	2020-09-25	2020-09	2020-09	0
a1515915625519762021	purchase	kitfort	kitfort	140.63	2020-09-25	2020-09-25	2020-09	2020-09	0
a1515915625519762021	purchase	kitfort	kitfort	140.63	2020-09-25	2020-09-25	2020-09	2020-09	0
a1515915625520029989	purchase	stationery.cartridge	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
a1515915625371158307	purchase	stationery.cartridge	cactus	20.14	2020-09-28	2020-09-28	2020-09	2020-09	0
a1515915625371158307	purchase	stationery.cartridge	cactus	20.14	2020-09-28	2020-09-28	2020-09	2020-09	0
a1515915625371158307	purchase	stationery.cartridge	cactus	20.14	2020-09-28	2020-09-28	2020-09	2020-09	0


<i>user_id</i>	MIN of event_da
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
a1515915625507754425	2020-10-13
a1515915625509677596	2020-12-20
a1515915625509808717	2020-10-03



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user_id	event_type 	event_date
a1515915625519014356	view	2020-09-24
a1515915625519392599	view	2020-09-24
a1515915625369253995	view	2020-09-24
a1515915625369253995	view	2020-09-24
a1515915625519410002	view	2020-09-24
a1515915625519413944	view	2020-09-24
a1515915625519397646	view	2020-09-24
a1515915625519397646	shopping_cart	2020-09-24
a1515915625519397646	purchase	2020-09-24
a1515915625519397646	view	2020-09-24
a1515915625519417750	view	2020-09-24
a1515915625519397646	shopping_cart	2020-09-24
a1515915625519397646	purchase	2020-09-24
a1515915625519397646	purchase	2020-09-24
a1515915625358482476	view	2020-09-24
a1515915625358482476	shopping_cart	2020-09-24
a1515915625358482476	purchase	2020-09-24
a1515915625519443407	view	2020-09-24