



E-commerce User Behaviour and Transaction Analysis

05.05.2025



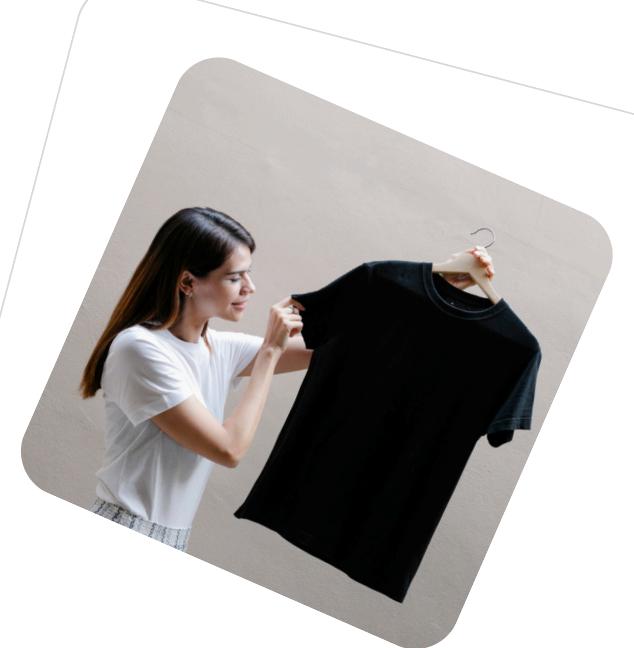
Dataset



Obtained from Kaggle

Consist of 10000 rows & 14 columns

No empty or null cells



Tools used

For Analysis



MySQL



Tableau

Codes to ensure proper import of the Dataset



SELECT * FROM ecom

Customer_ID	Recency	Frequency	Monetary	Avg_Order_Value	Session_Count	Avg_Session_Duration	Pages_Viewed	Clicks	Campaign_Response	Wishlist_Adds	Cart_Abandon
CUST00001	51	13	1560	113	56	14.766	33	828	1	28	17.629
CUST00002	134	5	3	26	7	5.409	2	60	0	4	23.024
CUST00003	55	15	235	57	37	5.082	11	710	1	17	28.392
CUST00004	46	11	1293	191	48	18.936	20	1223	0	17	15.192
CUST00005	21	30	3602	239	90	26.461	37	1892	0	57	11.427
CUST00006	25	42	4515	282	114	21.148	53	2187	1	63	14.148
CUST00007	9	67	8835	382	152	32.171	76	4766	1	65	6.812
CUST00008	79	1	98	28	12	8.266	6	55	0	2	28.224
CUST00009	63	15	362	52	24	14.785	19	535	0	19	25.785
CUST00010	83	18	489	67	29	12.573	26	407	0	8	20.22
CUST00011	2	76	2025	220	106	20.225	66	1622	1	67	0.721

```
SELECT count(*) FROM ecom;
```

Result Grid	
	count(*)
▶	10000

```
SELECT Customer_ID  
FROM ecom  
ORDER BY Customer_ID DESC  
LIMIT 1;
```

Result Grid	
	Customer_ID
▶	CUST10000



Understanding Dataset

desc econ;

	Field	Type	Null	Key	Default	Extra
▶	Customer_ID	text	YES		NULL	
	Recency	int	YES		NULL	
	Frequency	int	YES		NULL	
	Monetary	int	YES		NULL	
	Avg_Order_Value	int	YES		NULL	
	Session_Count	int	YES		NULL	
	Avg_Session_Duration	double	YES		NULL	
	Pages_Viewed	int	YES		NULL	
	Clicks	int	YES		NULL	
	Campaign_Response	int	YES		NULL	
	Wishlist_Adds	int	YES		NULL	
	Cart_Abandon_Rate	double	YES		NULL	

```
SELECT customer_id, count(customer_id) as "repeated"
FROM ecom
GROUP BY customer_id
HAVING repeated>1;
```

Result Grid | Filter Rows:

	customer_id	repeated



Inference

No null values are present

All columns are accurately imported

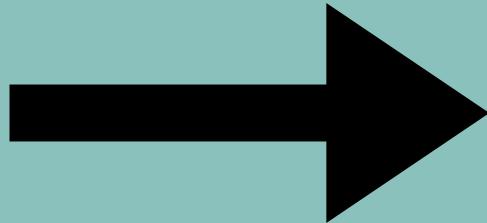
Customer Id is not repeated in the table

Preprocessing



```
UPDATE ecom  
SET Avg_Session_Duration = ROUND(Avg_Session_Duration,3)
```

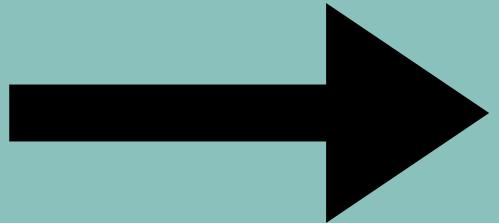
Avg_Session_
14.7662416
5.4090437
5.08223131
18.9364865
26.461395
21.1477151
32.1706929



Avg_Session_Duration
14.766
5.409
5.082
18.936
26.461
21.148
32.171
8.266
14.785
12.573
28.325
3.351

```
UPDATE ecom  
SET Cart_Abandon_Rate = ROUND(Cart_Abandon_Rate,3)
```

Cart_Abandon_R
17.62948879
23.02421591
28.39193909
15.19226744
11.42746046
14.14753901
6.812092578
28.22408502
25.78488713
20.22045229



Cart_Abandon_Rate
17.629
23.024
28.392
15.192
11.427
14.148
6.812
28.224
25.785
20.22
9.721
33.875

Analysis



```
SELECT avg(Recency) as "Recency_by_segment", Segment_Label  
FROM ecom  
GROUP BY Segment_Label  
Order BY Recency_by_segment desc;
```

	Recency_by_segment	Segment_Label
▶	120.0539	Iron
	59.2983	Copper
	39.5172	Silver
	19.4965	Gold
	7.5112	Platinum

```
SELECT Avg(Cart_Abandon_Rate) as "Abandon_rate", Segment_Label  
FROM ecom  
GROUP BY Segment_Label  
ORDER BY Abandon_rate Desc;
```

	Abandon_rate	Segment_Label
▶	35.01063604972373	Iron
	22.410469721767598	Copper
	15.02986186579383	Silver
	9.882252720079132	Gold
	5.010449078564501	Platinum

```
SELECT Avg>Returns) as "avg_returns", Segment_Label  
FROM ecom  
GROUP BY Segment_Label  
ORDER BY avg_returns Desc;
```

	avg_returns	Segment_Label
▶	11.8543	Iron
	9.4460	Copper
	6.9732	Silver
	4.4664	Gold
	2.0398	Platinum

```
SELECT Avg(Frequency) as "avg_freq", Segment_Label  
FROM ecom  
GROUP BY Segment_Label  
ORDER BY avg_freq Desc;
```

	avg_freq	Segment_Label
▶	74.1028	Platinum
	49.5480	Gold
	24.6206	Silver
	12.0434	Copper
	4.5539	Iron

```
SELECT *  
FROM ecom  
ORDER BY Frequency DESC  
LIMIT 10;
```

	Customer_ID	Recency	Frequency	Monetary	Avg_Order_Value	Session_Count	Avg_Session_Duration	Pages_Viewed	Clicks	Campaign_Response	Wishlist_Adds	Cart_Abandon
▶	CUST09913	9	99	5920	241	186	23.859	53	3595	0	55	3.653
	CUST05526	10	99	5951	307	117	30.556	85	4769	0	75	8.876
	CUST06121	5	99	6217	213	114	23.849	77	4567	1	63	9.119
	CUST06210	7	99	7193	361	156	31.213	66	3957	1	58	1.052
	CUST06353	1	99	8006	279	186	23.689	54	3194	1	51	8.087
	CUST06405	11	99	5832	244	129	28.45	78	2129	1	53	9.489
	CUST06755	6	99	9429	386	101	22.507	50	2587	1	53	2.704
	CUST06801	5	99	9670	229	190	27.336	78	2710	1	61	5.601
	CUST07915	11	99	5165	245	168	29.95	81	2097	1	64	2.343
	CUST00515	7	99	8437	306	191	32.774	73	2244	1	83	3.754
	CUST00705	10	99	9350	301	170	36.502	79	4571	1	67	0.168

```
SELECT count(*) as "zero returns"  
FROM ecom  
WHERE Returns = 0;
```

	zero returns
▶	794

```
Select *  
FROM ecom  
WHERE Monetary = (SELECT MAX(Monetary) FROM ecom);
```

	Customer_ID	Recency	Frequency	Monetary	Avg_Order_Value	Session_Count	Avg_Session_Duration	Pages_Viewed	Clicks	Campaign_Response	Wishlist_Adds	Cart_Abandon_R
▶	CUST06954	7	63	9995	313	181	36.707	65	3370	1	95	2.561

```
Select Avg(Avg_Order_Value) as "AOV", Segment_Label  
FROM ecom  
GROUP BY Segment_Label  
ORDER BY AOV desc;
```

	AOV	Segment_Label
▶	299.3676	Platinum
	223.5841	Gold
	149.6881	Silver
	84.3523	Copper
	28.8743	Iron

```
SELECT *
FROM ecom
WHERE Avg_Session_Duration = (SELECT MAX(Avg_Session_Duration) FROM ecom);
```

Result Grid													
	Customer_ID	Recency	Frequency	Monetary	Avg_Order_Value	Session_Count	Avg_Session_Duration	Pages_Viewed	Clicks	Campaign_Response	Wishlist_Adds	Cart_Abandon_Rate	Churn_Rate
▶	CUST06717	1	94	5777	338	115	39.996	95	3283	1	66	8.54	0.00

```
SELECT count(*)  
FROM ecom  
WHERE Session_Count = (SELECT MAX(Session_Count) FROM ecom);
```

	count(*)
▶	12

```
SELECT DISTINCT(Campaign_Response), COUNT(Campaign_Response)as "Response_Type", SUM(Monetary) as "Total_Revenue"  
FROM ecom  
GROUP BY Campaign_Response;
```

	Campaign_Response	Response_Type	Total_Revenue
▶	1	4167	12257568
	0	5833	7126378

```
SELECT *
From ecom
WHERE Cart_Abandon_Rate = (SELECT MAX(Cart_Abandon_Rate) FROM ecom);
```

	Customer_ID	Recency	Frequency	Monetary	Avg_Order_Value	Session_Count	Avg_Session_Duration	Pages_Viewed	Clicks	Campaign_Response	Wishlist_Adds	Cart_Abandon_Rate
▶	CUST02626	62	2	35	20	1	1.67	13	285	0	1	49.994

```

SELECT *
FROM ecom
ORDER BY Monetary Desc, Cart_Abandon_Rate Desc
LIMIT 10;

```

	Customer_ID	Recency	Frequency	Monetary	Avg_Order_Value	Session_Count	Avg_Session_Duration	Pages_Viewed	Clicks	Campaign_Response	Wishlist_Adds	Cart_Abandon_
▶	CUST06954	7	63	9995	313	181	36.707	65	3370	1	95	2.561
	CUST01266	1	70	9994	385	189	22.995	69	2110	0	62	5.583
	CUST02019	1	55	9990	278	116	29.432	51	4563	1	75	2.857
	CUST03987	2	64	9989	298	159	30.009	72	2760	1	71	3.54
	CUST04090	9	88	9985	369	143	27.324	60	4851	0	81	3.83
	CUST07101	9	95	9984	296	195	25.382	98	4800	1	78	8.541
	CUST07880	3	95	9978	367	157	29.016	94	3973	1	91	9.014
	CUST03951	13	65	9953	336	147	26.771	85	2987	1	65	9.086
	CUST08433	13	93	9949	322	148	26.09	97	4029	1	50	5.245
	CUST08619	14	66	9944	259	194	32.231	65	4880	1	55	4.335

```

SELECT *
FROM ecom
ORDER BY Monetary ASC
LIMIT 10;

```

	Customer_ID	Recency	Frequency	Monetary	Avg_Order_Value	Session_Count	Avg_Session_Duration	Pages_Viewed	Clicks	Campaign_Response	Wishlist_Adds	Cart_Abandon_R
▶	CUST08465	81	5	0	11	11	8.143	5	251	0	0	39.592
	CUST08616	140	4	0	10	19	6.74	7	60	0	2	21.01
	CUST09193	81	6	0	31	15	6.371	14	244	0	4	26.937
	CUST06348	98	8	0	33	9	8.019	6	105	0	0	49.421
	CUST06287	64	0	0	23	5	9.449	11	197	0	0	27.526
	CUST01061	77	3	0	29	5	7.976	14	76	0	1	23.118
	CUST00141	130	4	0	34	7	3.472	3	57	0	3	30.144
	CUST02110	149	1	0	20	4	5.681	3	293	0	0	24.268
	CUST00184	117	0	0	41	7	8.39	8	240	0	1	23.005
	CUST04586	176	9	0	16	10	4.898	4	277	0	1	37.5

```

SELECT *
FROM ecom
WHERE Monetary = 0
ORDER BY Wishlist_Adds DESC;

```

	Customer_ID	Recency	Frequency	Monetary	Avg_Order_Value	Session_Count	Avg_Session_Duration	Pages_Viewed	Clicks	Camp
▶	CUST03335	110	6	0	12	9	3.251	1	105	0
	CUST09193	81	6	0	31	15	6.371	14	244	0
	CUST00141	130	4	0	34	7	3.472	3	57	0
	CUST03513	91	7	0	44	3	9.007	2	78	0
	CUST08616	140	4	0	10	19	6.74	7	60	0
	CUST00184	117	0	0	41	7	8.39	8	240	0
	CUST01061	77	3	0	29	5	7.976	14	76	0
	CUST04326	69	4	0	40	10	2.322	4	70	1
	CUST04586	176	9	0	16	10	4.898	4	277	0
	CUST02110	149	1	0	20	4	5.681	3	293	0
	CUST04463	89	8	0	21	12	9.315	14	187	0

```
SELECT max(Monetary) FROM ecom;
```

	max(Monetary)
▶	9995

```
SELECT Pages_Viewed, Monetary  
FROM ecom  
ORDER BY Pages_Viewed DESC, Monetary DESC  
LIMIT 15;
```

	Pages_Viewed	Monetary
▶	99	9619
	99	9254
	99	8891
	99	8699
	99	8624
	99	8596
	99	8456
	99	8038
	99	7896
	99	6735
	99	6647
	99	6023

INSIGHTS

- Recency: Iron customers have the highest average recency, while Platinum have the lowest.
- Cart Abandon Rate: Follows the same order as recency → customers who visit least (Platinum) also abandon least.
- Returns: Same order as above, reinforcing the segmentation pattern.
- Frequency: Platinum buy most frequently, followed by Gold, Silver, Copper, and least by Iron.
- Revenue: Highest revenue (9995) from CUST06954 (Platinum). Lowest revenue = 0.
- Campaigns: 63.23% of total revenue came from customers who responded to campaigns.
- Special Cases:
 - CUST02626 (Iron) has the highest cart abandon rate (49.99).
 - CUST06717 (Platinum) has the highest session count (115).
 - 12 customers reached max session count of 199.
 - 794 customers had no returns.



Further Analysis conducted using Tableau

<https://public.tableau.com/app/profile/pranamya6125/viz/EcommerceandTransactionDetails/Story1>

