Customer Movement Analysis

BADS7105 : CUSTOMER RELATIONSHIP MANAGEMENT

Customer Movement

Data: Supermarket

Supermarket Data.csv

Data Dictionary: Please see detail in appendix section

Customer Movement Analysis

Customer Type	before	Previous	Current
New Customer	X	X	√
Repeat Customer		√	√
Reactive Customer	√	X	√
Churn Customer		√	X

Customer Movement

Expected result

แถว	SHOP_MONTH	New_Customer	Repeat_Customer	Reactivate_Customer	Churn_Customer
1	200604	1003	0	0	*null*
2	200605	544	675	0	-328
3	200606	382	787	82	-432
4	200607	385	843	181	-408
5	200608	366	887	197	-522
6	200609	328	931	238	-519

Customer Movement Analysis
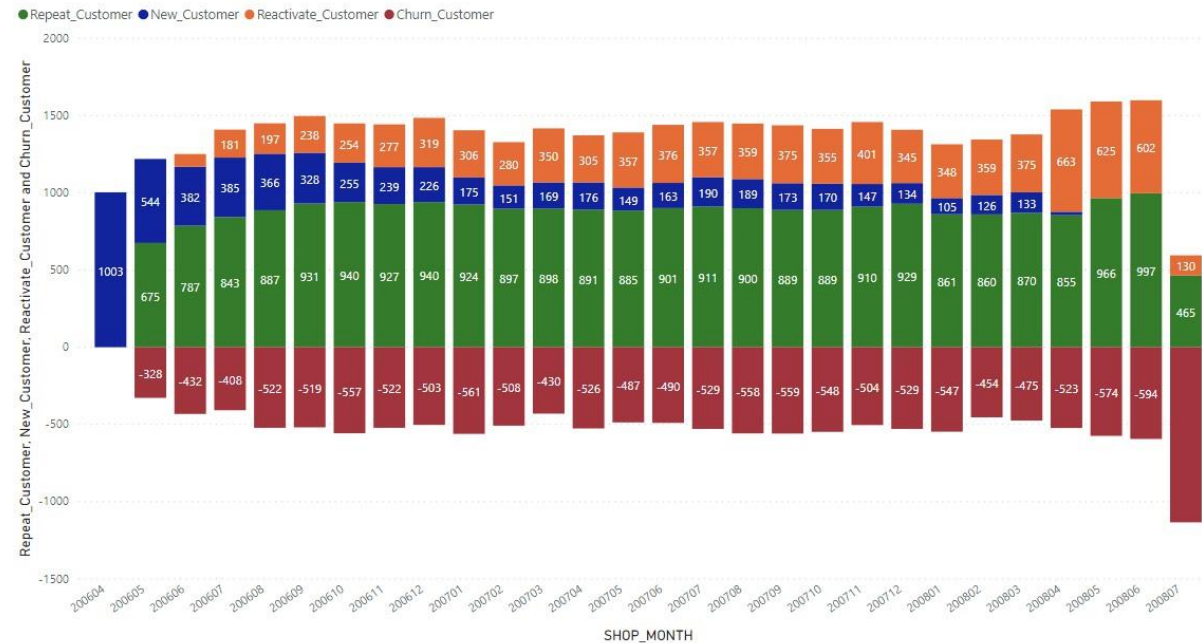
Customer Movement

Step 1: Get Customer code and Convert shop date to shop month (yyyymm)

```
SELECT
CUST_CODE,
CAST(SAFE.SUBSTR(cast(SHOP_DATE as STRING),1,6) as NUMERIC) as SHOP_MONTH,
FROM
`plated-observer-308203.supermarket_workshop.supermarket_031`
WHERE CUST_CODE IS NOT NULL
GROUP BY CUST_CODE,SHOP_MONTH
```

Example result

CUST_CODE	SHOP_MONTH
CUST0000923296	200704
CUST0000147574	200704
CUST0000992085	200704
CUST0000997122	200704
CUST0000863429	200704
CUST0000925425	200704
CUST0000132570	200704
CUST0000420363	200704
CUST0000809769	200704
CUST0000275967	200704
CUST0000556927	200704
CUST0000644461	200704
CUST0000848359	200704
CUST0000053927	200704
CUST0000634688	200704
CUST0000036136	200704
CUST0000195321	200704

Customer Movement

Step 2:

```sql
SELECT
CUST_CODE,
SHOP_MONTH,
CAST(SAFE.SUBSTR(cast(SHOP_MONTH as STRING),1,4) as NUMERIC) as C_YEAR,
CAST(SAFE.SUBSTR(cast(SHOP_MONTH as STRING),5,2) as NUMERIC) as C_MONTH,
LAG(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) AS PREVIOUS_MONTH,
LEAD(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) AS NEXT_MONTH,
CAST(SAFE.SUBSTR(cast(LAG(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) as STRING),1,4) as NUMERIC) as P_YEAR,
CAST(SAFE.SUBSTR(cast(LAG(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) as STRING),5,2) as NUMERIC) as P_MONTH,
FROM
(SELECT
CUST_CODE,
CAST(SAFE.SUBSTR(cast(SHOP_DATE as STRING),1,6) as NUMERIC) as SHOP_MONTH,
FROM
`plated-observer-308203.supermarket_workshop.supermarket_031`
WHERE CUST_CODE IS NOT NULL
GROUP BY CUST_CODE,SHOP_MONTH
ORDER BY CUST_CODE,SHOP_MONTH)
```

Example result

CUST_CODE	SHOP_MONTH	C_YEAR	C_MONTH	PREVIOUS	NEXT_MONTH	P_YEAR	P_MONTH
CUST0000543933	200705	2007	5	200704	200706	2007	4
CUST0000548270	200711	2007	11	200704	200712	2007	4
CUST0000561266	200705	2007	5	200704		2007	4
CUST0000628284	200705	2007	5	200704	200706	2007	4
CUST0000692724	200705	2007	5	200704	200709	2007	4
CUST0000711835	200705	2007	5	200704	200706	2007	4
CUST0000844640	200705	2007	5	200704	200706	2007	4
CUST0000962973	200804	2008	4	200704		2007	4
CUST0000000369	200610	2006	10	200609	200611	2006	9
CUST0000037610	200701	2007	1	200609	200702	2006	9
CUST0000089183	200708	2007	8	200609		2006	9
CUST0000115145	200610	2006	10	200609	200611	2006	9
CUST0000173993	200610	2006	10	200609	200611	2006	9
CUST0000206560	200610	2006	10	200609	200611	2006	9
CUST0000268787	200611	2006	11	200609	200701	2006	9
CUST0000340397	200611	2006	11	200609	200612	2006	9
CUST0000373951	200710	2007	10	200609		2006	9
CUST0000439130	200612	2006	12	200609	200701	2006	9
CUST0000453659	200610	2006	10	200609	200611	2006	9
CUST0000647793	200610	2006	10	200609	200611	2006	9
CUST0000957776	200611	2006	11	200609	200612	2006	9

Customer Movement

Step 3:

```sql
SELECT
CUST_CODE,
SHOP_MONTH,
CASE
WHEN PREVIOUS_MONTH IS NULL THEN "New_Customer"
WHEN (C_YEAR-P_YEAR)*12+(C_MONTH-P_MONTH) = 1 THEN "Repeat_Customer"
WHEN (C_YEAR-P_YEAR)*12+(C_MONTH-P_MONTH) > 1 THEN "Reactivate_Customer"
END as CUS_TYPE
FROM
(SELECT
CUST_CODE,
SHOP_MONTH,
CAST(SAFE.SUBSTR(cast(SHOP_MONTH as STRING),1,4) as NUMERIC) as C_YEAR,
CAST(SAFE.SUBSTR(cast(SHOP_MONTH as STRING),5,2) as NUMERIC) as C_MONTH,
LAG(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) AS PREVIOUS_MONTH,
LEAD(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) AS NEXT_MONTH,
CAST(SAFE.SUBSTR(cast(LAG(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) as STRING),1,4) as NUMERIC) as P_YEAR,
CAST(SAFE.SUBSTR(cast(LAG(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) as STRING),5,2) as NUMERIC) as P_MONTH,
FROM
(SELECT
CUST_CODE,
CAST(SAFE.SUBSTR(cast(SHOP_DATE as STRING),1,6) as NUMERIC) as SHOP_MONTH,
FROM
`plated-observer-308203.supermarket_workshop.supermarket_031`
WHERE CUST_CODE IS NOT NULL
GROUP BY CUST_CODE,SHOP_MONTH
ORDER BY CUST_CODE,SHOP_MONTH))
```

Example result

| CUST_CODE	SHOP_MONTH	CUS_TYPE
CUST0000040844	200604	New_Customer
CUST000040844	200605	Repeat_Customer
CUST0000040844	200607	Reactivate_Customer
CUST0000040844	200608	Repeat_Customer
CUST0000040844	200609	Repeat_Customer
CUST0000040844	200610	Repeat_Customer
CUST0000040844	200804	Reactivate_Customer
CUST000040844	200806	Reactivate_Customer
CUST0000044880	200605	New_Customer
CUST0000044880	200609	Reactivate_Customer
CUST000044880	200610	Repeat_Customer
CUST0000044880	200611	Repeat_Customer
CUST0000044880	200612	Repeat_Customer
CUST000044880	200701	Repeat_Customer
CUST0000044880	200702	Repeat_Customer
CUST0000044880	200703	Repeat_Customer
CUST000044880	200704	Repeat_Customer
CUST0000044880	200705	Repeat_Customer
CUST0000044880	200706	Repeat_Customer
CUST000044880	200707	Repeat_Customer
CUST0000044880	200708	Repeat_Customer
CUST0000044880	200710	Reactivate_Customer

Customer Movement

Step 4:

```sql
SELECT
SHOP_MONTH,
COUNT(CASE WHEN CUS_TYPE = "New_Customer" THEN 1 END) as New_Customer,
COUNT(CASE WHEN CUS_TYPE = "Repeat_Customer" THEN 1 END) as Repeat_Customer,
COUNT(CASE WHEN CUS_TYPE = "Reactivate_Customer" THEN 1 END) as Reactivate_Customer,
-(LAG(COUNT(SHOP_MONTH),1)OVER (ORDER BY SHOP_MONTH) - COUNT(CASE WHEN CUS_TYPE = "Repeat_Customer" THEN 1 END)) as Churn_Customer
FROM
```

```sql
(SELECT
CUST_CODE,
SHOP_MONTH,
CASE
WHEN PREVIOUS_MONTH IS NULL THEN "New_Customer"
WHEN (C_YEAR-P_YEAR)*12+(C_MONTH-P_MONTH) = 1 THEN "Repeat_Customer"
WHEN (C_YEAR-P_YEAR)*12+(C_MONTH-P_MONTH) > 1 THEN "Reactivate_Customer"
END as CUS_TYPE
FROM
(SELECT
CUST_CODE,
SHOP_MONTH,
CAST(SAFE.SUBSTR(cast(SHOP_MONTH as STRING),1,4) as NUMERIC) as C_YEAR,
CAST(SAFE.SUBSTR(cast(SHOP_MONTH as STRING),5,2) as NUMERIC) as C_MONTH,
LAG(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) AS PREVIOUS_MONTH,
LEAD(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) AS NEXT_MONTH,
CAST(SAFE.SUBSTR(cast(LAG(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) as STRING),1,4) as NUMERIC) as P_YEAR,
CAST(SAFE.SUBSTR(cast(LAG(SHOP_MONTH, 1) OVER (PARTITION BY CUST_CODE ORDER BY SHOP_MONTH) as STRING),5,2) as NUMERIC) as P_MONTH,
FROM
(SELECT
CUST_CODE,
CAST(SAFE.SUBSTR(cast(SHOP_DATE as STRING),1,6) as NUMERIC) as SHOP_MONTH,
FROM
`plated-observer-308203.supermarket_workshop.supermarket_031`
WHERE CUST_CODE IS NOT NULL
GROUP BY CUST_CODE,SHOP_MONTH
ORDER BY CUST_CODE,SHOP_MONTH)))
GROUP BY SHOP_MONTH
ORDER BY SHOP_MONTH
```

Example result

SHOP_MONTH	New_Customer	Repeat_Customer	Reactivate_Customer	Churn_Customer
200604	1003	0	0	
200605	544	675	0	-328
200606	382	787	82	-432
200607	385	843	181	-408
200608	366	887	197	-522
200609	328	931	238	-519
200610	255	940	254	-557
200611	239	927	277	-522
200612	226	940	319	-503
200701	175	924	306	-561
200702	151	897	280	-508
200703	169	898	350	-430
200704	176	891	305	-526
200705	149	885	357	-487
200706	163	901	376	-490
200707	190	911	357	-529
200708	189	900	359	-558
200709	173	889	375	-559
200710	170	889	355	-548
200711	147	910	401	-504
200712	134	929	345	-529
200801	105	861	348	-547

Customer Movement - Dashboard
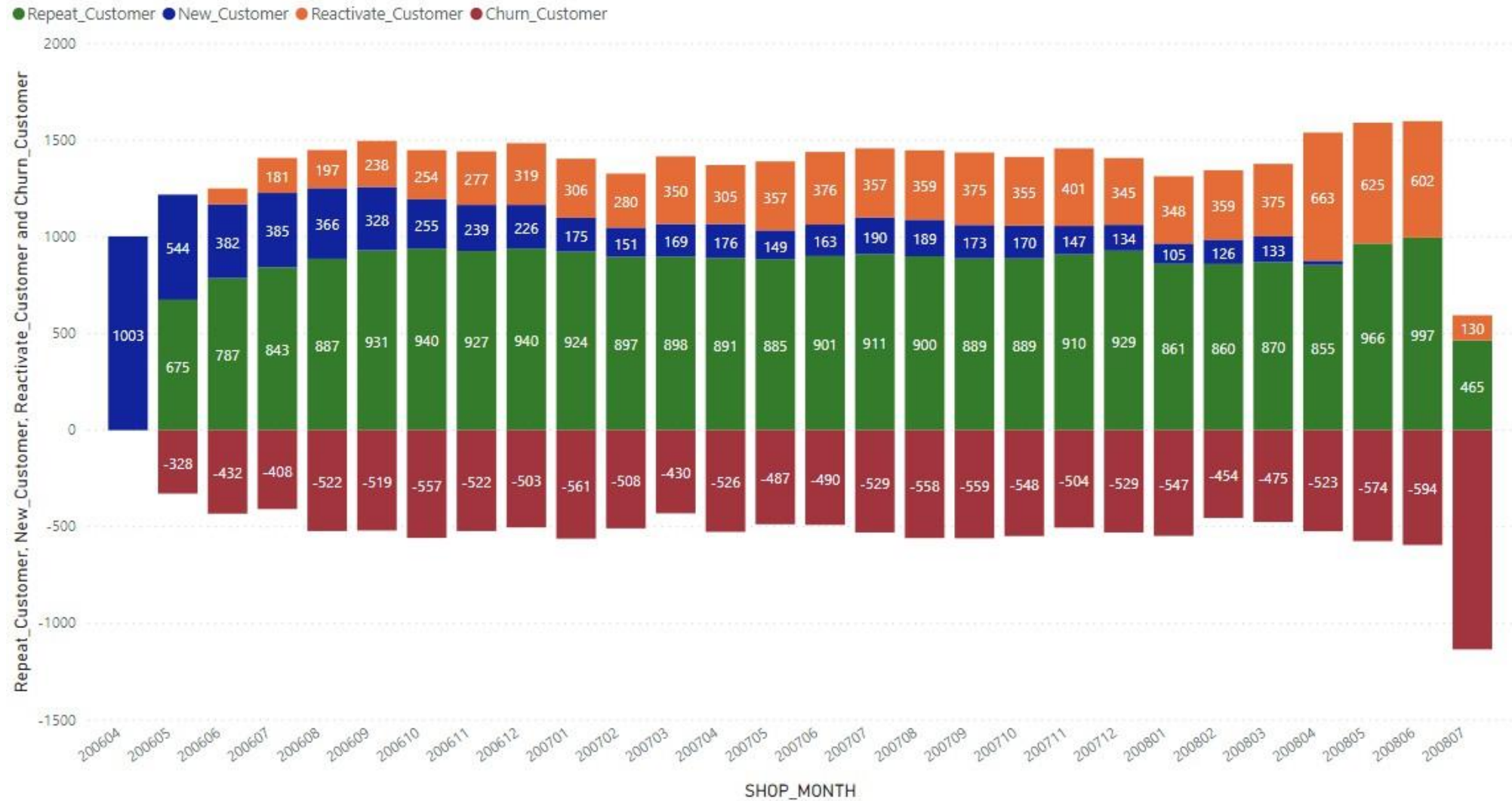
Thank you

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Appendix

Data set details

Column Name	Description	Type	Sample Values
shop_week	Identifies the week of the basket	Char	Format is YYYYWW where the first 4 characters identify the fiscal year and the other two characters identify the specific week within the year (e.g. 200735). Being the fiscal year, the first week doesn't start in January. (See time.csv file for start/end dates of each week)
shop_date	Date when shopping has been made. Date is specified in the yyyymmdd format	Char	20060413, 20060412
shop_weekday	Identifies the day of the week	Num	1=Sunday, 2=Monday, …, 7=Saturday
shop_hour	Hour slot of the shopping	Num	0=00:00 …23=23:00 -00:59, 1=01:00 - 23:59 -01:59,

Data Dictionary

Data set details

Column Name	Description	Type	Sample Values
Quantity	Number of items of the same product bought in this basket	Num	Integer number
spend	Spend associated to the items bought	Num	Number with two decimal digits
prod_code	Product Code	Char	PRD0900001, PRD0900003
prod_code_10	Product Hierarchy Level 10 Code	Char	CL00072, CL00144 (class)
prod_code_20	Product Hierarchy Level 20 Code	Char	DEP00021, DEP00051 (department)
prod_code_30	Product Hierarchy Level 30 Code	Char	G00007, G00015 (group)
prod_code_40	Product Hierarchy Level 40 Code	Char	D00002, D00003 (division)

Data Dictionary

Data set details

Column Name	Description	Type	Sample Values
cust_code	Customer Code	Char	CUST0000001624, CUST0000001912
cust_price_sensitivity	Customer's Price Sensitivity	Char	LA=Less Affluent, MM=Mid Market, UM=Up Market, XX=unclas
cust_lifestage	Customer's Lifestage	Char	YA=Young Adults, OA=Older Adults, YF=Young Families, OF=Older Families, PE=Pensioners, OT=Other, XX=unclassified
basket_id	Basket ID. All items in a basket share the same basket_id value.	Num	994100100000020, 994100100000344
basket_size	Basket size	Char	L=Large, M=Medium, S=Small
basket_price_sensitivity	Basket price sensitivity	Char	LA=Less Affluent, MM=Mid Market, UM=Up Market, XX=unclassified

Data Dictionary

Data set details

Column Name	Description	Type	Sample Values
basket_type	Basket type	Char	Small Shop, Top Up, Full Shop, XX
basket_dominant_mission	Shopping dominant mission	Char	Fresh, Grocery, Mixed, Non Food, XX
store_code	Store Code	Char	STORE00001, STORE00002
store_format	Format of the Store	Char	LS, MS, SS, XLS ()
store_region	Region the store belongs to	Char	E02, W01, E01, N03

Data Dictionary