8WEEKSQLCHALLENGE.COM

CASE STUDY #3

FOODIE-FI

AVO GOOD TIME

DATAWITHDANNY.COM

SQL DATA ANALYSIS PROJECT

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INTRODUCTION

Subscription based businesses are super popular and Danny realised that there was a large gap in the market - he wanted to create a new streaming service that only had food related content - something like Netflix but with only cooking shows!

Danny finds a few smart friends to launch his new startup Foodie-Fi in 2020 and started selling monthly and annual subscriptions, giving their customers unlimited on-demand access to exclusive food videos from around the world!

Danny created Foodie-Fi with a data driven mindset and wanted to ensure all future investment decisions and new features were decided using data. This case study focuses on using subscription style digital data to answer important business questions.

INFORMATION ABOUT THE DATASET

TABLE 1: PLANS

Customers can choose which plans to join Foodie-Fi when they first sign up.

Basic plan customers have limited access and can only stream their videos and is only available monthly at $9.90

Pro plan customers have no watch time limits and are able to download videos for offline viewing. Pro plans start at $19.90 a month or $199 for an annual subscription.

Customers can sign up to an initial 7 day free trial will automatically continue with the pro monthly subscription plan unless they cancel, downgrade to basic or upgrade to an annual pro plan at any point during the trial.

When customers cancel their Foodie-Fi service - they will have a churn plan record with a null price but their plan will continue until the end of the billing period.

INFORMATION ABOUT THE DATASET

TABLE 2: SUBSCRIPTIONS

Customer subscriptions show the exact date where their specific plan_id starts.

If customers downgrade from a pro plan or cancel their subscription - the higher plan will remain in place until the period is over - the start_date in the subscriptions table will reflect the date that the actual plan changes.

When customers upgrade their account from a basic plan to a pro or annual pro plan - the higher plan will take effect straightaway.

When customers churn - they will keep their access until the end of their current billing period but the start_date will be technically the day they decided to cancel their service.

INFORMATION ABOUT THE DATASET

PLANS

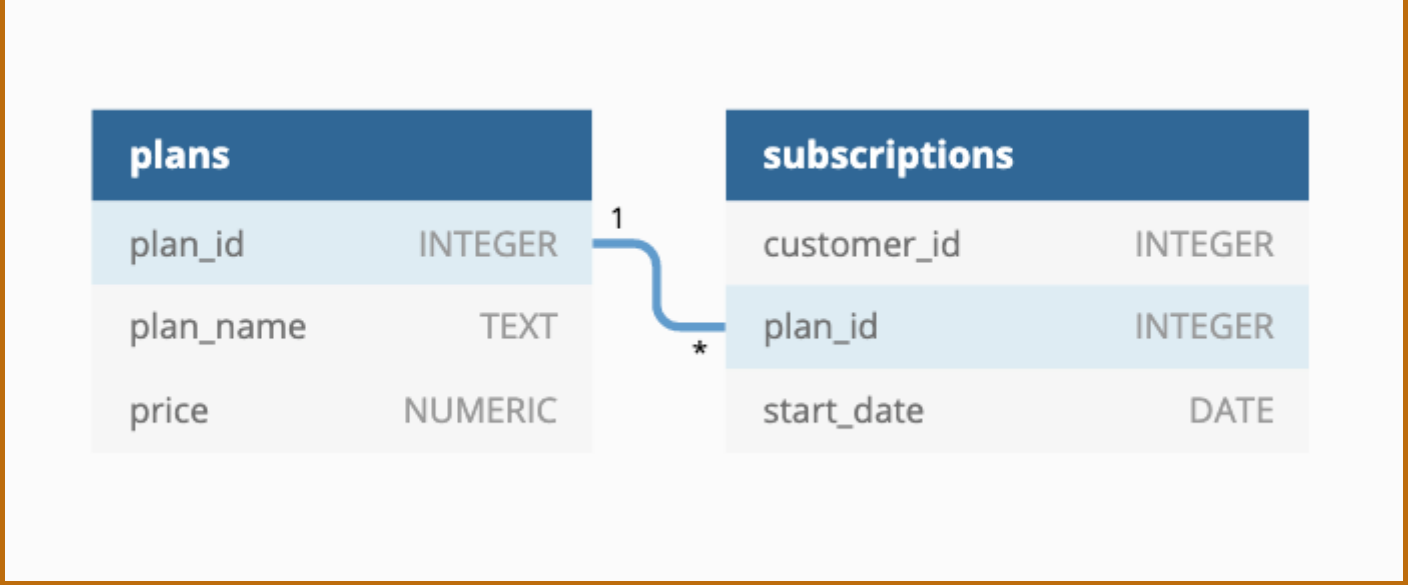
plan_id	plan_name	price
0	trial	0
1	basic monthly	9.90
2	pro monthly	19.90
3	pro annual	199
4	churn	null

SUBSCRIPTIONS

customer_id	plan_id	start_date
1	0	2020-08-01
1	1	2020-08-08
2	0	2020-09-20
2	3	2020-09-27
11	0	2020-11-19
11	4	2020-11-26
13	0	2020-12-15
13	1	2020-12-22
13	2	2021-03-29
15	0	2020-03-17
15	2	2020-03-24
15	4	2020-04-29

This table contains 2650 rows. It is not possible to display all.

ENTITY RELATIONSHIP DIAGRAM



1. HOW MANY CUSTOMERS HAS FOODIE-FI EVER HAD?

```
SELECT COUNT(DISTINCT(CUST_ID))  AS NUMBER_OF_CUSTOMERS
FROM SUBSCRIPTIONS;
```

NUMBER_OF_CUSTOMERS
1000

2. WHAT IS THE MONTHLY DISTRIBUTION OF TRIAL PLAN START_DATE VALUES FOR OUR DATASET?

```
SELECT MONTH(START_DATE) AS MONTH_NAME, YEAR(START_DATE) AS THE_YEAR,
COUNT(CUSTOMER_ID) AS NUMBER_OF_TRIALS FROM SUBSCRIPTIONS S
LEFT JOIN PLANS P
ON P.PLAN_ID = S.PLAN_ID
WHERE PLAN_NAME = 'TRIAL'
GROUP BY MONTH_NAME, THE_YEAR
ORDER BY MONTH_NAME;
```

MONTH_NAME	THE_YEAR	NUMBER_OF_TRIALS
1	2020	88
2	2020	68
3	2020	94
4	2020	81
5	2020	88
6	2020	79
7	2020	89
8	2020	88
9	2020	87
10	2020	79
11	2020	75
12	2020	84

3. WHAT PLAN START_DATE VALUES OCCUR AFTER THE YEAR 2020 FOR OUR DATASET? SHOW THE BREAKDOWN BY COUNT OF EVENTS FOR EACH PLAN_NAME.

```sql
SELECT P.PLAN_NAME, COUNT(S.PLAN_ID) AS NUMBER_OF_START_DATE_VALUES_AFTER_2020
FROM SUBSCRIPTIONS S
INNER JOIN PLANS P
ON P.PLAN_ID = S.PLAN_ID
WHERE YEAR(START_DATE) > 2020
GROUP BY PLAN_NAME;
```

PLAN_NAME	NUMBER_OF_START_DATE_VALUES_AFTER_2020
CHURN	71
PRO MONTHLY	60
PRO ANNUAL	63
BASIC MONTHLY	8

4. WHAT IS THE CUSTOMER COUNT AND PERCENTAGE OF CUSTOMERS WHO HAVE CHURNED ROUNDED TO 1 DECIMAL PLACE?

```
SELECT COUNT(DISTINCT(CUSTOMER_ID)) AS TOTAL_NUMBER_OF_CUSTOMERS,
SUM(CASE WHEN PLAN_ID = 4 THEN 1 ELSE 0 END) AS NUMBER_OF_CHURNED_CUSTOMERS,
ROUND((SUM(CASE WHEN PLAN_ID = 4 THEN 1 ELSE 0 END)) / (COUNT(DISTINCT(CUSTOMER_ID))) *100,1)
AS PERCENTAGE_OF_CHURNED_CUSTOMERS
FROM SUBSCRIPTIONS;
```

TOTAL_NUMBER_OF_CUSTOMERS	NUMBER_OF_CHURNED_CUSTOMERS	PERCENTAGE_OF_CHURNED_CUSTOMERS
1000	307	30.7

5. HOW MANY CUSTOMERS HAVE CHURNED STRAIGHT AFTER THEIR INITIAL FREE TRIAL - WHAT PERCENTAGE IS THIS ROUNDED TO THE NEAREST WHOLE NUMBER?

```sql
WITH X AS (
SELECT *,
LAG(PLAN_ID,1) OVER (PARTITION BY CUSTOMER_ID ORDER BY PLAN_ID) AS PREVIOUS_PLAN
FROM SUBSCRIPTIONS)
SELECT COUNT(PREVIOUS_PLAN) AS CHURN_COUNT,
ROUND(COUNT(*) * 100 / (SELECT COUNT(DISTINCT(CUSTOMER_ID)) FROM SUBSCRIPTIONS), 0) AS CHURN_PERCENTAGE
FROM X
WHERE PLAN_ID = 4 AND PREVIOUS_PLAN = 0;
```

CHURN_COUNT	CHURN_PERCENTAGE
92	9

6. WHAT IS THE NUMBER AND PERCENTAGE OF CUSTOMER PLANS AFTER THEIR INITIAL FREE TRIAL?

```sql
WITH X AS (
SELECT *,
LEAD(PLAN_ID,1) OVER (PARTITION BY CUSTOMER_ID ORDER BY PLAN_ID) AS NEXT_PLAN
FROM SUBSCRIPTIONS)
SELECT NEXT_PLAN , COUNT(*) AS NUMBER_OF_CUSTOMERS,
ROUND(COUNT(*) * 100 / (SELECT COUNT(DISTINCT CUSTOMER_ID) FROM SUBSCRIPTIONS), 1) AS PERCENTAGE_NEXT_PLAN
FROM X
WHERE PLAN_ID = 0 AND NEXT_PLAN IS NOT NULL
GROUP BY NEXT_PLAN
ORDER BY PLAN_ID;
```

NEXT_PLAN	NUMBER_OF_CUSTOMERS	PERCENTAGE_NEXT_PLAN
1	546	54.6
2	325	32.5
3	37	3.7
4	92	9.2

7. WHAT IS THE CUSTOMER COUNT AND PERCENTAGE BREAKDOWN OF ALL 5 PLAN_NAME VALUES AT 2020-12-31?

```
WITH X AS (
SELECT *,
RANK() OVER(PARTITION BY CUSTOMER_ID ORDER BY START_DATE DESC) AS RANK_NR
FROM SUBSCRIPTIONS  WHERE START_DATE <= '2020-12-31')
SELECT PLAN_NAME, COUNT(PLAN_ID) AS NUMBER_OF_CUSTOMERS,
ROUND(COUNT(PLAN_ID)  / (SELECT COUNT(CUSTOMER_ID) FROM X
WHERE RANK_NR = 1) * 100, 1) AS PERCENTAGE
FROM X
JOIN PLANS
USING(PLAN_ID)
WHERE RANK_NR = 1
GROUP BY PLAN_NAME
ORDER BY NUMBER_OF_CUSTOMERS DESC;
```

PLAN_NAME	NUMBER_OF_CUSTOMERS	PERCENTAGE
PRO MONTHLY	326	32.6
CHURN	236	23.6
BASIC MONTHLY	224	22.4
PRO ANNUAL	195	19.5
TRIAL	19	1.9

8. HOW MANY CUSTOMERS HAVE UPGRADED TO AN ANNUAL PLAN IN 2020?

```
SELECT COUNT(CUSTOMER_ID) AS NUMBER_OF_CUSTOMERS
FROM SUBSCRIPTIONS
WHERE PLAN_ID = 3 AND YEAR(START_DATE) = '2020';
```

NUMBER_OF_CUSTOMERS
195

9. HOW MANY DAYS ON AVERAGE DOES IT TAKE FOR A CUSTOMER TO AN ANNUAL PLAN FROM THE DAY THEY JOIN FOODIE-FI?

```
 WITH ANNUAL AS (
 SELECT CUSTOMER_ID, START_DATE AS ANNUAL_DATE
 FROM SUBSCRIPTIONS
 WHERE PLAN_ID = 3),
TRIAL AS (
SELECT CUSTOMER_ID, START_DATE AS TRIAL_DATE
FROM SUBSCRIPTIONS
WHERE PLAN_ID = 0)
SELECT
ROUND(AVG(DATEDIFF(ANNUAL_DATE, TRIAL_DATE)), 0) AS AVERAGE_DAYS
FROM ANNUAL A
INNER JOIN TRIAL  T ON A.CUSTOMER_ID = T.CUSTOMER_ID;
```

AVERAGE_DAYS
105

10. CAN YOU FURTHER BREAKDOWN THIS AVERAGE VALUE INTO 30 DAY PERIODS (I.E. 0-30 DAYS, 31-60 DAYS ETC)

```
WITH ANNUAL AS (SELECT CUSTOMER_ID, START_DATE AS ANNUAL_DATE
 FROM SUBSCRIPTIONS
 WHERE PLAN_ID = 3),
TRIAL AS (SELECT CUSTOMER_ID, START_DATE AS TRIAL_DATE
FROM SUBSCRIPTIONS
WHERE PLAN_ID = 0),
DAY_PERIOD AS (SELECT DATEDIFF(ANNUAL_DATE, TRIAL_DATE) AS DIFFERENCE
FROM TRIAL
LEFT JOIN ANNUAL USING(CUSTOMER_ID) WHERE ANNUAL_DATE IS NOT NULL),
BINS AS (SELECT *,
FLOOR(DIFFERENCE/30) AS BUCKET
FROM DAY_PERIOD)
SELECT CONCAT((BUCKET * 30) + 1, ' - ', (BUCKET + 1) * 30, ' DAYS') AS DAYS,
COUNT(DIFFERENCE) AS TOTAL
FROM BINS GROUP BY BUCKET;
```

DAYS	TOTAL
1 - 30 DAYS	48
121 - 150 DAYS	43
61 - 90 DAYS	33
31 - 60 DAYS	25
151 - 180 DAYS	35
91 - 120 DAYS	35
181 - 210 DAYS	27
331 - 360 DAYS	1
241 - 270 DAYS	5
211 - 240 DAYS	4
271 - 300 DAYS	1
301 - 330 DAYS	1

11. HOW MANY CUSTOMERS DOWNGRADED FROM A PRO MONTHLY TO A BASIC MONTHLY PLAN IN 2020?

```
WITH x AS
(SELECT *,
LEAD(PLAN_ID,1) OVER( PARTITION BY CUSTOMER_ID ORDER BY PLAN_ID) As NEXT_PLAN
FROM SUBSCRIPTIONS
WHERE YEAR(START_DATE) = '2020')
SELECT COUNT(*) as NUMBER_OF_DOWNGRADES
FROM x
WHERE NEXT_PLAN = 1 AND PLAN_ID = 2;
```

NUMBER_OF_DOWNGRADES
0

RESULTS

- Foodie-Fi has 1000 customers.

- In 2020 March has the biggest number of trial plan distribution -94 customers. February has the smallest number of trial plan distribution - 68 customers.

- After 2020 the number of customers who churned the plan is the biggest one -71 customers-. 63 customers decided to get the Pro Annual Plan and 60 customers purchased the Pro Monthly Plan. Only 8 customers chose the Basic Monthly Plan.

- 307 customers churned the plan, it is 30.7% of all customers. There are 92 customers who churned straight after their initial free trial, which 9% of the customer base.

- After their initial trial 54.6% of customers choose Basic Monthly Plan, 32.5% of customers choose Pro Monthly Plan, 3.7% of customers choose Pro Annual Plan and 9.2% of customers choose to churn the plan.

RESULTS

- - At 2020–12–31 235 customers (23.5%) churned the plan, 19 customers (1.9%) had a Trial Plan , 224 customers (22.4%) had Basic Monthly Plan, 326 customers (32.6%) had Pro Monthly Plan and 195 customers (19.5%) had Pro Annual Plan.

- 195 customers have upgraded to Pro Annual Plan in 2020.

- It takes 105 days on average for a customer to an Annual Plan from the day they joined Foodie-Fi. For most of the customers it takes 1-30 days.

- No customers downgraded from a pro monthly to a basic monthly plan in 2020.

SUGGESTIONS

- In 2020 February Foodi-Fi had the smallest number of trial plan distribution. I recommend to produce more social media advertisements next February.

- A relatively high percentage of the customers churned the plan. I suggest to create a survery and ask the customers about the reason why they decided to do so and if there is anything Foodi-Fi can change to keep its customers.

- No one changed the Pro Monthly Plan to the Basic Monthly Plan in 2020, it means the Pro Monhtly Plan works excellent.

THANK YOU!