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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.

Available Data

Danny has shared the data design for Foodie-Fi and also short descriptions on each of the database tables - our case study focuses on only 2 tables but there will be a challenge to create a new table for the Foodie-Fi team.

All datasets exist within the `foodie_fi` database schema - be sure to include this reference within your SQL scripts as you start exploring the data and answering the case study questions.

Entity Relationship Diagram

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.

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

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.

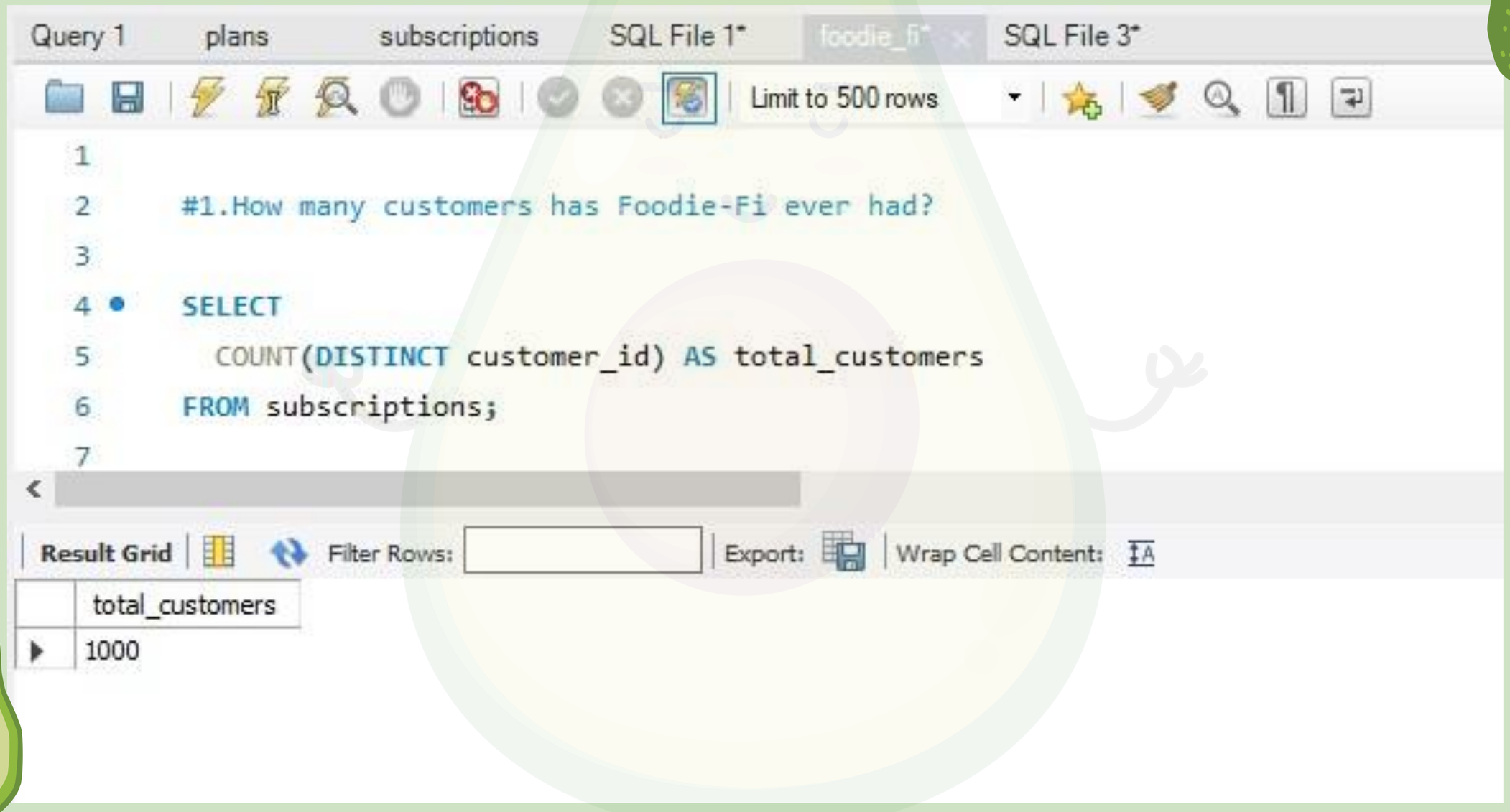
When customers churn - they will keep their access until the end of their current billing period but the `start_date` will be technically the day they decided to cancel their service.

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
16	0	2020-05-31
16	1	2020-06-07
16	3	2020-10-21
18	0	2020-07-06
18	2	2020-07-13
19	0	2020-06-22
19	2	2020-06-29
19	3	2020-08-29

B. Data Analysis Questions

1. How many customers has Foodie-Fi ever had?
2. What is the monthly distribution of `trial` plan `start_date` values for our dataset - use the start of the month as the group by value
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`
4. What is the customer count and percentage of customers who have churned rounded to 1 decimal place?
5. How many customers have churned straight after their initial free trial - what percentage is this rounded to the nearest whole number?
6. What is the number and percentage of customer plans after their initial free trial?
7. What is the customer count and percentage breakdown of all 5 `plan_name` values at `2020-12-31`?
8. How many customers have upgraded to an annual plan in 2020?
9. How many days on average does it take for a customer to an annual plan from the day they join Foodie-Fi?
10. Can you further breakdown this average value into 30 day periods (i.e. 0-30 days, 31-60 days etc)
11. How many customers downgraded from a pro monthly to a basic monthly plan in 2020?

Question 1 : How many customers has Foodie-Fi ever had?



Question 2 :What is the monthly distribution of trial plan start_date values for our dataset - use the start of the month as the group by value.

Query 1 | plans | subscriptions | SQL File 1* | foodie_fi* | SQL File 3*

Limit to 500 rows

```
7
8   #2.What is the monthly distribution of trial plan start_date values for our dataset -
9   #use the start of the month as the group by value
10
11  SELECT
12   MONTHNAME(start_date) AS month_name, MONTH(start_date) AS month_number,
13   COUNT(plan_id) AS total_customers FROM subscriptions
14  WHERE plan_id = 0
15  GROUP BY month_number,month_name
16  ORDER BY month_number,month_name;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

month_name	month_number	total_customers
January	1	88
February	2	68
March	3	94
April	4	81
May	5	88
June	6	79
July	7	89
August	8	88
September	9	87
October	10	79
November	11	75
December	12	84

Question 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.

Query 1 | plans | subscriptions | SQL File 1* | foodie_fi* | SQL File 3*

Limit to 500 rows

```
19
20    #3.What plan start_date values occur after the year 2020 for our dataset?
21    #Show the breakdown by count of events for each plan_name
22
23    SELECT
24      p.plan_id, p.plan_name ,
25      COUNT(s.start_date) AS total_events FROM plans p
26    JOIN subscriptions s ON p.plan_id= s.plan_id
27    WHERE YEAR(start_date) >2020
28    GROUP BY p.plan_name, p.plan_id
29    ORDER BY p.plan_id ;
30
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

plan_id	plan_name	total_events
1	basic monthly	8
2	pro monthly	60
3	pro annual	63
4	churn	71

Question 4 :What is the customer count and percentage of customers who have churned rounded to 1 decimal place?

Query 1 | plans | subscriptions | SQL File 1* | foodie_fi* | SQL File 3*

Limit to 500 rows

```
31
32    #4.What is the customer count and percentage of customers who have churned rounded to 1 decimal place?
33
34    WITH cte AS (
35      SELECT COUNT(DISTINCT s.customer_id) AS total_customer ,
36    SUM( CASE WHEN p.plan_name = "churn" THEN 1 ELSE 0 END ) AS chured_customer,
37    ROUND((SUM( CASE WHEN p.plan_name = "churn" THEN 1 ELSE 0 END )
38    /COUNT(DISTINCT s.customer_id)*100),1) AS percentage_of_chured_customer
39    FROM subscriptions s
40    JOIN plans p ON p.plan_id = s.plan_id)
41    SELECT
42    cte.total_customer, cte.percentage_of_chured_customer
43    FROM cte;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

total_customer	percentage_of_chured_customer
1000	30.7

Question 5 :How many customers have churned straight after their initial free trial - what percentage is this rounded to the nearest whole number?

Query 1 | plans | subscriptions | SQL File 1* | foodie_fi* | SQL File 3*

Limit to 500 rows

```
46
47      #5.How many customers have churned straight after their initial free trial -
48      #what percentage is this rounded to the nearest whole number?
49
50  ●   WITH cte AS (
51      SELECT * ,
52      RANK() OVER(PARTITION BY customer_id ORDER BY start_date) AS rnk
53      FROM subscriptions)
54      SELECT SUM( CASE WHEN cte.rnk =2 AND p.plan_name="churn" THEN 1 ELSE 0 END) AS chured_customer,
55      (ROUND(SUM( CASE WHEN cte.rnk =2 AND p.plan_name="churn" THEN 1 ELSE 0 END)/
56      COUNT(DISTINCT cte.customer_id)*100,0)) AS churn_percentage
57      FROM cte JOIN plans p ON cte.plan_id = p.plan_id;
58
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

chured_customer	churn_percentage
92	9

Question 6 :What is the number and percentage of customer plans after their initial free trial?

Query 1 | plans | subscriptions | SQL File 1* | foodie_fi* | SQL File 3*

Limit to 500 rows

```
58
59    #6.What is the number and percentage of customer plans after their initial free trial?
60
61    WITH cte AS (
62    SELECT * ,
63    RANK() OVER(PARTITION BY customer_id ORDER BY start_date) AS rnk FROM subscriptions)
64    SELECT p.plan_id,p.plan_name , COUNT(p.plan_id) as converted ,
65    ROUND(CAST(COUNT(p.plan_id) AS DECIMAL)/(SELECT COUNT(plan_id) FROM cte WHERE rnk = 2)*100,1)
66    AS conversion_percentage FROM cte
67    JOIN plans p ON p.plan_id = cte.plan_id
68    WHERE rnk = 2
69    GROUP BY p.plan_id , p.plan_name
70    ORDER BY p.plan_id;
71
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

plan_id	plan_name	converted	conversion_percentage
1	basic monthly	546	54.6
2	pro monthly	325	32.5
3	pro annual	37	3.7
4	churn	92	9.2

Question 7 :What is the customer count and percentage breakdown of all 5 plan_name values at 2020-12-31?

Query 1 | plans | subscriptions | SQL File 1* | foodie_fi* | SQL File 3*

Limit to 500 rows

```
73
74      #7.What is the customer count and percentage breakdown of all 5 plan_name values at 2020-12-31?
75
76      WITH cte AS (
77      SELECT * ,
78      RANK() OVER(PARTITION BY customer_id ORDER BY start_date DESC) AS rnk FROM subscriptions
79      WHERE start_date <='2020-12-31')
80      SELECT p.plan_id , p.plan_name , COUNT(p.plan_id) as customer_count,
81      ROUND(CAST(COUNT(p.plan_id) AS DECIMAL)/ (SELECT COUNT(customer_id) FROM cte WHERE rnk =1)*100,1)
82      AS customer_percentage FROM cte
83      JOIN plans p ON p.plan_id = cte.plan_id
84      WHERE rnk=1
85      GROUP BY  p.plan_id , p.plan_name
86      ORDER BY customer_count DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

plan_id	plan_name	customer_count	customer_percentage
2	pro monthly	326	32.6
4	churn	236	23.6
1	basic monthly	224	22.4
3	pro annual	195	19.5
0	trial	19	1.9

Question 8 :How many customers have upgraded to an annual plan in 2020?

Query 1 | plans | subscriptions | SQL File 1* | foodie_fi* | SQL File 3*

Limit to 500 rows

```
88
89    #8.How many customers have upgraded to an annual plan in 2020?
90
91    SELECT
92    COUNT(DISTINCT s.customer_id) AS customer_upgraded_to_annual_plan
93    FROM plans p
94    JOIN subscriptions s ON p.plan_id=s.plan_id
95    WHERE YEAR(s.start_date) = '2020'
96    AND p.plan_name = 'pro annual';
97
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_upgraded_to_annual_plan
195

Question 9 :How many days on average does it take for a customer to an annual plan from the day they join Foodie-Fi?

Query 1 | plans | subscriptions | SQL File 1* | foodie_fi | SQL File 3*

Limit to 500 rows

```
97
98    #9.How many days on average does it take for a customer to an annual plan from the day they join Foodie-Fi?
99
100   WITH trial_plan as (
101   SELECT customer_id , start_date AS trial_days FROM subscriptions
102   WHERE plan_id = 0 ),
103   annual_plan AS (
104   SELECT customer_id , start_date AS annual_days FROM subscriptions
105   WHERE plan_id = 3)
106   SELECT ROUND(AVG(datediff( annual_days,trial_days)),0) AS average_days
107   FROM annual_plan
108   JOIN trial_plan ON annual_plan.customer_id = trial_plan.customer_id ;
109
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

average_days
105

Question 10 :Can you further breakdown this average value into 30 day periods (i.e. 0-30 days, 31-60 days etc)

Query 1 | plans | subscriptions | SQL File 1* | foodie_fi* | SQL File 3*

Limit to 500 rows

```sql
#10.Can you further breakdown this average value into 30 day periods (i.e. 0-30 days, 31-60 da

WITH trial_plan AS (
SELECT customer_id , start_date AS trial_days FROM subscriptions
WHERE plan_id = 0 ),
annual_plan AS (
SELECT customer_id , start_date as annual_days from subscriptions
WHERE plan_id = 3),
cte AS (
SELECT
FLOOR(DATEDIFF(annual_days, trial_days)/30 ) AS average_value
FROM annual_plan JOIN trial_plan ON annual_plan.customer_id = trial_plan.customer_id )
SELECT concat((average_value*30),"-", ((average_value +1)*30), "days") AS breakdown,
COUNT(*) AS customers
FROM cte GROUP BY average_value
ORDER BY average_value;
```

Result Grid | Filter Rows: | Export:

breakdown	customers
0-30days	48
30-60days	25
60-90days	33
90-120days	35
120-150days	43
150-180days	35
180-210days	27
210-240days	4
240-270days	5
270-300days	1
300-330days	1
330-360days	1

Question 11 :How many customers downgraded from a pro monthly to a basic monthly plan in 2020?

Query 1 | plans | subscriptions | SQL File 1* | foodie_fi* | SQL File 3*

Limit to 500 rows

```
128
129
130
131     #11.How many customers downgraded from a pro monthly to a basic monthly plan in 2020?
132
133     WITH cte AS(
134     SELECT customer_id , plan_id,start_date, LEAD(plan_id,1)
135     OVER(PARTITION BY customer_id ORDER BY plan_id,start_date) AS next_plan
136     FROM subscriptions)
137     SELECT count(DISTINCT cte.customer_id) AS customer_count
138     FROM cte JOIN plans p ON p.plan_id=cte.plan_id
139     WHERE p.plan_name = "pro monthly"
140     AND cte.next_plan = 1
141     AND start_date <= "2020-12-31";
142
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_count
0

Outside The Box Questions

Question 1:How would you calculate the rate of growth for Foodie-Fi?

To calculate the rate of growth for subscription-based business(Foodie-Fi), compare the change in the number of subscribers over a specific period of time. Here's a step-by-step guide to calculating the rate of growth:

- Determine the time period: Decide on the specific time frame you want to analyze. It could be a month, quarter, or year, depending on the level of detail you require.
- Obtain the subscriber count: Note down the number of subscribers at the beginning and end of the selected time period. As "Subscribers_initial" and "Subscribers_final," respectively.
- Calculate the net change in subscribers: Subtract the initial subscriber count from the final subscriber count.
  Net Change = Subscribers_final - Subscribers_initial.
- Determine the growth rate: To calculate the growth rate, divide the net change in subscribers by the initial subscriber count and multiply by 100 to express it as a percentage.
- Interpret the growth rate: The resulting growth rate percentage represents the rate of growth for the given time period. A positive growth rate indicates an increase in subscribers, while a negative growth rate signifies a decrease.

The formula is:

Growth Rate = (Net Change / Subscribers_initial) * 100.

Outside The Box Questions

Question 2:What key metrics would you recommend Foodie-Fi management to track over time to assess performance of their overall business?

There are several key metrics that can help assess the performance of the overall business. These metrics provide insights into different aspects of the business and can be used to monitor growth, profitability, customer satisfaction, and operational efficiency.

- **Subscriber Count**
- **Churn Rate**
- **Average Revenue per User (ARPU)**
- **Customer Lifetime Value (CLV)**
- **Monthly Recurring Revenue (MRR)**
- **Customer Acquisition Cost (CAC)**
- **Conversion Rate**
- **Customer Satisfaction and Net Promoter Score (NPS)**
- **Operational Metrics**

Outside The Box Questions

Question 3:What are some key customer journeys or experiences that you would analyse further to improve customer retention?

To improve customer retention for Foodie-Fi, it's essential to analyze and enhance key customer journeys and experiences. Here are some customer journeys and experiences to consider for further analysis:

- **Onboarding Process:**
- **Content Discovery and Personalization:**
- **Billing and Payment**
- **Customer Support and Issue**
- **Resolution Engagement and**
- **Communication Renewal and Upgrade**
- **Process Feedback and Review**
- **Mechanisms**

  Exclusive Benefits and Loyalty Programs

Outside The Box Questions

Question 4:If the Foodie-Fi team were to create an exit survey shown to customers who wish to cancel their subscription, what questions would you include in the survey?

It's important to gather valuable feedback that can provide insights into the reasons for cancellation and potential areas for improvement. Here are some questions you could include in the survey:

- **Reason for canceling?**
- **Specific features or functionalities that you found lacking?**
- **On a scale of 1-10?**
- **Did you find the user interface and overall website/app experience intuitive and user-friendly?**
- **Did you encounter any issues with billing or payment that contributed to your decision to cancel?**

Outside The Box Questions

Question 5:What business levers could the Foodie-Fi team use to reduce the customer churn rate? How would you validate the effectiveness of your ideas?

To reduce the customer churn rate for Foodie-Fi, the team can utilize various business levers. Here are some ideas

- Enhance Content Quality and Variety
- Personalization and Recommendation Algorithms
- Improve User Experience
- Offer Exclusive Benefits and Loyalty Programs
- Proactive Customer Support
- Pricing and Subscription
- Options Re-Engagement Campaigns

Thank You