

Case Study #2 Pizza Runner

A. Pizza Metrics

1. How many pizzas were ordered?

```
SELECT count(order_id) AS pizza_order_count
FROM customer_orders
```

2. How many unique customer orders were made?

```
SELECT count(DISTINCT order_id) AS unique_customer_count
FROM customer_orders
```

3. How many successful orders were delivered by each runner?

```
SELECT runner_id,
       count(pickup_time) AS count
FROM runner_orders
WHERE pickup_time != 'null'
GROUP BY runner_id
```

4. How many of each type of pizza was delivered?

```
WITH cte_order_id_success_delivered as (
  SELECT order_id
  FROM runner_orders
  WHERE pickup_time != 'null'
)

SELECT
  pizza_id,
  COUNT(order_id)
FROM customer_orders
```

```
WHERE order_id IN ( SELECT order_id FROM cte_order_id_success_delivered
GROUP BY pizza_id
```

5. How many Vegetarian and Meatlovers were ordered by each customer?

```
SELECT
    customer_id,
    pizza_name,
    COUNT(pn.pizza_id) AS pizza_count
FROM customer_orders as co
JOIN pizza_names AS pn ON pn.pizza_id = co.pizza_id
GROUP BY customer_id, pizza_name
ORDER BY customer_id
```

6. What was the maximum number of pizzas delivered in a single order?

```
SELECT
    order_id,
    COUNT(pizza_id) AS pizza_count
FROM customer_orders
GROUP BY order_id
```

7. For each customer, how many delivered pizzas had at least 1 change and how many had no changes?

```
WITH cte_order_id_success_delivered as (
    SELECT order_id
    FROM runner_orders
    WHERE pickup_time != 'null'
)

SELECT
    customer_id,
    count(CASE
        WHEN (exclusions not in ('null','') and exclusions :
```

```

        END) as at_least_1_change,
    count(CASE
        WHEN (exclusions in ('null','') or exclusions is NULL)
        END) as no_change
FROM customer_orders
WHERE order_id in (SELECT order_id FROM cte_order_id_success_delivery)
GROUP BY customer_id

```

8. How many pizzas were delivered that had both exclusions and extras?

```

SELECT
    count(CASE
        WHEN (exclusions not in ('null','') and exclusions is not NULL)
        END) as pizza_count_w_exclusions_extras
FROM customer_orders
WHERE order_id in (SELECT order_id FROM cte_order_id_success_delivery)

```

9. What was the total volume of pizzas ordered for each hour of the day?

```

SELECT
    HOUR(order_time) AS hour_of_day,
    COUNT(*) AS order_count
FROM
    customer_orders
GROUP BY
    hour_of_day
ORDER BY
    hour_of_day;

```

10. What was the volume of orders for each day of the week?

```

-- ADD 1 to adjust 1st day of the week as monday
SELECT
    ELT(DAYOFWEEK(order_time + INTERVAL 1 day), 'Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday', 'Saturday') AS day_of_week,
    COUNT(*) AS order_count
FROM
    customer_orders

```

```
customer_orders
GROUP BY
    date_of_week
ORDER BY order_count desc
```

B. Runner and Customer Experience

1. How many runners signed up for each 1 week period? (i.e. week starts `2021-01-01`)

```
SELECT
    WEEKOFYEAR(registration_date + INTERVAL 1 week) AS registra:
    COUNT(*) AS runner_signup
FROM runners
GROUP BY registraion_week
```

2. What was the average time in minutes it took for each runner to arrive at the Pizza Runner HQ to pickup the order?

```
SELECT AVG(avg_each_order) AS avg_pickup_minutes
FROM (
    SELECT
        DISTINCT ro.order_id,
        TIMESTAMPDIFF(MINUTE,order_time,pickup_time) AS avg_eacl
    FROM runner_orders AS ro
    JOIN customer_orders AS co ON ro.order_id = co.order_id
) AS subquery
```

3. Is there any relationship between the number of pizzas and how long the order takes to prepare?

```
SELECT pizza_count,
    AVG(avg_pickup_time) AS avg_pickup_time
FROM
```

```

        (SELECT
            ro.order_id,
            COUNT(pizza_id) AS pizza_count,
            AVG(TIMESTAMPDIFF(MINUTE,order_time,pickup_time)) AS avg_delivery_time
        FROM runner_orders AS ro
        JOIN customer_orders AS co ON ro.order_id = co.order_id
        GROUP BY ro.order_id) AS subquery
    GROUP BY pizza_count

```

4. What was the average distance travelled for each customer?

```

SELECT
    customer_id,
    AVG(distance) AS avg_distance
FROM runner_orders AS ro
JOIN customer_orders AS co ON ro.order_id = co.order_id
WHERE pickup_time != 'null'
GROUP BY customer_id

```

5. What was the difference between the longest and shortest delivery times for all orders?

```

SELECT
    MAX(CAST(duration AS FLOAT)) - MIN(CAST(duration AS FLOAT))
FROM runner_orders
WHERE pickup_time != 'null'

```

6. What was the average speed for each runner for each delivery and do you notice any trend for these values?

```

SELECT
    runner_id,
    ROUND(CAST(distance AS FLOAT)/CAST(duration AS FLOAT)*60,2) AS avg_speed

```

```
FROM runner_orders
WHERE pickup_time != 'null'
```

7. What is the successful delivery percentage for each runner?

```
SELECT
    runner_id,
    ROUND(SUM(CASE
        WHEN pickup_time != 'null' THEN 1
        ELSE 0 END
    )/COUNT(*)*100,0) as success_rate
FROM runner_orders
GROUP BY runner_id
```

C. Ingredient Optimization

1. What are the standard ingredients for each pizza?

```
SELECT
    pizza_id,
    topping_name
FROM pizza_recipes
JOIN pizza_toppings
WHERE FIND_IN_SET(topping_id, REPLACE(toppings, ' ', '')) != 0
ORDER BY pizza_id
```

2. What was the most commonly added extra?

```
SELECT
    topping_id,
    topping_name,
    SUM(CASE
```

```

        WHEN FIND_IN_SET(topping_id,REPLACE(extras,' ','')) != (
        ELSE 0 END) as topping_count
FROM pizza_toppings
JOIN customer_orders
WHERE (extras not in ('null','') and extras is not NULL)
GROUP BY topping_id, topping_name
HAVING topping_count > 0

```

3. What was the most common exclusion?

```

SELECT
    topping_id,
    topping_name,
    SUM(CASE
        WHEN FIND_IN_SET(topping_id,REPLACE(exclusions,' ',''))
        ELSE 0 END) as topping_count
FROM pizza_toppings
JOIN customer_orders
WHERE (exclusions not in ('null','') and exclusions is not NULL)
GROUP BY topping_id, topping_name
HAVING topping_count > 0

```

4. Generate an order item for each record in the `customer_orders` table in the format of one of the following:

- `Meat Lovers`
- `Meat Lovers - Exclude Beef`
- `Meat Lovers - Extra Bacon`
- `Meat Lovers - Exclude Cheese, Bacon - Extra Mushroom, Peppers`

```

SELECT
    CONCAT(pizza_names.pizza_name,
        IF(exclusions NOT IN ('null','') AND exclusions IS NOT NULL,
        CONCAT(' - Exclude ',
            (SELECT GROUP_CONCAT(topping_name separator

```

```

        FROM pizza_toppings
        WHERE FIND_IN_SET(topping_id, REPLACE(extras, ',', ''))
        GROUP BY pizza_names.pizza_name
    )
    , '' ),
    IF(extras NOT IN ('null', '') AND extras IS NOT NULL,
    CONCAT(' - Extra ',
    (SELECT GROUP_CONCAT(topping_name separator
    FROM pizza_toppings
    WHERE FIND_IN_SET(topping_id, REPLACE(extras,
    GROUP BY pizza_names.pizza_name
    )
    )
    , '')) AS order_item
FROM customer_orders
JOIN pizza_names ON customer_orders.pizza_id = pizza_names.pizza_id

```

5. Generate an alphabetically ordered comma separated ingredient list for each pizza order from the `customer_orders` table and add a `2x` in front of any relevant ingredients

- For example: `"Meat Lovers: 2xBacon, Beef, ... , Salami"`

6. What is the total quantity of each ingredient used in all delivered pizzas sorted by most frequent first?

D. Pricing and Ratings

1. If a Meat Lovers pizza costs \$12 and Vegetarian costs \$10 and there were no charges for changes - how much money has Pizza Runner made so far if there are no delivery fees?
2. What if there was an additional \$1 charge for any pizza extras?

- Add cheese is \$1 extra
1. The Pizza Runner team now wants to add an additional ratings system that allows customers to rate their runner, how would you design an additional table for this new dataset generate a schema for this new table and insert your own data for ratings for each successful customer order between 1 to 5.
 2. Using your newly generated table - can you join all of the information together to form a table which has the following information for successful deliveries?
 - customer_id
 - order_id
 - runner_id
 - rating
 - order_time
 - pickup_time
 - Time between order and pickup
 - Delivery duration
 - Average speed
 - Total number of pizzas
 1. If a Meat Lovers pizza was \$12 and Vegetarian \$10 fixed prices with no cost for extras and each runner is paid \$0.30 per kilometre traveled - how much money does Pizza Runner have left over after these deliveries?