DESCRIPTION

Table: Delivery

```
+-----------------------------+---------+
| Column Name                 | Type    |
+-----------------------------+---------+
| delivery_id                 | int     |
| customer_id                 | int     |
| order_date                  | date    |
| customer_pref_delivery_date | date    |
+-----------------------------+---------+
```

delivery_id is the column of unique values of this table.

The table holds information about food delivery to customers that make orders at some date and specify a preferred delivery date (on the same order date or after it).

If the customer's preferred delivery date is the same as the order date, then the order is called **immediate;** otherwise, it is called **scheduled**.

The **first order** of a customer is the order with the earliest order date that the customer made. It is guaranteed that a customer has precisely one first order.

Write a solution to find the percentage of immediate orders in the first orders of all customers, **rounded to 2 decimal places**.

The result format is in the following example.

Example 1:

Input:

Delivery table:

```
+-------------+-------------+------------+-----------------------------+
| delivery_id | customer_id | order_date | customer_pref_delivery_date |
+-------------+-------------+------------+-----------------------------+
| 1           | 1           | 2019-08-01 | 2019-08-02                  |
| 2           | 2           | 2019-08-02 | 2019-08-02                  |
| 3           | 1           | 2019-08-11 | 2019-08-12                 |
| 4           | 3           | 2019-08-24 | 2019-08-24                 |
| 5           | 3           | 2019-08-21 | 2019-08-22                 |
| 6           | 2           | 2019-08-11 | 2019-08-13                 |
| 7           | 4           | 2019-08-09 | 2019-08-09                 |
+-------------+-------------+------------+----------------------------+
```

Output:

```
+----------------------+
| immediate_percentage |
+----------------------+
| 50.00                |
+----------------------+
```

Explanation:

The customer id 1 has a first order with delivery id 1 and it is scheduled.

The customer id 2 has a first order with delivery id 2 and it is immediate.

The customer id 3 has a first order with delivery id 5 and it is scheduled.

The customer id 4 has a first order with delivery id 7 and it is immediate.

Hence, half the customers have immediate first orders.

SOLUTION

Option 1:

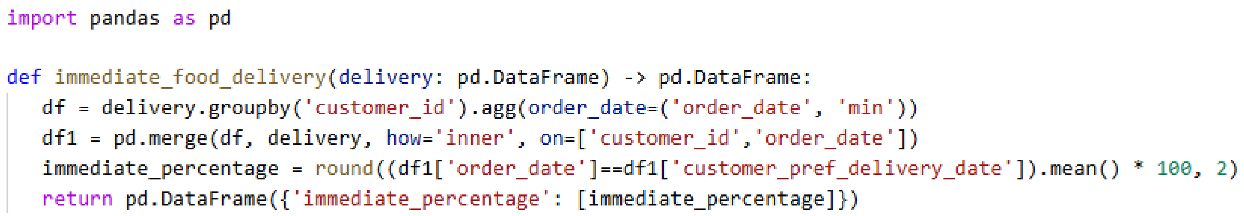
- Construct a dataframe with first order date using groupby(), and agg() in which ‘min’ is used to select first ‘order_date’ for each customer_id
- Join this dataframe with ‘delivery’ using ‘customer_id’ and ‘order_date’ as keys
- Calculate immediate_percentage by finding the average of comparing ‘order_date’ column and ‘customer_pref_delivery_date’ column multiplied by 100, and round it to two decimals

```python
import pandas as pd

def immediate_food_delivery(delivery: pd.DataFrame) -> pd.DataFrame:
   df = delivery.groupby('customer_id').agg(order_date=('order_date', 'min'))
   df1 = pd.merge(df, delivery, how='inner', on=['customer_id','order_date'])
   immediate_percentage = round((df1['order_date']==df1['customer_pref_delivery_date']).mean() * 100, 2)
```

```
    return pd.DataFrame({'immediate_percentage': [immediate_percentage]})
```

- Snapshot of the same code above for readability purposes



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    immediate_percentage = round((df1['order_date']==df1['customer_pref_delivery_date']).mean() * 100, 2)
    return pd.DataFrame({'immediate_percentage': [immediate_percentage]})
```