

In [1]: `import pandas as pd`  
`orders_df=pd.DataFrame({"order_id":[1,2,3], "item":["pens", "shirts", "coffee"]})`  
`orders_df`

Out[1]:

	order_id	item
0	1	pens
1	2	shirts
2	3	coffee

In [2]: `orders1_df=pd.DataFrame({"order_id":[4,5,6], "item":["crayons", "tea", "fruits"]})`  
`orders1_df`

Out[2]:

	order_id	item
0	4	crayons
1	5	tea
2	6	fruits

In [3]: `customers_df=pd.DataFrame({"order_id":[1,2,3], "customer_name":["anne", "ben", "carlos"]})`  
`customers_df`

Out[3]:

	order_id	customer_name
0	1	anne
1	2	ben
2	3	carlos

In [4]: `fullorders_df=pd.concat((orders_df, orders1_df), ignore_index=True)`  
`fullorders_df`

Out[4]:

	order_id	item
0	1	pens
1	2	shirts
2	3	coffee
3	4	crayons
4	5	tea
5	6	fruits

In [5]: `orders_df.set_index("order_id", inplace=True)`  
`orders_df`

Out[5]:

	item
order_id	
1	pens
2	shirts
3	coffee

In [6]: `customers_df.set_index("order_id", inplace=True)`  
`customers_df`

Out[6]:

	customer_name
order_id	
1	anne
2	ben
3	carlos

## question 2 start

In [7]: `data=pd.DataFrame({"Anna": [51.0, 52.0, 51.4, 52.8, 50.5], "Ben": [70.0, 70.5, 69.1, 69.8, 70.5], "Carole": [64.0, 64.2, 66.8, 66.0, 63.4], "Dave": [81.0, 81.3, 80.5, 80.9, 81.4]})`  
`data`

Out[7]:

	Anna	Ben	Carole	Dave
0	51.0	70.0	64.0	81.0
1	52.0	70.5	64.2	81.3
2	51.4	69.1	66.8	80.5
3	52.8	69.8	66.0	80.9
4	50.5	70.5	63.4	81.4

In [8]: `data.melt()`

Out[8]:

	variable	value
0	Anna	51.0
1	Anna	52.0
2	Anna	51.4
3	Anna	52.8
4	Anna	50.5
5	Ben	70.0
6	Ben	70.5
7	Ben	69.1
8	Ben	69.8
9	Ben	70.5
10	Carole	64.0
11	Carole	64.2
12	Carole	66.8
13	Carole	66.0
14	Carole	63.4
15	Dave	81.0
16	Dave	81.3
17	Dave	80.5
18	Dave	80.9
19	Dave	81.4

In [9]: `data.melt().groupby("variable")["value"].var().sort_values()[ :1]`

Out[9]:

```
variable
Dave      0.127
Name: value, dtype: float64
```

In [10]: `data.mean()`

Out[10]:

```
Anna      51.54
Ben       69.98
Carole    64.88
Dave      81.02
dtype: float64
```

In [11]: `(data[list(data.mean()[data.mean()<65].index])*2.205).round(2)`

Out[11]:

	Anna	Carole
0	112.46	141.12
1	114.66	141.56
2	113.34	147.29
3	116.42	145.53
4	111.35	139.80

In [ ]: