

## Part\_3

```
In [1]: import pandas as pd
```

```
In [2]: orders = pd.read_excel(r"C:\Users\PRANAV\OneDrive\Desktop\JAR\List_of_Orders_1.xlsx")
order_details = pd.read_excel(r"C:\Users\PRANAV\OneDrive\Desktop\JAR\Order_Details_1.xlsx")
```

```
In [3]: print(orders.head())
```

	Order ID	Order Date	CustomerName	State	City
0	B-25601	2018-04-01	Bharat	Gujarat	Ahmedabad
1	B-25602	2018-04-01	Pearl	Maharashtra	Pune
2	B-25603	2018-04-03	Jahan	Madhya Pradesh	Bhopal
3	B-25604	2018-04-03	Divsha	Rajasthan	Jaipur
4	B-25605	2018-04-05	Kasheen	West Bengal	Kolkata

```
In [5]: print(order_details.head())
```

	Order ID	Amount	Profit	Quantity	Category	Sub-Category
0	B-25601	1275	-1148	7	Furniture	Bookcases
1	B-25601	66	-12	5	Clothing	Stole
2	B-25601	8	-2	3	Clothing	Hankerchief
3	B-25601	80	-56	4	Electronics	Electronic Games
4	B-25602	168	-111	2	Electronics	Phones

```
In [6]: order_id_col_orders = "Order ID"
order_id_col_details = "Order ID"
```

```
In [7]: merged_df = pd.merge(orders, order_details, left_on=order_id_col_orders, right_on=order_id_col_details, how="inner")
```

```
In [8]: print(merged_df.head())
```

```
Order ID Order Date CustomerName State City Amount Profit \
0 B-25601 2018-04-01 Bharat Gujarat Ahmedabad 1275 -1148
1 B-25601 2018-04-01 Bharat Gujarat Ahmedabad 66 -12
2 B-25601 2018-04-01 Bharat Gujarat Ahmedabad 8 -2
3 B-25601 2018-04-01 Bharat Gujarat Ahmedabad 80 -56
4 B-25602 2018-04-01 Pearl Maharashtra Pune 168 -111

Quantity Category Sub-Category
0 7 Furniture Bookcases
1 5 Clothing Stole
2 3 Clothing Hankerchief
3 4 Electronics Electronic Games
4 2 Electronics Phones
```

```
In [13]: merged_df["Amount"] = pd.to_numeric(merged_df["Amount"], errors="coerce")
merged_df["Profit"] = pd.to_numeric(merged_df["Profit"], errors="coerce")
```

```
In [15]: regional_summary = merged_df.groupby("State").agg(total_sales=("Amount", "sum"), avg_profit=("Profit", "mean"), or
```

```
In [16]: top_5_states = regional_summary.sort_values(by="order_count", ascending=False).head(5)
```

```
In [17]: print(top_5_states)
```

```
State total_sales avg_profit order_count
10 Madhya Pradesh 105140 16.326471 101
11 Maharashtra 95348 21.296552 90
14 Rajasthan 21149 16.986486 32
4 Gujarat 21058 5.344828 27
13 Punjab 16786 -10.150000 25
```

```
In [ ]:
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In [ ]: