Starting with the 3 tables of the Project

```
SELECT * FROM list_of_orders;
```

Table 1

Order ID	Order Date	CustomerName	State	City
B-25601	01-04-2018	Bharat	Gujarat	Ahmedabad
B-25602	01-04-2018	Pearl	Maharashtra	Pune
B-25603	03-04-2018	Jahan	Madhya Pradesh	Bhopal
B-25604	03-04-2018	Divsha	Rajasthan	Jaipur
B-25605	05-04-2018	Kasheen	West Bengal	Kolkata
B-25606	06-04-2018	Hazel	Karnataka	Bangalore
B-25607	06-04-2018	Sonakshi	Jammu and Kashmir	Kashmir
B-25608	08-04-2018	Aaruchi	Tamil Nadu	Chennai

500 row(s) returned

```
SELECT * FROM order_details;
```

Table 2

Order ID	Amount	Profit	Quantity	Category	Sub-Category
B-25601	1275	-1148	7	Furniture	Bookcases
B-25601	66	-12	5	Clothing	Stole
B-25601	8	-2	3	Clothing	Hankerchief
B-25601	80	-56	4	Electronics	Electronic Games
B-25602	168	-111	2	Electronics	Phones
B-25602	424	-272	5	Electronics	Phones
B-25602	2617	1151	4	Electronics	Phones

1500 row(s) returned

```
SELECT * FROM sales_target;
```

Table 3

Month of Order Date	Category	Target
Apr-18	Furniture	10400
May-18	Furniture	10500
Jun-18	Furniture	10600
Jul-18	Furniture	10800
Aug-18	Furniture	10900
Sep-18	Furniture	11000
Oct-18	Furniture	11100

36 row(s) returned

Fixing issues to improve the data analysis process

The Table 1 and Table 3 have different datatypes hence I have extracted a new column which shows date as – (mmm-yy) for instance Apr-18. Now it's an easy way to join these two tables

Order ID	ORDER_DATE	Month	CustomerName	State	City
B-25601	2018-04-01	Apr-18	Bharat	Gujarat	Ahmedabad
B-25602	2018-04-01	Apr-18	Pearl	Maharashtra	Pune
B-25603	2018-04-03	Apr-18	Jahan	Madhya Pradesh	Bhopal
B-25604	2018-04-03	Apr-18	Divsha	Rajasthan	Jaipur
B-25605	2018-04-05	Apr-18	Kasheen	West Bengal	Kolkata
B-25606	2018-04-06	Apr-18	Hazel	Karnataka	Bangalore
B-25607	2018-04-06	Apr-18	Sonakshi	Jammu and Kashmir	Kashmir

Note:- The structure of Table 1 has changed and transformed in such a way which is more appropriate for the further analysis

```
SELECT * FROM JOINED_2;
```

Order ID	Month	CustomerName	State	City	Amount	Profit	Quantity	Category	Sub-Category	Target
B-25601	Apr-18	Bharat	Gujarat	Ahmedabad	1275	-1148	7	Furniture	Bookcases	10400
B-25601	Apr-18	Bharat	Gujarat	Ahmedabad	66	-12	5	Clothing	Stole	12000
B-25601	Apr-18	Bharat	Gujarat	Ahmedabad	8	-2	3	Clothing	Hankerchief	12000
B-25601	Apr-18	Bharat	Gujarat	Ahmedabad	80	-56	4	Electronics	Electronic Games	9000
B-25602	Apr-18	Pearl	Maharashtra	Pune	168	-111	2	Electronics	Phones	9000
B-25602	Apr-18	Pearl	Maharashtra	Pune	424	-272	5	Electronics	Phones	9000
B-25602	Apr-18	Pearl	Maharashtra	Pune	2617	1151	4	Electronics	Phones	9000
B-25602	Apr-18	Pearl	Maharashtra	Pune	561	212	3	Clothing	Saree	12000

Joined all 3 tables and created a view to improve readability for further analysis

Solving Business Problems

Sales Performance Analysis:-

1. What is the total sales amount by month?

```sql
SELECT `Month`,SUM(Amount * Quantity) AS TOTAL_SALES
FROM JOINED_2
GROUP BY `Month`;
```

Month	TOTAL_SALES
Apr-18	152827
May-18	138767
Jun-18	110015
Jul-18	53144
Aug-18	151514
Sep-18	132717
Oct-18	176663
Nov-18	229785

2. Which 5 states has the highest total profit?

```sql
SELECT State,SUM(Profit * Quantity) TOTAL_PROFIT
FROM JOINED_2
GROUP BY State ORDER BY TOTAL_PROFIT DESC LIMIT 5;
```

State	TOTAL_PROFIT
Maharashtra	36608
Uttar Pradesh	31688
Madhya Pradesh	20518
Delhi	10140
West Bengal	10022

3. How does the sales amount compare between different product categories?

```sql
SELECT Category,SUM(AMOUNT * Quantity) TOTAL_SALES
FROM JOINED_2
GROUP BY Category;
```

Category	TOTAL_SALES
Furniture	665765
Clothing	664522
Electronics	816583

Customer Analysis :-

1. Who are the top 5 customers by total sales amount?

```
SELECT CustomerName,SUM(AMOUNT * Quantity) TOTAL_SALES
FROM JOINED_2
GROUP BY CustomerName ORDER BY TOTAL_SALES DESC LIMIT 5;
```

CustomerName	TOTAL_SALES
Yaanvi	103435
Seema	64222
Soumya	46086
Pooja	43222
Shishu	38896

2. Extract top 5 customers by average profit?
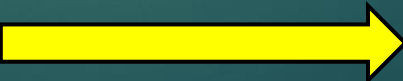
```
SELECT CustomerName,AVG(Profit * Quantity) AVG_PROFIT
FROM JOINED_1
GROUP BY CustomerName
ORDER BY AVG_PROFIT DESC LIMIT 5;
```

CustomerName	AVG_PROFIT
Seema	4881.2
Pranjali	3402
Arpita	2865
Divyansha	1863
Oshin	1590

3. Which 5 states has the highest number of unique customers?

```
SELECT STATE, COUNT(DISTINCT CustomerName) NO_OF_CUSTOMERS
FROM JOINED_2
GROUP BY STATE ORDER BY NO_OF_CUSTOMERS DESC LIMIT 5;
```

State	NO_OF_CUSTOMERS
Madhya Pradesh	81
Maharashtra	77
Rajasthan	25
Gujarat	23
Delhi	21

Time Series Analysis:-

1. How has the monthly profit changed over time?

```sql
SELECT `Month`,SUM(Profit * Quantity) TOTAL_PROFIT
FROM JOINED_2
GROUP BY `Month`;
```

Month	TOTAL_PROFIT
Apr-18	-23323
May-18	-16892
Jun-18	-24584
Jul-18	-8581
Aug-18	-10178
Sep-18	-27160
Oct-18	8270

2. How do monthly sales amounts vary by product category

```sql
SELECT `Month`,Category,SUM(Amount * Quantity) SALES
FROM JOINED_2
GROUP BY `Month`,Category;
```

Month	Category	SALES
Apr-18	Furniture	41541
Apr-18	Clothing	67649
Apr-18	Electronics	43637
May-18	Electronics	61765
May-18	Clothing	44338
May-18	Furniture	32664
Jun-18	Electronics	43234
Jun-18	Clothing	40292
Jun-18	Furniture	26489

Product Performance Analysis:-

1. What are the top 5 sub-categories by profit?

```sql
SELECT Category, `Sub-Category`,SUM(Profit * Quantity) TOTAL_PROFIT
FROM JOINED_2
GROUP BY Category, `Sub-Category`
ORDER BY TOTAL_PROFIT DESC LIMIT 5;
```

Category	Sub-Category	TOTAL_PROFIT
Electronics	Printers	35485
Clothing	Stole	12804
Electronics	Accessories	11362
Clothing	T-shirt	9278
Electronics	Phones	8050

2. How does the quantity sold vary by product sub-category?

```sql
SELECT Category, `Sub-Category`,SUM(Quantity) NO_OF_ITEMS
FROM JOINED_2
GROUP BY Category, `Sub-Category`
ORDER BY Category;
```

Category	Sub-Category	NO_OF_ITEMS
Clothing	Stole	671
Clothing	T-shirt	305
Clothing	Trousers	135
Electronics	Accessories	262
Electronics	Electronic G...	297
Electronics	Phones	304
Electronics	Printers	291
Furniture	Bookcases	297
Furniture	Chairs	277

Quantity Analysis:-

1. What is the total quantity sold by product category?

```sql
SELECT Category,SUM(Quantity) TOTAL_QUANTITY
FROM JOINED_1
GROUP BY Category;
```

Category	TOTAL_QUANTITY
Furniture	945
Clothing	3516
Electronics	1154

2. Which TOP 3 cities have the highest quantity sold?

```sql
SELECT City,SUM(Quantity) TOTAL_QUANTITY
FROM JOINED_2
GROUP BY City ORDER BY TOTAL_QUANTITY DESC LIMIT 3;
```

City	TOTAL_QUANTITY
Indore	1084
Mumbai	727
Pune	329

Target Achievement Analysis

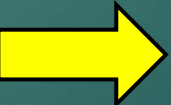## 1. What is the total sales amount vs. target by month?

```sql
SELECT `Month`,SUM(Amount * Quantity) TOTAL_SALES,
ROUND(SUM(Target)/10) TOTAL_TARGET
FROM JOINED_2
GROUP BY `Month`;
```

Month	TOTAL_SALES	TOTAL_TARGET
Apr-18	152827	111880
May-18	138767	130200
Jun-18	110015	111740
Jul-18	53144	79120
Aug-18	151514	149490
Sep-18	132717	103800
Oct-18	176663	148250
Nov-18	229785	225620
Dec-18	164839	151340
Jan-19	337229	290100
Feb-19	177620	211680
Mar-19	321750	319600

2. Which product categories have the highest target achievement rate?

```sql
SELECT Category, TOTAL_SALES,TOTAL_TARGET,
ROUND((TOTAL_SALES/TOTAL_TARGET) * 100 ,2) `ACHIEVEMENT_RATE%`
FROM
    (SELECT Category,SUM(Amount * Quantity) TOTAL_SALES,ROUND(SUM(Target)/10) TOTAL_TARGET
    FROM JOINED_2
    GROUP BY Category) T1;
```

Category	TOTAL_SALES	TOTAL_TARGET	ACHIVEMENT_RATE%
Furniture	665765	271020	245.65
Clothing	664522	1407600	47.21
Electronics	816583	354200	230.54