

## Section 6: AI Tools & LLMs (30 mins)

### Option A: Prompt Engineering

#### 1. Prompt(s) You Used

I have a CSV file named "sales\_data.csv" with columns: order\_id, customer\_id, product, amount, order\_date.

Can you write Python code using pandas and seaborn to do basic EDA? I want to:

1. View summary stats
2. Check for missing values
3. Visualize total sales per product
4. Plot monthly sales trend

#### 2. AI Response

```
import pandas as pd
```

```
import seaborn as sns
```

```
import matplotlib.pyplot as plt
```

```
# Load the dataset
```

```
df = pd.read_csv("sales_data.csv")
```

```
# 1. Summary statistics
```

```
print(df.describe())
```

```
# 2. Check for missing values
```

```
print(df.isnull().sum())
```

```
# 3. Total sales per product
```

```
product_sales = df.groupby('product')['amount'].sum().reset_index()
```

```
sns.barplot(data=product_sales, x='product', y='amount')
```

```
plt.title("Total Sales per Product")
```

```
plt.xticks(rotation=45)
```

```
plt.tight_layout()
```

```
plt.show()
```

```
# 4. Monthly sales trend
```

```
df['order_date'] = pd.to_datetime(df['order_date'])
```

```
df['month'] = df['order_date'].dt.to_period('M')
```

```
monthly_sales = df.groupby('month')['amount'].sum().reset_index()
```

```
monthly_sales['month'] = monthly_sales['month'].astype(str)
```

```
sns.lineplot(data=monthly_sales, x='month', y='amount')
```

```
plt.title("Monthly Sales Trend")
```

```
plt.xticks(rotation=45)
```

```
plt.tight_layout()
```

```
plt.show()
```

### **3. Reflection**

What did the AI do well?

The AI generated clean and useful Python code for EDA using pandas and seaborn. It correctly handled date conversion, grouping, and visualizations.

What did you have to modify or improve?

No major changes were needed, but I would verify the date formatting and axis labels when using my actual dataset.