## Hospital Management Insights through Data Analysis

Turning hospital data into actionable insights for better decision-making

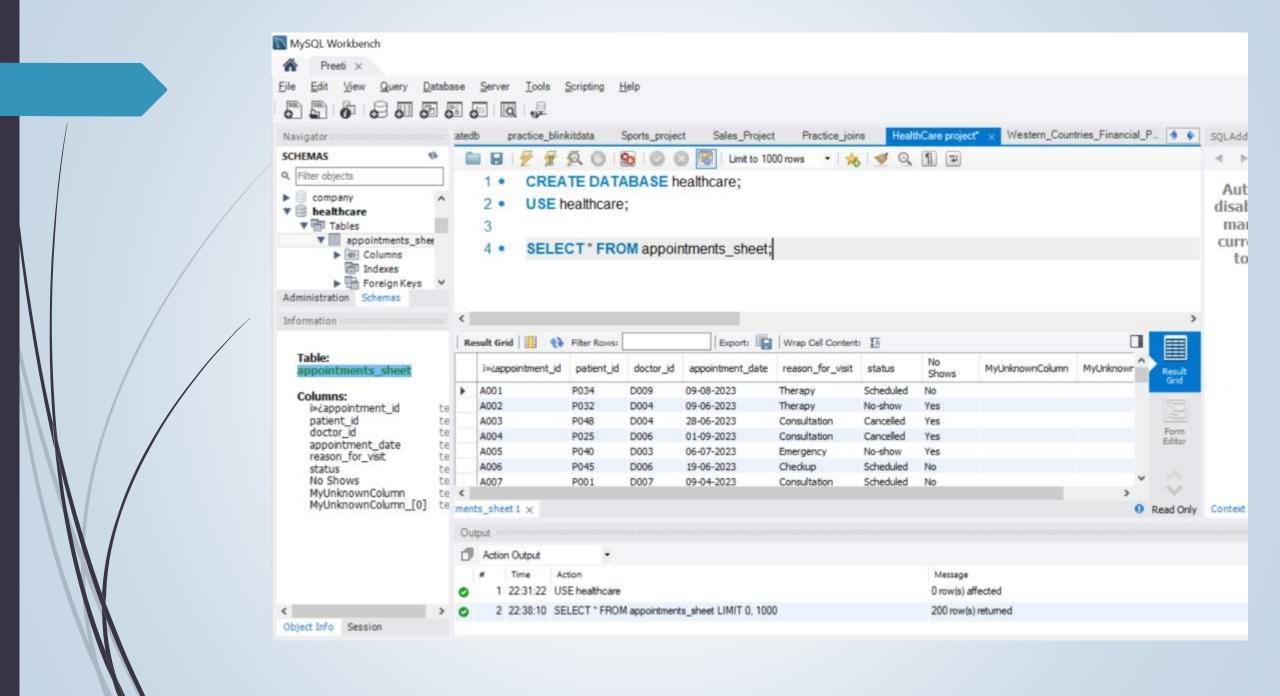
### Explore the Data using Excel. understand the data and prepare a short summary about the dataset.

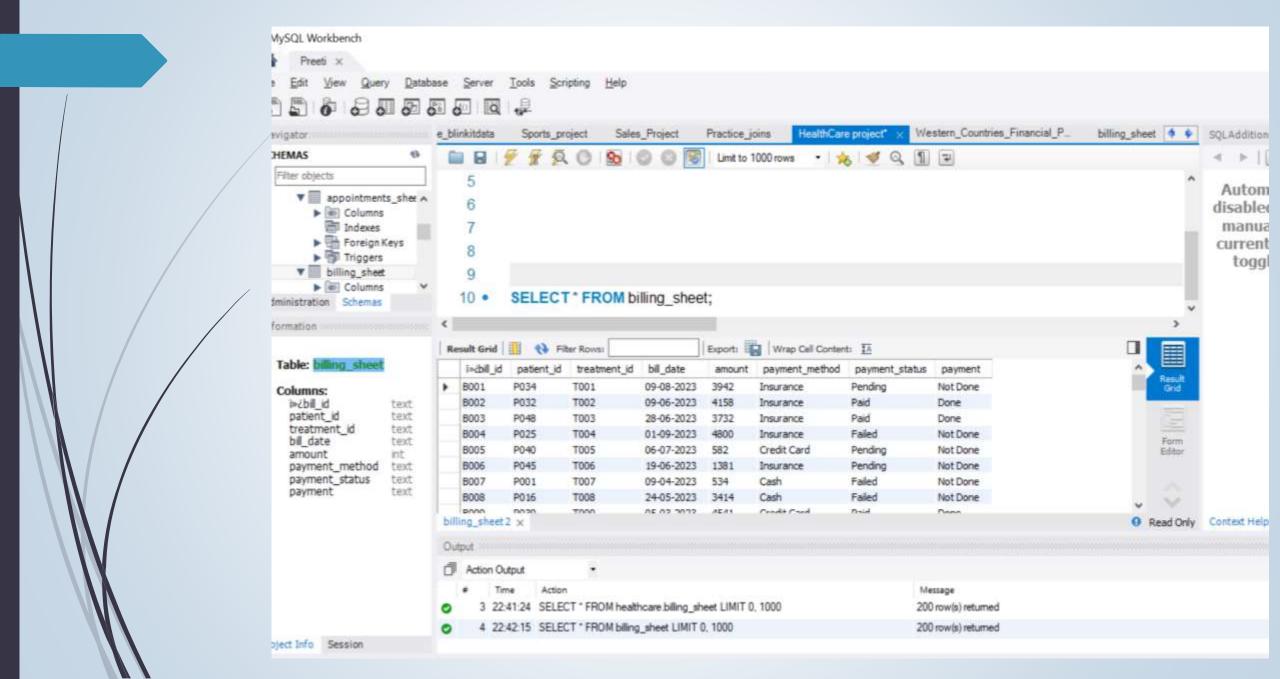
- Appointments Sheet: Logs patient appointments with details such as appointment ID, patient ID, doctor ID, appointment date, visit reason (e.g., therapy, checkup, consultation), appointment status (Scheduled, Completed, Cancelled, No-show), and a no-show indicator.
- Patients Sheet: Stores patient demographic information including patient ID, full name, age, gender, address, registration date, and insurance provider.
- Doctors Sheet: Contains doctor profiles with doctor ID, full name, specialization (e.g., Dermatology, Pediatrics, Oncology), years of experience, and hospital branch.
- Treatments Sheet: Tracks treatments linked to appointments, with fields such as treatment ID, appointment ID, treatment type (e.g., Chemotherapy, MRI, X-Ray), description, cost, and treatment date.
- **■** Billing Sheet: Manages billing records, including bill ID, patient ID, treatment ID, bill date, amount, payment method (Insurance, Cash, Credit Card), payment status (Paid, Pending, Failed), and completion status.
- Collectively, this dataset provides a holistic perspective of hospital activities, encompassing patient demographics, doctor details, appointment histories, treatment records, and billing transactions. It can be leveraged for healthcare analytics, including insights into appointment trends, patient demographics, doctor workloads, treatment costs, billing and payment behaviors, as well as no-show patterns.

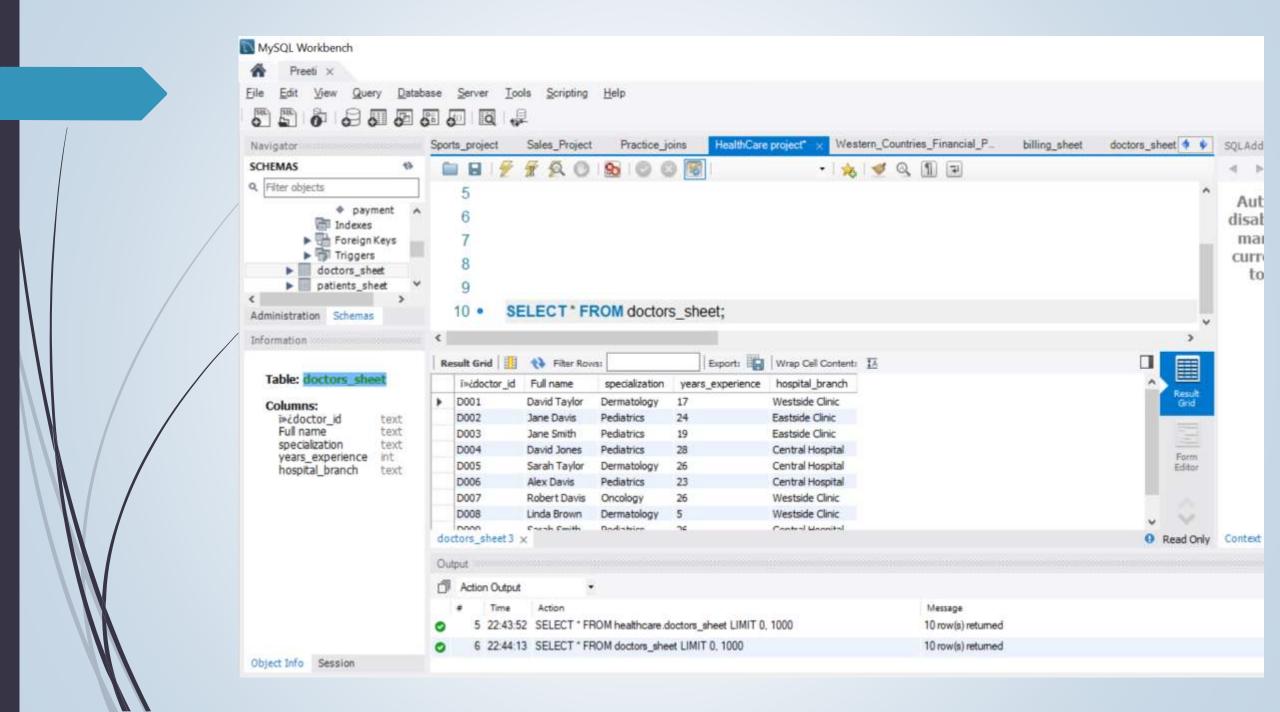
## Perform Data cleaning if required and then do Statistical Analysis on data using statistical tools.

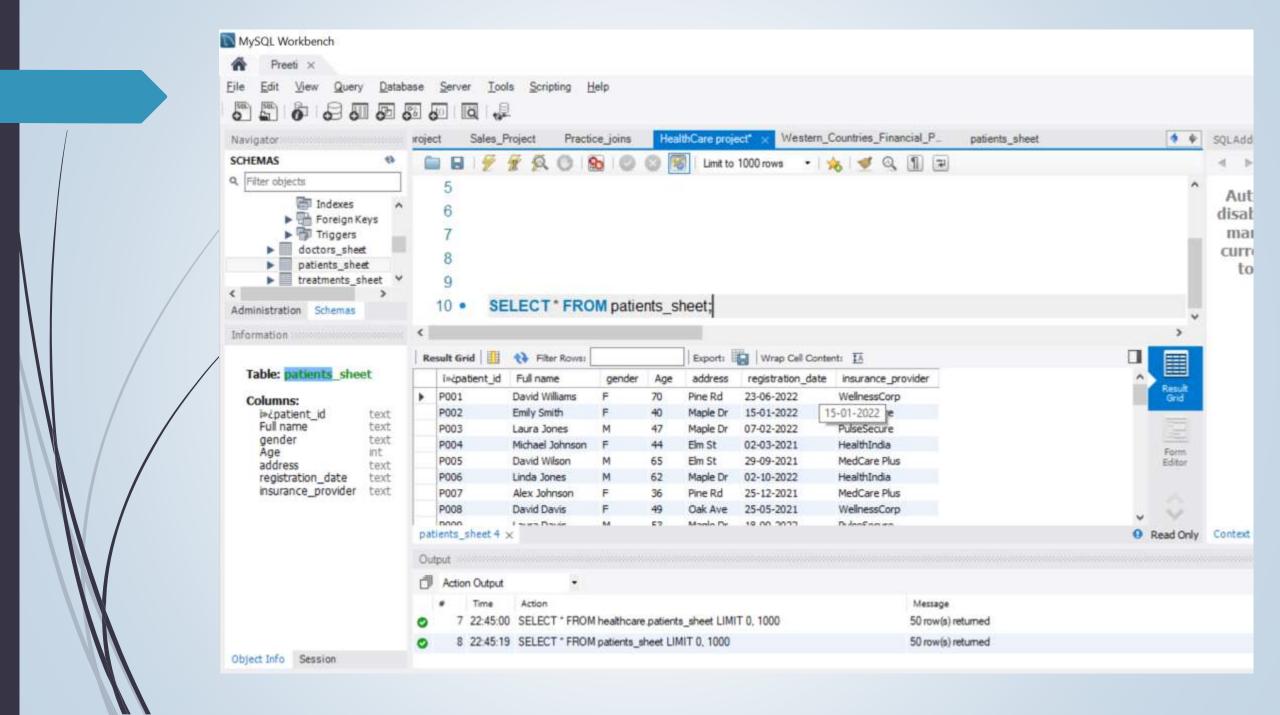
**■** This project focuses on analyzing hospital operations using datasets related to patients, doctors, appointments, treatments, and billing. Data preparation involved cleaning by removing redundant columns (such as contact details and appointment time) and standardizing name fields into a single Full Name column. Additionally, treatment costs were rounded to whole numbers for consistency. The refined dataset enables valuable insights into appointment patterns, treatment expenses, doctor performance, and billing/payment trends, supporting informed decision-making and enhancing healthcare efficiency.

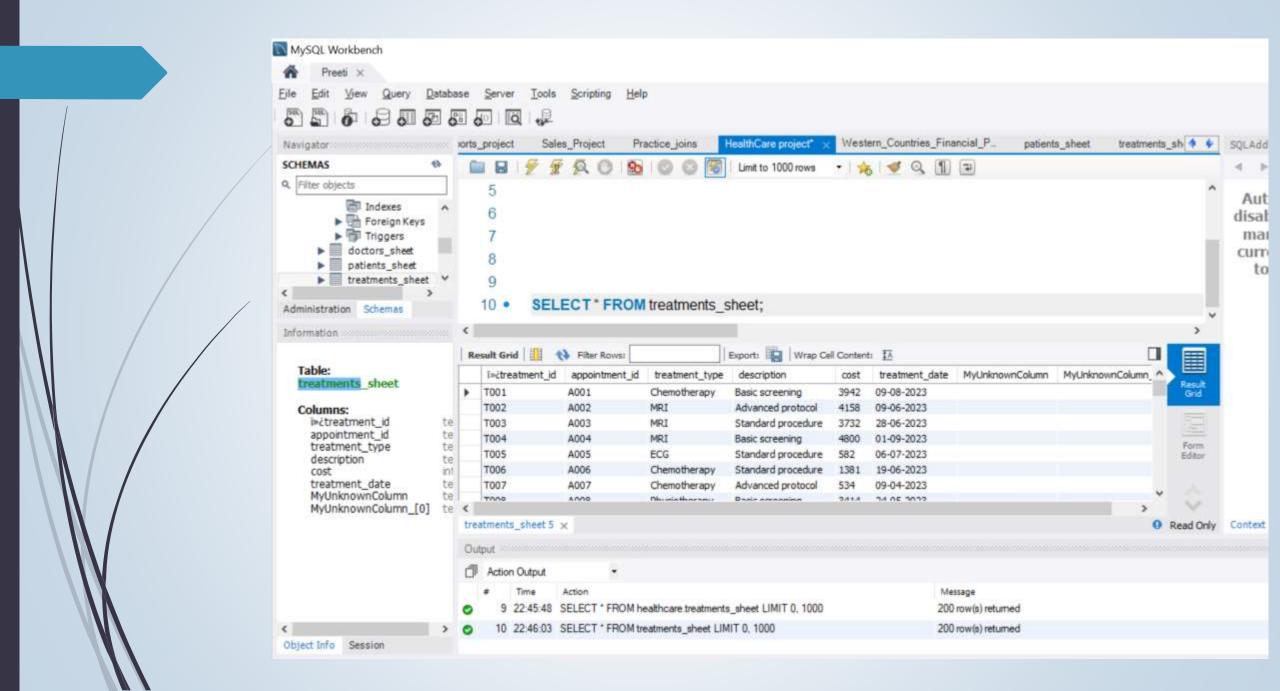
Insert the given data into the SQL server by making a Database and defining the required parameters for the construction of Database and Database tables.

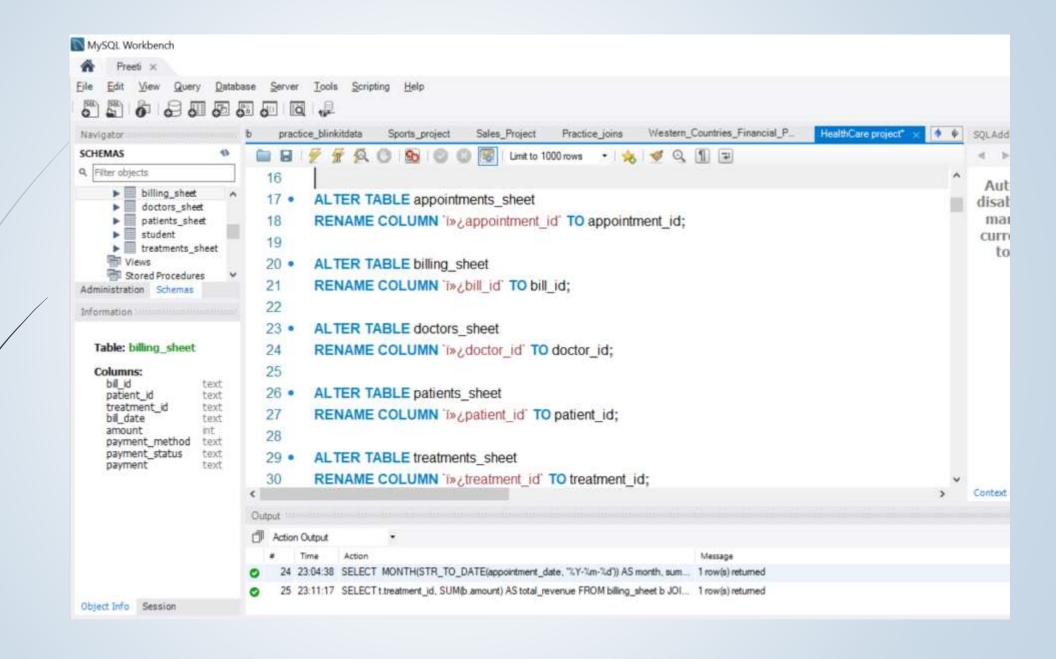


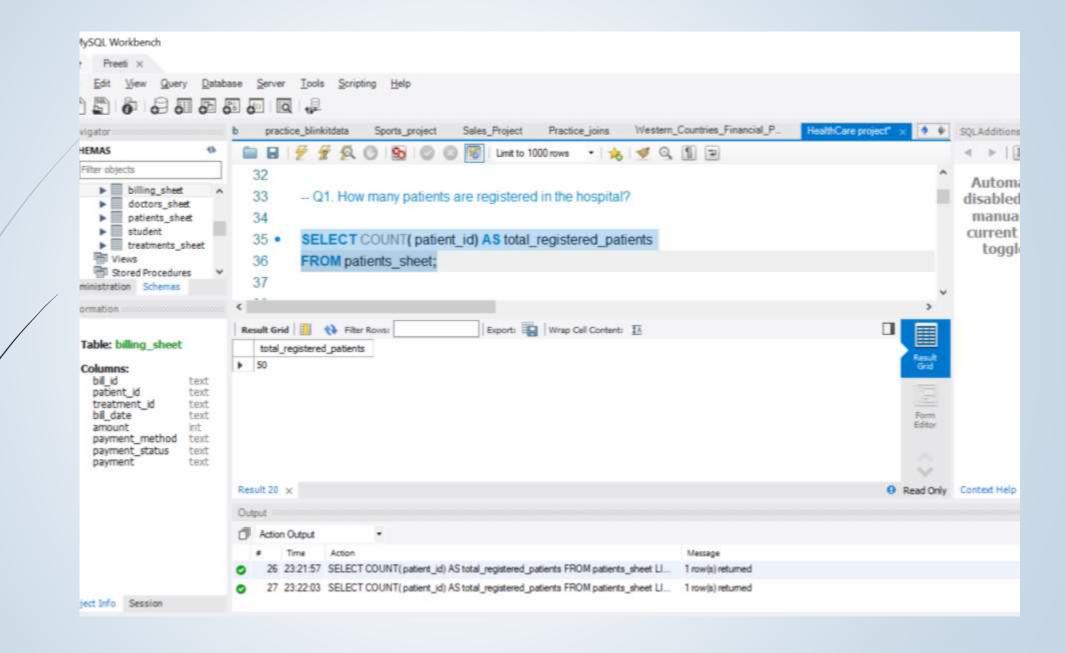


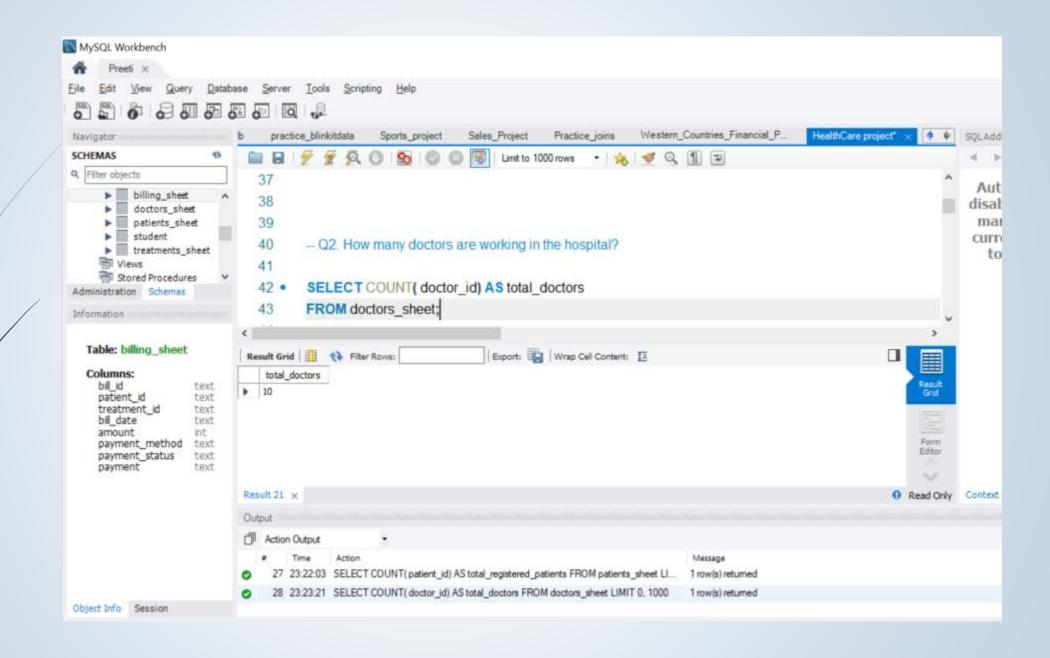


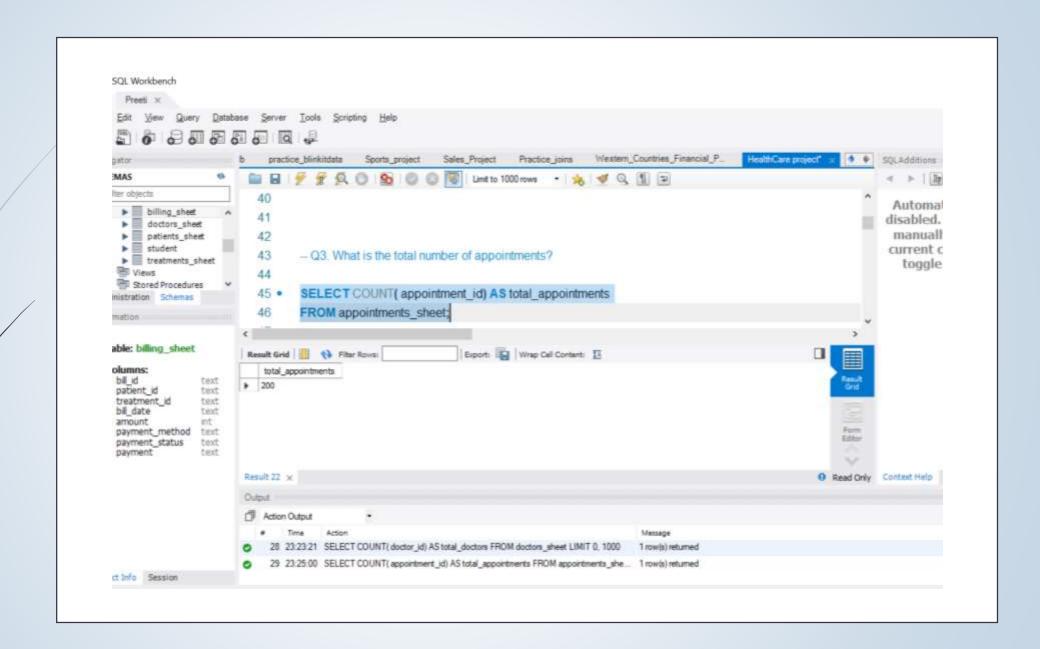


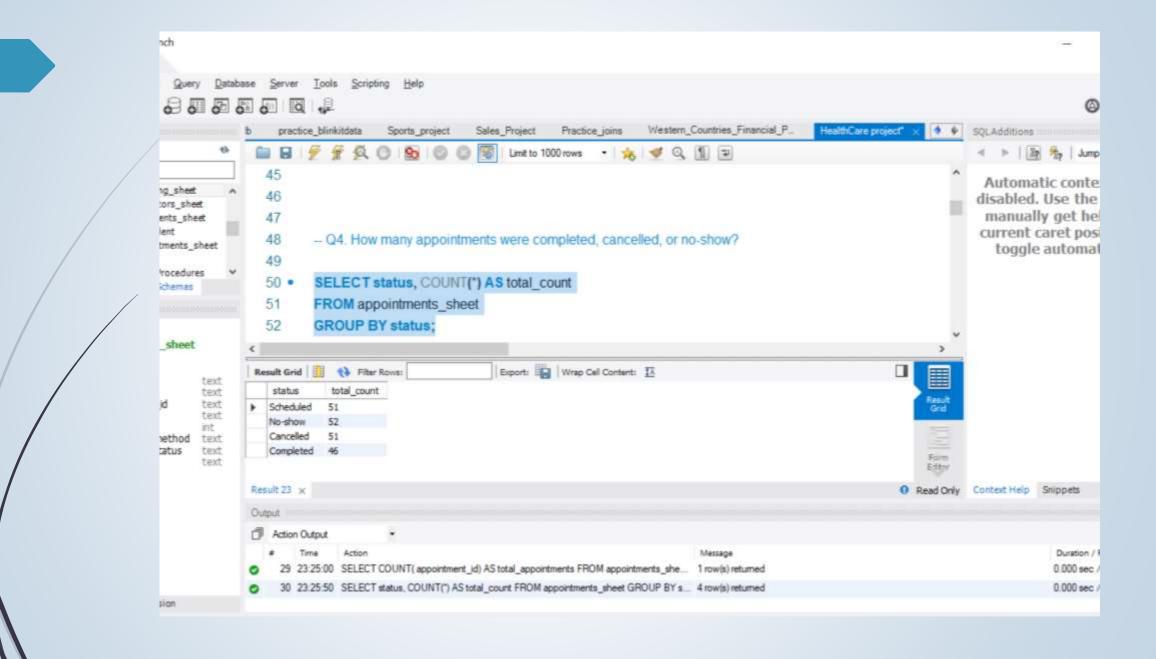


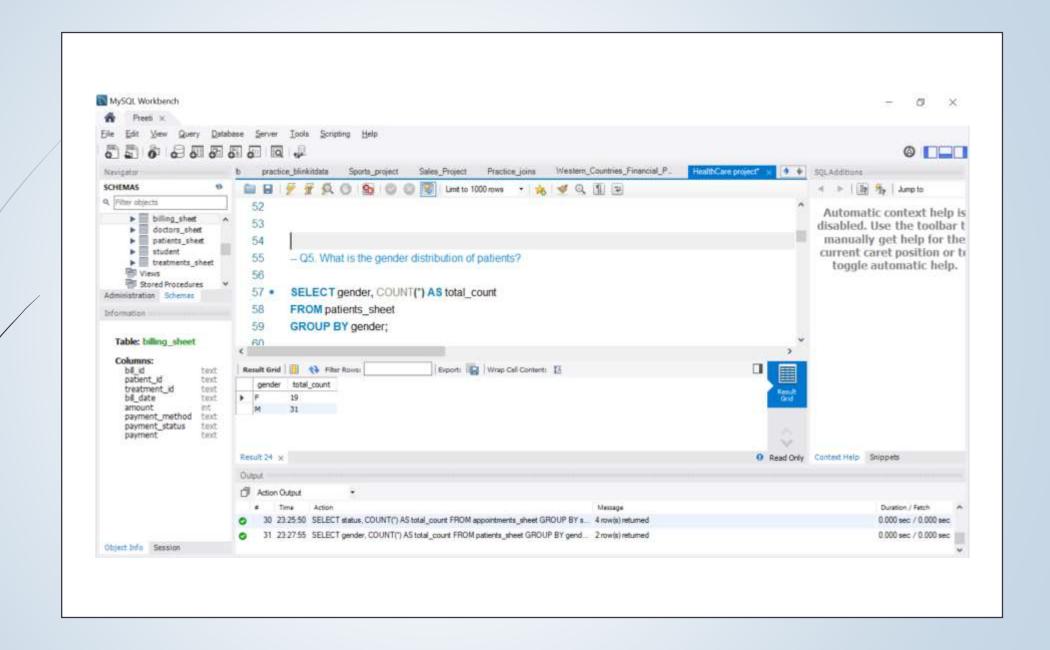


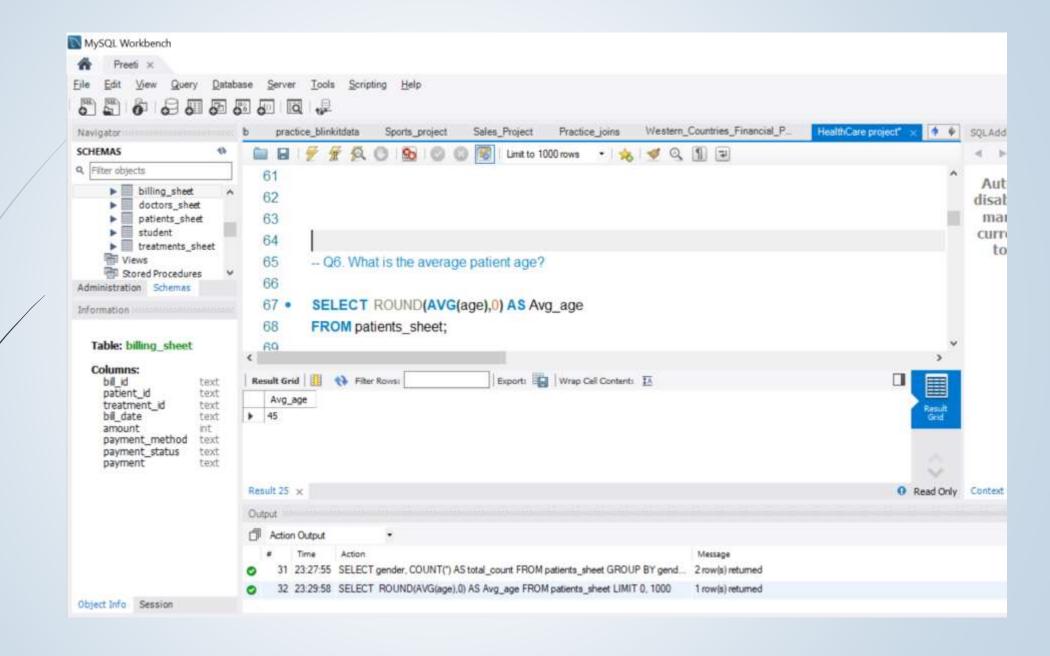


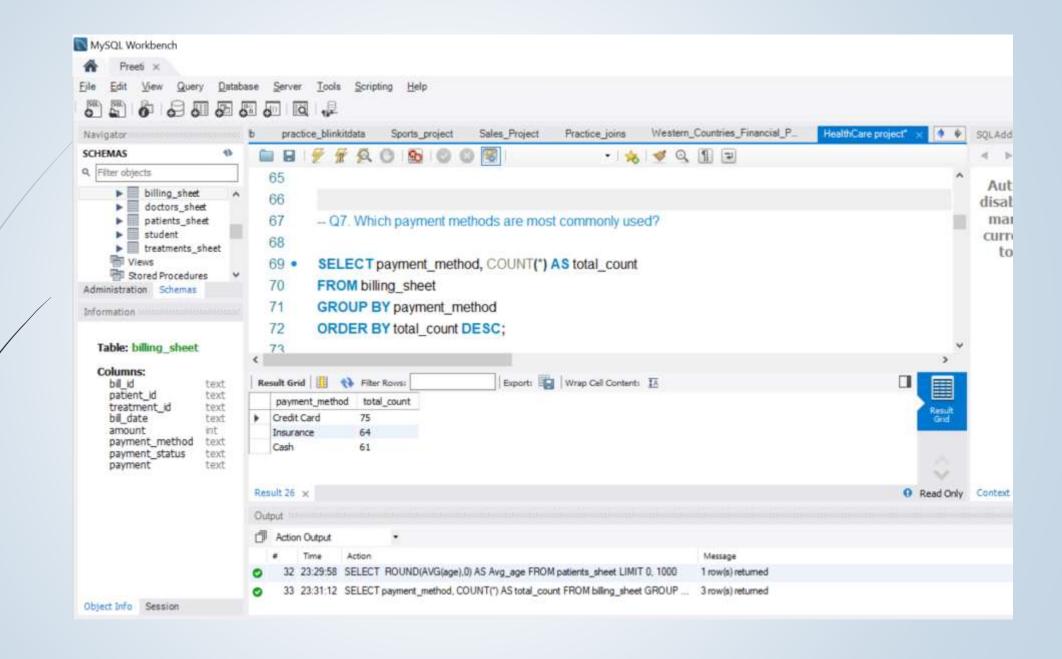


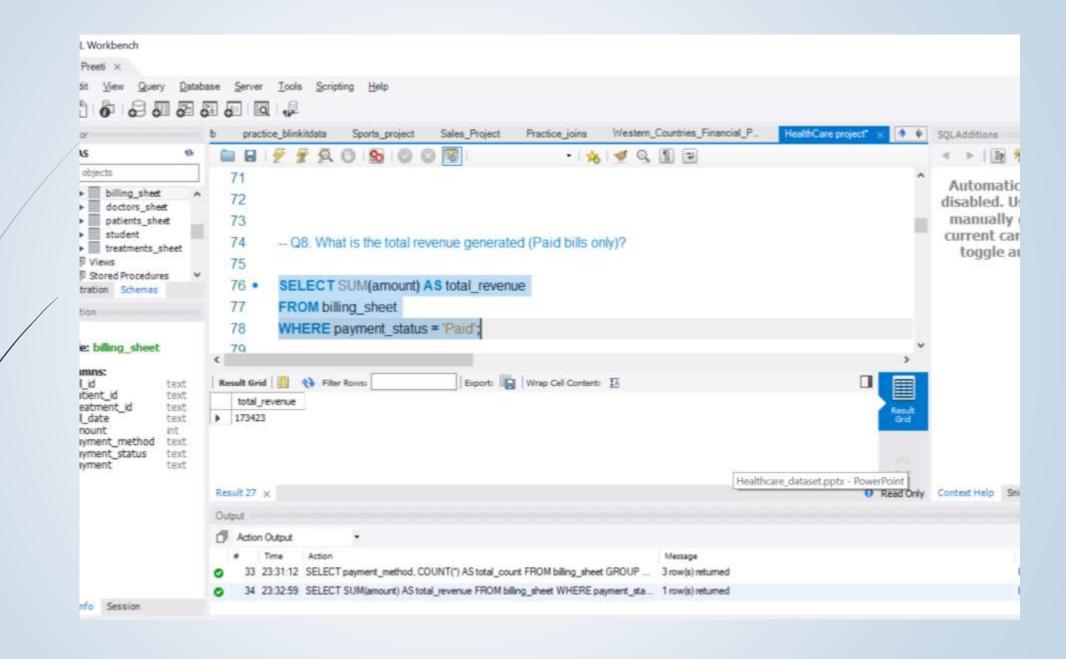


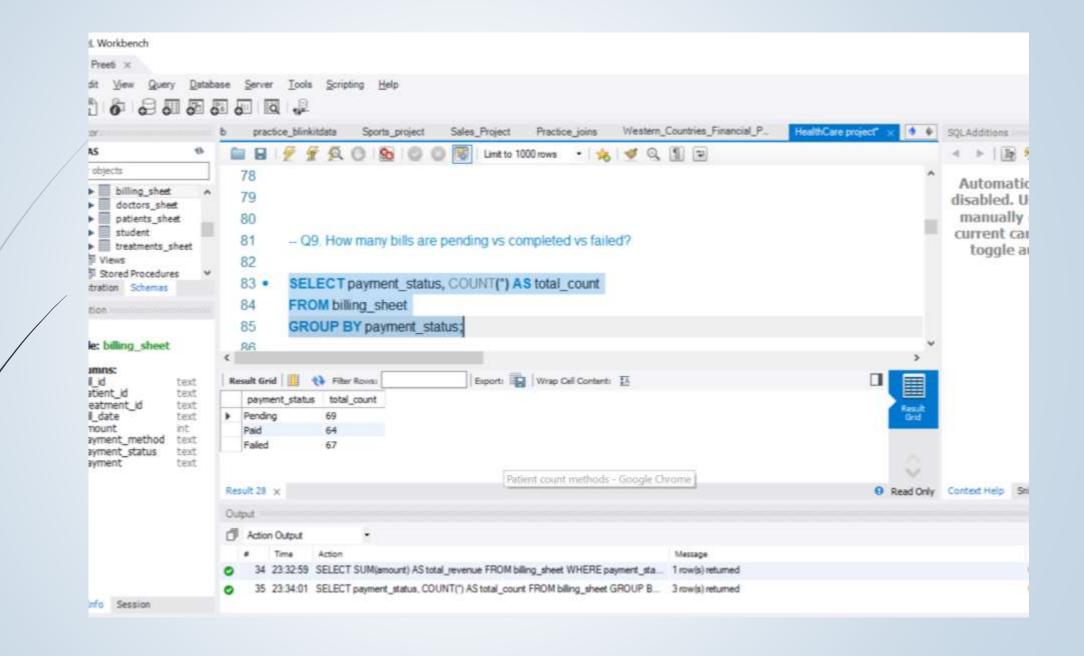


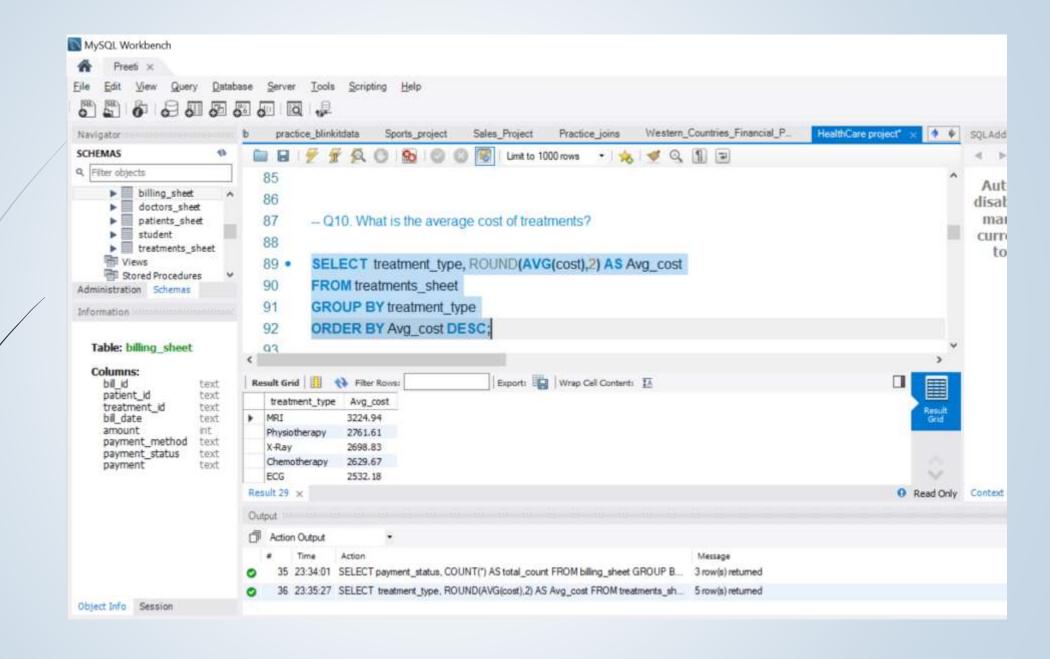


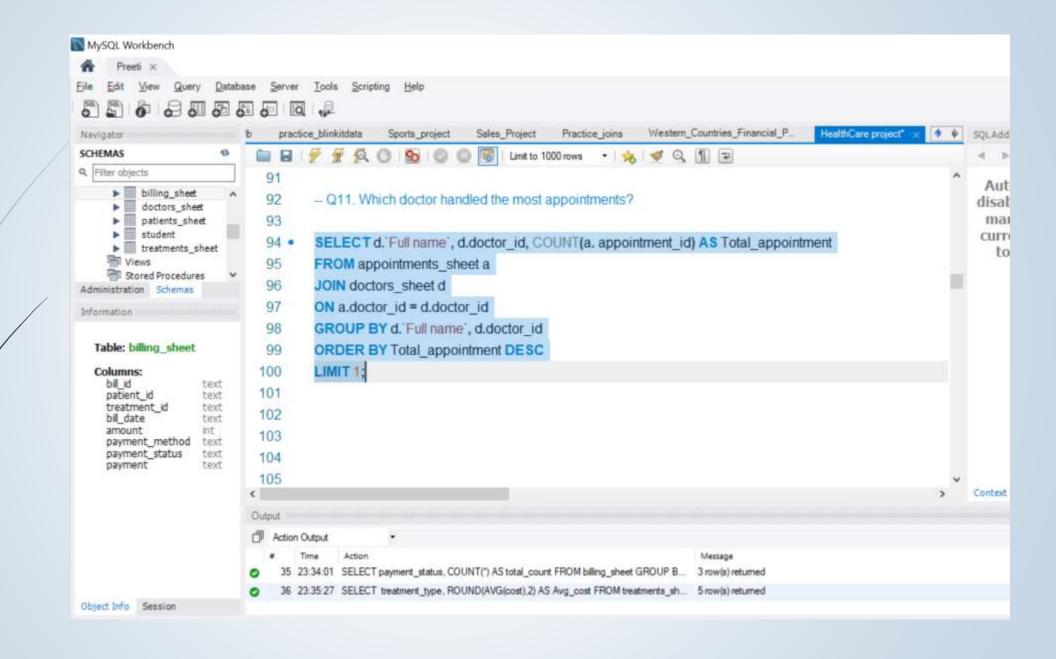


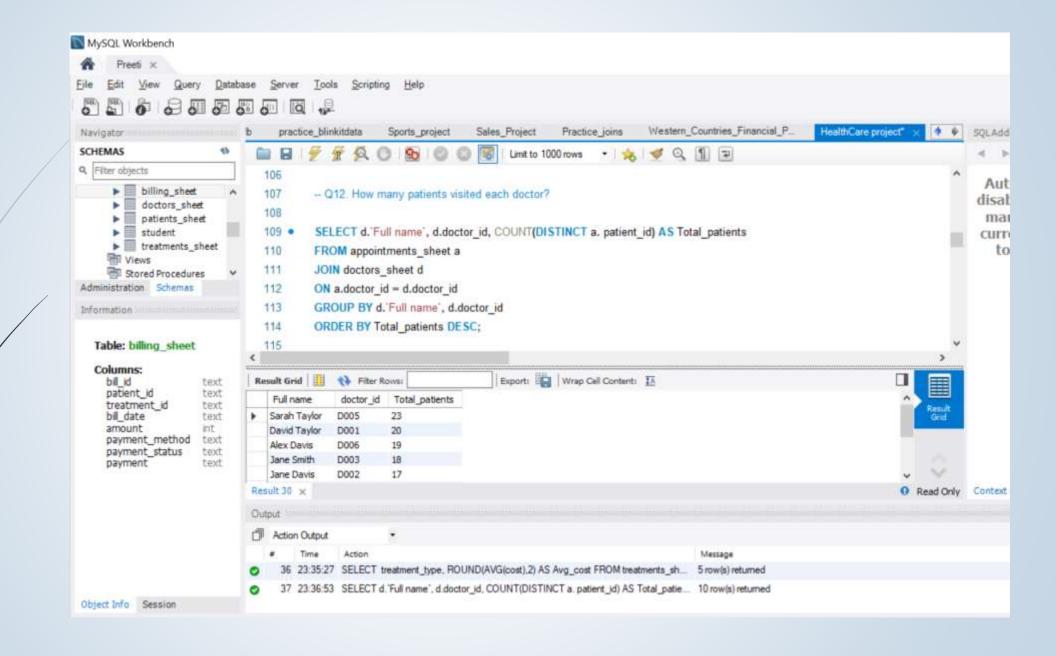


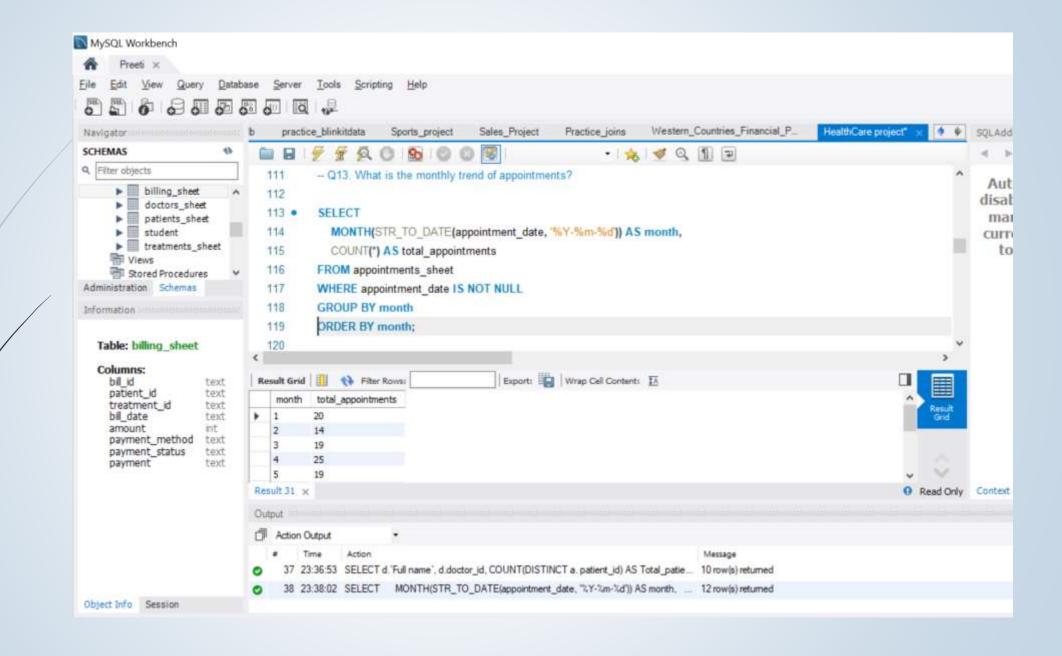


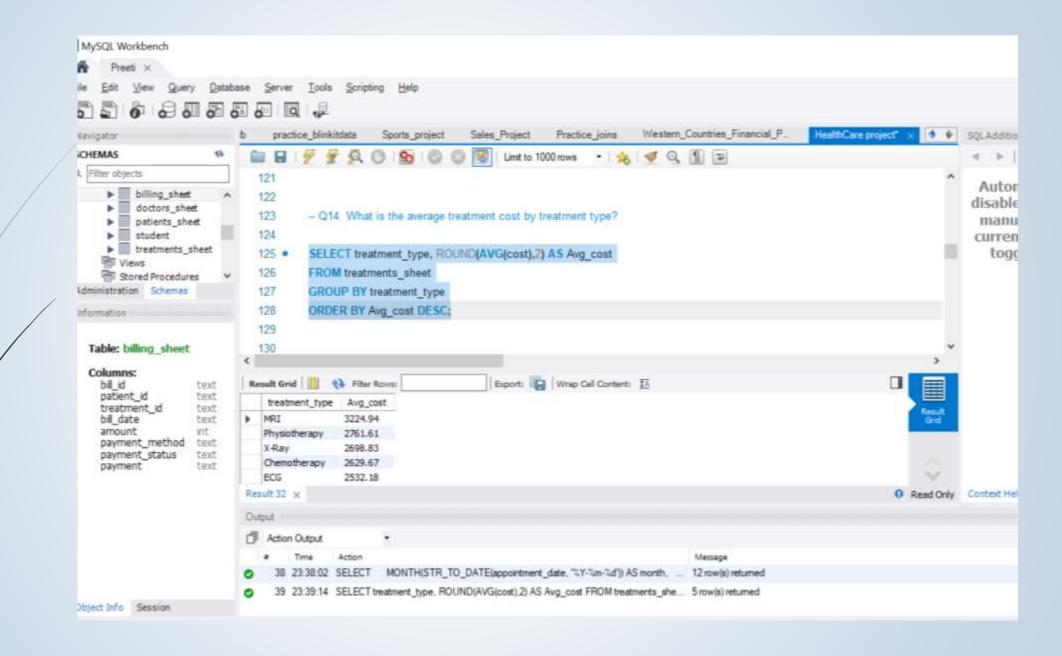


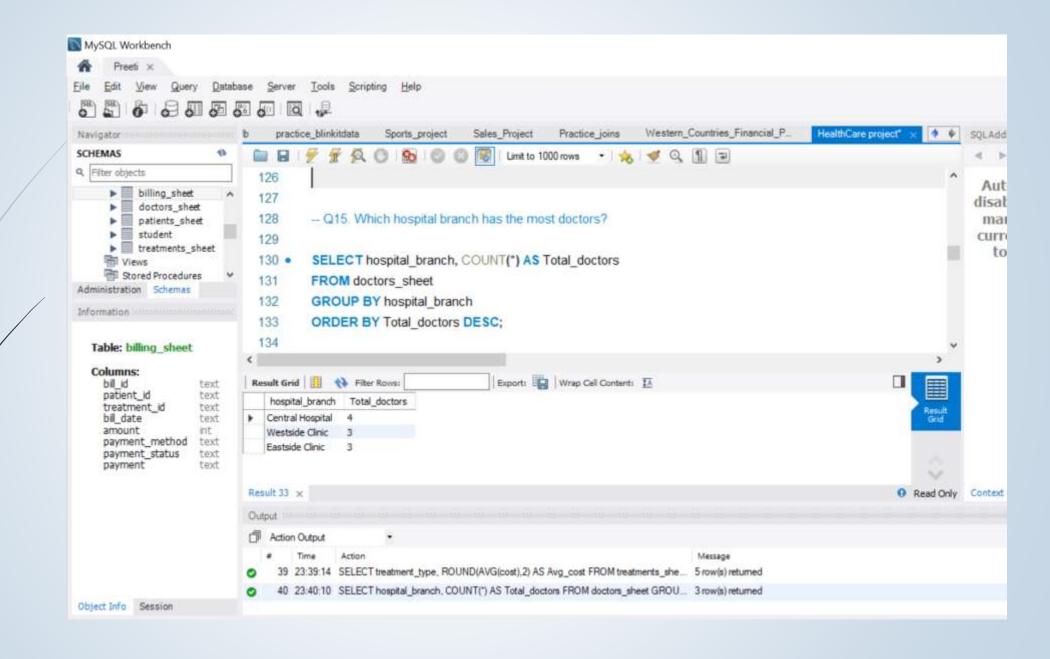


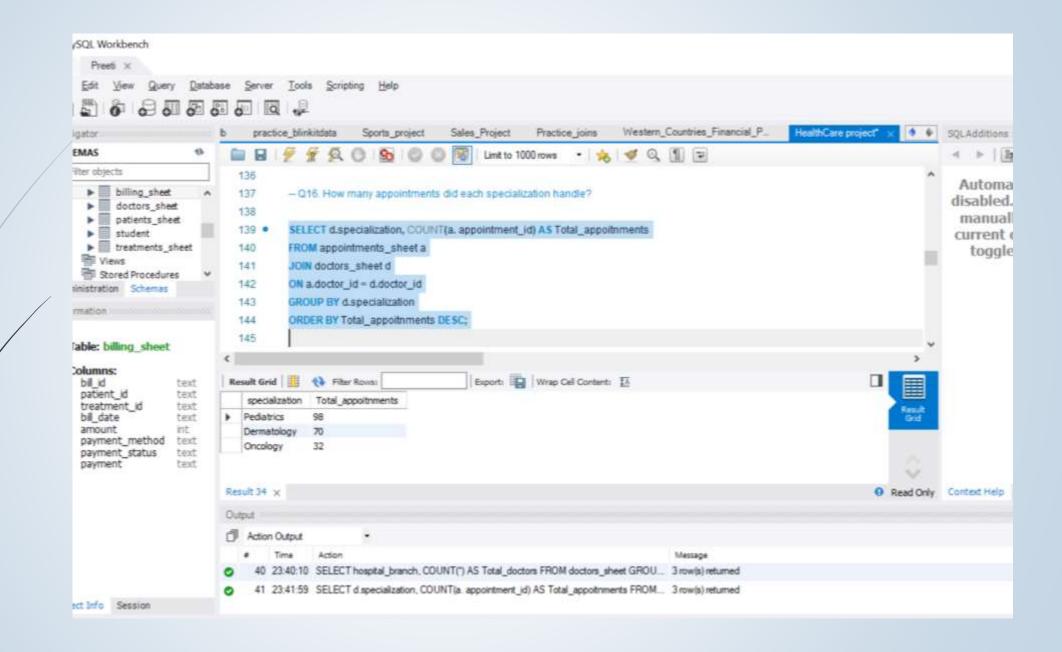


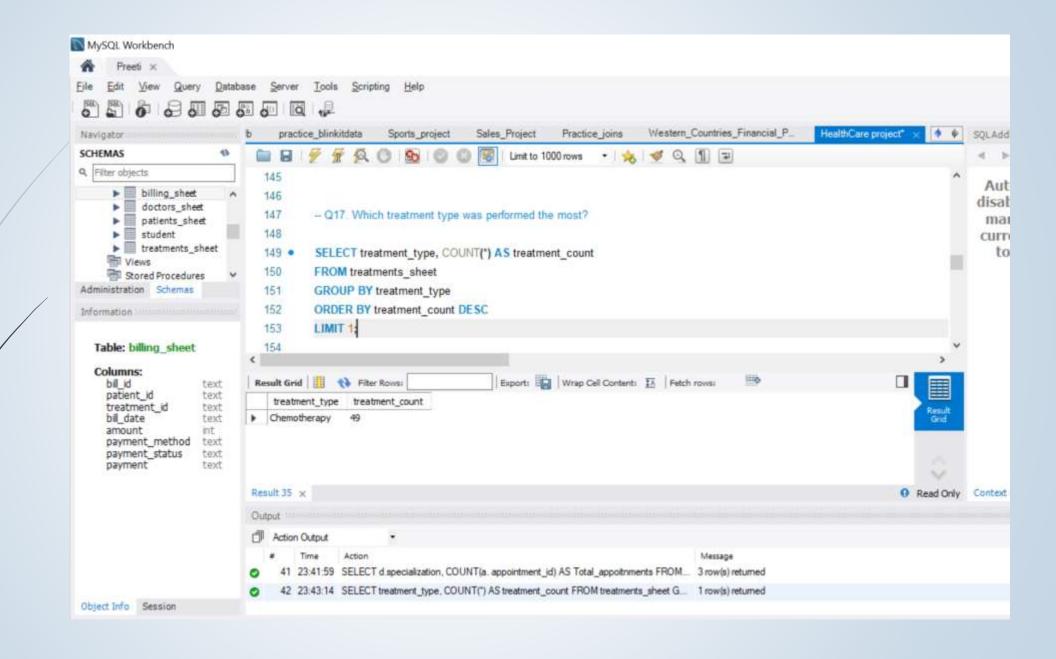


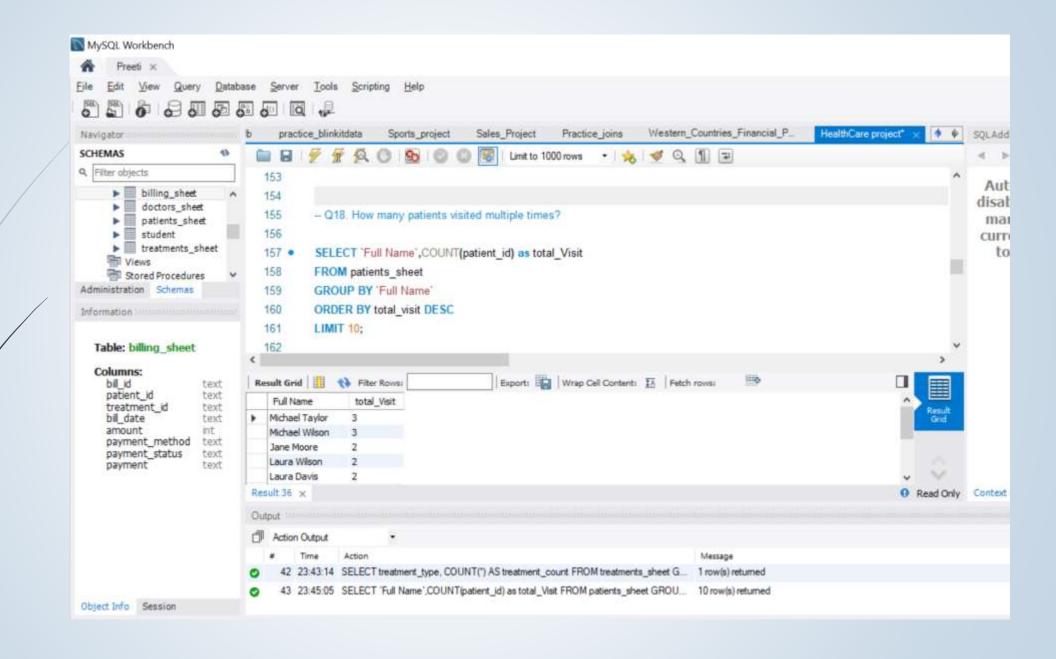


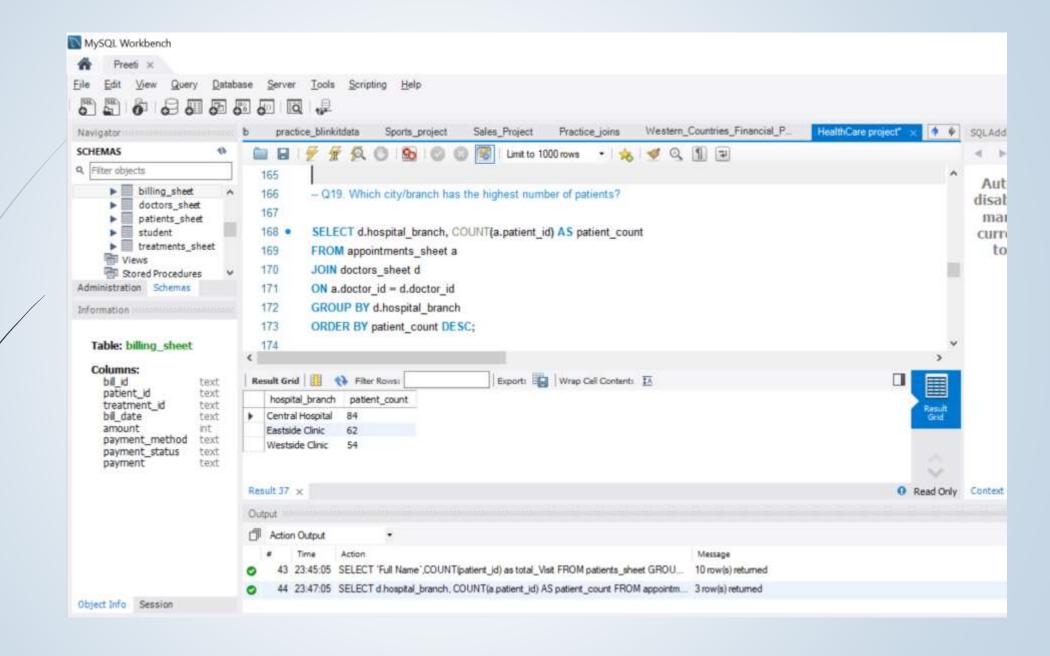


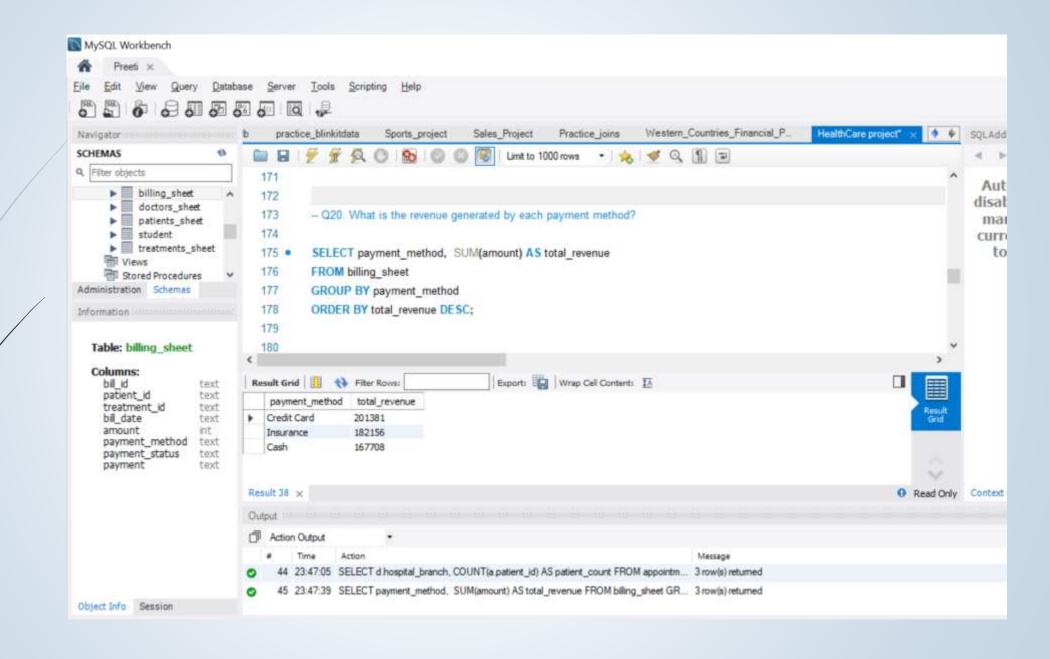


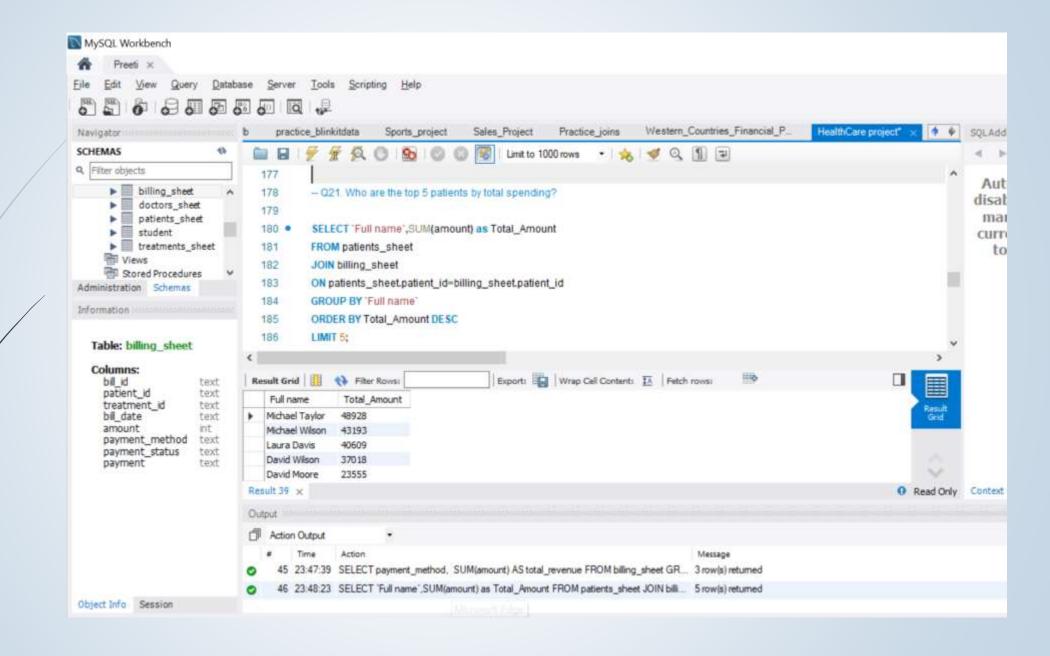


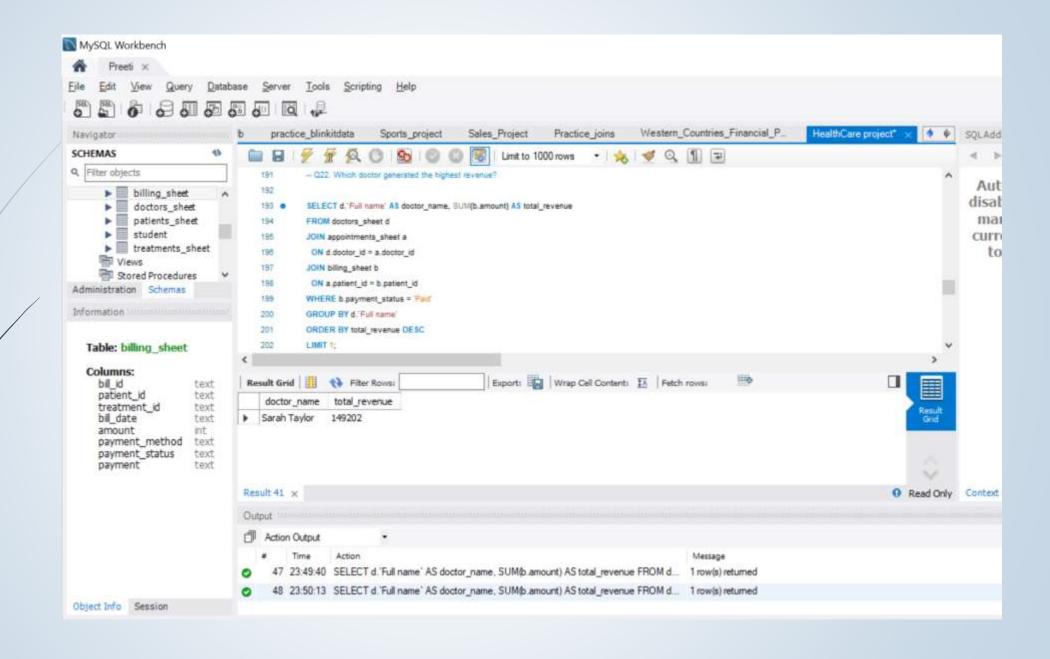


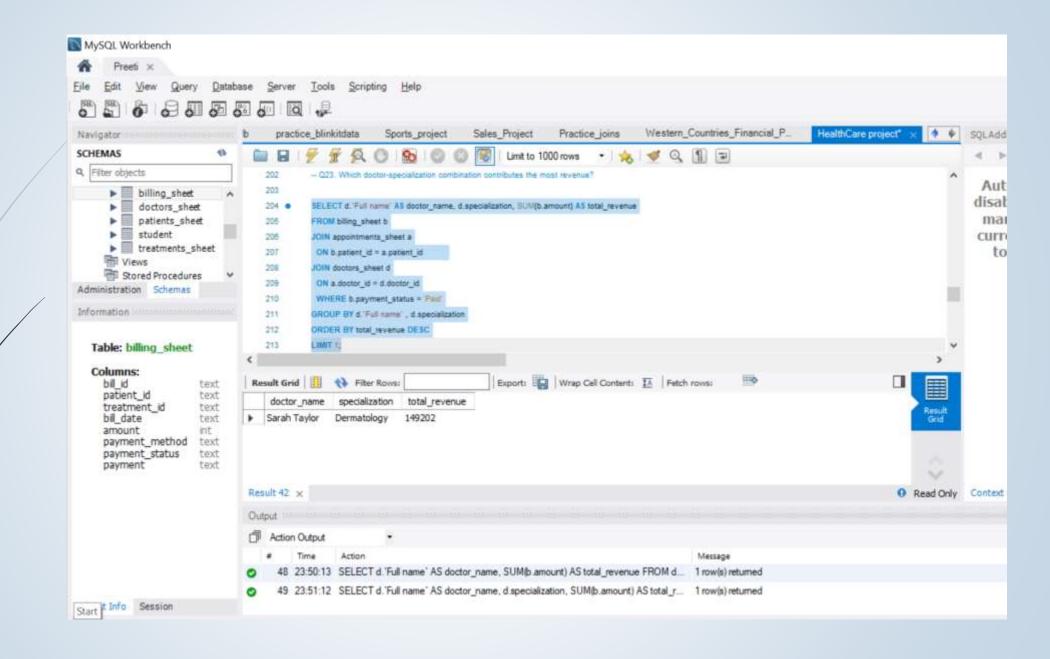


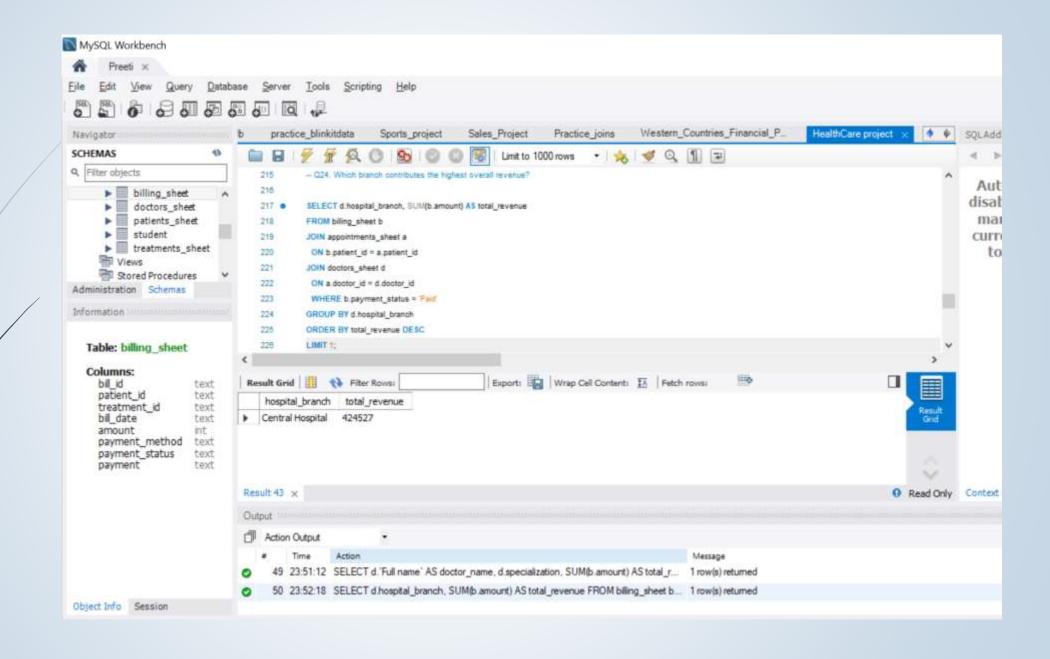


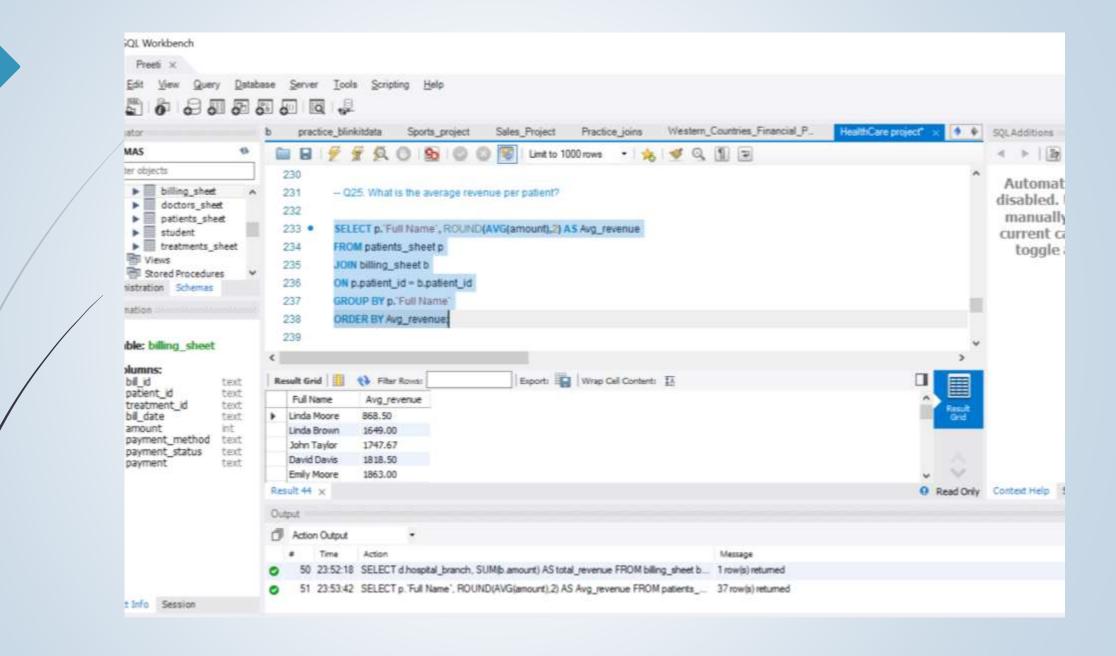


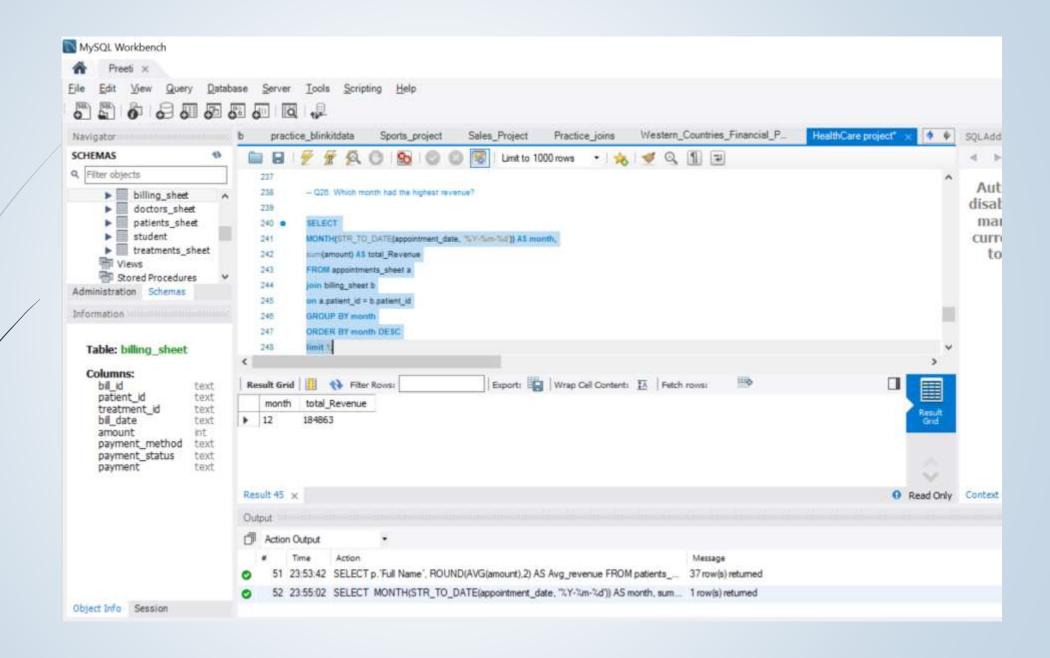


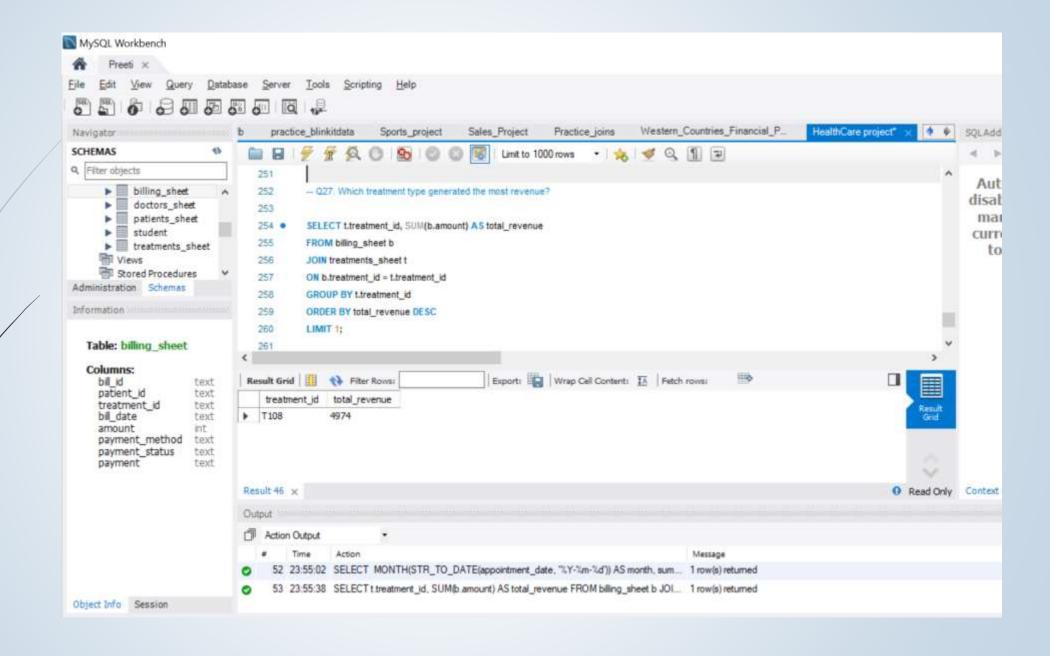


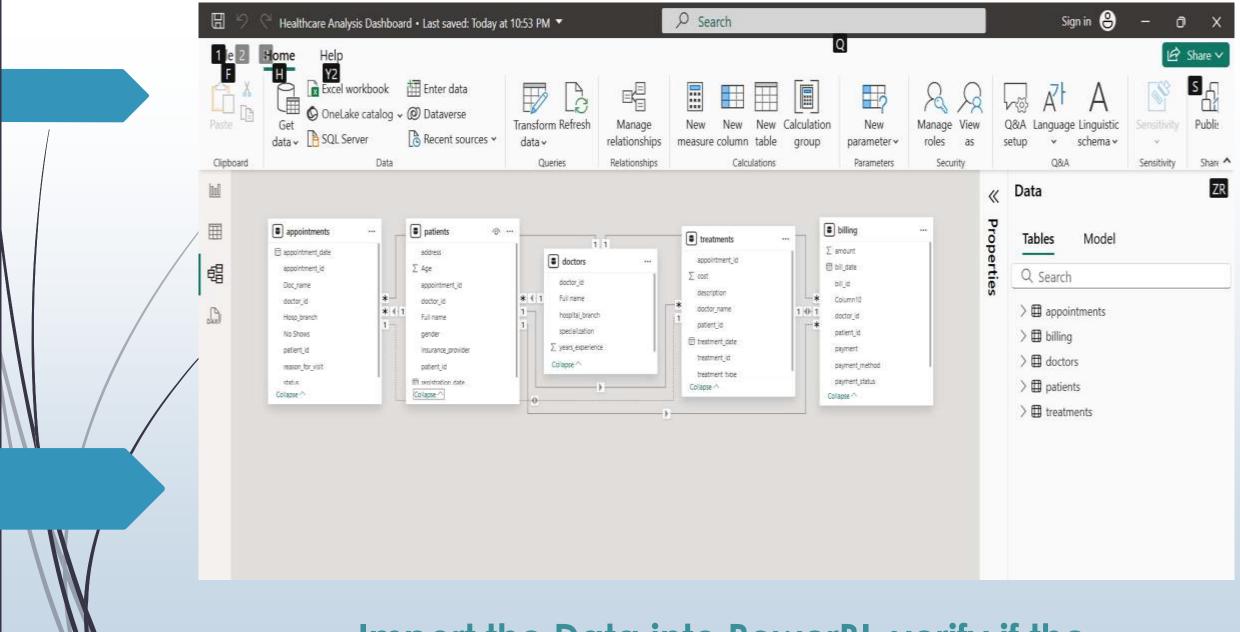












Import the Data into PowerBI, verify if the data is properly imported or not.

# Create a Visually pleasing Dashboard report by following the rules of making the Dashboard.



### HEALTHCARE ANALYSIS DASHBOARD- EXECUTIVE OVERVIEW

Total Appointments 200

Completed Appointments

46

No-Show Appointments

**52** 

Total Revenue

551K

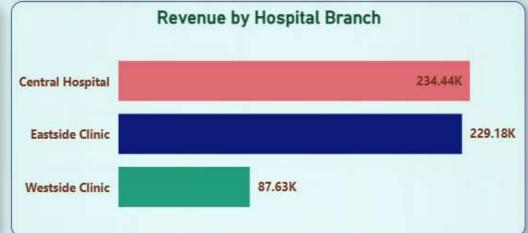
Paid Revenue

173K

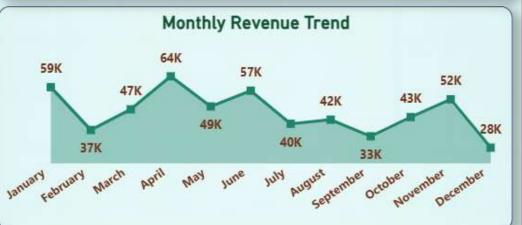
Pending Revenue

185K











Appointment\_date

Appointment Sta	×
All	V
Hospital_branch	×
AII	V
Doctor Specializ	
All	Y
Doctor name	



### **HEALTHCARE ANALYSIS DASHBOARD- PATIENT INSIGHTS**

Total Appointments 200

Completed Appointments

46

No-Show Appointments

**52** 

Total Revenue

551K

Paid Revenue

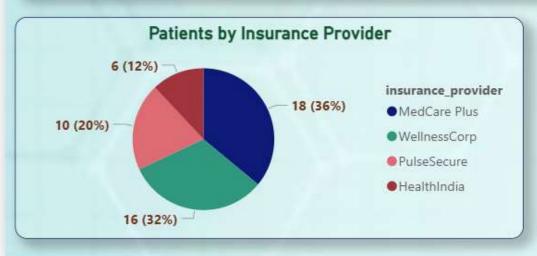
173K

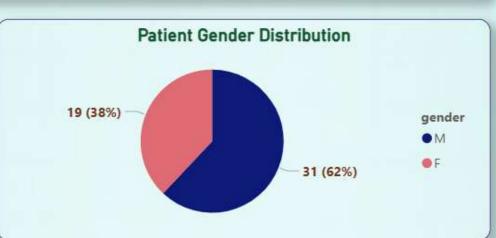
Pending Revenue

185K









Appointment_date	
All	
Appointment Sta	
All	
Hospital_branch	
All	
Doctor Specializ	
All	
Doctor name	
All	



### **HEALTHCARE ANALYSIS DASHBOARD- APPOINTMENT ANALYSIS**

Total Appointments 200

Completed Appointments

46

No-Show Appointments

**52** 

Total Revenue

551K

Paid Revenue

173K

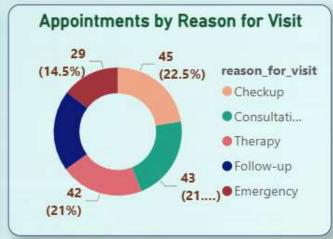
Pending Revenue

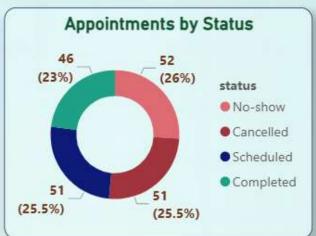
185K



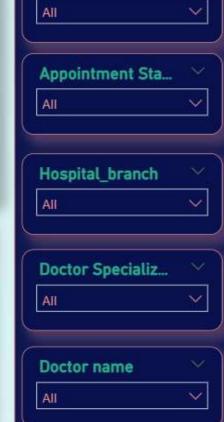
Appointment\_date













### HEALTHCARE ANALYSIS DASHBOARD- DOCTOR & TREATMENT INSIGHTS

Total **Appointments** 

Pediatrics

Dermatology

Oncology

Completed **Appointments** 

No-Show **Appointments** 

Total Revenue

551K

Paid Revenue

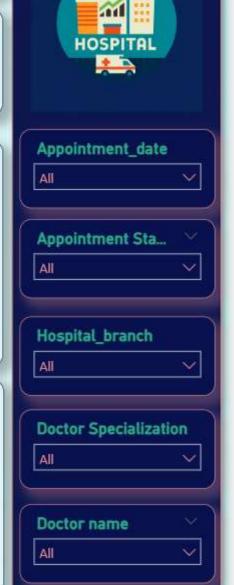
173K

Pending Revenue

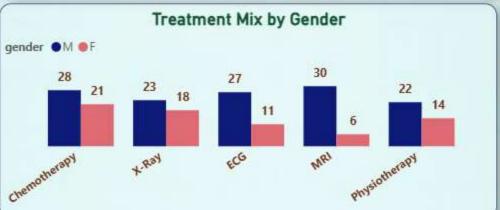
185K













### **HEALTHCARE ANALYSIS DASHBOARD- FINANCIAL INSIGHTS**

Total Appointments 200

Completed Appointments

46

No-Show Appointments

**52** 

Total Revenue

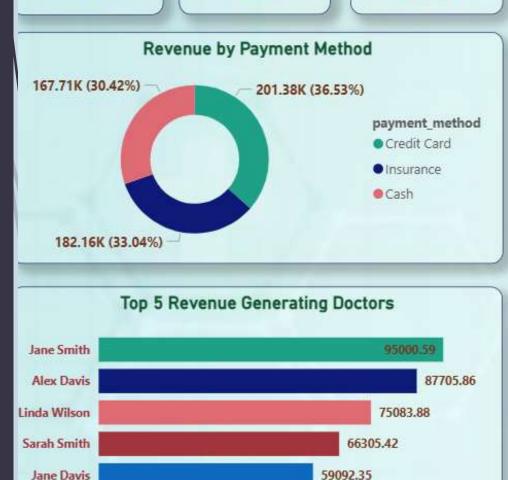
551K

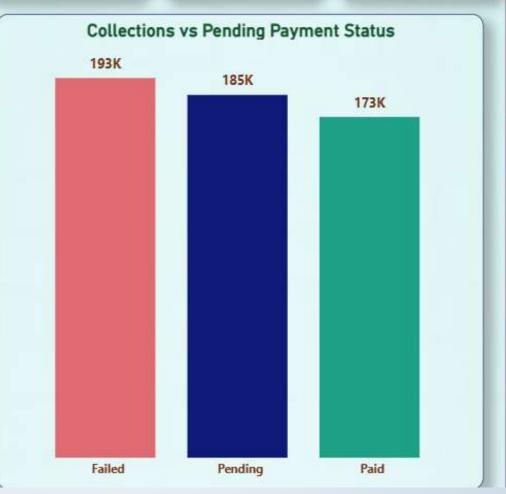
Paid Revenue

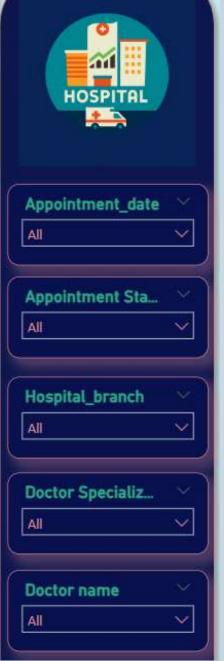
173K

Pending Revenue

185K







### Derive Conclusion and Inferences from the Dashboard.

### ★ Conclusions & Inferences

- 1. Appointments are not effective
  - 1. Out of 200 appointments, only 46 were completed.
  - 2. Around 52 patients did not show up  $\rightarrow$  this means time and resources are wasted.

### 2. Revenue is at risk

- 1. Hospital generated 551K in revenue, but only 173K was collected.
- 2. 185K is still pending  $\rightarrow$  this is a cash flow problem for the hospital.

### 3.Branch performance is uneven

- 1. Central & Eastside branches are doing well, while Westside branch is underperforming.
- 2. This shows that resources or promotions may not be equally distributed.

- 4. Doctors & services make a big difference
  - 1. Certain doctors and treatments (like chemotherapy & imaging) bring more revenue than others.
  - 2. Recognizing and supporting top performers can help increase hospital income.
- 5. Seasonal demand exists
  - 1. September and May had the highest appointments.
  - 2. Hospital needs to plan staff and resources in advance for these busy months.

### **⊘** Overall Inference

The hospital is losing money due to no-shows and pending payments. If they can remind patients, collect payments faster, and promote weaker branches, overall performance will improve.