HOSPITAL DATA ANALYSIS USING SQL

EXTRACT TRANSFROM AND LOAD

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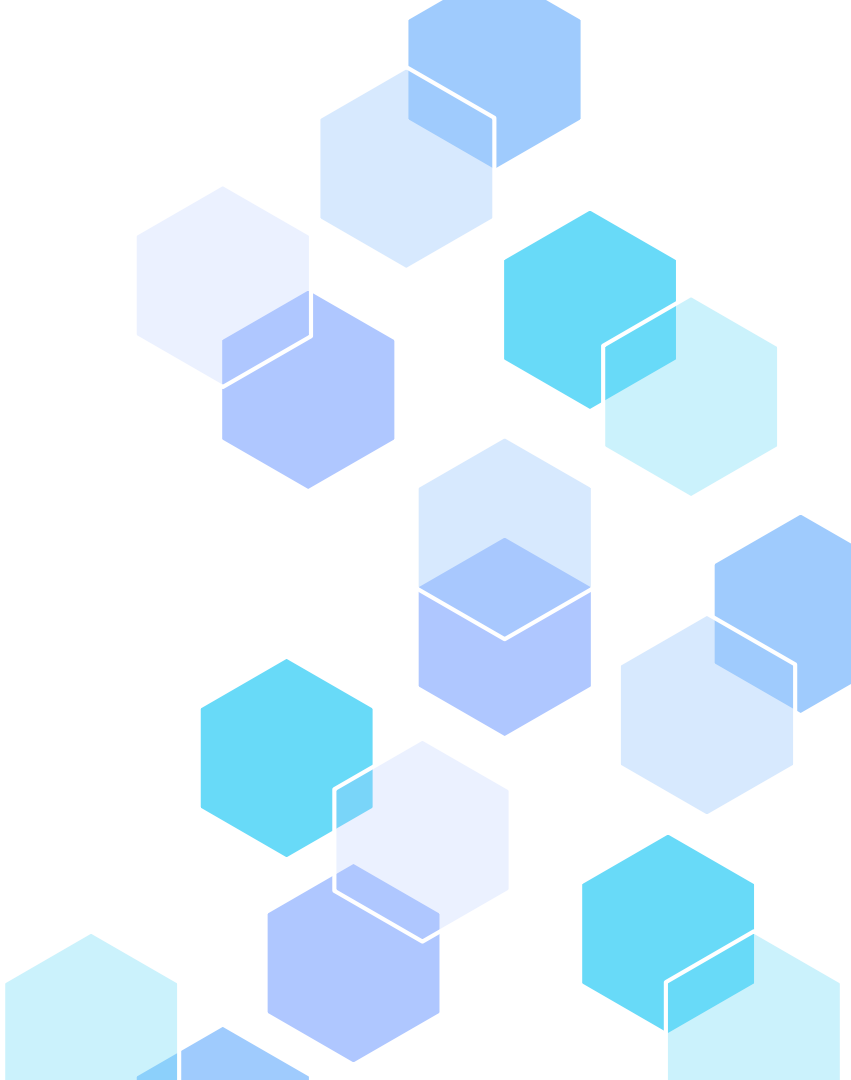
Introduction



1. Introduction

Hello everyone , I am Prateek , today I am going to represent my Hospital Data analysis using SQL project , let’s go

2. Importing Data Into SQL

To begin my analysis , I imported the hospital data from csv file into Postgre SQL.
This involved writing specific SQL queries to ensure accurate data transfer.

```sql
CREATE TABLE Patients (
    PatientID INT,
    FirstName VARCHAR(50),
    LastName VARCHAR(50),
    Gender VARCHAR(50),
    DOB DATE,
    Contact_Number VARCHAR(50),
    Address VARCHAR(100),
    InsuranceProvider VARCHAR(100),
    InsuranceNumber VARCHAR(100),
    RegistrationDate DATE
```

```sql
CREATE TABLE Appointment (
    AppointmentID INT,
    PatientID INT,
    DoctorID INT,
    AppointmentDate DATE,
    AppointmentTime TIME,
    Reason VARCHAR(100)

    );
```

```sql
CREATE TABLE Doctors (
    DoctorID INT,
    FirstName VARCHAR(50),
    LastName VARCHAR(50),
    Specialization VARCHAR(100),
    JoiningDate DATE,
    ContactNumber VARCHAR(50)
);
```

```sql
CREATE TABLE Medical_records(
  RecordID INT,
    PatientID INT,
    Diagnosis VARCHAR(100),
    Treatment VARCHAR(100),
    RecordDate DATE
);
```

```sql
CREATE TABLE Billing (

    BillID INT,
    PatientID INT,
    Amount NUMERIC(10,2),
    Status VARCHAR(50),
    PaymentMode VARCHAR(50),
    BillingDate DATE

);
```

3. Data cleaning

After importing CSV data into Postgre SQL , I proceeded with data cleaning. Recognizing its importance for accurate analysis , I write some SQL queries to clean and address data quality issues.

Query | Query History

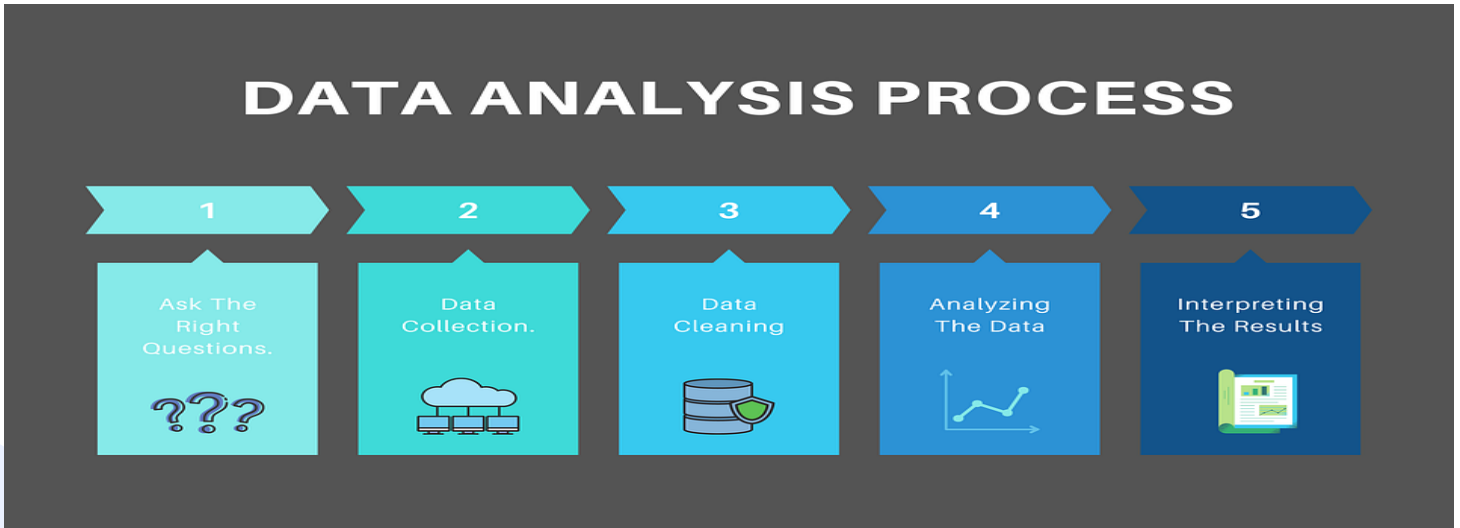
```
53  -- DATA CLEANING--
54
55  SELECT COUNT(*) AS total_null
56  FROM Patients p
57  WHERE p.insuranceprovider IS NULL;
58
59  UPDATE Patients
60  SET insuranceprovider = 'N/A'
61  WHERE insuranceprovider IS NULL;
62
63  DELETE FROM Patients
64  WHERE insuranceprovider = 'N/A';
65
```

```
SELECT COUNT(*) AS total_null
FROM Patients p
WHERE p.InsuranceNumber IS NULL;

UPDATE Patients
SET InsuranceNumber = 'N/A'
WHERE InsuranceNumber IS NULL;

DELETE FROM Patients
WHERE InsuranceNumber = 'N/A';
```

```
SELECT COUNT(*) AS total_null
FROM Billing
WHERE amount IS NULL;

DELETE FROM Billing
WHERE amount IS NULL;

SELECT COUNT(*)
FROM Billing
WHERE status IS NULL;

DELETE FROM Billing
WHERE status IS NULL;
```

4. Analysis

After cleaning my data in Postgre SQL , I started analyzing Hospital patients data .after completing my analysis , uncovered several key insights. Let's take a look !



```sql
--TOTAL PATIENTS MONTHLY VISIT--

SELECT TO_CHAR(RegistrationDate,'YYYY-MM')
AS months,COUNT(patientid) AS monthly_visit
FROM patients
GROUP BY TO_CHAR(RegistrationDate,'YYYY-MM')
ORDER BY monthly_visit DESC;
```

Data Output | Messages | Notific

	months text	monthly_visit bigint
1	2023-08	22
2	2023-06	20
3	2023-01	20
4	2023-07	20

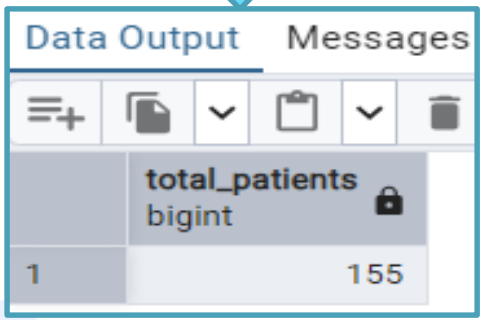
```sql
--ADDING NEW COLUMN TO MERGE F&L NAMES--

ALTER TABLE patients
ADD COLUMN Full_Name TEXT;

UPDATE patients
SET Full_Name = firstname ||' '|| lastname;

ALTER TABLE patients
DROP COLUMN firstname,DROP COLUMN lastname;
```

full_name text
Ananya Das
Pooja Rao
Sneha Gupta
Vikram Sin...
Sneha Ver...

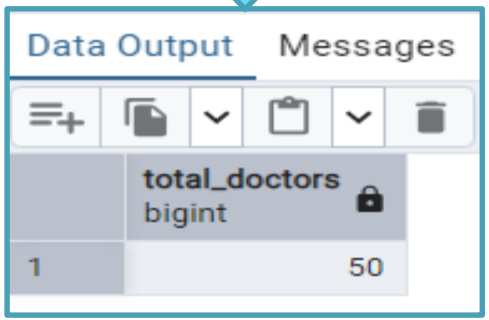
```sql
--ADDING NEW COLUMN TO MERGE F&L NAMES--

ALTER TABLE doctors
ADD COLUMN Full_Name TEXT;

UPDATE doctors
SET Full_Name = firstname ||' '|| lastname;

ALTER TABLE patients
DROP COLUMN firstname,DROP COLUMN lastname;
```

full_name text
Arun Kumar
Nisha Nair
Anil Agarwal
Arun Nair

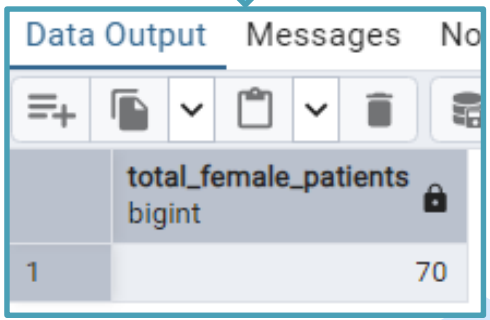
```sql
--COUNTING TOTAL PATIENTS--

SELECT COUNT(*)
AS total_patients
FROM patients;
```



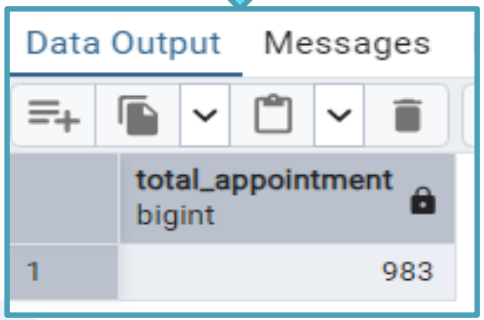

```sql
--COUNTING TOTAL DOCTORS--

SELECT COUNT(*)
AS total_doctors
FROM Doctors;
```




```sql
--COUNTING TOTAL Female_Patients--
SELECT COUNT(*)
AS total_Female_patients
FROM patients
WHERE gender ='F';
```



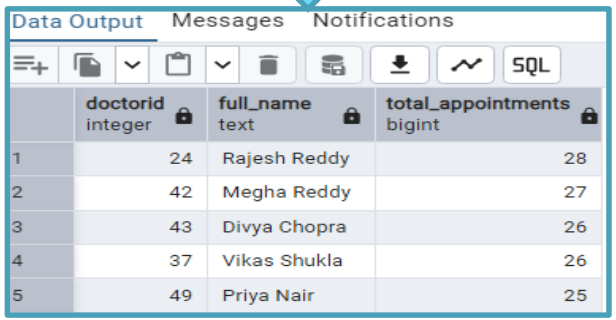
```sql
--TOTAL Appointment--

SELECT COUNT(*)
AS total_Appointment
FROM Appointment;
```



Data Output | Messages

	total_appointment bigint
1	983

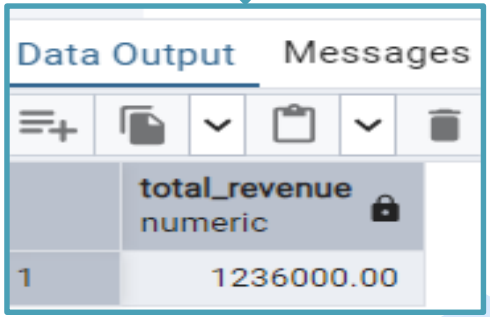
```sql
--PATIENTS PER DOCTOR(WORKLOAD ANALYSIS)
    SELECT a.doctorid,d.full_name,
    COUNT(*) AS total_appointments
    FROM Appointment a
    JOIN doctors d ON a.doctorid = d.doctorid
    GROUP BY a.doctorid,d.full_name
    ORDER BY total_appointments DESC
    LIMIT 10;
```



Data Output | Messages | Notifications

	doctorid integer	full_name text	total_appointments bigint
1	24	Rajesh Reddy	28
2	42	Megha Reddy	27
3	43	Divya Chopra	26
4	37	Vikas Shukla	26
5	49	Priya Nair	25

```sql
--TOTAL REVENUE--
    SELECT SUM(amount)
    AS total_revenue
    FROM billing;
```



Data Output | Messages

	total_revenue numeric
1	1236000.00

```sql
--AVG BILL PAR PATIENTS--
    SELECT ROUND(AVG(amount))
    AS avg_bill
    FROM billing;
```

Data Output | Messages

	avg_bill numeric
1	1700

```sql
--Retrieve Imp Data--
SELECT
       p.patientid,p.full_name AS Patient_Name,
       p.gender,p.contact_number,p.registrationdate,
       a.reason,d.full_name AS Doctor_Name,d.specialization,
       m.diagnosis,m.treatment,b.amount,b.status
FROM Patients p
INNER JOIN  Appointment a
ON p.patientid = a.patientid
INNER JOIN doctors d
ON a.doctorid = d.doctorid
INNER JOIN medical_records m
ON p.patientid = m.patientid
INNER JOIN billing b
ON p.patientid = b.patientid
ORDER BY p.patientid ASC;
```

Data Output | Messages | Notifications

Showing rows: 1 to 1000 | Page No: 1 of 7

	patientid integer	patient_name text	gender character varying (50)	contact_number character varying (50)	registrationdate date	reason character varying (100)	doctor_name text
1	3	Ananya Das	F	9789661758	2023-01-03	Checkup	Megha Saxena
2	3	Ananya Das	F	9789661758	2023-01-03	Checkup	Megha Chopra
3	3	Ananya Das	F	9789661758	2023-01-03	Checkup	Divya Chopra
4	3	Ananya Das	F	9789661758	2023-01-03	Checkup	Divya Chopra
5	3	Ananya Das	F	9789661758	2023-01-03	Checkup	Nisha Chopra
6	3	Ananya Das	F	9789661758	2023-01-03	Checkup	Megha Saxena
7	3	Ananya Das	F	9789661758	2023-01-03	Checkup	Megha Chopra
8	3	Ananya Das	F	9789661758	2023-01-03	Checkup	Divya Chopra
9	3	Ananya Das	F	9789661758	2023-01-03	Checkup	Divya Chopra
10	3	Ananya Das	F	9789661758	2023-01-03	Checkup	Nisha Chopra

tifications

Showing rows: 1 to 1000 | Page No: 1 of 7

specialization character varying (100)	diagnosis character varying (100)	treatment character varying (100)	amount numeric (10,2)	status character v
Neurology	Hypertension	Antibiotics	3000.00	Paid
General Medicine	Hypertension	Antibiotics	3000.00	Paid
General Medicine	Hypertension	Antibiotics	3000.00	Paid
General Medicine	Hypertension	Antibiotics	3000.00	Paid
Orthopedics	Hypertension	Antibiotics	3000.00	Paid
Neurology	Hypertension	Medication	3000.00	Paid
General Medicine	Hypertension	Medication	3000.00	Paid
General Medicine	Hypertension	Medication	3000.00	Paid
General Medicine	Hypertension	Medication	3000.00	Paid
Orthopedics	Hypertension	Medication	3000.00	Paid

Data analysis for beginners

Collection

Cleaning

Analysis

Visualization

Hurrah ! Project Completed

Hurrah ! The project is finally complete ! A lot of effort , dedication , and problem-solving went into making it a success....

Thanks!

Do you have any questions?

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