**QA Queries**

**1. Data Count Validation**

Ensure record counts match between the database and Power BI reports.

SELECT COUNT(\*) FROM Patient;

SELECT COUNT(\*) FROM Visit;

SELECT COUNT(\*) FROM Treatments;

SELECT COUNT(\*) FROM LabResult;

**2. Data Completeness Check**

Identify missing or null values in key columns.

SELECT \* FROM Patient WHERE FirstName IS NULL OR LastName IS NULL;

SELECT \* FROM Visit WHERE VisitType IS NULL OR VisitDate IS NULL;

SELECT \* FROM Treatments WHERE TreatmentName IS NULL OR Status IS NULL;

SELECT \* FROM LabResult WHERE TestName IS NULL OR Result IS NULL;

**3. Data Consistency Check**

Ensure data relationships are consistent across tables.

SELECT v.VisitID, v.PatientID, p.PatientID

FROM Visit v

LEFT JOIN Patient p ON v.PatientID = p.PatientID

WHERE p.PatientID IS NULL; -- Should return 0 rows

SELECT t.TreatmentID, t.VisitID, v.VisitID

FROM Treatments t

LEFT JOIN Visit v ON t.VisitID = v.VisitID

WHERE v.VisitID IS NULL; -- Should return 0 rows

**4. Duplicate Records Check**

Identify duplicate entries in key tables.

SELECT PatientID, COUNT(\*)

FROM Patient

GROUP BY PatientID

HAVING COUNT(\*) > 1;

SELECT VisitID, COUNT(\*)

FROM Visit

GROUP BY VisitID

HAVING COUNT(\*) > 1;

**5. Dashboard Aggregation Check**

Compare sum or average values between SQL and Power BI.

SELECT SUM(TreatmentCost) FROM Treatments; -- Compare with Power BI total cost

SELECT AVG(Age) FROM Patient; -- Compare with Power BI average age

**6. Performance Testing (Query Execution Time)**

Check query performance and optimize if needed.

EXPLAIN ANALYZE

SELECT \* FROM Visit WHERE VisitDate BETWEEN '2023-01-01' AND '2023-12-31';