**SDG 3: Good Health and Well-being** is crucial for ensuring healthy lives and promoting well-being for all.

**Problem Definition:**

Let's focus on a specific issue within SDG 3 that can be addressed using data:

**Problem:** **Reducing the Burden of Non-Communicable Diseases (NCDs)**  
Non-communicable diseases, such as heart disease, cancer, diabetes, and chronic respiratory diseases, are the leading cause of death worldwide. These diseases are influenced by factors like lifestyle, environment, and genetics. A key challenge is to reduce the prevalence of these diseases through early detection, prevention, and management.

**How Data Can Help:**

* **Predictive Analytics:** Using health data to predict the likelihood of individuals developing NCDs based on factors like age, gender, lifestyle, and family history.
* **Health Monitoring:** Implementing data-driven systems for continuous monitoring of patients with chronic conditions to prevent complications.
* **Public Health Interventions:** Analyzing demographic and socioeconomic data to design targeted interventions that address the risk factors associated with NCDs.
* **Resource Allocation:** Using data to optimize the distribution of healthcare resources, ensuring that areas with the highest burden of NCDs receive adequate support.

Would you like to focus on this problem, or is there another aspect of SDG 3 you are more interested in?

**Part 3**

SELECT p.PatientID, p.Name, p.DOB, p.Gender, r.RegionName, pr.RiskFactorID, nrf.RiskFactorType, pr.RiskLevel

FROM Patients p

JOIN Patient\_RiskFactors pr ON p.PatientID = pr.PatientID

JOIN NCDRiskFactors nrf ON pr.RiskFactorID = nrf.RiskFactorID

JOIN Regions r ON p.RegionID = r.RegionID

WHERE pr.RiskLevel = 'High';

SELECT hr.RecordID, hr.Date, hr.Diagnosis, hr.Notes, hp.Name AS HealthcareProvider

FROM HealthRecords hr

JOIN Patients p ON hr.PatientID = p.PatientID

LEFT JOIN HealthcareProviders hp ON hr.RecordID = hp.ProviderID

WHERE p.Name = 'John Doe';

SELECT p.PatientID, p.Name, st.TestName, st.TestType, st.Date, st.Results

FROM ScreeningTests st

JOIN Patients p ON st.PatientID = p.PatientID

WHERE st.TestName = 'Blood Test';

SELECT p.PatientID, p.Name, tp.StartDate, tp.TreatmentDetails

FROM Patients p

JOIN TreatmentPlans tp ON p.PatientID = tp.PatientID

WHERE tp.TreatmentDetails LIKE '%COPD%';

SELECT DISTINCT hp.Name, hp.Specialty, hp.ContactInfo

FROM HealthcareProviders hp

JOIN HealthRecords hr ON hp.ProviderID = hr.RecordID

JOIN Patients p ON hr.PatientID = p.PatientID

JOIN Patient\_RiskFactors pr ON p.PatientID = pr.PatientID

WHERE pr.RiskLevel = 'High';

SELECT hi.InterventionName, hi.Description, hi.StartDate, hi.EndDate

FROM HealthInterventions hi

JOIN Regions r ON hi.RegionID = r.RegionID

WHERE r.RegionName = 'North Region';

SELECT r.RegionName, nrf.RiskFactorType, COUNT(pr.PatientID) AS NumberOfPatients

FROM Patient\_RiskFactors pr

JOIN Patients p ON pr.PatientID = p.PatientID

JOIN NCDRiskFactors nrf ON pr.RiskFactorID = nrf.RiskFactorID

JOIN Regions r ON p.RegionID = r.RegionID

GROUP BY r.RegionName, nrf.RiskFactorType;

SELECT r.RegionName, COUNT(hr.PatientID) AS NumberOfPatients

FROM HealthRecords hr

JOIN Patients p ON hr.PatientID = p.PatientID

JOIN Regions r ON p.RegionID = r.RegionID

WHERE hr.Diagnosis LIKE '%Diabetes%'

GROUP BY r.RegionName

ORDER BY NumberOfPatients DESC;

**Part 3 b**

SELECT hr.Diagnosis, COUNT(hr.PatientID) AS NumberOfCases

FROM HealthRecords hr

GROUP BY hr.Diagnosis

ORDER BY NumberOfCases DESC;

SELECT nrf.RiskFactorType, hr.Diagnosis, COUNT(DISTINCT pr.PatientID) AS NumberOfPatients

FROM Patient\_RiskFactors pr

JOIN NCDRiskFactors nrf ON pr.RiskFactorID = nrf.RiskFactorID

JOIN HealthRecords hr ON pr.PatientID = hr.PatientID

GROUP BY nrf.RiskFactorType, hr.Diagnosis

ORDER BY NumberOfPatients DESC;

SELECT hi.InterventionName, COUNT(pr.PatientID) AS PatientsAtRiskBefore, COUNT(p.PatientID) AS PatientsAtRiskAfter

FROM HealthInterventions hi

JOIN Regions r ON hi.RegionID = r.RegionID

JOIN Patients p ON p.RegionID = r.RegionID

LEFT JOIN Patient\_RiskFactors pr ON p.PatientID = pr.PatientID

WHERE hi.StartDate <= pr.DateRecorded AND hi.EndDate >= pr.DateRecorded

GROUP BY hi.InterventionName;

SELECT r.RegionName, p.Gender, COUNT(DISTINCT p.PatientID) AS NumberOfHighRiskPatients

FROM Patient\_RiskFactors pr

JOIN Patients p ON pr.PatientID = p.PatientID

JOIN Regions r ON p.RegionID = r.RegionID

WHERE pr.RiskLevel = 'High'

GROUP BY r.RegionName, p.Gender

ORDER BY NumberOfHighRiskPatients DESC;

SELECT YEAR(hr.Date) AS Year, COUNT(DISTINCT hr.PatientID) AS NumberOfDiagnoses

FROM HealthRecords hr

GROUP BY YEAR(hr.Date)

ORDER BY Year ASC;

SELECT hp.Specialty, COUNT(DISTINCT hr.PatientID) AS NumberOfPatients, AVG(DATEDIFF(tp.EndDate, tp.StartDate)) AS AvgTreatmentDuration

FROM HealthcareProviders hp

JOIN HealthRecords hr ON hp.ProviderID = hr.RecordID

JOIN TreatmentPlans tp ON hr.PatientID = tp.PatientID

GROUP BY hp.Specialty

ORDER BY AvgTreatmentDuration ASC;

SELECT st.TestName, COUNT(DISTINCT st.PatientID) AS NumberOfHighRiskPatientsScreened

FROM ScreeningTests st

JOIN Patient\_RiskFactors pr ON st.PatientID = pr.PatientID

WHERE pr.RiskLevel = 'High'

GROUP BY st.TestName

ORDER BY NumberOfHighRiskPatientsScreened DESC;

SELECT r.RegionName, hi.InterventionName,

(COUNT(DISTINCT pr.PatientID) - COUNT(DISTINCT p.PatientID)) AS ChangeInRiskLevel

FROM HealthInterventions hi

JOIN Regions r ON hi.RegionID = r.RegionID

JOIN Patients p ON p.RegionID = r.RegionID

LEFT JOIN Patient\_RiskFactors pr ON p.PatientID = pr.PatientID

WHERE hi.EndDate IS NOT NULL AND hi.StartDate IS NOT NULL

GROUP BY r.RegionName, hi.InterventionName

ORDER BY ChangeInRiskLevel DESC;

SELECT hr.Diagnosis, AVG(YEAR(CURDATE()) - YEAR(p.DOB)) AS AvgAge

FROM HealthRecords hr

JOIN Patients p ON hr.PatientID = p.PatientID

GROUP BY hr.Diagnosis

ORDER BY AvgAge DESC;

SELECT p.PatientID, p.Name, nrf.RiskFactorType, MIN(pr.RiskLevel) AS InitialRiskLevel, MAX(pr.RiskLevel) AS LatestRiskLevel

FROM Patient\_RiskFactors pr

JOIN Patients p ON pr.PatientID = p.PatientID

JOIN NCDRiskFactors nrf ON pr.RiskFactorID = nrf.RiskFactorID

GROUP BY p.PatientID, nrf.RiskFactorType

HAVING InitialRiskLevel <> LatestRiskLevel;