SQL PROGRAMMING

 **Data Retrieval:**

These SQL queries will help retrieve relevant data based on the problem definition:

* **Query 1: Retrieve all regions with their water sources and water quality.**

sql

Copy code

SELECT

R.RegionName,

WS.SourceType,

WQ.TestDate,

WQ.ContaminantLevel,

WQ.SafetyStatus

FROM

Regions R

JOIN

WaterSources WS ON R.RegionID = WS.RegionID

JOIN

WaterQuality WQ ON WS.SourceID = WQ.SourceID;

* **Query 2: List regions with less than 50% access to clean water.**

sql

Copy code

SELECT

RegionName,

AccessToCleanWaterPercentage

FROM

Regions

WHERE

AccessToCleanWaterPercentage < 50;

* **Query 3: Retrieve health data for regions with unsafe water sources.**

sql

Copy code

SELECT

R.RegionName,

HD.DiseaseName,

HD.CasesReported,

HD.MortalityRate

FROM

Regions R

JOIN

HealthData HD ON R.RegionID = HD.RegionID

JOIN

WaterSources WS ON R.RegionID = WS.RegionID

JOIN

WaterQuality WQ ON WS.SourceID = WQ.SourceID

WHERE

WQ.SafetyStatus = 'Unsafe';

* **Query 4: Retrieve regions with the highest number of reported waterborne disease cases.**

sql

Copy code

SELECT

RegionName,

SUM(CasesReported) AS TotalCases

FROM

Regions R

JOIN

HealthData HD ON R.RegionID = HD.RegionID

GROUP BY

RegionName

ORDER BY

TotalCases DESC;

 **Data Analysis:**

These queries are designed to generate insights related to the SDG problem:

* **Query 1: Analyze the correlation between access to clean water and reported waterborne diseases.**

sql

Copy code

SELECT

R.RegionName,

R.AccessToCleanWaterPercentage,

SUM(HD.CasesReported) AS TotalCases

FROM

Regions R

JOIN

HealthData HD ON R.RegionID = HD.RegionID

GROUP BY

R.RegionName, R.AccessToCleanWaterPercentage

ORDER BY

R.AccessToCleanWaterPercentage DESC;

* **Query 2: Identify regions where improving water quality could significantly reduce waterborne diseases.**

sql

Copy code

SELECT

R.RegionName,

WQ.ContaminantLevel,

SUM(HD.CasesReported) AS TotalCases

FROM

Regions R

JOIN

WaterSources WS ON R.RegionID = WS.RegionID

JOIN

WaterQuality WQ ON WS.SourceID = WQ.SourceID

JOIN

HealthData HD ON R.RegionID = HD.RegionID

WHERE

WQ.SafetyStatus = 'Unsafe'

GROUP BY

R.RegionName, WQ.ContaminantLevel

ORDER BY

TotalCases DESC;

* **Query 3: Determine the most common contaminants in unsafe water sources.**

sql

Copy code

SELECT

WQ.ContaminantLevel,

COUNT(\*) AS Occurrence

FROM

WaterQuality WQ

WHERE

WQ.SafetyStatus = 'Unsafe'

GROUP BY

WQ.ContaminantLevel

ORDER BY

Occurrence DESC;