SQL Assignment Summary - Farmers Insurance Dataset

This document summarizes the solutions to a 29-question SQL assignment using the Farmers Insurance dataset. Each query involved extracting, analyzing, and transforming the dataset to derive meaningful insights. Here's a brief breakdown of what was covered:

1. Retrieve all unique state names.
2. Get total farmers covered and sum insured per state, ordered by coverage.
3. Filter records for the year 2020.
4. Get records where rural population > 100,000.
5. Fetch state, district, and insured amount where sum insured > 100000.
6. Get total farmers covered and premiums for 2018 where insured land area > 5.0.
7. Calculate average insured land area for each year.
8. Get total farmers covered per district where insurance units > 0.
9. Aggregate premiums and farmers covered where sum insured > 500000.
10. Top 5 districts with highest population in 2020.
11. Districts with lowest non-zero premiums, ordered by sum insured.
12. Top 3 states and years with highest farmer-to-population ratio.
13. Create 3-letter short names for each unique state.
14. Districts where names start with 'B'.
15. State and district where district names end with 'pur'.
16. INNER JOIN to get premium per district where insurance units > 10.
17. Districts and years where max premium > 20 crores.
18. LEFT JOIN to combine population and insurance data, filter premium > 100 crores.
19. Districts where farmers covered > average across all records.
20. States where sum insured > sum insured of district with highest premium.

21. Districts where premium > average premium of most populated state.

22. Assign row number ordered by farmers covered descending.

23. Rank districts within states based on sum insured (descending).

24. Cumulative premium per district ordered by year using window function.

25. Create tables `states` and `districts` with primary/foreign key relations.

26. Add foreign key constraint to `districts` referencing `states`.

27. Update premium to 500.0 where rowID = 1.

28. Update year to 2021 where state is 'HIMACHAL PRADESH'.

29. Delete records with farmers covered < 10000 in 2020.

This set of queries covers a comprehensive range of SQL topics including:

- SELECT, WHERE, GROUP BY, ORDER BY

- Aggregation functions (SUM, AVG, MAX)

- Subqueries and nested logic

- Pattern matching using LIKE

- JOIN operations (INNER and LEFT)

- Window functions (ROW_NUMBER, RANK, SUM OVER)

- Data manipulation (UPDATE, DELETE)

- Table creation and constraint management

These exercises help demonstrate strong SQL proficiency across analytics and data engineering use cases.