```sql
25    select ct.province_name,
26    -- These case statements create columns for each type of source.
27    -- The results are aggregated and percentages are calculated
28    round (sum((case when type_of_water_source='tap_in_home'
29    then number_of_people_served else 0 end )*100 /pt.total_pop_served),0) as percentege_in_tap_in_home ,
30    round (sum((case when type_of_water_source='tap_in_home_broken'
31    then number_of_people_served else 0 end )*100 /pt.total_pop_served),0) as percentege_in_tap_in_home_broken,
32    round (sum((case when type_of_water_source='well'
33    then number_of_people_served else 0 end )*100 /pt.total_pop_served),0) as percentege_in_well,
34    round (sum((case when type_of_water_source='shared_tap'
35    then number_of_people_served else 0 end )*100 /pt.total_pop_served),0) as percentege_in_shared_tap,
36    round (sum((case when type_of_water_source='river'
37    then number_of_people_served else 0 end )*100 /pt.total_pop_served),0) as percentege_in_river
38    from combined_table ct
39    join province_totals pt
40    on ct.province_name=pt.province_name
41    group by ct.province_name
42    order by ct.province_name desc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: ⍐A

| province_name | percentege_in_tap_in_home | percentege_in_tap_in_home_broken | percentege_in_well | percentege_in_shared_tap | percentege_in_river |
|---|---|---|---|---|---|
| Sokoto | 16 | 10 | 15 | 38 | 21 |
| Kilimani | 13 | 12 | 20 | 47 | 8 |
| Hawassa | 15 | 15 | 24 | 43 | 4 |
| Amanzi | 28 | 24 | 7 | 38 | 3 |
| Akatsi | 14 | 10 | 23 | 49 | 5 |

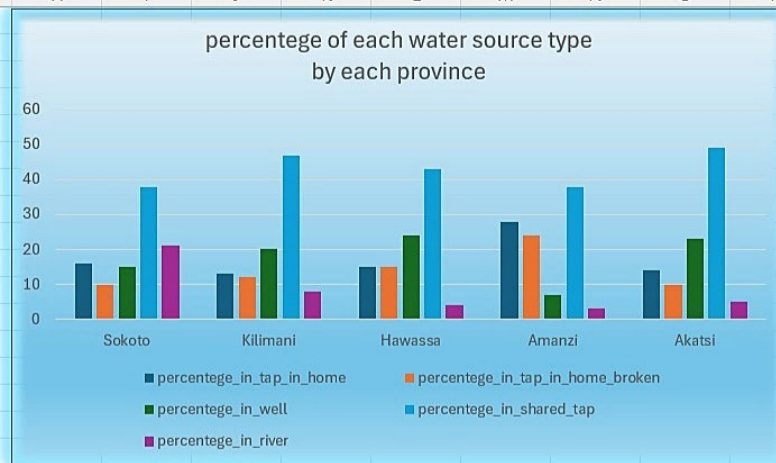Result 6 ✕                                        ℹ Read Only

```sql
1    -- TO KNOW PROVINCES AND TOWNS THAT HAVE SOURCES MORE ABUNDANT
2  • SELECT ws.type_of_water_source,ws.number_of_people_served,
3         l.province_name,l.town_name,l.location_type,v.time_in_queue,wp.results
4    FROM  visits v
5    left join well_pollution wp
6    on wp.source_id =v.source_id
7    inner join location l
8    on l.location_id=v.location_id
9    inner join water_source ws
10   on ws.source_id=v.source_id
11   -- this condition to ignore multiple locations that were visited
12     where v.visit count =1;
```

| type_of_water_source | number_of_people_served | province_name | town_name | location_type | time_in_queue | results |
|---|---|---|---|---|---|---|
| river | 402 | Sokoto | Ilanga | Urban | 15 | NULL |
| well | 252 | Kilimani | Rural | Rural | 0 | Contaminated: Biological |
| shared_tap | 542 | Hawassa | Rural | Rural | 62 | NULL |
| well | 210 | Akatsi | Lusaka | Urban | 0 | Contaminated: Biological |
| shared_tap | 2598 | Akatsi | Rural | Rural | 28 | NULL |
| river | 862 | Kilimani | Rural | Rural | 9 | NULL |
| tap_in_home_broken | 496 | Akatsi | Rural | Rural | 0 | NULL |

Result 1

```sql
1   /* So this table contains the data we need for this analysis. Now we want to analyse the data in the results set.
2     We can either create a CTE, and then query it, or in my case, I'll make it a VIEW so it is easier to share with you.
3     I'll call it the combined_table.*/
4    create view  combined_table as
5    SELECT ws.type_of_water_source,ws.number_of_people_served,
6            l.province_name,l.town_name,l.location_type,v.time_in_queue,wp.results
7   FROM  visits v
8   left join well_pollution wp
9   on wp.source_id =v.source_id
10  inner join location l
11  on l.location_id=v.location_id
12  inner join water_source ws
13  on ws.source_id=v.source_id
14  -- this condition to ignore multiple locations that were visited
15   where v.visit_count =1;
16
17  WITH province_totals AS (
18       SELECT province_name, SUM(number_of_people_served) AS total_pop_served
19       FROM combined_table  group by province_name)
20  SELECT * FROM province_totals;
21
22
23
```

| province_name | percentege | percentege | percentege | percentege | percentege_in_river |
|---|---|---|---|---|---|
| Sokoto | 16 | 10 | 15 | 38 | 21 |
| Kilimani | 13 | 12 | 20 | 47 | 8 |
| Hawassa | 15 | 15 | 24 | 43 | 4 |
| Amanzi | 28 | 24 | 7 | 38 | 3 |
| Akatsi | 14 | 10 | 23 | 49 | 5 |



percentege of each water source type by each province

Legend:
- percentege_in_tap_in_home
- percentege_in_tap_in_home_broken
- percentege_in_well
- percentege_in_shared_tap
- percentege_in_river

Table1

| province_name | town_name | Pct_broken_taps |
|---|---|---|
| Akatsi | Harare | 51 |
| Akatsi | Kintampo | 54 |
| Akatsi | Lusaka | 50 |
| Akatsi | Rural | 64 |
| Amanzi | Abidjan | 54 |
| Amanzi | Amina | 5 |
| Amanzi | Asmara | 55 |
| Amanzi | Bello | 48 |
| Amanzi | Dahabu | 98 |
| Amanzi | Pwani | 49 |
| Amanzi | Rural | 50 |
| Hawassa | Amina | 44 |
| Hawassa | Deka | 52 |
| Hawassa | Djenne | 45 |
| Hawassa | Rural | 50 |
| Hawassa | Serowe | 50 |
| Hawassa | Yaounde | 49 |
| Hawassa | Zanzibar | 56 |
| Kilimani | Amara | 61 |
| Kilimani | Harare | 60 |
| Kilimani | Isiqalo | 58 |
| Kilimani | Mrembo | 54 |
| Kilimani | Rural | 47 |
| Kilimani | Zuri | 35 |
| Sokoto | Bahari | 75 |
| Sokoto | Cheche | 74 |
| Sokoto | Ilanga | 71 |



SUM OF BROKEN TAPS BY PROVINCE NAME

Table1
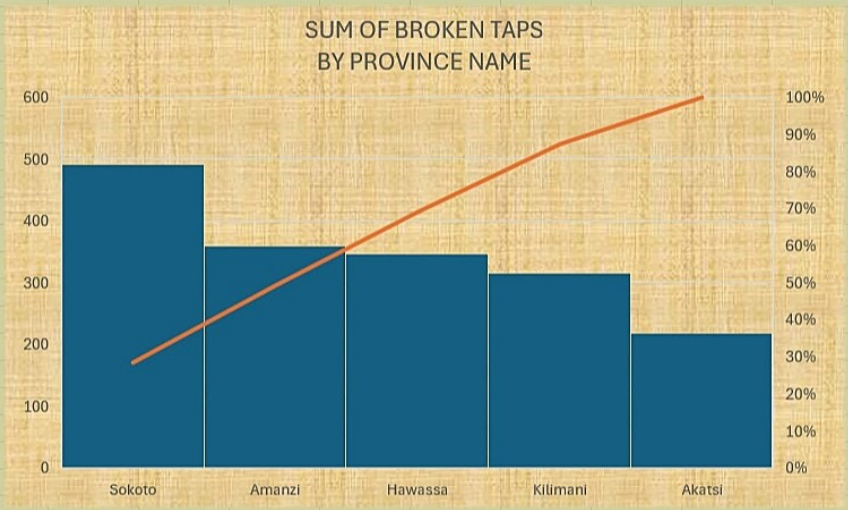
```sql
     /*this CTE calculates the population of each town
     Since there are two Harare towns, we have to group by province_name and town_name*/
WITH town_totals AS (SELECT province_name, town_name, SUM(number_of_people_served) AS total_pop_served
     FROM combined_table
     GROUP BY province_name,town_name
     )
     SELECT
     ct.province_name,
     ct.town_name,
     round (sum((case when type_of_water_source='tap_in_home'
     then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_tap_in_home ,
     round (sum((case when type_of_water_source='tap_in_home_broken'
     then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_tap_in_home_broken,
     round (sum((case when type_of_water_source='well'
     then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_well,
     round (sum((case when type_of_water_source='shared_tap'
     then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_shared_tap,
     round (sum((case when type_of_water_source='river'
     then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_river
     FROM
     combined_table ct
      /*Since the town names are not unique, we have to join on a composite key*/
      JOIN town_totals tt ON ct.province_name = tt.province_name AND ct.town_name = tt.town_name
```

```sql
17            then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_shared_tap,
18    ⊖   round (sum((case when type_of_water_source='river'
19            then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_river
20        FROM
21        combined_table ct
22         /*Since the town names are not unique, we have to join on a composite key*/
23         JOIN town_totals tt ON ct.province_name = tt.province_name AND ct.town_name = tt.town_name
24         /*We group by province first, then by town.*/
25        GROUP BY ct.province_name,ct.town_name
26        ORDER BY tt.province_name,
27        ct.town_name;
```

**Result Grid** | Filter Rows: | Export: | Wrap Cell Content: 

| province_name | town_name | percentege_in_tap_in_home | percentege_in_tap_in_home_broken | percentege_in_well | percentege_in_shared_tap | percentege_in_river |
|---|---|---|---|---|---|---|
| Akatsi | Harare | 28 | 27 | 27 | 17 | 2 |
| Akatsi | Kintampo | 31 | 26 | 26 | 15 | 2 |
| Akatsi | Lusaka | 28 | 28 | 26 | 17 | 2 |
| Akatsi | Rural | 9 | 5 | 22 | 59 | 6 |
| Amanzi | Abidjan | 22 | 19 | 4 | 53 | 2 |
| Amanzi | Amina | 3 | 56 | 9 | 24 | 8 |
| Amanzi | Asmara | 24 | 20 | 4 | 49 | 3 |
| Amanzi | Bello | 20 | 22 | 3 | 53 | 3 |
| Amanzi | Dahabu | 55 | 1 | 4 | 37 | 3 |

Result 4 ✕

Read Only

```sql
1  CREATE TEMPORARY TABLE town_aggregated_water_access
2  WITH town_totals AS (SELECT province_name, town_name, SUM(number_of_people_served) AS total_pop_served
3  FROM combined_table
4  GROUP BY province_name,town_name
5  )
6  SELECT
7  ct.province_name,
8  ct.town_name,
9  round (sum((case when type_of_water_source='tap_in_home'
10 then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_tap_in_home ,
11 round (sum((case when type_of_water_source='tap_in_home_broken'
12 then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_tap_in_home_broken,
13 round (sum((case when type_of_water_source='well'
14 then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_well,
15 round (sum((case when type_of_water_source='shared_tap'
16 then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_shared_tap,
17 round (sum((case when type_of_water_source='river'
18 then number_of_people_served else 0 end )*100 /tt.total_pop_served),0) as percentege_in_river
19 FROM
20 combined_table ct
21  /*Since the town names are not unique, we have to join on a composite key*/
22  JOIN town_totals tt ON ct.province_name = tt.province_name AND ct.town_name = tt.town_name
23  /*We group by province first, then by town.*/
```

```
21          /*Since the town names are not unique, we have to join on a composite key*/
22          JOIN town_totals tt ON ct.province_name = tt.province_name AND ct.town_name = tt.town_name
23          /*We group by province first, then by town.*/
24      GROUP BY ct.province_name,ct.town_name
25      ORDER BY tt.province_name,
26      ct.town_name;
27      -- each broken tap by province and town using temporary table
28  ●   SELECT
29      province_name,
30      town_name,
31      ROUND(percentege_in_tap_in_home / (percentege_in_tap_in_home_broken + percentege_in_tap_in_home) *100,0) AS Pct_broken_taps
32
33      FROM town_aggregated_water_access;
```

**Result Grid** | Filter Rows: | Export: | Wrap Cell Content: 𝗜A

| province_name | town_name | Pct_broken_taps |
|---|---|---|
| ▶ Akatsi | Harare | 51 |
| Akatsi | Kintampo | 54 |
| Akatsi | Lusaka | 50 |
| Akatsi | Rural | 64 |
| Amanzi | Abidjan | 54 |
| Amanzi | Amina | 5 |
| Amanzi | Asmara | 55 |
| Amanzi | Bello | 48 |

Result 3 ✕                                                          ❶ Read Only

```sql
/*We need to know if the repair is complete, and the date it was
completed, and give them space to upgrade the sources.*/
CREATE TABLE Project_progress (
Project_id SERIAL PRIMARY KEY,
source_id VARCHAR(20) NOT NULL REFERENCES water_source(source_id) ON DELETE CASCADE ON UPDATE CASCADE,
Address VARCHAR(50),
Town VARCHAR(30),
Province VARCHAR(30),
Source_type VARCHAR(50),
Improvement VARCHAR(50),
Source_status VARCHAR(50) DEFAULT 'Backlog' CHECK (Source_status IN ('Backlog', 'In progress', 'Complete')),
Date_of_completion DATE,
Comments TEXT
);
```

```
1 ● SELECT
2     location.address,
3     location.town_name,
4     location.province_name,
5     water_source.source_id,
6     water_source.type_of_water_source,
7     well_pollution.results
8   FROM
9     water_source
10  LEFT JOIN
11    well_pollution ON water_source.source_id = well_pollution.source_id
12  INNER JOIN
13    visits ON water_source.source_id = visits.source_id
14  INNER JOIN
15    location ON location.location_id = visits.location_id
```

| address | town_name | province_name | source_id | type_of_water_source | results |
|---|---|---|---|---|---|
| 61 Addis Ababa Road | Harare | Akatsi | AkHa00129224 | well | Contaminated: Biological |
| 133 Addis Ababa Road | Harare | Akatsi | AkHa00130224 | well | Clean |
| 80 Addis Ababa Road | Harare | Akatsi | AkHa00131224 | tap_in_home_broken | NULL |
| 27 Addis Ababa Road | Harare | Akatsi | AkHa00132224 | well | Contaminated: Biological |
| 136 Addis Ababa Road | Harare | Akatsi | AkHa00133224 | well | Contaminated: Chemical |

```sql
/*This query identifies water source improvements based on contamination results and type of water source.*/
select LOC.address,
LOC.province_name,
LOC.town_name,
WS.source_id,
wp.results,
WS.type_of_water_source,

case
when wp.results='Contaminated: Chemical' then 'install Ro filter'
WHEN wp.results='Contaminated: Biological' then 'install UV AND Ro filter'
WHEN WS.type_of_water_source='river' THEN 'DRILL WELL'
WHEN WS.type_of_water_source='shared_tap' AND V.time_of_record>=30
THEN concat('INSTALL' ,FLOOR(V.time_of_record>=30),'TAPSS NEARBY')
WHEN WS.type_of_water_source='tap_in_home_broken' THEN 'DIAGNOSE LOCAL INFRASTRUCTURE'
ELSE NULL
END AS IMPROVMENTS

FROM water_source WS
LEFT JOIN well_pollution wp
on wp.source_id=WS.source_id
INNER JOIN visits V
ON V.source_id =WS.source_id
```

```
19    FROM water_source WS
20    LEFT JOIN well_pollution wp
21    on wp.source_id=WS.source_id
22    INNER JOIN visits V
23    ON V.source_id =WS.source_id
24    inner JOIN location LOC
25    ON V.location_id=LOC.location_id
26    WHERE V.visit_count=1
27  ⊖ AND(wp.results !='Clean'
28    OR WS.type_of_water_source IN ('river' ,'tap_in_home_broken')
29    OR WS.type_of_water_source='shared_tap'
30    AND V.time_of_record>=30);
```

**Result Grid** | Filter Rows: [        ] | Export: | Wrap Cell Content: 𝐼A | Fetch rows:

| address | province_name | town_name | source_id | results | type_of_water_source | IMPROVMENTS |
|---|---|---|---|---|---|---|
| 36 Pwani Mchangani Road | Sokoto | Ilanga | SoIl32582224 | NULL | river | DRILL WELL |
| 129 Ziwa La Kioo Road | Kilimani | Rural | KiRu28935224 | Contaminated: Biological | well | install UV AND Ro filter |
| 18 Mlima Tazama Avenue | Hawassa | Rural | HaRu19752224 | NULL | shared_tap | INSTALL 1TAPSS NEARBY |
| 100 Mogadishu Road | Akatsi | Lusaka | AkLu01628224 | Contaminated: Biological | well | install UV AND Ro filter |
| 1 Savanna Street | Akatsi | Rural | AkRu03357224 | NULL | shared_tap | INSTALL 1TAPSS NEARBY |
| 26 Bahari Ya Faraja Road | Kilimani | Rural | KiRu29315224 | NULL | river | DRILL WELL |
| 104 Kenyatta Street | Akatsi | Rural | AkRu05234224 | NULL | tap_in_home_broken | DIAGNOSE LOCAL INFRASTRUCTURE |
| 117 Kampala Road | Hawassa | Zanzibar | HaZa21742224 | Contaminated: Chemical | well | install Ro filter |
| 12 Malaha Drive | Kilimani | Rural | KiRu26794224 | NULL | shared_tap | INSTALL 1TAPSS NEARBY |

Result 2 ×                                                                                    ℹ Read Only

```
10        inner join location l
11        on l.location_id=v.location_id
12        inner join water_source ws
13        on ws.source_id=v.source_id
14        -- this condition to ignore multiple locations that were visited
15         where v.visit_count =1;
16
17  ●  ⊖  WITH province_totals AS (
18            SELECT province_name, SUM(number_of_people_served) AS total_pop_served
19            FROM combined_table  group by province_name)
20        SELECT * FROM province_totals;
21
22
23
24
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: 

| province_name | total_pop_served |
|---|---|
| Sokoto | 5774434 |
| Kilimani | 6584764 |
| Hawassa | 3843810 |
| Akatsi | 5993306 |
| Amanzi | 5431826 |

Result Grid

Form Editor

Result 3 ✕                                Read Only