```sql
    -- Monday
    ROUND(AVG(
    CASE
    WHEN DAYNAME(time_of_record) = 'Monday' then time_in_queue
    ELSE null
    END
    ), 0) AS Monday,

    -- Tuesday
    ROUND(AVG(
    CASE
    WHEN DAYNAME(time_of_record) = 'Tuesday' then time_in_queue
    ELSE null
    END
    ), 0) AS Tuesday,

    -- Wednesday
    ROUND(AVG(
    CASE
    WHEN DAYNAME(time_of_record) = 'Wednesday' then time_in_queue
    ELSE null
    END
    ), 0) AS Wednesday,
```

```
45      -- Thursday
46      ROUND(AVG(
47      CASE
48      WHEN DAYNAME(time_of_record) = 'Thursday' then time_in_queue
49      ELSE null
50      END
51      ), 0) AS Thursday,
```

```sql
SELECT *
FROM well_pollution
WHERE
    results = "clean"
    AND
    biological > 0.01
    AND
    description LIKE "%CLEAN%"

```

```sql
-- Cleaning our data
-- Modifying the well_pollution table's data based on specific conditions

UPDATE well_pollution
SET description = "Bacteria: E. coli"
WHERE description = "Clean Bacteria: E. coli";


UPDATE well_pollution
SET description = "Bacteria: Giardia Lamblia"
WHERE description = "Clean Bacteria: Giardia Lamblia";

UPDATE well_pollution
SET results = "Contaminated Biological"
WHERE
    results = "clean"
    AND
    biological > 0.01;
```

```sql
/* We have info on all of our workers, but the email addresses have not been added.
We will have to send them reports and figures, so we need to update it.*/

UPDATE employee
SET email =
    CONCAT(LOWER(REPLACE(employee_name, ' ', '.')), '@ndogowater.gov');

SELECT *
FROM employee;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

assigned_employee_id	employee_name	phone_number	email	address	province_name	town_name	position
0	Amara Jengo	+99637993287	amara.jengo@ndogowater.gov	36 Pwani Mchangani Road	Sokoto	Ilanga	Field Surveyor
1	Bello Azibo	+99643864786	bello.azibo@ndogowater.gov	129 Ziwa La Kioo Road	Kilimani	Rural	Field Surveyor
2	Bakari Iniko	+99222599041	bakari.iniko@ndogowater.gov	18 Mlima Tazama Avenue	Hawassa	Rural	Field Surveyor
3	Malachi Mavuso	+99945849900	malachi.mavuso@ndogowater.gov	100 Mogadishu Road	Akatsi	Lusaka	Field Surveyor
4	Cheche Buhle	+99381679640	cheche.buhle@ndogowater.gov	1 Savanna Street	Akatsi	Rural	Field Surveyor
5	Zuriel Matembo	+99034075111	zuriel.matembo@ndogowater.gov	26 Bahari Ya Faraja Road	Kilimani	Rural	Field Surveyor
6	Deka Osumare	+99379364631	deka.osumare@ndogowater.gov	104 Kenyatta Street	Akatsi	Rural	Field Surveyor
7	Lalitha Kaburi	+99681623240	lalitha.kaburi@ndogowater.gov	145 Sungura Amanpour Road	Kilimani	Rural	Field Surveyor
8	Enitan Zuri	+99248509202	enitan.zuri@ndogowater.gov	117 Kampala Road	Hawassa	Zanzibar	Field Surveyor
10	Farai Nia	+99570082739	farai.nia@ndogowater.gov	33 Angélique Kidjo Avenue	Amanzi	Dahabu	Field Surveyor

```sql
-- Analysing locations
-- Focus on the province_name, town_name and location_type to understand where the water sources are in Maji Ndogo.
SELECT
    location_type,
    COUNT(*) AS Num_of_sources
FROM location
GROUP BY location_type;
```

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

location_type	Num_of_sources
Urban	15910
Rural	23740

```sql
-- Diving into the sources

-- How many people did we survey in total?
SELECT SUM(number_of_people_served) AS num_of_people_surveyed
FROM water_source;
```

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

num_of_people_surveyed
27628140

```sql
-- How many people share particular types of water sources on average?
SELECT
    type_of_water_source,
    ROUND(AVG(number_of_people_served),0) AS Avg_of_people_surveyed
FROM water_source
GROUP BY type_of_water_source;
```

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

type_of_water_source	Avg_of_people_surveyed
tap_in_home	644
tap_in_home_broken	649
well	279
shared_tap	2071
river	699

```sql
-- CTE that calculates the total number of people served by different water source types (excluding 'tap_in_home').
WITH total_people_per_source AS (
    SELECT
        type_of_water_source,
        SUM(number_of_people_served) AS population_served
    FROM water_source
    WHERE type_of_water_source <> 'tap_in_home'
    GROUP BY type_of_water_source
    )

-- along with their contribution as a percentage of a total population and ranks them by the number of people served.
SELECT
    type_of_water_source,
    population_served,
    ROUND(population_served / 27000000 * 100, 0) AS percentage_of_total,
    RANK() OVER (ORDER BY population_served DESC) AS source_rank
FROM total_people_per_source
ORDER BY source_rank;
```

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

type_of_water_source	population_served	percentage_of_total	source_rank
shared_tap	11945272	44	1
well	4841724	18	2
tap_in_home_broken	3799720	14	3
river	2362544	9	4

```sql
-- How long did the survey take?
SELECT
    MIN(time_of_record) AS start_date,
    MAX(time_of_record) AS end_date,
    DATEDIFF(MAX(time_of_record), MIN(time_of_record)) AS duration_by_days
FROM visits;

-- What is the average queue time on different days?
SELECT
    DAYNAME(time_of_record) AS day_of_week,
    ROUND(AVG(NULLIF(time_in_queue, 0))) AS avg_queue_time
FROM visits
GROUP BY DAYNAME(time_of_record)
ORDER BY FIELD(day_of_week,
                'Friday', 'Saturday', 'Sunday', 'Monday',
                'Tuesday', 'Wednesday', 'Thursday');
```

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

day_of_week	avg_queue_time
Friday	120
Saturday	246
Sunday	82
Monday	137
Tuesday	108
Wednesday	97
Thursday	105

```sql
-- Analysing of queues
-- Compare the queue times for each day, hour by hour!
SELECT TIME_FORMAT(TIME(time_of_record), '%H:00') AS hour_of_day,

-- Saturday
ROUND(AVG(
CASE
WHEN DAYNAME(time_of_record) = 'Saturday' then time_in_queue
ELSE null
END
), 0) AS Saturday,

-- Sunday
ROUND(AVG(
CASE
WHEN DAYNAME(time_of_record) = 'Sunday' then time_in_queue
ELSE null
END
), 0) AS Sunday,
```