**Note:**
These are the queries to the questions mentioned in Task 2. (Not my own)

TQ1.
What role do date parameters (days, weekday, months, season) have on the length of the effective delays ?

```
SELECT dd.dayofmonth, COUNT(fd.effective_delay_time_mv) AS delay_count,
AVG(fd.effective_delay_time_mv) AS average_effective_delay

FROM [datawarehouse].[dbo].[fact_delay] fd
INNER JOIN [datawarehouse].[dbo].[dim_date] dd
ON fd.dim_date_fk = dd.date_sk

GROUP BY dd.dayofmonth
```

```
SELECT dd.dayofweek, dd.weekday, COUNT(fd.effective_delay_time_mv) AS delay_count,
AVG(fd.effective_delay_time_mv) AS average_effective_delay

FROM [datawarehouse].[dbo].[fact_delay] fd
INNER JOIN [datawarehouse].[dbo].[dim_date] dd
ON fd.dim_date_fk = dd.date_sk

GROUP BY dd.dayofweek, dd.weekday
```

```
SELECT dd.month, dd.monthname, COUNT(fd.effective_delay_time_mv) AS delay_count,
AVG(fd.effective_delay_time_mv) AS average_effective_delay

FROM [datawarehouse].[dbo].[fact_delay] fd
INNER JOIN [datawarehouse].[dbo].[dim_date] dd
ON fd.dim_date_fk = dd.date_sk

GROUP BY dd.month, dd.monthname
```

TQ2.
What is the total delay time per weekday ?

```
SELECT WeekDay, SUM(EFFECTIVE_DELAY_TIME_MV) AS total_effective_delay_time

FROM [datawarehouse].[dbo].[fact_delay] fd INNER JOIN
[datawarehouse].[dbo].[dim_date] dd ON fd.dim_date_fk = dd.date_sk

GROUP BY WeekDay
```

AQ3.
For which delay types is there usually an overestimation/underestimation of the delay ?

```
SELECT custom.delay_code, custom.delay_description, custom.total_delays,
custom.underestimations, CAST(custom.underestimations AS FLOAT) / CAST(custom.total_delays
AS FLOAT) * 100 AS chance_of_underestimations,
custom.overestimations, CAST(custom.overestimations AS FLOAT) / CAST(custom.total_delays AS
FLOAT) * 100 AS chance_of_overestimations

FROM
(SELECT ddt.delay_code, ddt.delay_description, COUNT(fd.EFFECTIVE_DELAY_TIME_MV) AS
total_delays,

SUM(
CASE WHEN (fd.effective_delay_time_mv > fd.estimate_delay_time_mv) THEN 1 ELSE 0 END) AS
underestimations,

SUM(
CASE WHEN (fd.effective_delay_time_mv < fd.estimate_delay_time_mv) THEN 1 ELSE 0 END) AS
overestimations

FROM [datawarehouse].[dbo].[fact_delay] fd
INNER JOIN [datawarehouse].[dbo].[dim_delay_type] ddt
ON fd.dim_delay_type_fk = ddt.delay_type_sk

GROUP BY ddt.delay_code, ddt.delay_description) custom
```

TQ4.
Does the population in the country of departure affect departure delays ?

```
SELECT da.population, AVG(fd.effective_delay_time_mv) AS average_departure_delay

FROM [datawarehouse].[dbo].[fact_delay] fd
INNER JOIN [datawarehouse].[dbo].[dim_airport] da
ON fd.dim_airport_departure_fk = da.airport_sk

GROUP BY da.population
```

TQ5.
In which regions (eg. Europe, Asia ...) do the delays last the longest ?

```
SELECT da.region, AVG(fd.EFFECTIVE_DELAY_TIME_MV) AS average_delay_time

FROM [datawarehouse].[dbo].[fact_delay] fd
INNER JOIN [datawarehouse].[dbo].[dim_airport] da
ON fd.dim_airport_departure_fk = da.airport_sk

GROUP BY da.region

ON fd.dim_date_fk = dd.date_sk

WHERE year(dd.date) = 2021 AND da.country_name LIKE 'Germany'

GROUP BY dd.date, df.flight_number, da.airport_name, ddt.delay_code,
ddm.delay_moment_description
```

TQ6.
What is the impact of the flight duration (short < 3hrs, median 3-5 hrs, long >5hrs)  on the average delay duration ?

```
SELECT df.duration, AVG(fd.effective_delay_time_mv) AS "average effective delay
duration"

FROM [datawarehouse].[dbo].[fact_delay] fd
INNER JOIN
[flightmanagement].[dbo].[delay] d
ON fd.delay_id = d.id
INNER JOIN [flightmanagement].[dbo].[flight] f
ON d.flight_id = f.id
INNER JOIN [datawarehouse].[dbo].[dim_flight] df
ON df.flight_number = f.name

GROUP BY df.duration
```