Question 1: Which aircraft has flown the most?

```
SELECT
    a."Aircraft_Type",
    COUNT(*) AS Total_Flights
FROM AIRCRAFT_DATA.PUBLIC.INDIVIDUAL_FLIGHTS i
JOIN AIRCRAFT_DATA.PUBLIC.AIRCRAFT a
    ON i."Aircraft_Id" = a."Aircraft_Id"
GROUP BY
    i."Aircraft_Id",
    a."Aircraft_Type"
ORDER BY Total_Flights DESC
LIMIT 1;
```

	Aircraft_Type obj...	total_flights int64
0	Goose	1008

1 row, 2 cols 10 / page Page 1 of 1

The aircraft with the most flights is the **Goose**, with **1008 flights** in total.

Image source: Wikimedia Commons

Question 2: Which airport has transported the most passengers through it?

```sql
WITH total_flights_by_airport_and_aircraft AS (
    SELECT
        i."Departure_Airport_Code" AS Airport_Code,
        i."Aircraft_Id",
        COUNT(*) AS Total_Flights
    FROM AIRCRAFT_DATA.PUBLIC.INDIVIDUAL_FLIGHTS i
    GROUP BY
        i."Departure_Airport_Code",
        i."Aircraft_Id"
    UNION ALL
    SELECT
        i."Destination_Airport_Code" AS Airport_Code,
        i."Aircraft_Id",
        COUNT(*) AS Total_Flights
    FROM AIRCRAFT_DATA.PUBLIC.INDIVIDUAL_FLIGHTS i
    GROUP BY
        i."Destination_Airport_Code",
        i."Aircraft_Id"
),

airport_passenger_count AS (
    SELECT
        ap."Airport_Name",
        SUM(t.Total_Flights * ac."Capacity") AS Total_Passengers
    FROM total_flights_by_airport_and_aircraft t
    JOIN AIRCRAFT_DATA.PUBLIC.AIRCRAFT ac
        ON t."Aircraft_Id" = ac."Aircraft_Id"
    JOIN AIRCRAFT_DATA.PUBLIC.AIRPORTS ap
        ON t.Airport_Code = ap."Airport_Code"
    GROUP BY
        ap."Airport_Name"
)

SELECT
    "Airport_Name",
    Total_Passengers
FROM airport_passenger_count
ORDER BY Total_Passengers DESC
LIMIT 1;
```

	Airport_Name ob...	total_passengers i.
0	Amazon Mothers...	2423400

1 row, 2 cols 10 / page Page 1 of 1

The airport with the most passengers passing through is the **Amazon Mothership**, which has welcomed a total of **2,423,400 passengers**.

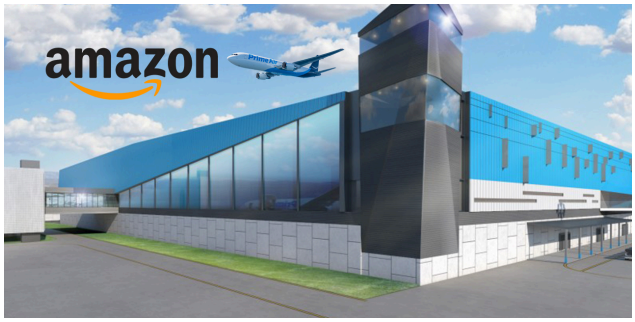

Image source: Amazon.co.uk

Question 3: What was the best year for Revenue Passenger-Miles for each airline?

```sql
WITH rpm_by_airline AS (
    SELECT
        "Airline_Code",
        DATE_TRUNC('YEAR', TO_DATE("Date", 'DD/MM/YYYY')) AS Year,
        SUM(COALESCE("RPM_Domestic", 0)) AS Total_Domestic_RPM,
        SUM(COALESCE("RPM_International", 0)) AS Total_International_RPM,
        SUM(COALESCE("RPM_Domestic", 0) + COALESCE("RPM_International", 0)) AS Total_RPM
    FROM AIRCRAFT_DATA.PUBLIC.FLIGHT_SUMMARY_DATA
    GROUP BY
        "Airline_Code",
        Year
),

ranked_rpm AS (
    SELECT
        "Airline_Code",
        Year,
        Total_Domestic_RPM,
        Total_International_RPM,
        Total_RPM,
        ROW_NUMBER() OVER(PARTITION BY "Airline_Code" ORDER BY Total_Domestic_RPM DESC) AS Domestic_RPM_Rank,
        ROW_NUMBER() OVER(PARTITION BY "Airline_Code" ORDER BY Total_International_RPM DESC) AS International_RPM_Rank,
        ROW_NUMBER() OVER(PARTITION BY "Airline_Code" ORDER BY Total_RPM DESC) AS Total_RPM_Rank
    FROM rpm_by_airline
),

best_rpm_years AS (
    SELECT
        "Airline_Code",
        MAX(CASE WHEN Domestic_RPM_Rank = 1 THEN Year END) AS Best_Domestic_Year,
        MAX(CASE WHEN International_RPM_Rank = 1 THEN Year END) AS Best_International_Year,
        MAX(CASE WHEN Total_RPM_Rank = 1 THEN Year END) AS Best_Total_RPM_Year
    FROM ranked_rpm
    GROUP BY "Airline_Code"
)

SELECT
    a."Airline_Name",
    b.Best_Domestic_Year,
    b.Best_International_Year,
    b.Best_Total_RPM_Year
FROM best_rpm_years b
JOIN AIRCRAFT_DATA.PUBLIC.AIRLINES a
    ON b."Airline_Code" = a."Airline_Code"
ORDER BY b."Airline_Code";
```

	Airline_Name obj...	best_domestic_y...	best_internation...	best_total_rpm_y...
0	Amazon Airlines	2015-01-01	2016-01-01	2015-01-01
1	Flock Air	2016-01-01	2016-01-01	2016-01-01
2	Goose Airways	2016-01-01	2015-01-01	2016-01-01

3 rows, 4 cols 10 / page Page 1 of 1

Overall, the best years for Revenue-Passenger-Miles were **2015** and **2016**.

Image source: Wikimedia Commons

Question 4: What was the best year for growth for each airline?

```sql
-- For simplicity and because it seems to be the one providing the best answer,
-- we will use ASM as our growth indicator,
-- and the more ASM an airline has over time, the more we will say they grew.

-- To calculate the growth we will take the AVG(ASM_Domestic) per Airline per Year.

WITH asm_by_year AS (
    SELECT
    "Airline_Code",
    DATE_TRUNC('YEAR', TO_DATE("Date", 'DD/MM/YYYY')) AS Year,
    AVG("ASM_Domestic") AS Avg_ASM_Domestic,
    RANK() OVER(PARTITION BY "Airline_Code" ORDER BY AVG("ASM_Domestic") DESC) AS Rank
FROM
    AIRCRAFT_DATA.PUBLIC.FLIGHT_SUMMARY_DATA
GROUP BY
    "Airline_Code",
    Year
),

best_asm_airline AS (
    SELECT
        ay."Airline_Code",
        al."Airline_Name",
        ay.Year,
        ay.Avg_ASM_Domestic AS Max_ASM
    FROM
        asm_by_year ay
    JOIN AIRCRAFT_DATA.PUBLIC.AIRLINES al
        ON ay."Airline_Code" = al."Airline_Code"
    WHERE
        ay.Rank = 1
    ORDER BY
        ay."Airline_Code"
)

SELECT
    "Airline_Name",
    Year AS Best_Year,
    ROUND(Max_ASM, 0) AS Best_Domestic_ASM
FROM
    best_asm_airline
ORDER BY
    Best_Domestic_ASM DESC;
```

	Airline_Name obj...	best_year object	best_domestic_a...
0	Goose Airways	2016-01-01	1100640
1	Flock Air	2016-01-01	427255
2	Amazon Airlines	2002-01-01	315931

3 rows, 3 cols 10 / page Page 1 of 1

The best year for growth, as measured by domestic Available Seat Miles (ASM), was **2016** for both Goose Airways and Flock Air. In contrast, Amazon Airlines reached its growth peak much earlier, in **2002**.

Among these airlines, Goose Airways had the most remarkable year for growth, achieving a domestic ASM of **1,100,640** in 2016. This figure was more than double Flock Air's peak ASM in the same year and triple Amazon Airlines' peak in 2002.

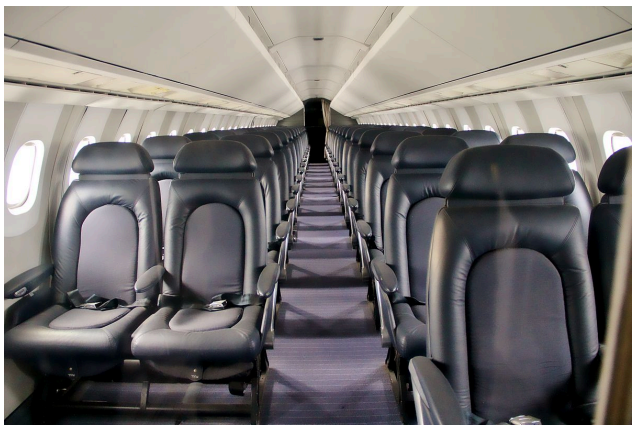

Image source: Wikimedia Commons