**SQL Queries for Titanic Survival Analysis**

This section includes SQL queries designed to analyze survival rates based on passenger class, age groups, gender, and other factors. The queries provide insights into how various factors influenced the likelihood of survival on the Titanic.

**1. View the overall survival rate**

* This query calculates the total number of passengers and survivors.
* It computes the overall survival rate as a percentage.
* Helps understand the general survival trend of the Titanic voyage.

SELECT

COUNT(\*) AS Total\_Passengers,

SUM(CASE WHEN Survived = 1 THEN 1 ELSE 0 END) AS Survived,

(SUM(CASE WHEN Survived = 1 THEN 1 ELSE 0 END) \* 100.0 / COUNT(\*)) AS Survival\_Rate

FROM Titanic;

**2. Analyze survival rate by passenger class**

* This query calculates survival rates for passengers segmented by class.
* It reveals the survival disparities between 1st, 2nd, and 3rd class.
* Helps understand how class affected the likelihood of survival.

SELECT

Pclass,

COUNT(\*) AS Total\_Passengers,

SUM(CASE WHEN Survived = 1 THEN 1 ELSE 0 END) AS Survived,

(SUM(CASE WHEN Survived = 1 THEN 1 ELSE 0 END) \* 100.0 / COUNT(\*)) AS Survival\_Rate

FROM Titanic

GROUP BY Pclass

ORDER BY Pclass;

**3. Analyze survival rate by age groups within each passenger class**

* This query groups passengers by age and calculates survival rates.
* It identifies vulnerable age categories and compares survival rates by class.
* Helps to understand age-related survival trends within each class.

SELECT

Pclass,

CASE

WHEN Age < 18 THEN 'Child'

WHEN Age >= 18 AND Age <= 60 THEN 'Adult'

WHEN Age > 60 THEN 'Senior'

ELSE 'Unknown'

END AS Age\_Group,

COUNT(\*) AS Total\_Passengers,

SUM(CASE WHEN Survived = 1 THEN 1 ELSE 0 END) AS Survived,

(SUM(CASE WHEN Survived = 1 THEN 1 ELSE 0 END) \* 100.0 / COUNT(\*)) AS Survival\_Rate

FROM Titanic

GROUP BY Pclass, Age\_Group

ORDER BY Pclass, Age\_Group;

**4. Calculate survival rate for children (under 18) by class**

* This query focuses on passengers under 18 years old, calculating their survival rate.
* It compares survival trends for children across different passenger classes.
* Identifies survival rates specifically for children based on class.

SELECT

Pclass,

COUNT(\*) AS Total\_Children,

SUM(CASE WHEN Survived = 1 AND Age < 18 THEN 1 ELSE 0 END) AS Survived\_Children,

(SUM(CASE WHEN Survived = 1 AND Age < 18 THEN 1 ELSE 0 END) \* 100.0 / COUNT(\*)) AS Survival\_Rate\_Children

FROM Titanic

WHERE Age < 18

GROUP BY Pclass

ORDER BY Pclass;

**5. Calculate survival rate for seniors (over 60) by class**

* This query focuses on passengers over 60 years old, calculating their survival rate.
* It shows how seniors were affected by the disaster in terms of survival by class.
* Helps understand the survival patterns for seniors based on class.

SELECT

Pclass,

COUNT(\*) AS Total\_Seniors,

SUM(CASE WHEN Survived = 1 AND Age > 60 THEN 1 ELSE 0 END) AS Survived\_Seniors,

(SUM(CASE WHEN Survived = 1 AND Age > 60 THEN 1 ELSE 0 END) \* 100.0 / COUNT(\*)) AS Survival\_Rate\_Seniors

FROM Titanic

WHERE Age > 60

GROUP BY Pclass

ORDER BY Pclass;

**6. Find the number of survivors by gender and class**

* This query calculates survival rates broken down by gender and class.
* It helps understand gender-based survival trends across passenger classes.
* Useful for analyzing how gender influenced survival rates in relation to class.

SELECT

Pclass,

Sex,

COUNT(\*) AS Total\_Passengers,

SUM(CASE WHEN Survived = 1 THEN 1 ELSE 0 END) AS Survived,

(SUM(CASE WHEN Survived = 1 THEN 1 ELSE 0 END) \* 100.0 / COUNT(\*)) AS Survival\_Rate

FROM Titanic

GROUP BY Pclass, Sex

ORDER BY Pclass, Sex;

**7. Determine the number of survivors and their average age in each class**

* This query calculates the average age of passengers and their survival rate per class.
* Helps analyze the relationship between age and survival in different classes.
* Provides insights into how age impacts survival outcomes across passenger classes.

SELECT

Pclass,

AVG(Age) AS Average\_Age,

COUNT(\*) AS Total\_Passengers,

SUM(CASE WHEN Survived = 1 THEN 1 ELSE 0 END) AS Survived,

(SUM(CASE WHEN Survived = 1 THEN 1 ELSE 0 END) \* 100.0 / COUNT(\*)) AS Survival\_Rate

FROM Titanic

GROUP BY Pclass

ORDER BY Pclass;