# JOINS

Join is an operation that combines rows from two or more tables based on a related column or set of columns. It allows you to retrieve data from multiple tables simultaneously, producing a single result set that combines information from the joined tables. Joins are fundamental in relational database systems and are used to establish relationships between tables, enabling data retrieval and analysis across interconnected data sets.

## INNER JOIN

The INNER JOIN keyword selects all rows from both the tables as long as the condition is satisfied. This keyword will create the result-set by combining all rows from both the tables where the condition satisfies i.e value of the common field will be the same.

## LEFT JOIN

This join returns all the rows of the table on the left side of the join and matches rows for the table on the right side of the join. For the rows for which there is no matching row on the right side, the result-set will contain null. LEFT JOIN is also known as LEFT OUTER JOIN.

## FULL JOIN

FULL JOIN creates the result-set by combining results of both LEFT JOIN and RIGHT JOIN. The result-set will contain all the rows from both tables. For the rows for which there is no matching, the result-set will contain NULL values

Use cases of joins in realtime application:

* Real-time Analytics: In applications dealing with large volumes of data generated in real time, such as social media platforms, IoT devices, or financial trading systems, joins are used to aggregate and correlate data from different streams to produce real-time analytics and visualizations.
* E-commerce and Recommendations: E-commerce platforms often use joins to combine customer data, purchase history, and product information to provide personalized recommendations and real-time product suggestions.
* Monitoring and Alerting: In monitoring systems, joins are employed to correlate data from multiple sensors or devices to detect anomalies, trigger alerts, and initiate appropriate actions in real time. This is commonly seen in network monitoring, server health monitoring, and industrial process control.
* Customer Support and CRM: Real-time customer support applications utilize joins to merge customer profiles, purchase history, and support ticket data, enabling customer service representatives to access comprehensive information while interacting with customers.
* Social Media and Content Personalization: Social media platforms use joins to bring together user profiles, friend connections, content preferences, and trending topics to personalize the content shown in real time to users.
* Financial Data Analysis: In financial applications, joins are used to combine data from multiple sources, such as stock market feeds, economic indicators, and company financials, to generate real-time insights for trading decisions and risk analysis.
* Online Gaming and Multiplayer Interaction: Real-time online games use joins to synchronize player data, interactions, and game state, allowing for smooth multiplayer experiences and real-time interactions among players.
* Supply Chain Management: In supply chain applications, joins help connect data from various stages of the supply chain, such as inventory levels, shipping status, and demand forecasts, enabling real-time tracking and optimization of the supply chain processes.
* Internet of Things (IoT) Integration: IoT applications utilize joins to integrate data from diverse IoT devices and sensors, enabling real-time monitoring, data analysis, and automation in various domains like smart homes, smart cities, and industrial IoT.