

SQL Tutorial

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Alias in SQL

Alias concept is used in SQL to give temporary name to the table or the column of the table

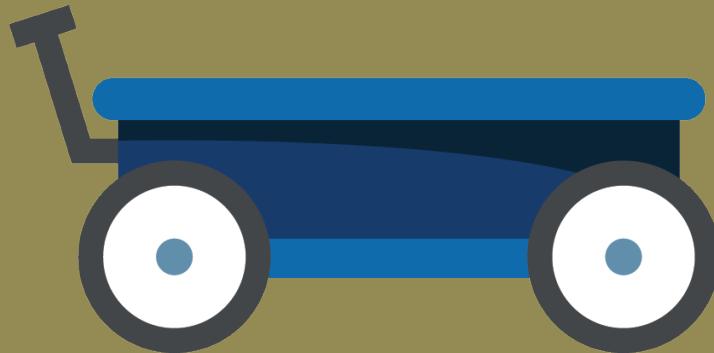




Joins In SQL

What is join in SQL?

A JOIN concept which is basically a clause used to combine rows from different tables based on a condition



Types of join in SQL

Types of join in SQL

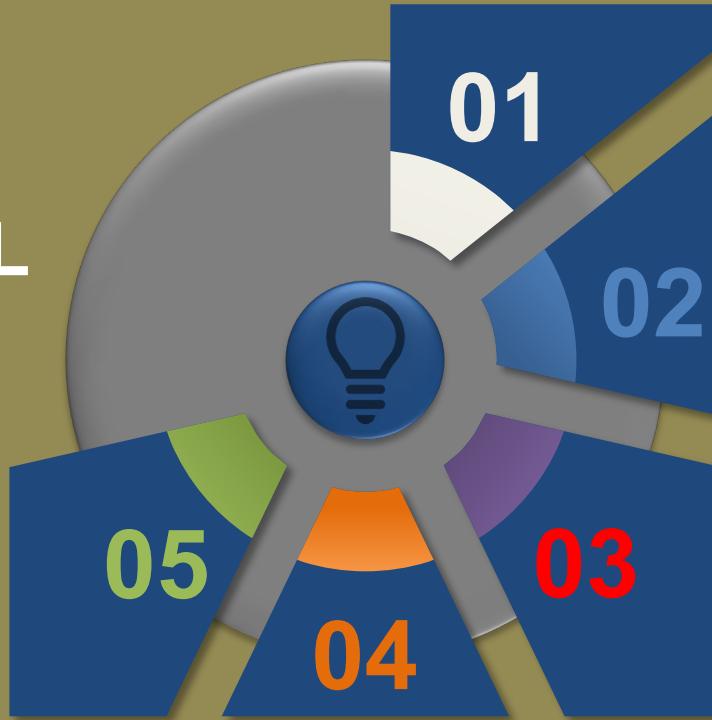
SELF JOIN

INNER JOIN

LEFT JOIN

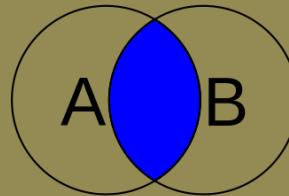
RIGHT JOIN

FULL JOIN

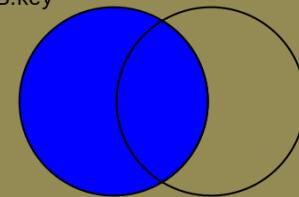


Types of join in SQL?

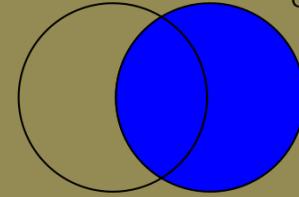
SELECT <fields>
FROM TableA A
INNER JOIN TableB B
ON A.key = B.key



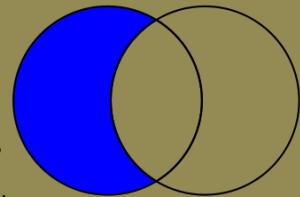
SELECT <fields>
FROM TableA A
LEFT JOIN TableB B
ON A.key = B.key



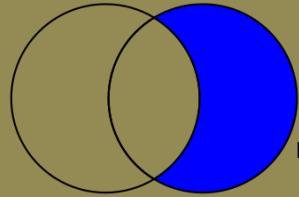
SELECT <fields>
FROM TableA A
RIGHT JOIN TableB B
ON A.key = B.key



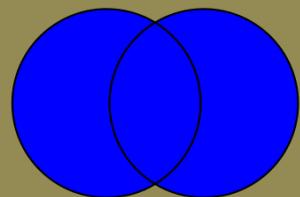
SELECT <fields>
FROM TableA A
LEFT JOIN TableB B
ON A.key = B.key
WHERE B.key IS NULL



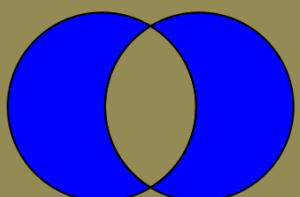
SELECT <fields>
FROM TableA A
RIGHT JOIN TableB B
ON A.key = B.key
WHERE A.key IS NULL



SELECT <fields>
FROM TableA A
FULL OUTER JOIN TableB B
ON A.key = B.key

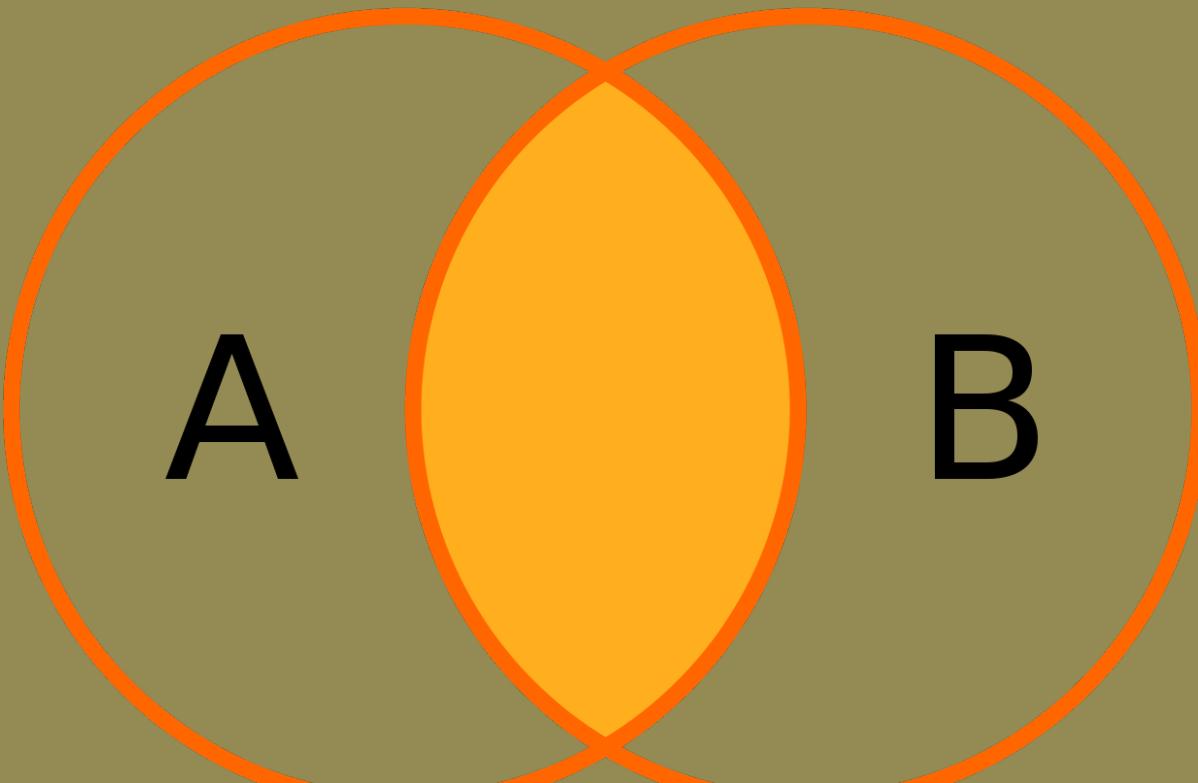


SELECT <fields>
FROM TableA A
FULL OUTER JOIN TableB B
ON A.key = B.key



INNER JOIN

The INNER JOIN helps to select the matching records from the both tables

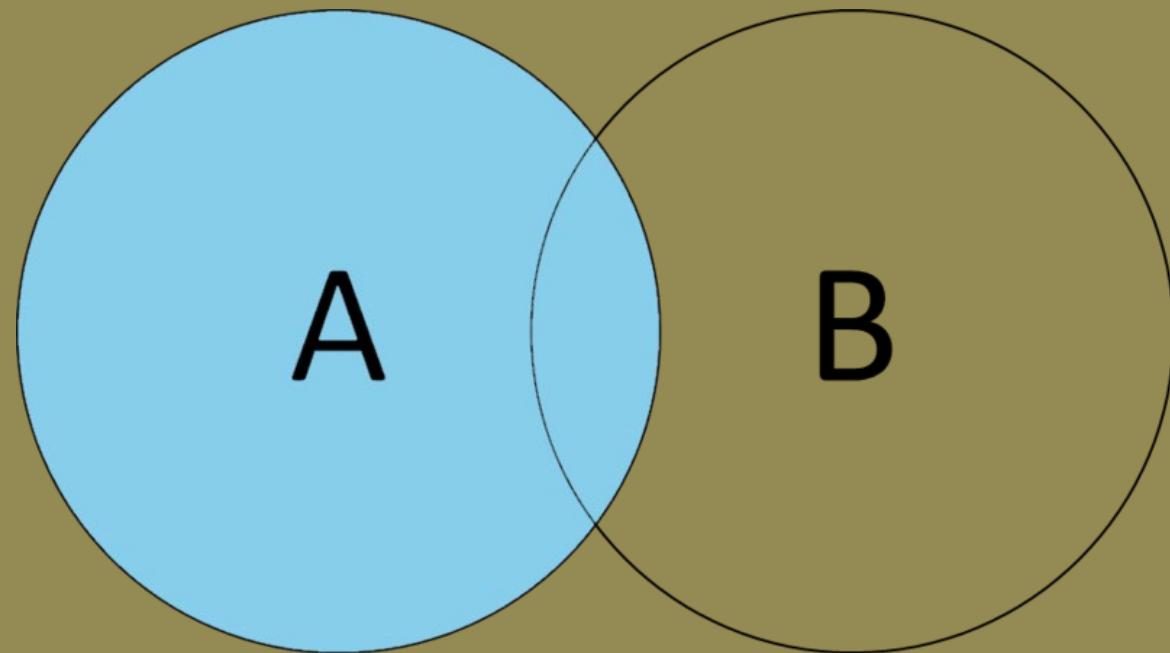




Demo for Inner join In SQL

LEFT JOIN

The LEFT JOIN helps to fetch all records from the left table and the matching records from the right table

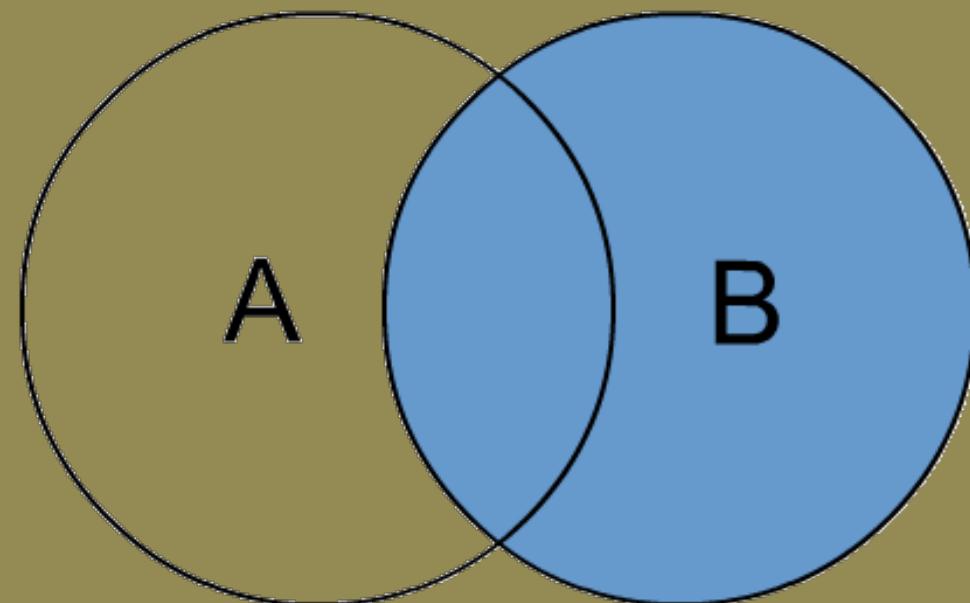




Demo for LEFT join In SQL

RIGHT JOIN

The **RIGHT JOIN** helps to fetch all records from the right table and the matched records from the left table

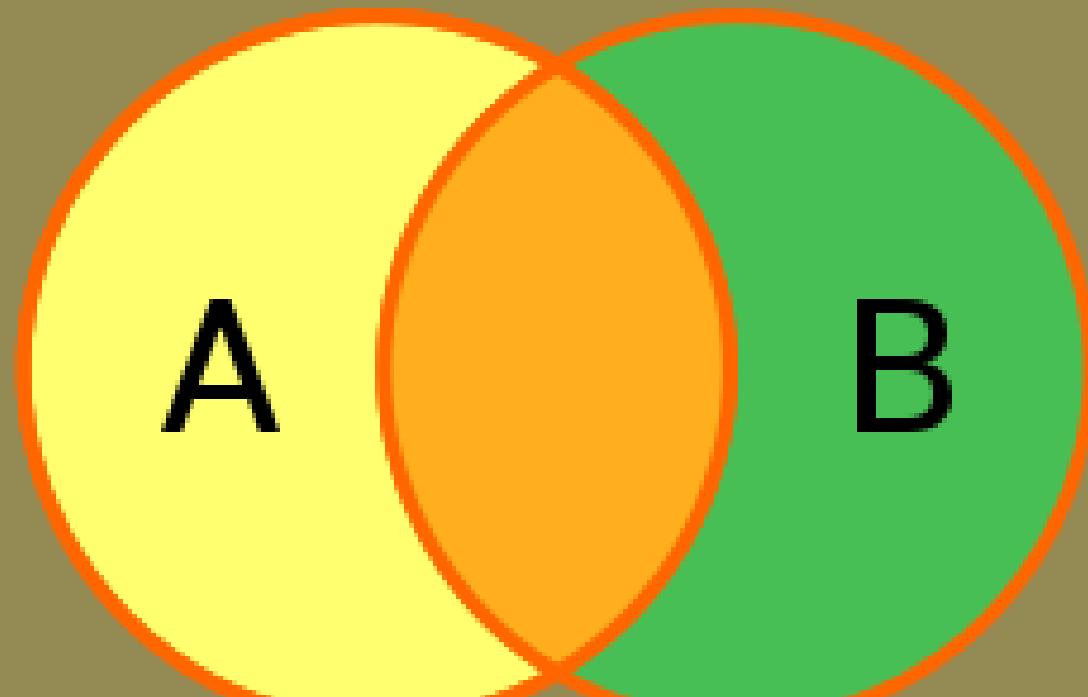




Demo for RIGHT join In SQL

FULL JOIN

The FULL OUTER JOIN helps to fetch all the records from both the table whether there is a match or not





Demo for FULL join In SQL

SELF JOIN

A self helps to join with itself

Table join with itself



Demo for SELF join In SQL



Group by and Having concept in SQL

Group By

Group by statement helps to groups rows which has similar properties

Most of the time group by function is used
with aggregate function like: count, MAX,
MIN etc.

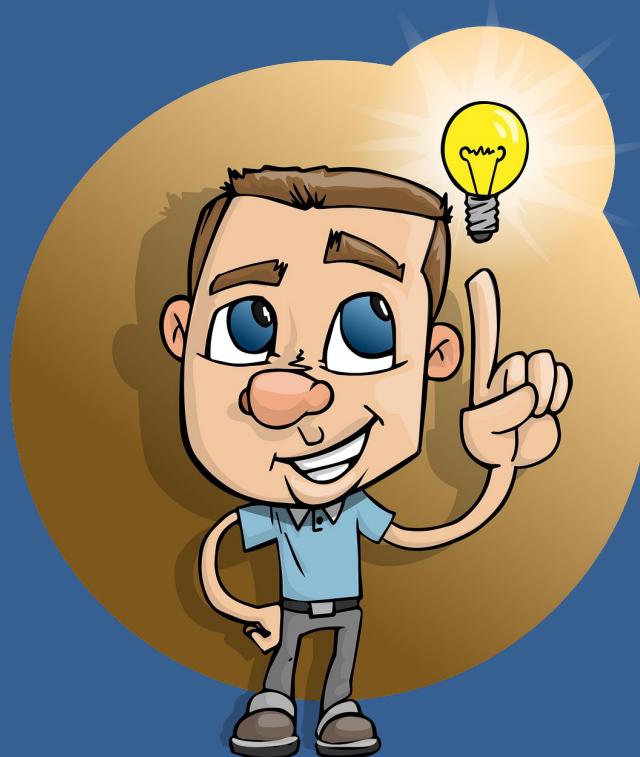




Demo for Group by statement

Having Clause

Having clause has an important role in SQL when we use any aggregate function we can not use where clause and instead of that we use having clause





Demo for Having Clause

Order By

Order by command is used to sort the data in an ascending order or in a descending order

- By default order by sorts the data into ascending order
- And to sort the data into descending order need to use desc keyword

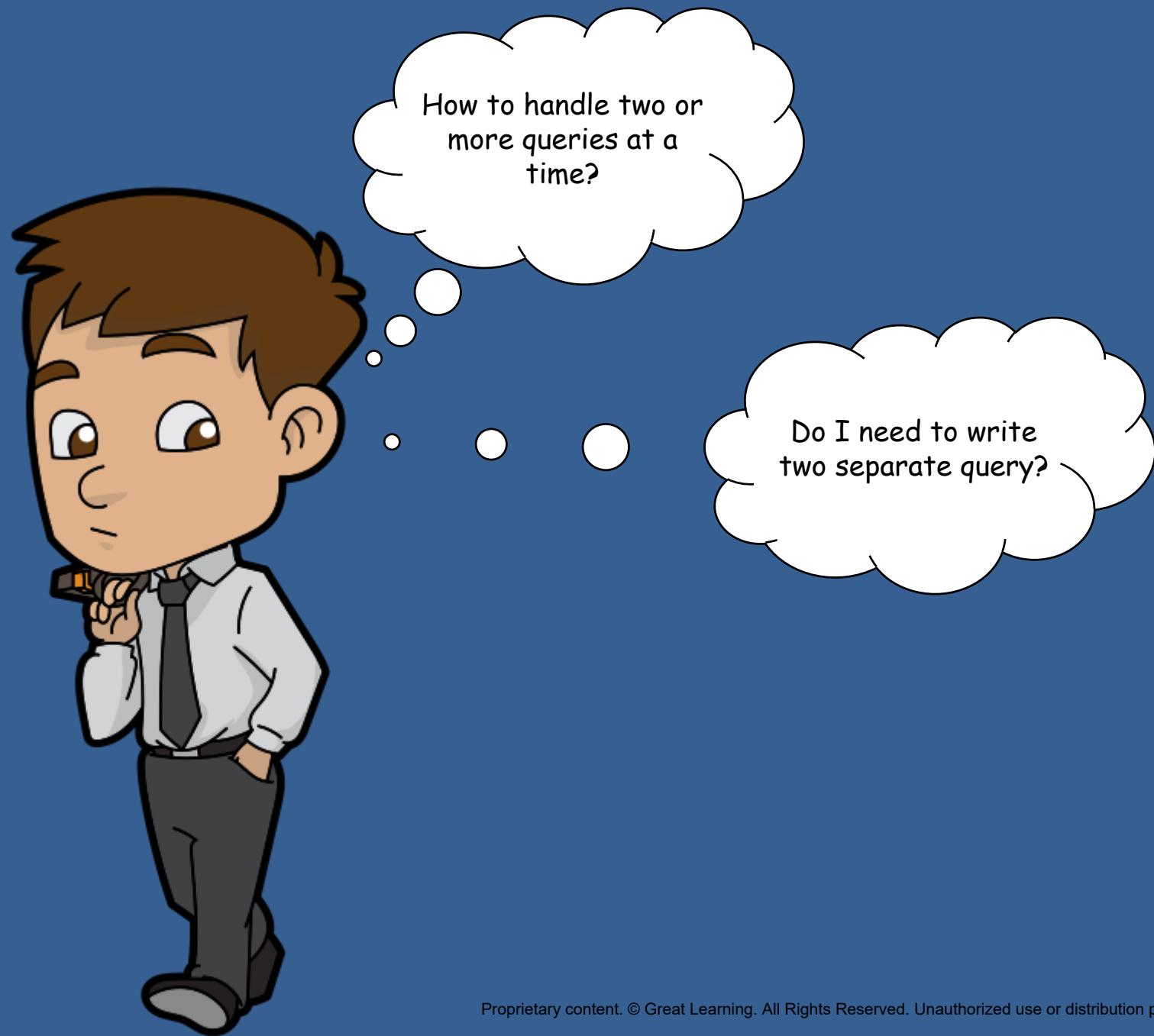




Demo for Order by statement

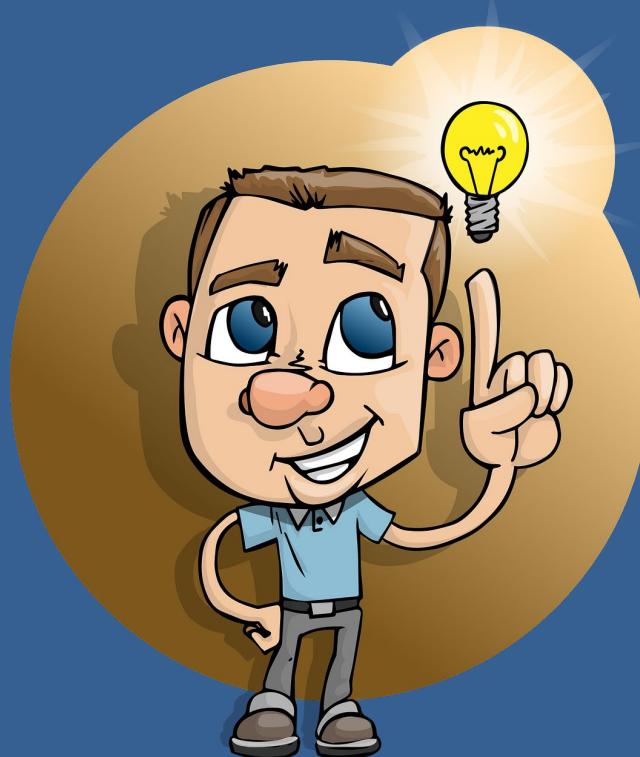


Subquery in SQL

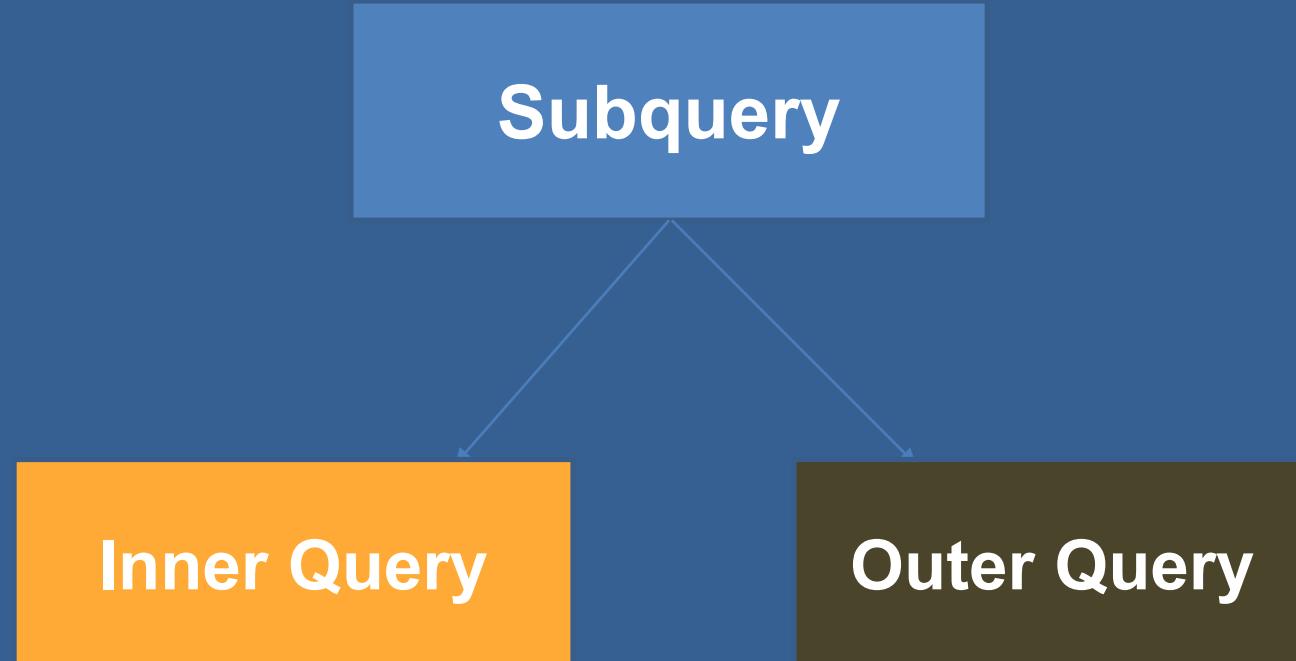


What is subquery?

Subquery is a SQL command which is nothing but select query that contain another query inside



How many parts are there in a subquery?



How subquery executes?

First inner query get executed



Get the result from inner query



Output of inner query added to the outer query



Outer query will get executed to get the final
result



Types of subquery

- **Nested subquery:** Nested subquery first executes the inner SELECT query and then with the returning values executes the outer query
- **Correlated subquery:** A correlated subquery reads every row in a table and comparing values in each row against related data





Demo for Subqueries

Subquery Vs join

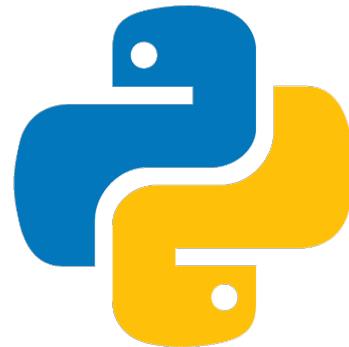
Topic	Subquery	Join
Description	A Subquery or Inner query or Nested query is also a query within SQL query and comes after the WHERE clause	A join is nothing but a query which combines records from different tables
Handling complex queries	Subqueries break the complex query into isolated parts in order to make a complex query into a series of logical steps.	Fetching data using join concept is faster
Code maintenance	Easy to understand and code maintenance is also at ease.	Joins are not easy to read like subqueries
Result	Subqueries help or allow to use the results of another query in the outer query.	As we have different types of joins so it is difficult to understand which one will give you the proper result
Optimizer	Subquery is easier to work with but optimization is not good	Join is the good optimizer by server



SQL with Python

Introduction to Python

Python is a popular high level, object oriented and interpreted language

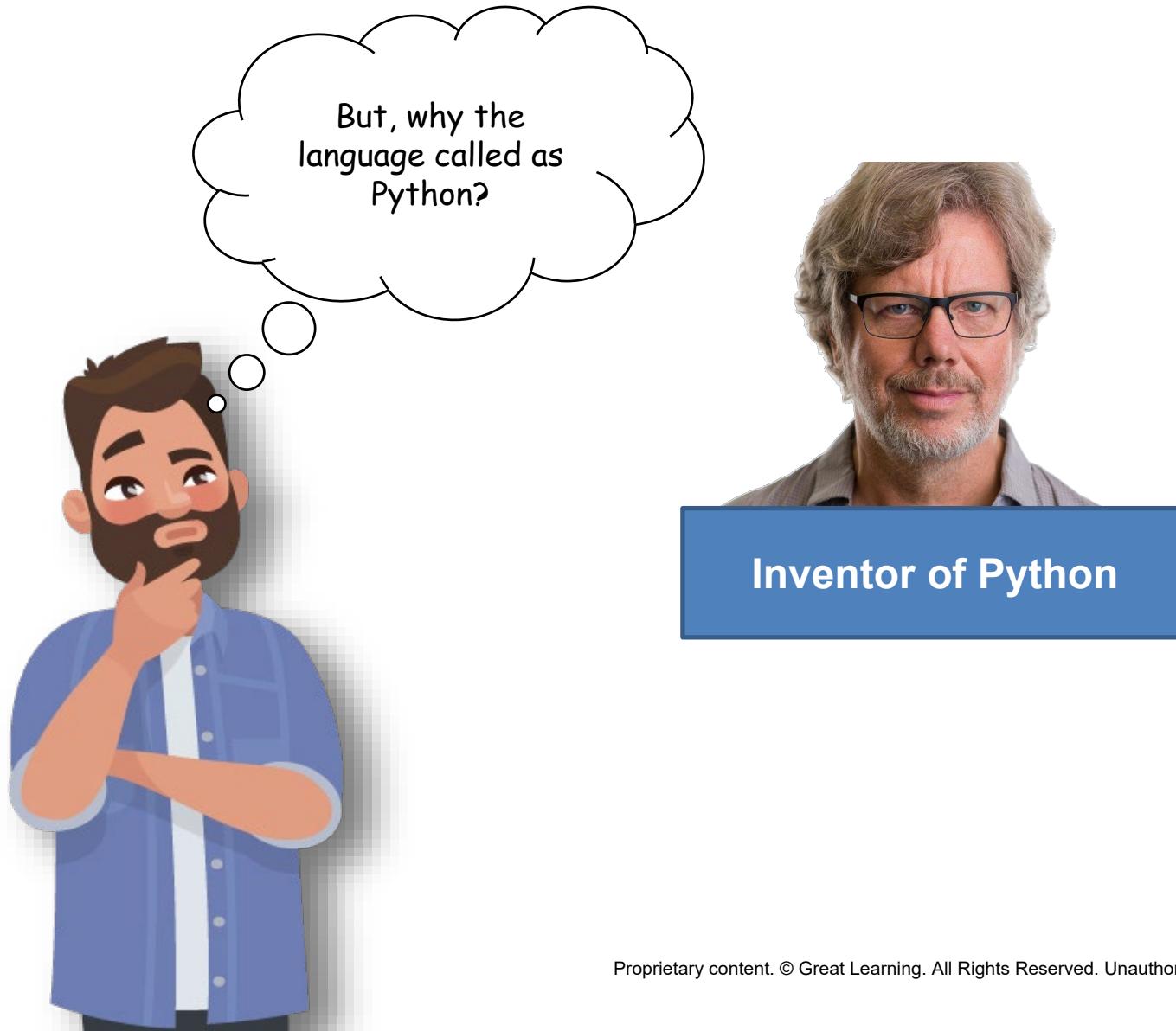


High level

Interpreted

Object oriented

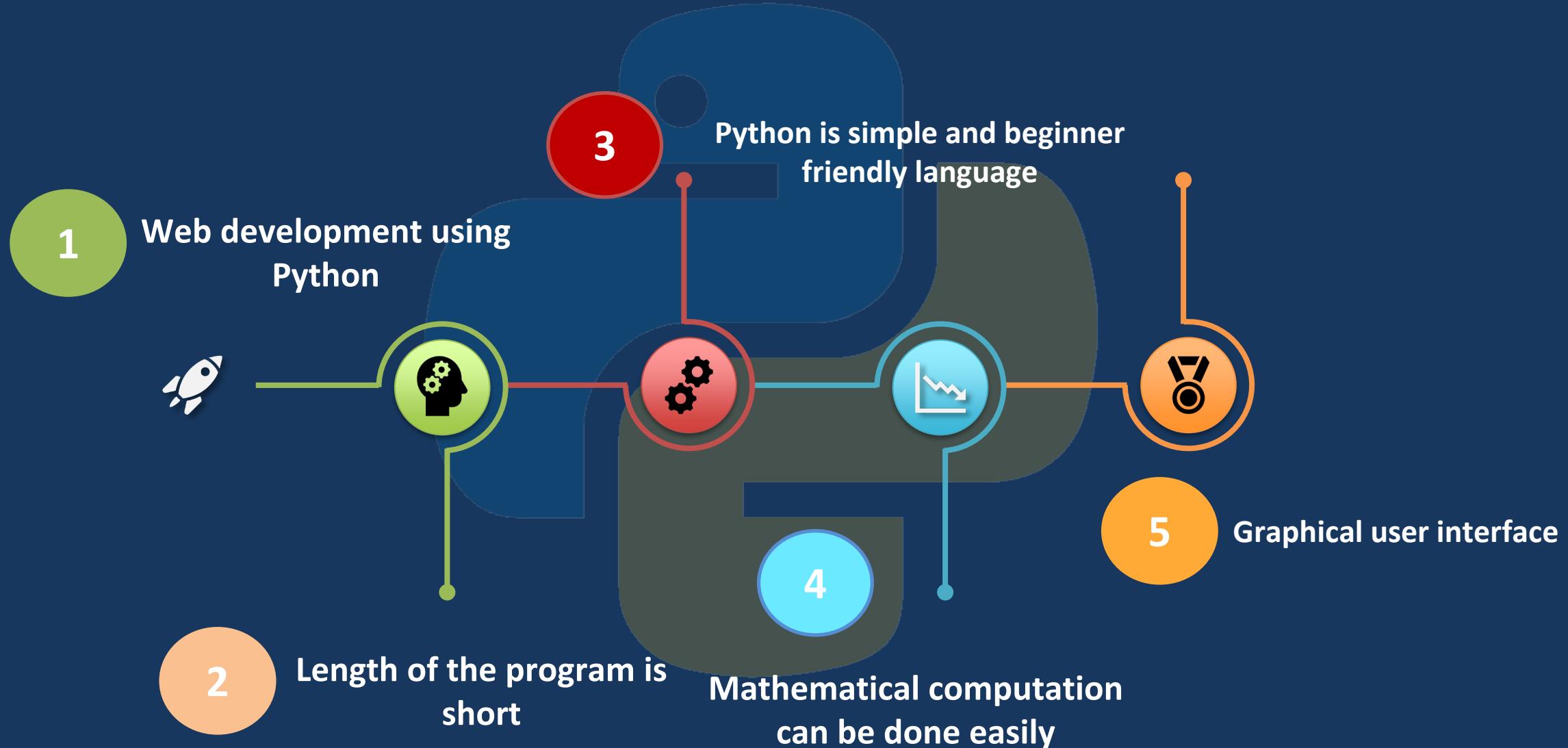
History of Python



Important Facts

- Python is invented by Guido van Rossum in 1989
- Rossum used to love watching comedy movies from late seventies
- He needed a short, unique, and slightly mysterious name for his language
- In that time he was watching Monty Python's Flying Circus and from that series he decided to keep his language name python.
- This how Python invented

Why should you learn Python?



Why Python is so popular?

1

Largest community for Learners and Collaborators

2

Open source

3

Easy to learn and usable flexibility

4

Huge numbers of Python libraries and Frame work

5

Supports Big Data, Machine Learning and Cloud computing

6

Supports Automation

Installing Python

This is the site to install Python -> <https://www.python.org/downloads/>

The screenshot shows the Python.org homepage with a focus on the Mac OS X download section. At the top, the Python logo and navigation links (About, Downloads, Documentation, Community, Success Stories, News, Events) are visible. A search bar and social media links are also present. The main content area features a large yellow call-to-action button labeled "Download Python 3.8.3". Below it, text directs users to "Windows", "Linux/UNIX", "Mac OS X", and "Other" versions. It also mentions "Prereleases" and "Docker images" for testing development versions. A graphic of two boxes descending from the sky on parachutes is positioned to the right of the text. At the bottom, a note about Python 2.7 specific releases is shown.

python™

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Want to help test development versions of Python? [Prereleases](#), [Docker images](#)

Looking for Python 2.7? See below for specific releases

Popular IDE for Python: Pycharm

Site to install Python ->

<https://www.jetbrains.com/pycharm/download/#section=mac>

The screenshot shows the official PyCharm download page. At the top, there's a navigation bar with 'PyCharm' on the left, followed by links for 'Coming in 2020.2', 'What's New', 'Features', 'Learning Center', 'Buy', and a prominent blue 'Download' button. Below the navigation, there's a large image of the PyCharm logo (a stylized 'PC' inside overlapping green and yellow hexagons). To the right of the logo, the text 'Download PyCharm' is displayed above two sections: 'Professional' and 'Community'. The 'Professional' section is described as 'For both Scientific and Web Python development. With HTML, JS, and SQL support.' It features a 'Download' button (blue), a 'Free trial' link, and a note about system requirements. The 'Community' section is described as 'For pure Python development' and features a 'Download' button (dark grey), a 'Free, open-source' link, and a note about being 'free, open-source'. At the bottom of the page, there's a call-to-action box with the text 'Get the Toolbox App to download PyCharm and its future updates with ease' next to an icon of a smartphone. On the far right, there's a dark sidebar with a cookie consent message and a footer note about root access.

Version: 2020.1.2
Build: 201.7846.77
3 June 2020

System requirements
Installation Instructions
Other versions

Windows Mac Linux

Professional

For both Scientific and Web Python development. With HTML, JS, and SQL support.

Download

Free trial

Community

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Download

Free, open-source

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[Y]es, I agree [N]o, thanks
~ root#

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Popular IDE for Python: Anaconda

Anaconda installation site->

<https://www.anaconda.com/products/individual>



Individual Edition

Your data science toolkit

With over 20 million users worldwide, the open-source Individual Edition (Distribution) is the easiest way to perform Python/R data science and machine learning on a single machine. Developed for solo practitioners, it is the toolkit that equips you to work with thousands of open-source packages and libraries.

Download

Popular IDE for Python: Google colab

Google collaboratory link->

<https://colab.research.google.com/notebooks/intro.ipynb>

The screenshot shows the Google Colaboratory interface. On the left, there's a sidebar titled "Table of contents" with sections like "Getting started", "Data science", "Machine learning", "More Resources", "Machine Learning Examples", and "Section". The main content area has a title "What is Colaboratory?" with a sub-section "Getting started". It includes a bulleted list of benefits: "Zero configuration required", "Free access to GPUs", and "Easy sharing". Below this, it says "Whether you're a student, a data scientist or an AI researcher, Colab can make your work easier. Watch [Introduction to Colab](#) to learn more, or just get started below!". At the bottom, there's a code cell with the following Python script:

```
[ ] seconds_in_a_day = 24 * 60 * 60
seconds_in_a_day
```

Output: 86400

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SQL with Python

Thank You