



Join us to learn more about:

- Building data access layers in Python
- Building applications on NoSQL databases
- Exposing Python methods with RESTful APIs





HANDS-ON WORKSHOP

› Get Started on Python and NoSQL with Apache Cassandra

FEBRUARY 8, WEDNESDAY

8 AM PT | 11 AM EST | 5 PM CET | 9.30 PM IST



Sarma Pydipally



Aaron Ploetz

DATASTAX

DEVELOPERS

Hands-on Workshops

Get Started with Python and NoSQL with Apache Cassandra



pythonTM

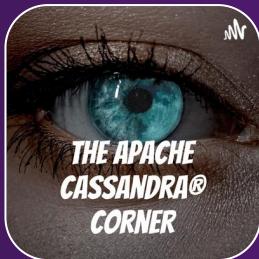


cassandra

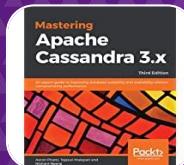
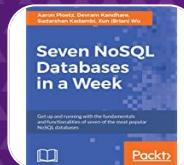
DATASTAX



Aaron Ploetz Developer Advocate



- 3x Cassandra MVP
- Former SWE/DevOps/DBA Lead @ **GRAINGER** & **TARGET**®
- Host - Apache Cassandra Corner podcast
- Worked as an author on:
Mastering Apache Cassandra 3.x
Seven NoSQL Databases in a Week





Sarma Pydipally

Special Guest



@sarma-pydipall
y-0115a064



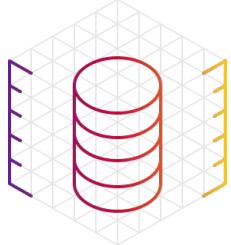
@sarma1807



- DB YouTuber w/ 5k subscribers
- Udemy Instructor
- Open Source Dev
 - Prometheus-Grafana-Cassandra
 - Python Sales App
 - Private_Email_Server



@OracleByExample



› DataStax Developers - Crew



Cedrick
Lunven



David
Dieruf



Artem
Chebotko



Aleksandr
Volochnev



Aaron
Ploetz



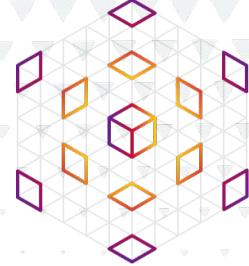
Kirsten
Hunter



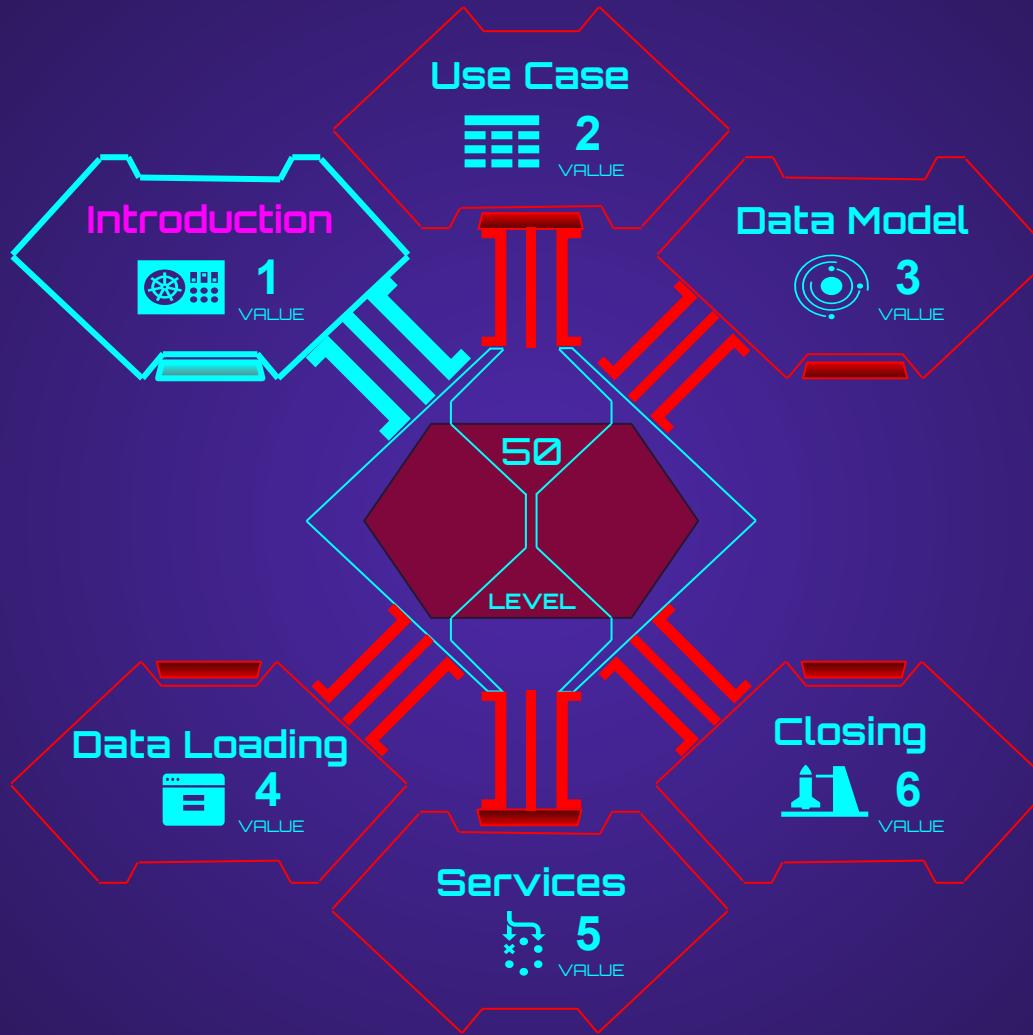
Mary
Grygleski



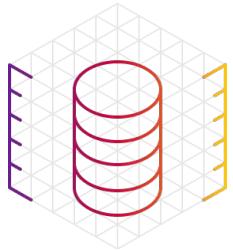
Stefano
Lottini



Agenda



» Live & Interactive



youtube.com/DataStaxDevs

Live!

Agenda

01 PetClinic Architecture & Use Case	02 DataStax Astra Cassandra Database The Art of Data Modeling	03 Reactive Drivers Reactive vs Async
04 Spring Reactive Boot and WebFlux	05 User Interface Angular	06 Game & Resources

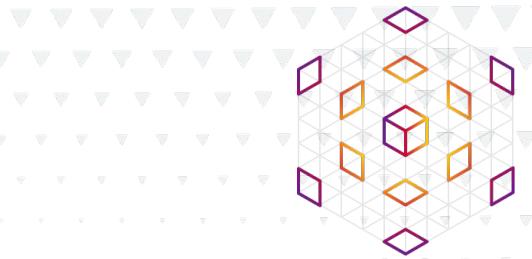
DataStax Developers

!menti

How much experience do you have with the Spring Framework ?

Quiz! DataStax

Experience Level	Percentage
Never heard about it	41%
I use it regularly	24%
I have already used it	29%
I know the concepts	10%



!discord

Help!

Discord Developers

#workshop-chat

lost4000: I'm new to DataStax help With the workshop bootstrap. It's fine for me to have a background too

Eric.McLean: With the workshop bootstrap, is it ok to have a background too?

lost4000: I have some programming background so helping is going to help a lot otherwise, it will be very difficult for you to understand the concepts

lost4000: I am planning to transition as machine learning but I don't know if I should enrol in a university. But now, we can just build app with no code.

lost4000: What makes it different?

Eric.McLean: they're not "seen how to program"

lost4000: Eric.McLean, they're not "seen how to program"

lost4000: lost4000: I think the requirement is the same though

Eric.McLean: I mean faster

lost4000: lost4000: I think functional is way better

Eric.McLean: Like in business and hobby

lost4000: I don't know anyone what I am doing. Just really want to get out from poverty

horse20: I'm lost! I believe the issue is with the volume result. I commented that file but was able to start with containers.

horse20: @Cedrick.Lunken @David.Jones-Gland I am unable to run the 2 containers and still facing the same issue of futures



YouTube

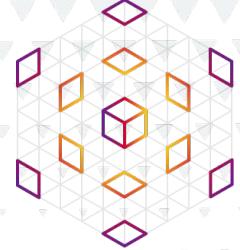
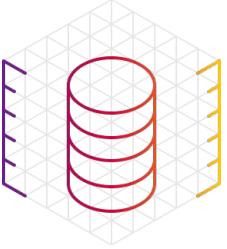


Mentimeter



Discord (#workshop-chat)

► Hands-on housekeeping



Source code + exercises + slides

A screenshot of a GitHub repository page for 'DataStax-Examples/todo-astra-jemstack-netty'. It shows a list of files, including 'TodoList.java', 'TodoListTest.java', 'TodoListWithAstraDB.java', and 'TodoListWithRedis.java'. There are 230 commits, 1 pull request, and 1 issue.

IDE

A screenshot of an IDE showing the code for 'StargateDemoApplication.java'. The code imports org.springframework.boot.SpringApplication and org.springframework.boot.autoconfigure.SpringBootApplication, and defines a public static void main method that runs SpringApplication.run(StargateDemoApplication.class, args).

```
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;

public class StargateDemoApplication {
    public static void main(String[] args) {
        SpringApplication.run(StargateDemoApplication.class, args);
    }
}
```



!github



!gitpod

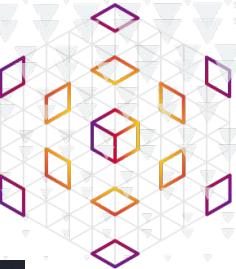
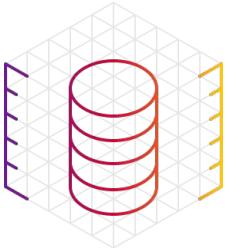
Database + Api + Streaming



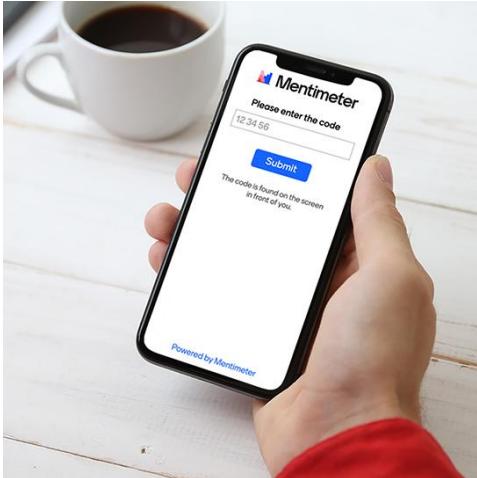
DATASTAX
ASTRA DB

!astradb

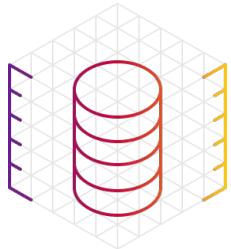
➤ "Menti" for survey and quiz



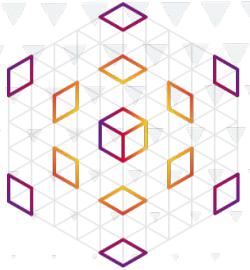
!menti



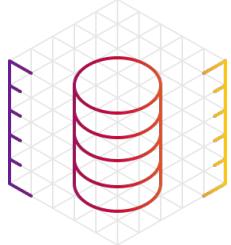
menti.com ⇒ enter code
Don't answer in YT chat
Look at phone (not at YT)
Keep it open for later



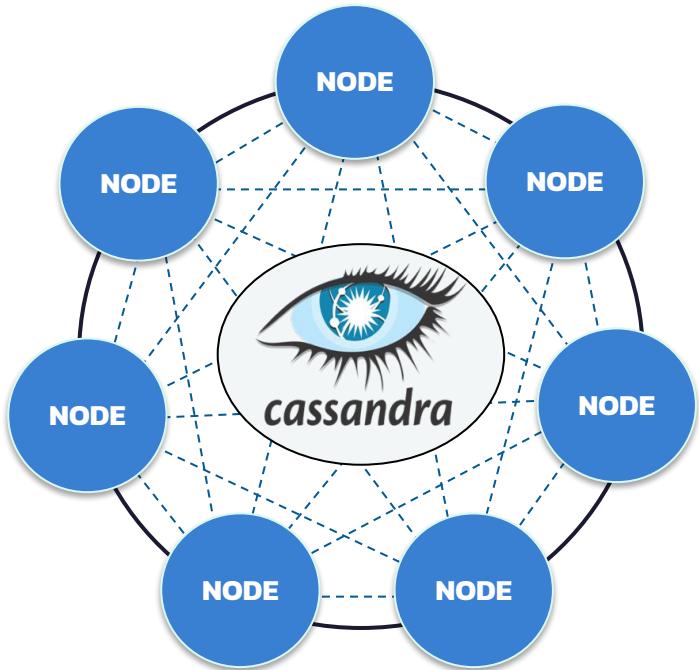
➤ Topics for Today



- Intermediate-level Python & Cassandra
- Data Modeling
- Test Data Generation & Loading
- Restful Services



Apache Cassandra



- **Big Data Ready**
 - **Read / Write Performance**
 - **Linear Scalability**
 - **Highest Availability**
 - **Self-Healing and Automation**
 - **Geographical Distribution**
 - **Platform Agnostic**
 - **Vendor Independent**
- 

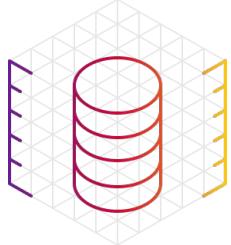
› What is Astra DB?



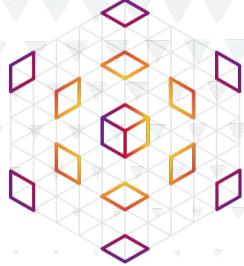
Astra DB is a DBaaS built on Apache Cassandra

-Can deploy to all 3 major cloud providers.





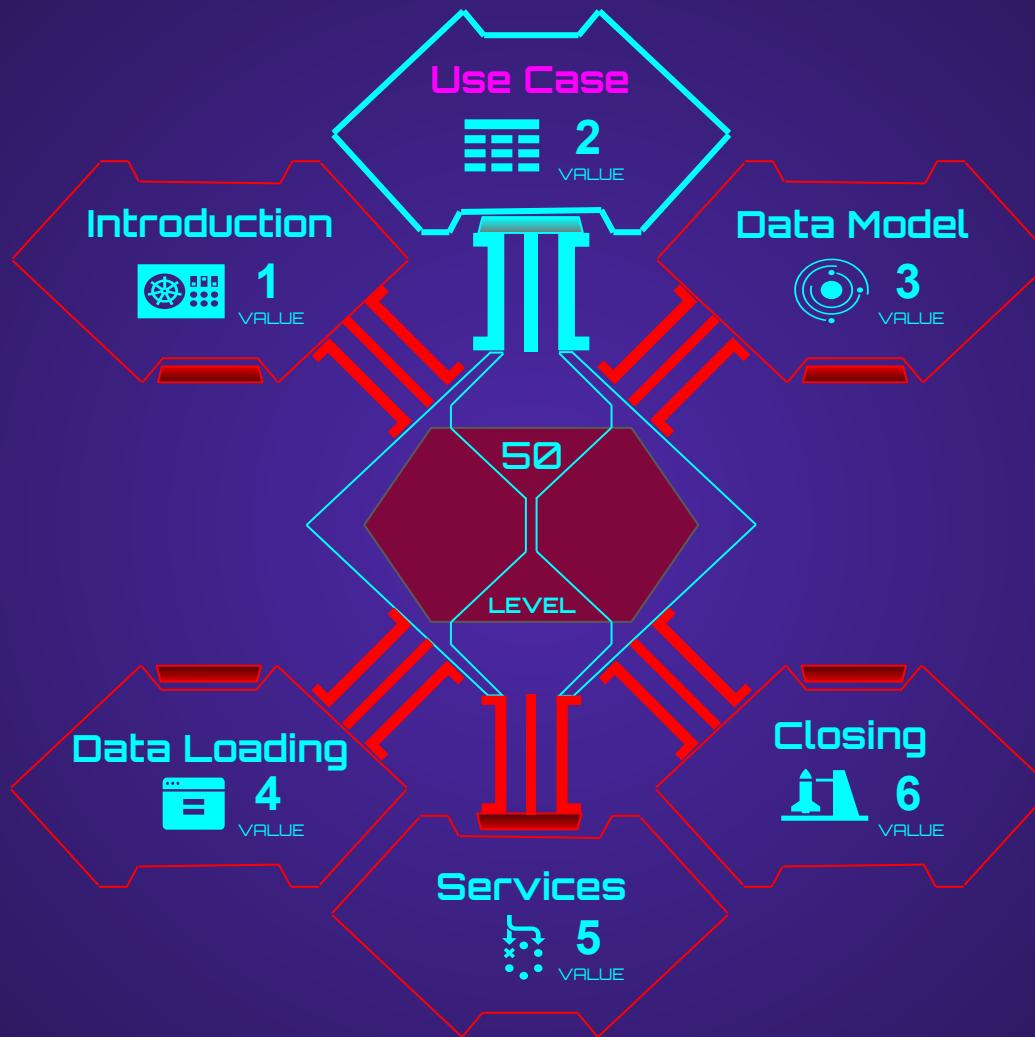
› Cassandra Python Driver

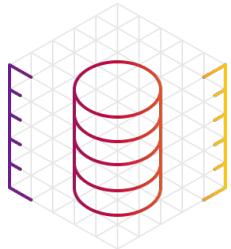


- Automatically installed on your  Gitpod instance.
- **pip install cassandra-driver**
- Download from <https://pypi.org>
- May require additional EPEL packages.



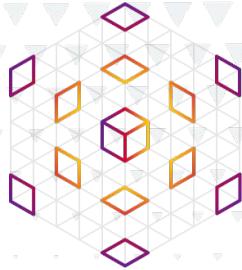
Agenda

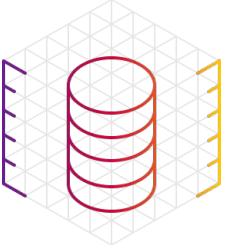


A 3D perspective icon of three red cylinders stacked vertically, representing a database.

➤ Use Cases

- Employee database
- Sales application

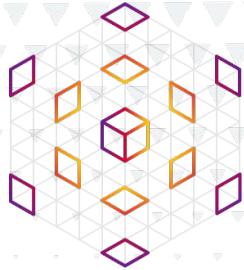


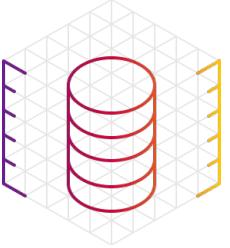


➤ Employee table

Keeps track of:

- Employee names
- Employee ID numbers



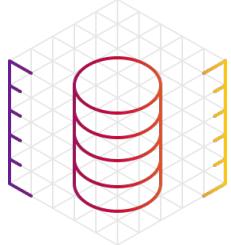
 A 3D perspective icon of a database server, represented by three red cylinders stacked vertically, set against a light gray grid background.

➤ Sales application



Keeps track of:

- Users
- Products
- Orders



› Hands-on #1

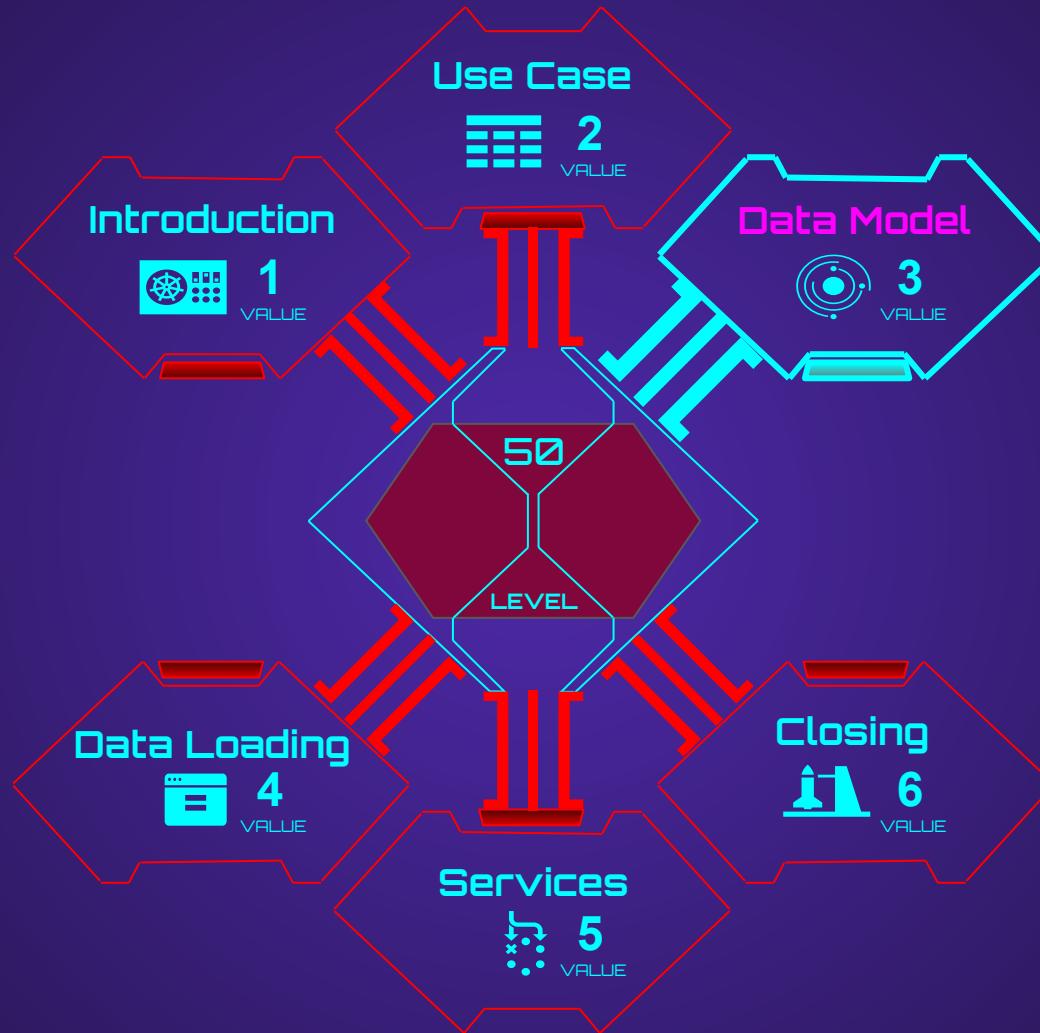
Database Setup

- README step #2
 - Create **Astra DB** instance
- README step #3 (*stop before step #3a*)
 - Start **Gitpod** instance



[https://github.com/datastaxdevs/
workshop-python-astra-app](https://github.com/datastaxdevs/workshop-python-astra-app)

Agenda



➤ Distributed Data Modeling

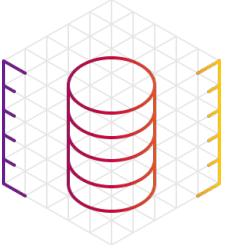
Data modeling for:

- Performance
- Tables built to suit a query

Advantages:

- Fast reads
- Simple query model

Employees			
userId	firstName	lastName	department
1	Edgar	Codd	Engineering
2	Raymond	Boyce	Engineering
3	Sage	Lahja	Math
4	Juniper	Jones	Botany

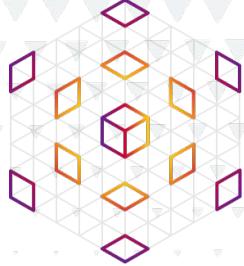


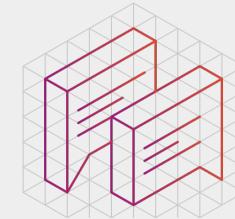
➤ Keyspace

Sales keyspace:

- Employee table
- Sales tables

Remember: **Keyspace == logical structure containing tables!**



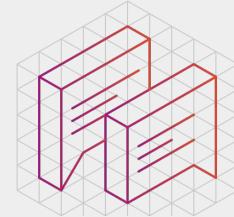


› Employee Table

- Supports query by **empid**.

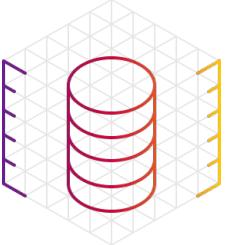
```
CREATE TABLE sales.emp (
    empid int,
    first_name text,
    last_name text,
    PRIMARY KEY (empid)
) ;
```

› CQL



Have a look at [21_SimpleDemos/
01_cassdemo_emp_cassandraTable.cql](#)

Astra DB



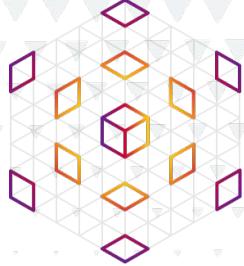
› Hands-on #2

Dev Env Setup

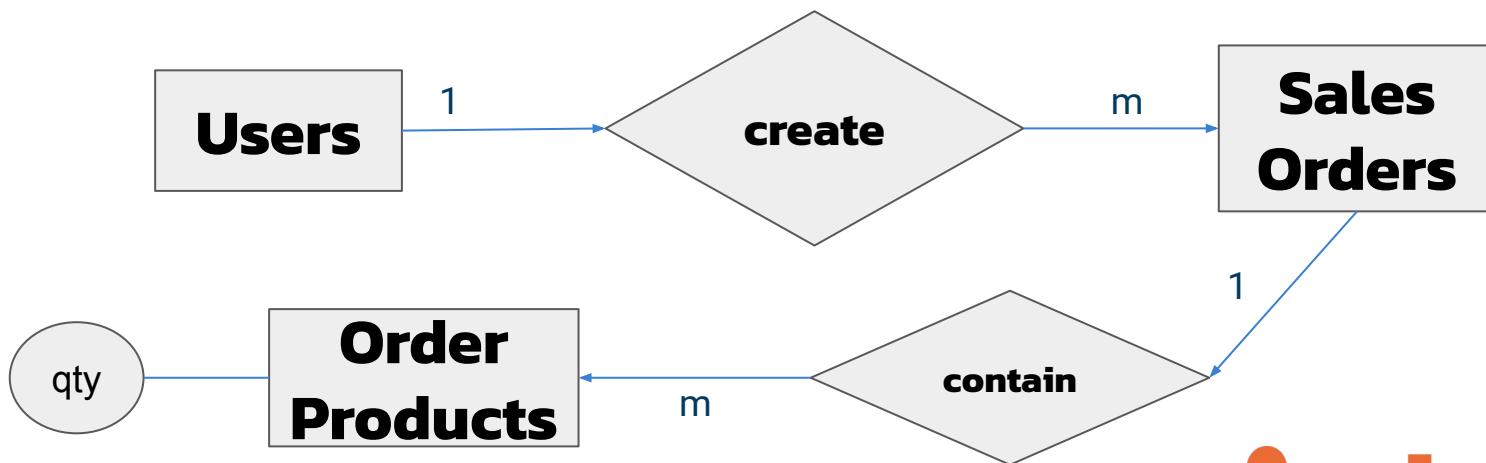
- README step #3a
 - Set Astra env vars
 - Verify Python driver
- README step #4
 - Simple Employee Demo



[https://github.com/datastaxdevs/
workshop-python-astra-app](https://github.com/datastaxdevs/workshop-python-astra-app)



➤ Sales app data flow



Astra DB

› Products table



- Supports query by `product_id`.

```
CREATE TABLE sales.products (
    product_id        bigint PRIMARY KEY,
    product_category text,
    product_code     text,
    product_description text,
    product_name     text,
    product_price    decimal,
    product_qoh      bigint
) ;
```

Astra DB

➤ Users table



- Supports query by `user_id`.

```
CREATE TABLE sales.users (
    user_id          bigint PRIMARY KEY,
    user_email_id   text,
    user_name        text,
    user_phone_number text,
    user_platform    text,
    user_state_code  text
) ;
```

➤ Orders table

```
PRIMARY KEY ((order_date, order_date_hour),  
order_timestamp, order_code)  
  
) WITH CLUSTERING ORDER BY (order_timestamp  
ASC, order_code ASC);
```



```
CREATE TABLE sales.sales_orders (  
    order_date                date,  
    order_date_hour            int,  
    order_timestamp            timestamp,  
    order_actual_shipping_date timestamp,  
    order_code                 uuid,  
    order_discount_percent     int,  
    order_estimated_shipping_date timestamp,  
    order_grand_total          decimal,  
    order_number_of_products   int,  
    order_total                decimal,  
    user_email_id              text,  
    user_id                    bigint,  
    user_name                  text,  
    user_phone_number          text,  
    user_platform              text,  
    user_state_code            text,
```

› Order Products table



```
PRIMARY KEY ((order_date, order_code),  
product_id)  
  
) WITH CLUSTERING ORDER BY (product_id ASC);
```

```
CREATE TABLE sales_order_products (  
    order_date          date,  
    order_code          uuid,  
    product_id          bigint,  
    product_category    text,  
    product_code         text,  
    product_description text,  
    product_name        text,  
    product_price_each  decimal,  
    product_price_total decimal,  
    Product_sold_quantity int,
```

› Primary Keys



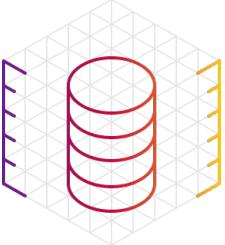
Remember: **Primary Key == how we can query the table!**

› CQL



Have a look at [**31_SalesApp_AutoSalesGenerator / 02_sales_create_tables.cql**](#)

Astra DB



› Hands-on #4

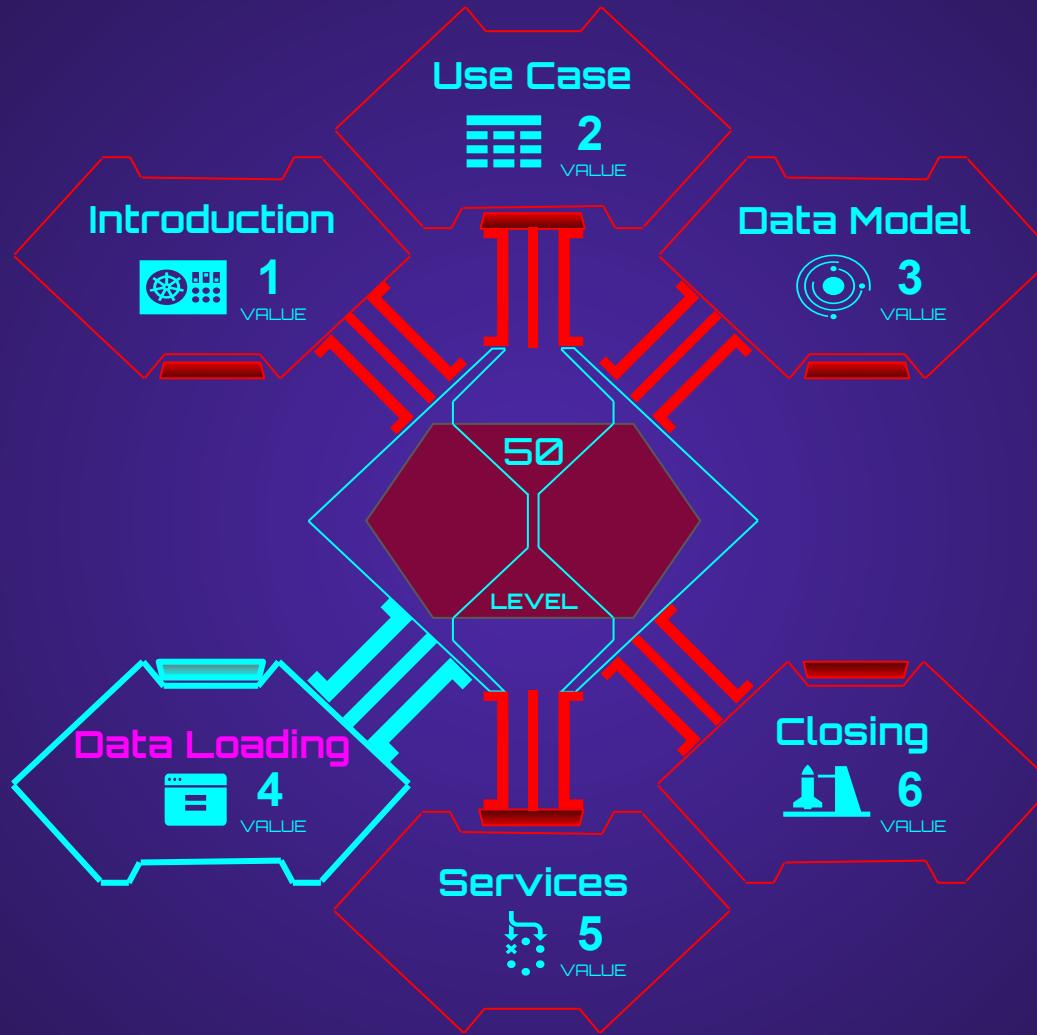
Sales DB Setup

- README step #5
 - Build schema
- README step #5a
 - Load lookup tables



[https://github.com/datastaxdevs/
workshop-python-astra-app](https://github.com/datastaxdevs/workshop-python-astra-app)

Agenda



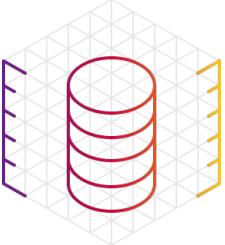
› Python



Have a look at **31_SalesApp_AutoSalesGenerator /
SalesApp_GenerateOrders.py**

And
globalSettings.py

Astra DB



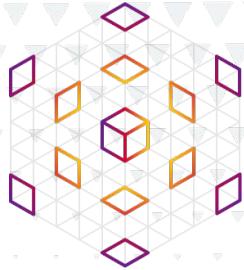
› Hands-on #5

Generate Data

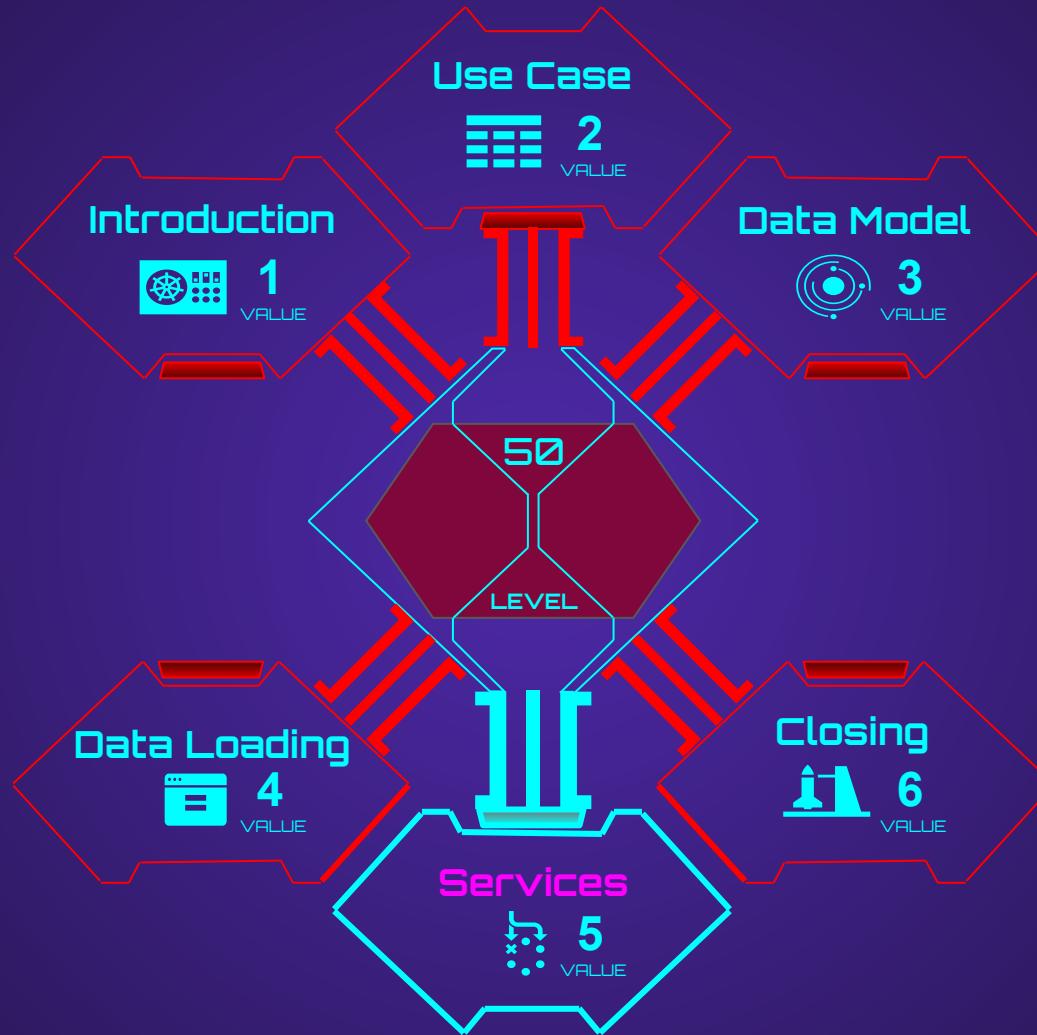
- README step #5b & 5c
 - Gen user, product & order data
- README step #5d
 - Verify data

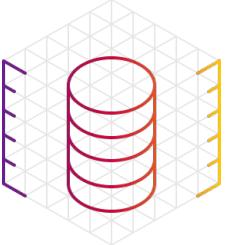


[https://github.com/datastaxdevs/
workshop-python-astra-app](https://github.com/datastaxdevs/workshop-python-astra-app)



Agenda





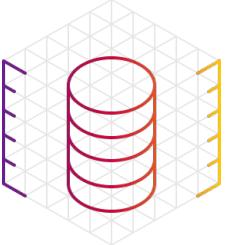
➤ Restful Service Layer



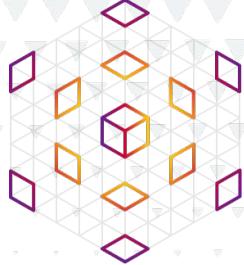
- **GET**
- **POST**
- **PUT**
- **DELETE**



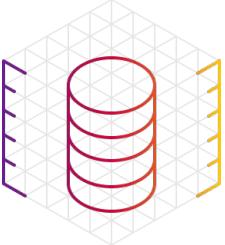
```
$ uvicorn salesAppApi:app
INFO:     Started server process [33283]
INFO:     Waiting for application startup.
INFO:     Application startup complete.
INFO:     Uvicorn running on http://127.0.0.1:8000
(Press CTRL+C to quit)
```



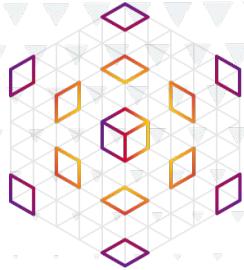
➤ Restful Service Layer



- User
 - /user/{id}
 - /users/{limit}
- Product
 - /product/{id}
 - /products/{limit}
- Order
 - /orders/date/{order_date}/hour/{hour}
 - /orders/{limit}
- Order Products
 - /orderproducts/date/{order_date}/code/{order_code}



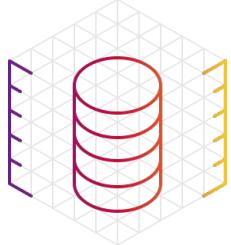
➤ Prepared statements



```
prepared_user_select = None

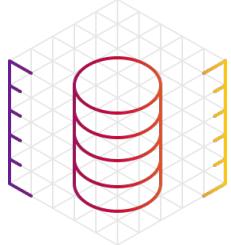
def get_prepared_user_select(session):
    global prepared_user_select
    if prepared_user_select is None:
        prepared_user_select = session.prepare("SELECT user_id, user_email_id,
    user_name, user_phone_number, user_platform, user_state_code FROM users WHERE
    user_id = ?")
    return prepared_user_select
```

Remember: **Prepared statements == faster queries!**



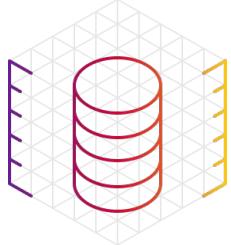
>User class

```
class User(BaseModel):  
    user_id: int  
    user_email_id: str  
    user_name: str  
    user_phone_number: str  
    user_platform: str  
    user_state_code: str
```



➤ Service code

```
@app.get('/user/{id}')
async def get_user(id: int,
session=Depends(get_db_session)):
    prepared =
        get_prepared_user_select(session)
    return [
        {
            'user_id': user.user_id,
            'user_email_id': user.user_email_id,
            'user_name': user.user_name,
            'user_phone_number': user.user_phone_number,
            'user_platform': user.user_platform,
            'user_state_code': user.user_state_code,
        }
        for user in session.execute(prepared_user_select, (int(id),))]
```



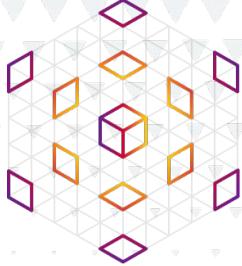
› Hands-on #6

Service calls

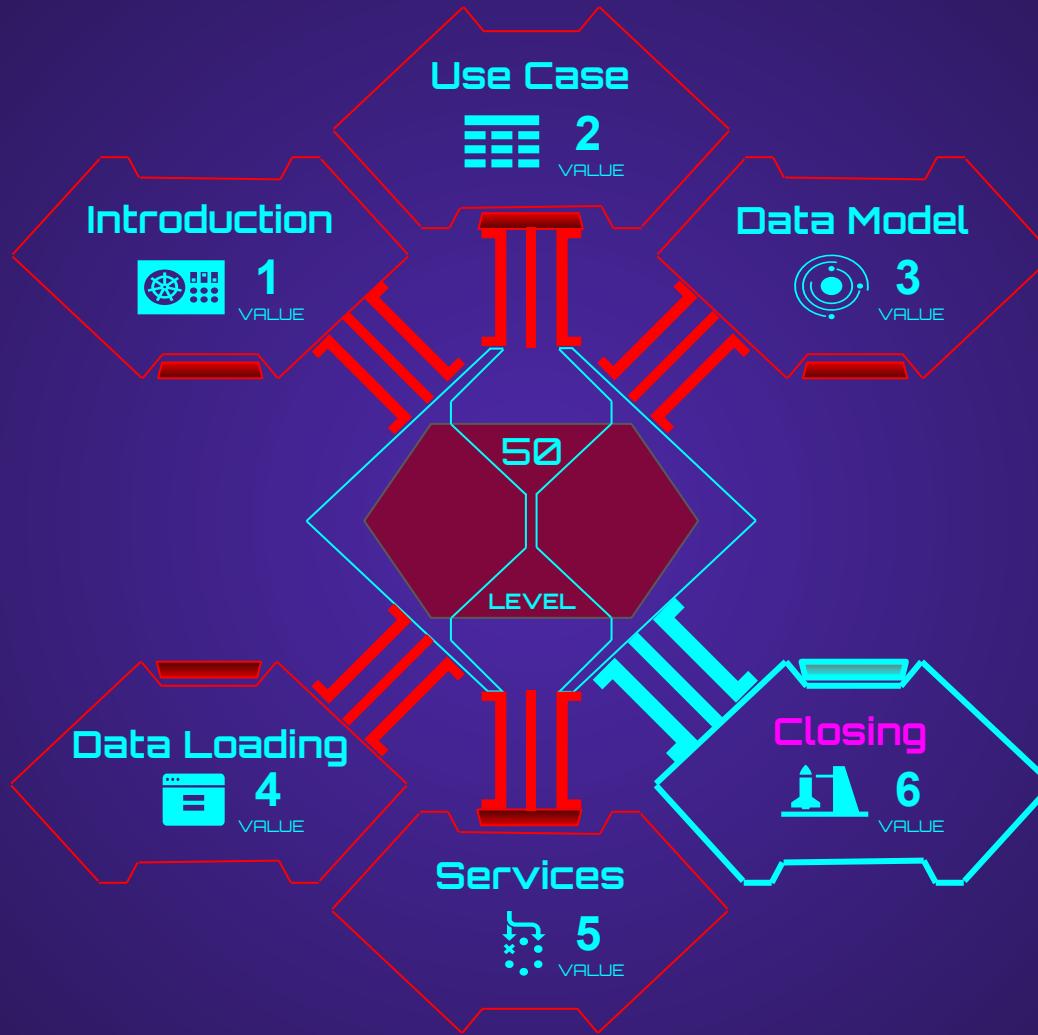
- README step #5e
 - Explore the API



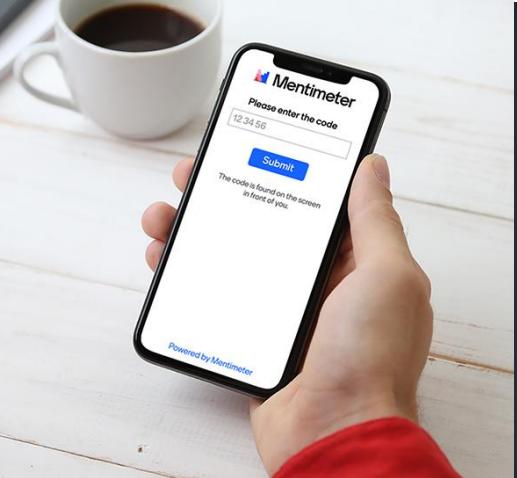
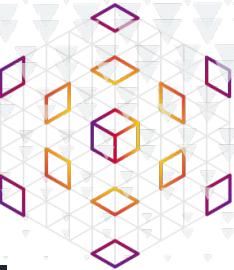
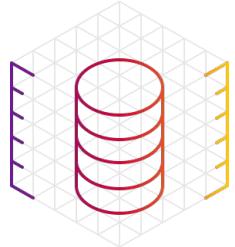
[https://github.com/datastaxdevs/
workshop-python-astra-app](https://github.com/datastaxdevs/workshop-python-astra-app)



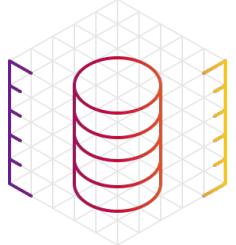
Agenda



› Quiz time on "Menti"!



menti.com ⇒ enter code
Don't answer in YT chat
Look at phone (not at YT)
Answer fast to win!



› Quiz Winners

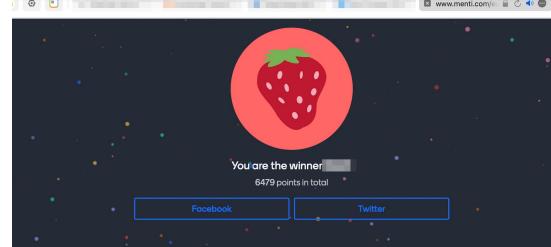
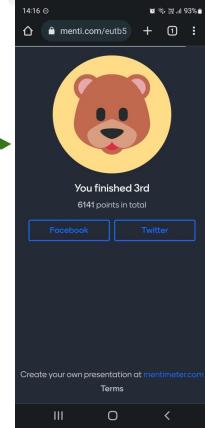
Congratulations to 1st, 2nd and 3rd place
on the Menti quiz!

To claim your prize:

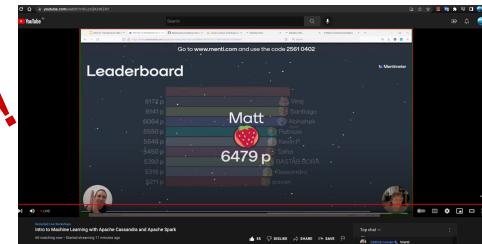
Take a screenshot of your Menti screen

Email it to **aaron.ploetz@datastax.com**

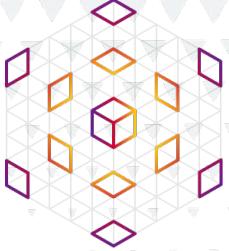
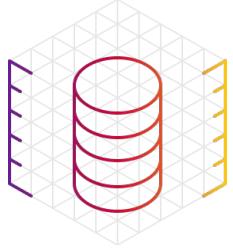
OK



NO!



Our Discord community (18k+)



!discord

PRESENTER — 1

- David Jones-Gillard

HELPER — 7

- 012345
- AaronP
- BInary
- Chelsea Navo
- Jeremy Hanna
- John Sanda
- Patrick_McFadin

EN LIGNE — 560

- samu-
- 6304-42J8
- Aahlya
- Abdurahim
- abhi3pathi
- Abhiis.s
- Abhineet
- Abirsh

19 novembre 2021

RIGGITYREKT Hier à 21:14
I have a 5 node datacenter, 4 nodes are on dse version 5.1.20, one is on dse5.0.15. I am doing some mixed version testing for a class and the one node that is 5.0.15 is coming up as an analytics workload. I dont have /etc/default/dse, instead I am using /etc/init.d/dse-cassandra
how do i make that node start in cassandra workload, not in analytics?

RIGGITYREKT Hier à 23:39
Okay I found out my issue, when i started DSE 5.0.15 it had endpointsnitch set to DseSimpleSnitch, the rest of my cluster is using PropertyFileSnitch, when i change it to PropertyFileSnitch, it still uses the simple snitch config. looking at the docs i see there is a way to go to GossipingPropertyfileSnitch, but i need the property file one. I can wipe this dbs, do anything with this node to get this done. how do i fix this?
@here

Erick Ramirez Aujourd'hui à 02:19
mixed versions isn't supported and you're guaranteed to run into weird issues that will cause further problems down the track

RIGGITYREKT I have a 5 node datacenter, 4 nodes are on dse version 5.1.20, one is on dse5.0.15. I am doing some mixed v...
Cedrick Lunven Aujourd'hui à 09:01
When you start a node you have parameters -k for analytics, -g for graph and -s for search. To remove analytics check and remove -k

Envoyer un message dans #workshop-chat

dtsx.io/discord

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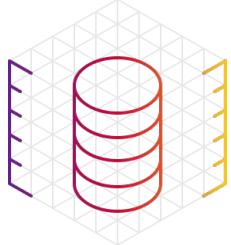
The Legend of DataStax - Cassandra Summit Training Day!

Cassandra Summit Training Day - Sunday March 12th

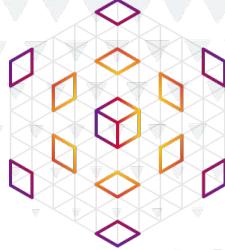
CDC for Astra DB Demo: Sink to Astra DB

92 views • 2 weeks ago

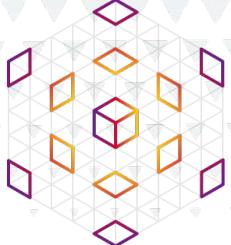
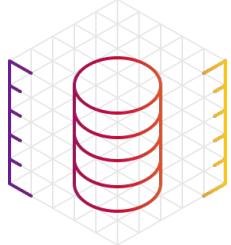
CDC for Astra DB Demo: ElasticSearch



Stay in touch!



- | | |
|-------------------|---|
| Discord: | dtsx.io/discord |
| Academy: | academy.datastax.com |
| Workshops: | datastax.com/workshops |
| YouTube: | @DataStax Developers |



› You are not alone in your journey

Discord



dtsx.io/discord

StackOverflow^(*)



stackoverflow.com/questions/tagged/cassandra

DBA Stack Exchange^(*)



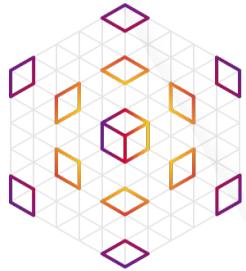
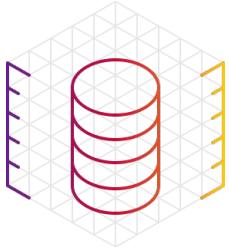
dba.stackexchange.com/questions/tagged/cassandra

Sarma's courses



udemy.com/user/oramad/

() For best results, follow the cassandra tag*



Thank You