



# Feature DataStore Lab

## Caixabank Developer Session

—

June 2021

# Oracle Cloud Environment for Feature DataStore

Users	Jupyter URL	login
holuser01 to holuser10	<a href="https://129.213.113.81/hopworks/">https://129.213.113.81/hopworks/</a>	<a href="mailto:holuser01@oracle.com">holuser01@oracle.com</a> to <a href="mailto:holuser10@oracle.com">holuser10@oracle.com</a>
holuser11 to holuser20	<a href="https://150.136.14.68/hopworks/">https://150.136.14.68/hopworks/</a>	<a href="mailto:holuser11@oracle.com">holuser11@oracle.com</a> to <a href="mailto:holuser20@oracle.com">holuser20@oracle.com</a>

## Instances *in* DataScienceHOL Compartmet

The [Compute service](#) helps you provision VMs and bare metal instances to meet your compute and application requirements. An [instance](#) is a compute host. Choose between virtual machines (VMs) and bare metal instances. The image that you use to launch an instance determines its operating system and other software.

Create Instance

Name	State	Public IP	Shape	OCPU Count	Memory (GB)	Availability Domain	Fault Domain	Created
<a href="#">featured11</a>	<span>● Running</span>	150.136.14.68	VM.Standard.E4.Flex	8	128	AD-2	FD-1	Sun, Jun 20, 2021, 19:50:42 UT
<a href="#">featured11</a>	<span>● Running</span>	129.213.113.81	VM.Standard.E4.Flex	8	128	AD-1	FD-2	Sun, Jun 20, 2021, 19:32:16 UT

# Environment to download Documentation / Scripts

---

GitHub Repository: <https://github.com/operard/featuredslab>

Documentation for Workshop: <https://github.com/operard/featuredslab/tree/main/doc>

Documentation of Hopsworks:

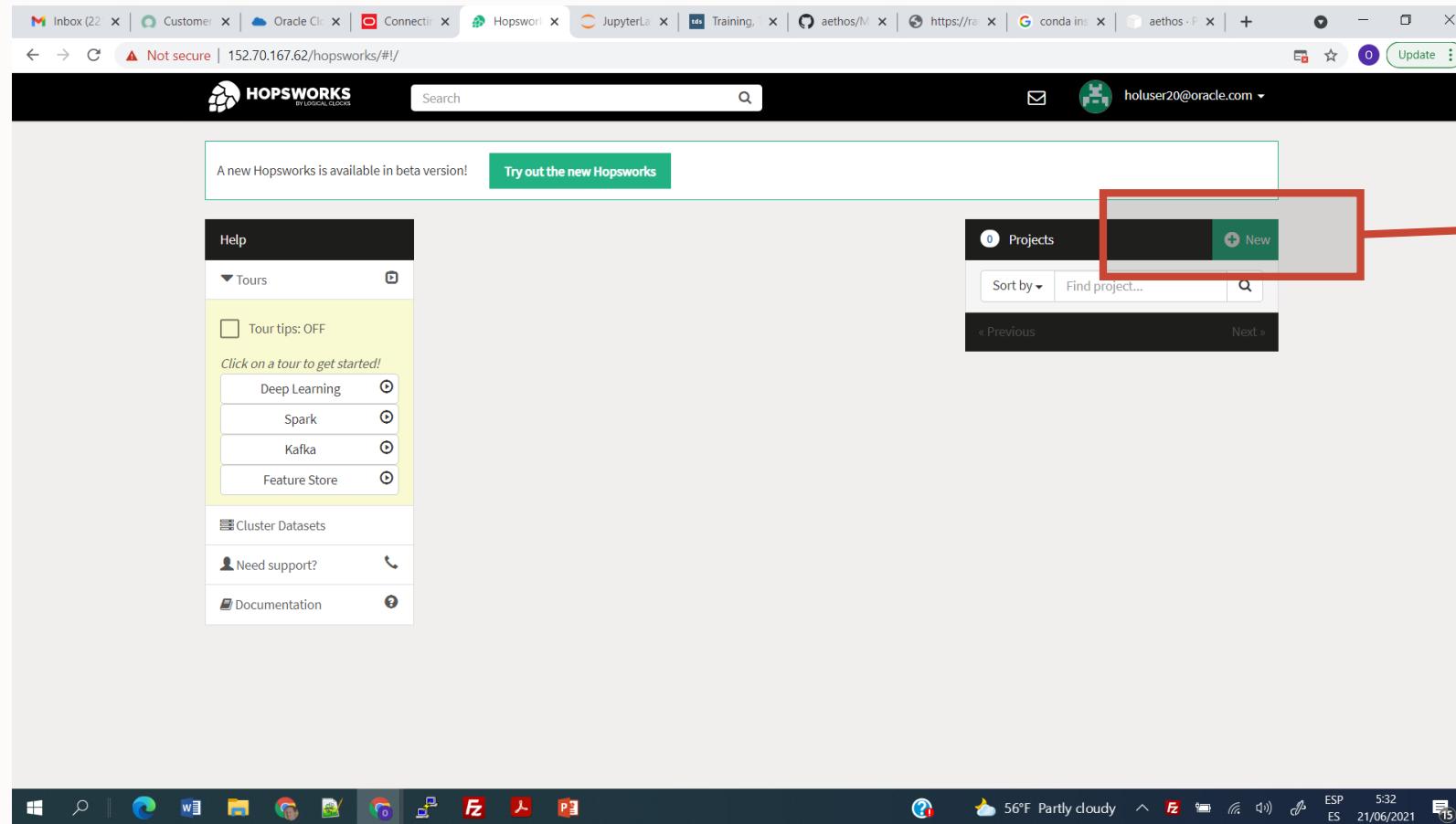
<https://github.com/logicalclocks/hops-examples>

<https://examples.hopsworks.ai/>

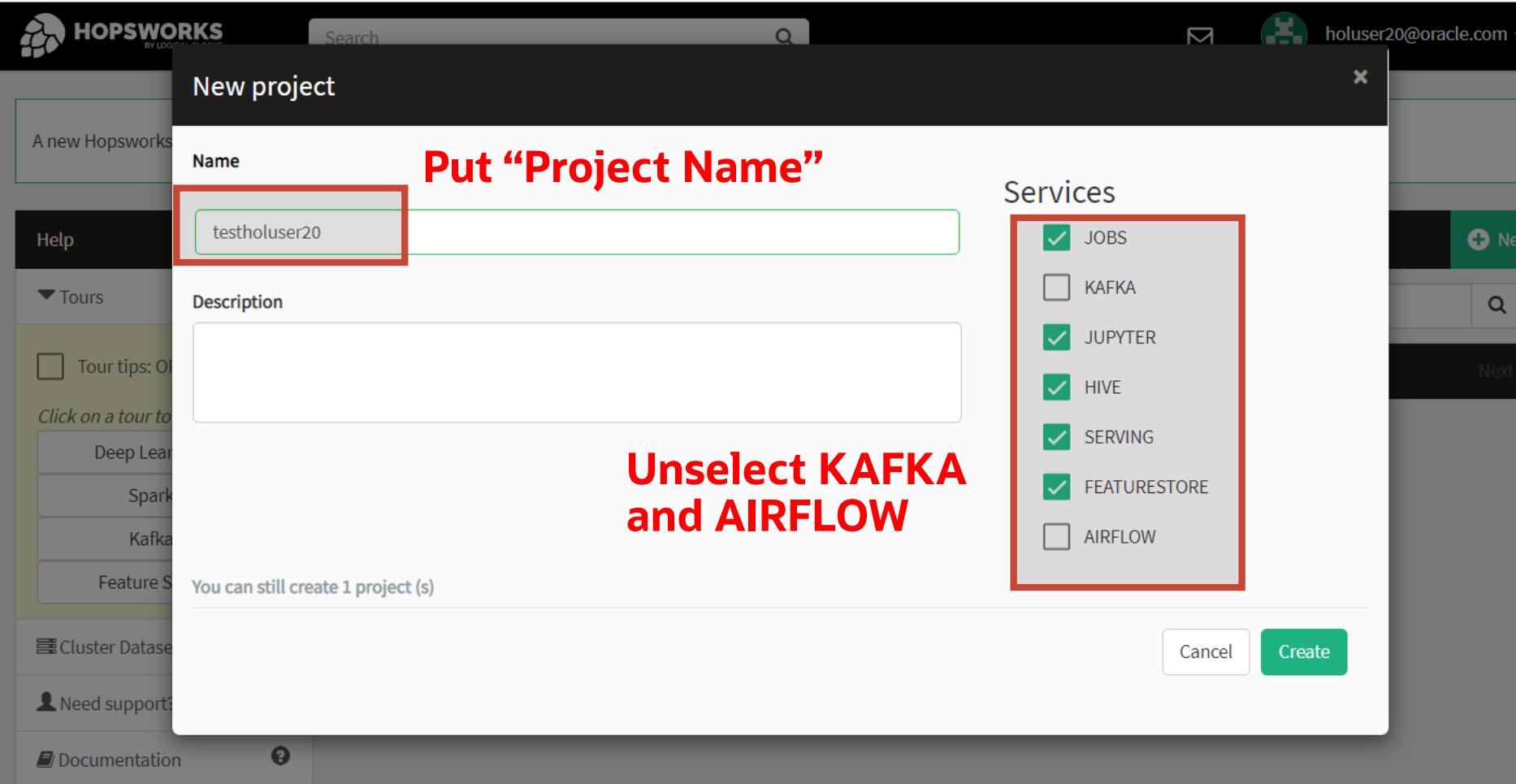
# STEP1: Create a project and upload datasets

---

# Create a project



Click NEW button



Not secure | 152.70.167.62/hopworks/#!/

A new Hopsworx is available in beta version! [Try out the new Hopsworx](#)

Help

Tours

Tour tips: OFF

Click on a tour to get started!

- Deep Learning
- Spark
- Kafka
- Feature Store

Cluster Datasets

Need support?

Documentation

## Check the Project Creation

Projects

+ New

Sort by ▾ Find project...

testholuser20

« Previous Next »

HOPSWORKS BY LOGICAL CLOCKS Search

**testholuser20**

**Jupyter**

**Jobs**

**Kafka**

**Feature Store**

**Experiments**

**Models**

**Model Serving**

**Data Sets**

**Settings**

**Python**

**Members**

**Cluster Utilization: 0%**

**Support**

**Documentation**

**Check all options after Project Creation**

holuser20 holuser20 added a new dataset named DataValidation Jun 21, 2021 5:34:30 AM

Project name: testholuser20

holuser20 holuser20 added a new dataset named Statistics Jun 21, 2021 5:34:30 AM

Project name: testholuser20

holuser20 holuser20 added new service Featurestore Jun 21, 2021 5:34:30 AM

Project name: testholuser20

holuser20 holuser20 added a new dataset named testholuser20\_featurestore.db Jun 21, 2021 5:34:30 AM

Project name: testholuser20

holuser20 holuser20 added a storage connector for the featurestore with name: testholuser20\_Training\_Datasets Jun 21, 2021 5:34:29 AM

Project name: testholuser20

holuser20 holuser20 added new service Serving Jun 21, 2021 5:34:29 AM

Project name: testholuser20

holuser20 holuser20 added a new dataset named testholuser20\_Training\_Datasets Jun 21, 2021 5:34:29 AM

Project name: testholuser20



Search



Install

## Members

Add member(s)

Find member...

### Members to be added

Select user...

No members added yet...

Save

### Members

Role Action



holuser20 holuser20 (me)

Data owner



testholuser20

Jupyter



Jobs



Kafka



Feature Store



Experiments



Models



Model Serving



Data Sets



Settings



Python



Members



Cluster Utilization: 0%

Support



Documentation



holuser20@oracle.com

See hops python docs



56°F Partly cloudy



ESP  
ES

5:36  
21/06/2021



Not secure | 152.70.167.62/hopsworks#!/project/1143/settings

0 Update

# HOPSWORKS BY LOGICAL CLOCKS

Search

testholuser20 X

Project Settings PIA Versions Provenance

Jupyter jupyter

Jobs

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Members

Cluster Utilization: 0%

Support

Documentation

Project Settings

Name: testholuser20

ID: 1143

Description:

Data Retention Period: 2031-06-21T00:00:00Z

Quotas

Datasets: unlimited of unlimited used  
-1 files

Hive Database: unlimited of unlimited used  
-1 files

Feature Store: unlimited of unlimited used  
-1 files

CPU: 16666.67 CPU hours

Services:  AIRFLOW

Export Certificates i

Save

Danger Zone

holuser20@oracle.com

ESP ES 5:35 21/06/2021



Search



holuser20@oracle.com

testholuser20 

Install

Manage Environment

Ongoing Operations

See hops python docs 

Jupyter



Jobs



Kafka



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Members



Cluster Utilization: 0%

Support



Documentation



## Select package location

PyPi

Conda

Upload

Git

Install Python libraries using pip in Anaconda environment

Python Version is 3.7

Library name ...

(optional) version

Install 

Search here ....

Search 

56°F Partly cloudy



ESP

ES

5:36  
21/06/2021

15

HOPSWORKS BY LOGICAL CLOCKS

testholuser20 X

Search Filter...

Filter: All Shared Public in Cluster Exclusive Pending

+ CREATE DATASET

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Cluster Utilization: 0%

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Filter...

CREATE DATASET

Name	Owner	Last modified
Hive.db	holuser20	Jun 21, 2021 5:34:28 AM
Featurestore.db	holuser20	Jun 21, 2021 5:34:29 AM
Training Datasets	holuser20	Jun 21, 2021 5:34:28 AM
Logs	holuser20	Jun 21, 2021 5:34:20 AM
Resources	holuser20	Jun 21, 2021 5:34:21 AM
Experiments	holuser20	Jun 21, 2021 5:34:21 AM
Jupyter	holuser20	Jun 21, 2021 5:34:24 AM
Models	holuser20	Jun 21, 2021 5:34:28 AM
DataValidation	holuser20	Jun 21, 2021 5:34:29 AM
Statistics	holuser20	Jun 21, 2021 5:34:29 AM



Search



holuser20@oracle.com ▾

Filter: All Shared Public in Cluster Exclusive Pending

## CREATE DATASET

Filter...



Name	Owner	Last modified
<input type="checkbox"/>  Hive.db	holuser20 holuser20	Jun 21, 2021 5:34:28 AM
<input type="checkbox"/>  Featurestore.db	holuser20 holuser20	Jun 21, 2021 5:34:29 AM
<input type="checkbox"/>  Training Datasets	holuser20 holuser20	Jun 21, 2021 5:34:28 AM
<input type="checkbox"/>  Logs	holuser20 holuser20	Jun 21, 2021 5:34:20 AM
<input type="checkbox"/>  Resources	holuser20 holuser20	Jun 21, 2021 5:34:21 AM
<input type="checkbox"/>  Experiments	holuser20 holuser20	Jun 21, 2021 5:34:21 AM
<input type="checkbox"/>  Jupyter	holuser20 holuser20	Jun 21, 2021 5:34:24 AM
<input type="checkbox"/>  Models	holuser20 holuser20	Jun 21, 2021 5:34:28 AM
<input type="checkbox"/>  DataValidation	holuser20 holuser20	Jun 21, 2021 5:34:29 AM
<input type="checkbox"/>  Statistics	holuser20 holuser20	Jun 21, 2021 5:34:29 AM

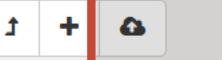


Search



holuser20@oracle.com ▾

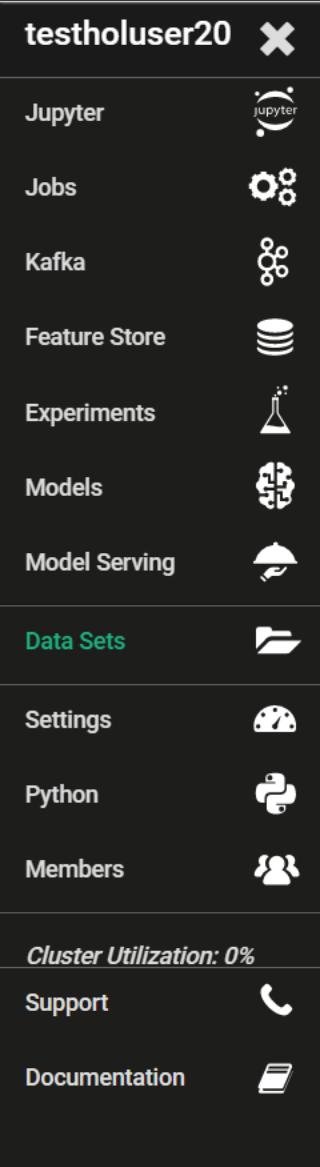
DataSets / testholuser20 Tr..



[Filter...](#)



Type	Name	Owner	Last modified	File size
	README.md	holuser20	Jun 21, 2021 5:34:28 AM	0.2KB



HOPSWORKS BY LOGICAL CLOCKS

testholuser20 X

Search

DataSets / te

Jupyter jupyter

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Kafka

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Cluster Utilization: 0%

Support

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Upload

Upload File Upload Folder

Upload all

# Name Size Progress Settings

Drag And Drop your file here

File size

4:28 AM 0.2KB

Filter... ▾

holuser20@oracle.com

ESP ES 5:40 21/06/2021 15

The screenshot shows the HOPSWORKS interface. A modal window titled "Upload" is open, prompting the user to upload files or folders. The "Upload File" button is highlighted with a red box. Below the modal, the main dashboard shows a list of datasets with columns for Name, Size, Progress, and Settings. A placeholder text "Drag And Drop your file here" is visible. The left sidebar contains various navigation links like Jupyter, Jobs, Kafka, Feature Store, etc. The bottom status bar shows system information including cluster utilization (0%), support contact, documentation, and system time.

# Download all files from Github Projects to Upload to Feature DataStore

□ Name ^

- Features data set.csv
- sales data-set.csv
- stores data-set.csv

Upload

Upload File Upload Folder

Upload all Total Size: 13.2 MB

#	Name	Size	Progress	Settings
1	Features data set.csv	586.4KB	<div style="width: 100%;"> </div>	
2	sales data-set.csv	12.6 MB	<div style="width: 100%;"> </div>	
3	stores data-set.csv	0.6KB	<div style="width: 100%;"> </div>	

Drag And Drop your file here





Search



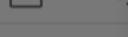
holuser20@oracle.com



DataSets / te



Type



testholuser20

Jupyter



Jobs



Kafka



Feature Store



Experiments



Models



Model Serving



Data Sets



Settings



Python



Members



Cluster Utilization: 0%

Support



Documentation



## Upload

Upload File

Upload Folder

Upload all

Total Size: 13.2 MB

#	Name	Size	Progress	Settings
1	Features data set.csv	586.4KB	<div style="width: 10%;">10%</div>	
2	sales data-set.csv	12.6 MB	<div style="width: 5%;">5%</div>	
3	stores data-set.csv	0.6KB	<div style="width: 0%;">0%</div>	

Drag And Drop your file here

Filter...

File size

4:28 AM 0.2KB



56°F Partly cloudy



ESP

ES

5:41  
21/06/2021



15

Not secure | 152.70.167.62/hopsworks#!/project/1143/datasets/testholuser20\_Training\_Datasets/ 0 Update

# HOPSWORKS BY LOGICAL CLOCKS

testholuser20 X

Search

DataSets / testholuser20\_Tr.. 🔍

Jupyter

Jobs

Kafka

Feature Store

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Model Serving

Data Sets

Settings

Python

Members

Cluster Utilization: 0%

Support

Documentation

Upload Add Cloud

Filter...

<input type="checkbox"/>	Type	Name	Owner	Last modified	File size	
<input type="checkbox"/>	📄	README.md	holuser20	holuser20	Jun 21, 2021 5:34:28 AM	0.2KB
<input type="checkbox"/>	📄	Features data set.csv	holuser20	holuser20	Jun 21, 2021 5:42:09 AM	586.4KB
<input type="checkbox"/>	📄	sales data-set.csv	holuser20	holuser20	Jun 21, 2021 5:42:11 AM	12.6 MB
<input type="checkbox"/>	📄	stores data-set.csv	holuser20	holuser20	Jun 21, 2021 5:42:11 AM	0.6KB

README.md, Features data set.csv, sales data-set.csv, stores data-set.csv



Search



holuser20@oracle.com

testholuser20 X



Feature Store



New +

Feature Groups

Training Datasets

Feature Search

Feature Store Details

Storage Connectors



A new Hopsworks is available in beta version!

Try out the new Hopsworks

No Feature Groups to show

Experiments



Models



Model Serving



Data Sets



Settings



Python



Members



Cluster Utilization: 0%

Support



Documentation





Search



holuser20@oracle.com

testholuser20 X



Cluster Utilization: 0%

Support



Documentation



https://152.70.167.62/hopsworks/

A new Hopsworks is available in beta version!

Try out the new Hopsworks

Search for features in feature groups by name.

Feature Groups

Training Datasets

Feature Search

Feature Store Details

Storage Connectors



Search:

Search for a feature



Invalid Date



Invalid Date

Hits per page: 20

&gt; Search Settings

0 Results found

Name ▼

Description

Created

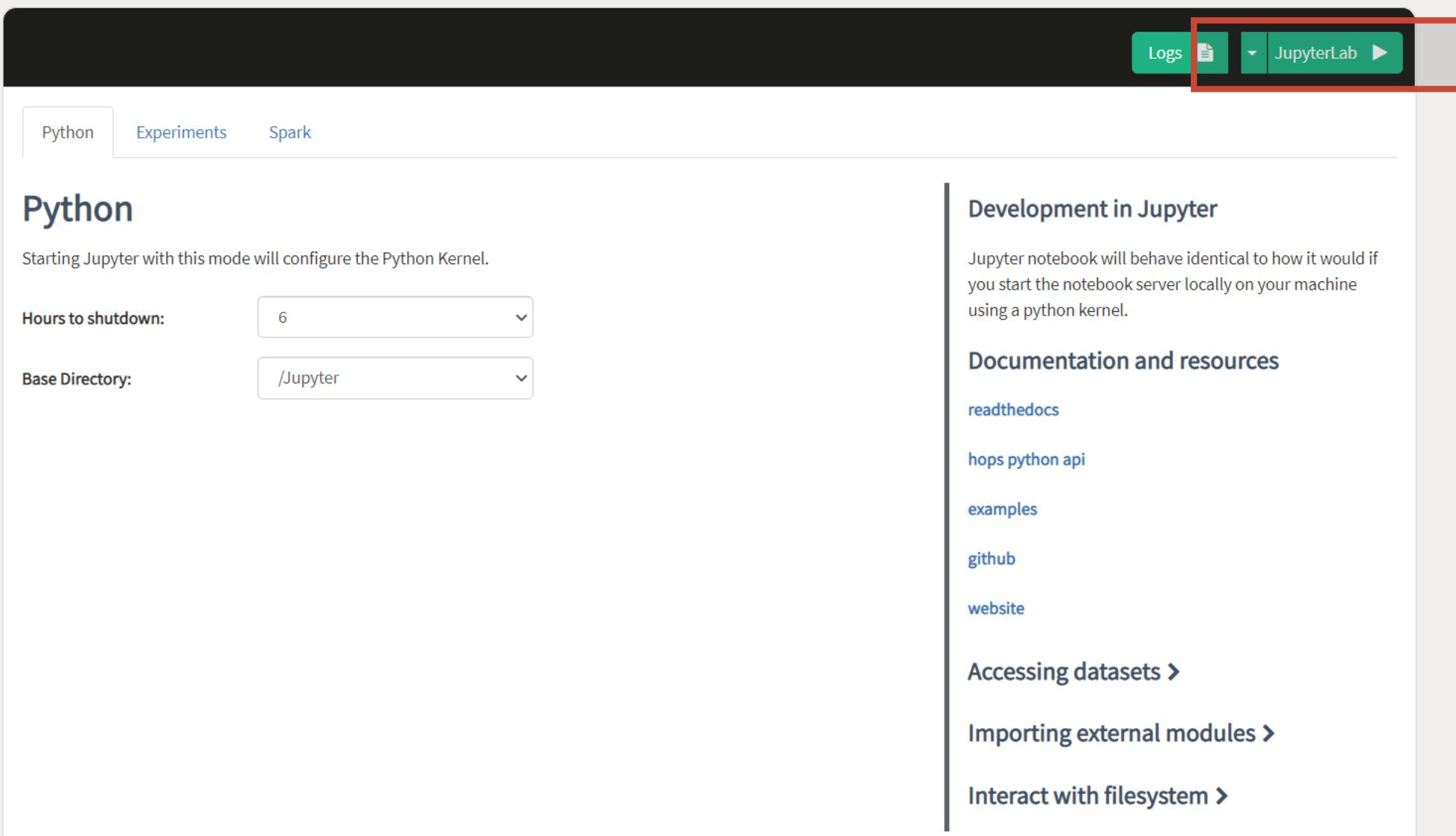
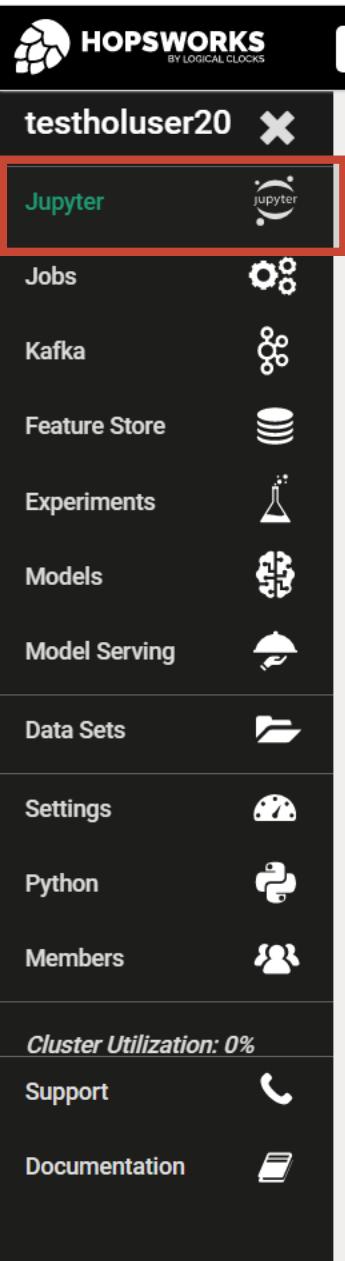
Type

Feature Group

Version

## **STEP2: How to create Feature Group and Features Attributes.**

---



**HOPSWORKS**  
BY LOGICAL CLOCKS

**testholuser20** X

- Jupyter
- Jobs
- Kafka
- Feature Store
- Experiments
- Models
- Model Serving
- Data Sets
- Settings
- Python
- Members
- Cluster Utilization: 0%*
- Support
- Documentation

Search

jupyter

Logs View Configuration

Monitor and Manage Spark Sessions

No running applications

**Info**  
Started Notebook server! Will shut down the notebook server and any running applications in 6 hours.

**NOTEBOOK SERVER**

Open Jupyter in a new Tab

Shutdown Notebook Server

Automatic Notebook Shutdown in 359 minutes.

Select hours to add to notebook

Not secure | 152.70.167.62/hopsworks-api/jupyter/50063/lab/workspaces/auto-V

File Edit View Run Kernel Tabs Settings Help

+ /

Name Last Modified

README.md 10 minutes ago

Launcher

Notebook

Python PySpark Spark SparkR

Console

Python PySpark Spark SparkR

Other

Terminal Text File Markdown File Show Contextual Help

# Download all notebooks from Github Projects to Feature DataStore JupyterLab

<input type="checkbox"/> Name	Date modified	Type	Size
 1_create_feature_groups.ipynb	21/06/2021 5:48	IPYNB File	9 KB
 4_create_training_dataset.ipynb	21/06/2021 5:48	IPYNB File	5 KB
 5_online_serving.ipynb	21/06/2021 5:48	IPYNB File	5 KB

<input type="checkbox"/> Name	Date modified	Type	Size
<input checked="" type="checkbox"/>  1_create_feature_groups.ipynb	21/06/2021 5:48	IPYNB File	9 KB
<input checked="" type="checkbox"/>  4_create_training_dataset.ipynb	21/06/2021 5:48	IPYNB File	5 KB
<input checked="" type="checkbox"/>  5_online_serving.ipynb	21/06/2021 5:48	IPYNB File	5 KB

File Edit View Run Kernel Tabs Settings Help

Launcher 1\_create\_feature\_groups.ipynb X

Name Last Modified

- 1\_create\_feature\_groups.ipynb seconds ago
- 4\_create\_training\_dataset.ipynb seconds ago
- 5\_online\_serving.ipynb seconds ago
- README.md 17 minutes ago

PySpark

title: "Create empty feature groups for Online Feature Store" date: 2021-04-25 type: technical\_note draft: false

[1]:

```
import json
from pyspark.sql.types import StructField, StructType, StringType, DoubleType, TimestampType, LongType, IntegerType
```

Starting Spark application

ID	YARN Application ID	Kind	State	Spark UI	Driver log
1	application_1619309085643_0002	pyspark	idle	<a href="#">Link</a>	<a href="#">Link</a>

SparkSession available as 'spark'.

## Create empty feature groups

In this demo example we are expecting to receive data from Kafka topic, read using spark streaming, do streaming aggregations and ingest aggregated data to feature groups. Thus we will create empty feature groups where we will ingest streaming data.

### Define schema for feature groups

[2]:

```
card_schema = StructType([StructField('tid', StringType(), True),
                           StructField('datetime', StringType(), True),
                           StructField('cc_num', LongType(), True),
                           StructField('amount', DoubleType(), True)])

schema_10m = StructType([StructField('cc_num', LongType(), True),
                        StructField('num_trans_per_10m', LongType(), True),
                        StructField('avg_amt_per_10m', DoubleType(), True),
                        StructField('stdev_amt_per_10m', DoubleType(), True)])

schema_1h = StructType([StructField('cc_num', LongType(), True),
                       StructField('num_trans_per_1h', LongType(), True)])
```



Not secure | 152.70.167.62/hopsworks#!/project/1143/datasets/testholuser20\_Training\_Datasets/ 0 Update :

HOPSWORKS BY LOGICAL CLOCKS Search

testholuser20 X

DataSets / testholuser20\_Tr.. ↻

Jupyter Jupyter

Jobs Jobs

Kafka Kafka

Feature Store Feature Store

Experiments Experiments

Models Models

Model Serving Model Serving

Data Sets Data Sets

Settings Settings

Python Python

Members Members

Cluster Utilization: 11%

Support Support

Documentation Documentation

hdfs://Projects/testholuse  Filter... 

Type	Name	Owner	Last modified	File size
File	README.md	holuser20 holuser20	Jun 21, 2021 5:34:28 AM	0.2KB
File	Features data set.csv	holuser20 holuser20	Jun 21, 2021 5:42:09 AM	586.4KB
File	sales data-set.csv	holuser20 holuser20	Jun 21, 2021 5:42:11 AM	12.6 MB
File	<input checked="" type="checkbox"/> stores data-set.csv	holuser20 holuser20	Jun 21, 2021 5:42:11 AM	0.6KB

DETAILS

Size	0.6KB
Type	File
Last changed	Jun 21, 2021 5:42:11 AM
Owner	holuser20 holuser20
Permission	rwxrwx---



Not secure | 152.70.167.62/hopsworks-api/jupyter/50063/lab/workspaces/auto-V

File Edit View Run Kernel Tabs Settings Help

Untitled.ipynb 1\_create\_feature\_groups.ipynb

Ingestion to Online Feature Store

[1]:

```
import hsfs
connection = hsfs.connection()
fs = connection.get_feature_store()
```

Starting Spark application

ID	YARN Application ID	Kind	State	Spark UI	Driver log
10	application_1624183360724_0002	pyspark	idle	<a href="#">Link</a>	<a href="#">Link</a>

SparkSession available as 'spark'.  
Connected. Call `.`close()` to terminate connection gracefully.

[9]:

```
from hops import hdfs
from pyspark.sql import functions as F

# hdfs:///Projects/testholuser20/testholuser20_Training_Datasets/stores data-set.csv
stores_csv = spark.read\
    .option("inferSchema", "true")\
    .option("header", "true")\
    .format("csv")\
    .load("hdfs:///Projects/{}testholuser20_Training_Datasets/stores data-set.csv".format(hdfs.project_name()))
```

[ ]:

```
online_store_fg_meta = fs.create_feature_group(name="online_store_fg",
                                                version=1,
                                                primary_key=['store'],
                                                description="Store related features",
                                                online_enabled=True,
                                                time_travel_format=None,
                                                statistics_config={"enabled": True, "histograms": True, "correlations": True})
```

[ ]:

```
online_store_fg_meta.save(stores_csv)
```

PySpark | Idle

Saving completed

Mode: Edit

Ln 9, Col 130

Untitled.ipynb

Not secure | 152.70.167.62/hopsworks-api/jupyter/50063/lab/worksheets/auto-V

File Edit View Run Kernel Tabs Settings Help

PySpark

1\_create\_feature\_store.ipynb X 1\_create\_feature\_groups.ipynb X

Code Link Link

10 application\_1624183360724\_0002 pyspark idle Link Link

SparkSession available as 'spark'.  
Connected. Call `close()` to terminate connection gracefully.

[9]:

```
from hops import hdfs
from pyspark.sql import functions as F

# hdfs://Projects/testholuser20/testholuser20_Training_Datasets/stores data-set.csv
stores_csv = spark.read\
    .option("inferSchema", "true")\
    .option("header", "true")\
    .format("csv")\
    .load("hdfs://Projects/{}/testholuser20_Training_Datasets/stores data-set.csv".format(hdfs.project_name()))
```

[10]:

```
online_store_fg_meta = fs.create_feature_group(name="online_store_fg",
                                                version=1,
                                                primary_key=['store'],
                                                description="Store related features",
                                                online_enabled=True,
                                                time_travel_format=None,
                                                statistics_config={"enabled": True, "histograms": True, "correlations": True})
```

[11]:

```
online_store_fg_meta.save(stores_csv)
<hsfs.feature_group.FeatureGroup object at 0x7f3f595d84d0>
```

[ ]:

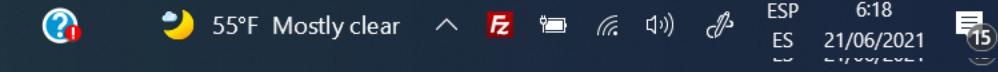
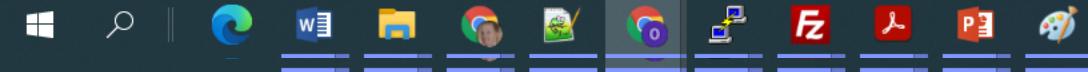
0 \$ 4 PySpark | Idle

Saving completed

Mode: Command

stores data-set.csv

Show all

6:18  
21/06/2021

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testholuser20

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New +

Search:  6/20/2021 - 6/22/2021 Hits per page: 20

Name	Description	Created	Type	Online	Version
online_store_fg	Store related features	Jun 21, 2021 6:16:52 AM	CACHED	Yes	1

stores data-set.csv

Show all

Not secure | 152.70.167.62/hopsworks#!/project/1143/featurestore

HOPSWORKS BY LOGICAL CLOCKS

Search 

testholuser20 

Jupyter 

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Feature Groups Training Datasets Feature Search Feature Store Details Storage Connectors

Search:   6/20/2021  6/22/2021  Hits per page: 20

 Search Settings

3 Results found

Name	Description	Created	Type	Feature Group	Version
size		Jun 21, 2021 6:16:52 AM	int	online_store_fg	1
store		Jun 21, 2021 6:16:52 AM	int	online_store_fg	1
type		Jun 21, 2021 6:16:52 AM	string	online_store_fg	1

A new Hopsworks is available in beta version! [Try out the new Hopsworks](#)

[View Details of the Feature Store](#)

**testholuser20** [X](#)

Search 

 1  holuser20@oracle.com [Update](#) 

**Jupyter** 

**Jobs** 

**Kafka** 

**Feature Store** 

**Experiments** 

**Models** 

**Model Serving** 

**Data Sets** 

**Settings** 

**Python** 

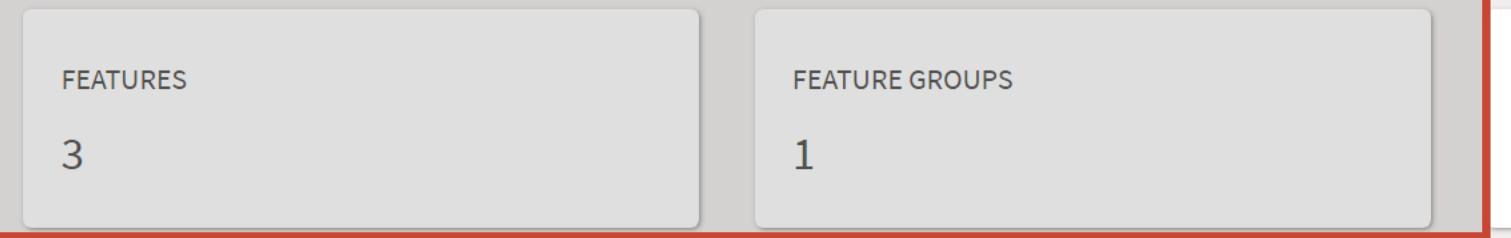
**Members** 

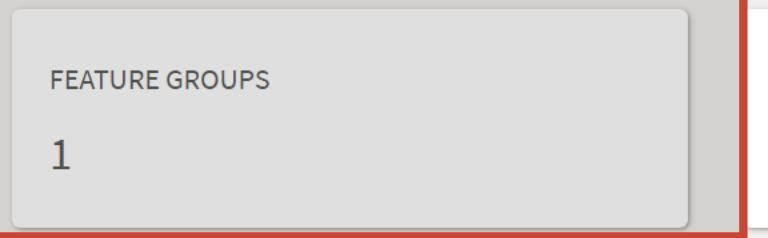
**Support** 

**Documentation** 

<https://152.70.167.62/hopsworks/>

**Feature Groups** **Training Datasets** **Feature Search** **Feature Store Details** **Storage Connectors** 

**FEATURES** 3 

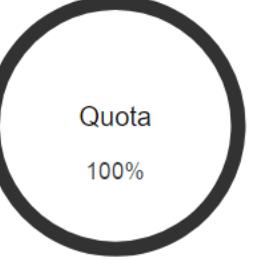
**FEATURE GROUPS** 1 

**TRAINING DATASETS** 0

**Cross-Project Features**  
Feature Stores can be shared across projects. Select a feature store below.  
Number of available feature stores: 1

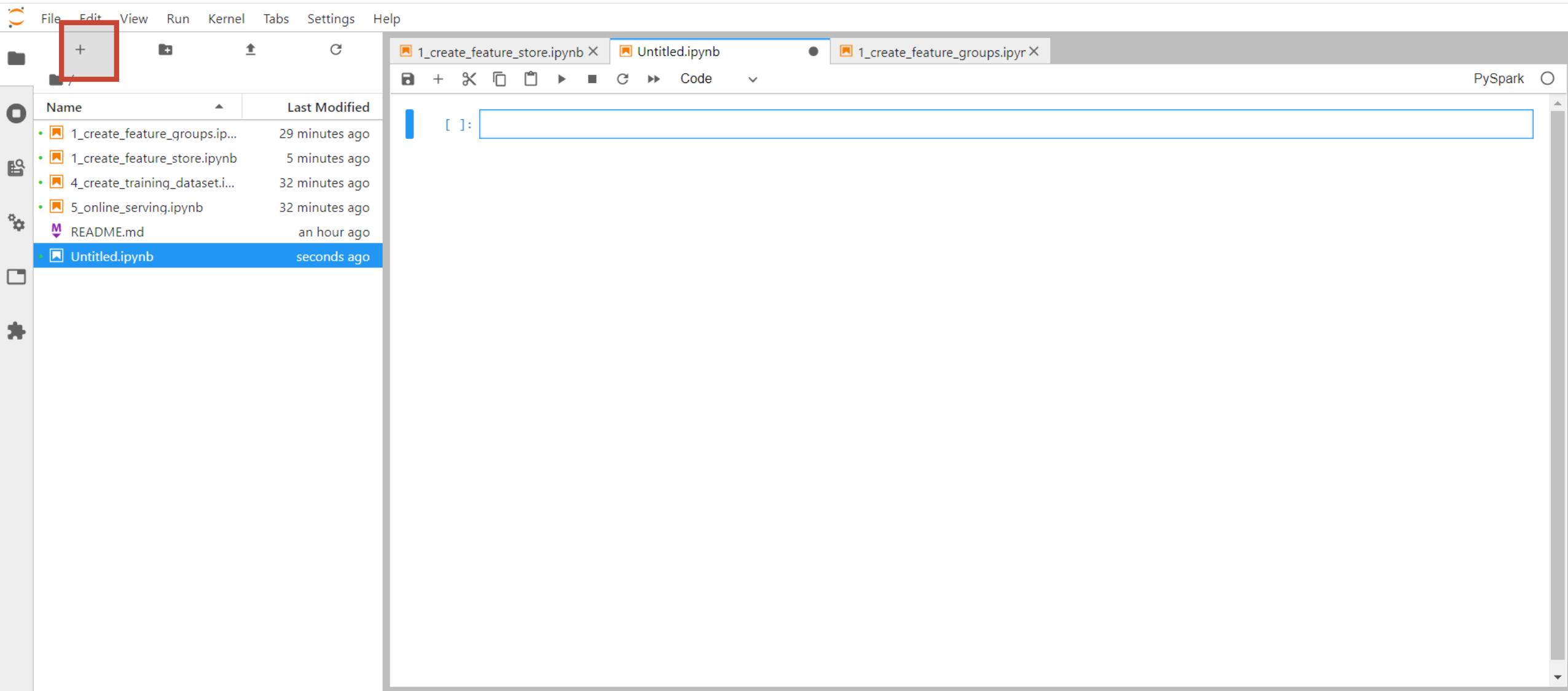
**Details**

**Id:** 1091  
**Offline Featurestore Name:** testholuser20\_featurestore  
**Offline Featurestore HDFS Path:** hdfs://namenode.service.consul:8020/apps/hive/warehouse/testholuser20\_featurestore.db  
**Hive Endpoint:** 10.0.0.216:9085  
**Offline Featurestore Size:** 0.9KB  
**Online Featurestore Enabled:** true  
**Online Featurestore Name:** testholuser20  
**Online Featurestore Size:** 0 MB  
**MySQL Server Endpoint:** jdbc:mysql://10.0.0.216:3306/?useSSL=false&allowPublicKeyRetrieval=true

  
Quota 100%  
unlimited of unlimited used (Offline Feature Store quota).

## STEP3: Implement Model Serving.

---



A screenshot of a Jupyter Notebook interface. The top navigation bar includes "File", "Edit", "View", "Run", "Kernel", "Tabs", "Settings", and "Help". A red box highlights the "File" icon in the top-left corner. The left sidebar shows a file tree with the following contents:

Name	Last Modified
1_create_feature_groups.ip...	29 minutes ago
1_create_feature_store.ipynb	5 minutes ago
4_create_training_dataset.i...	32 minutes ago
5_online_serving.ipynb	32 minutes ago
README.md	an hour ago
Untitled.ipynb	seconds ago

The main workspace contains three tabs: "1\_create\_feature\_store.ipynb", "Untitled.ipynb" (which is currently active), and "1\_create\_feature\_groups.ipynb". The Untitled.ipynb tab has a code editor area with a single line of code: "[ ]: ". The bottom status bar indicates "Saving completed", "Mode: Edit", "Ln 1, Col 1", and "Untitled.ipynb".

File Edit View Run Kernel Tabs Settings Help

PySpark

Name Last Modified

- 1\_create\_feature\_groups.ipynb 34 minutes ago
- 1\_create\_feature\_store.ipynb 10 minutes ago
- 4\_create\_training\_dataset.ipynb 37 minutes ago
- 5\_online\_serving\_store.ipynb seconds ago
- 5\_online\_serving.ipynb 37 minutes ago

README.md an hour ago

## Online Feature Serving

```
[1]: import hsfs
# Create a connection
connection = hsfs.connection()
# Get the feature store handle for the project's feature store
fs = connection.get_feature_store()
```

Starting Spark application

ID	YARN Application ID	Kind	State	Spark UI	Driver log
12	application_1624183360724_0004	pyspark	idle	<a href="#">Link</a>	<a href="#">Link</a>

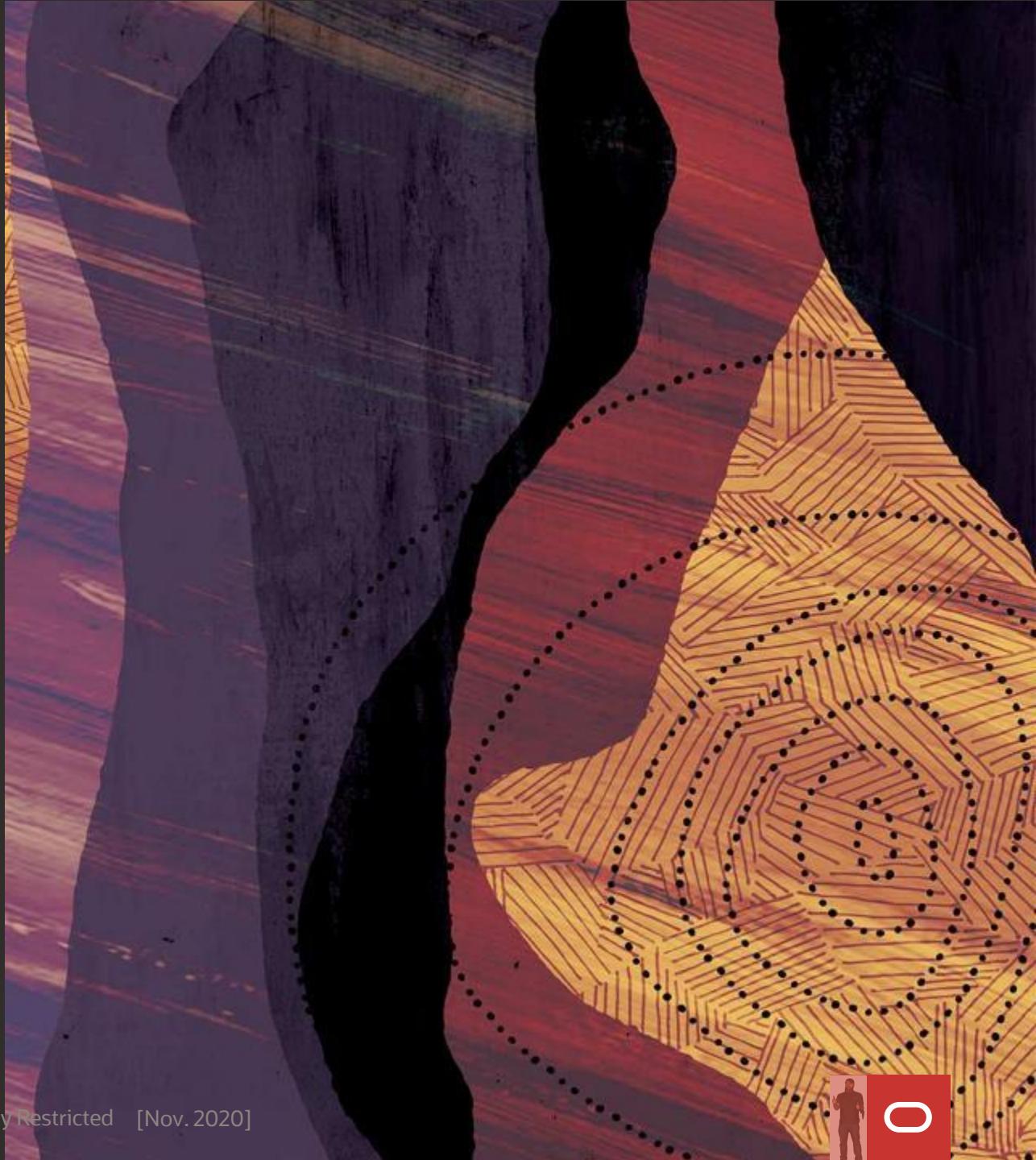
SparkSession available as 'spark'.  
Connected. Call `.`close()` to terminate connection gracefully.

```
[ ]:
```

# Thank You

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**DevRel Team**





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