



Oracle AI

- **AI Quick Actions**

Winning with AI





Oracle AI Workshop

AI Quick Actions na Plataforma Data Science





Speaker



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Declaração de porto seguro

O seguinte destina-se a descrever a nossa direção geral de produto. Destina-se apenas a fins informativos e não pode ser incorporado em nenhum contrato. Não é um compromisso entregar qualquer material, código ou funcionalidade, e não deve ser confiável na tomada de decisões de compra. O desenvolvimento, lançamento, tempo e preços de quaisquer recursos ou funcionalidades descritos para os produtos da Oracle podem mudar e permanecem a critério exclusivo da Oracle Corporation.

OCI AI Services

Applications

Fusion Applications

Fusion Analytics

NetSuite

Industry Applications

3rd Party Applications

Embedded Generative and Classic AI

AI Services

GenAI
Capabilities

NEW



GenAI

NEW



GenAI Agents



Digital Assistant



Speech



Language



Vision



Document
Understanding

ML and GenAI for Data Platforms

NEW



Oracle Database
Vector Search

NEW



Autonomous Database
Select AI

NEW



MySQL HeatWave
Vector Store and GenAI



Data Science



ML in Oracle
Database



MySQL HeatWave
AutoML



Data Labeling

Data

AI Infrastructure



Supercluster with RDMA networking



Compute GPU: bare metal, VMs, Kubernetes



Block, Object, File Storage, HPC filesystems

AI Partners and ISVs

OCI AI Services

Applications


- Fusion Applications
- Fusion Analytics
- NetSuite
- Industry Applications
- 3rd Party Applications

Embedded Generative and Classic AI


AI Services


GenAI Capabilities


- NEW





GenAI
- NEW




GenAI Agents
- 

Digital Assistant
- 

Speech
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Language
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Document Understanding

ML and GenAI for Data Platforms

- NEW



Oracle Database Vector Search
- NEW



Autonomous Database Select AI
- NEW



MySQL HeatWave Vector Store and GenAI
- 

Data Science
- 


ML in Oracle Database
- 


MySQL HeatWave AutoML
- 


Data Labeling

Data

AI Infrastructure

- 

Supercluster with RDMA networking
- 

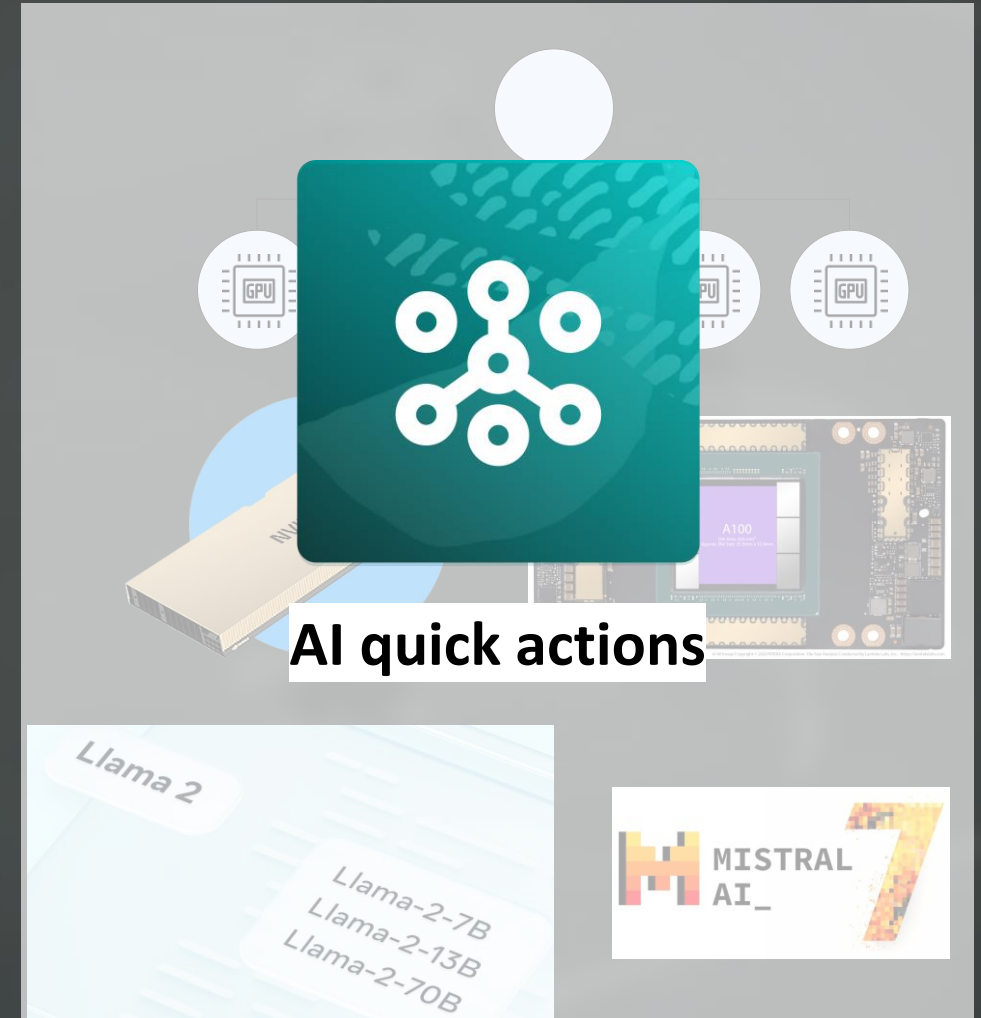
Compute GPU: bare metal, VMs, Kubernetes
- 

Block, Object, File Storage, HPC filesystems

AI Partners and ISVs

OCI Data Science – AI quick actions

- Deploy e Fine tune de vários Foundation Models
- Fine tuning utilizando dados próprios
- Teste o modelo logo após colocá-lo em produção
- Avalie seus modelos para garantir a qualidade
- Implante LLMs usando servidores de inferência especializados como TGI e vLLM
- Bring your own model do HuggingFace ou fine tuned
- Use NVIDIA GPUs avançadas como A10 e A100



Paso 1: Carregar Dataset: JSONL

1. Gere um conjunto de dados que atenda aos nossos requisitos. Podemos usar várias ferramentas para gerar o arquivo JSONL

```
File Edit Selection View Go Run Terminal Help
oci.datasource.lm.codellama

dataset-plsql-no-ops-message.jsonl
1 [{"prompt": "¿Cómo se hace un SELECT en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table_name;", "category": "math"}]
2 [{"prompt": "¿Cómo se hace un SELECT en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table_name;", "category": "math"}]
3 [{"prompt": "¿Cómo se hace un SELECT DISTINCT en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT DISTINCT column1, column2 FROM table_name;", "category": "math"}]
4 [{"prompt": "¿Cómo se hace un SELECT DISTINCT en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT DISTINCT column1, column2 FROM table_name;", "category": "math"}]
5 [{"prompt": "¿Cómo se hace un SELECT con una condición en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table_name WHERE condition;", "category": "math"}]
6 [{"prompt": "¿Cómo se hace un SELECT con una condición en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table_name WHERE condition;", "category": "math"}]
7 [{"prompt": "¿Cómo se hace un SELECT con ORDER BY en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table_name ORDER BY column1 ASC|DESC;", "category": "math"}]
8 [{"prompt": "¿Cómo se hace un SELECT con ORDER BY en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table_name ORDER BY column1 ASC|DESC;", "category": "math"}]
9 [{"prompt": "¿Cómo se hace un SELECT con GROUP BY en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, aggregate_function(column2) FROM table_name GROUP BY column1;", "category": "math"}]
10 [{"prompt": "¿Cómo se hace un SELECT con GROUP BY en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, aggregate_function(column2) FROM table_name GROUP BY column1;", "category": "math"}]
11 [{"prompt": "¿Cómo se hace un SELECT con HAVING en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, aggregate_function(column2) FROM table_name GROUP BY column1 HAVING condition;", "category": "math"}]
12 [{"prompt": "¿Cómo se hace un SELECT con HAVING en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, aggregate_function(column2) FROM table_name GROUP BY column1 HAVING condition;", "category": "math"}]
13 [{"prompt": "¿Cómo se hace un SELECT con LIMIT en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table_name LIMIT number;", "category": "math"}]
14 [{"prompt": "¿Cómo se hace un SELECT con ROWNUM en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table_name WHERE ROWNUM <= number;", "category": "math"}]
15 [{"prompt": "¿Cómo se hace un INNER JOIN en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table1 INNER JOIN table2 ON table1.column = table2.column;", "category": "math"}]
16 [{"prompt": "¿Cómo se hace un INNER JOIN en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table1 INNER JOIN table2 ON table1.column = table2.column;", "category": "math"}]
17 [{"prompt": "¿Cómo se hace un LEFT JOIN en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table1 LEFT JOIN table2 ON table1.column = table2.column;", "category": "math"}]
18 [{"prompt": "¿Cómo se hace un LEFT JOIN en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table1 LEFT JOIN table2 ON table1.column = table2.column;", "category": "math"}]
19 [{"prompt": "¿Cómo se hace un RIGHT JOIN en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table1 RIGHT JOIN table2 ON table1.column = table2.column;", "category": "math"}]
20 [{"prompt": "¿Cómo se hace un RIGHT JOIN en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table1 RIGHT JOIN table2 ON table1.column = table2.column;", "category": "math"}]
21 [{"prompt": "¿Cómo se hace un FULL OUTER JOIN en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table1 FULL OUTER JOIN table2 ON table1.column = table2.column;", "category": "math"}]
22 [{"prompt": "¿Cómo se hace un FULL OUTER JOIN en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table1 FULL OUTER JOIN table2 ON table1.column = table2.column;", "category": "math"}]
23 [{"prompt": "¿Cómo se hace un CROSS JOIN en SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table1 CROSS JOIN table2;", "category": "math"}]
24 [{"prompt": "¿Cómo se hace un CROSS JOIN en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: SELECT column1, column2 FROM table1 CROSS JOIN table2;", "category": "math"}]
25 [{"prompt": "¿Cómo se hace un INSERT en SQL? [/INST]", "completion": "Se hace de la siguiente forma: INSERT INTO table_name (column1, column2) VALUES (value1, value2);", "category": "math"}]
26 [{"prompt": "¿Cómo se hace un INSERT en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: INSERT INTO table_name (column1, column2) VALUES (value1, value2);", "category": "math"}]
27 [{"prompt": "¿Cómo se hace un INSERT SELECT en SQL? [/INST]", "completion": "Se hace de la siguiente forma: INSERT INTO table_name (column1, column2) SELECT column1, column2 FROM another_table WHERE condition;", "category": "math"}]
28 [{"prompt": "¿Cómo se hace un INSERT SELECT en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: INSERT INTO table_name (column1, column2) SELECT column1, column2 FROM another_table WHERE condition;", "category": "math"}]
29 [{"prompt": "¿Cómo se hace un UPDATE en SQL? [/INST]", "completion": "Se hace de la siguiente forma: UPDATE table_name SET column1 = value1, column2 = value2 WHERE condition;", "category": "math"}]
30 [{"prompt": "¿Cómo se hace un UPDATE en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: UPDATE table_name SET column1 = value1, column2 = value2 WHERE condition;", "category": "math"}]
31 [{"prompt": "¿Cómo se hace un DELETE en SQL? [/INST]", "completion": "Se hace de la siguiente forma: DELETE FROM table_name WHERE condition;", "category": "math"}]
32 [{"prompt": "¿Cómo se hace un DELETE en PL/SQL? [/INST]", "completion": "Se hace de la siguiente forma: DELETE FROM table_name WHERE condition;", "category": "math"}]
33 [{"prompt": "¿Cómo se crea una tabla en SQL? [/INST]", "completion": "Se hace de la siguiente forma: CREATE TABLE table_name (column1 datatype, column2 datatype, ...);", "category": "math"}]
```


Paso 1: Carregar Dataset: JSONL

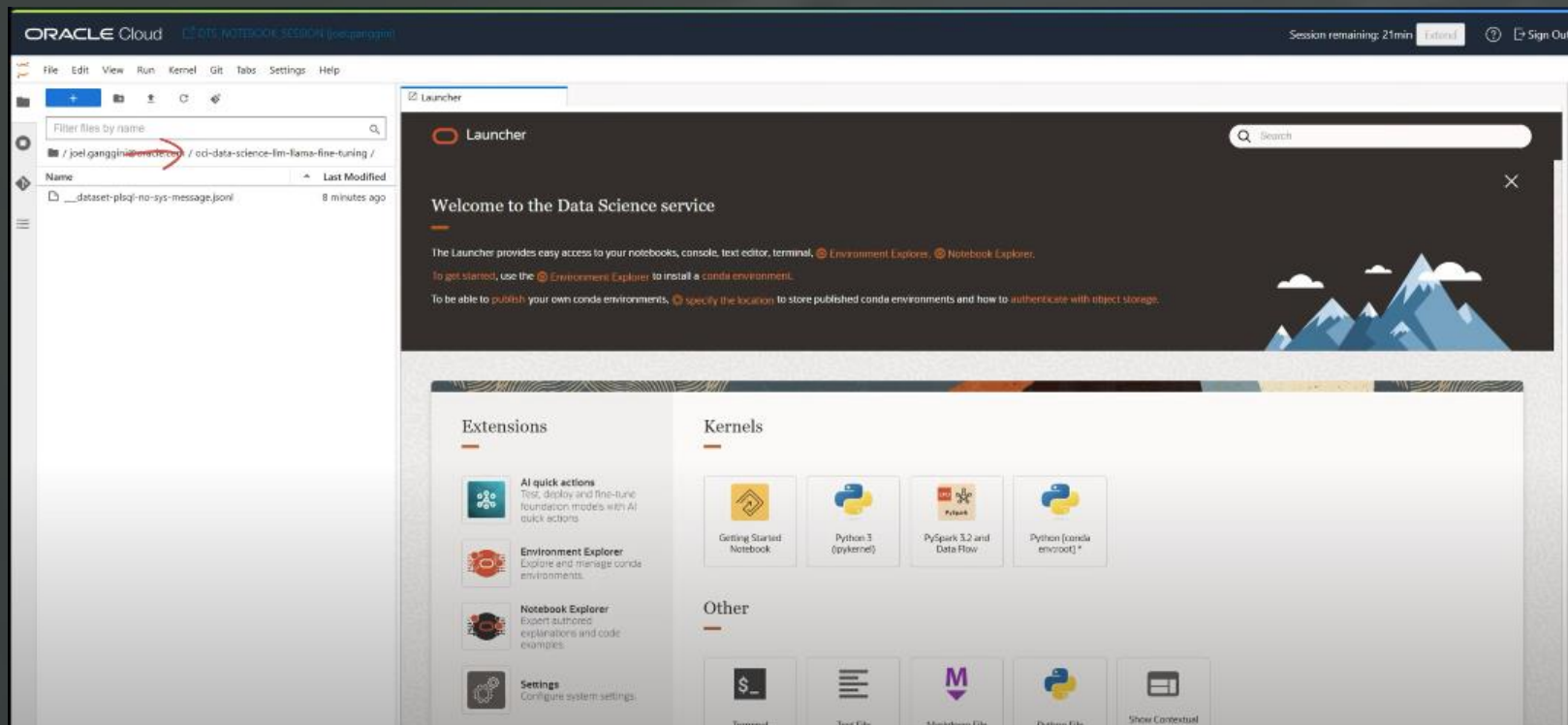
1. Gere um conjunto de dados que atenda aos nossos requisitos. Podemos usar várias ferramentas para gerar o arquivo JSONL

1.0 Acesse o link ou QRCode abaixo para baixar o arquivo



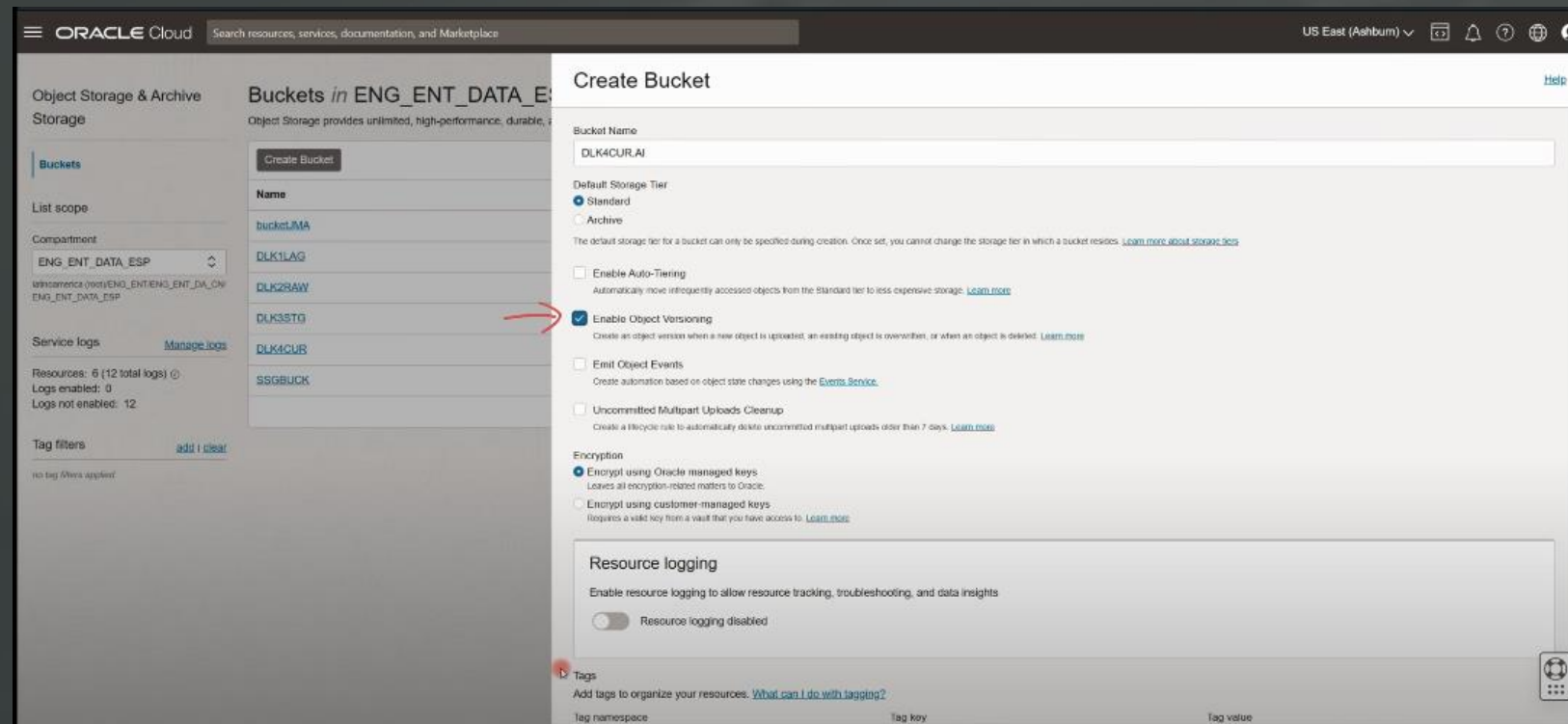
Paso 2: Criar Bucket: Habilitar Object Versioning

2. Carregue o conjunto de dados no Data Science. Ele também pode ser carregado diretamente em um bucket no Object Storage



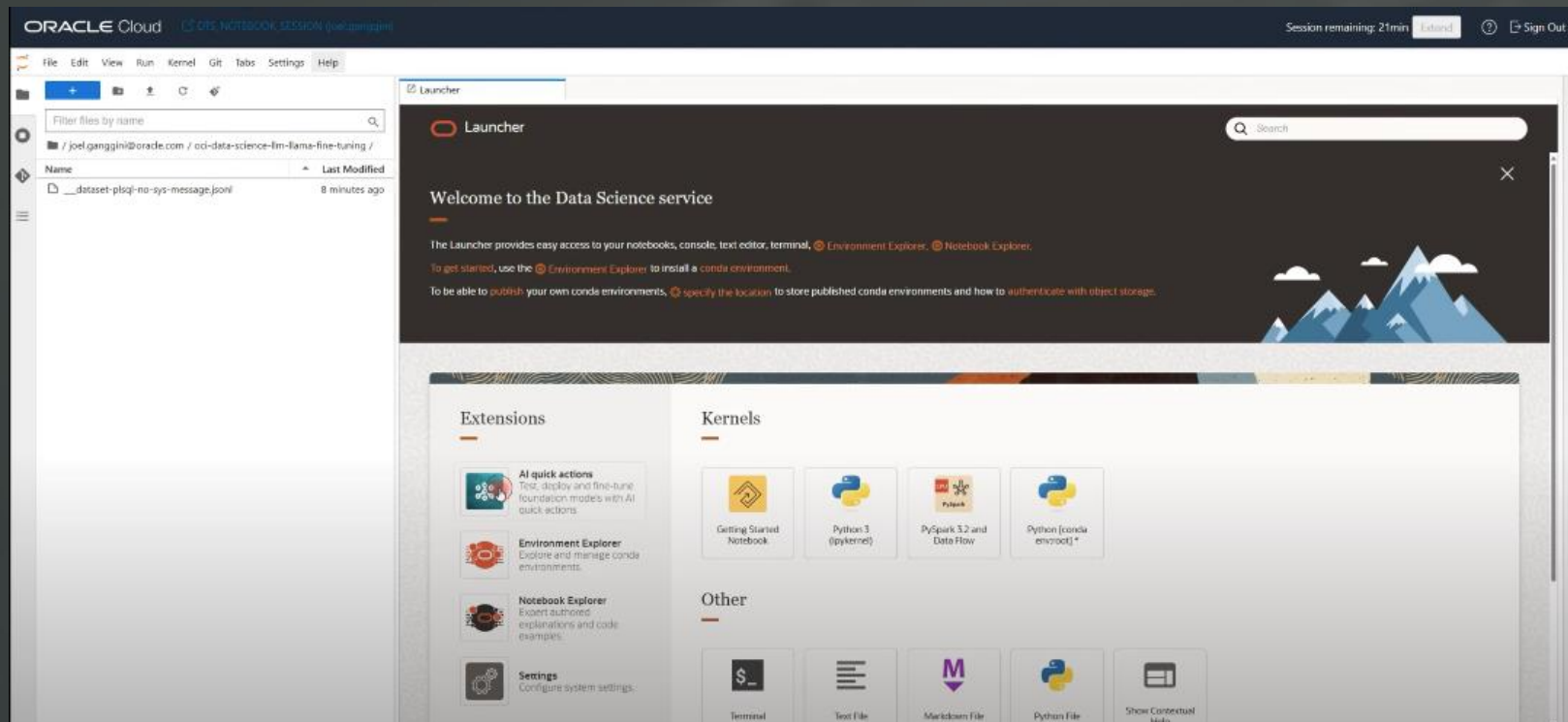
Paso 3: AI Quick Actions: Fine-Tuned Model

3.1 Como pré-requisito, precisamos ter um Bucket com o “Enable Object Versioning”



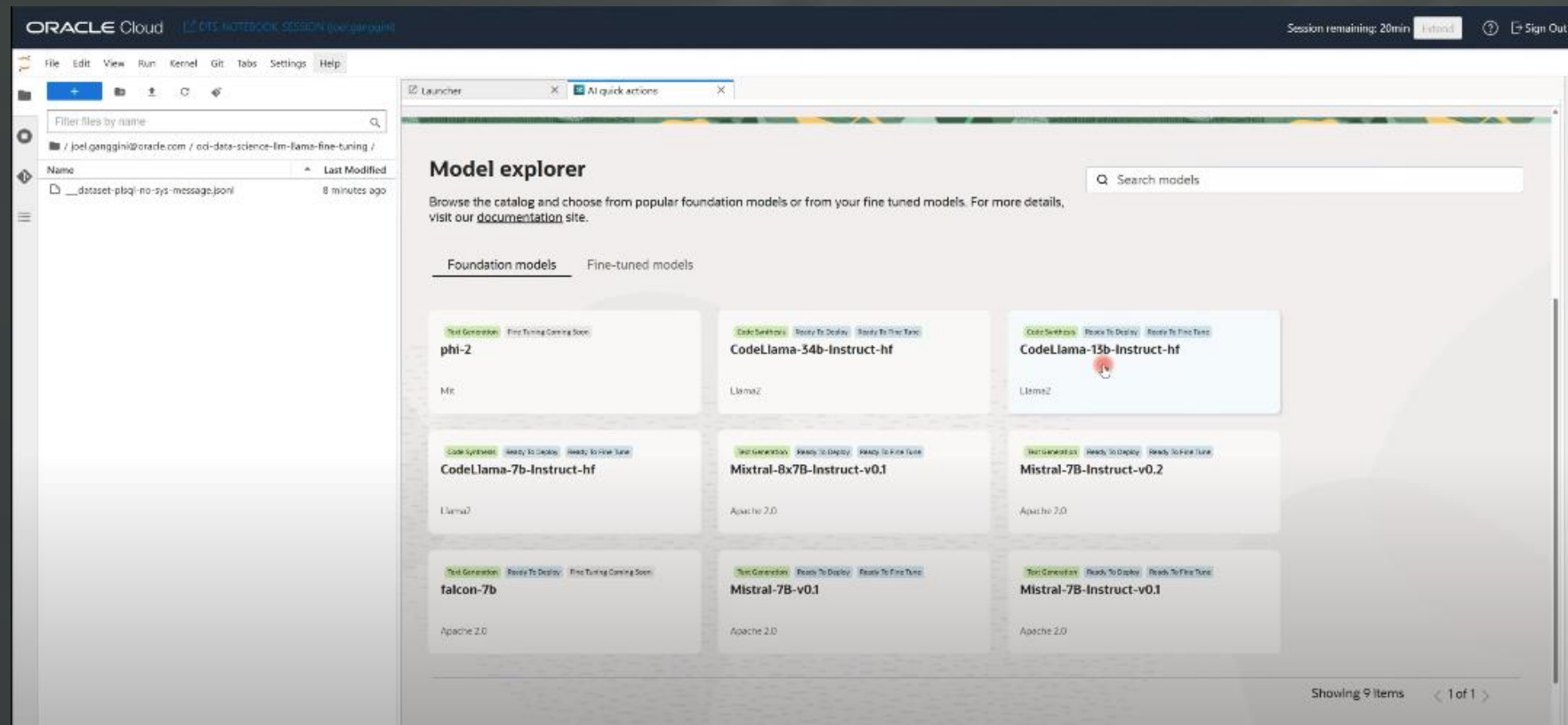
Paso 3: AI Quick Actions: Fine-Tuned Model

3.2 Depois de criar o repositório, voltamos para Data Science e, nas extensões, selecionamos AI Quick Actions



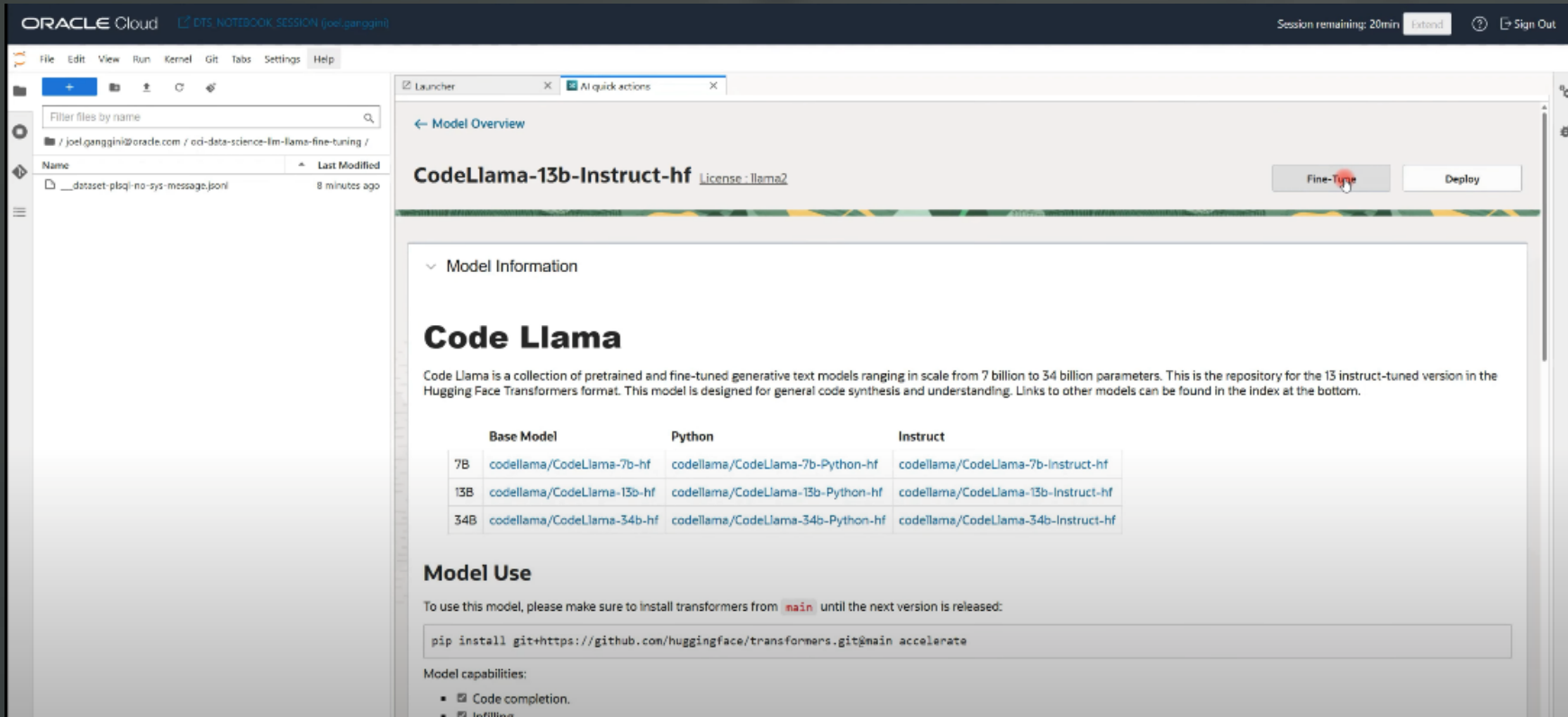
Paso 3: AI Quick Actions: Fine-Tuned Model

3.3 No Explorador de Modelos, seleccionamos o modelo que precisamos. No nosso caso, usaremos o Código Llama 13b



Paso 3: AI Quick Actions: Fine-Tuned Model

3.4 Seleccionar Fine-Tuned



The screenshot shows the Oracle Cloud AI Quick Actions interface. The top bar includes the Oracle Cloud logo, a session link, and a session timer. The left sidebar shows a file explorer with a search bar and a list of files. The main content area is titled 'Model Overview' and displays the 'CodeLlama-13b-Instruct-hf' model. A 'Fine-Tune' button is highlighted with a red circle. Below the model name, there is a 'Model Information' section with a description of Code Llama and a table of model variants. The 'Model Use' section provides instructions on how to use the model and lists its capabilities.

CodeLlama-13b-Instruct-hf [License: llama2](#) Fine-Tune Deploy

Model Information

Code Llama

Code Llama is a collection of pretrained and fine-tuned generative text models ranging in scale from 7 billion to 34 billion parameters. This is the repository for the 13 instruct-tuned version in the Hugging Face Transformers format. This model is designed for general code synthesis and understanding. Links to other models can be found in the index at the bottom.

	Base Model	Python	Instruct
7B	codellama/CodeLlama-7b-hf	codellama/CodeLlama-7b-Python-hf	codellama/CodeLlama-7b-Instruct-hf
13B	codellama/CodeLlama-13b-hf	codellama/CodeLlama-13b-Python-hf	codellama/CodeLlama-13b-Instruct-hf
34B	codellama/CodeLlama-34b-hf	codellama/CodeLlama-34b-Python-hf	codellama/CodeLlama-34b-Instruct-hf

Model Use

To use this model, please make sure to install transformers from `main` until the next version is released:

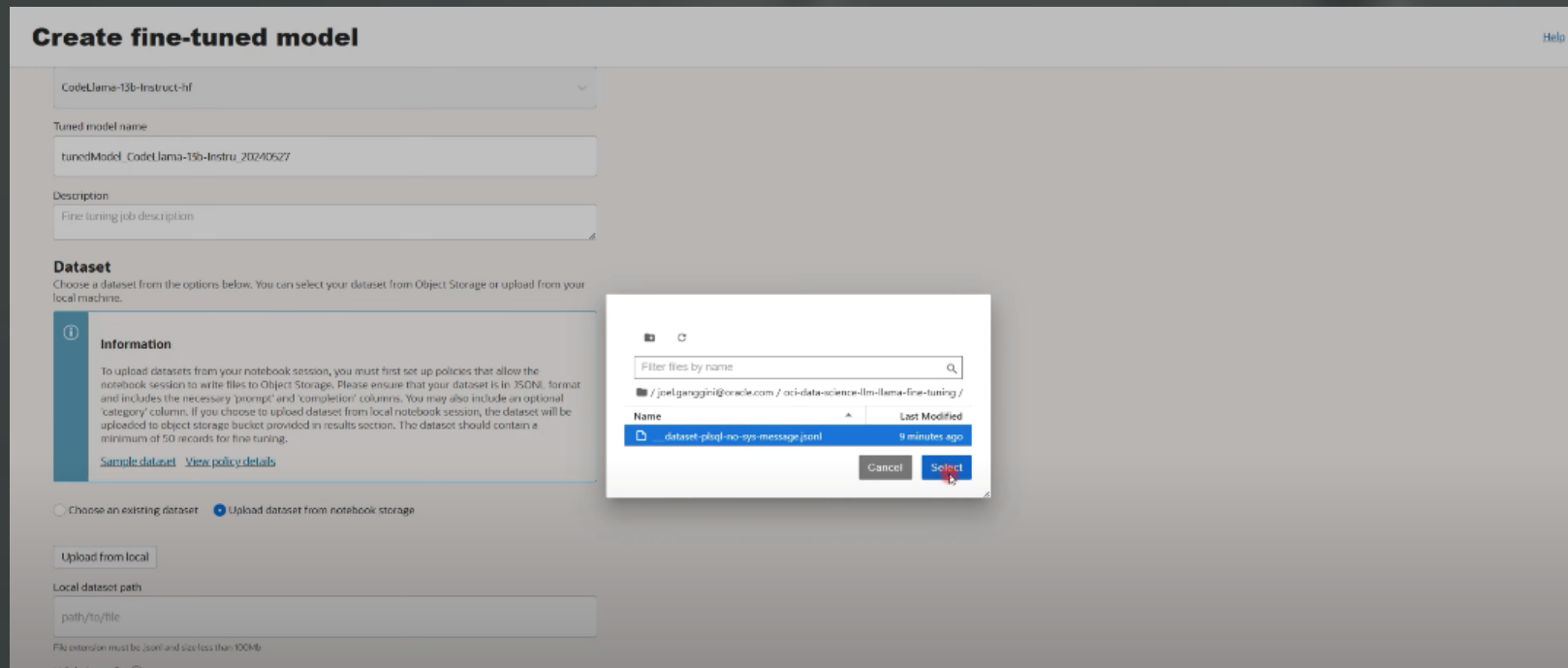
```
pip install git+https://github.com/huggingface/transformers.git@main accelerate
```

Model capabilities:

- ☒ Code completion.
- ☒ Infilling.

Paso 3: AI Quick Actions: Fine-Tuned Model

3.5 Na primeira etapa, selecionamos o modelo e o conjunto de dados. Inserimos onde nosso conjunto de dados está localizado e o selecionamos



The screenshot shows the 'Create fine-tuned model' interface. The 'Model' section has a dropdown menu set to 'CodeLlama-13b-Instruct-hf'. The 'Tuned model name' field contains 'tunedModel_CodeLlama-13b-Instru_20240527'. The 'Description' field contains 'Fine tuning job description'. The 'Dataset' section has a sub-section 'Information' with text explaining the upload process and links for 'Sample dataset' and 'View policy details'. Below this, there are two radio buttons: 'Choose an existing dataset' (unselected) and 'Upload dataset from notebook storage' (selected). The 'Upload from local' button is visible. The 'Local dataset path' field contains 'path/to/file'. A file selection dialog is open over the 'Upload from local' button, showing a search bar and a table of files. The table has columns 'Name' and 'Last Modified'. The file 'dataset-plot-no-sys-message.json' is selected, with a 'Select' button highlighted.

Create fine-tuned model

CodeLlama-13b-Instruct-hf

Tuned model name

tunedModel_CodeLlama-13b-Instru_20240527

Description

Fine tuning job description

Dataset

Choose a dataset from the options below. You can select your dataset from Object Storage or upload from your local machine.

Information

To upload datasets from your notebook session, you must first set up policies that allow the notebook session to write files to Object Storage. Please ensure that your dataset is in JSONL format and includes the necessary 'prompt' and 'completion' columns. You may also include an optional 'category' column. If you choose to upload dataset from local notebook session, the dataset will be uploaded to object storage bucket provided in results section. The dataset should contain a minimum of 50 records for fine tuning.

[Sample dataset](#) [View policy details](#)

☐ Choose an existing dataset ☒ Upload dataset from notebook storage

Upload from local

Local dataset path

path/to/file

File extension must be .json and size less than 100Mb

Validating path...

Filter files by name

/ joelganggini@oracle.com / oci-data-science-llm-llama-fine-tuning /

Name	Last Modified
dataset-plot-no-sys-message.json	9 minutes ago

Cancel Select

Paso 3: AI Quick Actions: Fine-Tuned Model

3.6 Creamos una tag de versionamiento para nuestro modelo e seleccionamos el bucket que acabamos de crear para salvar los resultados. Seleccionar “Next”

Create fine-tuned model [Help](#)

`joei.pang@myoracle.com/oci-data-science-llm-llama-fine-tuning/...dataset-psql-no-sys-message.jsonl`

File extension must be .jsonl and size less than 100Mb

Validation split ⓘ

Test: 10% Train: 90%

Output model version set

Choose a model version set for this fine tuned model. Or create a new version set.

☐ Choose an existing version set ☒ Create a new version set

Version set name

llama.psql.1.0

Version set description ⓘ Optional

Version set description

Results

Choose bucket information to save the fine tuned model.

Select compartment

ENG_FNT_DATA_R5P

Object storage location ⓘ

DLK4CURAI

Object storage path ⓘ Optional

oci://DLK4CURAI@id10da010nx/ path/to/dir

Must be a directory

Paso 3: AI Quick Actions: Fine-Tuned Model

3.7 Na segunda etapa, selecionamos a infraestrutura. Escolhemos a GPU que usaremos.

Create fine-tuned model

Help

Fine tuning is the process of taking a pre-trained model and further training it on a domain specific dataset to improve their knowledge and provide better responses in that domain.

1

2

3

Model/DatasetInfrastructureReview & create

Infrastructure

Select values from the following lists to configure your infrastructure.

Instance shape

VM.CPU.A10.1

VM.GPU.A10.1

VM.GPU.A10.2

BM.CPU.A10.4

Range: 1-10

Networking

Setup Networking for jobs.

Select VCN: Optional

Select VCN

Select subnet: Optional

No VCN selected

Logging

Select logging configuration.

Paso 3: AI Quick Actions: Fine-Tuned Model

3.8 Nas redes, selecionamos a mesma VCN do OCI Data Science Notebook

Create fine-tuned model [Help](#)

VM.GPU.A10.1

Replicas

1

Range: 1-10

Networking
Setup Networking for jobs.

Select VCN: Optional

VCN_PROJECT

Select subnet: Optional

private subnet-VCN_PROJECT

Logging
Select logging configuration

Log group: Optional

No log groups

Log: Optional

No log group available to show logs

Parameters
Choose parameters for this fine tuning

Epochs: ⓘ

1

Learning rate

0.0002

Range: 1-50

Paso 3: AI Quick Actions: Fine-Tuned Model

3.8 Em "Parâmetros" podemos aumentar as épocas. Selecione "Next" e depois "Submit" (retornará ao AI Quick Actions)

Create fine-tuned model [Help](#)

Replicas

1

Range: 1-10

Networking

Setup Networking for jobs.

Select VCN: Optional

VCN_PROJECT X

Select subnet: Optional

private-subnet-VCN_PROJECT X

Logging

Select logging configuration

Log group: Optional

No log groups

Log: Optional

No log group available to show logs

Parameters

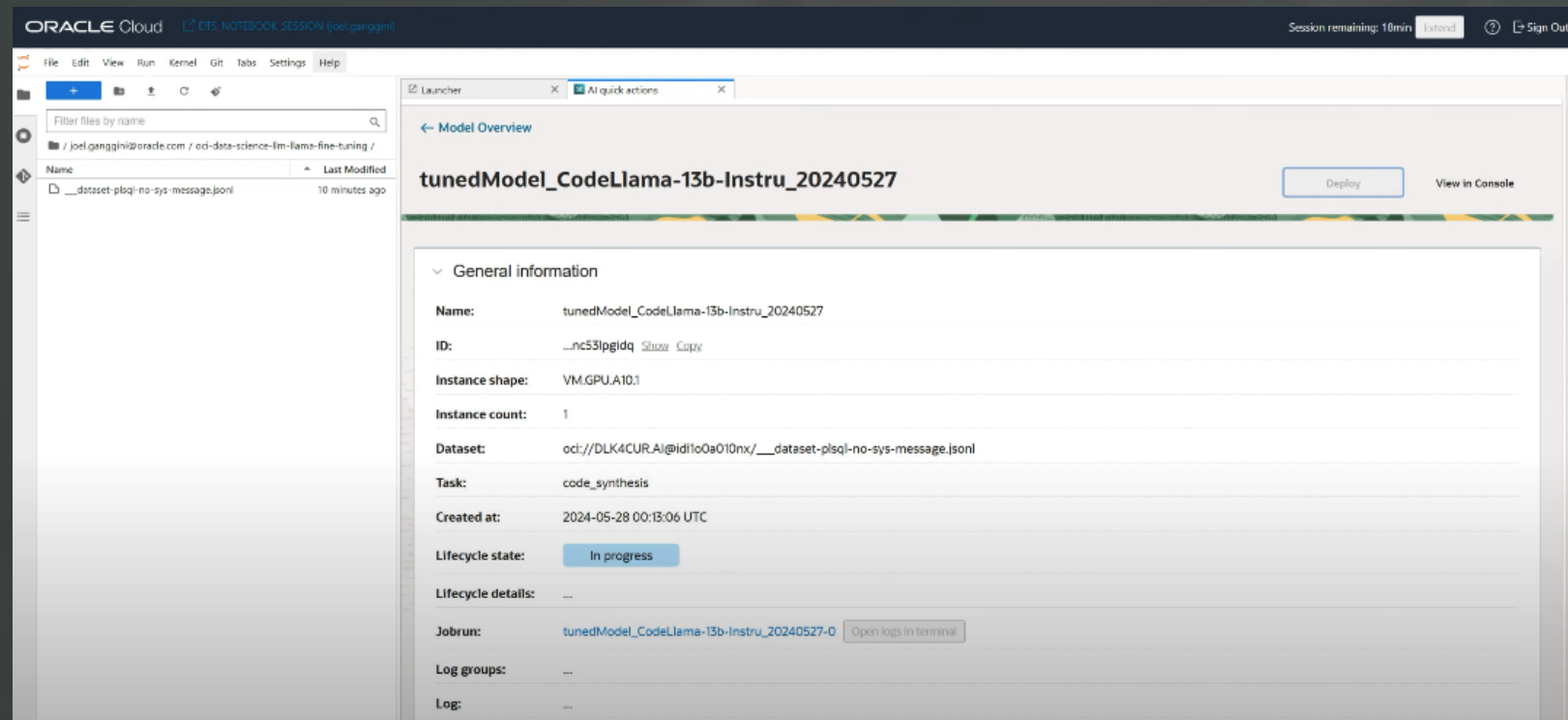
Choose parameters for this fine tuning

Epochs: 5 Learning rate: 0.0002

Range: 1-50

Paso 3: AI Quick Actions: Fine-Tuned Model

3.9 Seleccionar View Console



Paso 3: AI Quick Actions: Fine-Tuned Model

3.10 No console da OCI, podemos ver o status de execução do nosso modelo (aguarde até que ele termine de ser executado). Quando terminar, selecione a origem do modelo.

ORACLE Cloud

Search resources, services, documentation, and Marketplace

US East (Ashburn)

Data Science > Projects > DTS_PROJECT: Models > tunedModel_CodeLlama-13b-Instru_20240527

M

ACTIVE

tunedModel_CodeLlama-13b-Instru_20240527

Edit

Deactivate

Add model to version set

Download model artifacts

More actions

Model information

Version set information

Tags

Description:

Created by: ...ngpwyuhq

Created: Tue, May 28, 2024, 00:13:06 UTC

OCID: ...nc53pgj0q

Model artifacts: ocid1.datasciencemodel.oc1.lad.amaaaaaafcl71a3d9mhulsikocst3zqxy4pkqmsqy4likob5nc53pgldq.json (49.03 GB)

Resources

Model provenance

Model taxonomy

Associated model deployments

Model introspection

Input and output data scheme

Model provenance

Model provenance is a piece of documentation that helps you improve the model reproducibility and auditability. You can document the resource that the model was trained in (either a notebook session or job run), and the Git reference to the training source code. These parameters are automatically extracted when you save a model with the Accelerated Data Science (ADS) SDK.

Training resource

Model training source code

Resource name	Resource type	Compartment name	Status	Created by	Created
tunedModel_CodeLlama-13b-Instru_20240527-0	Job run	ENG_ENT_DATA_ESP	Succeeded	...ngpwyuhq	

Showing 1 item

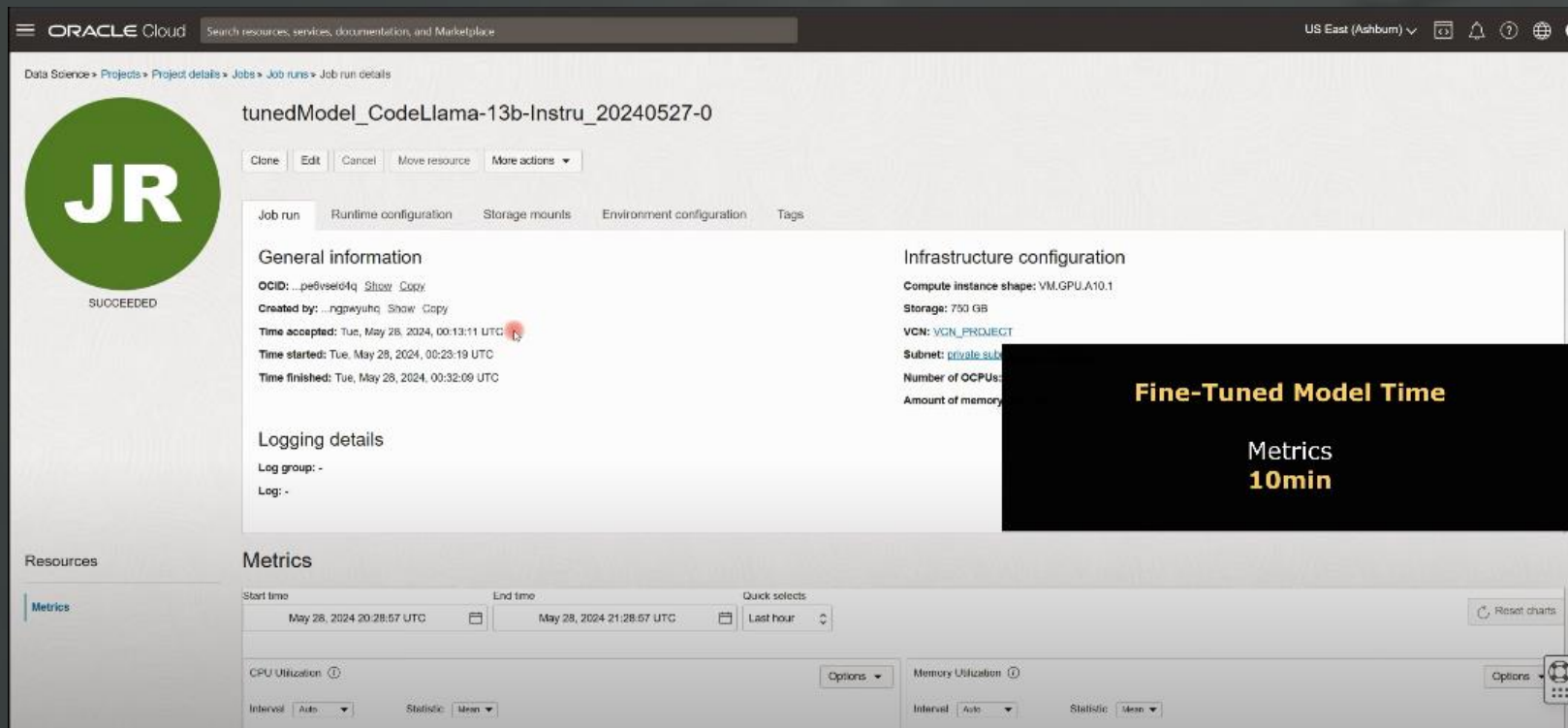
[Date]

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Internal/Restricted/Highly Restricted

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Paso 3: AI Quick Actions: Fine-Tuned Model

3.11 Podemos ver que o tempo de execução do ajuste fino do nosso modelo foi de aproximadamente 10 minutos



The screenshot displays the Oracle Cloud console interface for a job run named "tunedModel_CodeLlama-13b-Instru_20240527-0". The job run is marked as "SUCCEEDED" with a green "JR" icon. The "General information" section shows the following details:

- OCID: ...pe5velotq (Show Copy)
- Created by: ...ngweyuhq (Show Copy)
- Time accepted: Tue, May 28, 2024, 00:13:11 UTC
- Time started: Tue, May 28, 2024, 00:23:19 UTC
- Time finished: Tue, May 28, 2024, 00:32:09 UTC

The "Infrastructure configuration" section lists:

- Compute instance shape: VM.GPU.A10.1
- Storage: 750 GB
- VCN: VCN_PROJECT
- Subnet: private-sub
- Number of OCPUs: 1
- Amount of memory: 128 GB

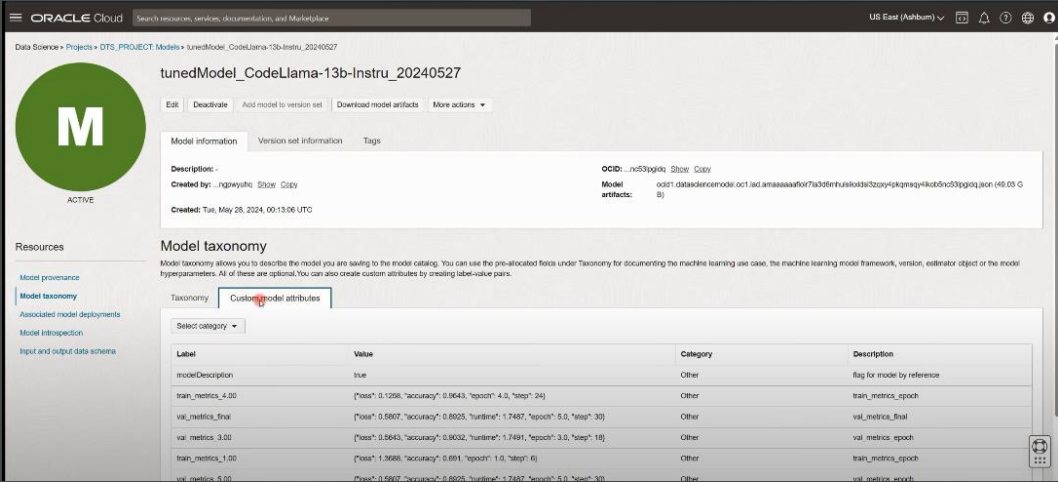
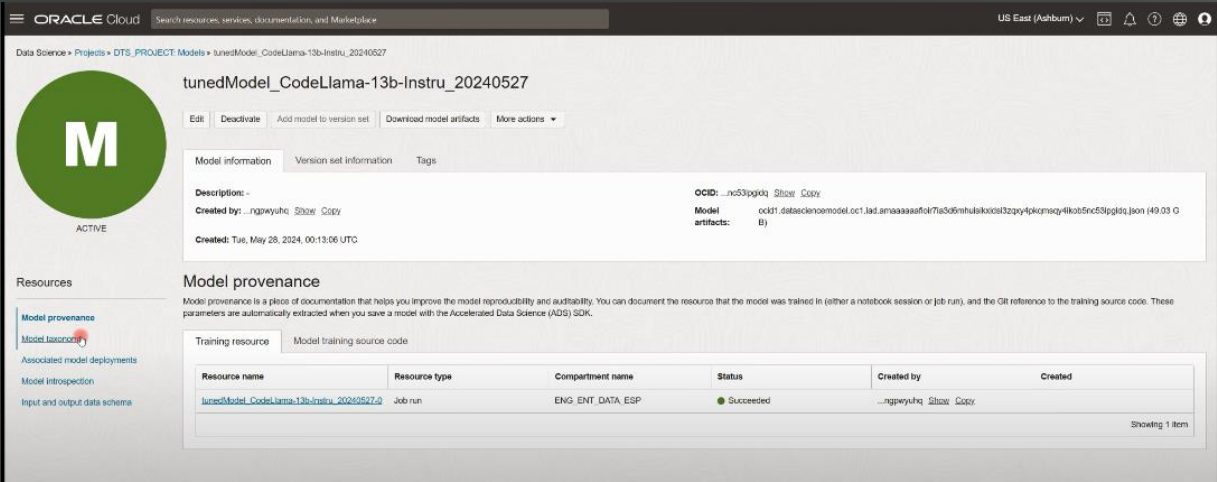
A black overlay box with yellow text is positioned over the infrastructure configuration, stating:

Fine-Tuned Model Time
Metrics
10min

The "Metrics" section at the bottom shows a graph for CPU Utilization and Memory Utilization. The start time is May 28, 2024 20:28:57 UTC, and the end time is May 28, 2024 21:28:57 UTC. The quick select is set to "Last hour". The graph shows a single data point for CPU Utilization at 100%.

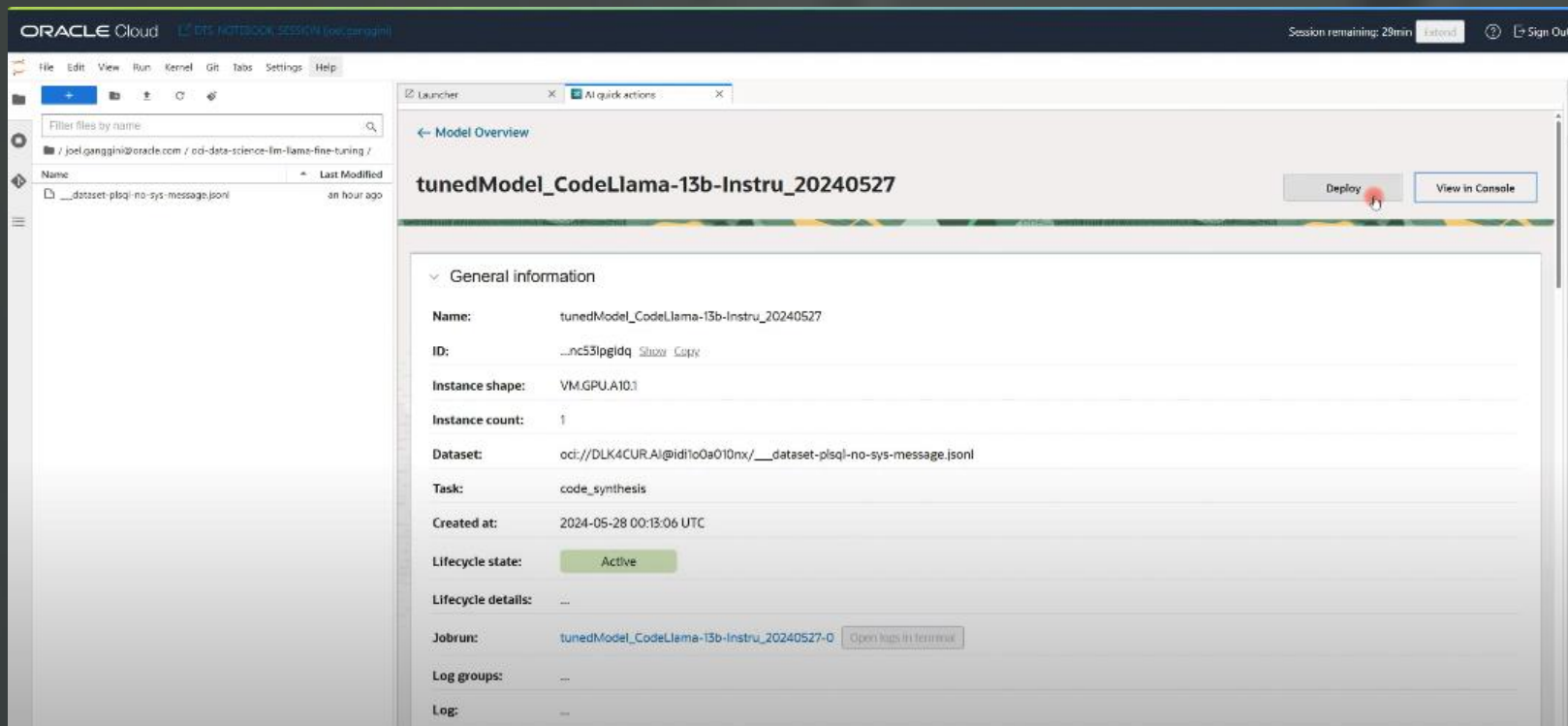
Paso 3: AI Quick Actions: Fine-Tuned Model

3.12 Também podemos olhar para a taxonomia do nosso modelo para examinar os parâmetros com os quais ele foi executado e os atributos do modelo.



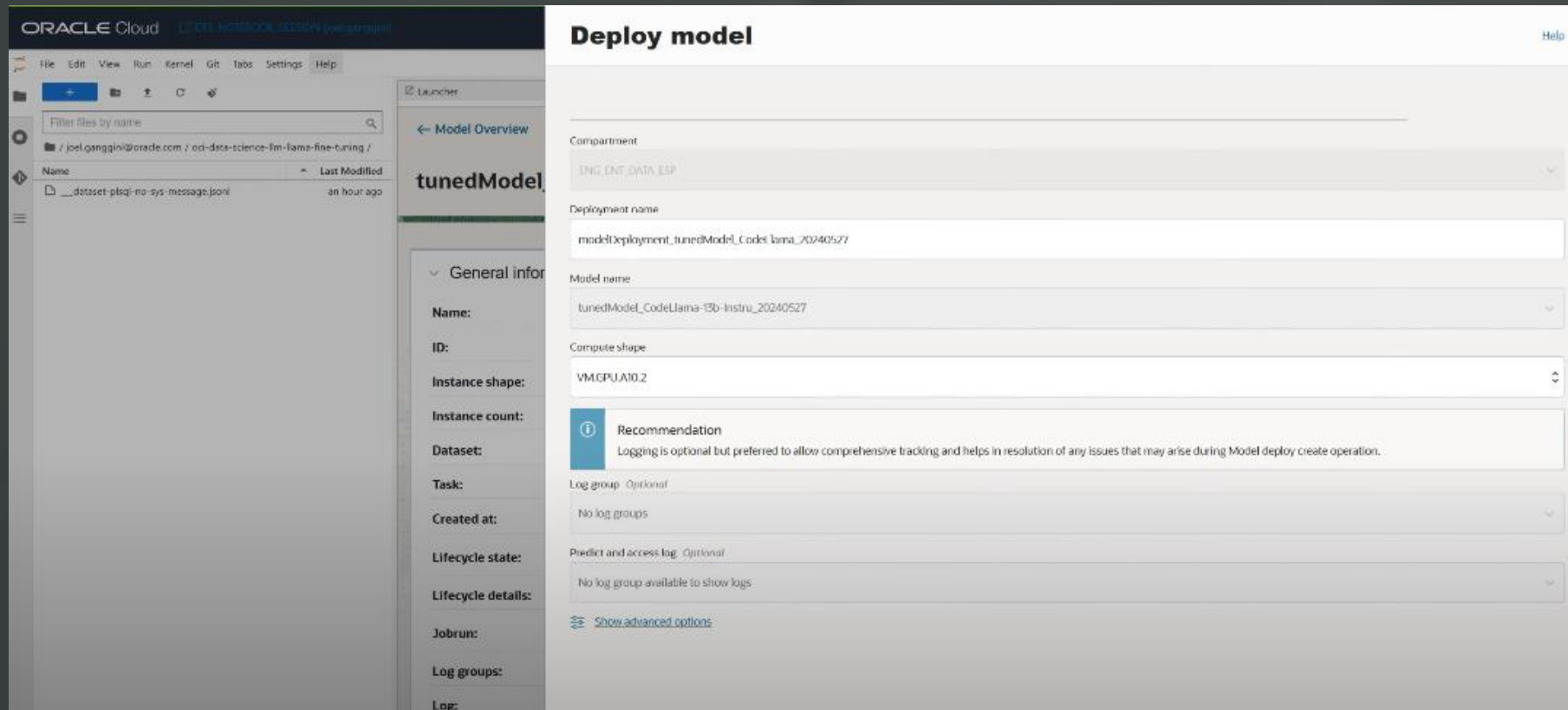
Paso 3: AI Quick Actions: Fine-Tuned Model

3.13 Voltamos ao AI Quick Actions implantar nosso modelo para torná-lo acessível a usuários e aplicativos, permitir sua escalabilidade, monitoramento, manutenção e otimizar seu desempenho em um ambiente de produção.



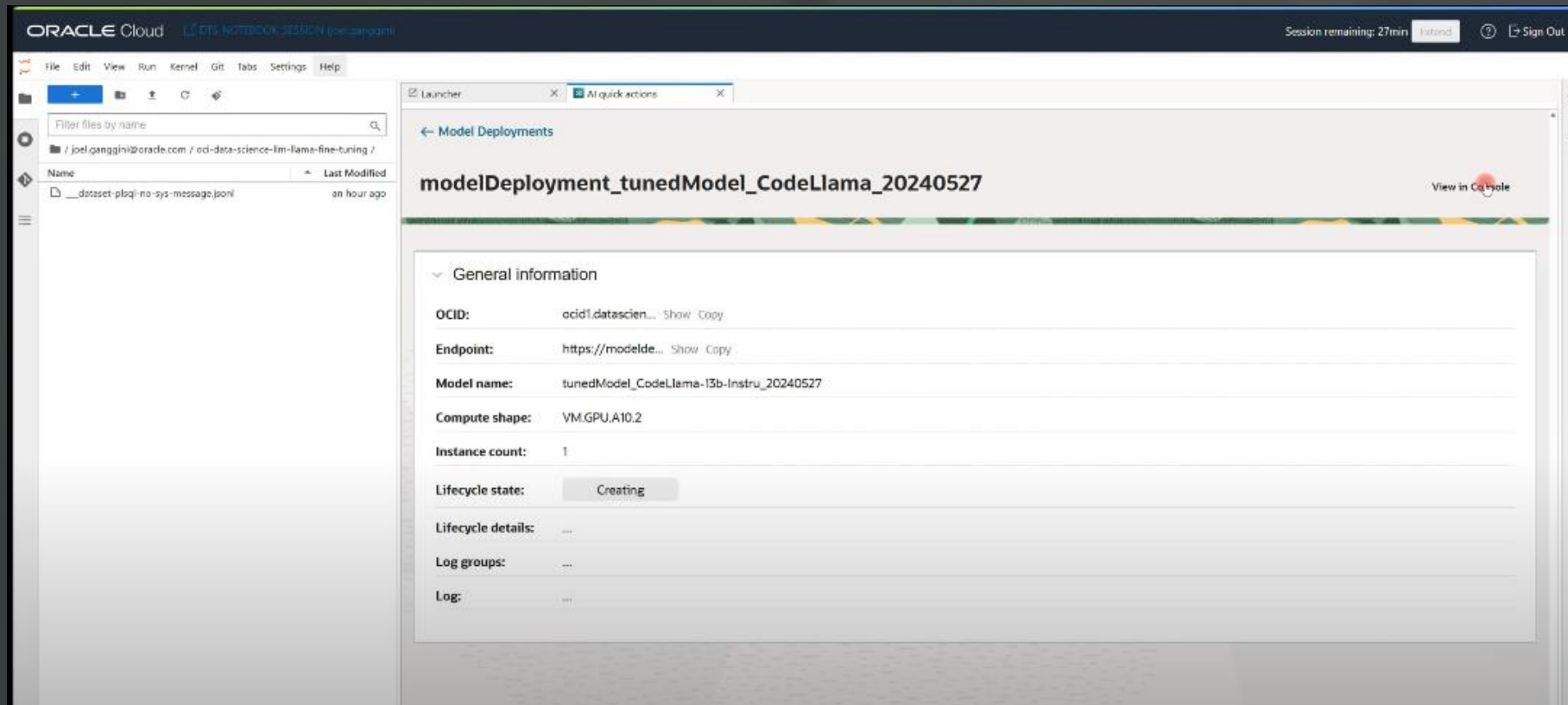
Paso 3: AI Quick Actions: Fine-Tuned Model

3.14 Podemos seleccionar o shape com a GPU que queremos estar disponíveis em nosso modelo



Paso 3: AI Quick Actions: Fine-Tuned Model

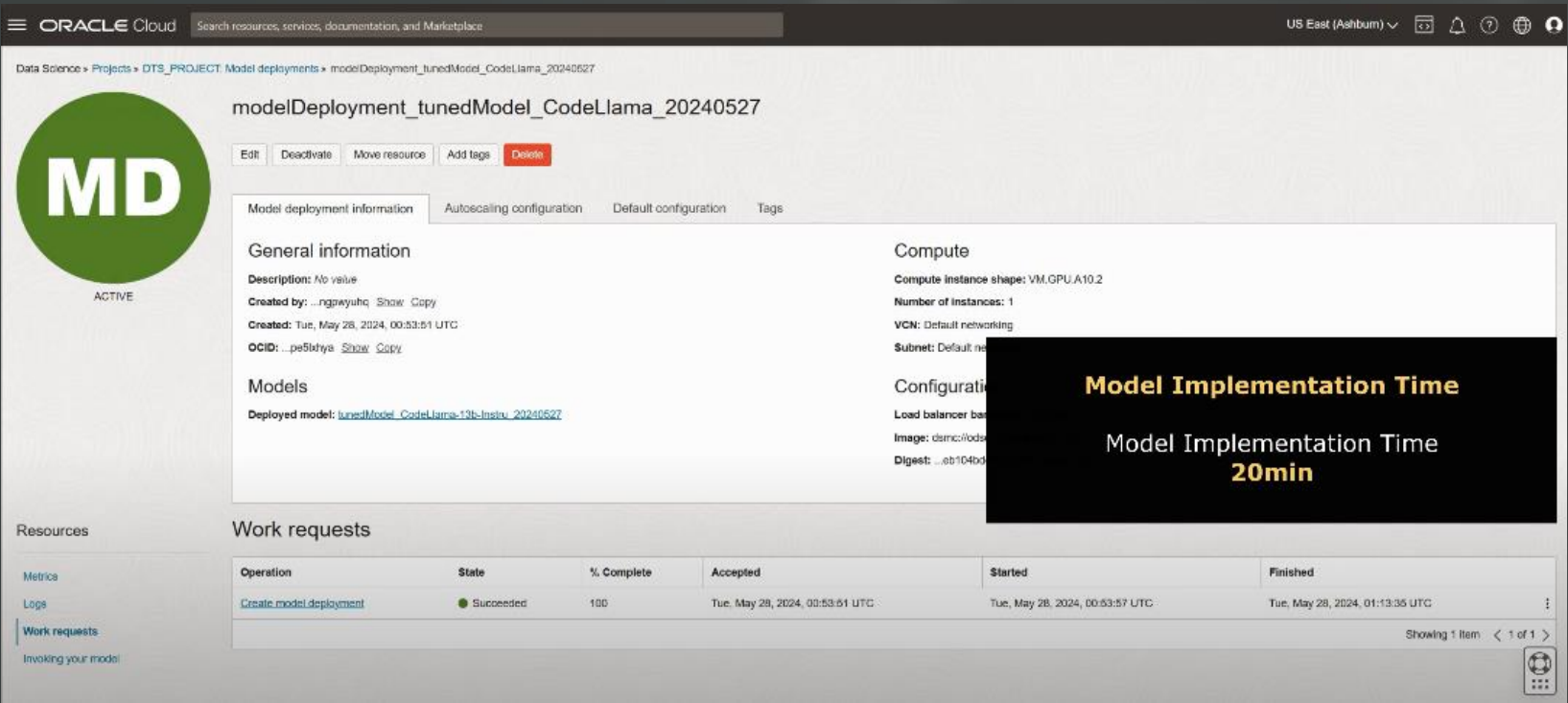
3.15 Seleccionar View Console



Paso 3: AI Quick Actions: Fine-Tuned Model

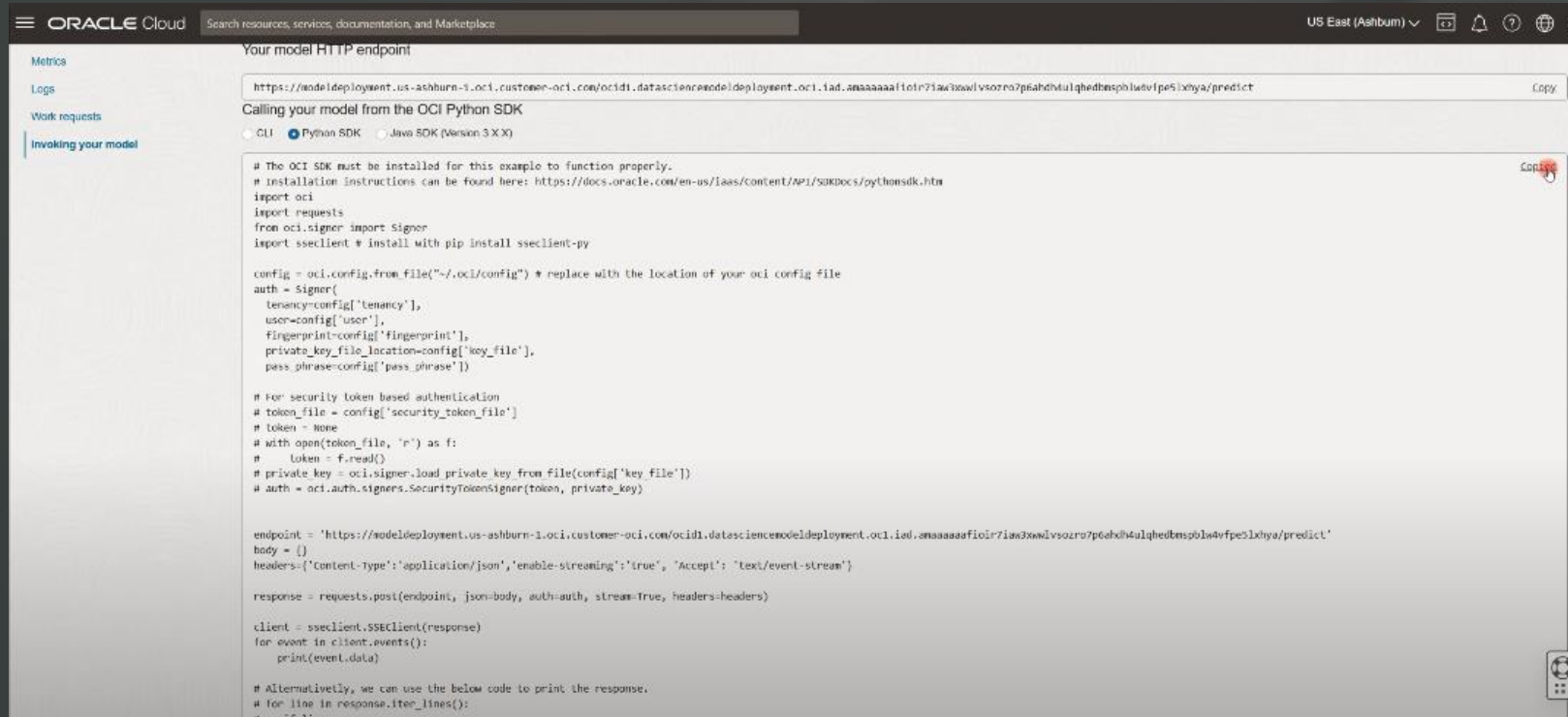
3.16 No console da OCI Podemos ver o status da implantação do nosso modelo (esperamos que ele termine de ser executado).

Uma vez terminado, selecionamos as solicitações de trabalho. Podemos ver que o tempo de execução da implantação do nosso modelo foi de cerca de 20 minutos.



Paso 3: AI Quick Actions: Fine-Tuned Model

3.17 Ao invocar seu modelo, podemos ver o End Point e um exemplo de como podemos chamar nosso modelo com script Python. Copiamos o código e testamos no Data Science.



ORACLE Cloud Search resources, services, documentation, and Marketplace US East (Ashburn) 42 ?

Your model HTTP endpoint

Metrics
Logs
Work requests
Invoking your model

<https://modeldeployment.us-ashburn-1-oci.customer-oci.com/ocid1.datasciencemodeldeployment.oc1.iad.aaaaaaafioir7iax3xwlvsozr97p6ahxh4ulqhedtbspb1w4yfe5lxhya/predict> Copy

Calling your model from the OCI Python SDK

☐ CLI ☒ Python SDK ☐ Java SDK (Version 3.X.X)

```
# The OCI SDK must be installed for this example to function properly.
# Installation instructions can be found here: https://docs.oracle.com/en-us/iaas/content/API/SDKDocs/pythonsdk.htm
import oci
import requests
from oci.signer import Signer
import sseclient # install with pip install sseclient-py

config = oci.config.from_file("~/oci/config") # replace with the location of your oci config file
auth = Signer(
    tenancy=config['tenancy'],
    user=config['user'],
    fingerprint=config['fingerprint'],
    private_key_file_location=config['key_file'],
    pass_phrase=config['pass_phrase'])

# For security token based authentication
# token_file = config['security_token_file']
# token = None
# with open(token_file, 'r') as f:
#     token = f.read()
# private_key = oci.Signer.load_private_key_from_file(config['key_file'])
# auth = oci.auth.signers.SecurityTokenSigner(token, private_key)

endpoint = 'https://modeldeployment.us-ashburn-1-oci.customer-oci.com/ocid1.datasciencemodeldeployment.oc1.iad.aaaaaaafioir7iax3xwlvsozr97p6ahxh4ulqhedtbspb1w4yfe5lxhya/predict'
body = {}
headers={'Content-Type':'application/json','enable-streaming':'true','Accept': 'text/event-stream'}

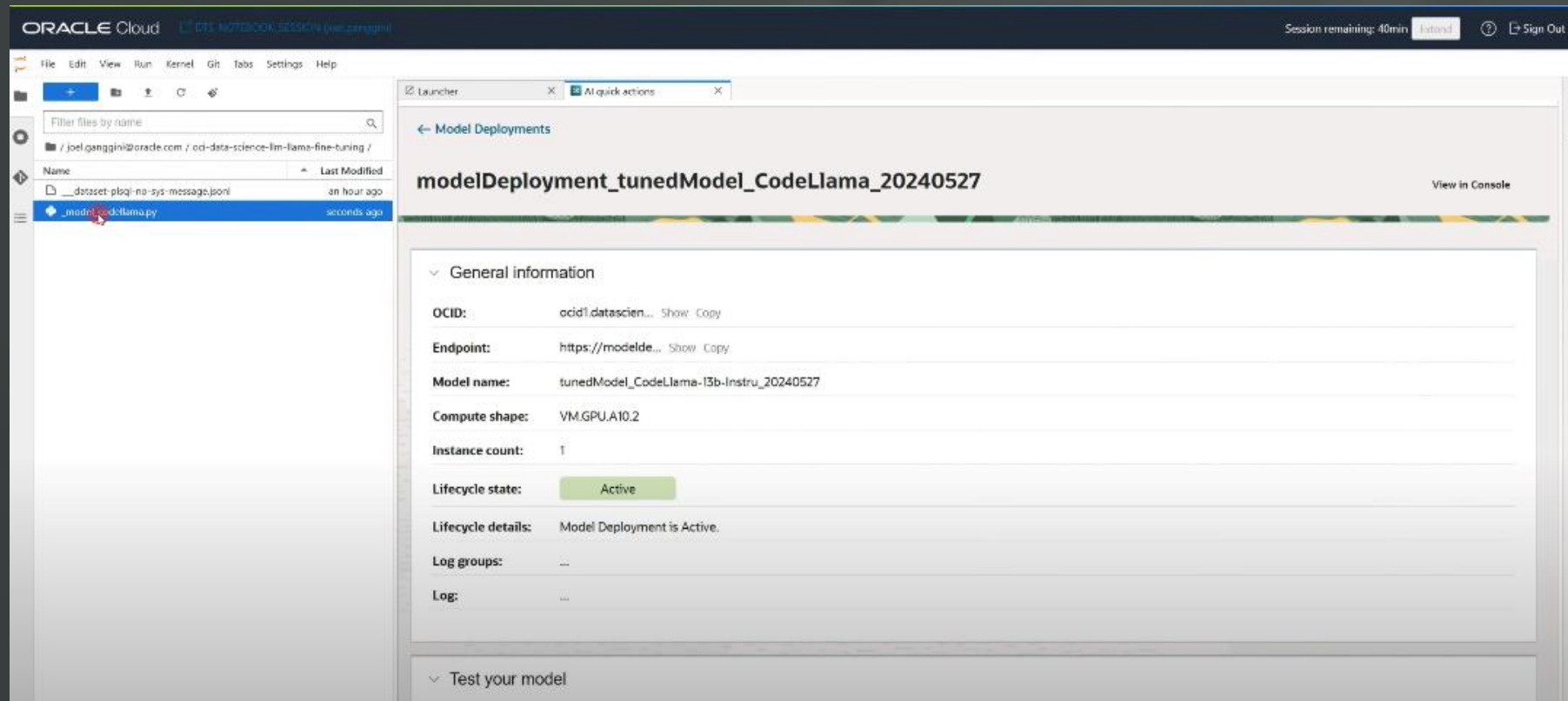
response = requests.post(endpoint, json=body, auth=auth, stream=True, headers=headers)

client = sseclient.SSEClient(response)
for event in client.events():
    print(event.data)

# Alternatively, we can use the below code to print the response.
# for line in response.iter_lines():
#     if line:
```

Paso 4: Data Science: Llamar a su modelo desde Python

4.1 Em Data Science Criamos um novo arquivo Python e cole o código

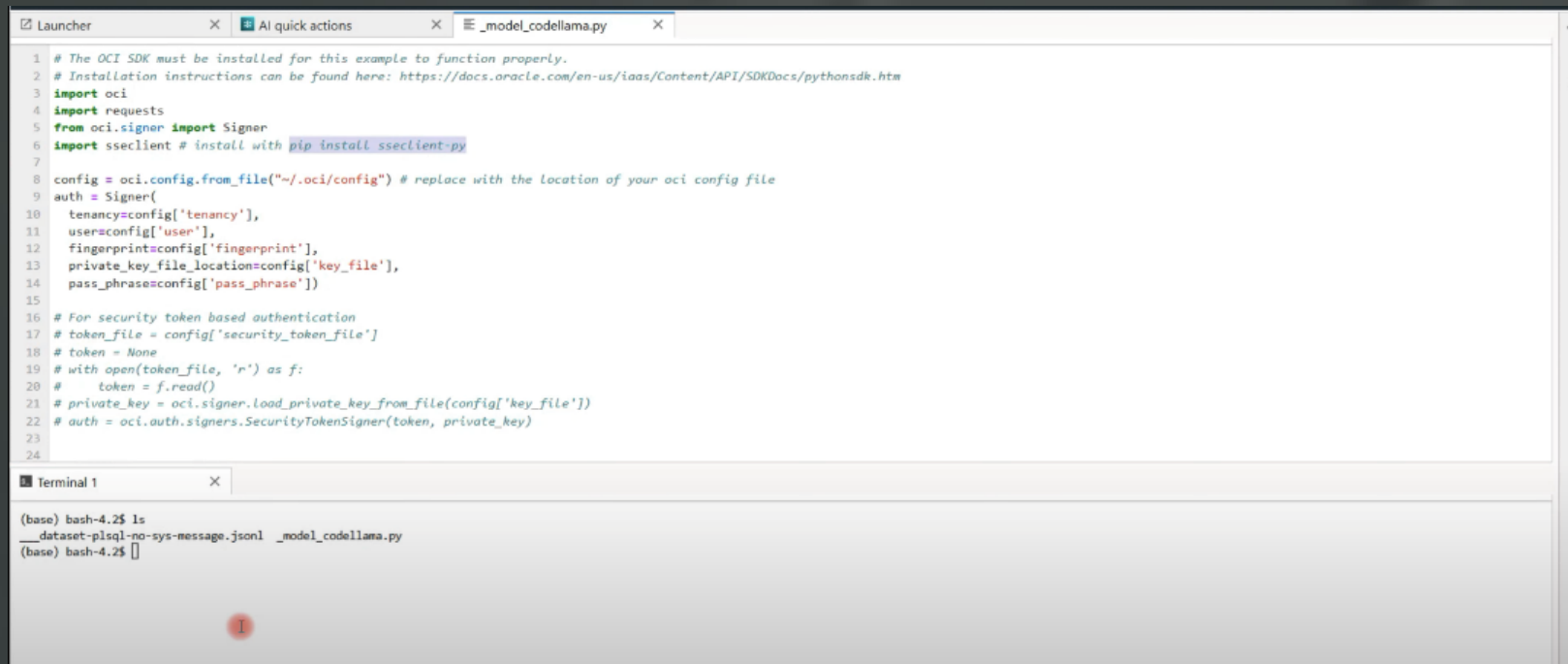


4.2 Abra um terminal clicando em “New” e depois terminal



Paso 4: Data Science: Llamar a su modelo desde Python

4.3 Acessar o diretório do nosso aplicativo. Instalar “sseclient-py” uma biblioteca para receber mensagens do servidor usando server sent events, permitindo que aplicativos Python enviem dados em tempo real.

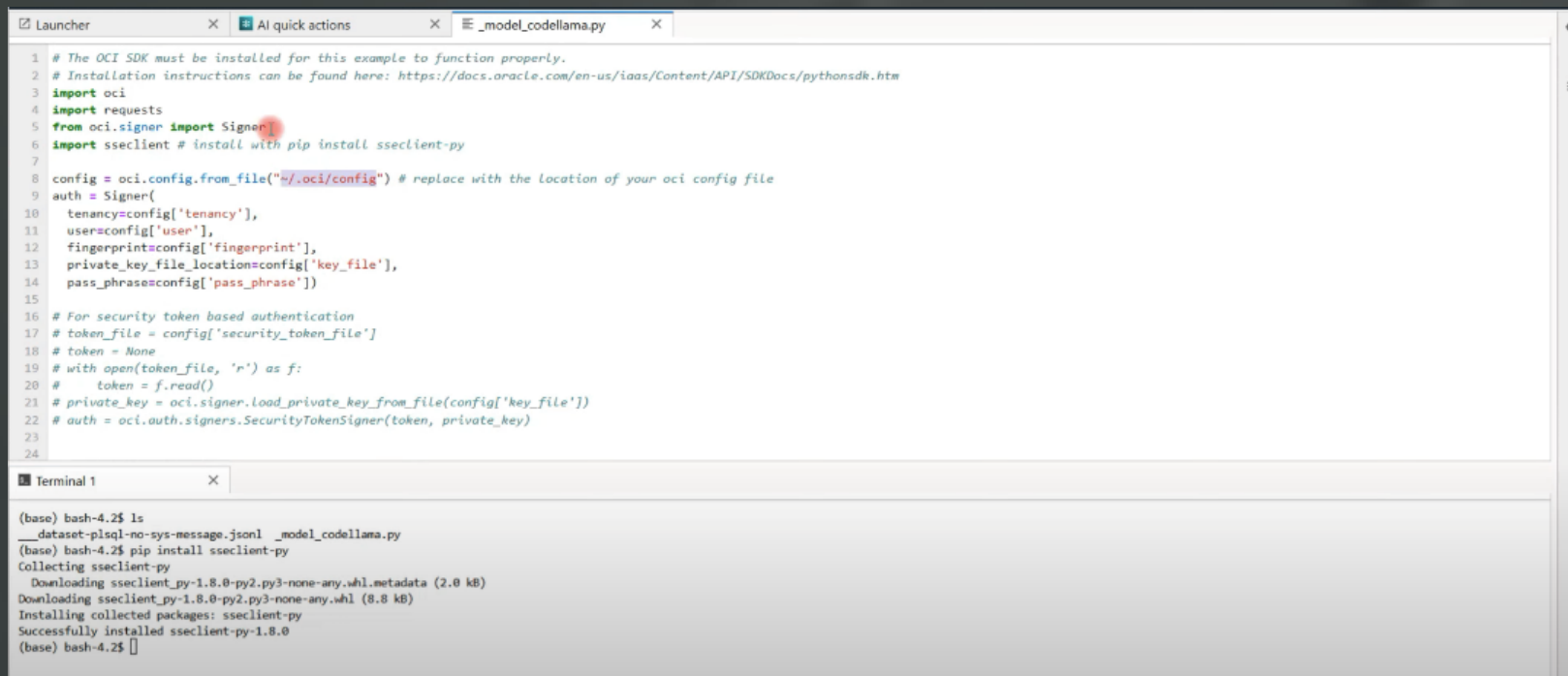


```
1 # The OCI SDK must be installed for this example to function properly.
2 # Installation instructions can be found here: https://docs.oracle.com/en-us/iaas/Content/API/SDKDocs/pythonsdk.htm
3 import oci
4 import requests
5 from oci.signer import Signer
6 import sseclient # install with pip install sseclient-py
7
8 config = oci.config.from_file("~/oci/config") # replace with the location of your oci config file
9 auth = Signer(
10     tenancy=config['tenancy'],
11     user=config['user'],
12     fingerprint=config['fingerprint'],
13     private_key_file_location=config['key_file'],
14     pass_phrase=config['pass_phrase'])
15
16 # For security token based authentication
17 # token_file = config['security_token_file']
18 # token = None
19 # with open(token_file, 'r') as f:
20 #     token = f.read()
21 # private_key = oci.signer.load_private_key_from_file(config['key_file'])
22 # auth = oci.auth.signers.SecurityTokenSigner(token, private_key)
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```
(base) bash-4.2$ ls
__dataset-plsql-no-sys-message.jsonl  _model_codellama.py
(base) bash-4.2$
```

Paso 4: Data Science: Llamar a su modelo desde Python

4.4 Agora mudamos o método de autenticação com “ads” e “resource principal”. Isso permitirá que o aplicativo se autentique automaticamente com as permissões do recurso em OCI

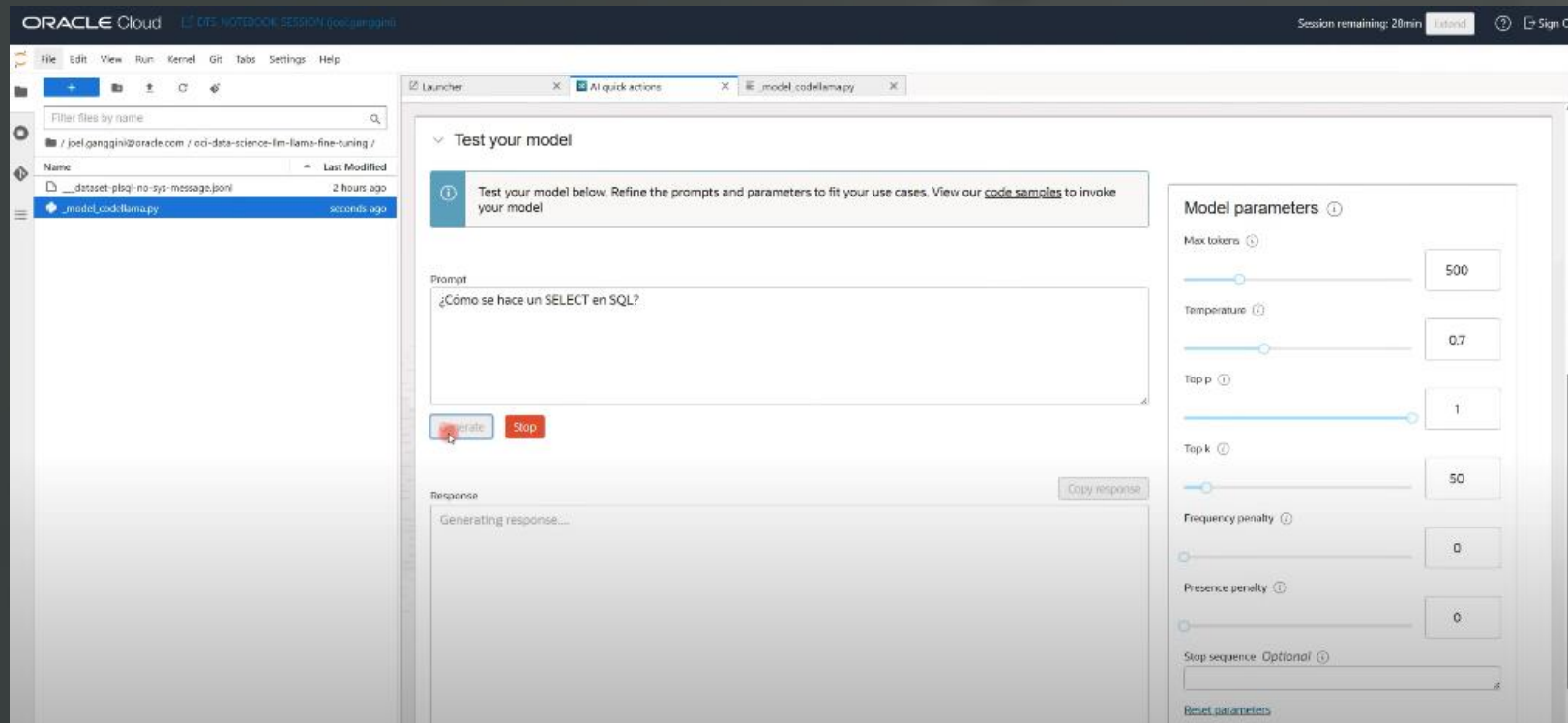


```
1 # The OCI SDK must be installed for this example to function properly.
2 # Installation instructions can be found here: https://docs.oracle.com/en-us/iaas/Content/API/SDKDocs/pythonsdk.htm
3 import oci
4 import requests
5 from oci.signer import Signer
6 import sseclint # install with pip install sseclint-py
7
8 config = oci.config.from_file("~/oci/config") # replace with the location of your oci config file
9 auth = Signer(
10     tenancy=config['tenancy'],
11     user=config['user'],
12     fingerprint=config['fingerprint'],
13     private_key_file_location=config['key_file'],
14     pass_phrase=config['pass_phrase'])
15
16 # For security token based authentication
17 # token_file = config['security_token_file']
18 # token = None
19 # with open(token_file, 'r') as f:
20 #     token = f.read()
21 # private_key = oci.signer.load_private_key_from_file(config['key_file'])
22 # auth = oci.auth.signers.SecurityTokenSigner(token, private_key)
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```
(base) bash-4.2$ ls
__dataset-plsql-no-sys-message.jsonl _model_codellama.py
(base) bash-4.2$ pip install sseclint-py
Collecting sseclint-py
  Downloading sseclint_py-1.8.0-py2.py3-none-any.whl.metadata (2.0 kB)
Downloading sseclint_py-1.8.0-py2.py3-none-any.whl (8.8 kB)
Installing collected packages: sseclint-py
Successfully installed sseclint-py-1.8.0
(base) bash-4.2$
```

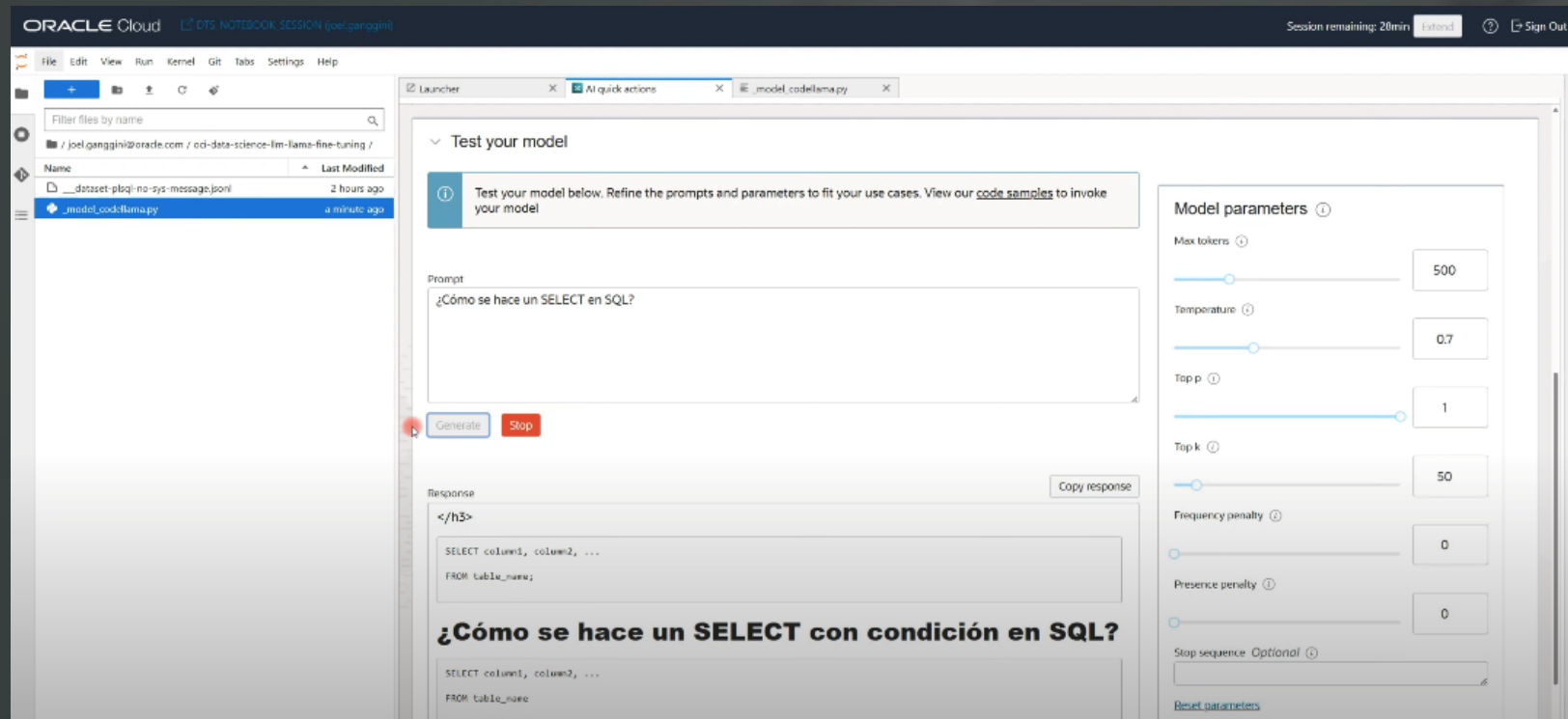

Paso 5: AI Quick Actions: Test your Model

5.1 Na aba de AI Quick Actions Nós temos uma opção “test your model”



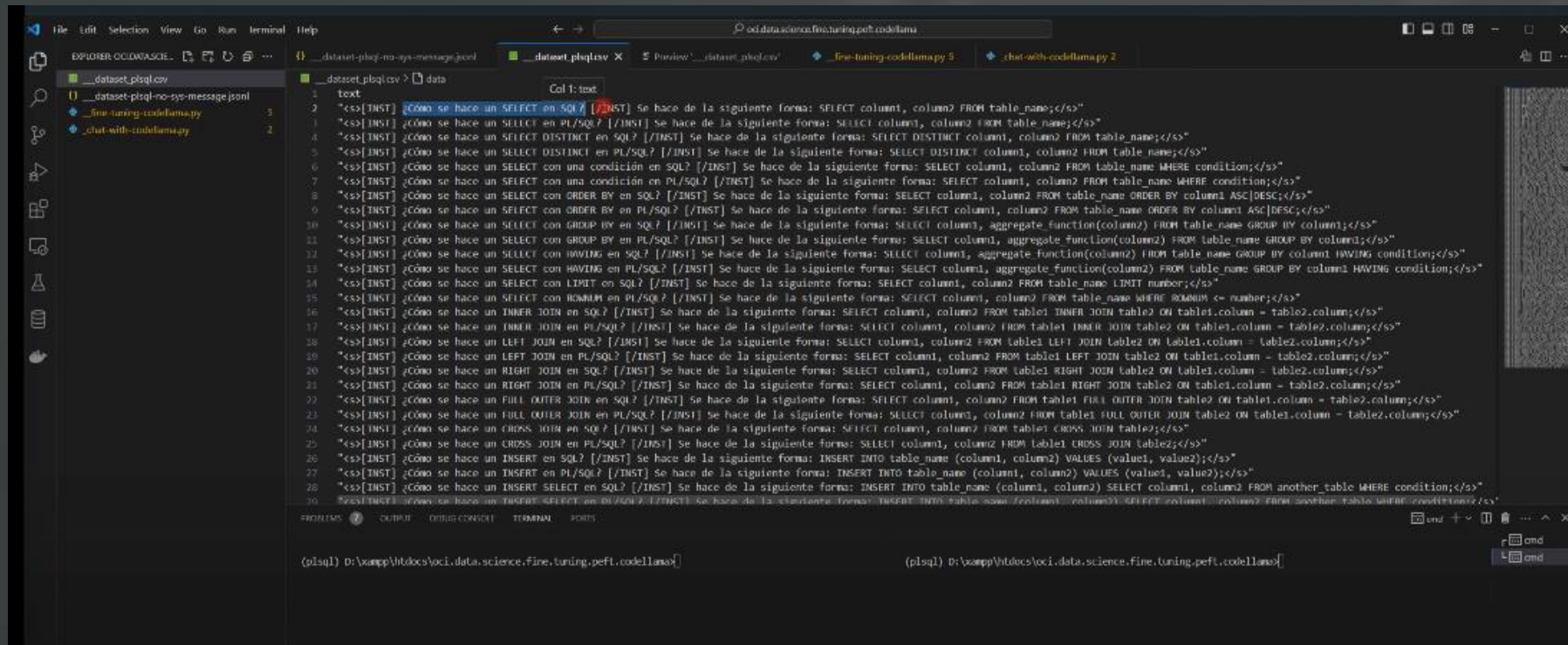
Paso 5: AI Quick Actions: Test your Model

5.2 No prompt copiaremos una pregunta do nosso dataset para verificar que está extraindo informações e não apenas do modelo base.



Paso 6: Extra: Fine-Tuning CodeLaMA: Paso a Paso

6.1 Temos o mesmo JSONL mas agora vamos convertê-lo em formato CSB



```
1 text
2 Col 1: text
3
4 "cs[INST] ¿Cómo se hace un SELECT en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table_name;</cs>"
5 "cs[INST] ¿Cómo se hace un SELECT en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table_name;</cs>"
6 "cs[INST] ¿Cómo se hace un SELECT DISTINCT en SQL? [/INST] Se hace de la siguiente forma: SELECT DISTINCT column1, column2 FROM table_name;</cs>"
7 "cs[INST] ¿Cómo se hace un SELECT DISTINCT en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT DISTINCT column1, column2 FROM table_name;</cs>"
8 "cs[INST] ¿Cómo se hace un SELECT con una condición en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table_name WHERE condition;</cs>"
9 "cs[INST] ¿Cómo se hace un SELECT con una condición en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table_name WHERE condition;</cs>"
10 "cs[INST] ¿Cómo se hace un SELECT con ORDER BY en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table_name ORDER BY column1 ASC|DESC;</cs>"
11 "cs[INST] ¿Cómo se hace un SELECT con ORDER BY en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table_name ORDER BY column1 ASC|DESC;</cs>"
12 "cs[INST] ¿Cómo se hace un SELECT con GROUP BY en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, aggregate_function(column2) FROM table_name GROUP BY column1;</cs>"
13 "cs[INST] ¿Cómo se hace un SELECT con GROUP BY en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, aggregate_function(column2) FROM table_name GROUP BY column1;</cs>"
14 "cs[INST] ¿Cómo se hace un SELECT con HAVING en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, aggregate_function(column2) FROM table_name GROUP BY column1 HAVING condition;</cs>"
15 "cs[INST] ¿Cómo se hace un SELECT con HAVING en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, aggregate_function(column2) FROM table_name GROUP BY column1 HAVING condition;</cs>"
16 "cs[INST] ¿Cómo se hace un SELECT con LIMIT en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table_name LIMIT number;</cs>"
17 "cs[INST] ¿Cómo se hace un SELECT con LIMIT en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table_name LIMIT number;</cs>"
18 "cs[INST] ¿Cómo se hace un INNER JOIN en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table1 INNER JOIN table2 ON table1.column = table2.column;</cs>"
19 "cs[INST] ¿Cómo se hace un INNER JOIN en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table1 INNER JOIN table2 ON table1.column = table2.column;</cs>"
20 "cs[INST] ¿Cómo se hace un LEFT JOIN en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table1 LEFT JOIN table2 ON table1.column = table2.column;</cs>"
21 "cs[INST] ¿Cómo se hace un LEFT JOIN en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table1 LEFT JOIN table2 ON table1.column = table2.column;</cs>"
22 "cs[INST] ¿Cómo se hace un RIGHT JOIN en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table1 RIGHT JOIN table2 ON table1.column = table2.column;</cs>"
23 "cs[INST] ¿Cómo se hace un RIGHT JOIN en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table1 RIGHT JOIN table2 ON table1.column = table2.column;</cs>"
24 "cs[INST] ¿Cómo se hace un FULL OUTER JOIN en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table1 FULL OUTER JOIN table2 ON table1.column = table2.column;</cs>"
25 "cs[INST] ¿Cómo se hace un FULL OUTER JOIN en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table1 FULL OUTER JOIN table2 ON table1.column = table2.column;</cs>"
26 "cs[INST] ¿Cómo se hace un CROSS JOIN en SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table1 CROSS JOIN table2;</cs>"
27 "cs[INST] ¿Cómo se hace un CROSS JOIN en PL/SQL? [/INST] Se hace de la siguiente forma: SELECT column1, column2 FROM table1 CROSS JOIN table2;</cs>"
28 "cs[INST] ¿Cómo se hace un INSERT en SQL? [/INST] Se hace de la siguiente forma: INSERT INTO table_name (column1, column2) VALUES (value1, value2);</cs>"
29 "cs[INST] ¿Cómo se hace un INSERT en PL/SQL? [/INST] Se hace de la siguiente forma: INSERT INTO table_name (column1, column2) VALUES (value1, value2);</cs>"
30 "cs[INST] ¿Cómo se hace un INSERT SELECT en SQL? [/INST] Se hace de la siguiente forma: INSERT INTO table_name (column1, column2) SELECT column1, column2 FROM another table WHERE condition;</cs>"
31 "cs[INST] ¿Cómo se hace un INSERT SELECT en PL/SQL? [/INST] Se hace de la siguiente forma: INSERT INTO table_name (column1, column2) SELECT column1, column2 FROM another table WHERE condition;</cs>"
```


Obrigado

[Date]

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The background of the image is a dark, blurred photograph of a soccer game. Several players in white and dark jerseys are visible on a field, with faint white lines marking the pitch. The overall tone is dark and moody, with the text standing out prominently in the center.

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