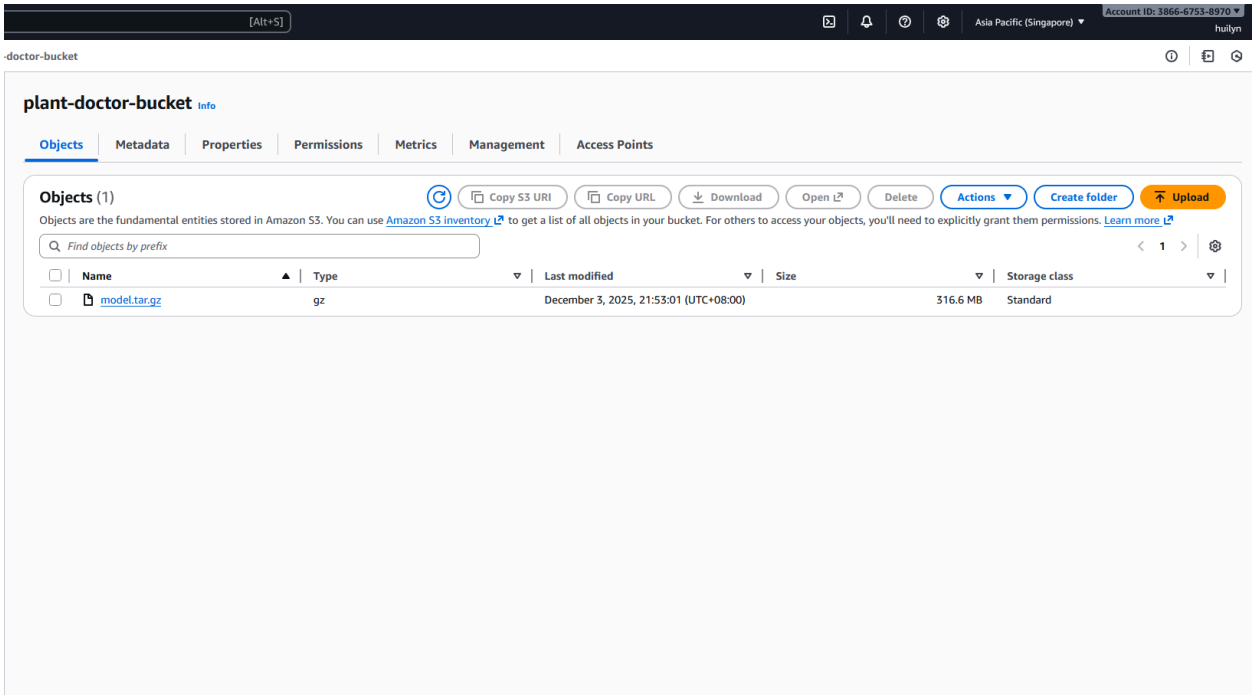
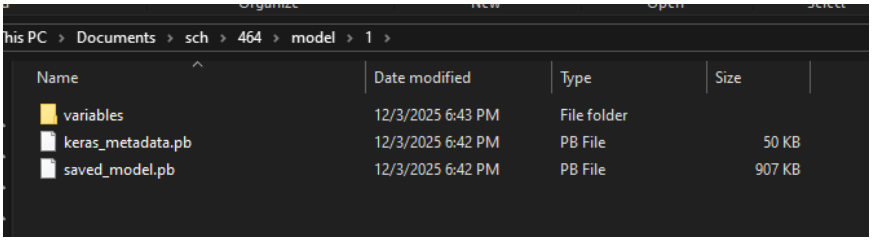
Set Up Amazon SageMaker Notebook

Step 1: Create an S3 Bucket (if not already existing)

This step helps you make an S3 bucket that will house the model file and weights. Sagemaker will read from this S3 bucket.



- We use plant-doctor-bucket.
- Upload model.tar.gz (from the plant-doctor-service repo) inside
  - This file should have this layout
  -


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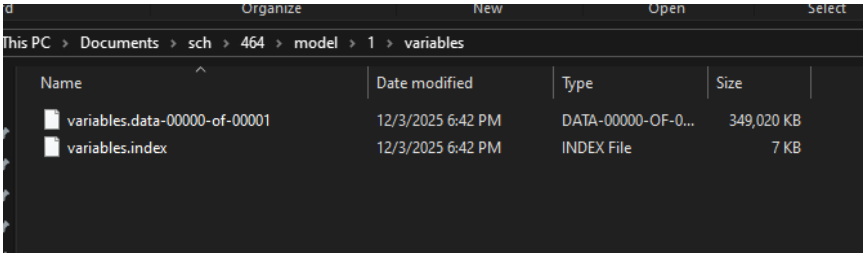
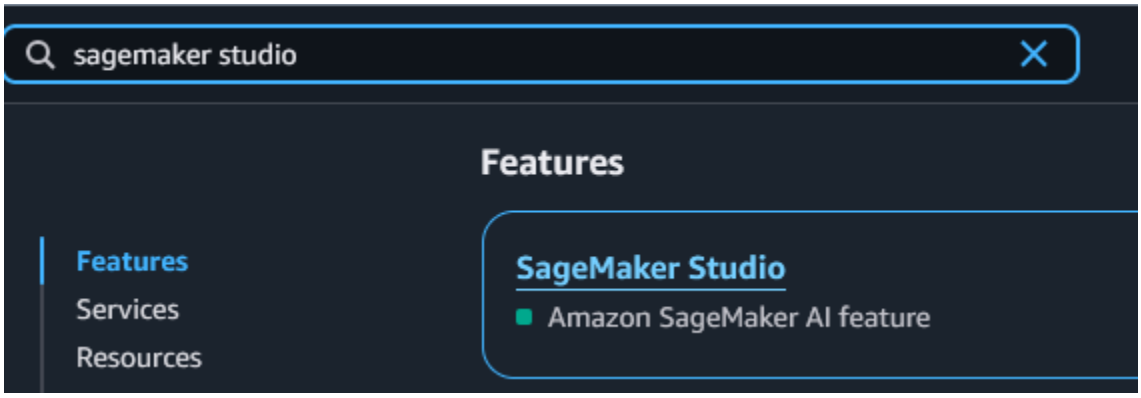


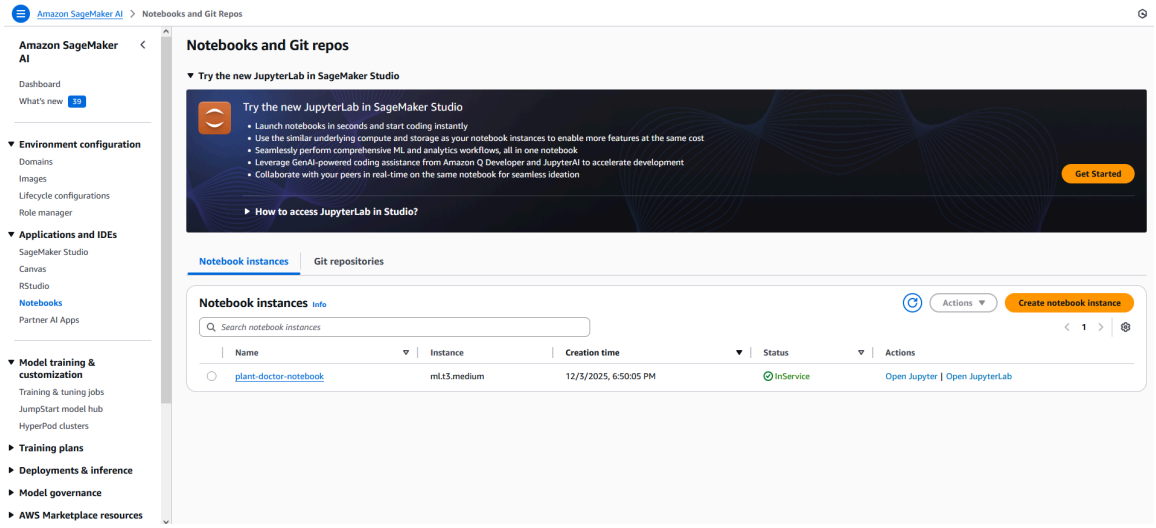
Step 2: Launch SageMaker Notebook Instance

This step will tell you how to deploy the model so that the Plant-Doctor-Service backend can call it

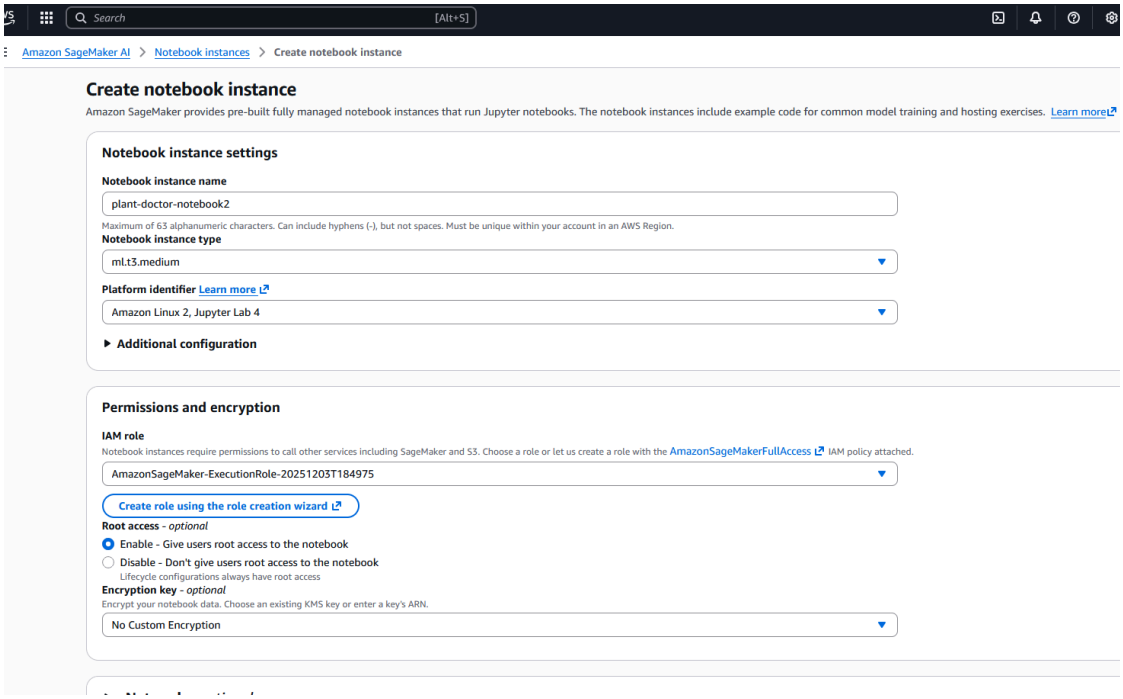
Search Sagemaker Studio



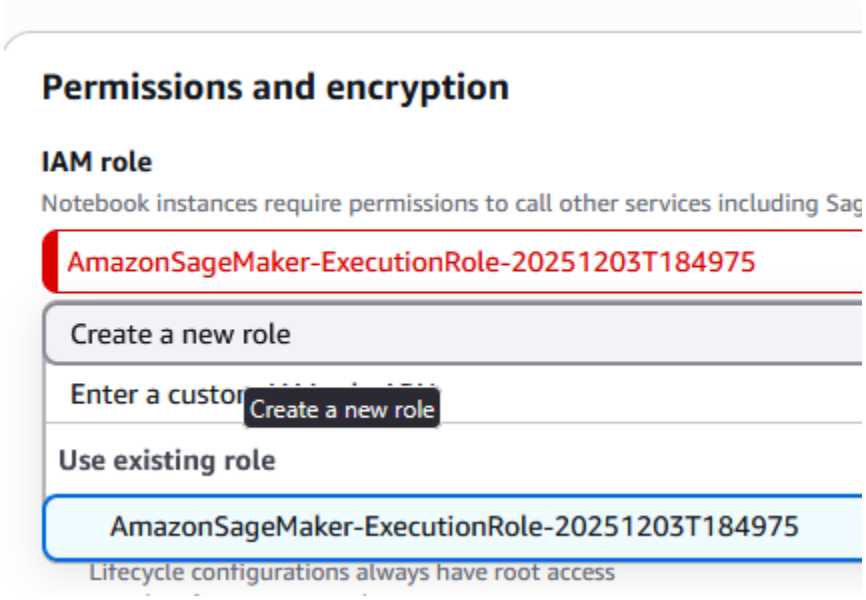
Go to Notebooks from left sidebar > Create notebook instance

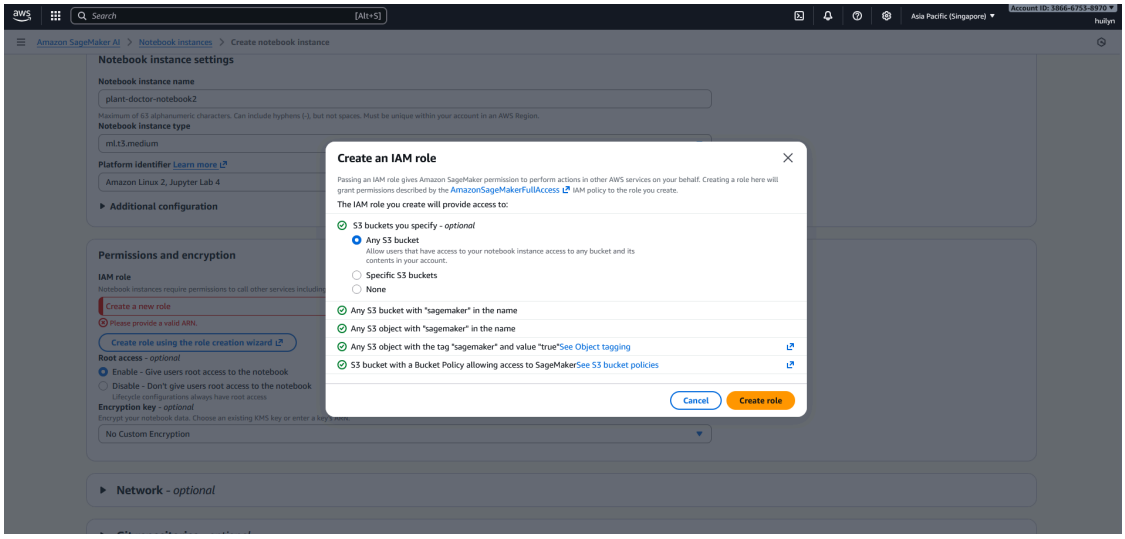


Can use these notebook instance settings.

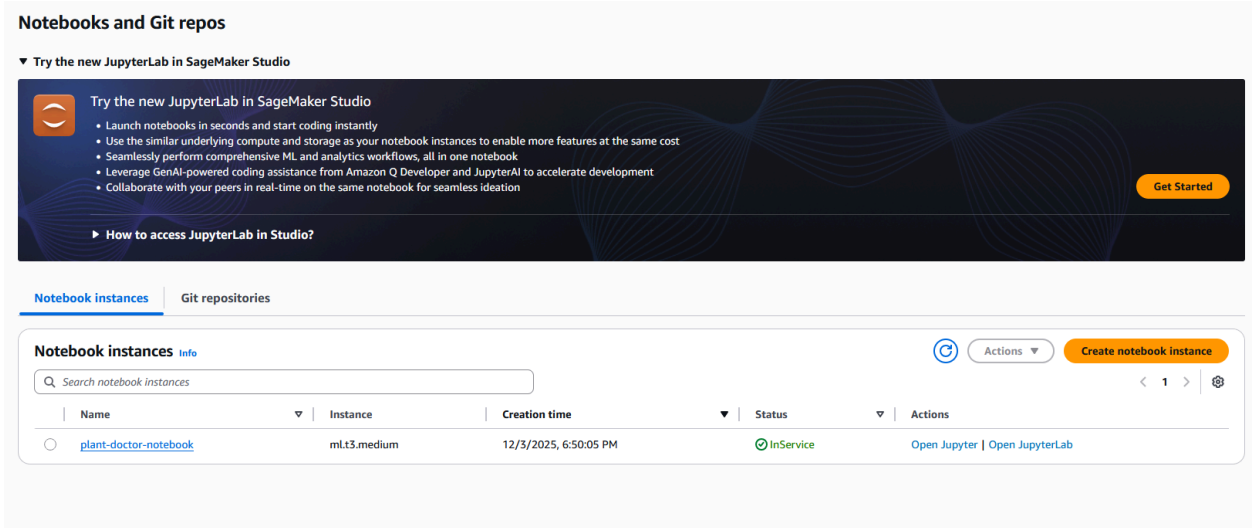


For IAM role, select “Create a new role” and click Any S3 bucket and create role

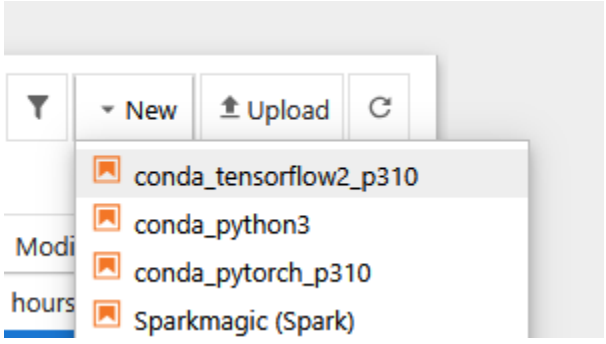




Once created, click “Open Jupyter”



Create a new tensorflow2 ipynb in jupyter and name it something like plant-doctor



Paste into the first cell and run:

```
%%writefile inference.py
import tensorflow as tf
import json
import numpy as np

def model_fn(model_dir):
    return tf.saved_model.load(model_dir)

def input_fn(request_body, content_type):
    data = json.loads(request_body)
    return tf.convert_to_tensor(data["instances"], dtype=tf.float32)

def predict_fn(input_data, model):
    infer = model.signatures["serving_default"]
    output = infer(input_data)
    return {k: v.numpy().tolist() for k, v in output.items()}

def output_fn(prediction, accept):
    return json.dumps(prediction)
```

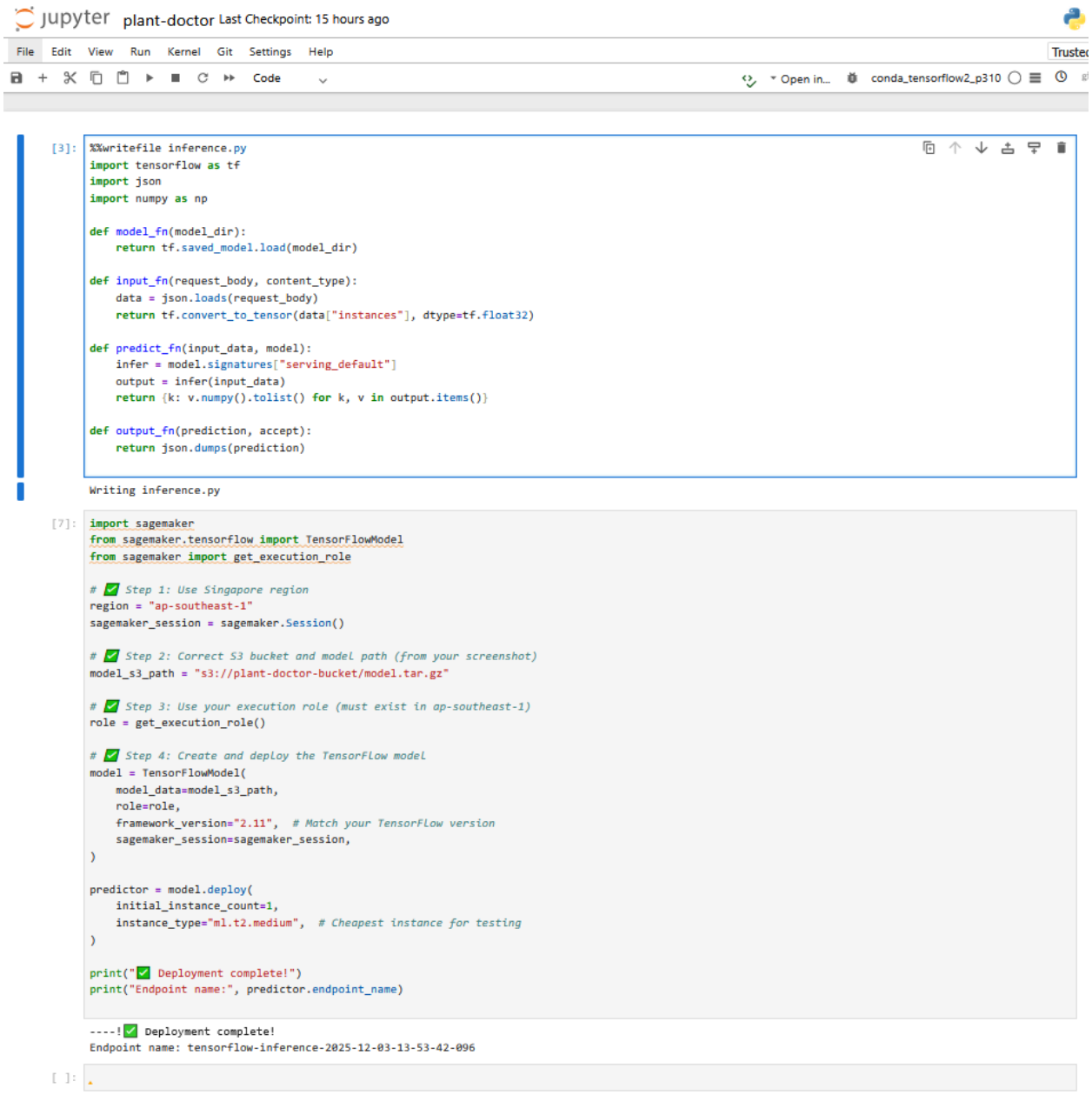
This makes a inference.py in your jupyter which helps run the plant-doctor model

Paste into the second file
NOTE: replace plant-doctor-bucket with your s3 bucket name. Ours is plant-doctor-bucket, but change the name based on what u called ur s3

```
import sagemaker
from sagemaker.tensorflow import TensorFlowModel
from sagemaker import get_execution_role

# ✅ Step 1: Use Singapore region
region = "ap-southeast-1"
sagemaker_session = sagemaker.Session()

# ✅ Step 2: Correct S3 bucket and model path
model_s3_path = "s3://plant-doctor-bucket/model.tar.gz"

# ✅ Step 3: Use your execution role (must exist in ap-southeast-1)
role = get_execution_role()

# ✅ Step 4: Create and deploy the TensorFlow model
model = TensorFlowModel(
    model_data=model_s3_path,
    role=role,
    framework_version="2.11",  # Match your TensorFlow version
```

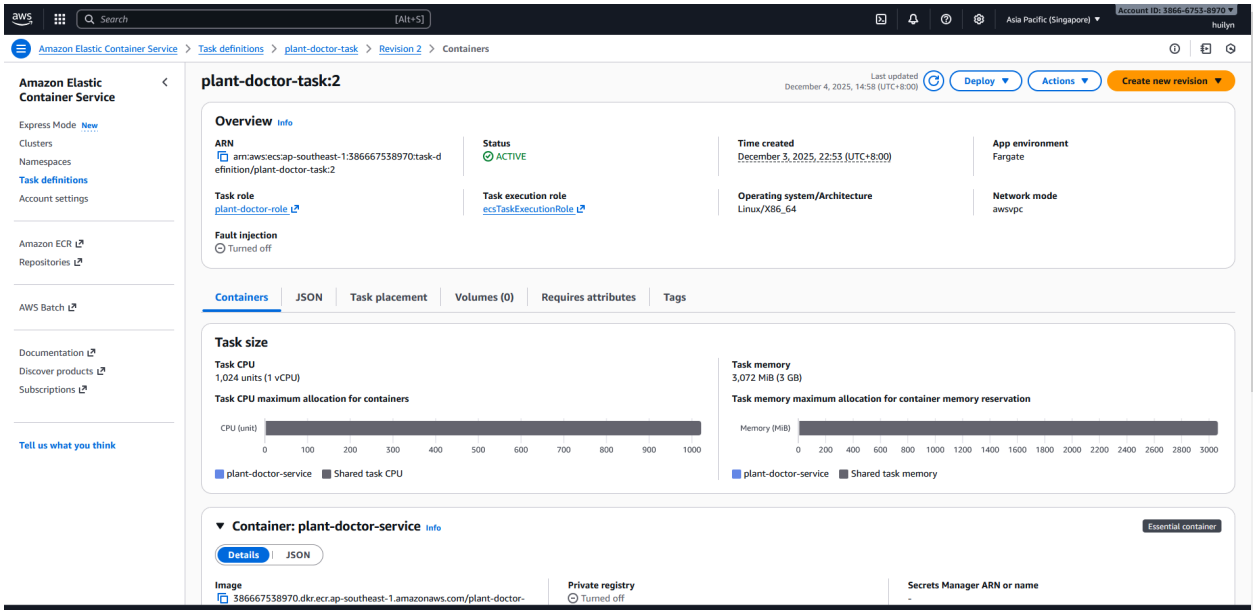
```
    sagemaker_session=sagemaker_session,
)

predictor = model.deploy(
    initial_instance_count=1,
    instance_type="ml.t2.medium",  # Cheapest instance for testing
)

print("✅ Deployment complete!")
print("Endpoint name:", predictor.endpoint_name)
```

The final file should look like this



ADDITIONAL NOTES!

For plant-doctor-service task, do check if you have the following env values
AWS_REGION=ap-southeast-1
SAGEMAKER_ENDPOINT={Endpoint generated from plant-doctor}
[ie, tensorflow-inference-2025-12-03-13-53-42-096]



Container: plant-doctor-service Info

Details | JSON

Image
386667538970.dkr.ecr.ap-southeast-1.amazonaws.com/plant-doctor-service@sha256:a5fd08d0c5de93360ea8b0b5565764143dff4e2549ac3350b7b5a69376f5e847

Private registry
Turned off

CPU
0

Memory hard/soft limit
-/-

Environment and secrets | Network settings | Security and permissions | Lifecycle and dependencies | M

Environment variables (2)

Key	Type	Value
AWS_REGION	value	ap-southeast-1
SAGEMAKER_ENDPOINT	value	tensorflow-inference-2025-12-03-13-53-42-096

Environment files (S3 ARN)

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