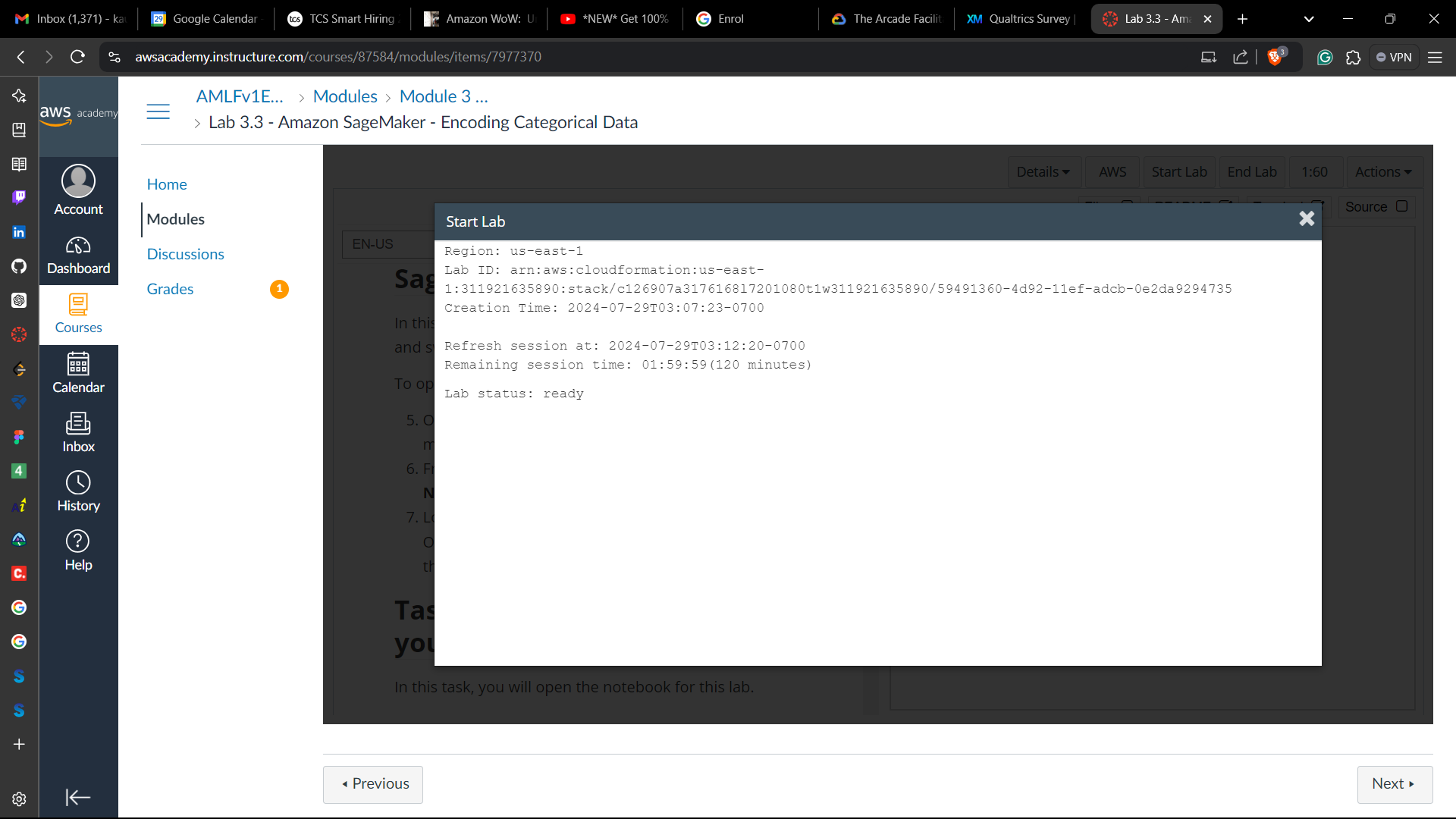
**LAB – 4**

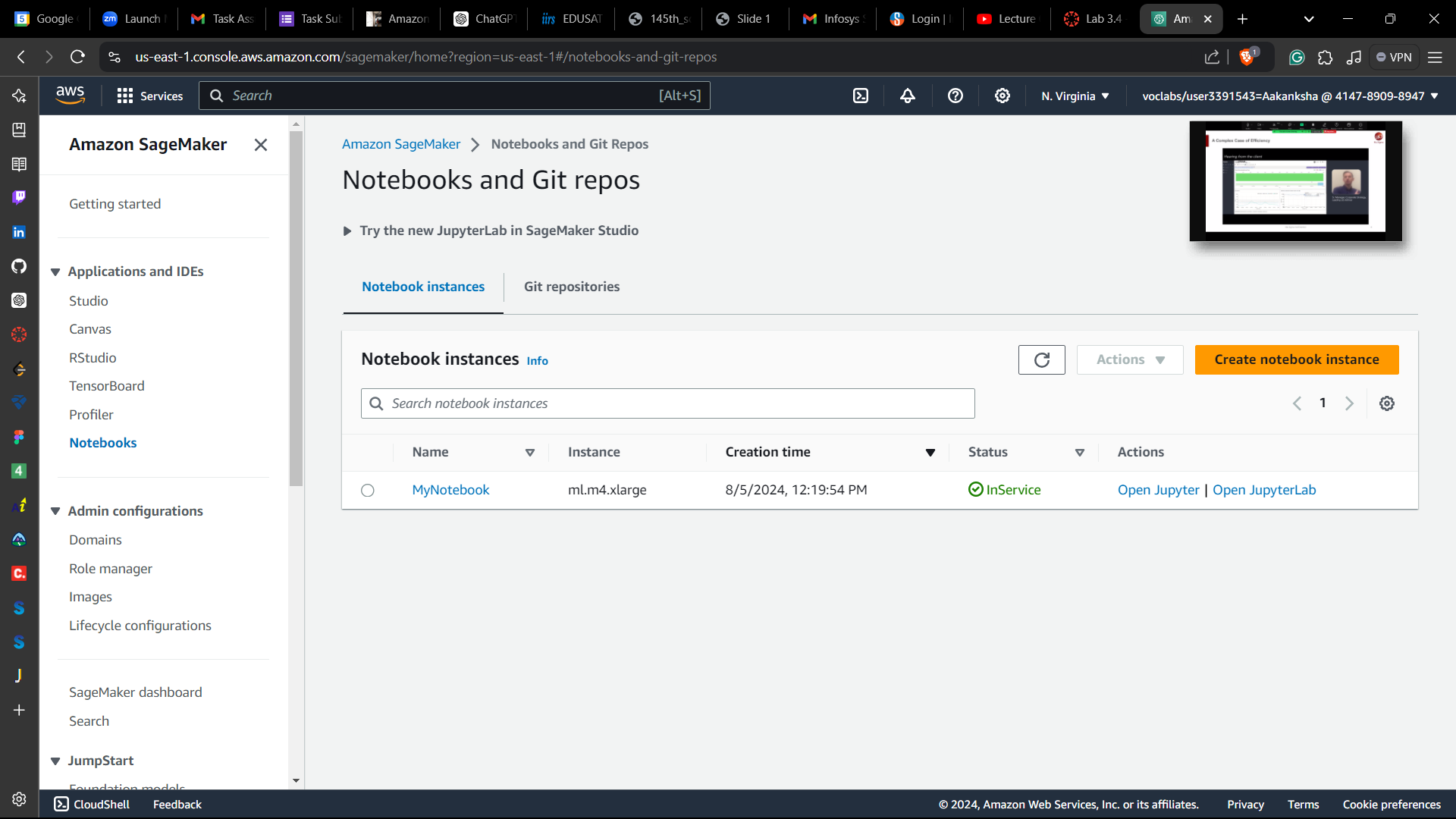
Objective: Amazon SageMaker - Training a model

Procedure:

1. Accessing the AWS Management Console

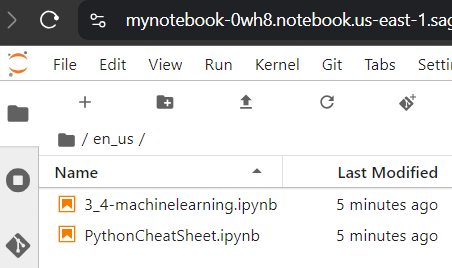


**Task 1: Accessing a notebook instance in Amazon SageMaker**



**Task 2: Opening a notebook in your notebook instance**

1. In your JupyterLab environment, go to the file browser in the left pane and locate the 3\_4-machinelearning.jpynb file & open it.

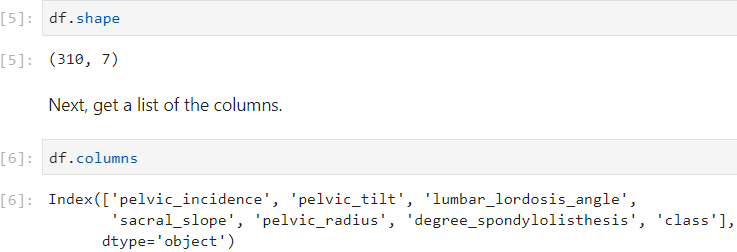


1. Follow the instructions in the notebook

**Importing the data**

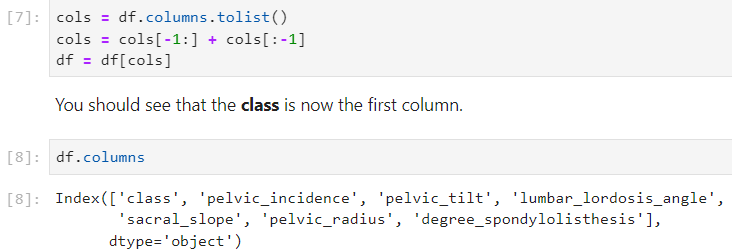
****

**Step 1: Exploring the data**

****

**Step 2: Preparing the data**

2.1 Moving the target column position

****

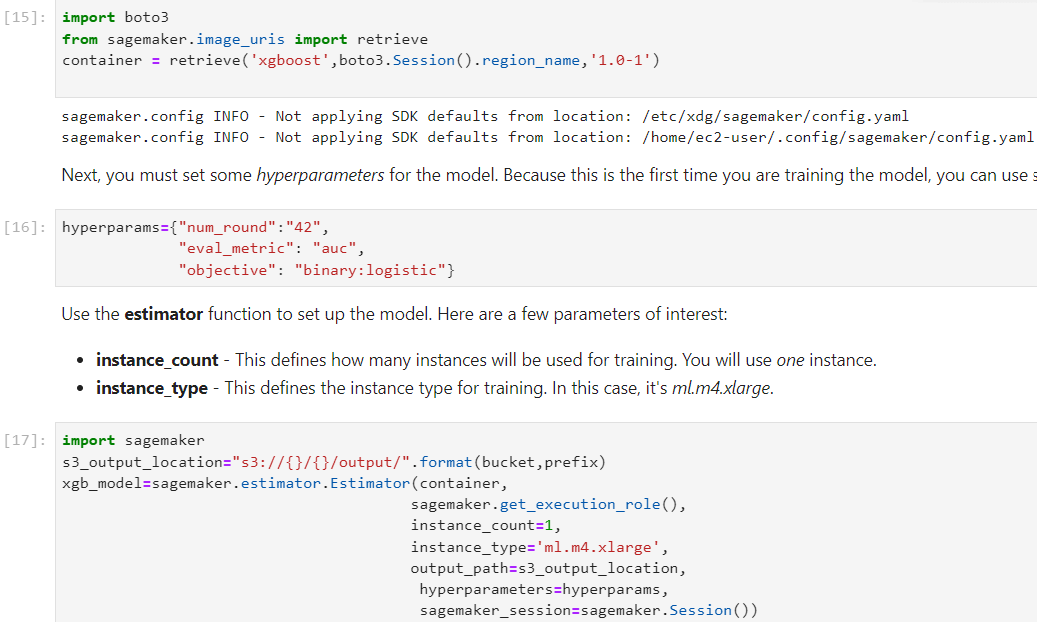
2.2 Splitting the data

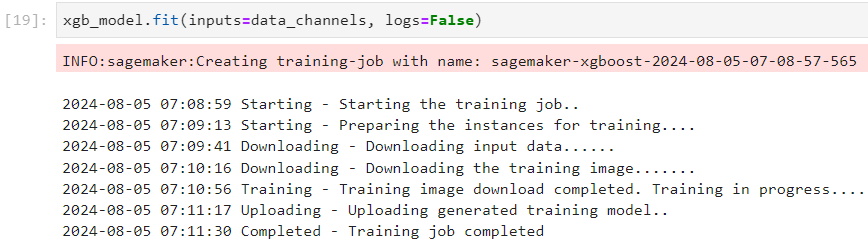


2.3 Uploading the data to Amazon S3



**Step 3: Training the model**



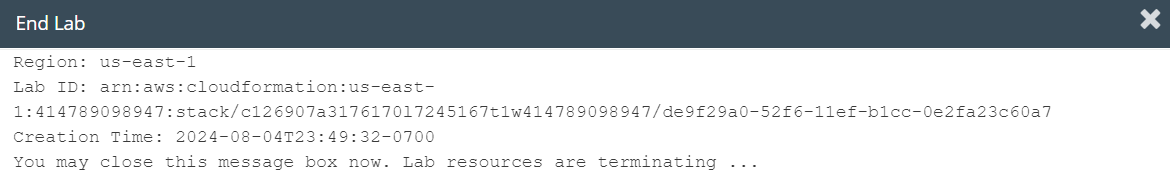


**Conclusion**

* Split data into training, validation, and test datasets
* Trained an XGBoost model in Amazon SageMaker

**Lab complete**

1. In order to end the lab, choose End Lab, and then choose **Yes**.

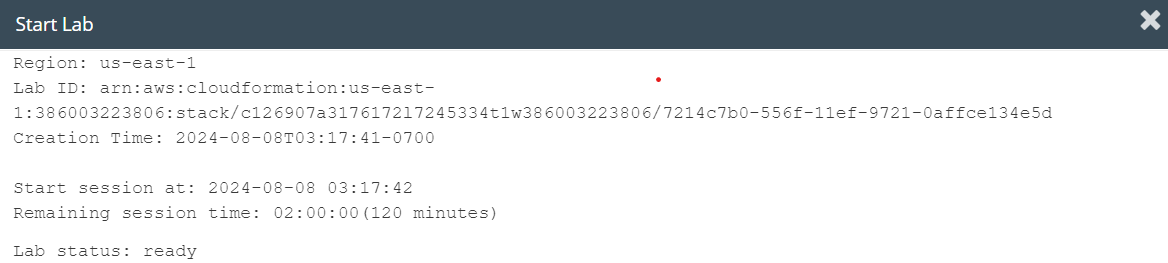


**LAB – 5**

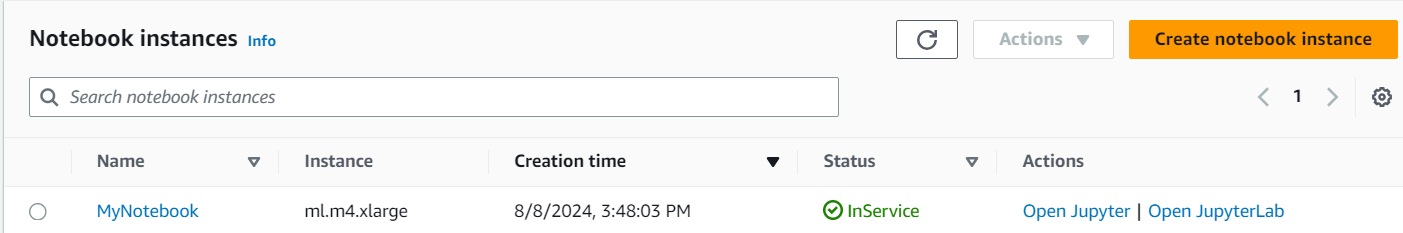
Objective: Amazon SageMaker - Deploying a model

Procedure:

1. Accessing the AWS Management Console

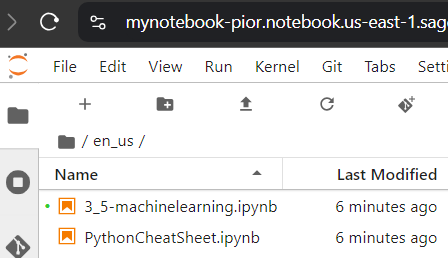


**Task 1: Accessing a notebook instance in Amazon SageMaker**

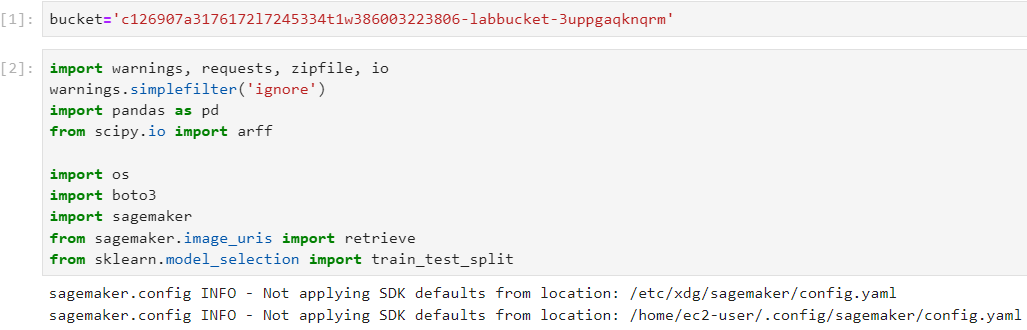


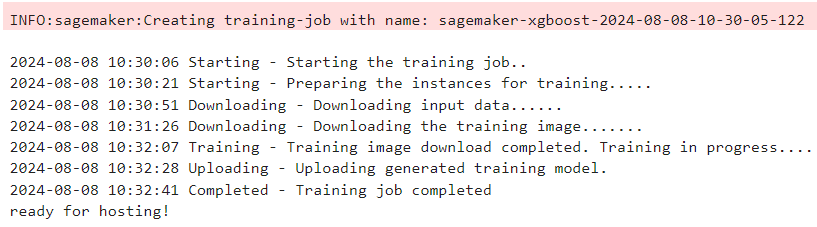
**Task 2: Opening a notebook in your notebook instance**

1. In your JupyterLab environment, go to the file browser in the left pane and locate the 3\_5-machinelearning.jpynb file & open it.

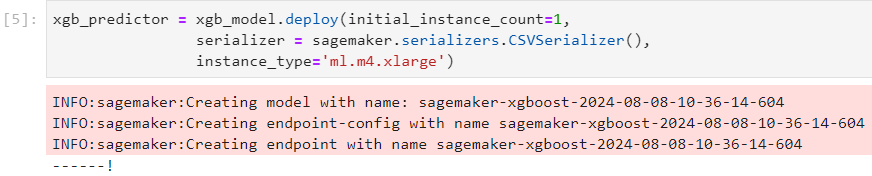


1. Follow the instructions in the notebook
   1. Importing the data

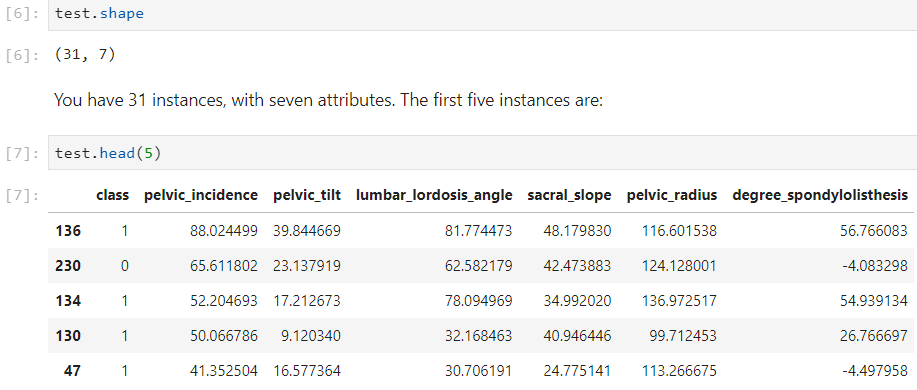


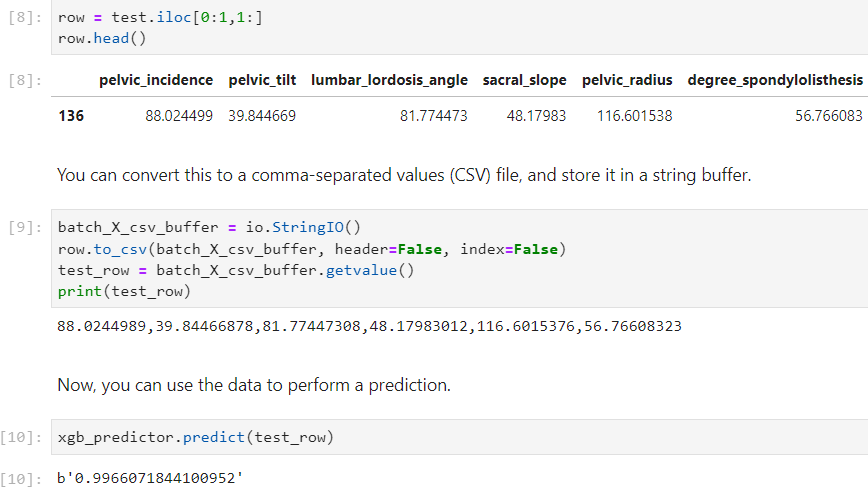


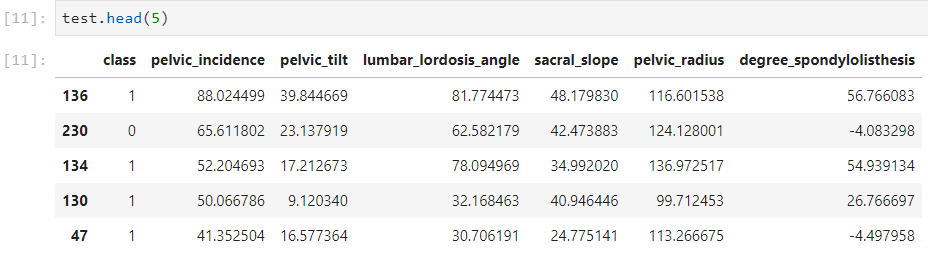
Step 1: Hosting the model



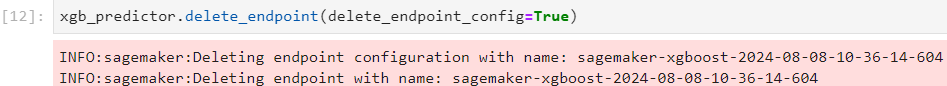
Step 2: Performing predictions



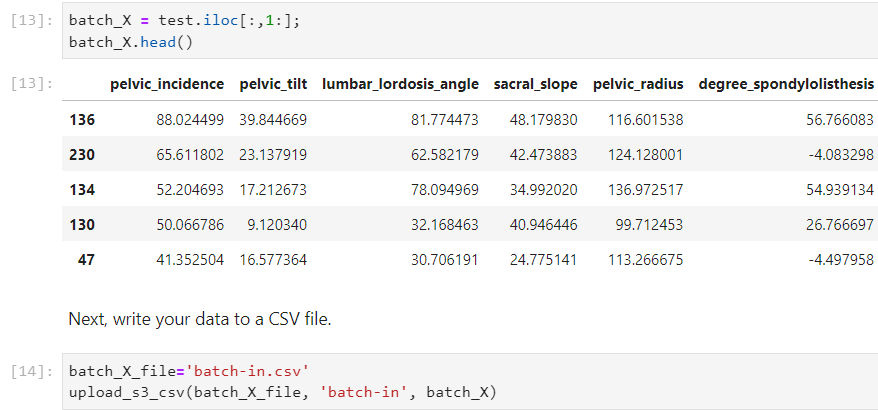




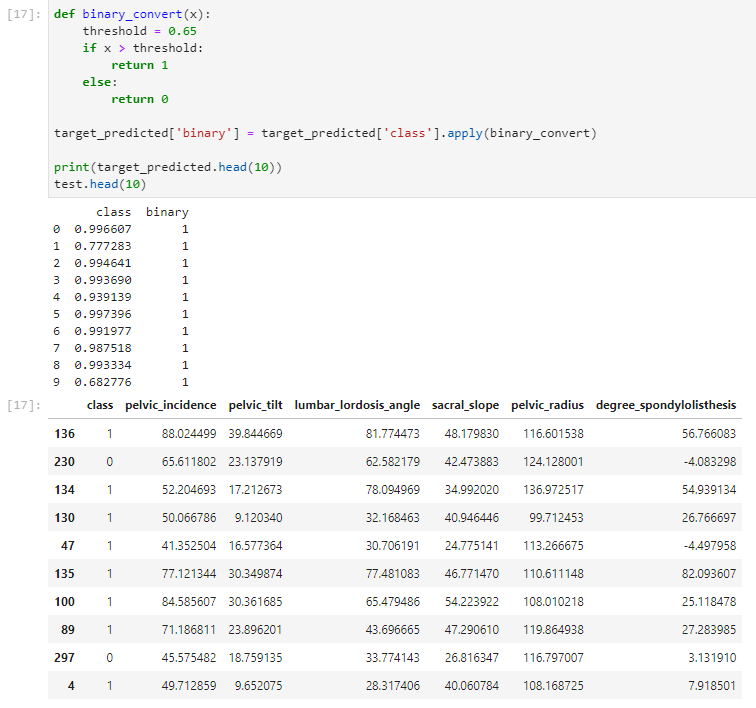
Step 3: Terminating the deployed model



Step 4: Performing a batch transform





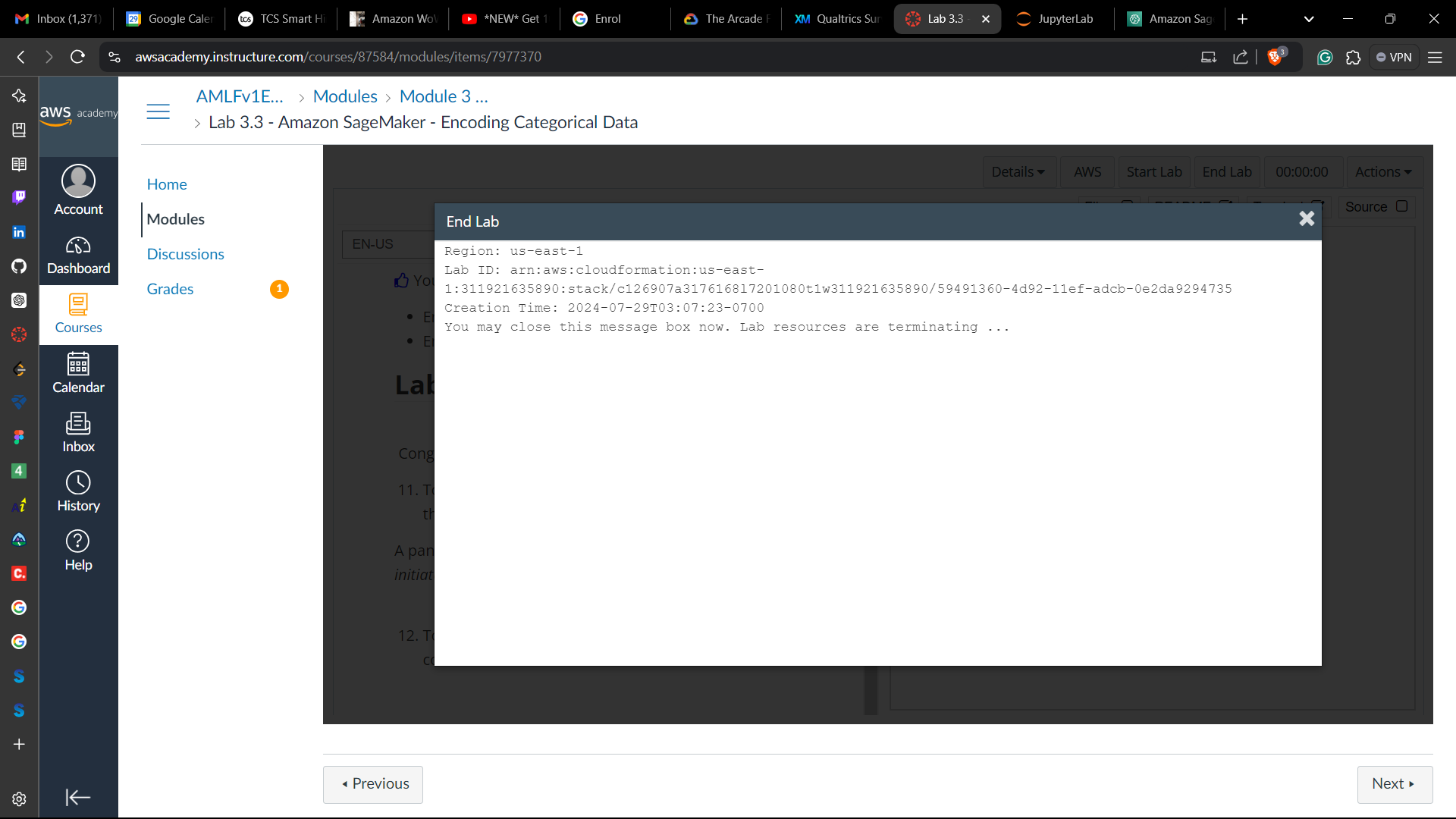


**Conclusion**

* Deployed a machine learning model
* Used the test dataset to perform a batch transformation with the model

**Lab complete**

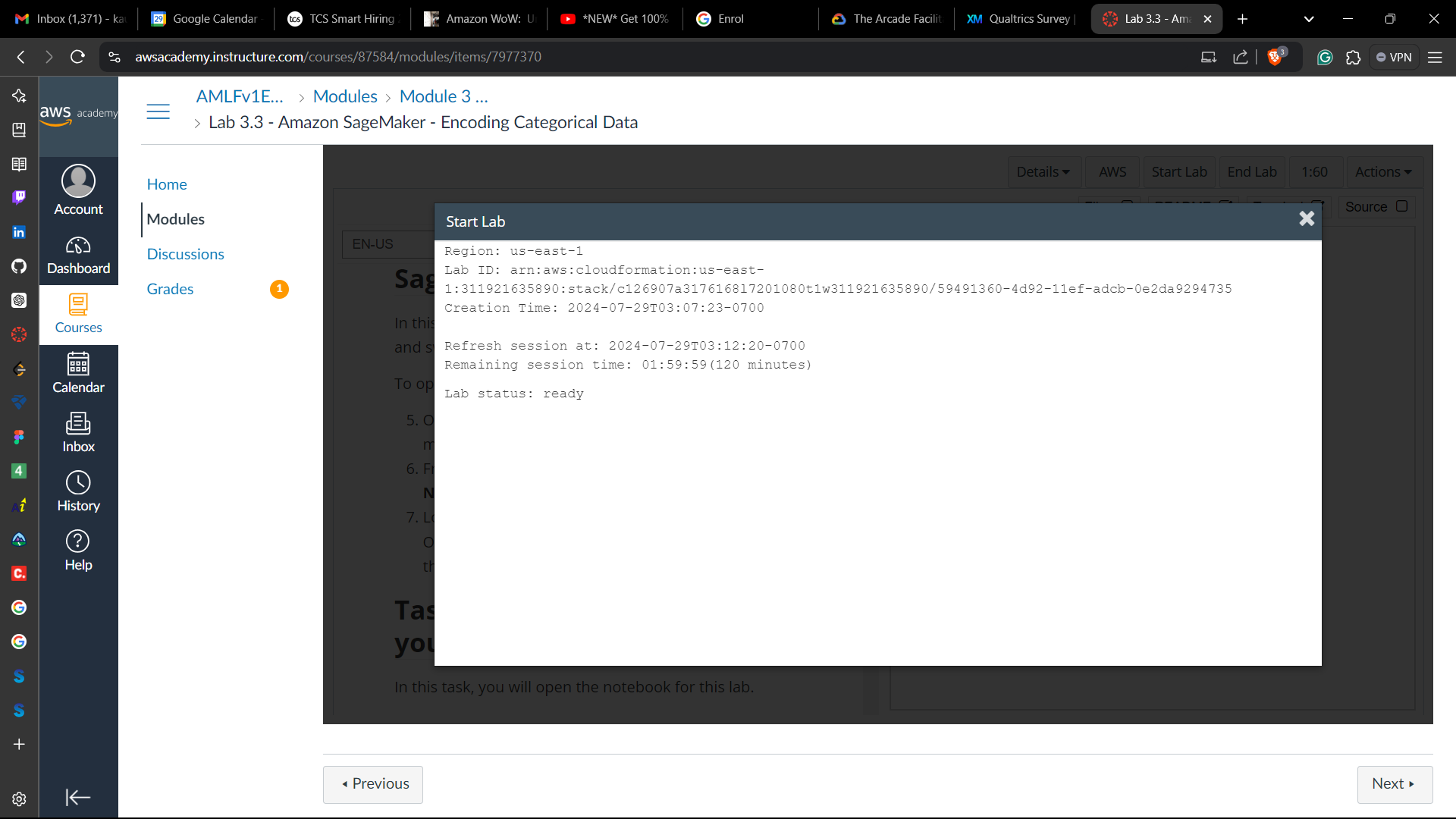
1. In order to end the lab, choose End Lab, and then choose **Yes**.



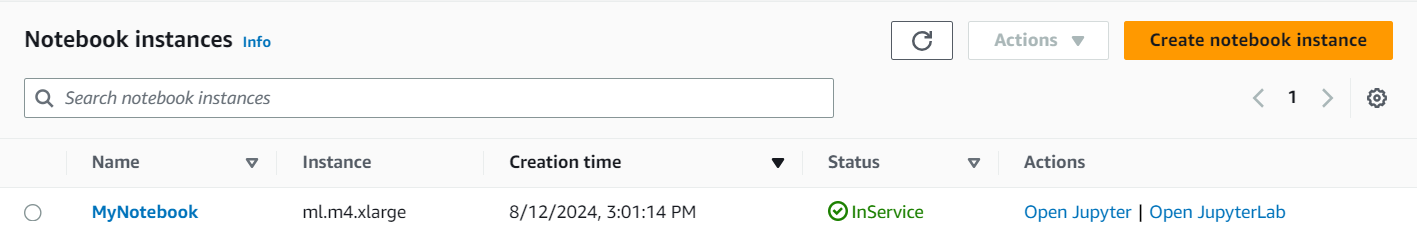
**LAB – 6**

Objective: Amazon SageMaker - Generating model performance metricsProcedure:

1. Accessing the AWS Management Console

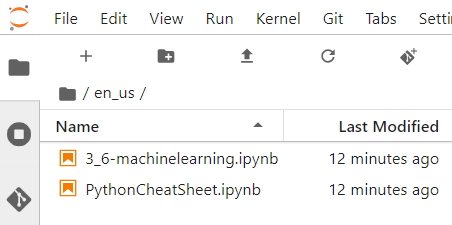


**Task 1: Accessing a notebook instance in Amazon SageMaker**



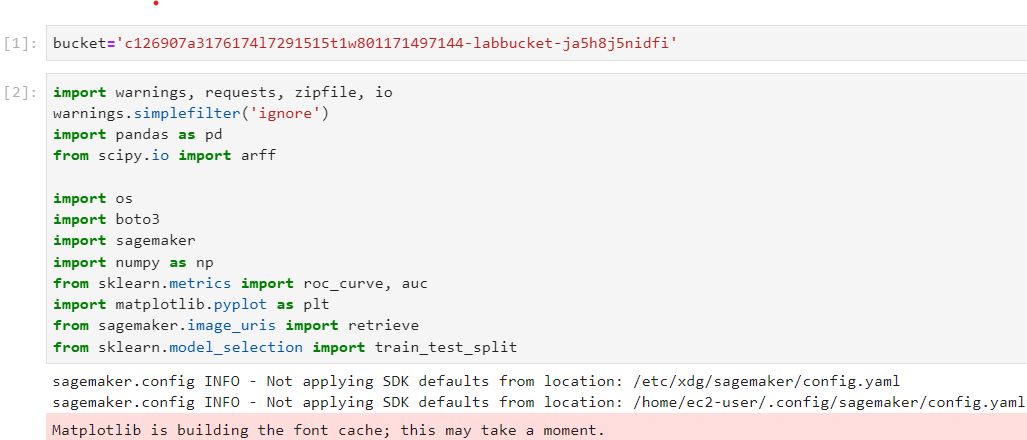
**Task 2: Opening a notebook in your notebook instance**

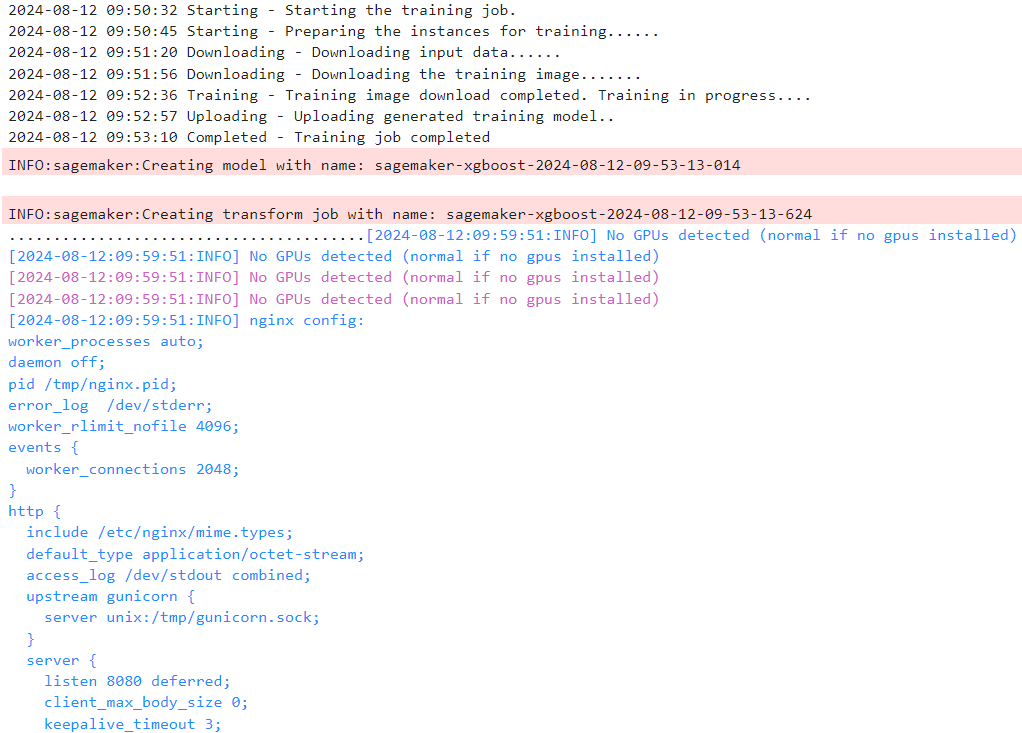
1. In your JupyterLab environment, go to the file browser in the left pane and locate the 3\_6-machinelearning.jpynb file & open it.



1. Follow the instructions in the notebook

Importing the data and training the model

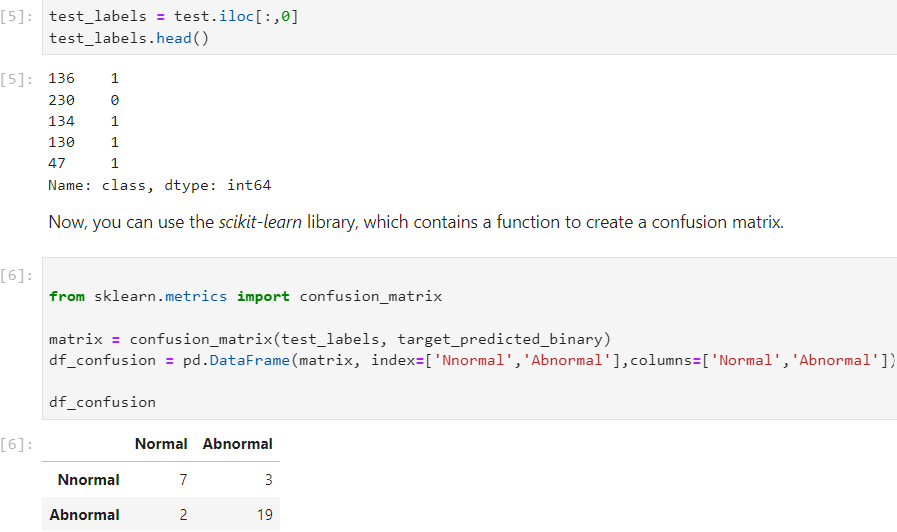


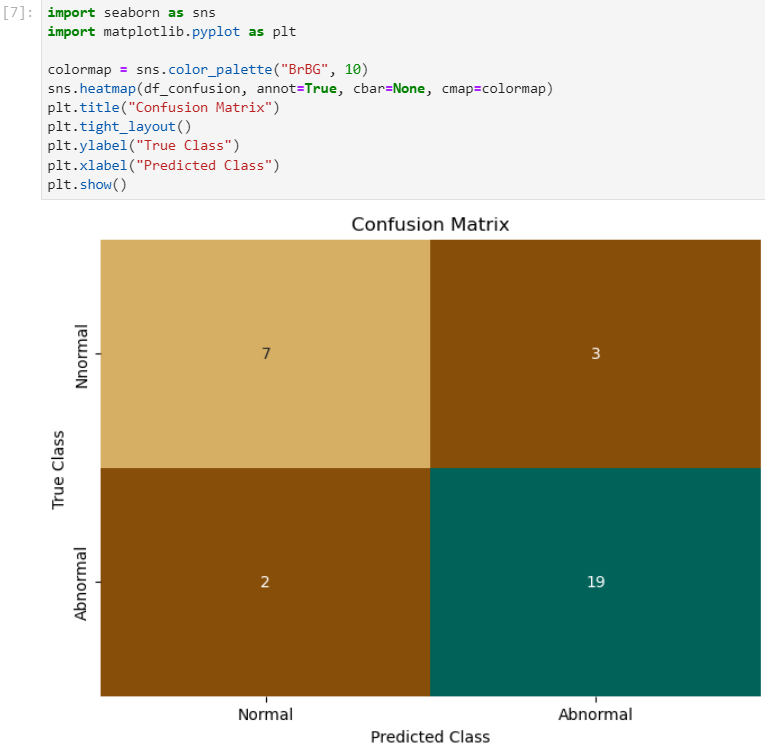


Step 1: Exploring the results

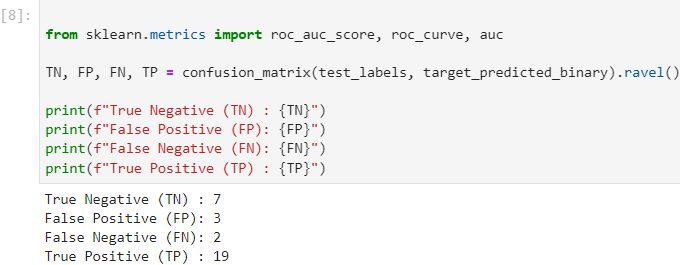


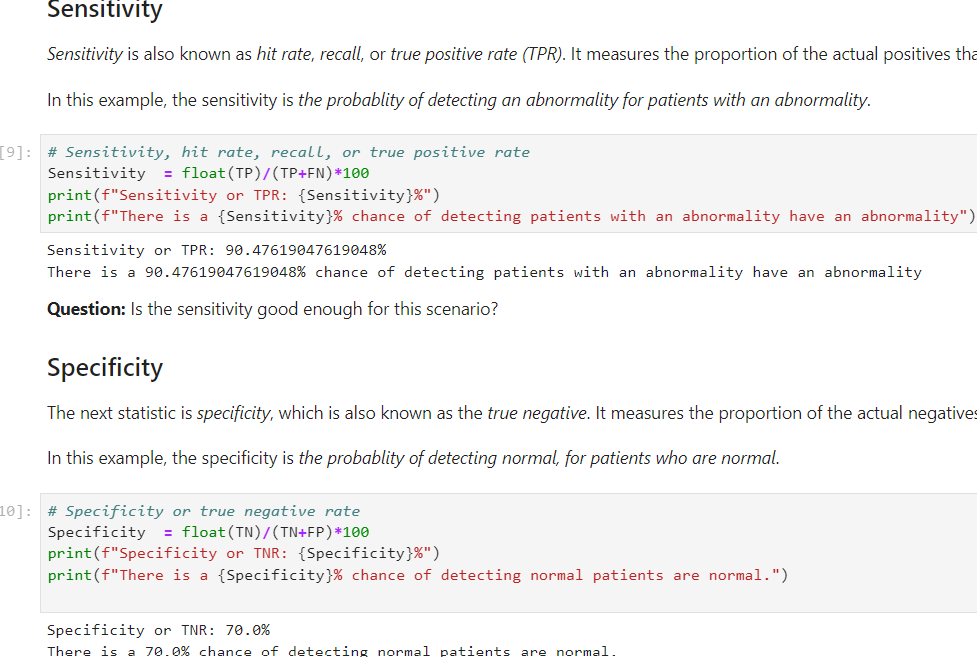
Step 2: Creating a confusion matrix

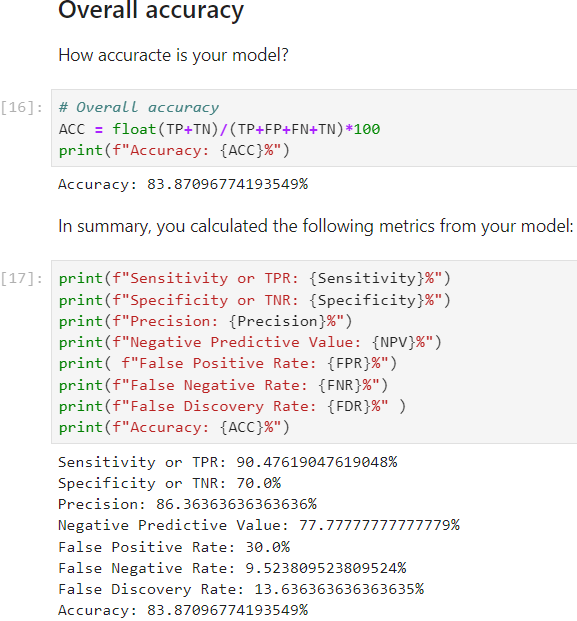




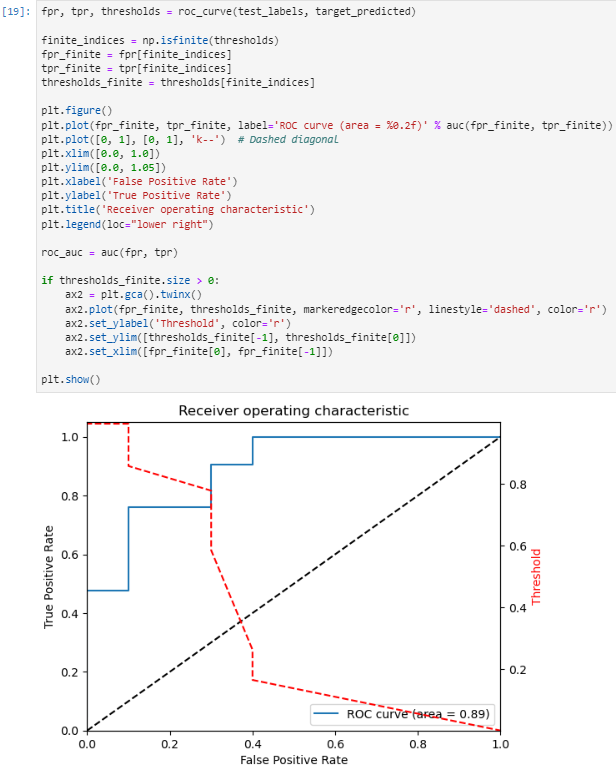
Step 3: Calculating performance statistics



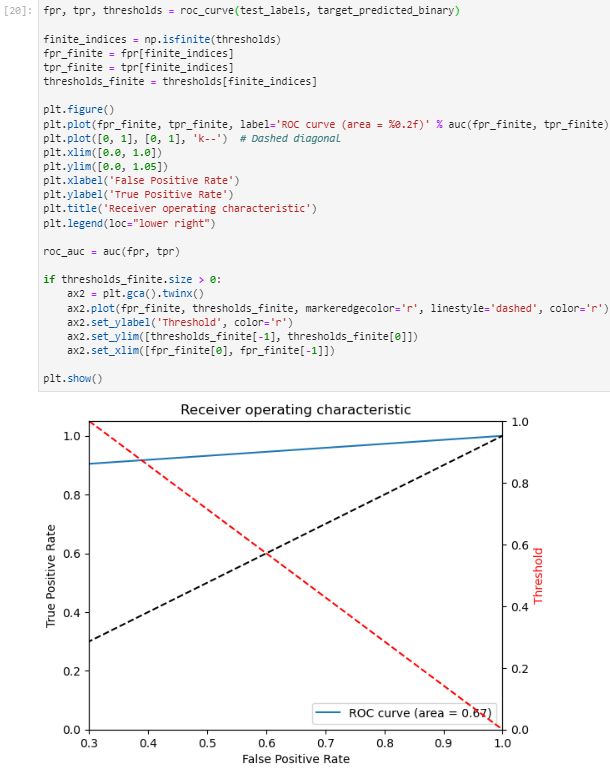




Step 4: Calculating the AUC-ROC Curve



**Challenge task:** Update the previous code to use *target\_predicted\_binary* instead of *target\_predicted*. How does that change the graph?

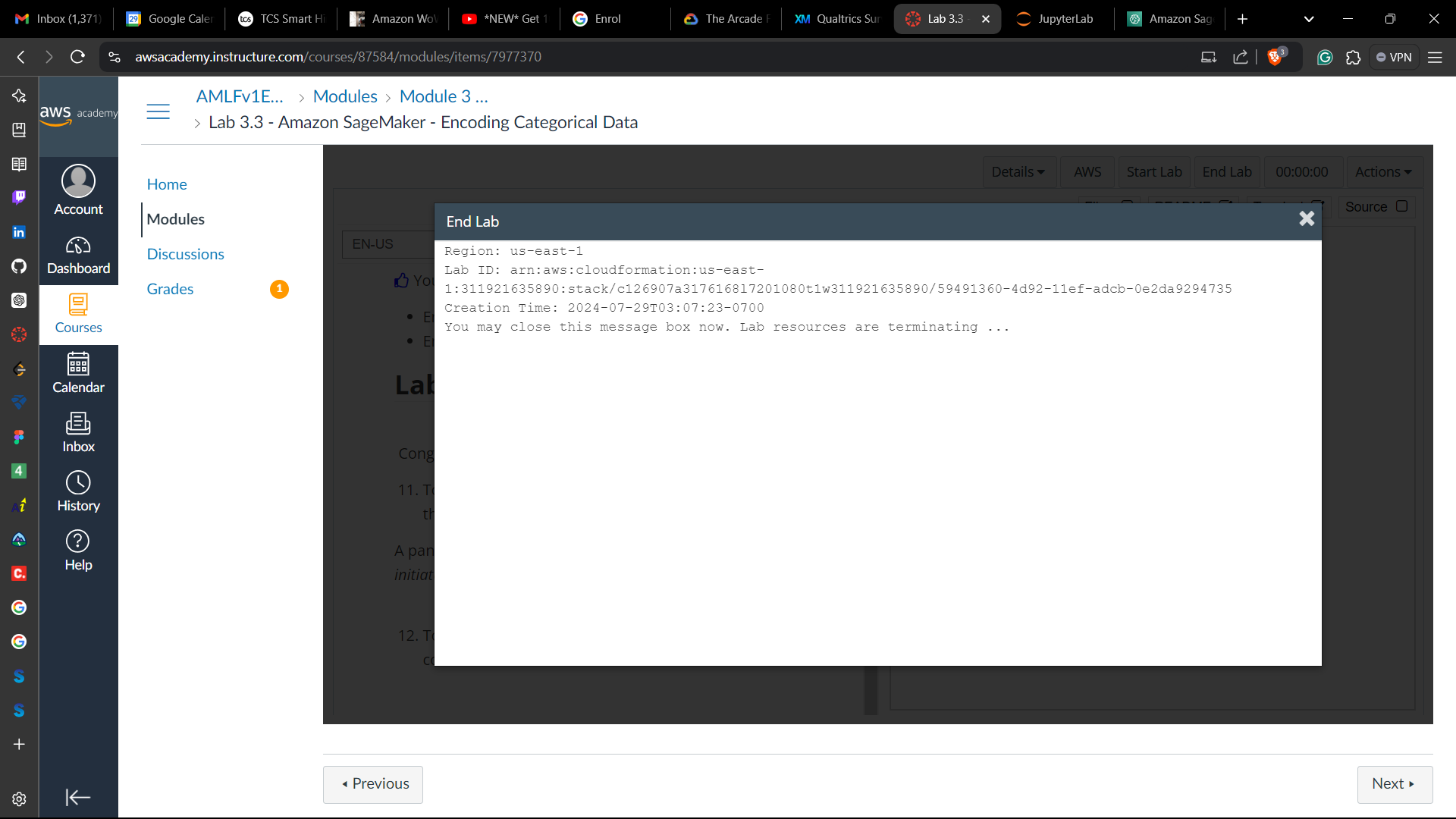


**Conclusion**

* Used the test data to generate predictions
* Generated a confusion matrix from the results
* Generated performance metrics for the model

**Lab complete**

1. In order to end the lab, choose End Lab, and then choose **Yes**.

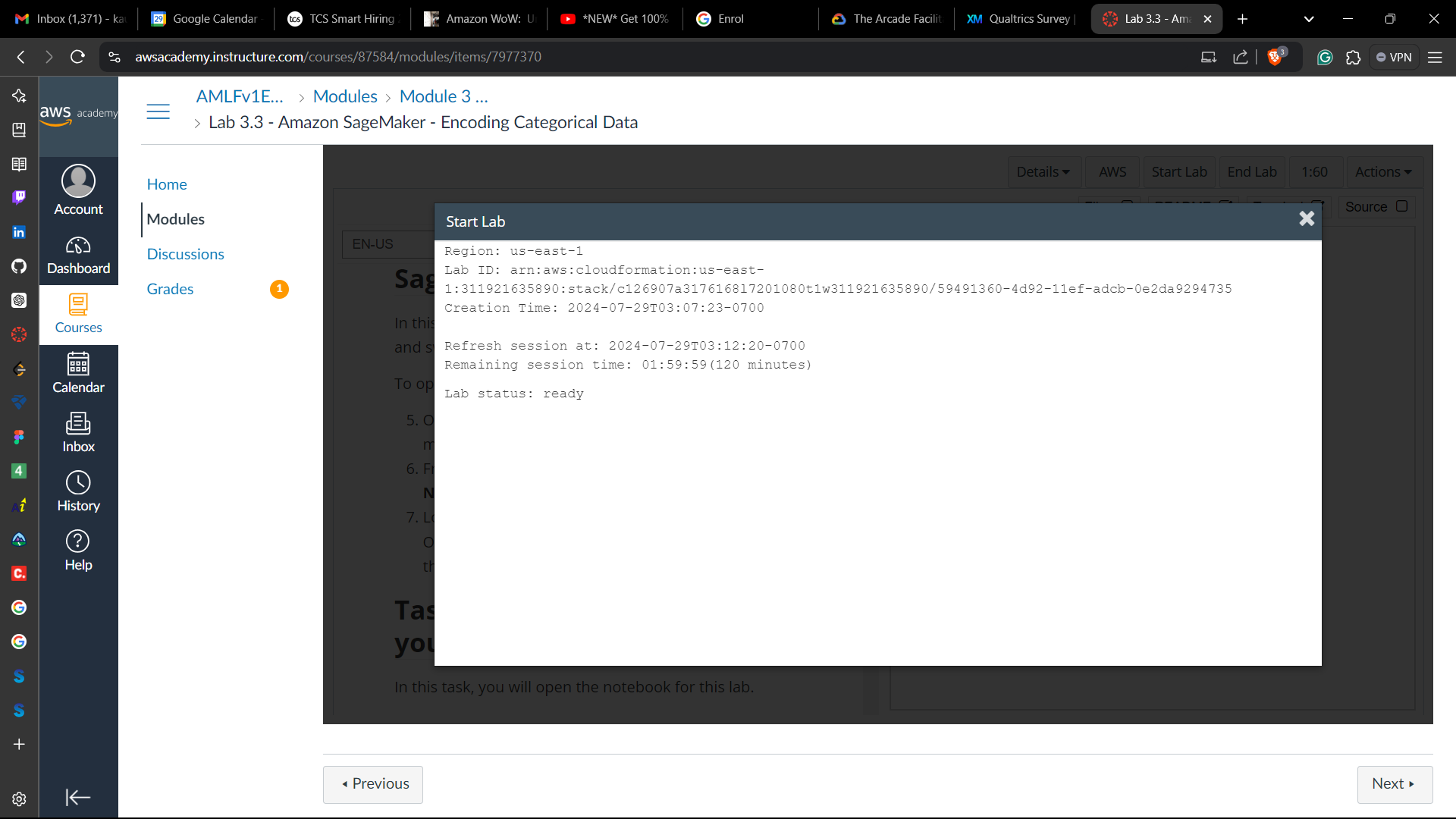


**LAB – 7**

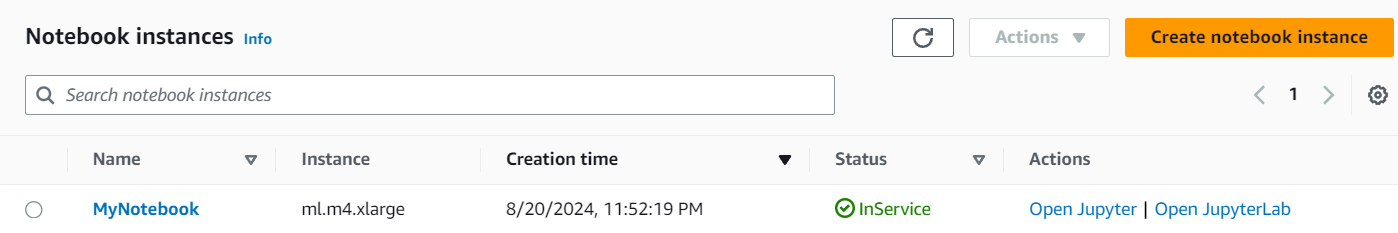
Objective: Amazon SageMaker - Hyperparameter Tuning

Procedure:

1. Accessing the AWS Management Console

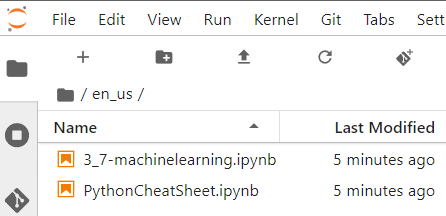


**Task 1: Accessing a notebook instance in Amazon SageMaker**



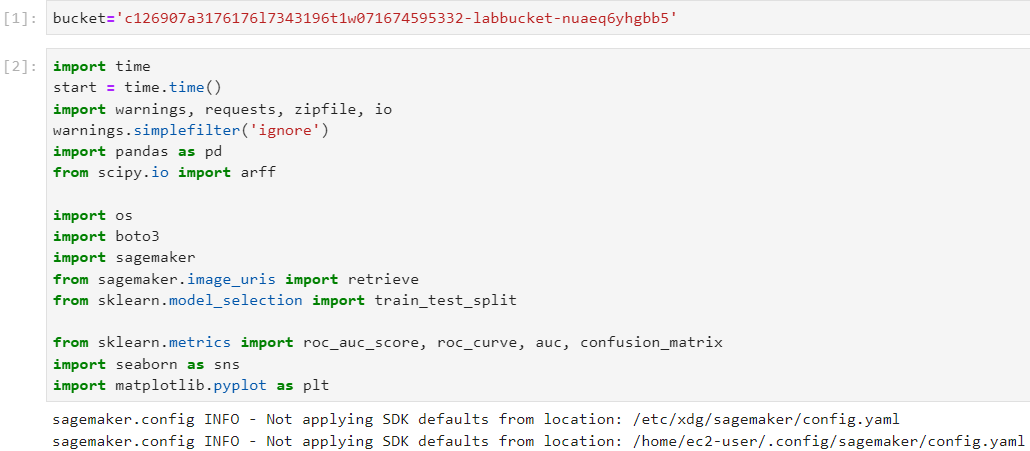
**Task 2: Opening a notebook in your notebook instance**

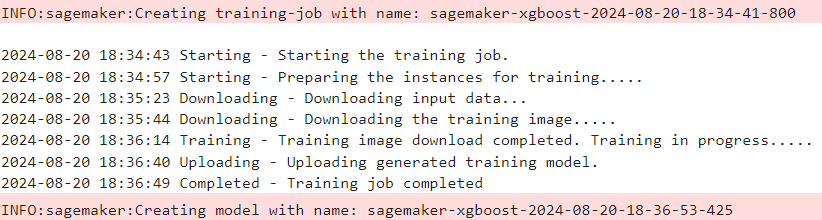
1. In your JupyterLab environment, go to the file browser in the left pane and locate the 3\_7-machinelearning.jpynb file & open it.



1. Follow the instructions in the notebook

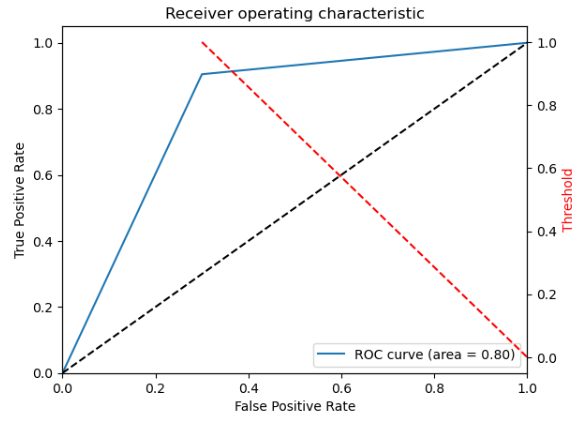
**Importing the data, and training, testing and validating the model**

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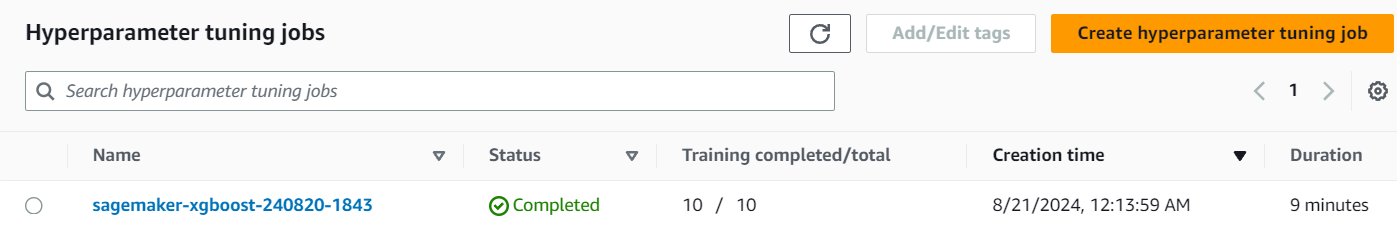
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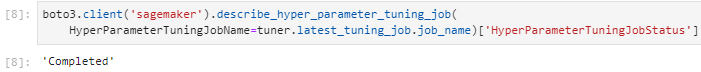
**Step 1: Getting model statistics**

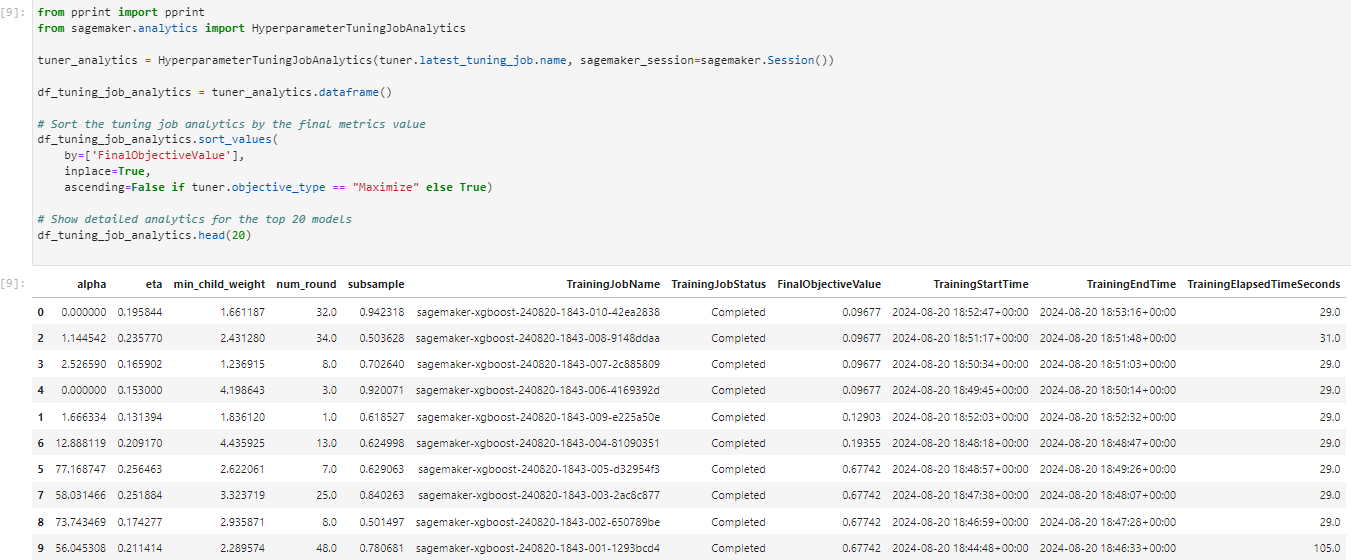
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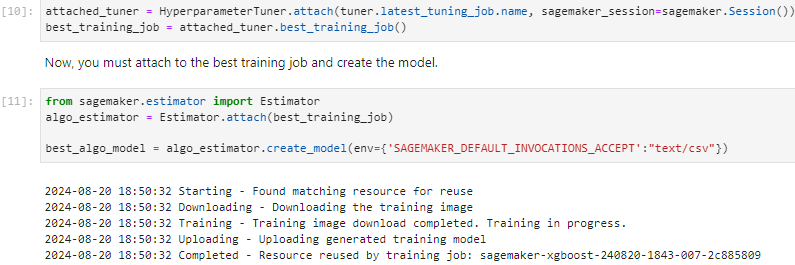
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**Step 2: Creating a hyperparameter tuning job**

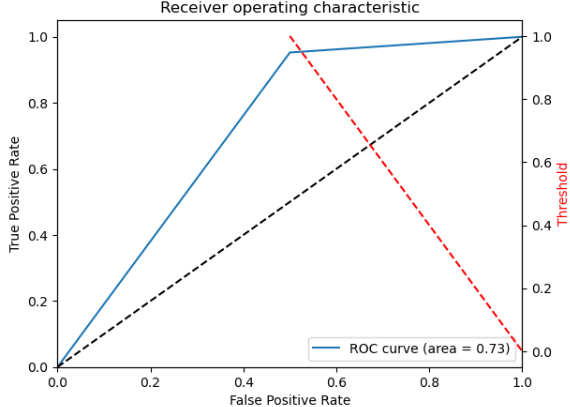
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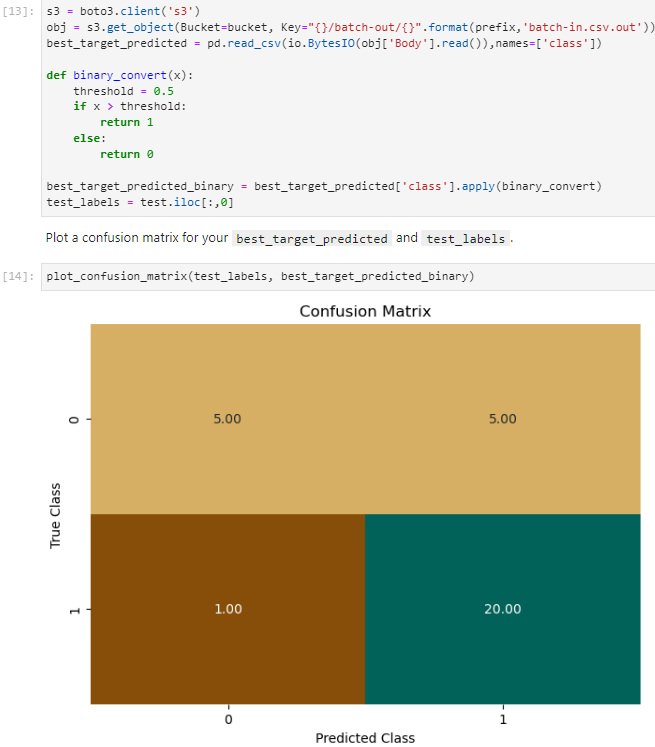
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**Step 3: Investigating the tuning job results**

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**Conclusion**

* Use Amazon SageMaker to create a hyperparameter training job
* Tune an XGBoost model by using Amazon SageMaker
* Test the tuned model by using performance metrics

**Lab complete**

1. In order to end the lab, choose End Lab, and then choose **Yes**.

