# W251 Homework #2
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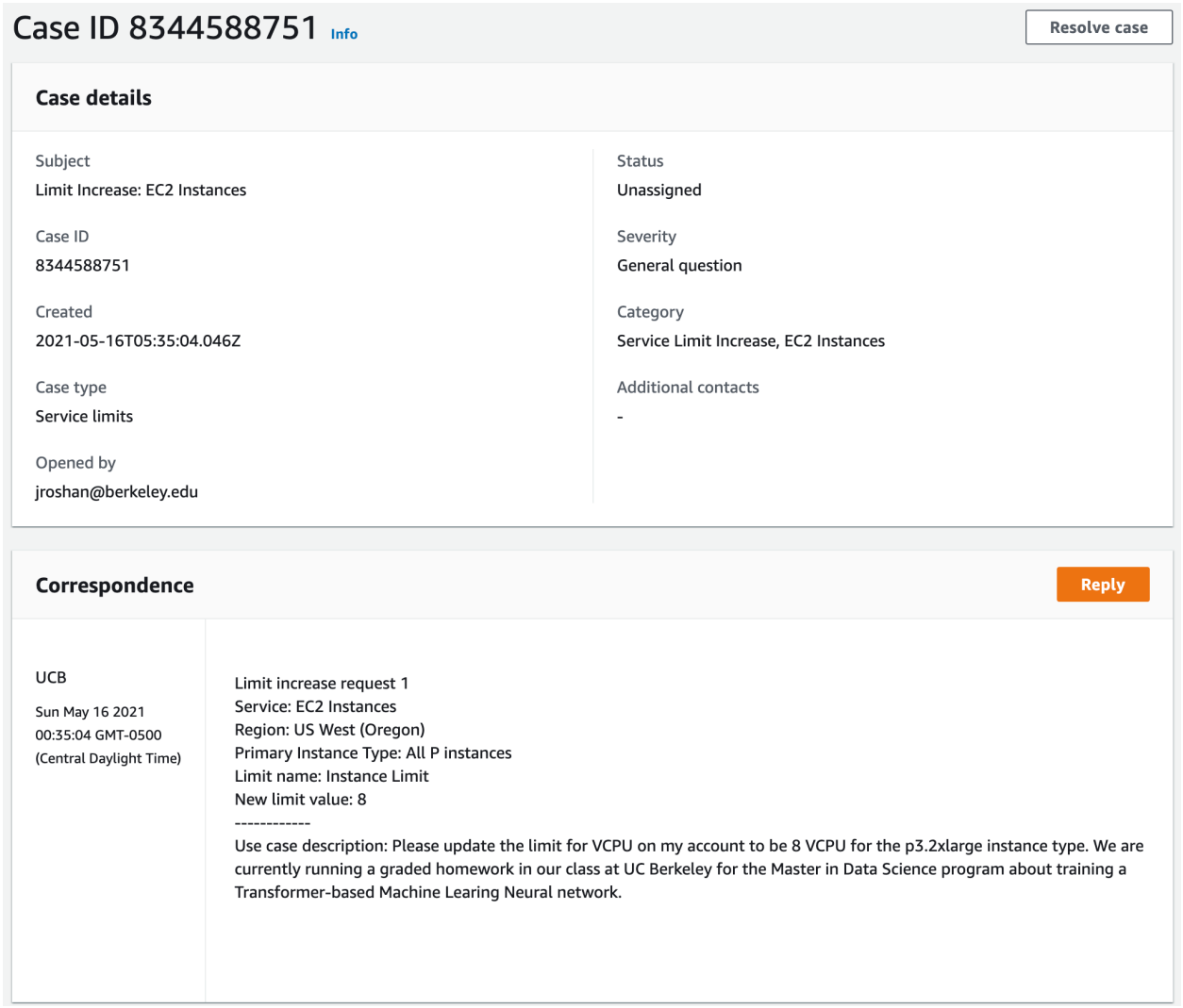
## PART #3



Case ID 8344588751 Info

Resolve case

**Case details**

| | |
|---|---|
| Subject<br>Limit Increase: EC2 Instances | Status<br>Unassigned |
| Case ID<br>8344588751 | Severity<br>General question |
| Created<br>2021-05-16T05:35:04.046Z | Category<br>Service Limit Increase, EC2 Instances |
| Case type<br>Service limits | Additional contacts<br>- |
| Opened by<br>jroshan@berkeley.edu | |

**Correspondence**

Reply

UCB

Sun May 16 2021
00:35:04 GMT-0500
(Central Daylight Time)

Limit increase request 1
Service: EC2 Instances
Region: US West (Oregon)
Primary Instance Type: All P instances
Limit name: Instance Limit
New limit value: 8
---
Use case description: Please update the limit for VCPU on my account to be 8 VCPU for the p3.2xlarge instance type. We are currently running a graded homework in our class at UC Berkeley for the Master in Data Science program about training a Transformer-based Machine Learing Neural network.

## PART-4

1. How can Sagemaker help Data Scientists?

   Sagemaker provides a platform to Data Scientists that helps them through the various stages of the life-cycle of a model development & deployment process. It provides an environment for data cleanup (via python notebook) and store (in S3), train a model and store the results, deploy the model to an environment and creates as end-point to access it.

2. Advantages/Disadvantages of Sagemaker

   Advantages: The life-cycle of model development is available through a console for a Data Scientist. Jupyter notebook environment integrated into S3 and other AWS features. Training and model deployment at one place

   Disadvantages: Training for the Data Scientist of all tools available in AWS. Keep an eye on various services that can potentially get spun up in the process of development that can impact cost if not attended to carefully.

3. Integration of Sagemaker with other AWS services such as Lambda functions, Kubernetes etc.,

   The model deployment creates an end-point and hence it can be referenced/called from a Lambda function.

   Amazon SageMaker Operators for Kubernetes and Components for Kubeflow Pipelines enable the use of fully managed SageMaker machine learning tools across the ML workflow natively from Kubernetes or Kubeflow.

4. When to use what algorithms

   The built-in sequence-to-sequence algorithms can be used for machine translation, text summarization, speech-to-text. K-means algorithm for clustering. Principal Component analysis for dimensionality reduction. Xgboost & k-NN for regression etc.

5. What are other ML services available from other cloud service providers such as Google, Microsoft, IBM?

   Google offers AutoML products to address various Data Scientists needs. AutoML's AI Platform is similar to AWS' SageMaker, Vision can be used as an OCR (Optical Character Recognition) tool, Translation can be used for interactive translation of text from one language to the other
   Microsoft offers Cognitive services (similar to Google's Vision), machine bots, language translator among other services
   IBM offers Watson as an interactive question-answering service using natural language. It also provides speech-to-text, text-to-speech, language translation among other services