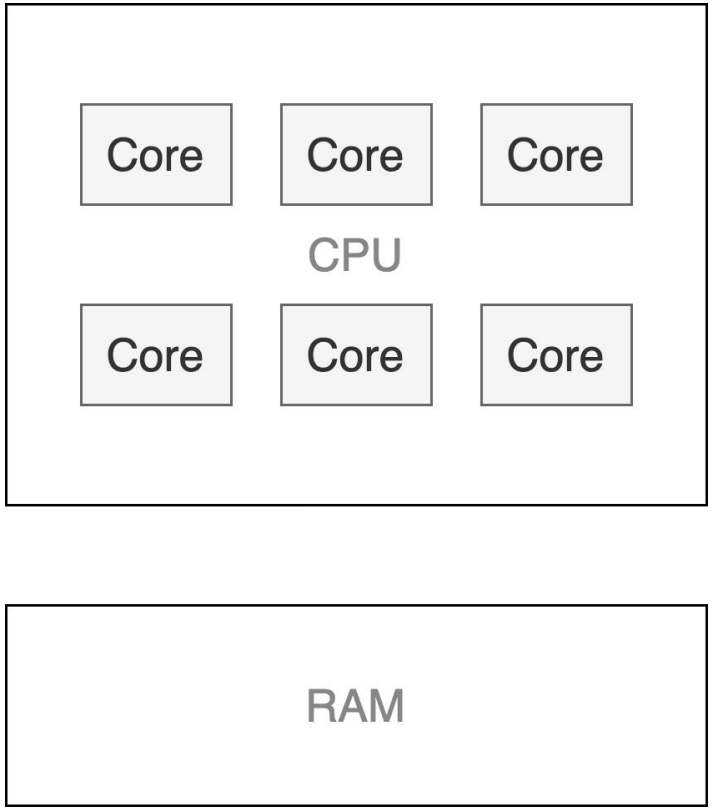
AWS Setup

Cloud Resources

Performance: Hardware

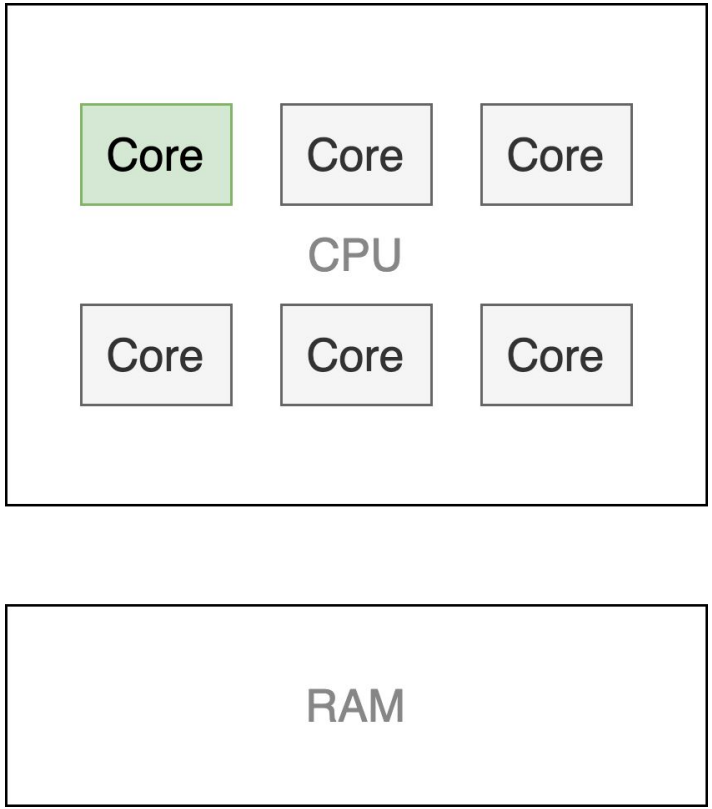
- Desktop CPUs
  - Frequency = 2-4 GHz
  - Cores = 1-12
  - RAM = 8-64GB
- Server CPUs
  - Frequency = 2-4 GHz
  - Cores = 1-96
  - RAM = 1-1024GB



Performance: Single-Process

Process 1: Python

- Thread 1: Interpreter
  - Running your Python code



Performance: Single-Process

Process 1: Python

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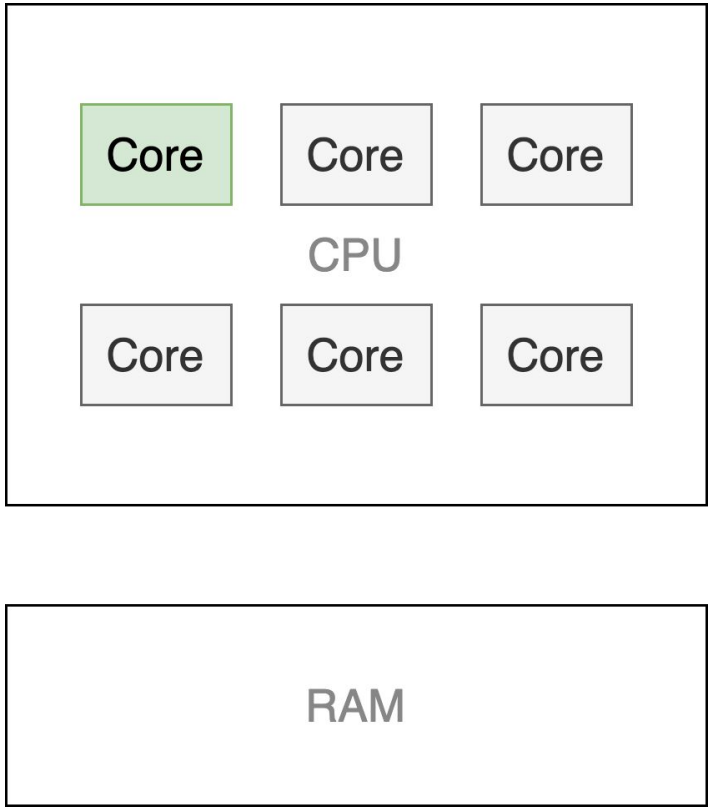
- Thread 2: NumPy/Tensorflow - C code
- Thread 3: NumPy/Tensorflow - C code
- Thread 4: NumPy/Tensorflow - C code
- Thread 5: NumPy/Tensorflow - C code
- Thread 6: NumPy/Tensorflow - C code
- Thread 7: NumPy/Tensorflow - C code



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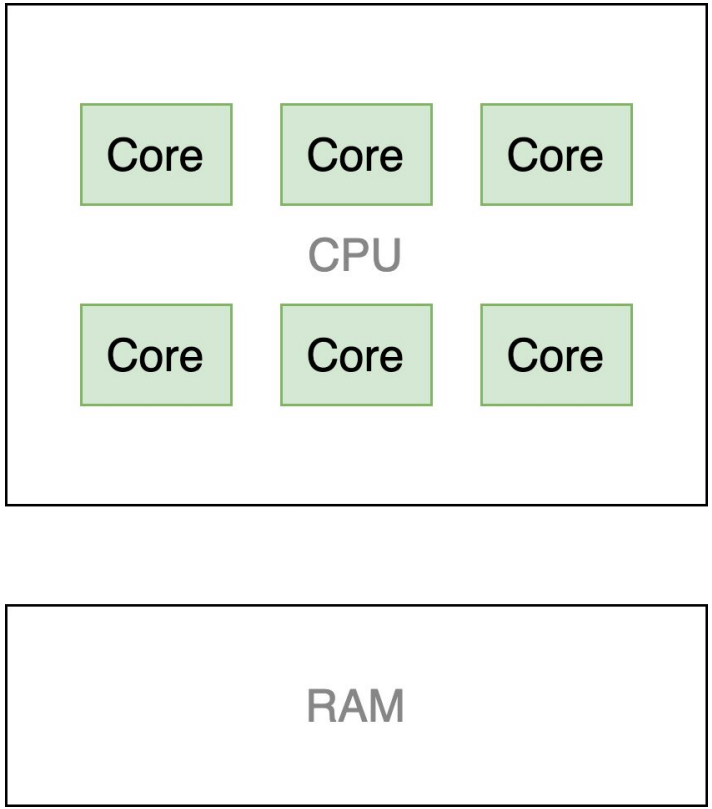


Performance: Multi-Process

Process 1:

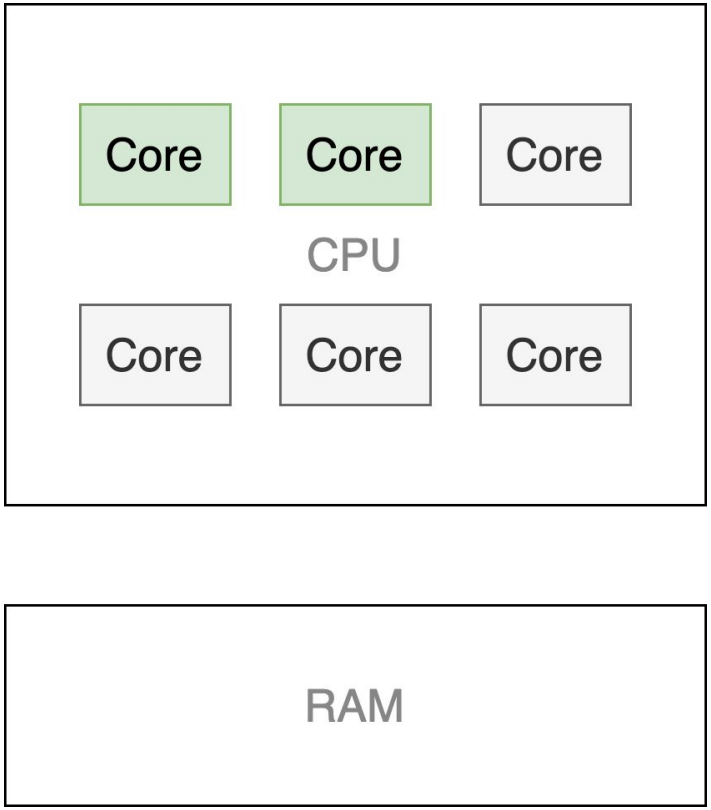
- Thread 1: Python Interpreter

Process 2:

- Thread 1: Python Interpreter

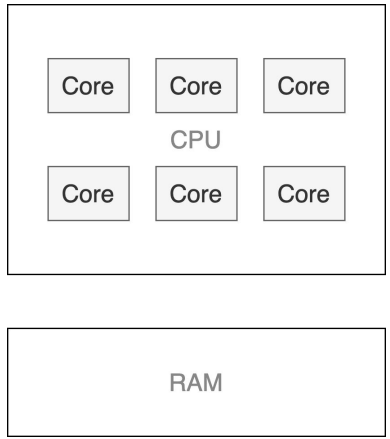
Examples:

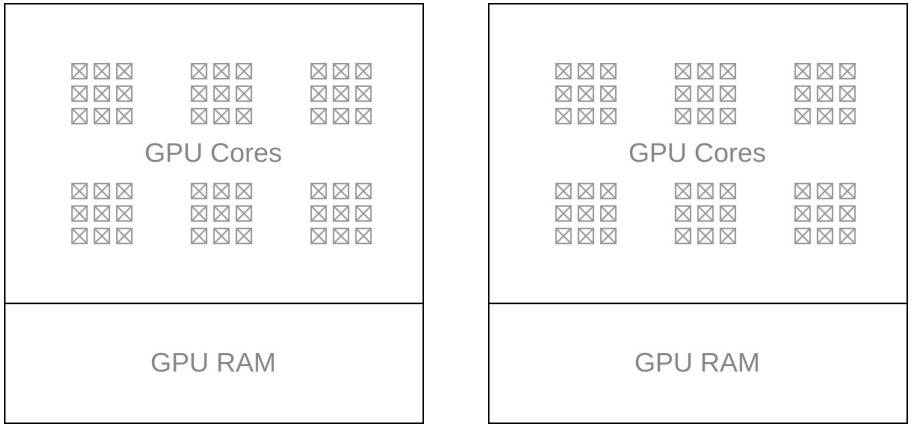
- Jupyter notebooks / kernels
- Scikit-Learn (via Joblib)
- Tsfresh
- Dask



Performance: GPU

- Desktop GPUs
  - Frequency = 1-2 GHz
  - Cores = 1000 - 2000
  - RAM = 6-24GB
  - Support for multiple GPUs
- Server GPUs
  - Frequency = 1-2 GHz
  - Cores = 3000 - 5000
  - RAM = 12-16GB
  - Support for multiple GPUs





AWS Prices

Instance Types	CPU Cores	CPU RAM	GPU Cores	GPU RAM	$ / hour	Hours / $100
t3.medium	2	4			$0.06	1666
t3.xlarge	4	16			$0.23	434
t3.2xlarge	8	32			$0.47	217
p2.xlarge	4	61	2,496	12	$1.26	79
p3.2xlarge	8	61	5,120	16	$4.28	23

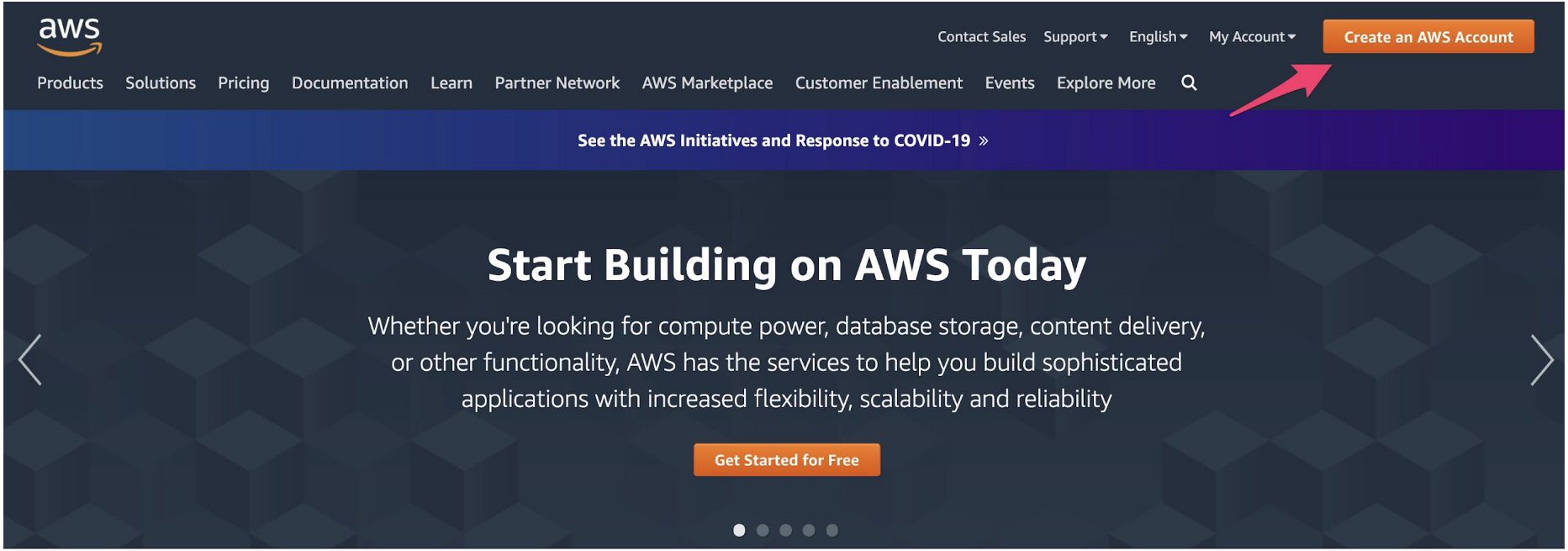
https://aws.amazon.com/sagemaker/pricing/

AWS Prices

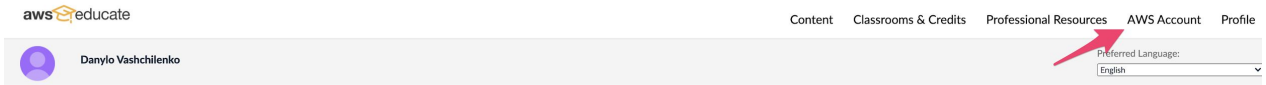
Storage Type	$ / GB / month	Months / 50GB / $100
Elastic Block Store	$0.14	7
Simple Storage Service	$0.023	87

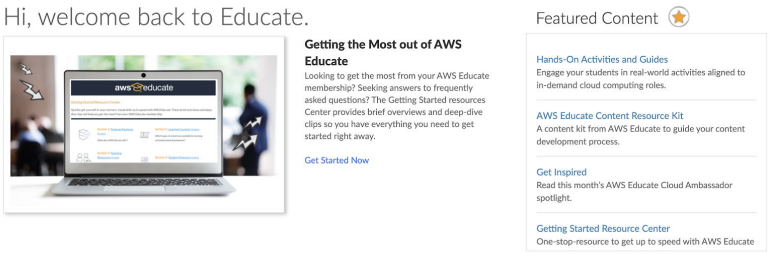
https://aws.amazon.com/sagemaker/pricing/

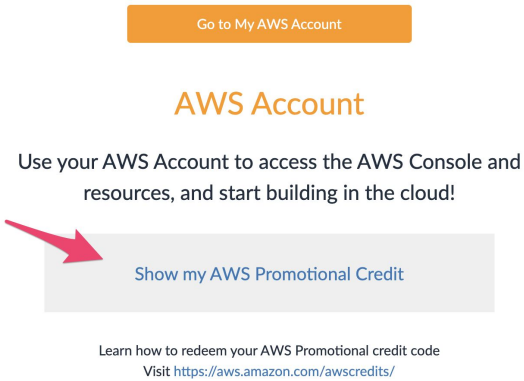
Create new AWS account



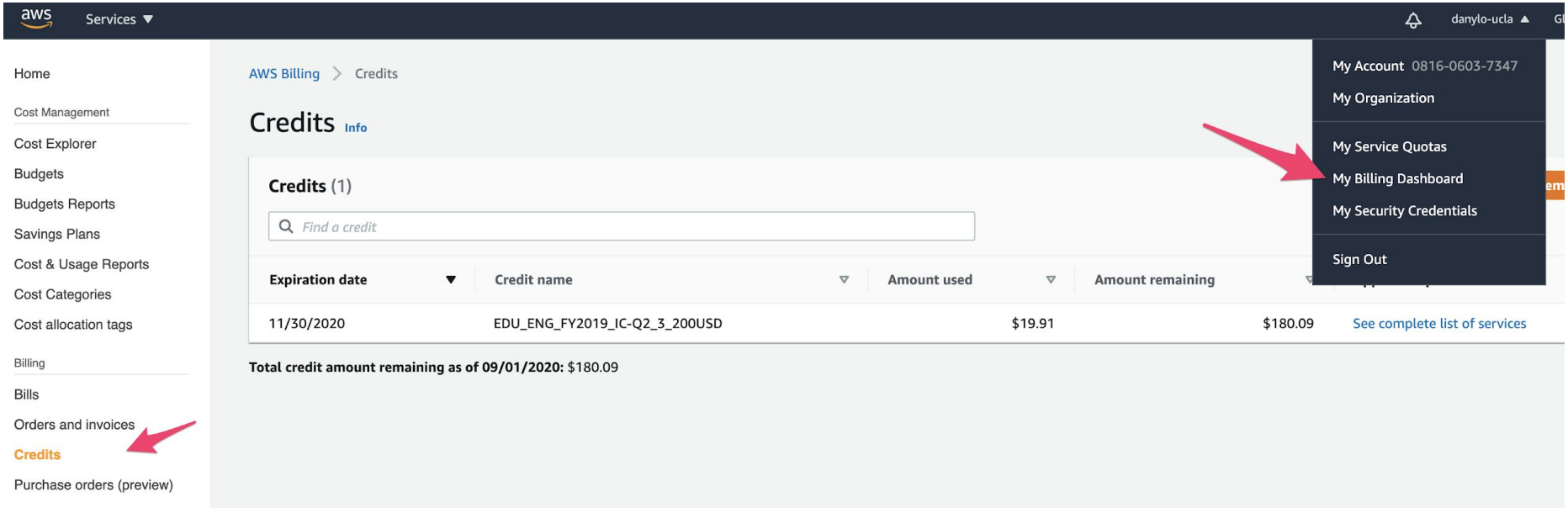
Get Promo Code from AWS Educate



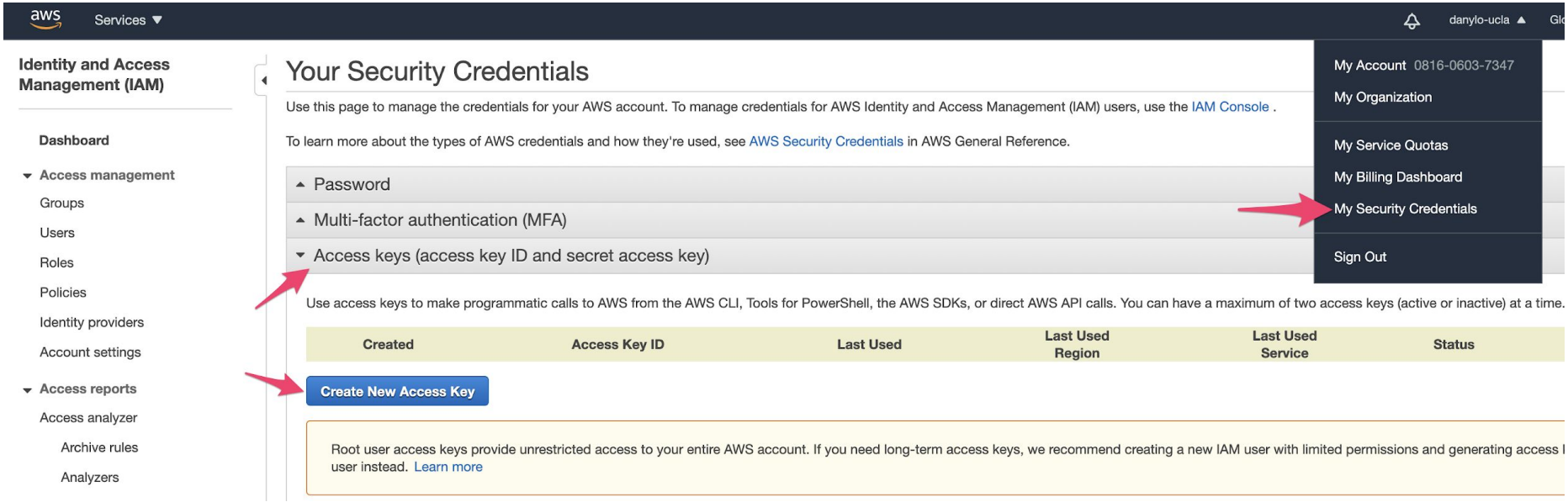




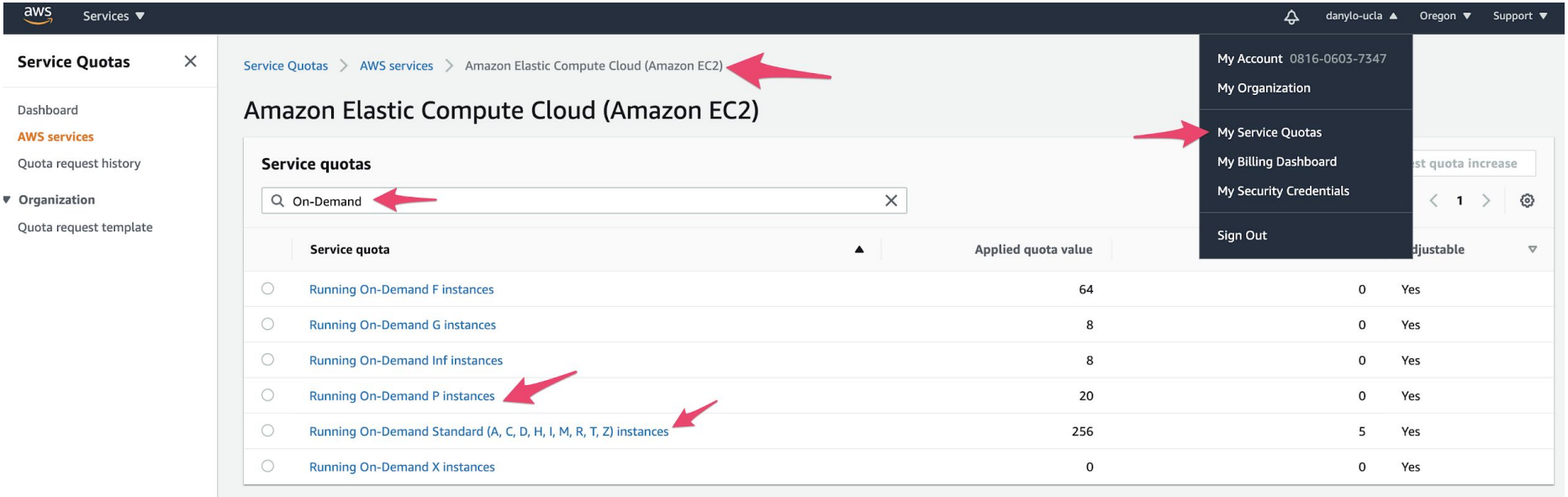
Apply promo code to your account



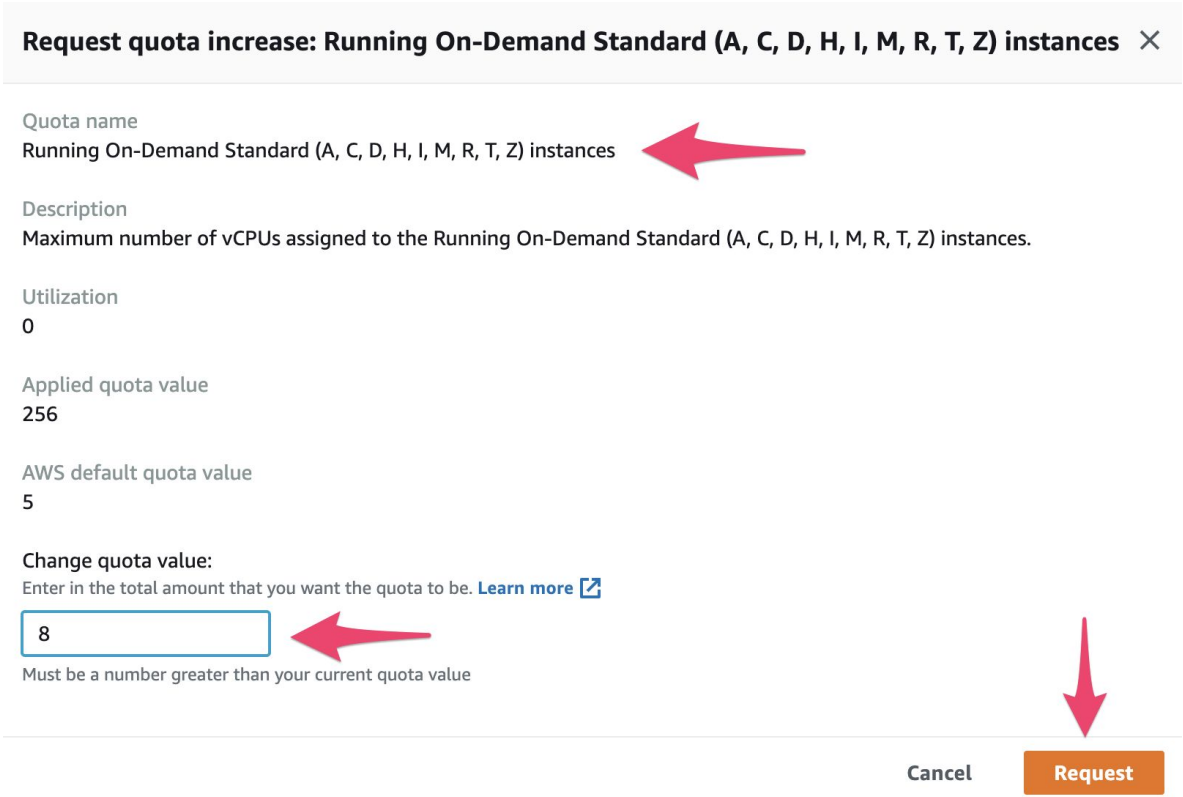
Create new AWS access key



Increase service quotas to use large instances



Increase service quota to use large CPU instances



Increase service quotas to use GPU instances