INTRO TO AWS

Learning Objectives:

After this lesson, you will be able to:

- Explain what services AWS offers and which are relevant to data science
- Start and terminate EC2 instances
- Store and download data from an S3 bucket

Topic Outline:

- Intro to AWS
- Setup fest
- EC2
- S3
- AWSCLI

What is AWS?

Intro to AWS

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AWS provides suite of cloud computing services that make up an on-demand computing platform.

Highlights:

- Suite of 70+ services
- EC2, S3, Elastic Beanstalk, RDS, Redshift are commonly used
- Clients include Netflix, Pinterest, Spotify, Yelp…
- Operates from numerous regions in the US and 12 other countries
- Companies rely on AWS because it is far easier and cheaper than rolling their own server farm

Intro to AWS

Getting Signed Up

These URLs will take students to an input form. To complete this form, students will need to:

1. Use "GA-Data-Science" under the Institution Name (this should be pre-filled out)
2. Enter your name & location.
3. Ignore the disclaimer on email; you can use your personal (or any amazon associated) email address here.
4. Choose whatever you want for "field of study" & "grade level"
5. For "graduation month/year", please enter the last day of our current GA DSI cohort.
6. Enter your AWS account ID - if you know it! If so, proceed to step 9. If not, see below.
    - *Note: This is a 12 digit number, not your Amazon username (if you have one).*
7. If you don't know it or have never signed up for AWS before, click the link to "sign up now". This will open in a new tab.
8. Once you sign up and enter the AWS console, you can click on your name (on the top right) to view your account and copy your AWS account ID. Copy / paste that back into the form.
9. On the next page, you will need to input your credit card information. Don't worry, it won't be charged!
10. Select "basic support plan".
11. Submit. You should have now an email that says you're "under review".
12. You will then receive a second confirmation email from `support@awseducate.com` and your credits will be linked to your AWS account.

REMINDER: Make sure to check your spam folder for the review and confirmation email from "support@awseducate.com".

EC2 - Elastic Cloud Compute

The first service we will discover is *Elastic Compute Cloud* or *EC2*. This service forms a central part of Amazon.com's cloud-computing platform by allowing users to rent virtual computers on which to run their own computer applications. Let's learn some terms first:

- **Instance**: virtual machine hosted in Amazon Cloud running the software we want
- **Amazon Machine Image (AMI)**: a snapshot of a configured machine that we can use as starting point to boot an instance. We can also save a running instance to a new AMI so that in the future we can boot a new machine with identical configuration.
- **SSH Key**: pair of keys necessary to connect to an instance remotely. The private key will be downloaded to our laptop, the matching public key will be automatically configured on the instance.

S3 - Simple Storage Service

With EC2 we saw that we could provision computing services on demand, but if we have data, we don't want to have to keep a server provisioned just to hold that data. With S3 we can keep data in the cloud so that we can access it easily and cheaply.

In S3 data is stored in "buckets". These are globally unique objects that can be listed, created, destroyed, and retrieved through REST, SOAP, GET, or even BitTorrent.

S3 - Simple Storage Service

Follow the S3 tutorial to get started working with S3

AWSCLI - AWS Command Line Interface

With the AWSCLI, we can harness the power of AWS services programmatically.

Follow the tutorial to get started with AWSCLI

NB: Pip install it rather than the download option