Voice Powered Analytics Workshop: Train-the-Trainer

***Target Audience:*** This workshop is intended to provide 200-300-level knowledge for the following organizations:

* Understanding how an **S3-backed Data Lake** leveraging **Athena and QuickSight** can be used for Analytics-based use-cases. This workshop guides attendees to perform ad-hoc Data Discovery for BI insights and bring results in a faster time-to-market.
* Explore business-centric ideas for **Alexa** and understand basic skill building constructs for the first time. They will also learn how these skills can be deployed and managed privately using **Alexa For Business.**
* Innovation groups who want to explore the art-of-the-possible through **Serverless** constructs and **Voice Enablement**

***Workshop Format:*** The end-to-end workshop can be completed in under 3 hours. The workshop opens with a 20 minute [presentation](https://github.com/awslabs/voice-powered-analytics/blob/master/media/loft/nyc/voice-powered-analytics-nyc-loft.pptx), which includes an introduction to the workshop, services, and implementation architecture. Followed by 2.5 hours of work time.

Advanced-level attendees may finish in under 2 hours. We encourage them to expand upon the workshop such as:

* + Can you develop QuickSight unique insights from this data?
  + Can you create a meaningful metric from twitter data that may show sentiment business-value using Athena?
  + [Expert level] Can you expand upon your Alexa skill to create more than one metric, or additional slot values. This will require some lambda code modifications.

We encourage these attendees to send a tweet to our twitter handles. If it is unique and compelling, we’ll add it as an attendee-submitted example in our workshop documentation!

***Resource Requirements:***

***Helpers:*** One AWS lab assistantis recommended forevery 25 people. Although the workshop instructions can be followed end-to-end without assistance, attendees sometimes struggle with troubleshooting when wrong values (such as Lambda environment variables or Alexa Slot Values) are entered incorrectly. In addition, this ratio gives the instructors the ability to engage in critical thinking with attendees and bring ideas to implementation.

***Room:*** AV equipment for the presentation and internet connectivity(Sufficient for Web Service calls min 125kbs per student)

**Access:** Attendees will need admin-level access to an AWS Account (not shared with other workshop participants because of IAM role naming). They will also need to create a developer.amazon.com account for building their Alexa skill.

**Cost:** There is no charge for the developer account. The total cost of the workshop is <$1 if deleted within a week of the workshop completion. If kept active for a month, the cost is around $5. The workshop contains cleanup instructions to ensure costs aren’t incurred following its completion.

***Common Issues:***

* **S3 Exploration**
  + Requires CLI installation
* **CloudFormation:** 
  + The CloudFormation requires a ChangeSet to be created. This means that at the last step of the CloudFormation wizard, attendees may have trouble with not being able to deploy at the end unless they click the “Create Change Set” button.
    - Sometimes the Change Set button doesn’t submit a request, in this case, we recommend a browser refresh and start the process over. This also may be an issue with the CloudFormation Stack Name if they have previously attempted to deploy this script- we recommend giving the CloudFormation stack a unique name at the first step to avoid this naming conflict.
  + Attendees should leave all defaults for CloudFormation. If it has failed, you may need to help them delete a VPA-named IAM role if it didn’t successfully roll back all the created resources.
  + If they have a failed deployment and try again, Cloudformation requires them to either delete the previous stack or they can rename the new deployment.
* **QuickSight Access:** Although the twitter S3 bucket is public, QuickSight has recently made some changes that requires explicit bucket access to be granted in order to avoid the following error when connecting to an Athena data source via QuickSight:  
  *Your query has the following error(s):*

*Insufficient permissions to execute the query.*

*This query ran against the "default" database, unless qualified by the query. Please post the error message on our forum or contact customer support with Query Id: 83549261-fcdd-49d6-81eb-215f3eca66ce.*

If they are running this workshop out of Ireland, they need to change the above settings in the N. Virginia region (QuickSight requirement), ensure that they switch back to the Ireland region after changing these settings.

* **Region Access:** Reinvent 2018 should only be run out of EU-West-1 and the instructions are tailored for this. Sometimes attendees will inadvertently be in another region and see errors about resources not being created. There are workshop instructions to have them continually check this, but it is a common error that we see.
* **Lambda Errors:** Here are the most common errors we see in the Lambda functions:
  + Key Errors are usually a result of: Are the environment variables *exactly* as typed in the instructions (removing spaces included)?
  + 404 errors resulting from Lambda functions: Is the Athena table created? Is the Athena table spelled correctly in the environment variables?
  + Did they enter the name of the S3 bucket correctly prefaced with s3:/ and ending in /poller/
  + Did they enter the environment variables in the “tags” section? Sometimes that can confuse attendees because they’re close to each other.
* **Alexa Errors:**
  + Do they have Data in the DynamoDB table?
    - If not, they probably didn’t configure the Lambda function in Module 1 correctly. Check that the configuration is correct such as Environment Variables and Triggers.
  + Skill Builder [beta] errors:
    - Ensure that the attendee didn’t add any Utterance prompts or unique values beyond the Utterance phrase.
  + Most of the Alexa errors arise when testing the skill.
    - “Endpoint cannot be reached”
      * Are they referencing the correct Lambda ARN?
      * Does the Lambda function have the Alexa Skills Kit Trigger enabled?
      * Is their sample Utterance spelled correctly so it invokes the right intent?
    - The metric value is -1
      * Does the “Slot Value” match the “metric\_name” in the Lambda-poller function environment variables?
        + Under the covers, the “Slot Value” must match the “name” attribute in the deployed DynamoDB table deployed.
  + Testing Errors
    - “No Content” errors – users need to hold down the Mic button
    - Result is -1. Check utterances and slot values match. See above
* **Alexa For Business Errors:**
  + Regions available are only in the US
  + There is a resource propagation time of 90 minutes before the skill is available to link. You can tell attendees to finish up the ending piece later if they don’t see it