Hints and Resources

The coursework is based on the topics covered during the lab sessions. Use meaningful names to describe the program elements. Maintaining a backup of the application is your own responsibility.

The following resources for each of the four steps of the coursework should be helpful.

1. Resource creation with Boto3 and CloudFormation

You can refer to Boto3 documentation which provides detailed syntax for creating resources and also has some examples

https://boto3.amazonaws.com/v1/documentation/api/latest/guide/quickstart.html

A collection of sample CloudFormation templates is at:

https://aws.amazon.com/cloudformation/resources/templates/

2. Audio file upload to S3 and Lambda trigger from SQS

The audio upload to S3 should place a message in the SQS queue. It is not required to format or build the message yourself.

https://docs.aws.amazon.com/AmazonS3/latest/dev/NotificationHowTo.html

The SQS queue will trigger the Lambda function on getting an event notification from S3.

https://docs.aws.amazon.com/lambda/latest/dg/with-sqs.html

3. Sentiment analysis with Transcribe and Comprehend

3.1 Receive and process notification from SQS

Lambda function will need to parse the SQS message to extract the relevant information

https://docs.aws.amazon.com/lambda/latest/dg//with-sqs.html

3.2 Pass audio file details to Transcribe

The relevant information should be passed to the Transcribe service for speech-to-text conversion.

https://boto3.amazonaws.com/v1/documentation/api/latest/reference/services/transcribe.html#client

3.3 Pass the textual information to Comprehend

The textual information must be retrieved from the Transcribe response and passed to the Comprehend service for sentiment analysis.

4. Database Update and SMS Notification

4.1 Receive and process sentiment analysis from Comprehend

The response from the Comprehend service will have to be parsed to extract the sentiment and scores.

4.2 Store the sentiment information in DynamoDB table

The Lambda function should store the relevant sentiment and scores into the DynamoDB table.

https://aws.amazon.com/blogs/security/how-to-create-an-aws-iam-policy-to-grant-aws-lambda-access-to-an-amazon-dynamodb-table/

4.3 Send notification of negative sentiment

The Lambda function should check for the ‘NEGATIIVE’ sentiment and send a SMS message to the specified telephone number.

https://docs.aws.amazon.com/sns/latest/dg/sms_publish-to-phone.html