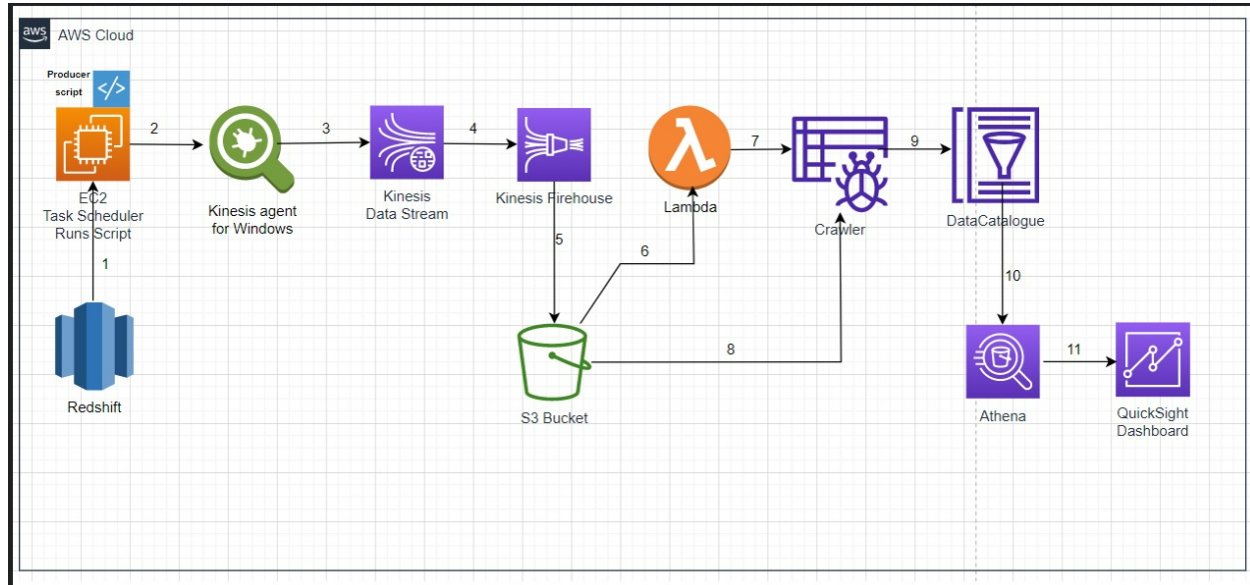# LIVE DATA STREAM WITH KINESIS FROM REDSHIFT AND DELIVERY TO QUICKSIGHT DASHBOARD

Purpose:

Take a look at the following Diagram to get a high level glimpse into the expected work awaiting us:

Prerequisites: AWS Account, Installed SQL Workbench, Understanding of: ETL methodology, PySpark, Python, Basic Network Configuration, Downloaded files from folder 'Project 3' in GitHub link provided: https://github.com/Myself1214/Upwork.git

Plan of Work (Pseudo Work):
1. Create two S3 buckets: Raw bucket and Enriched bucket
2. Create Security Group to be used by all resources
3. Create an EC2 Windows server and mount a directory from the local machine on EC2 to be able to read local files on EC2 synchronously.
4. Create a script to move the dataset from EC2 server to S3 Raw bucket and put it on a daily execution schedule
5. Create IAM roles to be used by glue jobs, redshift cluster and lambda
6. Create Lambda function to send email notification when Step Function is triggered
7. Create a Glue Job to convert data from Raw bucket to .parquet format and move it to S3 Enriched bucket.
8. Create a Redshift Cluster with loaded sample database
9. Create another Glue Job (Enriched and load job) to read data from Enriched bucket, clean, transform and load it to a database within Redshift Data Store.
10. Create StepFunction to orchestrate lambda and glue jobs executions in order

11. Create EventBridge rule trigger to trigger StepFunction once file is loaded in S3 Ra bucket
12. In SQL Workbench create connection to Redshift Data Store and query loaded dataset to validate it is present in Redshift

Actual Steps:
1. Creating S3 Buckets.
   - In AWS, log in to S3 Console. Click on 'Create Bucket', give the bucket name 'Raw' bucket
   - scroll down and click on 'Create bucket'. Repeat a

Create role (kinesis role) and attach it to ec2. This will allow ec2 to put records on kinesis data srream

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To install kinesis agent for ms windows, go to:
https://s3-us-west-2.amazonaws.com/kinesis-agent-windows/downloads/index.html
Then follow instructions for 'Install using PowerShell'
Once installation is done, open notepad and create Kinesis Agent for Windows configuration file

Start-Service -Name AWSKinesisTap
Stop-Service -Name AWSKinesisTap