Swinburne University of Technology

*COS20019 Cloud Computing Architecture*

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Module 13 Challenge Lab - Implementing a Serverless Architecture for the Café

*Saturday 11th October, 2023*

**Task 1: Downloading the source code**

**Question 1**: Why does the *salesAnalysisReportDataExtractor.zip* file have a package folder?

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**Task 2: Creating the *DataExtractor* Lambda function in the VPC**

Create a security group for the Lambda function with the following settings:

* **Security group name**: LambdaSG
* **VPC**: *Lab VPC*
* **Outbound Rules**: *All traffic* to all addresses

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Update the **DatabaseSG** security group. Add a second inbound rule. For the new rule, configure the **Type** as **MYSQL/Aurora**. Then, in the search box to the right of **Custom**, type sg- and choose your new Lambda function security group as the source. Finally, choose **Save rules**.

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Create a Lambda function with the following settings:

* **Function name**: salesAnalysisReportDataExtractor
* **Runtime**: *Python 3.8*
* **Role**: *salesAnalysisReportDERole*

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* **VPC**:
  + **VPC**: *Lab VPC*
  + **Subnets**: *Private subnet 1* and *Private subnet 2*
  + **Security Group**: The Lambda function security group that you created

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Upload the *salesAnalysisReportDataExtractor.zip* file

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Configure the *DataExtractor* Lambda function as follows:

* **Description**: Lambda function to extract data from database
* **Handler**: salesAnalysisReportDataExtractor.lambda\_handler
* **Memory Size**: *128 MB*
* **Timeout** (seconds): 30

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**Question 2**: Why must the *salesAnalysisReportDataExtractor* be in a VPC?

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### Task 3: Creating the salesAnalysisReport Lambda function

Create a second Lambda function with the following settings:

* + **Function name**: salesAnalysisReport
  + **Runtime**: *Python 3.8*
  + **Role**: *salesAnalysisReportRole*

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Configure the *salesAnalysisReport* Lambda function as follows:

* **Description**: Lambda function to generate and send the daily sales report
* **Handler**: salesAnalysisReport.lambda\_handler
* **Memory Size**: *128 MB*
* **Timeout** (seconds): 30

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### Task 4: Creating an SNS topic

Create a standard SNS topic with the following configuration:

* **Name**: SalesReportTopic
* **Display Name**: Sales Report Topic

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Update the *salesAnalysisReport* Lambda function by adding the following environment variable:

* **Variable Name**: topicARN
* **Variable Value**: The ARN of the topic you just created

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**Question 3**: Could the *topicARN* be stored as an AWS Systems Manager parameter instead of as an environment variable (assuming that the code could be updated)?

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### Task 5: Creating an email subscription to the SNS topic

Create a new email subscription to the topic. Use an email address that you can easily access for this lab.

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Confirm the email subscription from your email client.

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**Question 4**: Will you receive an email message if you do not confirm the topic subscription?

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### Task 6: Testing the salesAnalysisReport Lambda function

Create a test for the *salesAnalysisReport* Lambda function.

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Run the *salesAnalysisReport* test.

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Sales report email

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### Task 7: Setting up an Amazon EventBridge event to trigger the Lambda function each day

Create a new EventBridge rule that runs the *salesAnalysisReport* Lambda function each day at a specific time. Make sure to choose **Continue to create rule**.

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Trigger created

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Schedule that I updated again to match with current UTC time.

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**Question 5:** Frank tells you that he hasn't received an email report in the last few days. What could you do to troubleshoot this issue?

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Submitting work

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ENDLAB.