

Nguyen Gia Binh - 1042119428

## Step 1: create lambda security group

The screenshot shows two consecutive screenshots of the AWS Lambda Security Group creation interface.

**Screenshot 1: Create Security Group**

This screenshot shows the "Create Security group" page. The security group name is set to "LambdaSG". The VPC is selected as "vpc-0bfdb82cde1328b1c (Lab VPC)". In the "Inbound rules" section, there is a note stating "This security group has no inbound rules." In the "Outbound rules" section, a single rule is defined: "All traffic" to "All" ports on "Custom" destination "0.0.0.0/0". There are no tags associated with the resource. A note at the bottom says "Rules with source of 0.0.0.0/0 or -0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only." An orange "Create security group" button is visible at the bottom right.

**Screenshot 2: Confirmation of Success**

This screenshot shows a confirmation message: "Security group (sg-0538101d9ac506308 | LambdaSG) was created successfully". The main content area displays the details of the newly created security group, "sg-0538101d9ac506308 - LambdaSG". The details include:

- Security group name: LambdaSG
- Security group ID: sg-0538101d9ac506308
- Description: all traffic to all address
- VPC ID: vpc-0bfdb82cde1328b1c
- Owner: 725486059687
- Inbound rules count: 0
- Outbound rules count: 1

Below the details, there are tabs for "Inbound rules", "Outbound rules", and "Tags". The "Inbound rules" tab is active, showing an empty list with a search bar and a "Manage tags" button.

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## 1.2: update Database SG inbound rule

The screenshot shows the AWS CloudShell interface with three tabs open:

- Assignment 3
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- EC2 us-east-1

The main content area displays the successful modification of an inbound security group rule:

Inbound security group rules successfully modified on security group sg-0e6ccb434aa83c72c (DB-SG)

**Details**

Security group name	sg-0e6ccb434aa83c72c	Description	vpc-id
Owner	725486059687	Inbound rules count	vpc-0fb0b82cde1328bc
		Outbound rules count	
		1 Permission entry	

**Inbound rules (2)**

Name	Security group rule id	Type	Protocol	Port range	Source	Description
-	sgr-0beb8c771b8888...	MySQL/Aurora	TCP	3306	sg-0538101d9ac506308...	-
-	sgr-0e3845a136db40...	MySQL/Aurora	TCP	3306	sg-0fab5b58f8085ea4...	-

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## Step 2: Create salesAnalysisReportDataExtractor lambda function

The screenshot shows the 'Create function' wizard in the AWS Lambda console. It includes sections for 'Basic information' (function name: salesAnalysisReportDataExtractor, runtime: Python 3.8, architecture: x86\_64), 'Permissions' (choose existing role: salesAnalysisReportDataExtractor), and 'Advanced settings' (enable VPC, choose subnets: us-east-1a and us-east-1b).

The screenshot shows the 'Create function' wizard in the AWS Lambda console, focusing on 'Advanced settings'. It includes sections for 'VPC' (choose subnets: us-east-1a and us-east-1b) and 'Security groups' (choose security groups for Lambda to use to set up your VPC configuration).

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The screenshot shows two overlapping browser windows. The top window is titled 'Create function - Lambda' and displays the VPC configuration for a new Lambda function. It shows two subnets: 'us-east-1a' and 'us-east-1b'. The bottom window is titled 'salesAnalysisReportDataExtractor' and shows the Lambda function configuration page. The code editor tab contains the following Python code:

```
File Edit Find View Go Tools Window Test Deploy
Go to Anything (Ctrl+P) Environment Var
Environment salesAnalysisReportDataExtractor
lambda_function.py
1 #!/usr/bin/env python
2 def lambda_handler(event, context):
3     # TODO: Implement
4     return {
5         "statusCode": 200,
6         "body": "Hello from Lambda"
7     }
```

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The screenshot shows the AWS Lambda console interface. A modal window titled "Upload a .zip file" is open, prompting the user to upload a new zip file package. The file "salesAnalysisReportDataExtractor.zip" (size 113.79 KB) is selected for upload. The background shows the Lambda function configuration page for "salesAnalysisReportDataExtractor". The "Code source" tab is selected, showing the function's code structure:

```
Environment Variables
salesAnalysisReportDataExtractor
└── package
    └── salesAnalysisReportDataExtractor
        ├── lambda_function
        │   └── lambda_function.py
        └── requirements.txt
```

The "Code" tab is also visible, showing the function's code content.

Below the modal, a success message is displayed: "Successfully updated the function salesAnalysisReportDataExtractor."

System status bar at the bottom: 32°C, Nắng nhiều nắng, ENG, 4:29 PM, 1/11/2023.

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**Edit basic settings**

**Basic settings** [Info](#)

Description - optional  
Lambda function to extract data from database

Memory [Info](#)  
Your function is allocated CPU proportional to the memory configured.  
128 MB  
Set memory to between 128 MB and 10240 MB.

Ephemeral storage [Info](#)  
You can configure up to 10 GB of ephemeral storage (/tmp) for your function. [View pricing](#) [FAQ](#)  
512 MB  
Set ephemeral storage (/tmp) to between 512 MB and 10240 MB.

SnapStart [Info](#)  
Reduce startup time by having Lambda cache a snapshot of your function after the function has initialized. To evaluate whether your function code is resilient to snapshot operations, review the [SnapStart compatibility considerations](#) [FAQ](#)  
None

Supported runtimes: Java 11, Java 17.

Timeout  
0 min 30 sec

Execution role  
Choose a role that defines the permissions of your function. To create a custom role, go to the IAM console [FAQ](#)  
 Use an existing role  
 Create a new role from AWS policy templates

Existing role  
Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.

salesAnalysisReportDynamo

**Edit runtime settings**

**Runtime settings** [Info](#)

Runtime  
Choose the language to use for writing your function. Note that the console code editor supports only Node.js, Python, and Ruby.  
Python 3.8

**New runtime available**  
A new runtime is available for your function's language: Python 3.11

Handler [Info](#)  
salesAnalysisReportDataExtractor.lambda\_handler

Architecture [Info](#)  
Choose the instruction set architecture you want for your function code.  
 x86\_64  
 arm64

**Info** You can change either the function's runtime or the instruction set architecture in one update. To update both, you must repeat the update process.

Cancel [Save](#)

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The screenshot shows the AWS Lambda console interface. A success message at the top indicates the function has been updated. The main area displays the function's configuration, including triggers (salesAnalysisReport or Layers), environment variables (salesAnalysisReport, salesAnalysisReportData), and code source details. The browser status bar at the bottom shows the URL as us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/salesAnalysisReportDataExtractor?newFunction=true&tab=code.

## 2.2: create sale analysis report lambda function

The screenshot shows the 'Create function' wizard. In step 1, 'Basic information', the function name is set to 'SalesAnalysisReport' and the runtime is 'Python 3.8'. In step 2, 'Advanced settings', the execution role is set to 'SalesAnalysisReportRole'. The browser status bar at the bottom shows the URL as us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/create/function.

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The screenshot shows the AWS Lambda console interface. A modal window titled "Upload a .zip file" is open, prompting the user to upload a new zip file package. The file "salesAnalysisReport.zip" is selected, which is 1.74 KB in size. The modal includes a note about overwriting existing code and a "Save" button.

Below the modal, the Lambda function details are shown:

- Name:** salesAnalysisReport
- Description:** -
- Last modified:** 32 seconds ago
- Function ARN:** arn:aws:lambda:us-east-1:725486059687:function:salesAnalysisReport
- Function URL:** Info

The "Code source" tab is selected, showing the function's code editor with the following code:const AWS = require('aws-sdk');AWS.config.update({region: 'us-east-1'});exports.handler = (event, context) => { const dynamoDB = new AWS.DynamoDB.DocumentClient(); const params = { TableName: 'Sales', KeyConditionExpression: 'Category = :category', ExpressionAttributeValues: { ':category': event.query['Category'] } }; dynamoDB.query(params, (err, data) => { if (err) { context.fail(err); } else { context.succeed(data.Items); } });};

At the bottom of the screen, the taskbar shows the AWS Lambda service icon.

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The screenshot shows the AWS Lambda function configuration interface. The current tab is 'Basic settings'. The function name is 'salesAnalysisReport'. The description is 'Lambda function to generate and send the daily sales report'. Memory is set to 128 MB. Ephemeral storage is set to 512 MB. SnapStart is disabled. Execution role is set to 'salesAnalysisReportRole'. The configuration is saved.

Description - optional  
Lambda function to generate and send the daily sales report

Memory info  
Your function is allocated CPU proportional to the memory configured.  
128 MB  
Set memory to between 128 MB and 10240 MB

Ephemeral storage info  
You can configure up to 10 GB of ephemeral storage (/tmp) for your function. View pricing

512 MB  
Set ephemeral storage (/tmp) to between 512 MB and 10240 MB

SnapStart info  
Reduce startup time by having Lambda cache a snapshot of your function after the function has initialized. To evaluate whether your function code is resilient to snapshot operations, review the SnapStart compatibility considerations

None  
Supported runtimes: Java 11, Java 17.

Timeout  
0 min 30 sec

Execution role  
Choose a role that defines the permissions of your function. To create a custom role, go to the IAM console

Use an existing role  
 Create a new role from AWS policy templates

Existing role  
Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.

`salesAnalysisReportRole`

View the salesAnalysisReportRole role on the IAM console.

Cancel Save

**Successfully updated the function salesAnalysisReport.**

Lambda > Functions > salesAnalysisReport

**salesAnalysisReport**

Throttle Copy ARN Actions

Function overview Info

**salesAnalysisReport**

Layers (0)

+ Add trigger + Add destination

Description  
Lambda function to generate and send the daily sales report

Last modified  
2 seconds ago

Function ARN  
`arn:aws:lambda:us-east-1:725486059687:function:salesAnalysisReport`

Function URL Info

Code Test Monitor Configuration Aliases Versions

General configuration Info

Triggers  
Permissions  
Destinations  
Function URL  
Environment variables

Memory  
128 MB

Ephemeral storage  
512 MB

Timeout  
0 min 30 sec

SnapStart info  
None

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Runtime settings info

Runtime  
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.

Python 3.8

New runtime available  
A new runtime is available for your function's language: Python 3.11

Handler info  
salesAnalysisReport.lambda\_handler

Architecture info  
Choose the instruction set architecture you want for your function code.

x86\_64 arm64

You can change either the function's runtime or the instruction set architecture in one update. To update both, you must repeat the update process.

Cancel Save

## Step 3: Create SNS topic

CloudShell Feedback

Assignment 3 | Module 13 Challenge Lab - Imp | d92520a206146051785341w7 | EC2 | us-east-1 | Edit runtime settings (SalesAnal... | +

us-east-1.console.aws.amazon.com/sns/v3/home?region=us-east-1#/create-topic

N. Virginia vocabs/user2753113+1042119428@student.swin.edu.au @ 7254-8605...

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Amazon SNS Topics Create topic

Create topic

Details

Type info Topic type cannot be modified after topic is created

Standard

- Best-effort message ordering
- At-least once message delivery
- Highest throughput: up to 300 publishes/second
- Subscription protocols: SQS, Lambda, HTTP, SMS, email, mobile application endpoints

Name SalesReportTopic

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (\_).

Display name - optional info To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message.

Sales Report Topic

Maximum 100 characters.

Encryption - optional Amazon SNS provides in-transit encryption by default. Enabling server-side encryption adds at-rest encryption to your topic.

Access policy - optional info This policy defines who can access your topic. By default, only the topic owner can publish or subscribe to the topic.

Data protection policy - optional info

CloudShell Feedback

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The screenshot shows the AWS SNS console with a green banner at the top stating "Topic SalesReportTopic created successfully. You can create subscriptions and send messages to them from this topic." Below this, the "SalesReportTopic" details are shown, including its name, ARN, and type. The "Subscriptions" tab is selected, showing a table with no subscriptions found. The status bar at the bottom indicates the user is in N. Virginia.

## 3.3: update lambda function

The screenshot shows the AWS Lambda console with the "Edit environment variables" page for the "salesAnalysisReport" function. A single environment variable "topicARN" is defined with the value "arn:aws:sns:us-east-1:725486059687:SalesReportTopic". The "Save" button is highlighted in orange at the bottom right. The status bar at the bottom indicates the user is in N. Virginia.

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## Step 4: create an email subscription

The screenshot shows the 'Create subscription' wizard in the AWS SNS console. In the 'Details' step, the Topic ARN is set to `arn:aws:sns:us-east-1:725486059687:SalesReportTopic`. The Protocol is set to 'Email'. The Endpoint is `lickmyp707@gmail.com`. A note at the bottom says: 'After your subscription is created, you must confirm it.' Below the main form, there are sections for 'Subscription filter policy - optional' and 'Redrive policy (dead-letter queue) - optional'.

**Details**

Topic ARN: `arn:aws:sns:us-east-1:725486059687:SalesReportTopic`

Protocol: Email

Endpoint: `lickmyp707@gmail.com`

After your subscription is created, you must confirm it.

Subscription filter policy - optional

Redrive policy (dead-letter queue) - optional

**Subscription to SalesReportTopic created successfully.**

The ARN of the subscription is `arn:aws:sns:us-east-1:725486059687:SalesReportTopic:2920b6d4-fdb2-44a0-96db-8dec0eb5e610`.

**Subscription: 2920b6d4-fdb2-44a0-96db-8dec0eb5e610**

**Details**

ARN: `arn:aws:sns:us-east-1:725486059687:SalesReportTopic:2920b6d4-fdb2-44a0-96db-8dec0eb5e610`

Status: Pending confirmation

Endpoint: `lickmyp707@gmail.com`

Protocol: EMAIL

Topic: SalesReportTopic

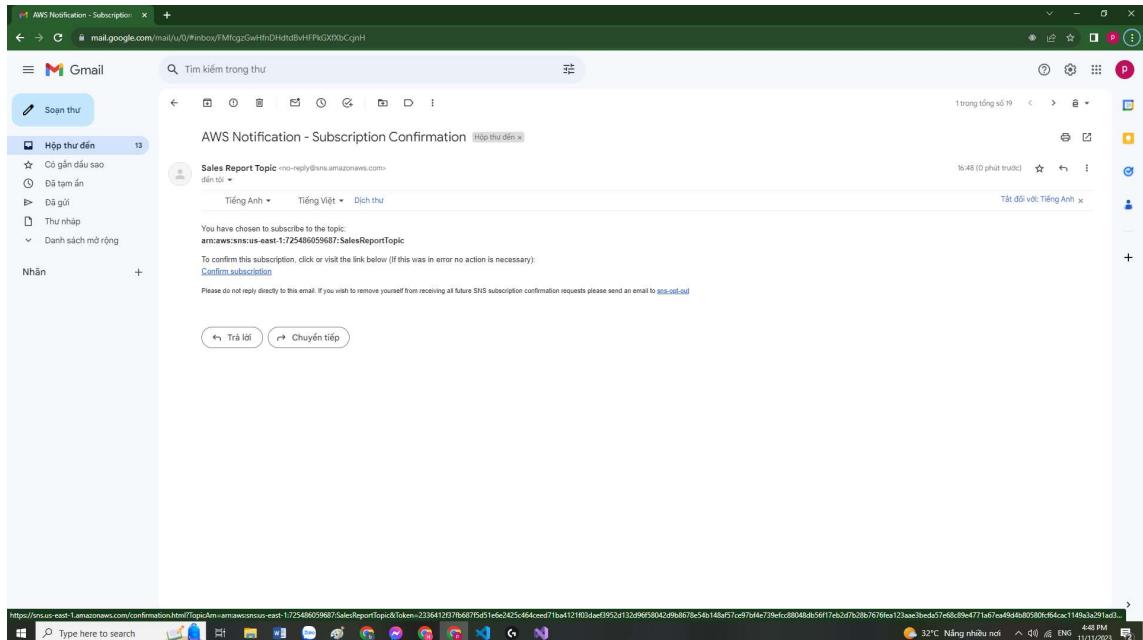
Subscription Principal: `arn:aws:iam::725486059687:role/vocabs`

Subscription filter policy

No filter policy configured for this subscription.

To apply a filter policy, edit this subscription.

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<https://sns.us-east-1.amazonaws.com/confirmation.html?TopicArn=arn:aws:sns:us-east-1:1725486059687:SalesReportTopic&Token=2336412f37fb687f5d51e6e2425c6464ced71ba4121f03daef3952d132d96f58042d9b8678e54b148af57ce97fa4e79efcc8048db56f17eb2d7b28b76fea123aae3beds57e80cb4771a67ea49d4b80580cf64cac1149a3a291ad3...>



<https://sns.us-east-1.amazonaws.com/confirmation.html?TopicArn=arn:aws:sns:us-east-1:1725486059687:SalesReportTopic&Token=2336412f37fb687f5d51e6e2425c6464ced71ba4121f03daef3952d132d96f58042d9b8678e54b148af57ce97fa4e79efcc8048db56f17eb2d7b28b76fea123aae3beds57e80cb4771a67ea49d4b80580cf64cac1149a3a291ad3...>

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## Step 5: testing

The screenshot shows the AWS Lambda function configuration interface. In the center, a modal window titled "Configure test event" is open, showing the setup for a new test event named "hello-world". The "Event JSON" field contains the following JSON:

```
1 * [{  
2     "key1": "value1",  
3     "key2": "value2",  
4     "key3": "value3"  
5 }]
```

Below the modal, the main Lambda function page shows the "Code source" tab selected. A "Test" button is highlighted. The "Execution results" section displays the following details:

- Status: Succeeded
- Max memory used: 75 MB
- Time: 2951.55 ms

The "Function Logs" section shows the log output:

```
REPORT RequestId: d8ccab0b-59d5-4e68-8f38-307232089b00 Duration: 2951.55 ms Billed Duration: 2952 ms Memory Size: 128 MB Max Memory Used: 75 MB Init Duration: 259.87 ms  
Request ID  
d8ccab0b-59d5-4e68-8f38-307232089b00
```

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Daily Sales Analysis Report - lrc

Subscription confirm

mail.google.com/mail/u/0/#inbox/MTtgcwHfnDHdtVMtbsPGwhlejhfq

Gmail

Hộp thư đến 13

Có gắn dấu sao

Dã tam ăn

Dã gửi

Thư nhập

Danh sách mở rộng

Nhắn +

Sales Report Topic <no-reply@sns.amazonaws.com>

dến 100

Sales Analysis Report

Date: 2023-11-11

Product Group: Pastries

Item Name	Quantity
Croissant	29
Doughnut	23
Chocolate Chip Cookie	18
Muffin	6
Strawberry Blueberry Tart	34
Strawberry Tart	33

Product Group: Drinks

Item Name	Quantity
Coffee	33
Hot Chocolate	17
Latte	24

If you wish to stop receiving notifications from this topic, please click or visit the link below to unsubscribe:  
<https://sns.us-east-1.amazonaws.com/unsubscribe.html?SubscriptionArn=arn:aws:sns:us-east-1:725486059687:SalesReportTopic-2920bd44-6b2-44a0-96db-8decbeb510&Endpoint=lickmyz7@gmail.com>

Please do not reply directly to this email. If you have any questions or comments regarding this email, please contact us at <https://aws.amazon.com/support>

Trả lời Chuyển tiếp

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Assignment 3 Module 11 Challenge Lab - Imp...

Cron expressions reference - A...

c9320a2061400131785347e...

EC2 | us-east-1

Add triggers - Lambda

Subscription: 2920bd44-f6b2...

aws Services Search [Alt+5]

N. Virginia vocabs/user:2753113+1042119428@student.swin.edu.au @ 7254-860...

Add trigger

Trigger configuration info

EventBridge (CloudWatch Events)

aws asynchronous schedule management-tools

Rule

Pick an existing rule, or create a new one.

Create a new rule

Existing rules

Rule name

Enter a name to uniquely identify your rule.

salesAnalysisReport

Rule description

Provide an optional description for your rule.

runs the salesAnalysisReport Lambda function each day at a specific time

Rule type

Trigger your target based on an event pattern, or based on an automated schedule.

Event pattern

Schedule expression

Schedule expression

Self-trigger your target on an automated schedule using Cron or rate expressions. Cron expressions are in UTC.

cron(0 0 \* \* ? \*)

e.g. rate(1 day), cron(0 17 ? \* MON-FRI \*)

Lambda will add the necessary permissions for Amazon EventBridge (CloudWatch Events) to invoke your Lambda function from this trigger. Learn more about the Lambda permissions model.

Cancel Add

CloudShell Feedback

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The screenshot shows the AWS Lambda console with the function `salesAnalysisReport`. The function is triggered by an `EventBridge (CloudWatch Events)` trigger. The configuration tab is selected, showing the trigger details. The function ARN is listed as `arn:aws:lambda:us-east-1:725486059687:function:salesAnalysisReport`. The rule state is set to `ENABLED`.

Yeah so I kinda create it on the wrong time and if I want to get a report imma have to wait till tomorrow

The screenshot shows the AWS EventBridge rule configuration for the `salesAnalysisReport` rule. The user is on the `Define schedule` step. They have chosen a `Step 1` of `Define rule detail`. In the `Schedule pattern` section, they have selected a fine-grained schedule running at 8:00 am PST every Monday. The cron expression is set to `cron(0 8 * * 1)`. The next 10 trigger dates are listed below, starting from Sunday, 12 Nov 2023.

Date
Sun, 12 Nov 2023 05:07:00 UTC
Mon, 13 Nov 2023 05:07:00 UTC
Tue, 14 Nov 2023 05:07:00 UTC
Wed, 15 Nov 2023 05:07:00 UTC
Thu, 16 Nov 2023 05:07:00 UTC
Fri, 17 Nov 2023 05:07:00 UTC
Sat, 18 Nov 2023 05:07:00 UTC
Sun, 19 Nov 2023 05:07:00 UTC
Mon, 20 Nov 2023 05:07:00 UTC
Tue, 21 Nov 2023 05:07:00 UTC

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Finished

The screenshot shows a web browser window for the AWS Academy challenge lab. The URL is [https://awsacademy.instructure.com/courses/55004/assignments/514069?module\\_item\\_id=4822541](https://awsacademy.instructure.com/courses/55004/assignments/514069?module_item_id=4822541). The page title is "Module 13 Challenge Lab - Implementing a Serverless Architecture for the Cafe". The assignment details show it is due "No Due Date", worth "Points 100", and "Submitting" via an external tool. A terminal window is open with the command "bash" and the output:

```
eee_h_2451548@runmetb1034181-5 ~
```

The terminal also displays the total score as 35/35 and a list of tasks completed:

- [Task 2] Lambda security group exists
- [Task 2] Lambda function salesAnaly
- [Task 3] Lambda function salesAnaly
- [Task 4] SNS topic exists
- [Task 5] Email subscription exists
- [Task 7] Daily event exists

Below the terminal, there are three answer boxes labeled [Answer 01], [Answer 02], and [Answer 03]. At the bottom of the browser window, the Windows taskbar is visible with various icons like File Explorer, Edge, and File History.