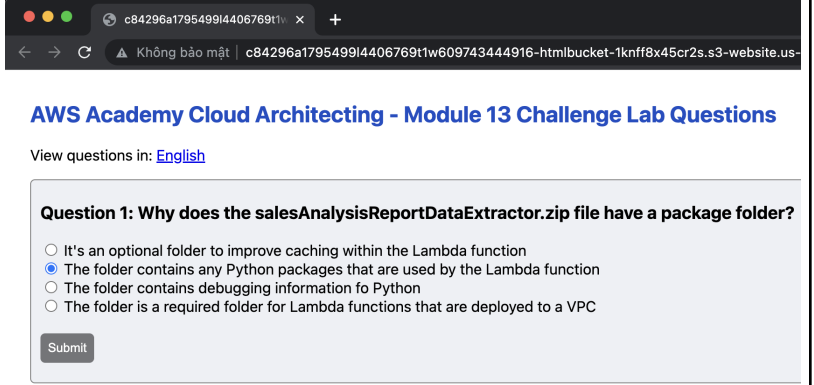


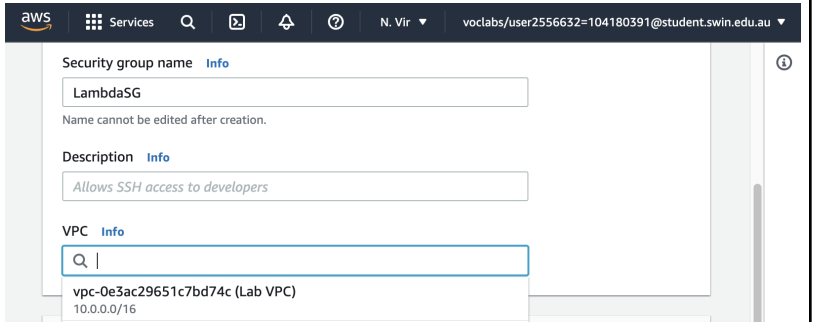
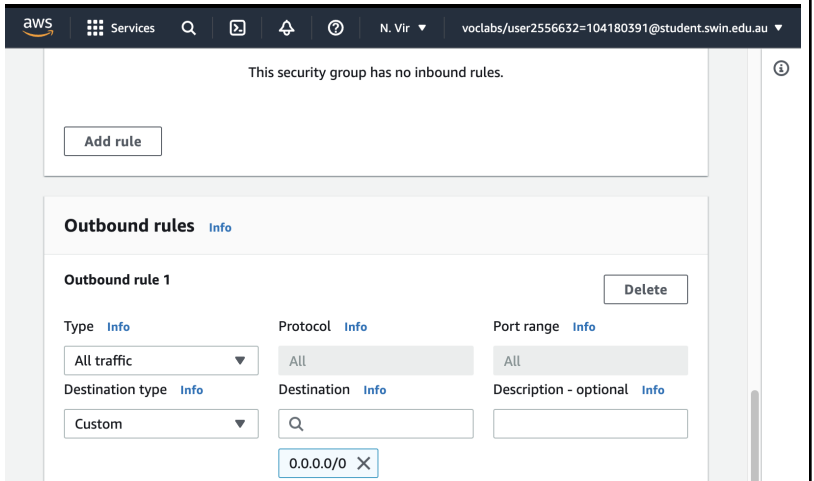


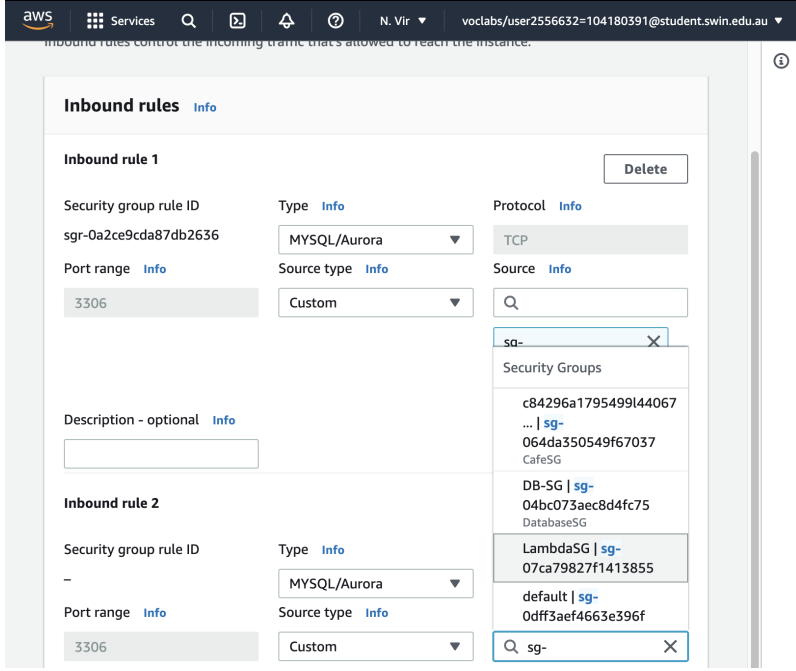
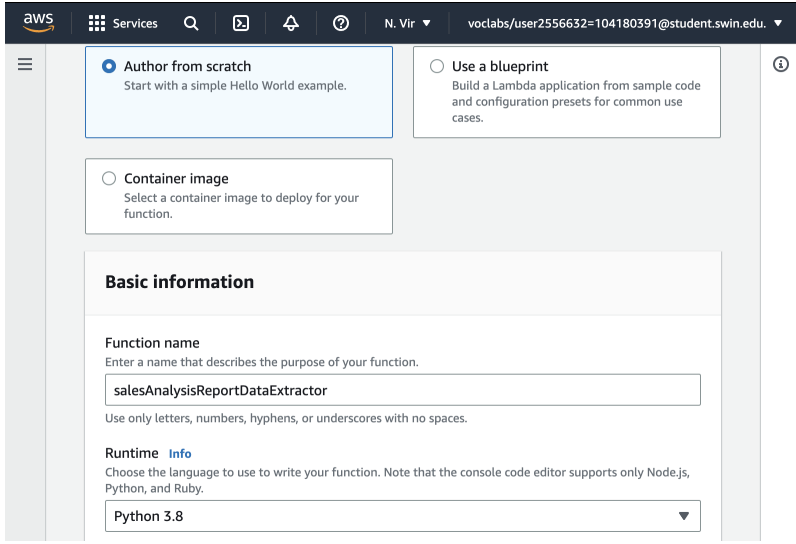
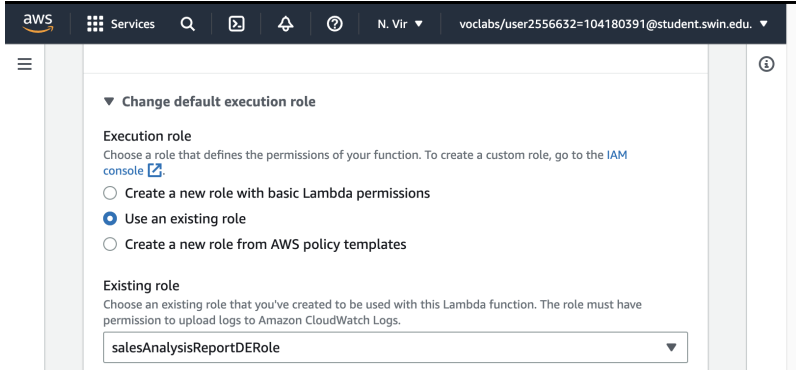
Module 13 Challenge Lab - Implementing a Serverless Architecture for the Cafe

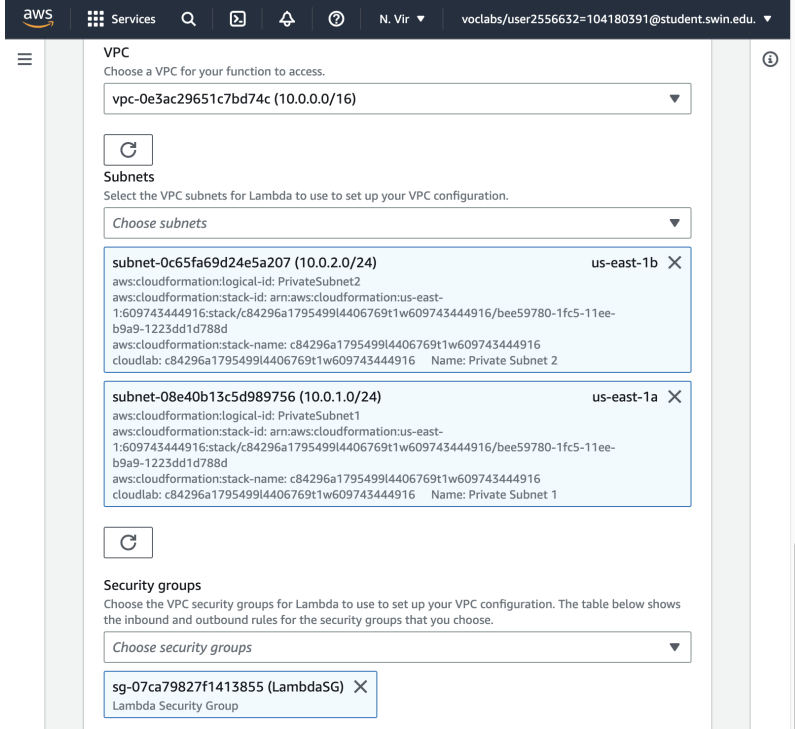
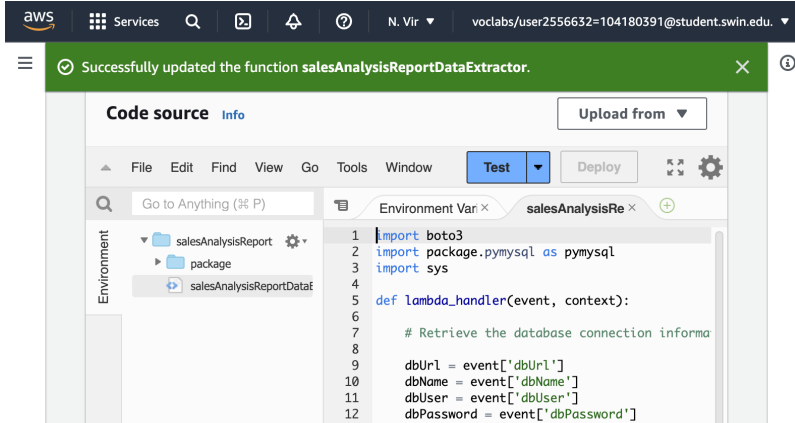
July 11, 2023

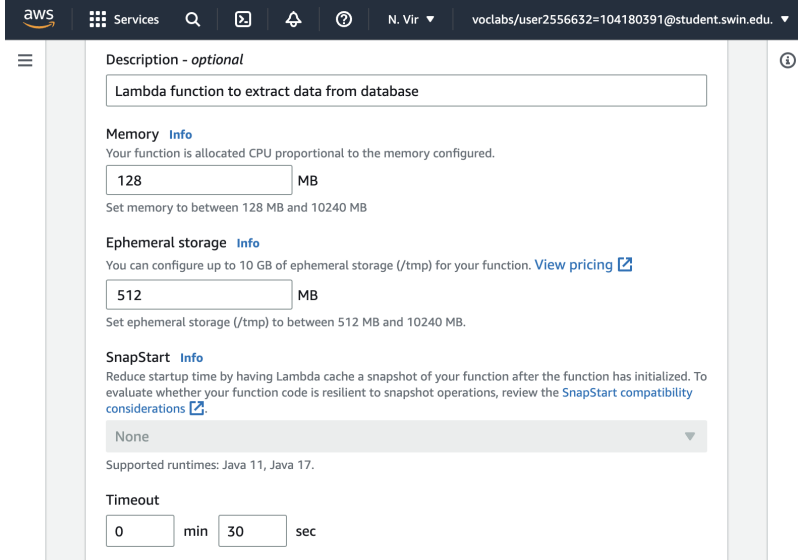
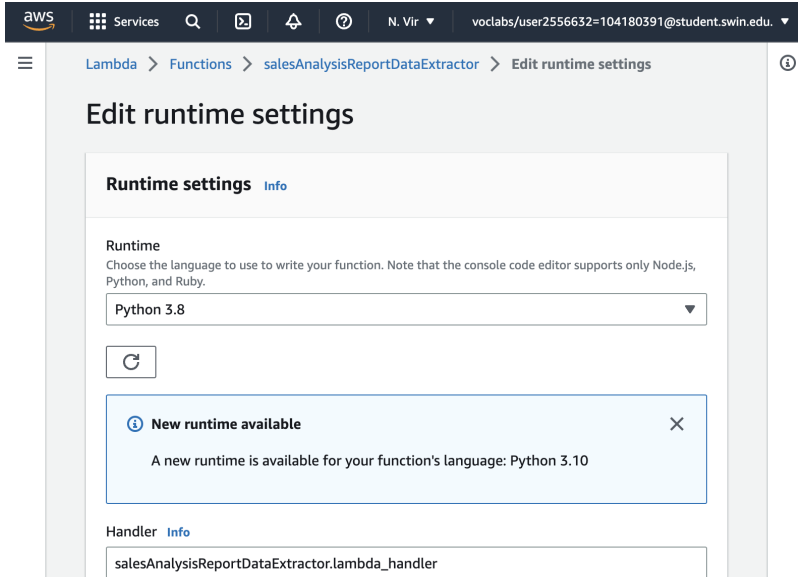
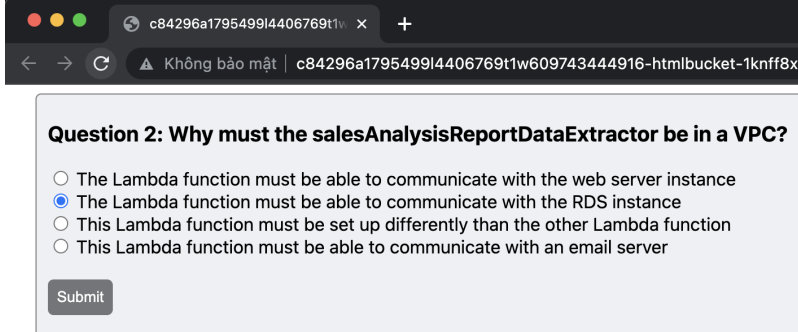
Luu Tuan Hoang
Student ID: 104180391

Task 1: Downloading the source code		
Step	Description	Screenshot
1	Question 1	 <p>AWS Academy Cloud Architecting - Module 13 Challenge Lab Questions</p> <p>View questions in: English</p> <p>Question 1: Why does the salesAnalysisReportDataExtractor.zip file have a package folder?</p> <p> <input type="radio"/> It's an optional folder to improve caching within the Lambda function <input checked="" type="radio"/> The folder contains any Python packages that are used by the Lambda function <input type="radio"/> The folder contains debugging information fo Python <input type="radio"/> The folder is a required folder for Lambda functions that are deployed to a VPC </p> <p>Submit</p>

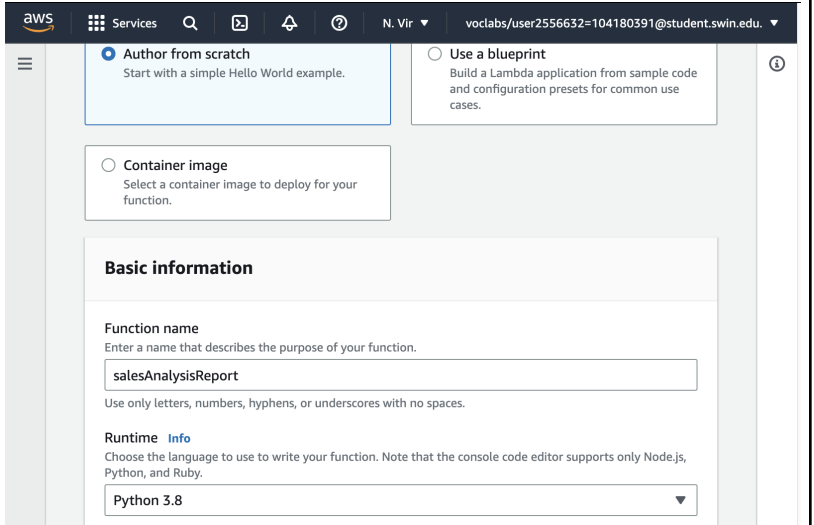
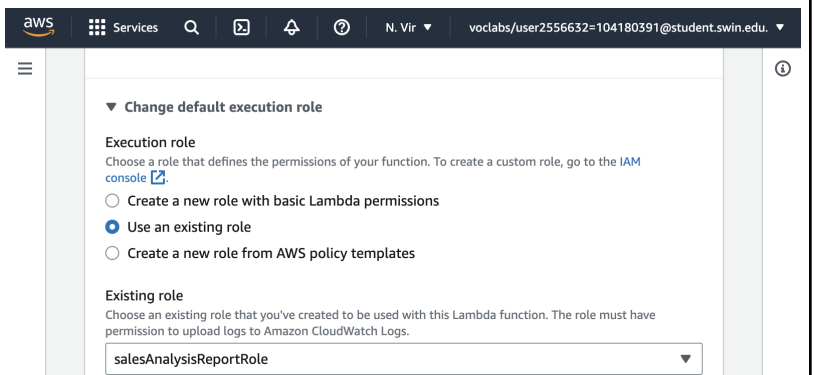
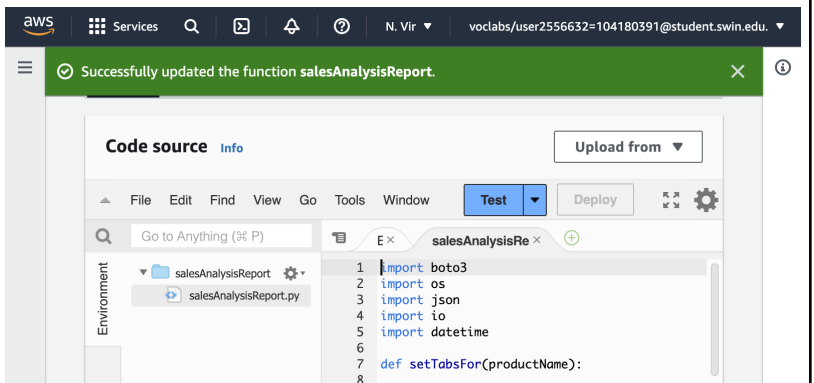
Task 2: Creating the DataExtractor Lambda function in the VPC		
Step	Description	Screenshot
1	Create a security group for the Lambda function with the following settings: <ul style="list-style-type: none"> - Security group name: LambdaSG - VPC: Lab VPC 	 <p>Security group name Info</p> <p>LambdaSG</p> <p>Name cannot be edited after creation.</p> <p>Description Info</p> <p>Allows SSH access to developers</p> <p>VPC Info</p> <p>vpc-0e3ac29651c7bd74c (Lab VPC)</p>
2	Outbound rules: All traffic to all addresses	 <p>This security group has no inbound rules.</p> <p>Add rule</p> <p>Outbound rules Info</p> <p>Outbound rule 1 Delete</p> <p>Type Info</p> <p>All traffic</p> <p>Protocol Info</p> <p>All</p> <p>Port range Info</p> <p>All</p> <p>Destination type Info</p> <p>Custom</p> <p>Destination Info</p> <p>0.0.0.0/0</p> <p>Description - optional Info</p>

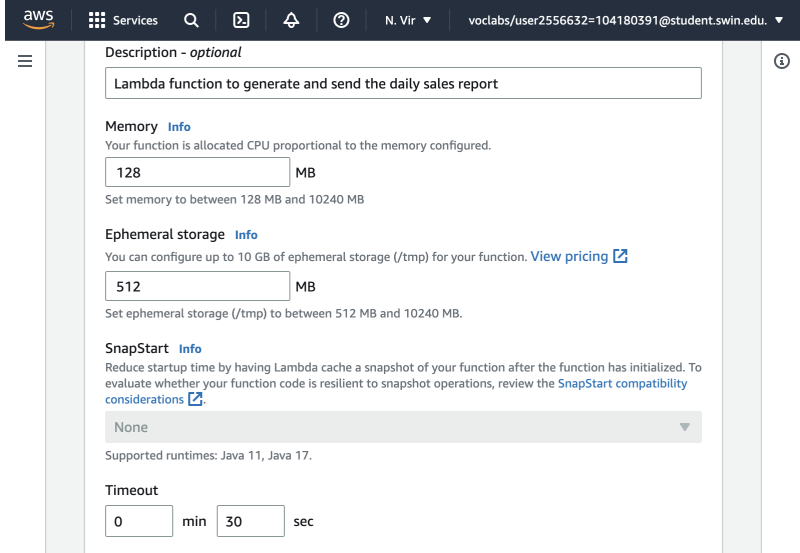
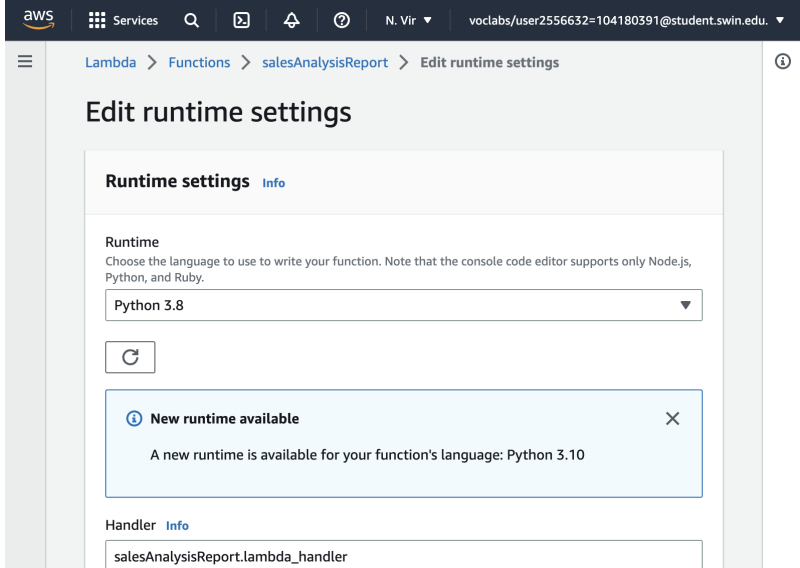
3	<p>Update the DatabaseSG security group. Add a second inbound rule. For the new rule, configure the Type as MYSQL/Aurora. Then, in the search box to the right of Custom, type sg- and choose your new Lambda function security group as the source. Finally, choose Save rules.</p>	
4	<p>Create a Lambda function with the following settings:</p> <ul style="list-style-type: none"> - Function name: salesAnalysisReportDataExtractor - Runtime: Python 3.8 	
5	<p>Role: salesAnalysisReportDERole</p>	

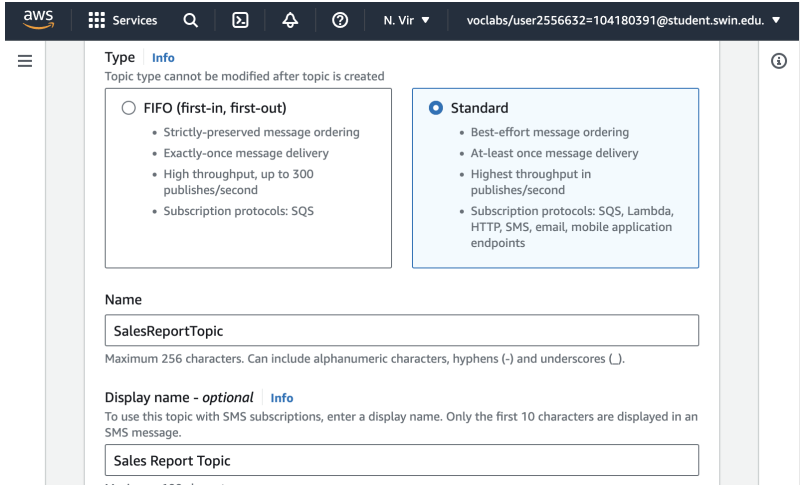
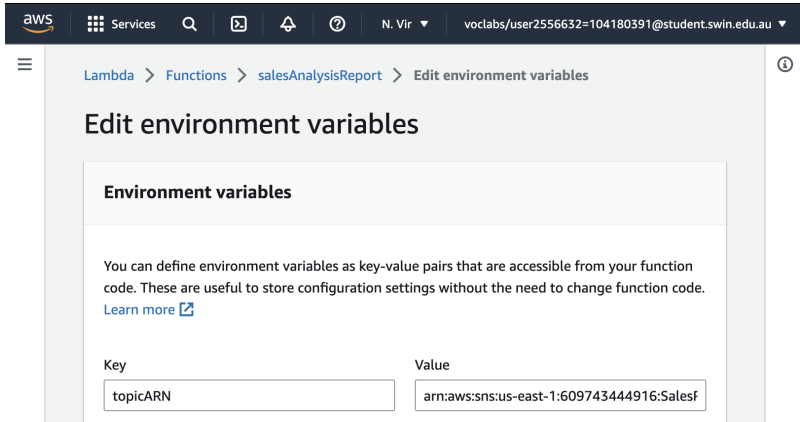
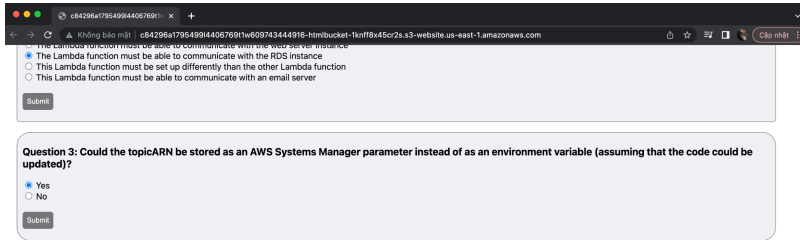
6	<p>VPC:</p> <ul style="list-style-type: none"> - VPC: Lab VPC - Subnets: Private subnet 1 and Private subnet 2 - Security Group: The Lambda function security group that you created 	
7	<p>Upload the salesAnalysisReportDataExtractor.zip file</p>	

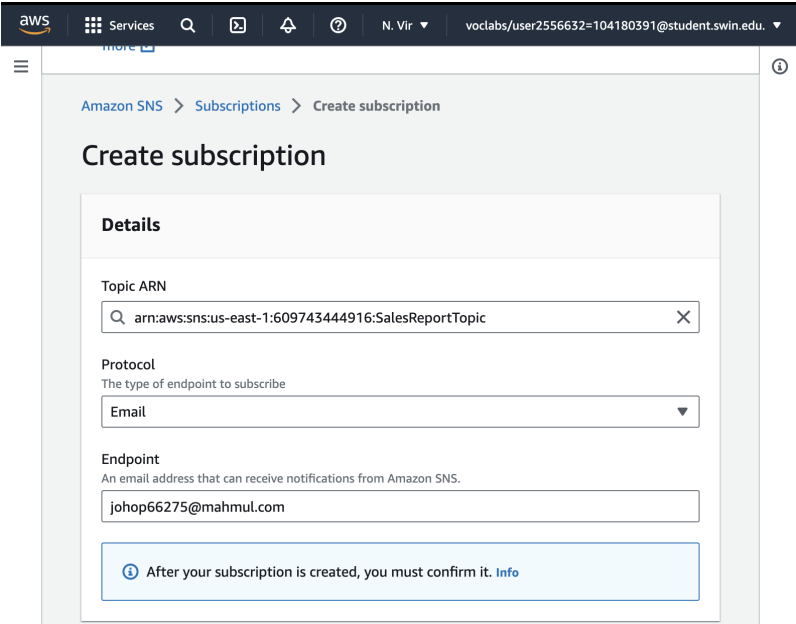
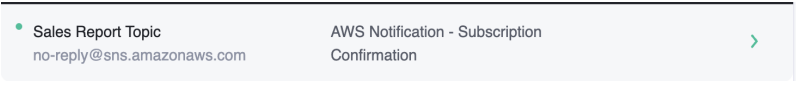
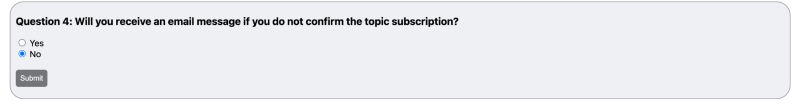
8	<p>Configure the DataExtractor Lambda function as follows:</p> <ul style="list-style-type: none"> - Description: Lambda function to extract data from database - Memory Size: 128 MB - Timeout (seconds): 30 	
10	<p>Handler: salesAnalysisReportDataExtractor.lambda_handler</p>	
11	<p>Question 2</p>	

Task 3: Creating the salesAnalysisReport Lambda function

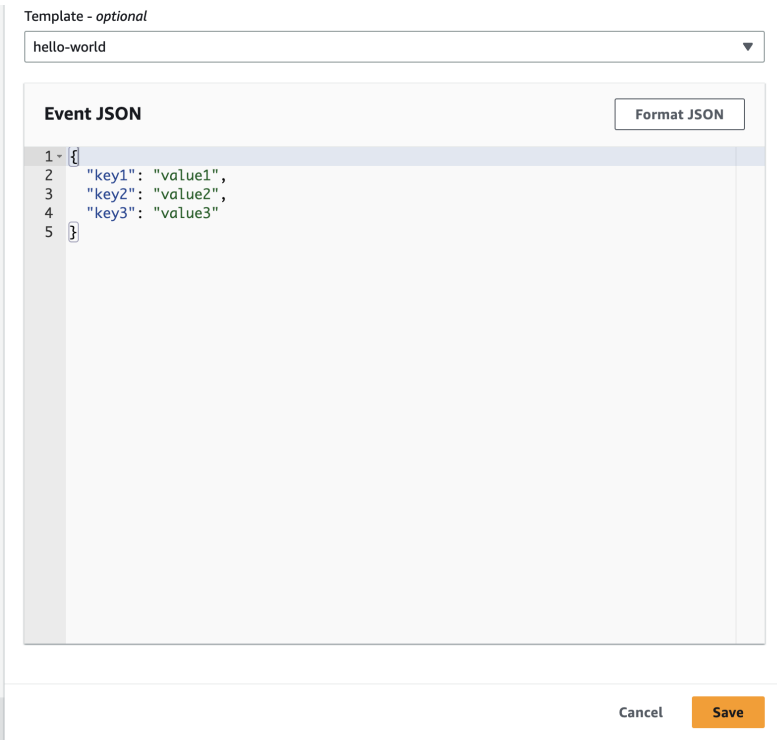
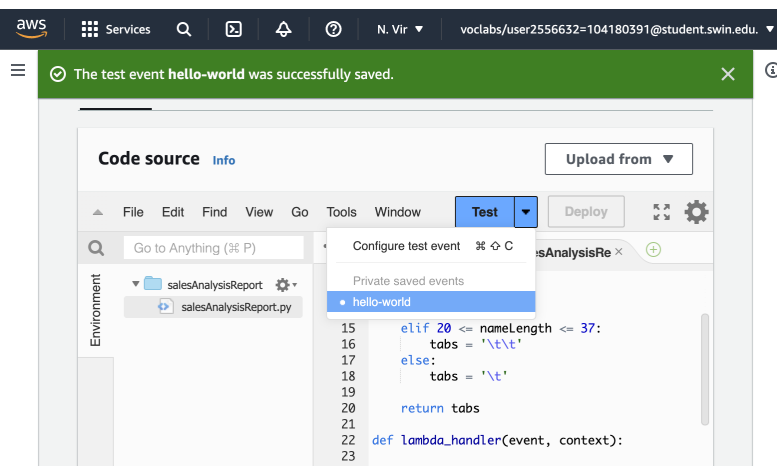
Step	Description	Screenshot
1	Create a second Lambda function with the following settings: <ul style="list-style-type: none">- Function name: salesAnalysisReport- Runtime: Python 3.8	
2	Role: salesAnalysisReportRole	
3	Upload the salesAnalysisReport.zip file	

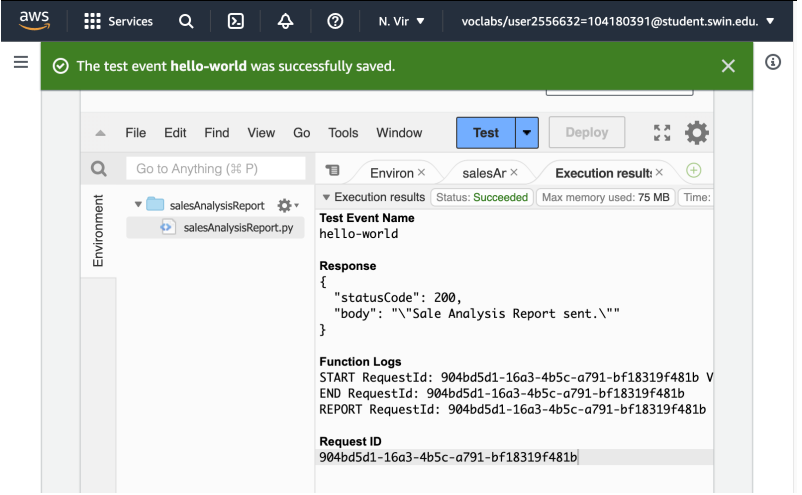
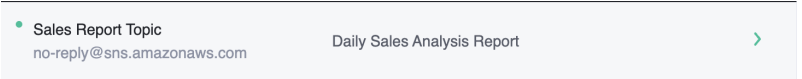
4	<p>Configure the salesAnalysisReport Lambda function as follows:</p> <ul style="list-style-type: none"> - Description: Lambda function to generate and send the daily sales report - Memory Size: 128 MB - Timeout (seconds): 30 	 <p>The screenshot shows the 'Description - optional' section of the AWS Lambda console. The description is 'Lambda function to generate and send the daily sales report'. The 'Memory' section shows '128 MB' with a note that the function is allocated CPU proportional to the memory configured. The 'Ephemeral storage' section shows '512 MB' with a note that you can configure up to 10 GB of ephemeral storage (/tmp) for your function. The 'SnapStart' section shows 'None' with a note about reducing startup time. The 'Timeout' section shows '0 min' and '30 sec'.</p>
5	<p>Handler: salesAnalysisReport.lambda_handler</p>	 <p>The screenshot shows the 'Edit runtime settings' page for the 'salesAnalysisReport' function. The 'Runtime settings' section shows 'Python 3.8' as the selected runtime. A notification box states 'New runtime available' for 'Python 3.10'. The 'Handler' section shows 'salesAnalysisReport.lambda_handler'.</p>

Task 4: Creating an SNS topic		
Step	Description	Screenshot
1	Create a standard SNS topic with the following configuration: <ul style="list-style-type: none"> - Name: SalesReportTopic - Display Name: Sales Report Topic 	 <p>The screenshot shows the AWS SNS console. Under the 'Type' section, 'Standard' is selected. The 'Name' field contains 'SalesReportTopic' and the 'Display name' field contains 'Sales Report Topic'.</p>
2	Update the salesAnalysisReport Lambda function by adding the following environment variable: <ul style="list-style-type: none"> - Variable Name: topicARN - Variable Value: The ARN of the topic you just created 	 <p>The screenshot shows the 'Edit environment variables' page for the 'salesAnalysisReport' Lambda function. A new environment variable 'topicARN' has been added with the value 'arn:aws:sns:us-east-1:609743444916:Salesf'.</p>
3	Question 3	 <p>The screenshot shows a quiz question: '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)?'. The 'Yes' radio button is selected.</p>

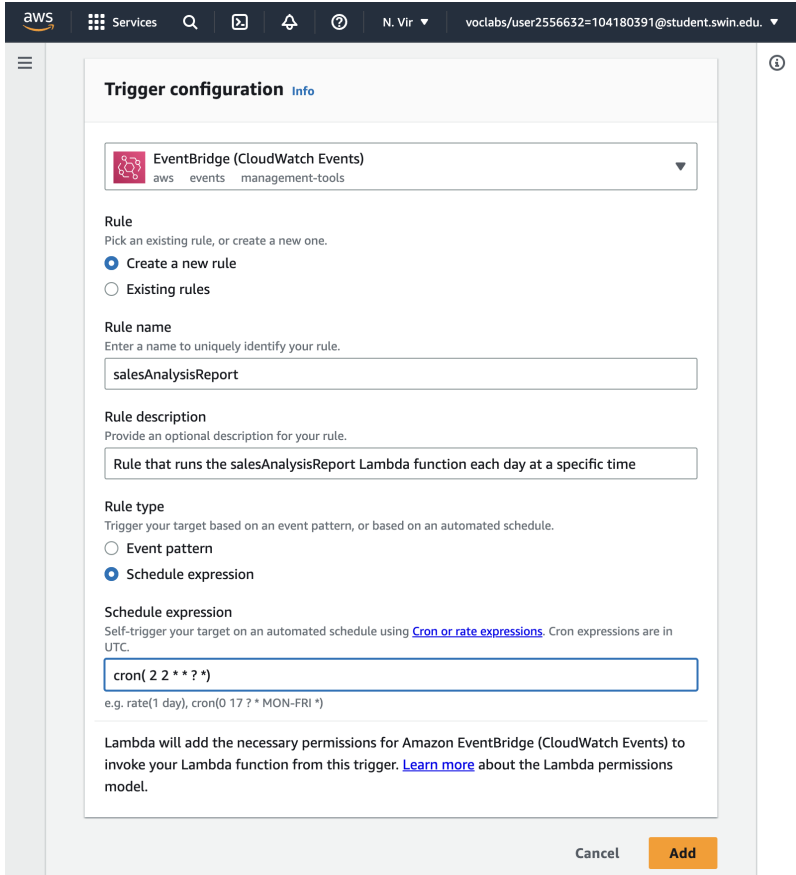
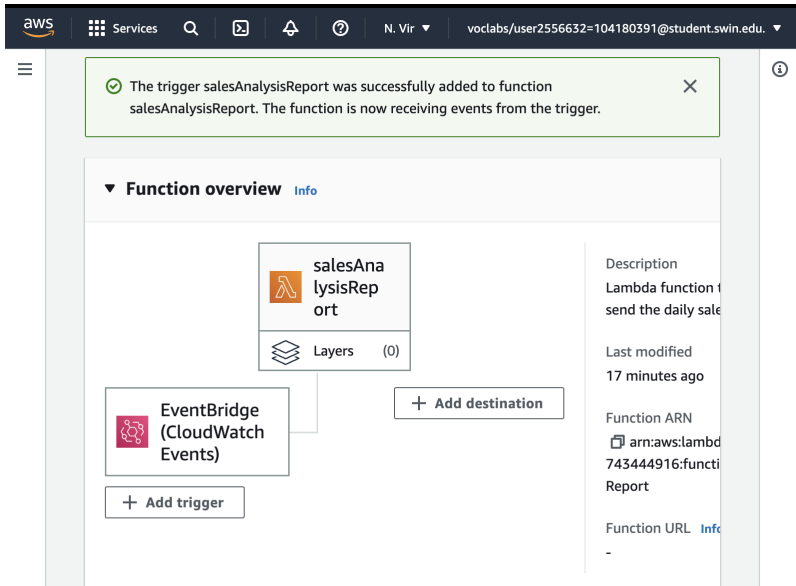
Task 5: Creating an email subscription to the SNS topic		
Step	Description	Screenshot
1	Create an email subscription to the SNS topic	
2	Confirmation email	
3	Question 4	

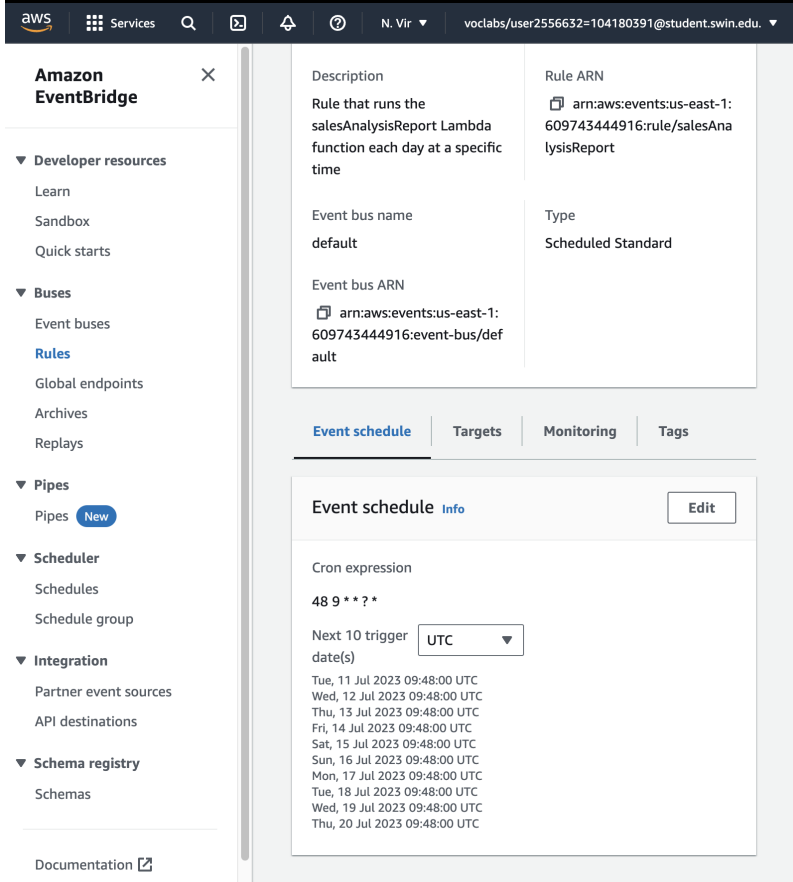
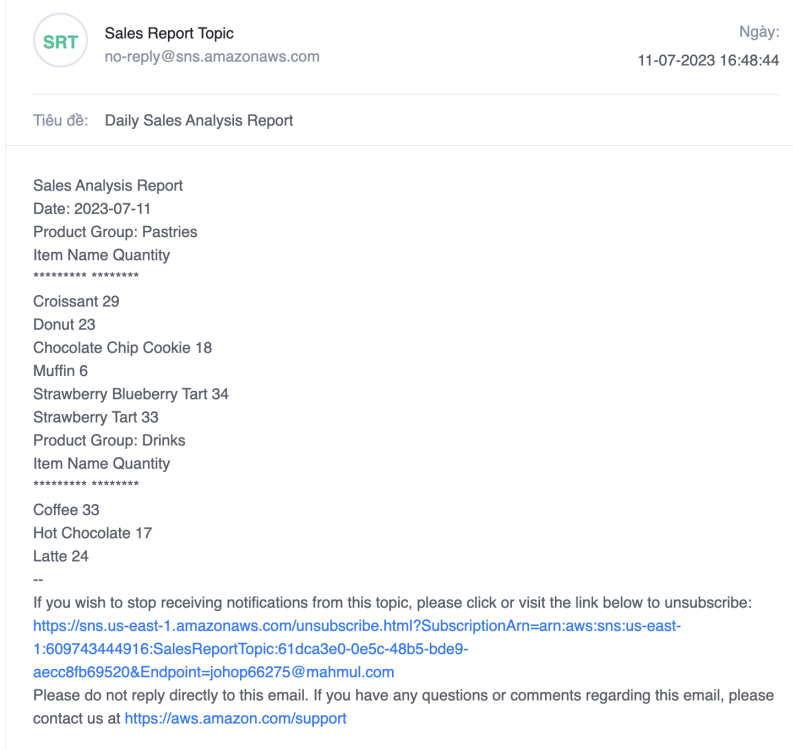
Task 6: Testing the salesAnalysisReport Lambda function

Step	Description	Screenshot
1	Create a test for the salesAnalysisReport Lambda function.	
2	Run test	

3	Test succeeded	 <p>The screenshot shows the AWS Lambda console interface. At the top, a green notification bar states: "The test event hello-world was successfully saved." Below this, the console displays the "Execution results" for the "hello-world" test event. The status is "Succeeded", and the response is a JSON object: {"statusCode": 200, "body": "\"Sale Analysis Report sent.\""}. The function logs show the start and end of the request, and the request ID is 904bd5d1-16a3-4b5c-a791-bf18319f481b.</p>
4	Sales report email	 <p>The screenshot shows an email interface. The email is from "Sales Report Topic" (no-reply@sns.amazonaws.com) with the subject "Daily Sales Analysis Report". A green arrow icon is visible on the right side of the email header.</p>

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

Step	Description	Screenshot
1	Create a test for the salesAnalysisReport Lambda function.	
2	Trigger created	

3	Schedule that I updated again to match with current UTC time.	 <p>The screenshot shows the Amazon EventBridge console. On the left is a navigation menu with categories like Developer resources, Buses, Pipes, Scheduler, Integration, and Schema registry. The main panel displays the configuration for a rule named 'salesAnalysisReport'. The rule's description is 'Rule that runs the salesAnalysisReport Lambda function each day at a specific time'. The event bus name is 'default' and the event bus ARN is 'arn:aws:events:us-east-1:609743444916:event-bus/default'. The rule ARN is 'arn:aws:events:us-east-1:609743444916:rule/salesAnalysisReport'. The rule type is 'Scheduled Standard'. Below this, the 'Event schedule' tab is active, showing a cron expression of '48 9 * * *' and a time zone of 'UTC'. A list of the next 10 trigger dates is provided, starting from Tuesday, July 11, 2023, at 09:48:00 UTC.</p>
4	Email sent at 09:48 UTC (16:48 ITC)	 <p>The screenshot shows an email notification from 'Sales Report Topic' (no-reply@sns.amazonaws.com) dated 11-07-2023 16:48:44. The subject is 'Tiêu đề: Daily Sales Analysis Report'. The email body contains a list of sales data for pastries and drinks. The data is organized into two sections: 'Sales Analysis Report' for pastries and 'Product Group: Drinks' for drinks. Each section lists item names and quantities.</p> <p>Sales Analysis Report Date: 2023-07-11 Product Group: Pastries Item Name Quantity ***** Croissant 29 Donut 23 Chocolate Chip Cookie 18 Muffin 6 Strawberry Blueberry Tart 34 Strawberry Tart 33</p> <p>Product Group: Drinks Item Name Quantity ***** Coffee 33 Hot Chocolate 17 Latte 24 --</p> <p>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-1:609743444916:SalesReportTopic:61dca3e0-0e5c-48b5-bde9-aecc8fb69520&Endpoint=johop66275@mahmul.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</p>

5	Question 5	<div><p>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?</p><ul style="list-style-type: none"><input type="radio"/> Restart the Lambda function because it might be stuck<input type="radio"/> Update the Python version<input checked="" type="radio"/> Use the logs from Amazon CloudWatch Logs and review them for errors<input type="radio"/> Use the AWS CloudTrail logs and review them for errors<div>Submit</div></div>
6	All task completed with maximum grade	<div><div><div>Due</div><div>No Due Date</div><div>Points</div><div>100</div><div>Submitting</div><div>an external tool</div></div><div><div>Submit</div><div>Details ▾</div><div>AWS</div><div>Start Lab</div><div>End Lab</div><div>1:49</div><div>Instructions</div><div>Grades</div></div><div><div>Actions ▾</div><div><div>Files <input type="checkbox"/></div><div>README <input checked="" type="checkbox"/></div><div>Terminal <input type="checkbox"/></div><div>Source <input type="checkbox"/></div></div><div><div>EN_US ▾</div><div>-</div><div><div>Total score</div><div>35/35</div></div></div></div></div>