Swinburne University of Technology

*COS20019 Cloud Computing Architecture*

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Module 13 Guided Lab - Implementing a Serverless Architecture with AWS Lambda

*Saturday 11th October, 2023*

**Task 1: Creating a Lambda function to load data**

On the **AWS Management Console**, on the Services menu, choose **Lambda**.

Choose **Create function**

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Configure the following settings:

* **Function name:** Load-Inventory
* **Runtime:** *Python 3.7*
* Expand  **Choose or create an execution role**.
* **Execution role:** *Use an existing role*
* **Existing role:** *Lambda-Load-Inventory-Role*

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Scroll down to the **Code source** section, and in the **Environment** pane, choose lambda\_function.py.

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In the code editor, delete all the code.

In the **Code source** editor, copy and paste the following code:

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Choose **Deploy** to save your changes.



**Task 2: Configuring an Amazon S3 event**

On the **Services** menu, choose **S3**.

Choose **Create bucket**

For **Bucket name** enter: inventory-<number> (Replace with a random number)

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Choose the name of your *inventory-* bucket.

Choose the **Properties** tab.

Scroll down to **Event notifications**.

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Click **Create event notification** then configure these settings:

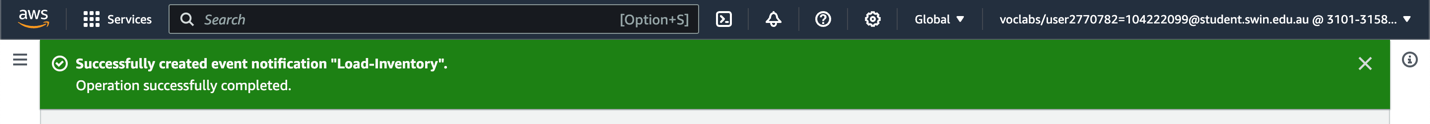
* **Name:** Load-Inventory
* **Event types:**  *All object create events*
* **Destination:** *Lambda Function*
* **Lambda function:** *Load-Inventory*
* Choose **Save changes**

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**Task 3: Testing the loading process**

Download the inventory files by opening the context (right-click) menu for these links:

[inventory-berlin.csv](https://labs.vocareum.com/web/2770782/1775299.0/ASNLIB/public/scripts/inventory-berlin.csv)

[inventory-calcutta.csv](https://labs.vocareum.com/web/2770782/1775299.0/ASNLIB/public/scripts/inventory-calcutta.csv)

[inventory-karachi.csv](https://labs.vocareum.com/web/2770782/1775299.0/ASNLIB/public/scripts/inventory-karachi.csv)

[inventory-pusan.csv](https://labs.vocareum.com/web/2770782/1775299.0/ASNLIB/public/scripts/inventory-pusan.csv)

[inventory-shanghai.csv](https://labs.vocareum.com/web/2770782/1775299.0/ASNLIB/public/scripts/inventory-shanghai.csv)

[inventory-springfield.csv](https://labs.vocareum.com/web/2770782/1775299.0/ASNLIB/public/scripts/inventory-springfield.csv)

Return to your S3 bucket in the console by choosing the **Objects** tab.

Choose **Upload** > **Add files**, and select one of the inventory CSV files (You can choose any inventory file) > **Upload**

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At the top of these instructions, choose the **Details** button; to the right of **AWS**, choose the **Show** button.

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From the **Credentials** window, copy the **Dashboard** URL.

Open a new web browser tab, paste the URL, and press ENTER.

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On the **Services** menu, choose **DynamoDB**.

In the left navigation pane, choose **Tables**.

Choose the **Inventory** table.

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Choose the **Items** tab.

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**Task 4: Configuring notifications**

On the **Services** menu, choose **Simple Notification Service**.

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In the **Create topic** box, for **Topic name**, enter: NoStock. Keep **Standard** selected.

Choose **Create topic**

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In the lower half of the page, choose **Create subscription** and configure these settings:

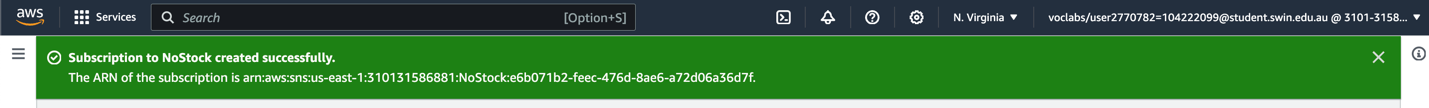
* **Protocol:** *Email*
* **Endpoint:** Enter your email address
* Choose **Create subscription**

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**Task 5: Creating a Lambda function to send notifications**

On the **Services** menu, choose **Lambda**.

Choose **Create function** and configure these settings:

* **Function name:** Check-Stock
* **Runtime:** *Python 3.7*
* Expand  **Choose or create an execution role**.
* **Execution role:** *Use an existing role*
* **Existing role:** *Lambda-Check-Stock-Role*
* Choose **Create function**

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Scroll down to the **Code source** section, and in the **Environment** pane, choose lambda\_function.py.

In the code editor, delete all the code.

Copy the following code, and in the **Code Source** editor, paste the copied code:

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Choose **Deploy** to save your code changes

Scroll to the **Designer** section (which is at the top of the page).

Choose **Add trigger** and then configure these settings:

* **Select a trigger:** *DynamoDB*
* **DynamoDB Table:** *Inventory*
* Choose **Add**

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**Task 6: Testing the System**

On the **Services** menu, choose **S3**.

Choose the name of your *inventory-* bucket.

Choose **Upload** and upload a different inventory file

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Return to the **Inventory System Dashboard** and refresh  the page.

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