# ICT & Infra S3 Automation & Orchestration, week 7

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| Class: |  |
| Student number: |  |
| Student name: |  |

## Introduction

Running multiple EC2 instances can be expensive. By using a Lambda function and Amazon EventBridge, you can shut down EC2 instances used for the development environment.

This is **group** assignment.

### Assignment 1. Automatically shut down EC2 instances

### Difficulty: ★★★★☆

To save costs, some EC2 instances can be shut down and started up on a schedule. Follow the [tutorial at AWS](https://aws.amazon.com/premiumsupport/knowledge-center/start-stop-lambda-eventbridge/) to implement a Lambda function to control an EC2 instance state every night. Use [cron expressions](https://docs.aws.amazon.com/AmazonCloudWatch/latest/events/ScheduledEvents.html) to specify a schedule. Extend the implementation with the following rules:

* Every EC2 instance must have an additional tag that identifies importance of an instance. A possible tag can be[[1]](#footnote-1): Development, Testing, Staging, Production. Add necessary tag that identifies the purpose of an EC2 instance.
* An EC2 instance with Development or Testing tag, must be:
  + Shut down daily at 23:00.
  + It must not be started automatically.
* An EC2 instance with Staging tag, must be:
  + Shut down daily at 23:00.
  + It should be started automatically at 9:00 on working days.
  + On a weekend it must not be started automatically.
* An EC2 instance with Production tag and type of t2.small or smaller, must be:
  + Shut down daily at 24:00.
  + It should be started automatically at 8:00 daily.
* An EC2 instance with Production tag and type of t2.medium or bigger, must be:
  + Shut down daily at 24:00.
  + It should be started automatically at 8:00 on working days.
  + On a weekend it must not be started automatically.

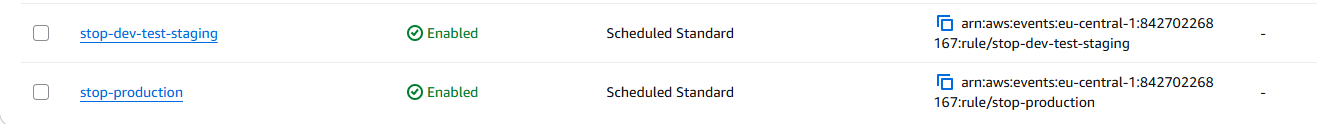
Provide screenshots (evidence) for your solution. Always explain your evidence! As a prof, we expect at least:

* All the CRON expressions used in the solution
* Lambda function(s) code that implements the requirements

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| *Solution:* |

### Screenshots

Afbeelding met tekst, Lettertype, lijn, nummer

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My 5 event rules

Afbeelding met tekst, schermopname, Lettertype, nummer

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Start-production-medium This cron/event rule starts medium production instances at 08:00 on weekdays

Afbeelding met tekst, schermopname, Lettertype, nummer

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Start-production-small This cron/event rule starts small production instances at 08:00 daily

Afbeelding met tekst, schermopname, Lettertype

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Start-staging-weekdays This cron/event rule starts staging instances at 09:00 on weekdays

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Stop-dev-test-staging This cron/event rule stops dev, testing, and staging instances at 23:00 daily

Afbeelding met tekst, schermopname, Lettertype

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Door AI gegenereerde inhoud is mogelijk onjuist.

Stop-production This cron/event rule stops production instances at 00:00 daily Afbeelding met tekst, schermopname, Lettertype, nummer

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Iam lambda rule for EC2 access and Cloudwatch access for logs giving full access for testing

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Afbeelding met tekst, schermopname, Lettertype

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Explanation

* it creates connection to EC2 services using boto3
* sets variables for start or stop and target
* choices if it has to start or stop an instance
* Depending on stopping or starting, it grabs only the instances that are stopped or started
* creates an empty list for start or stop instances
* goes through every instance and grabs the ID
* then finds each instance with the tag environment and saves its value in environment
* then matches environment with the target if matches put the targets instance ID inside the start or stop list
* stops or starts all instances in the instance ID list

1. Differences Between Dev, Staging, Preprod...: <https://www.flagship.io/test-environment/> [↑](#footnote-ref-1)