

Homework-8: TinyML using Edge Impulse

Deadline: December 2nd, 11:59PM ET.

In this homework, you are expected to practice the use of TinyML using Edge Impulse platform.

Your homework submission should be on GitHub. Use the following GitHub classroom to access the assignment and create your assignment repository:

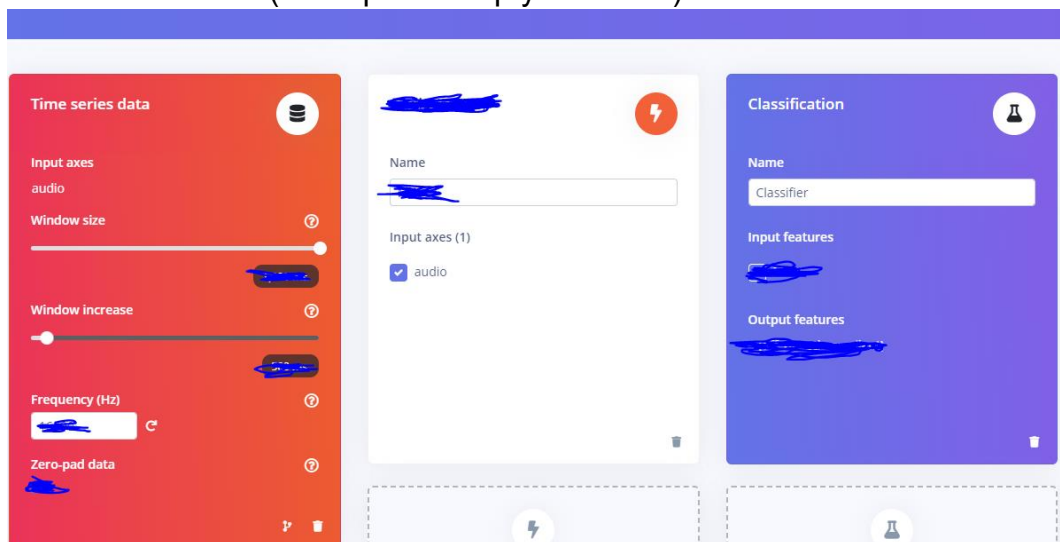
<https://classroom.github.com/a/-IRUuCLX>

You should submit the URL for your GitHub repository on Canvas. Grading penalty will be applied if otherwise.

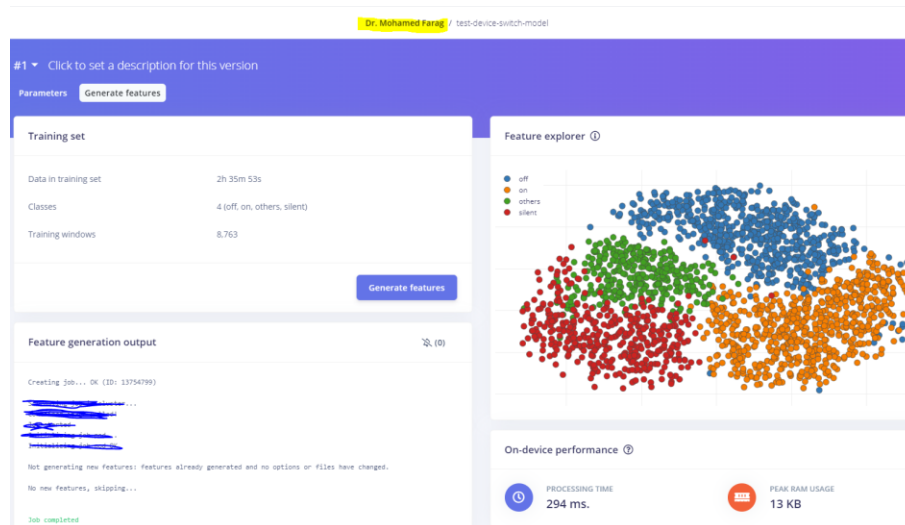
Add screenshots showing the output for all the questions below. You may combine all the screenshots in one PDF file or check them in individually (with each file named after its question number).

Q1. (70%): Build a Multi-classifier Machine Learning Model to Switch On/Off Devices using Voice Commands on **Raspberry Pi 4**.

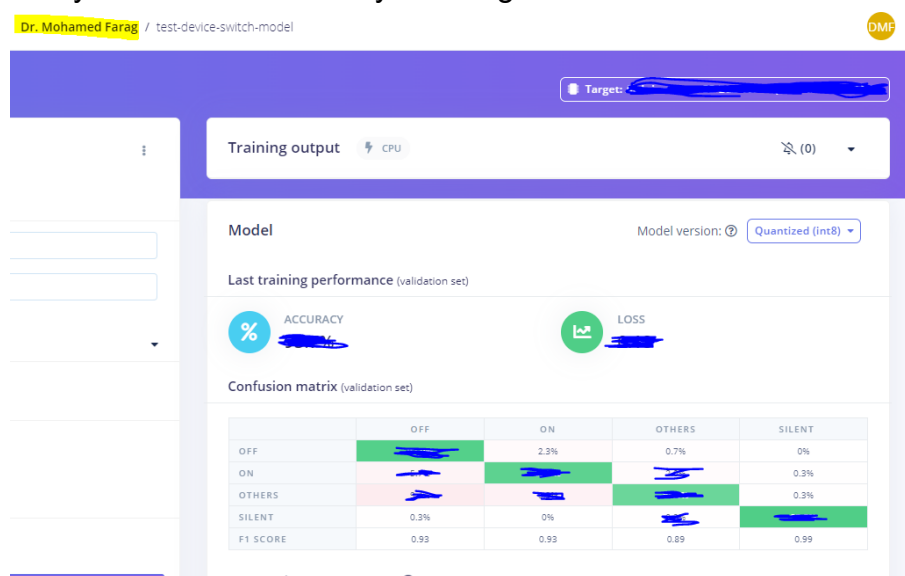
- **(10%)** Submit the dataset you used. Organize your data to have the data for each label in a separate folder (as shown in the lecture demo).
- **(10%)** Submit a copy of your pipeline (e.g., a similar screenshot to the one below). Customize the parameters as needed.
 - Make sure your name is written in a Text Editor and included in the screenshot (Don't photoshop your name)



- **(15%)** Submit a screenshot of your Feature Generation Output. Your screenshot should show 1) your name, 2) job completion in green and 3) Feature explorer as shown in the screenshot below.



- **(15%)** Submit a Screenshot of the output of your classifier. Make sure your screenshot shows the target device, the results of the classification and your name. If you used enough data and reasonable model parameters, it is expected that your model's accuracy will be greater than 90%



- **(20%)** Record a 1-minute video showing the live-classification on your smartphone or your laptop for switching on and off devices.

Q2. (30%): Are you using the most optimal Neural Network architecture for Raspberry Pi 4? Use EON Tuner to validate your answer. Submit a screenshot of the EON Tuner and comment on your findings. Use 100ms target inference time for your calculations.