MAJEURE INFORMATIQUE

CLOUD COMPUTING

REPORT – LAB3

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FIRST PART

DESCRITPION

We need to send a message from a client to a server, storing the messages in a queue.

The message contains a list of integers separated by comas and the server will listen to the queue and process the messages that are formatted correctly. We will compute the mean, median, min and max of the integers received.

We will also put an entry to the log each time we compute these values.

THE CODE

We use the package `boto3` and Python in order to communicate with AWS.

The code is pretty straight forward. The client is sending a message, and also checking the format of the data.

The server is listening to the queue and double checking the format of the data. After computing the indicators we've chosen, we send back a message to the client with the ID of the first message and all the values that have been computed, in order to tell him that the operation has been completed.

We also create an event in the log with the current timestamp, that contains the raw data so as the result of the computations.

SECOND PART

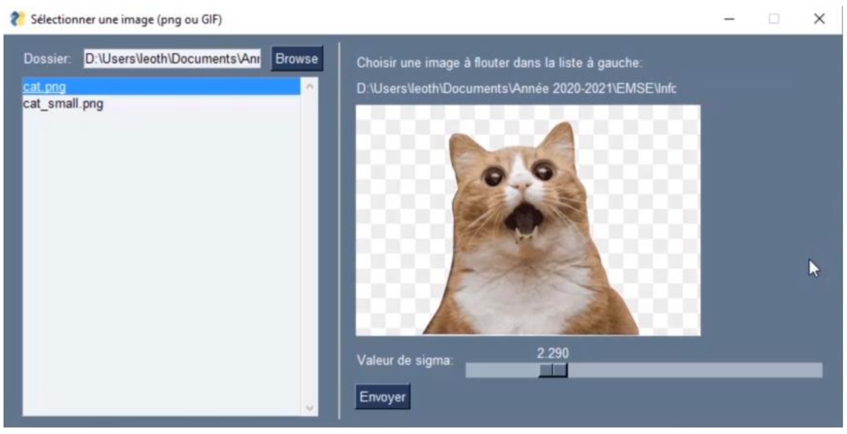
DESCRITPION

The idea is to create a small program the will be executed on the client, upload an image to bucket and send a message to the queue with the ID of the image we've just sent.

The server will then listen to the queue, retrieve the uploaded image, apply some kind of process to it, upload the results to the bucket, and then send back a message to the client in order to tell the where to find the new image.

We've chosen to apply a blur to our pictures, using the `skimage` library for Python. Since we're using a gaussian blur, we can chose different parameters for the gaussian sigma. This will be something that the user will decide. The greater the sigma, the blurry the result.

The client will hence resemble a list of file to pick from, and a slider which will represent the value of sigma.


Sélectionner une image (png ou GIF)
Dossier:
D:\Users\leoth\Documents\Ann
Browse
cat.png
cat_small.png
Choisir une image à flouter dans la liste à gauche:
D:\Users\leoth\Documents\Année 2020-2021\EMSE\Infc
Valeur de sigma:
2.290
Envoyer

THE CODE

We use the package `boto3` and Python in order to communicate with AWS, so as `skimage` and `PySimpleGUI` for the image processing and the GUI.

The idea is that the client has a main window with a list of files on the side, and a way to pick a different folder. The user can then chose a picture file (png or GIF) which will be displayed on the right side of the window. Underneath the image, we will find a slide which allows the user to change the value of sigma, and a button that will upload to image to the bucket when being pressed and put a message on an "inbox" queue that contains the ID of the picture and the value of sigma.

The server is constantly listening to the "inbox" queue. When receiving a message, we make sure that it is correctly formatted. Then, we download the raw picture from the bucket. We then apply the gaussian blur using the sigma value that has been stored in the message, and we then upload the new picture to the bucket, with a new name and new ID. We also put a message in the "outbox" queue with the ID of the new picture so the client can know that the image has been processed.

The client is constantly listening to the "outbox" queue. When a message is being received, we can download the blurry image and update the list of files on the left side of the window so the user can display it on the right side.

CONCLUSION

We could have improved our program by a huge amount. There are still a lot of things that can be done better, especially the way we listen to the "outbox" queue on the client side. It will be good for two clients to be able not to retrieve a picture that has been sent from another user for instance. This is easily manageable but hasn't been implemented yet.

Also, we could offer more freedom to the user, let him apply different kind of image processing for instance.