**CS3237 Introduction to IoT**

**Lab 4**

**ANSWER BOOK**

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**Question 1 (2 MARKS)**

The ‘b’ means … it is present because …

The ‘b’ represents bytes, meaning the output a string decoding of a sequence of bytes.

**Question 2 (3 MARKS)**

The modified code is pasted below:

def on\_message(client, userdata, msg):

print(msg.topic, msg.payload.decode("utf-8"))

…

Use Python’s decode() function to decode the string.

**Question 3 (2 marks)**

How I avoid long model load delays is:

classes = ["daisy", "danadelion", "roses", "sunflowers", "tulips"]

# Store model as global variable

MODEL\_NAME = "flowers.hd5"

session = tf.compat.v1.Session(graph = tf.compat.v1.Graph())

with session.graph.as\_default():

    set\_session(session)

    model = load\_model(MODEL\_NAME)

    session.run(tf.compat.v1.global\_variables\_initializer())

def on\_connect(client, userdata, flags, rc):

…

Load and store the model as a global variable outside any function scopes, so that it will be loaded before any of the functions are called.

**Question 4 (2 mark)**

I do/do not (cancel one) need to freeze weights because:

We do not need to freeze the weights because the model has already been trained and stored, and all subsequent actions are just classification.

**Question 5 (4 marks)**

My predict function WITH explanation is:

**Question 6 (4 marks)**

Relevant code with explanation:

from os import listdir

samples = 'samples/'    # set up 'samples' relative path

First we import the ‘listdir’ function from the ‘os’ library so we can obtain a list of files. We also set up the relative path of the ‘samples’ directory.

def main():

    client = setup("127.0.0.1")

    print("Sending data.")

    for img in listdir(samples):

        try:

            Image.verify(img) # Use Image.verify() from PIL Library

            send\_image(client, samples + filename)  # send image

        except:

            pass

    print("Done, Waiting for results.")

    while True:

        pass

We then iterate through the files in ‘samples’. We can call the PIL Library’s Image.verify() function to check if it’s an image. If they are an image, send to client.

**Question 7 (3 marks)**

My sample output:

The accuracy of my classify is:

**TOTAL: \_\_\_\_\_\_\_ / 20**