**Problem Statement** – Create a web application to forecast temperature and humidity for an observation value (an integer) passed.

**Problem Description** – You are provided with models (TC\_forecast.pkl and HUM\_forecast.pkl), that have been trained to forecast temperature and humidity for an observation value passed. You need to develop an application where this model could be used to predict temperature and humidity for any observation value passed.

**Files Attached** –

1. **test.txt:** Data on which training was performed

2. **microclimate\_forecast.ipynb:** Script used to develop the model

3. TC\_forecast.pkl: Model to forecast temperature for a given observation

4. HUM\_forecast.pkl: Model to forecast humidity for a given observation

**Please use python for all your scripts**.

Please host your application using any cloud-based service (use the one that is available for free) and provide the hosting server link.

**Questions** - Beside developing an application to predict temperature and humidity for an input observation, please answer the following questions:

1. If you have to set up a production server and deploy the application into that server, what approaches would you take? Please share a template design on how you will expose the model to the client, do load-balancing and what all factors need to be taken care of in order to productise your application.
2. A model’s performance usually degrades over time. What is the reason for it?
3. In order to avoid model staleness or performance degradation, if we plan to automate the training pipeline, what will be your approach. Do not code this but share the design and different components. The training pipeline needs to be triggered every time the accuracy drops below a certain threshold and the pipeline will train and test model meeting certain metrics threshold (e.g., MSE less than or equal to 2 degree Celsius).
4. How would you integrate the training pipeline to the prediction application developed by you?

Kindly refactor your codes, application, as well as share the logic and approach used.

**Scoring criteria:** Scoring will be done on the basis of the following:

1. Code quality and documentation (Use python for coding)
2. Application pipeline design (use python-based frameworks). Please share a sample input and output for your application.
3. Problem solving approach, attention to detail and understanding of the problem.
4. Final presentation of answers (the less time we spend the happier we will be 😊).

For any questions regarding the assignment please get in touch with me at 9853268652.