CSE 5121 - DevOps and MLOps

Course End Activity

Bank Note Authentication Data was extracted from images that were taken from genuine and forged bank note like specimens. For digitization, an industrial camera usually used for print inspection was used. The final images have 400 x 400 pixels. Due to the object lens and distance to the investigated object gray scale pictures with a resolution of about 660 dpi were gained. Wavelet Transform tool were used to extract features from images.

You have availability of following files from SLMS

1. DevOps & MLOps Course End Activity.pdf
2. BankNote.html
3. BankNote_Authentication.csv

Task :

- Import the dataset from SLMS to your local repository.
- Build a Best Machine Learning Model name it as " BankNote.py " and save the model into pickle file as " BankNote.pickle ".
- Create a requirements.txt file.
- Create a docker file mention all the prerequisites in it
    - Required Image.
    - Working directory.
    - Any additional file i.e., requirements.txt
    - Specify Container Port.
- Organize all the files i.e., docker file, requirements.txt, dataset, all python files and html files in a folder named as " BankNoteML ''.
- Write flask & streamlit code to deploy your model name it as " API_Deploy.py ".
- Using the pickle file build flask & streamlit API.
- Create a docker image and containerize it using ILAB.

- Execute the following files in the container.
- At the end, test your predictions in web page with URL & host port number that you have mentioned while creating the container:

  '' http://172.16.0.67:<HostPortNumber> ''
- Commit the " BankNoteML '' folder to repository in git hub, i.e., (From your local repository push all the files to your remote repository).
- Create the Jenkins pipeline as '' B124_EmpID_Name ''.
- Now clone that git repository to Jenkins.
- Build a CICD Jenkins Pipeline with 3 stages:
  a. Checkout,
  b. Build,
  c. Deploy.

Outputs : Following Screenshots has to be Zipped and Upload as :

YourName_Rollno_CSE5121_CEA.

1. Screen Shot of **Python Docker Container** with your Roll.no should be visible in it.

2. Screen Shot of **Flask** or **Streamlit API** Output with Port number as your Roll.no.

3. Screen Shot of Jenkins with **Console** output with your pipeline name should be visible in it.

4. Screen Shot of Jenkins with **Build-Now** output with your pipeline name should be visible in it