LinuxWorld Informatics Pvt. Ltd.

CIN: U72900RJ2012PTC039171

Ref : LWIPL-JPR-2021-1001 **Date**:20th Aug, 2021

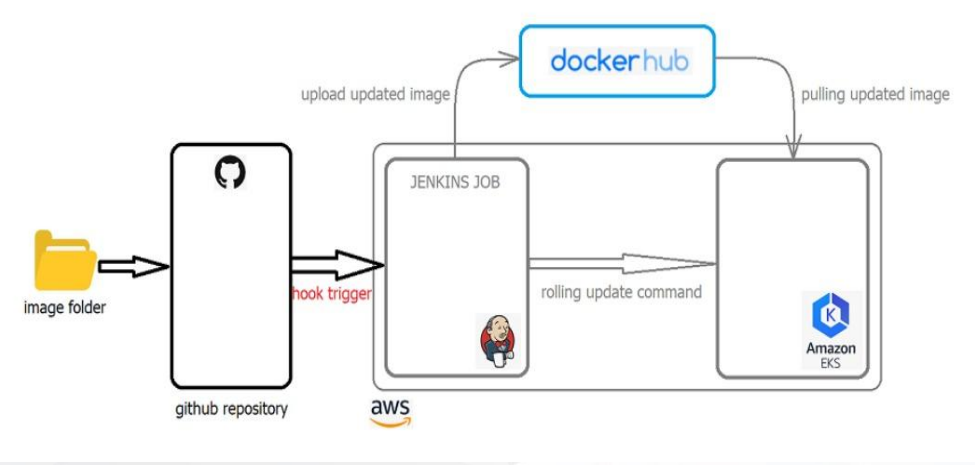
TO WHOMSOEVER IT MAY CONCERN

This is to certify that the project work and report entitled "**Self-training Face recognition Web Application"** embodies the original work of **Mr Yash Indane** from **Shri Ramdeobaba College of Engineering and Management, Nagpur (Electronics Engineering)** at **LinuxWorld Informatics Pvt Ltd.**

The duration of the project undergone as mentioned above, under the mentorship of **Mr. Vimal Daga,** Technical Head was from **22nd May 2021 to 17th August 2021.**

Gist About the Project:

This is a Flask Web Application that recognises faces and also trains itself to recognise new people using power of Jenkins and DevOps.



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The app runs on Amazon EKS. When a folder containing images of new person is uploaded on the GitHub repository, with help of hook trigger this executes the Jenkins job. The Jenkins Job executes the code_builder.sh script.

The code_builder.sh script edits the training_model_template.py file according to number of person image folders and executes the training_model_template.py file with generates the LBPH model for all the persons.
Similarly, code_builder.sh script also edits the app_template.py which makes the final Flask Application. After this the Docker file is used to build an updated image and push it to docker hub.

Finally, by using rollout command for Kubernetes the new image is used by the EKS cluster so that the new person can also be recognised.

Technologies Used:

- **Jenkins** - This Devops tool was used to build the LBPH face recognition model of all the people, build the main Flask app code, push the new updated comtainer image to Docker Hub and then deploy the new container in EKS cluster with rollout strategy.
- **Amazon EKS -** This was used to host the containers in Kubernetes enviornment, so that deployment of new containers can be done easily.
- **Docker -** Docker was used by Jenkins server to build the container image from the Docker file and push it to Docker Hub.

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- **Github** - Github has the repository that has webhooks enabled, so as when a new folder containing images of the person is uploaded, webhook triggers the Jenkins job to get executed

- **Flask -**This framework was used to build the face recognition Web Application

- **LBPH Face Recognition -**This technique was used for face recognition as this method is nice to work with, when we have limited images.

Conclusion: This setup can be used to self-train the Application any number of new persons that need to be recognised.

Future Scope: In Future, CNN can be used for more recognition accuracy and more images can be uploaded to Amazon S3 for training purpose.

We wish him all the success for his future

Regards

LinuxWorld Informatics Pvt Ltd

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