Documentation of AutomateML

(Machine Learning + DevOps: MLOps)



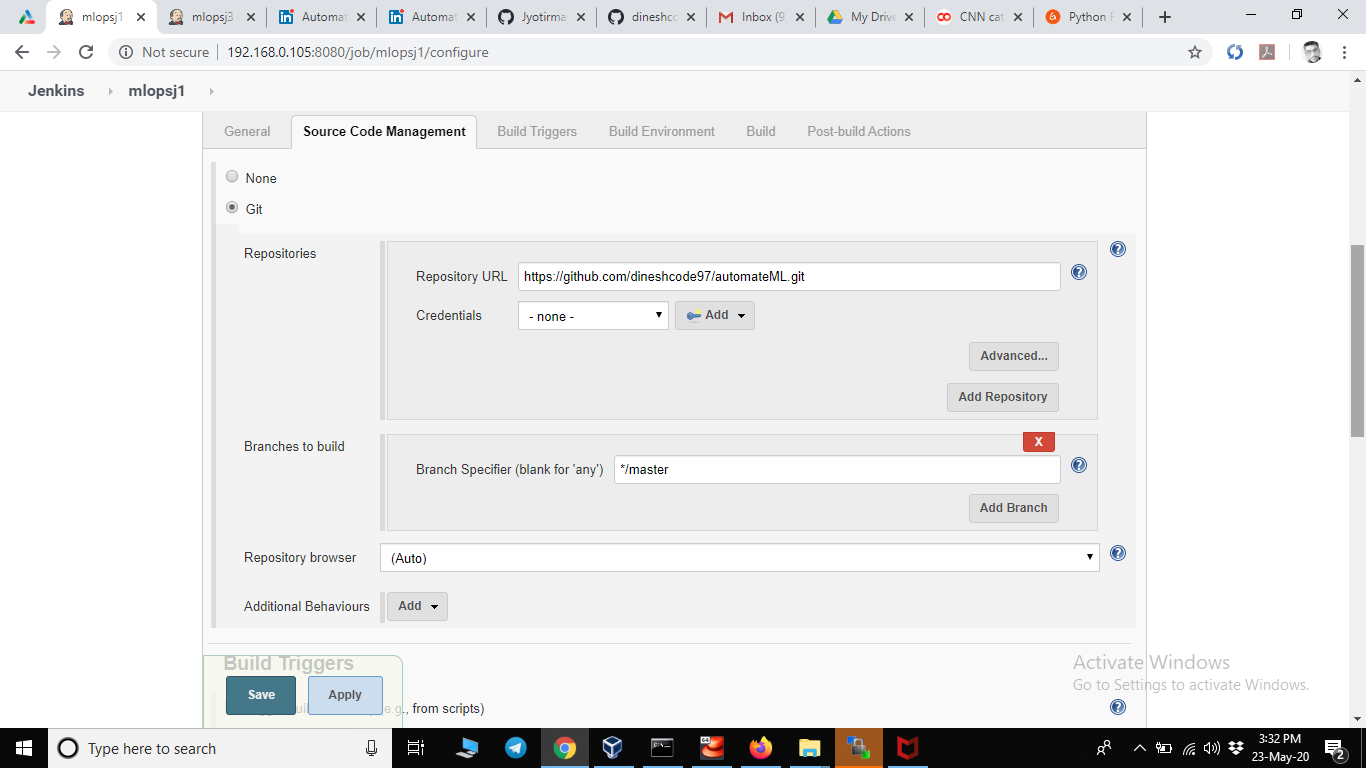
MlOps: MLOps is coined with two terms Machine Learning (ML) and DevOps (Ops). MLOps means when we use Machine learning to train the using devops tools. Some DevOps Tools jenkins,docker,git,github and many more.

They provide automation to machine learning

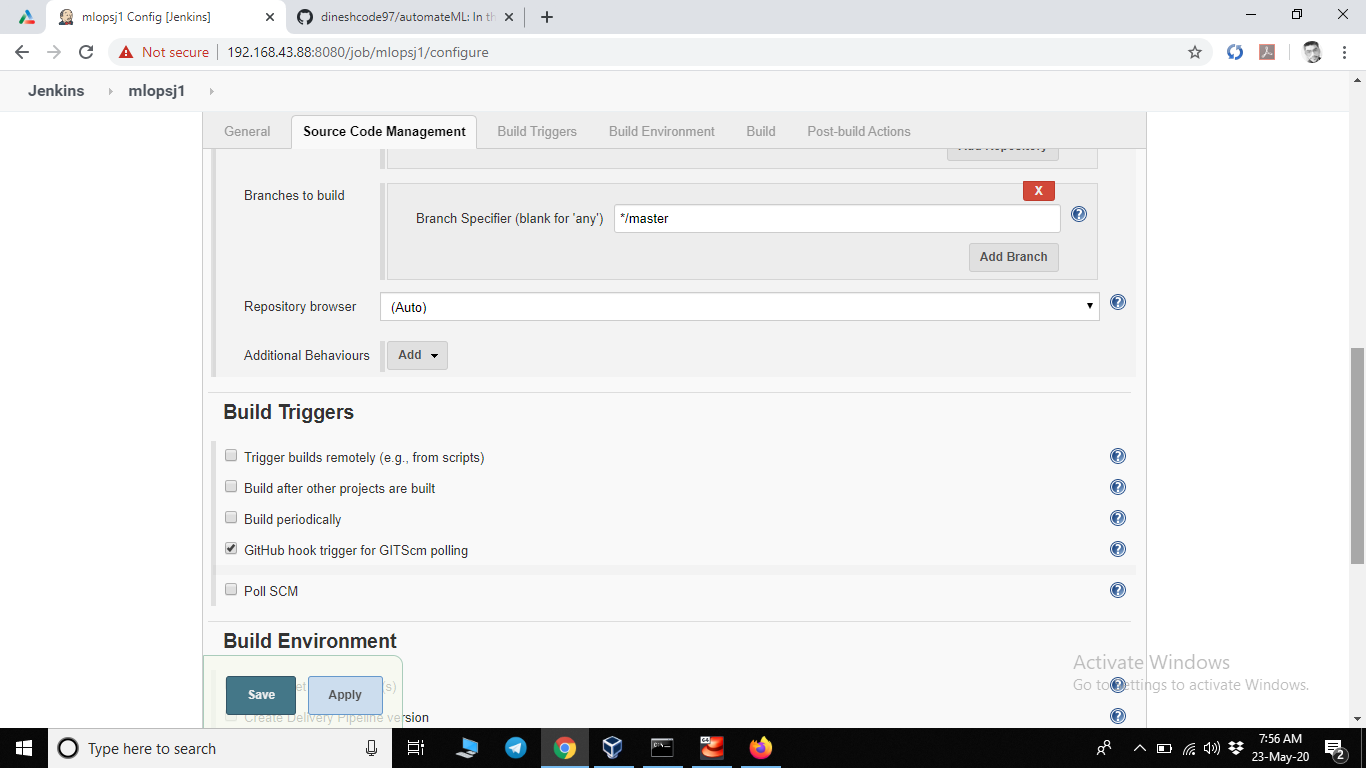
:-AWS sagemaker is an example of MLOps

Lets’ Start

1. Create a github repository
2. Copy its url
3. Open jenkins create a job(mlopsj1)
4. Paste url in repository url box

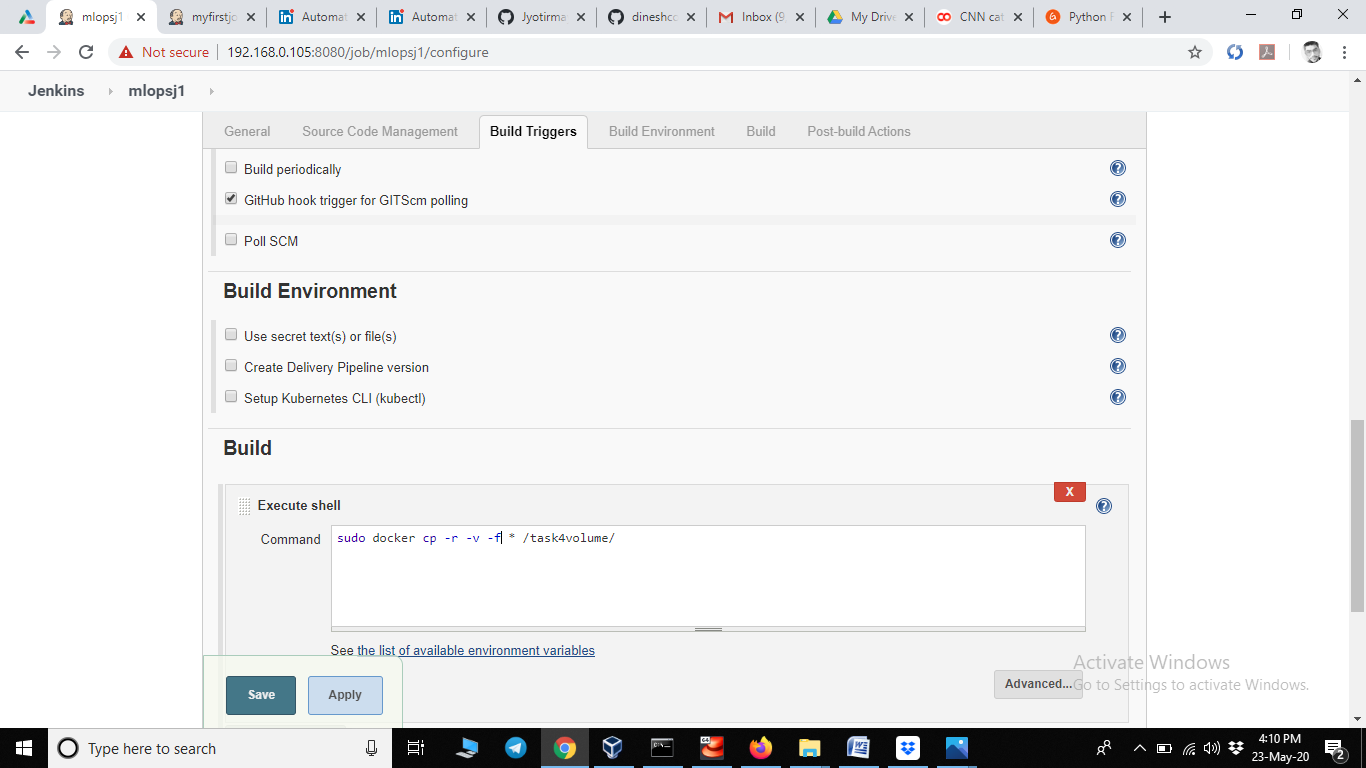


1. Select gitwebhook in build trigger and create a webhook in github using ngrok
2. you can skip step 5 use pool scm and enter \* \* \* \* \*



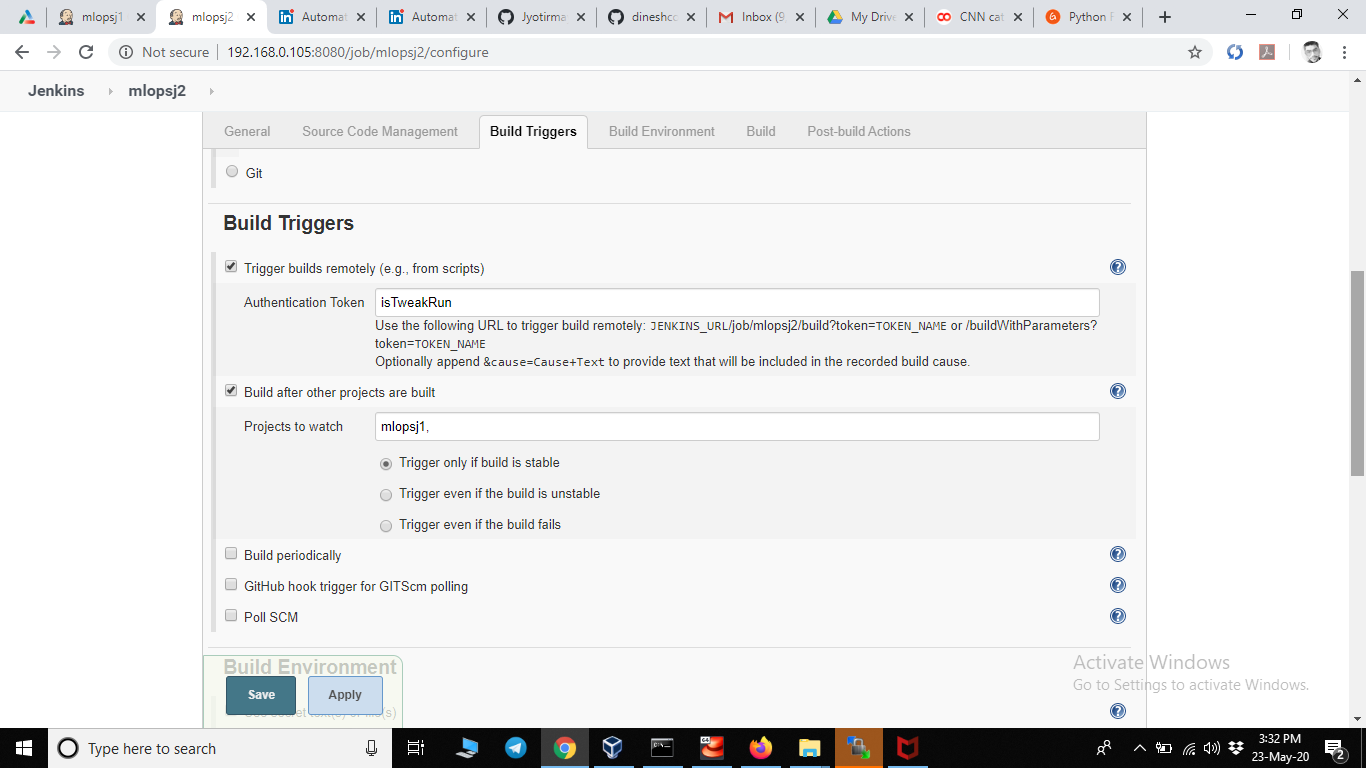
1. in build select exeute shell
2. give this command to copy :

sudo docker cp –r -v –f \* /task4volume/



Job2:

1. create one more job(mlopsj2)
2. In build trigger select trigger built remotely and write isTweakRun in authentication token
3. Also select build after the project is build and give mlopsj1



1. In build select execute shell and run this statements:

if sudo docker ps -a | grep deeplearningos

then

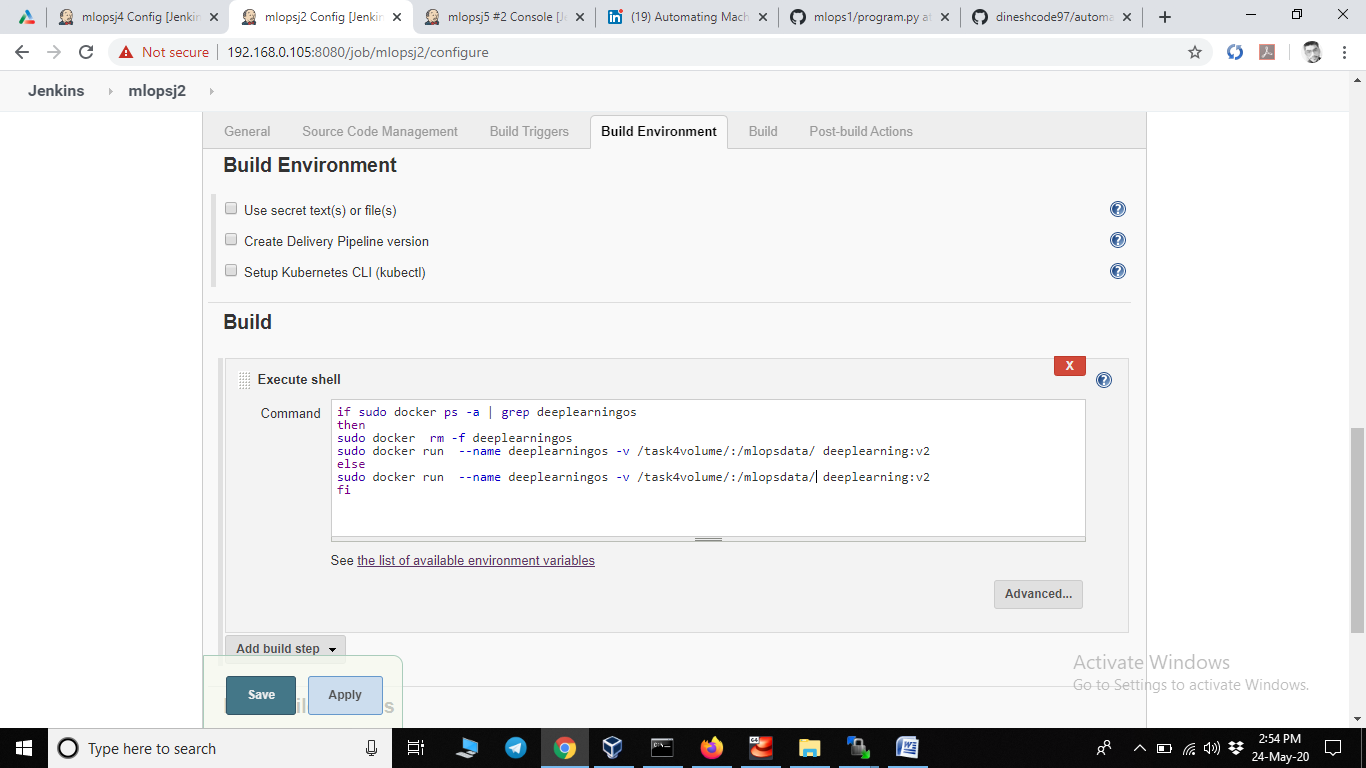
sudo docker rm -f deeplearningos

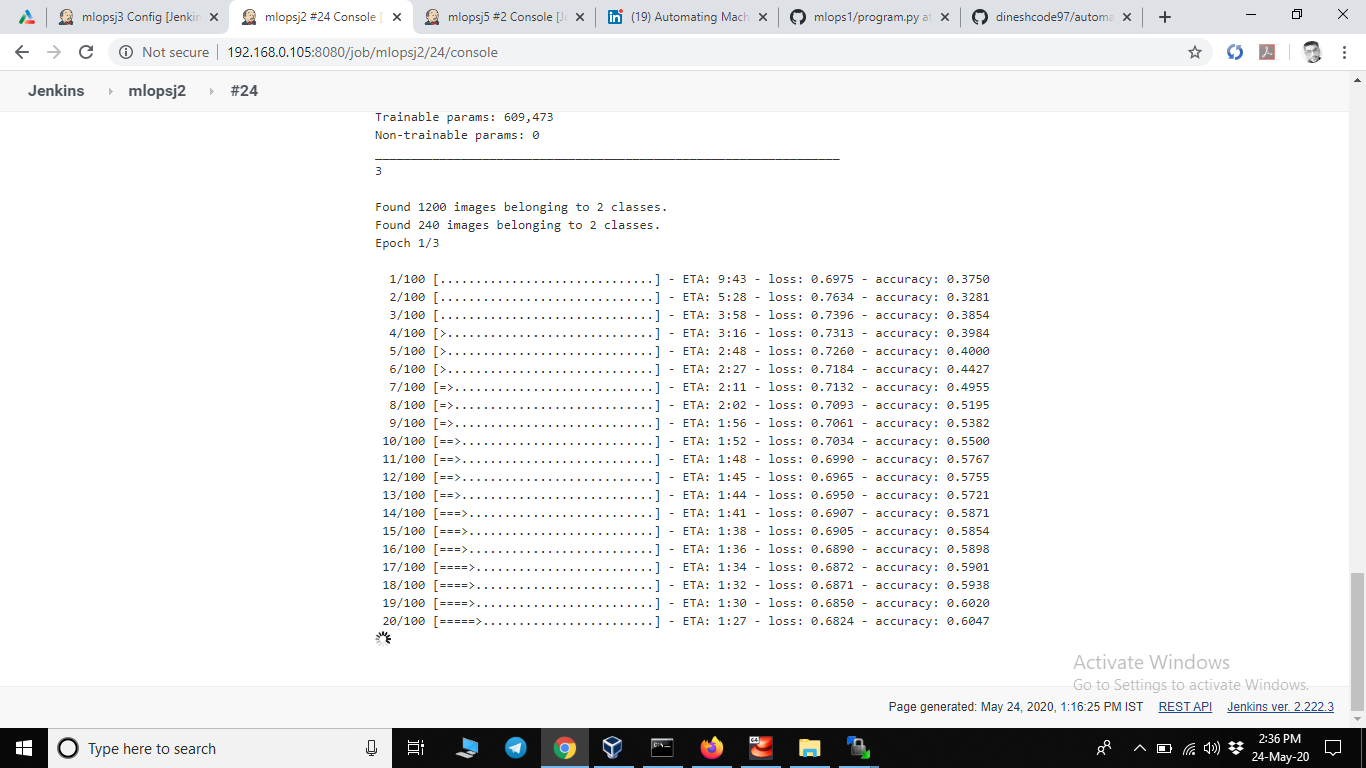
sudo docker run -v /task4volume/ :/mlopsdata --name deeplearningos deeplearning:v2

else

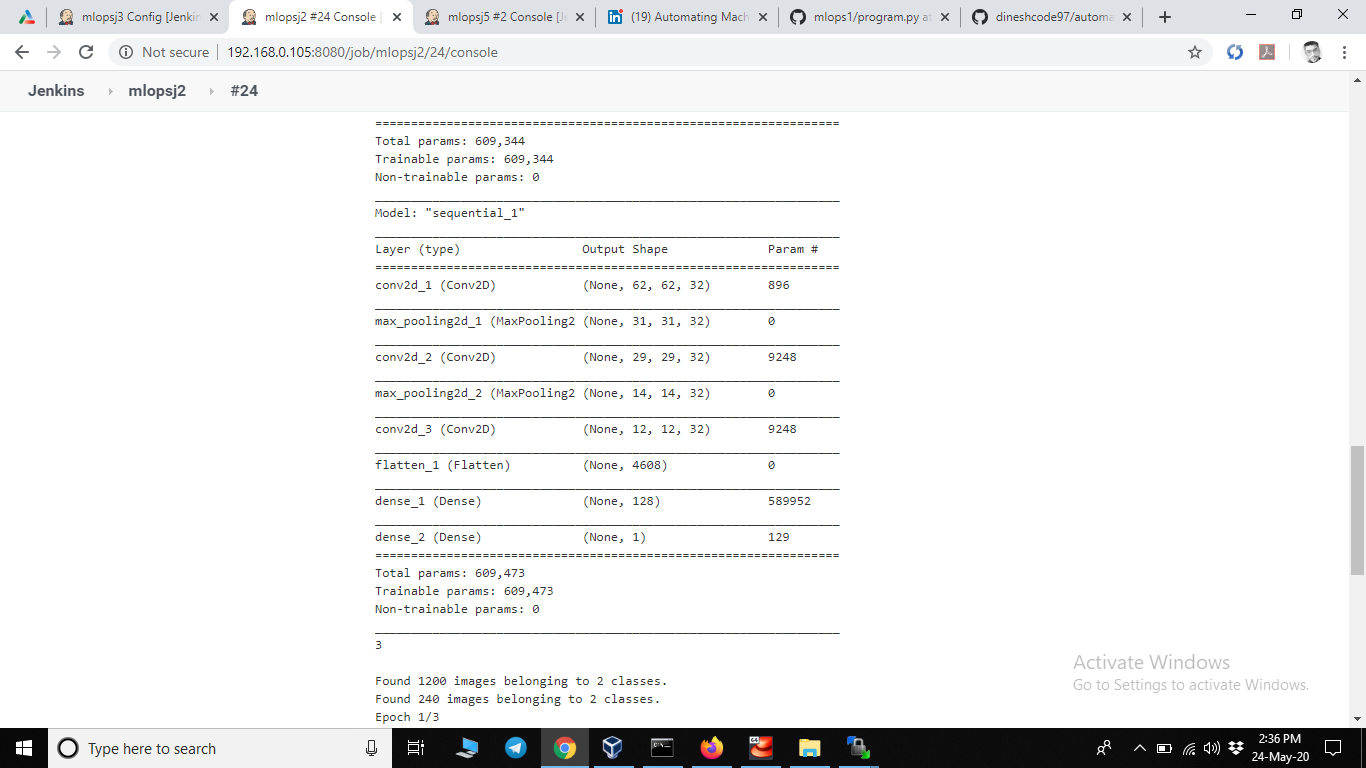
sudo docker run -v /task4volume/ :/mlopsdata --name deeplearningos deeplearning:v2

fi

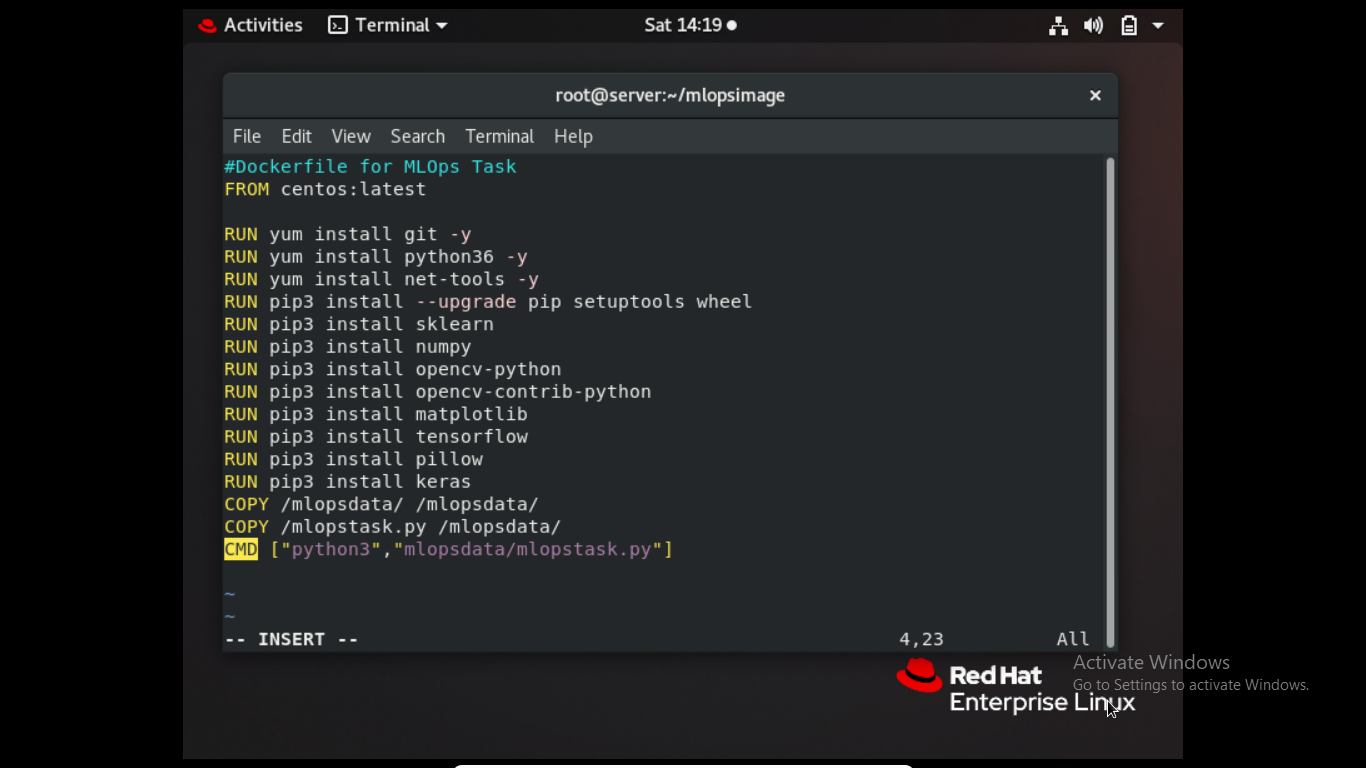




Model training



My Dockerfile:



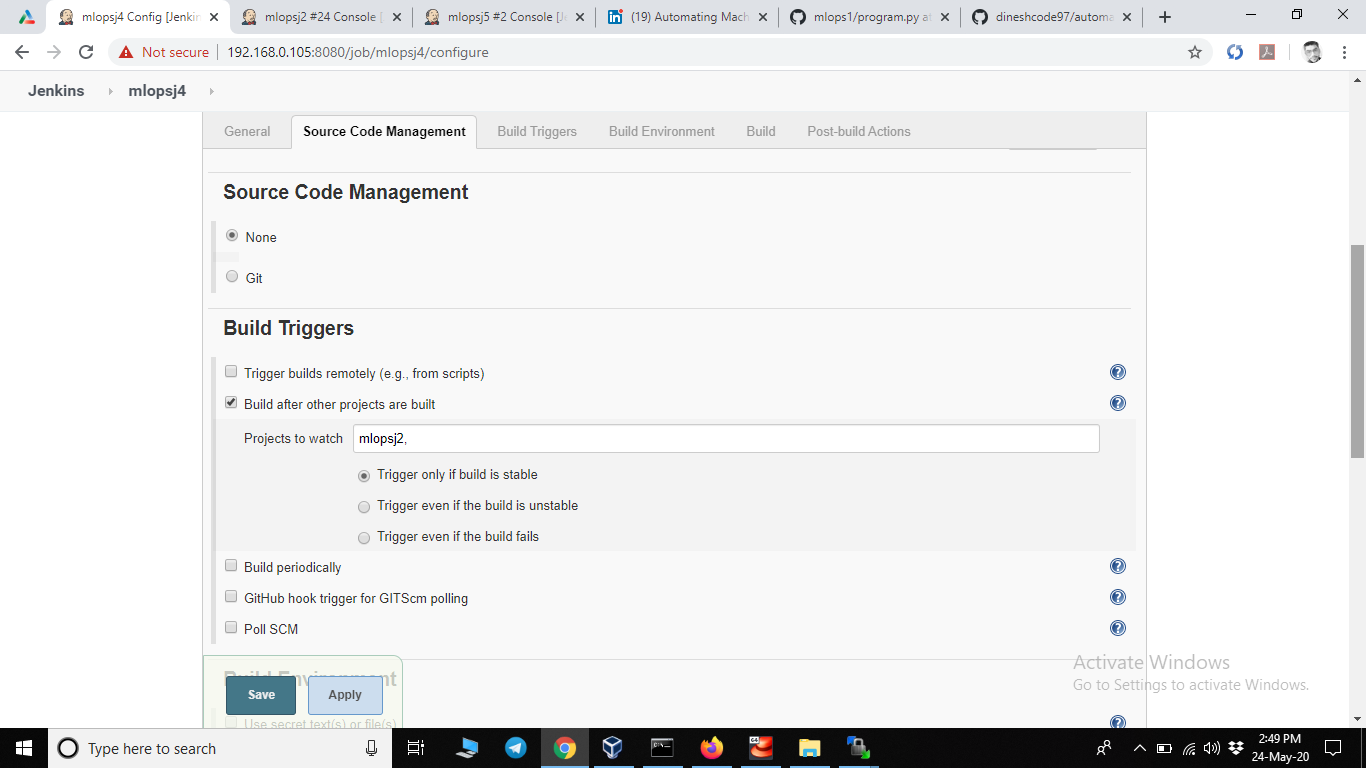
Job3:

Model automatically start in job 2 an start training and save the accuracy in a text file for comparing the best accuracy and in job 4 it checks the accuracy and tweak the model if necessary.

Job4:

1. Create one more job mlopsj4
2. Select trigger build after the project is build

mlopsj2



1. Select execute shell in build

Write this code

if [[ "$(sudo cat /task4volume/accuracy.txt)" < "0.95" ]] #if accuracy is less than 95%

then

echo "Run again"

sudo python3 /task4volume/optimize.py

# run optimize.py file it increase the number epochs

# And run job 2 again

curl 192.168.0.105:8080/job/mlopsj2/build?token=isTweakRun

else

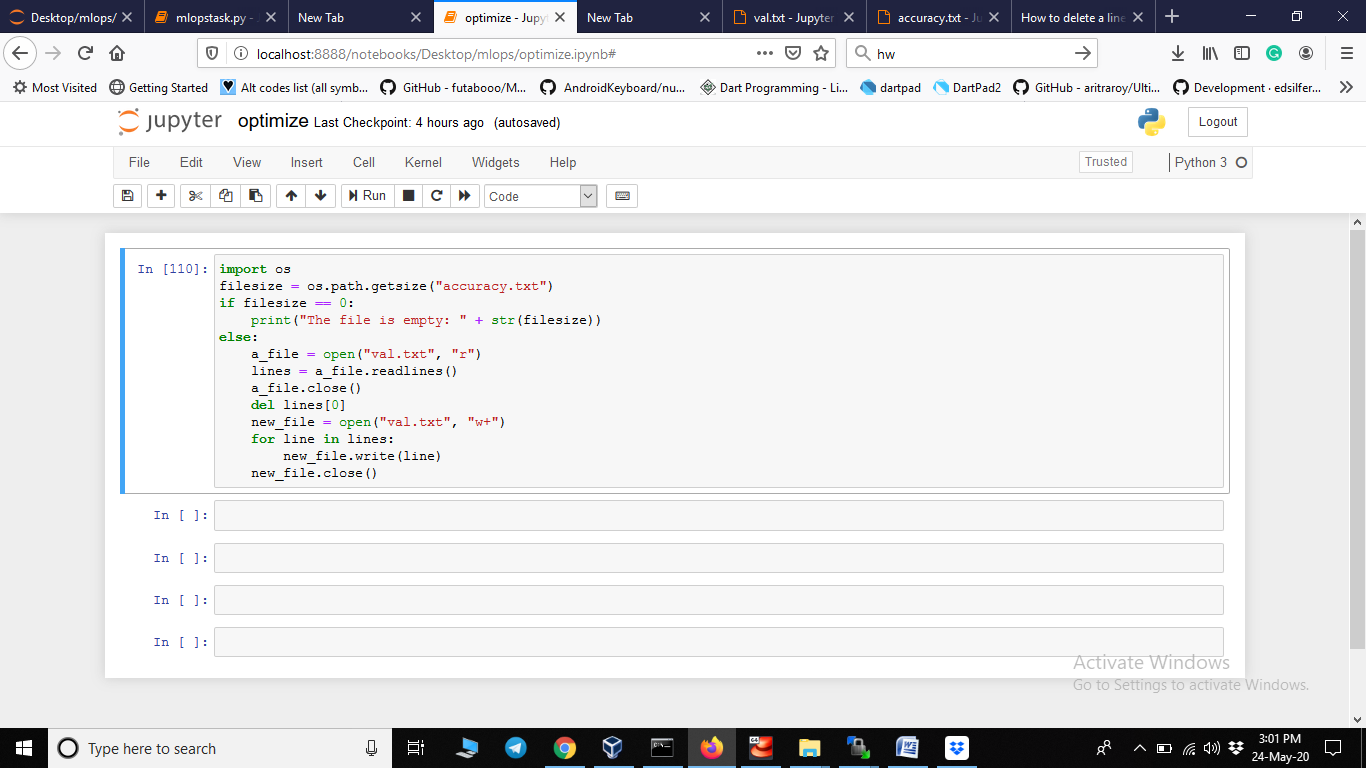
#if accuracy is more than 95% email to the data scientist run job 5

echo "Email accuracy acheived"

curl 192.168.0.105:8080/job/mlopsj5/build?token=sendMail

fi

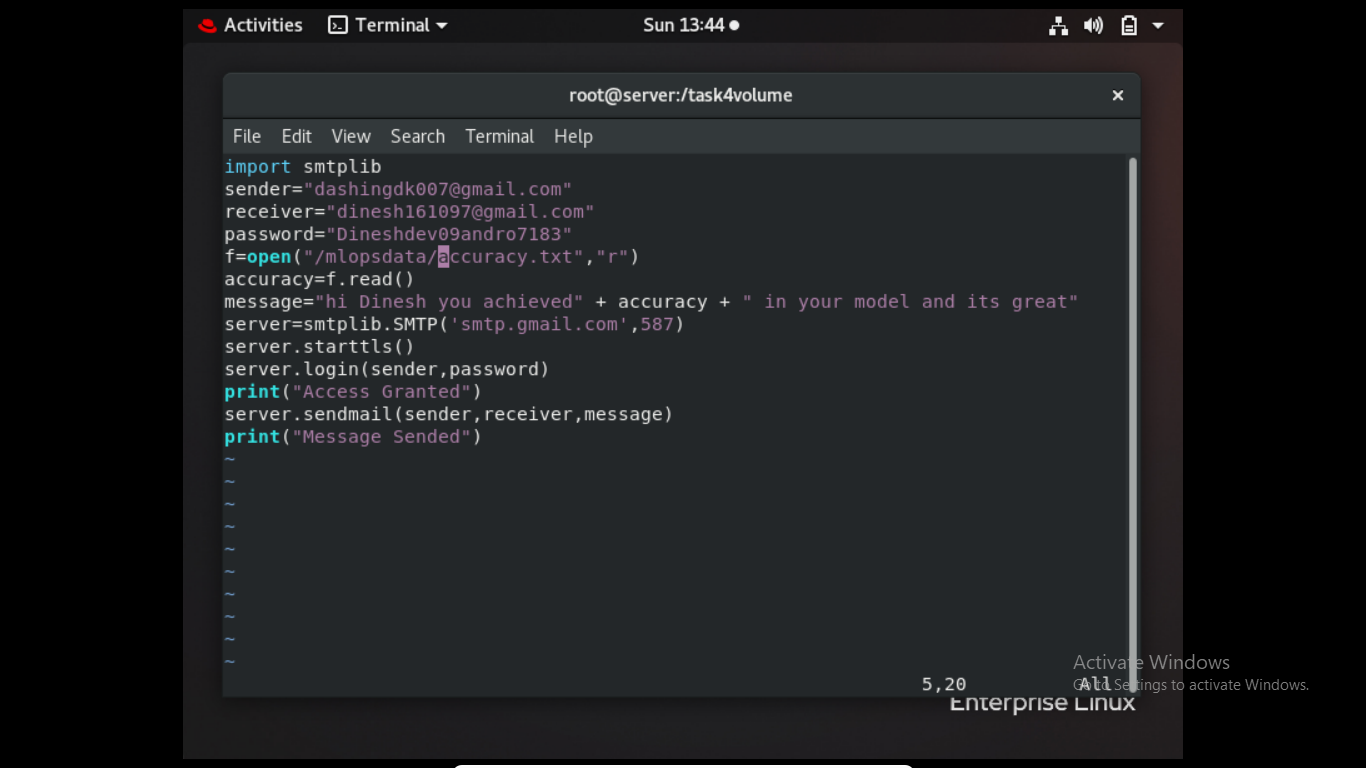
#Optimize.py file



Job5:

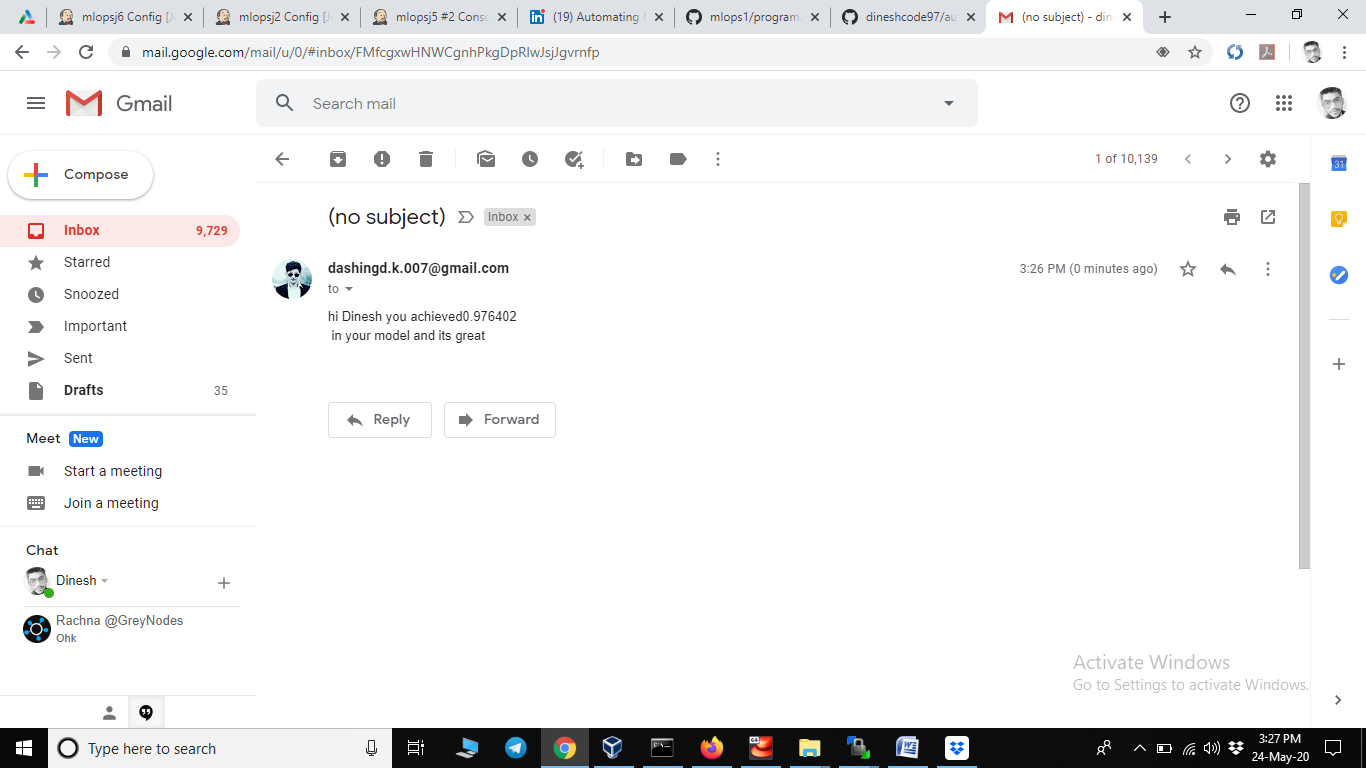
1. Create job5 and in the build shell select execute shell
2. Add this code

sudo python3 /task4volume/sendmail.py



Note : sender mail and password and receiver mail what you want

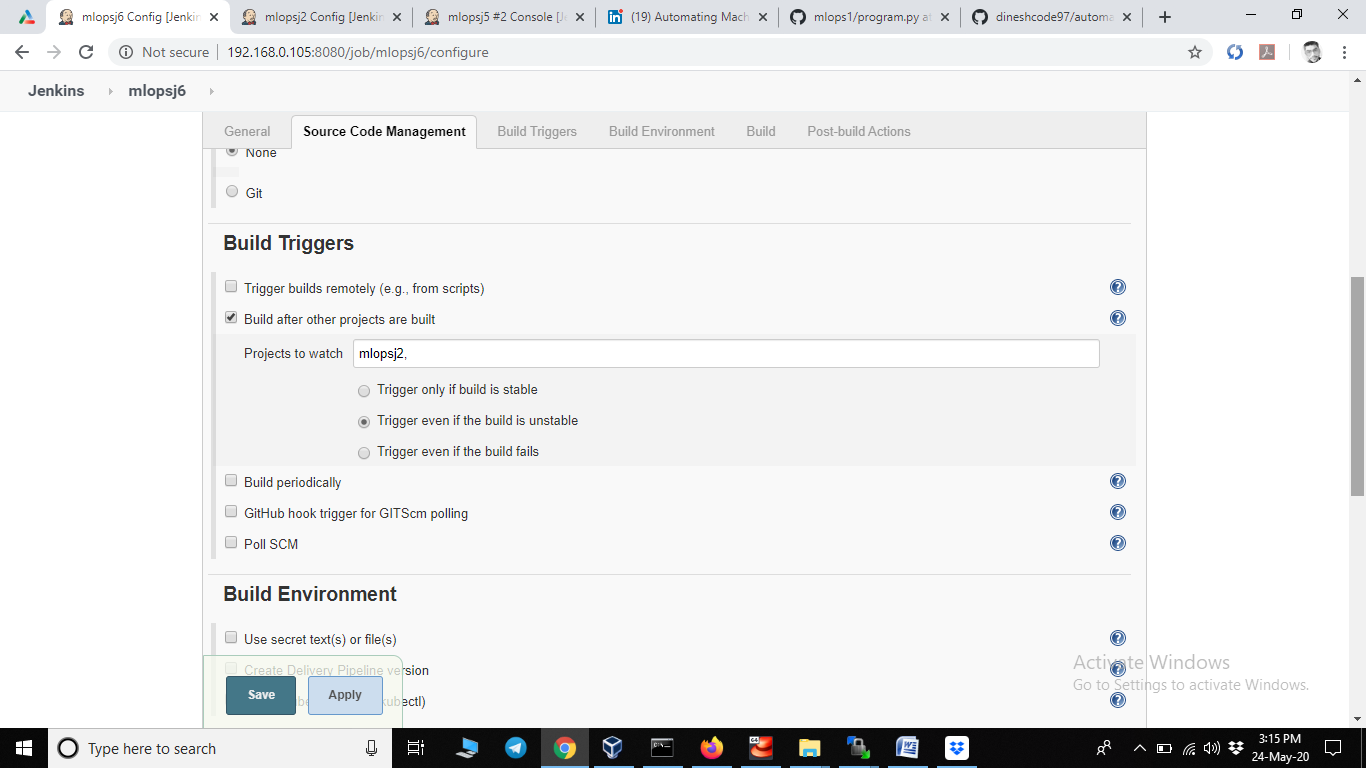
Mail sended:



Job6:

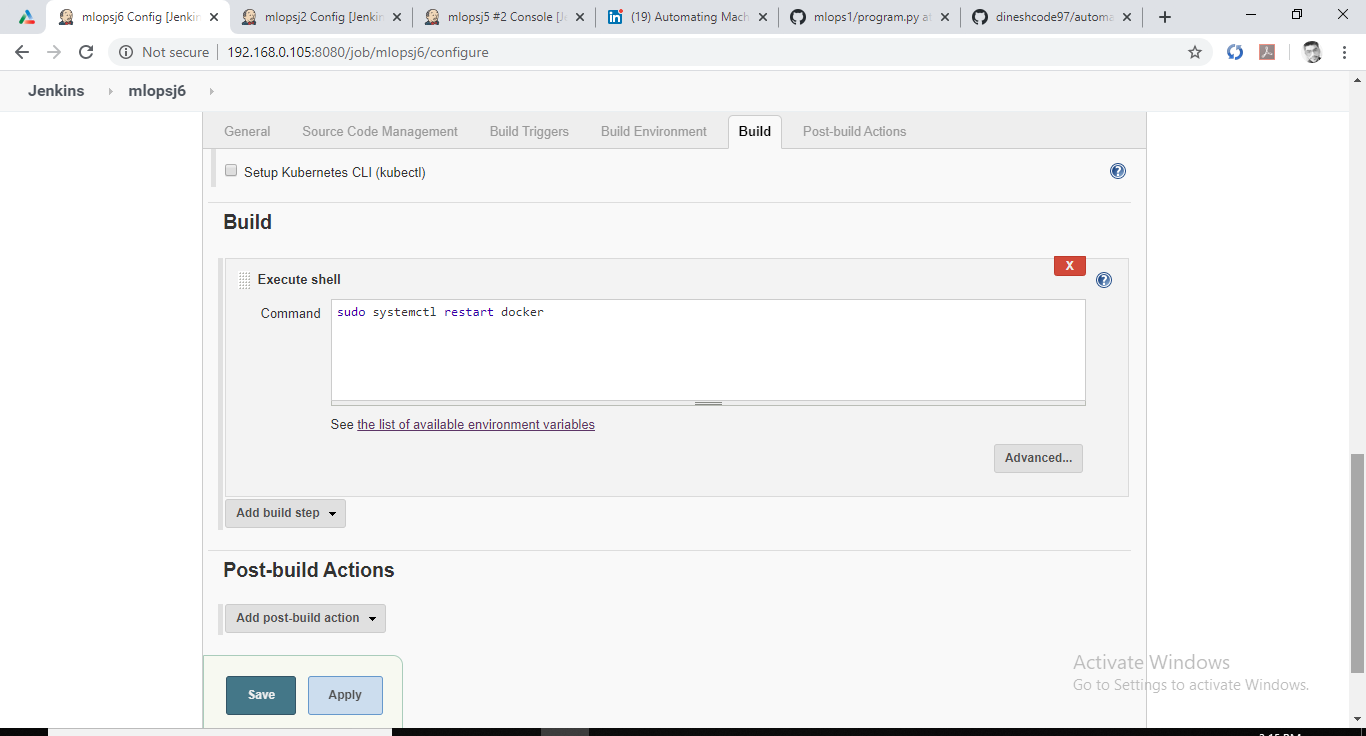
1. Create a new job mlopsj6
2. Select build after project is build and select radio button trigger only if build is unstable

mlopsj2 if this job fail by any reason the it run job6(mlopsj6)

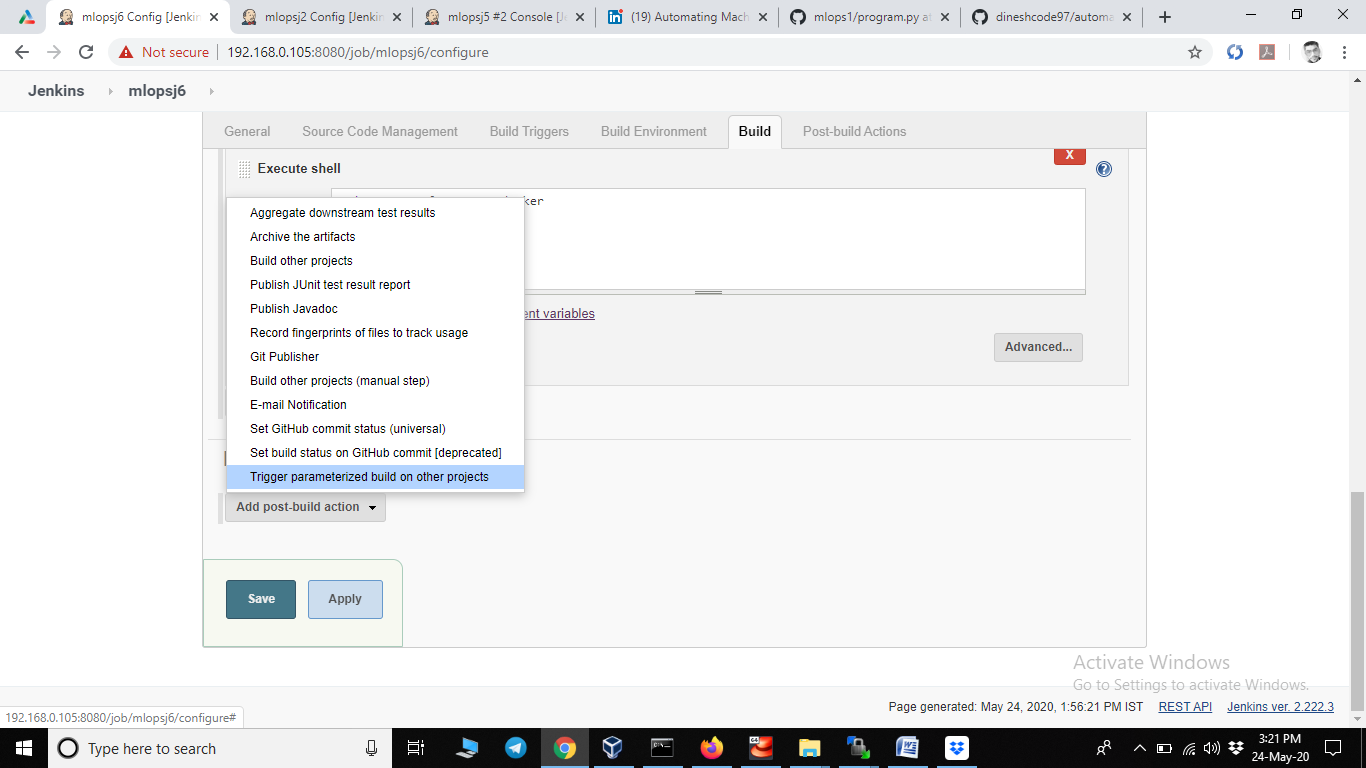


1. In build select execute shell write this command

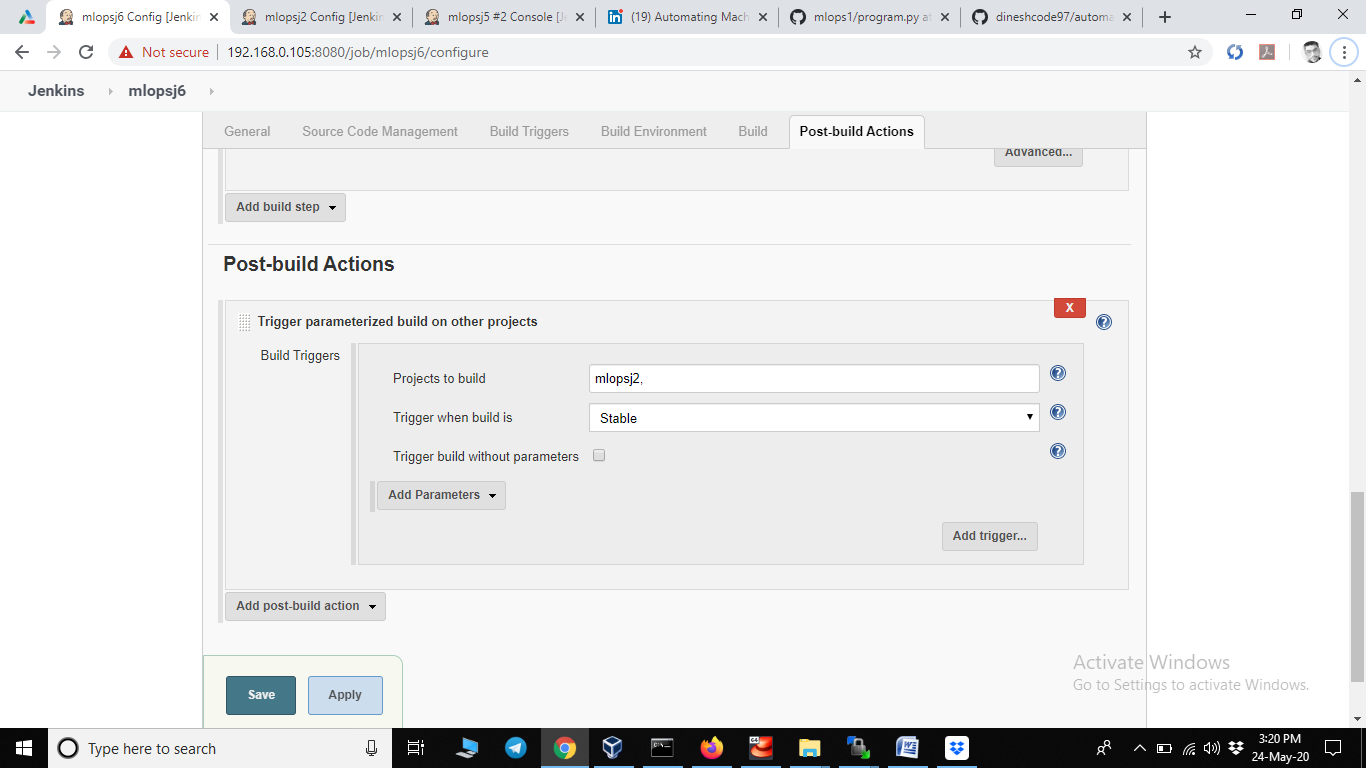
sudo systemctl restart docker #restart the docker service



1. In post build action select trigger parameterized build on other project



1. In project to build enter job name(mlopsj2) you want to build after this job
2. Select stable if you want to build this job if job6 is stable



1. Click on save button
2. Run job 1 it will automatically run other jobs according to chaining we set

Thankyou For Reading

Hope you all like it

Always a big thanks

To

Mr. Vimal Daga Sir