RECON VIRTUAL MATCH ML PACK DEPLOYMENT INSTRUCTIONS – WINDOWS

STEP 1: PYTHON INSTALLATION

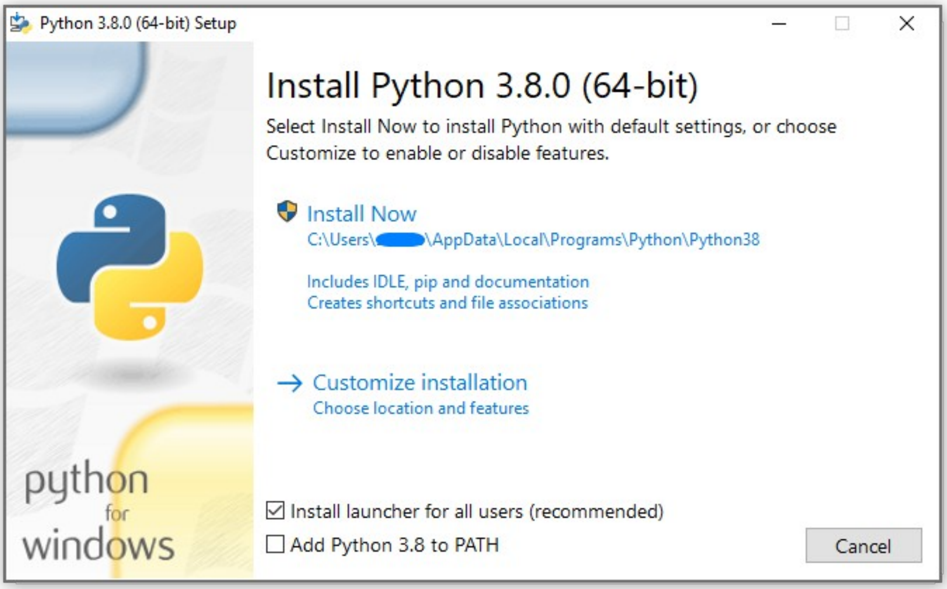
ONLINE :
* Python 3.8 should be installed initially. Download python3.8 (preferred 3..8.10) exe file from the official website. Added link in below and this may change based on their site maintanence

link : **https://www.python.org/downloads/release/python-3810/**

OFFLINE :
* you can get the python installation exe file from Dependencies folder and follow the below

* double tap to click install and check **add python 3.8 add to path and** click **Install Now.** Now click install for all users and continue steps further.

* Note down the **path of installing** while installing. This path should be used during the environment variable setup



Install Python 3.8.0 (64-bit)

Select Install Now to install Python with default settings, or choose Customize to enable or disable features.

Install Now
C:\Users\[redacted]\AppData\Local\Programs\Python\Python38

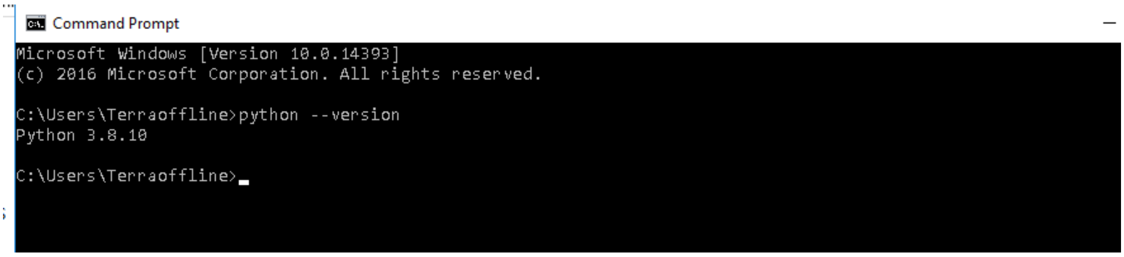
Includes IDLE, pip and documentation
Creates shortcuts and file associations

→ Customize installation
Choose location and features

☑ Install launcher for all users (recommended)
☐ Add Python 3.8 to PATH

* To check whether it is installed or not, open command prompt and type below to validate

~$ **python –version**



```
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Terraoffline>python --version
Python 3.8.10

C:\Users\Terraoffline>_
```

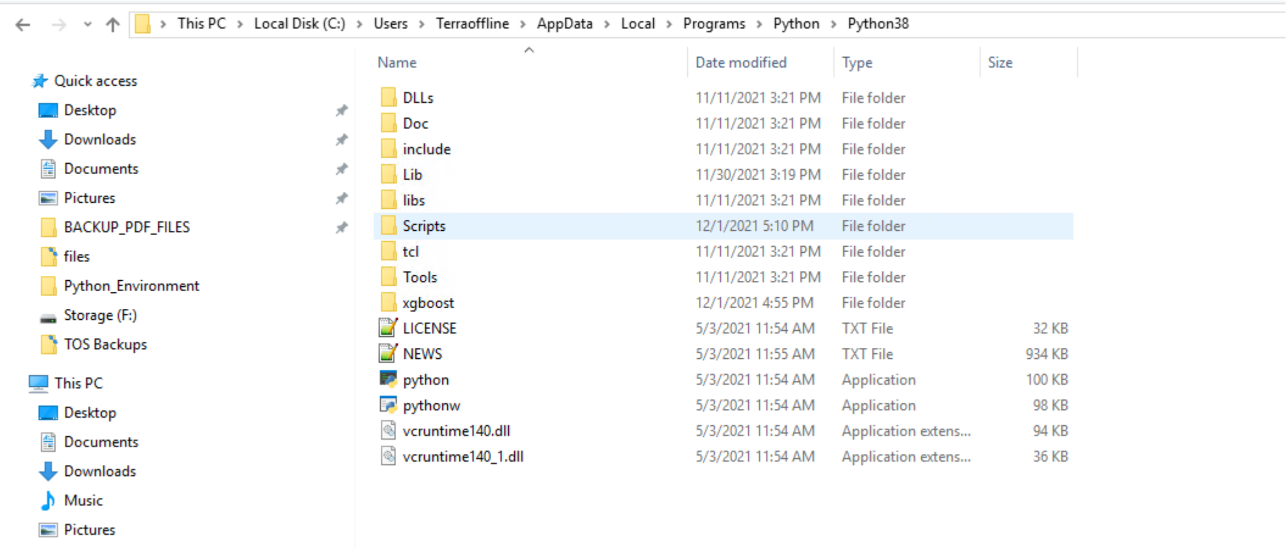
* If you get **errors**, try adding path’s manually to windows environment variables. For this you’ve to find the python installation path in C drive.

RECON VIRTUAL MATCH ML PACK DEPLOYMENT INSTRUCTIONS – WINDOWS

Go to --> mycomputer -right click --> properties --> advanced system settings --> environment variables --> system variables

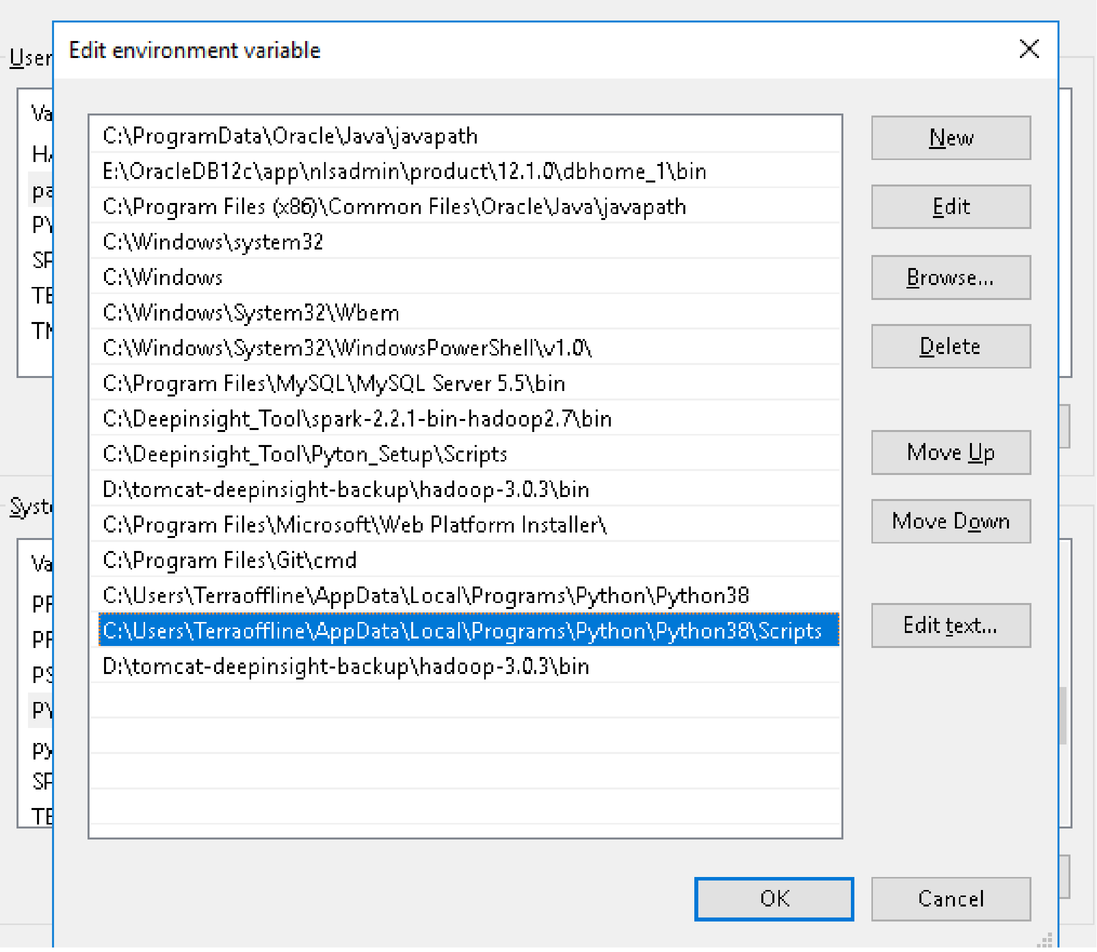
1) In system variables click on **path** and add the path you've installed python & Scripts folder

ex : C:\Users\Terraoffline\AppData\Local\Programs\Python\Python38
C:\Users\Terraoffline\AppData\Local\Programs\Python\Python38\Scripts



This PC > Local Disk (C:) > Users > Terraoffline > AppData > Local > Programs > Python > Python38

Name	Date modified	Type	Size
DLLs	11/11/2021 3:21 PM	File folder	
Doc	11/11/2021 3:21 PM	File folder	
include	11/11/2021 3:21 PM	File folder	
Lib	11/30/2021 3:19 PM	File folder	
libs	11/11/2021 3:21 PM	File folder	
Scripts	12/1/2021 5:10 PM	File folder	
tcl	11/11/2021 3:21 PM	File folder	
Tools	11/11/2021 3:21 PM	File folder	
xgboost	12/1/2021 4:55 PM	File folder	
LICENSE	5/3/2021 11:54 AM	TXT File	32 KB
NEWS	5/3/2021 11:55 AM	TXT File	934 KB
python	5/3/2021 11:54 AM	Application	100 KB
pythonw	5/3/2021 11:54 AM	Application	98 KB
vcruntime140.dll	5/3/2021 11:54 AM	Application extens...	94 KB
vcruntime140_1.dll	5/3/2021 11:54 AM	Application extens...	36 KB



Edit environment variable

```
C:\ProgramData\Oracle\Java\javapath
E:\OracleDB12c\app\nlsadmin\product\12.1.0\dbhome_1\bin
C:\Program Files (x86)\Common Files\Oracle\Java\javapath
C:\Windows\system32
C:\Windows
C:\Windows\System32\Wbem
C:\Windows\System32\WindowsPowerShell\v1.0\
C:\Program Files\MySQL\MySQL Server 5.5\bin
C:\Deepinsight_Tool\spark-2.2.1-bin-hadoop2.7\bin
C:\Deepinsight_Tool\Pyton_Setup\Scripts
D:\tomcat-deepinsight-backup\hadoop-3.0.3\bin
C:\Program Files\Microsoft\Web Platform Installer\
C:\Program Files\Git\cmd
C:\Users\Terraoffline\AppData\Local\Programs\Python\Python38
C:\Users\Terraoffline\AppData\Local\Programs\Python\Python38\Scripts
D:\tomcat-deepinsight-backup\hadoop-3.0.3\bin
```

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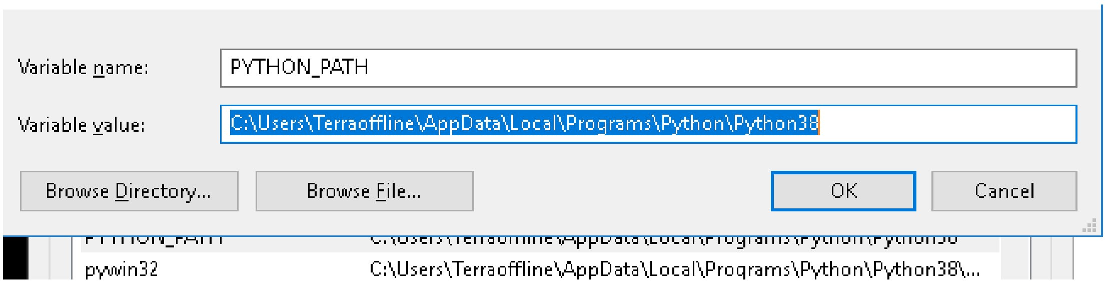
In environment variable click new and add python installed source path as python path

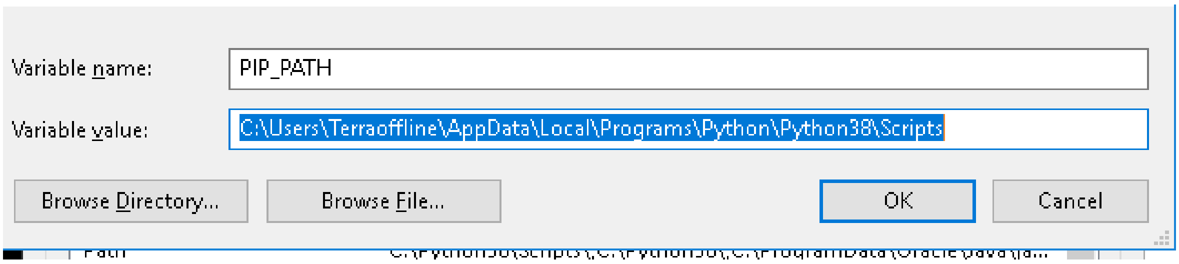


Variable name: PYTHON_PATH

Variable value: C:\Users\Terraoffline\AppData\Local\Programs\Python\Python38

pywin32 C:\Users\Terraoffline\AppData\Local\Programs\Python\Python38\...

add one more variable, In python source path you may find Scripts folder add that folder as PIP_PATH



Variable name: PIP_PATH

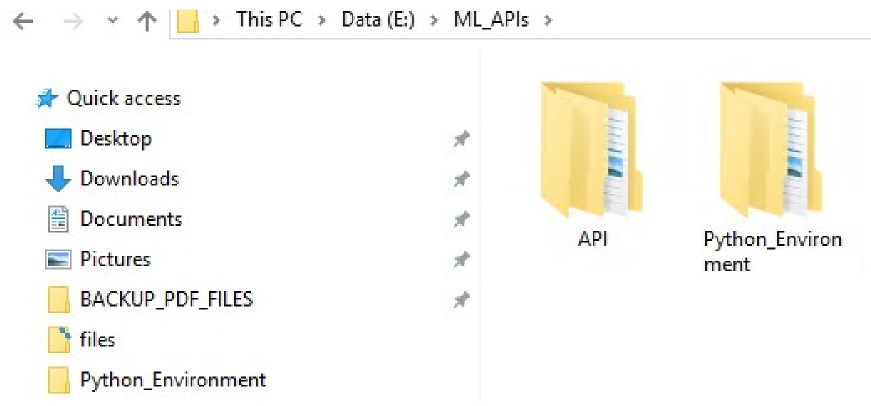
Variable value: C:\Users\Terraoffline\AppData\Local\Programs\Python\Python38\Scripts

Save and do check now. You may able to get the python version in cmd.

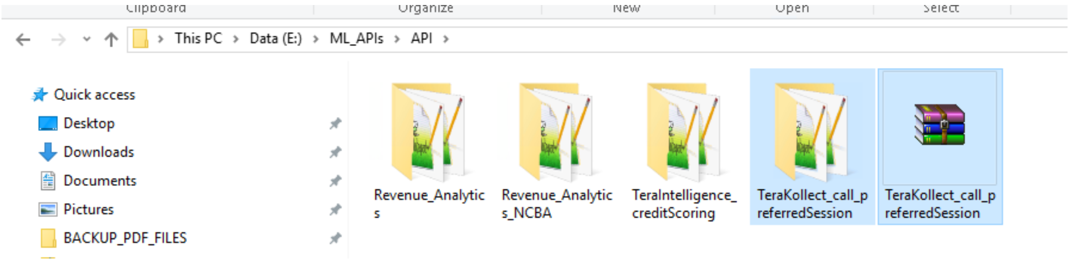
STEP 2: FOLDER STRUCTURE

* To create the folder structure go to the respective path you’ve allocated for installation and create a following directory

* API *Python_Environments



In API folder paste the source file and extract the file



Clipboard
Organize
New
Open
Select
This PC › Data (E:) › ML_APIs › API ›
Quick access
Desktop
Downloads
Documents
Pictures
BACKUP_PDF_FILES
Revenue_Analytics
Revenue_Analytics_NCBA
TeraIntelligence_creditScoring
TeraKollect_call_preferredSession
TeraKollect_call_preferredSession

RECON VIRTUAL MATCH ML PACK DEPLOYMENT INSTRUCTIONS – WINDOWS

STEP 3: GIT TERMINAL SETUP

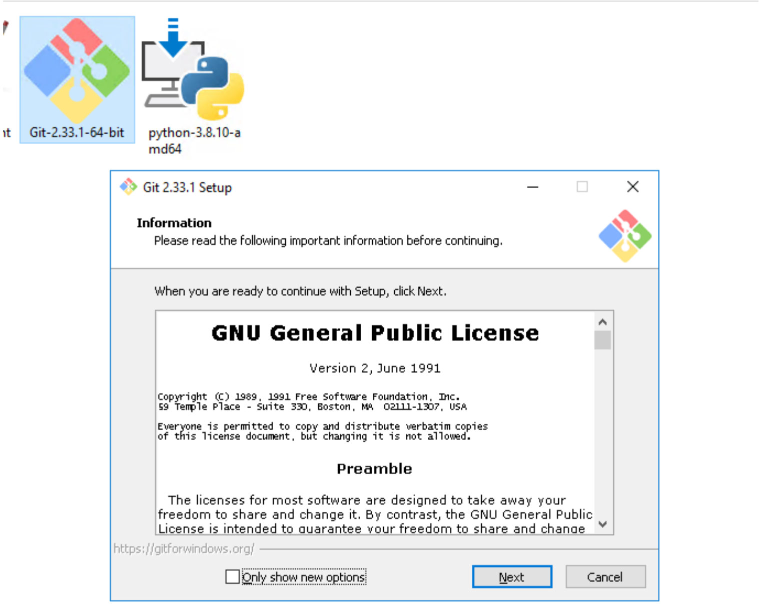
ONLINE :

* Download the git terminal using below link and do install it. Do search for Git Bash and open the terminal

Link : **https://git-scm.com/downloads**

OFFLINE :

* you can get the git installation exe file from Dependencies folder and install, do search for Git Bash and open the terminal



Information

Please read the following important information before continuing.

When you are ready to continue with Setup, click Next.

GNU General Public License

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place - Suite 330, Boston, MA 02111-1307, USA

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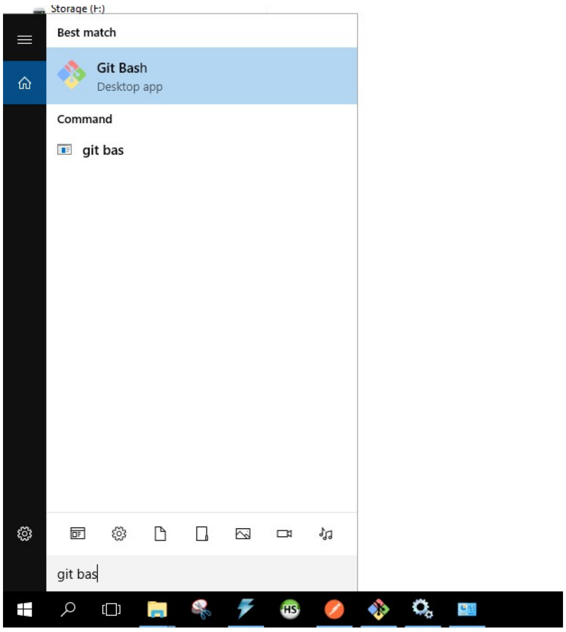
Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change



STEP 4: ENVIRONMENT SETUP

* Create the virtual environment and install necessory libraries to the respective enviroment. To create the virtual environmet,first to install virtual environment setup
* Go to project directory

```
~$  cd E:/ML_APIs/API/Recon_VirtualMatch_SBM
```

* Move to Dependency directory

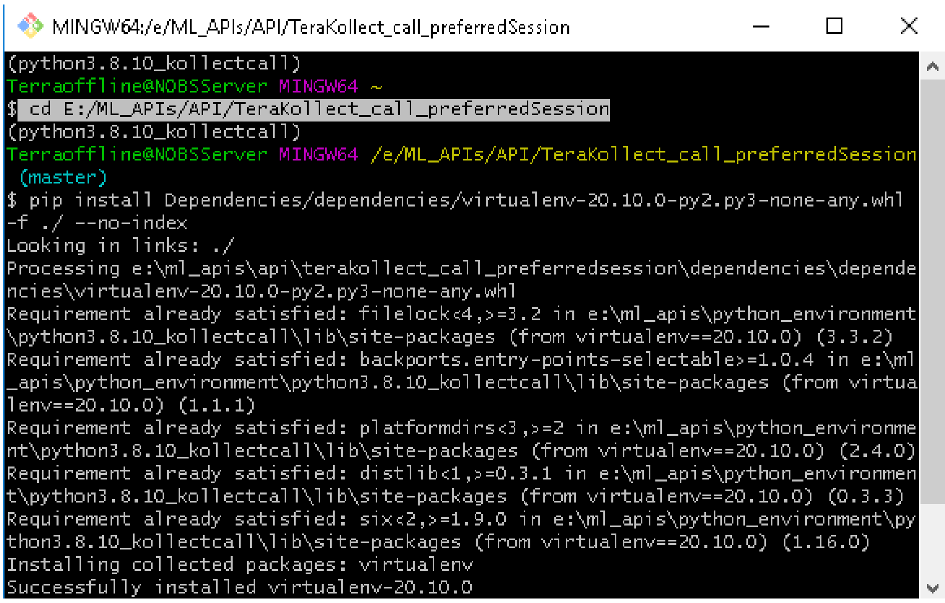
```
~$ cd Dependencies/dependencies
```

* To install the dependencies

```
~$ pip install * -f ./ --no-index
```

* To install virtual environment from local

```
~$  pip install virtualenv-20.19.0-py3-none-any.whl -f ./ --no-index
```



```
(python3.8.10_kollectcall)
Terraoffline@NOBSServer MINGW64 ~
$ cd E:/ML_APIs/API/TeraKollect_call_preferredSession
(python3.8.10_kollectcall)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/API/TeraKollect_call_preferredSession
 (master)
$ pip install Dependencies/dependencies/virtualenv-20.10.0-py2.py3-none-any.whl
-f ./ --no-index
Looking in links: ./
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
ncies\virtualenv-20.10.0-py2.py3-none-any.whl
Requirement already satisfied: filelock<4,>=3.2 in e:\ml_apis\python_environment
\python3.8.10_kollectcall\lib\site-packages (from virtualenv==20.10.0) (3.3.2)
Requirement already satisfied: backports.entry-points-selectable>=1.0.4 in e:\ml
_apis\python_environment\python3.8.10_kollectcall\lib\site-packages (from virtua
lenv==20.10.0) (1.1.1)
Requirement already satisfied: platformdirs<3,>=2 in e:\ml_apis\python_environme
nt\python3.8.10_kollectcall\lib\site-packages (from virtualenv==20.10.0) (2.4.0)
Requirement already satisfied: distlib<1,>=0.3.1 in e:\ml_apis\python_environmen
t\python3.8.10_kollectcall\lib\site-packages (from virtualenv==20.10.0) (0.3.3)
Requirement already satisfied: six<2,>=1.9.0 in e:\ml_apis\python_environment\py
thon3.8.10_kollectcall\lib\site-packages (from virtualenv==20.10.0) (1.16.0)
Installing collected packages: virtualenv
Successfully installed virtualenv-20.10.0
```

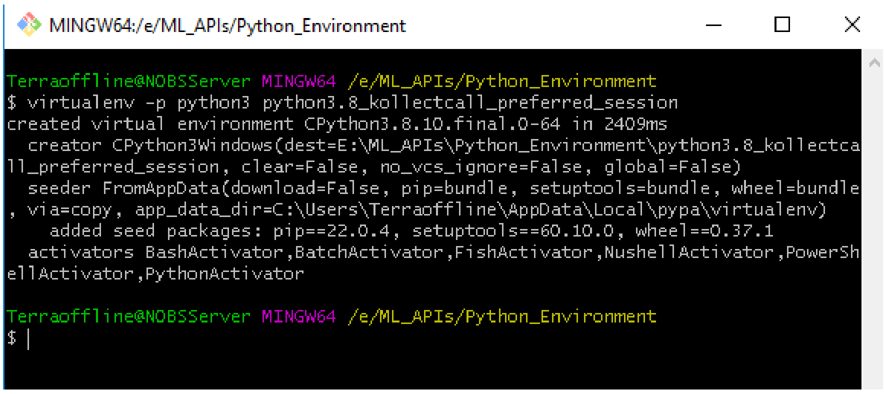
and followed by to create the virtual environment in Python_Environment folder we've created. Navigate to python environment folder using below command

~$ **cd E:/ML_APIs/Python_Environment**

and to install python environment

~$ **python -m virtualenv python3.8.10_recon_virtualmatch_sbm**

here navigated to Python_Environments path for installing python environment and python3.8_kollectcall_preferred_session is the environment name



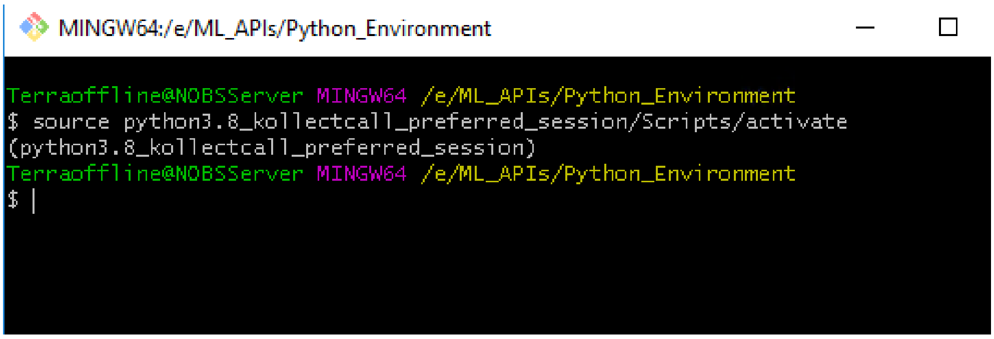
```
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/Python_Environment
$ virtualenv -p python3 python3.8_kollectcall_preferred_session
created virtual environment CPython3.8.10.final.0-64 in 2409ms
  creator CPython3Windows(dest=E:\ML_APIs\Python_Environment\python3.8_kollectca
ll_preferred_session, clear=False, no_vcs_ignore=False, global=False)
  seeder FromAppData(download=False, pip=bundle, setuptools=bundle, wheel=bundle
, via=copy, app_data_dir=C:\Users\Terraoffline\AppData\Local\pypa\virtualenv)
    added seed packages: pip==22.0.4, setuptools==60.10.0, wheel==0.37.1
  activators BashActivator,BatchActivator,FishActivator,NushellActivator,PowerSh
ellActivator,PythonActivator

Terraoffline@NOBSServer MINGW64 /e/ML_APIs/Python_Environment
$ |
```

once the environment installed you may find the folder in the respective path you've mentioned

* To activate the created python environment

~$ **source python3.8.10_recon_virtualmatch_sbm/Scripts/activate**

RECON VIRTUAL MATCH ML PACK DEPLOYMENT INSTRUCTIONS – WINDOWS

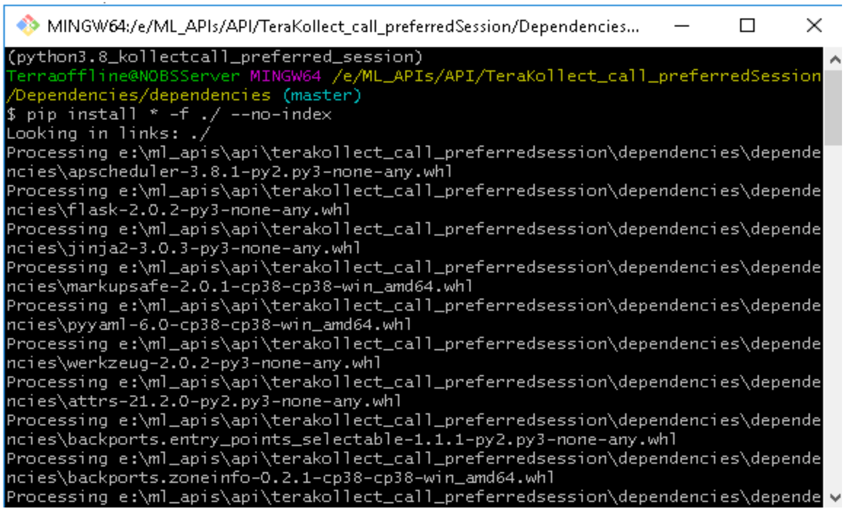


```
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/Python_Environment
$ source python3.8_kollectcall_preferred_session/Scripts/activate
(python3.8_kollectcall_preferred_session)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/Python_Environment
$ |
```

Here we navigated to python environment directory and then /Scripts/activate will activate your environment. you may find the environment name in terminal

* Now install the necessary libraries created environment. first navigate to project directory we've extracted and in that find requirement folder & in that requirement.txt have the all the necessary libraries

~$ **cd E:/ML_APIs/API/Recon_VirtualMatch_SBM/Dependencies/dependencies**
~$ **pip install * -f ./ --no-index**



MINGW64:/e/ML_APIs/API/TeraKollect_call_preferredSession/Dependencies...

```
(python3.8_kollectcall_preferred_session)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/API/TeraKollect_call_preferredSession
/Dependencies/dependencies (master)
$ pip install * -f ./ --no-index
Looking in links: ./
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
ncies\apscheduler-3.8.1-py2.py3-none-any.whl
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
ncies\flask-2.0.2-py3-none-any.whl
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
ncies\jinja2-3.0.3-py3-none-any.whl
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
ncies\markupsafe-2.0.1-cp38-cp38-win_amd64.whl
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
ncies\pyyaml-6.0-cp38-cp38-win_amd64.whl
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
ncies\werkzeug-2.0.2-py3-none-any.whl
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
ncies\attrs-21.2.0-py2.py3-none-any.whl
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
ncies\backports.entry_points_selectable-1.1.1-py2.py3-none-any.whl
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
ncies\backports.zoneinfo-0.2.1-cp38-cp38-win_amd64.whl
Processing e:\ml_apis\api\terakollect_call_preferredsession\dependencies\depende
```

it will take some time based on the libraries we've used

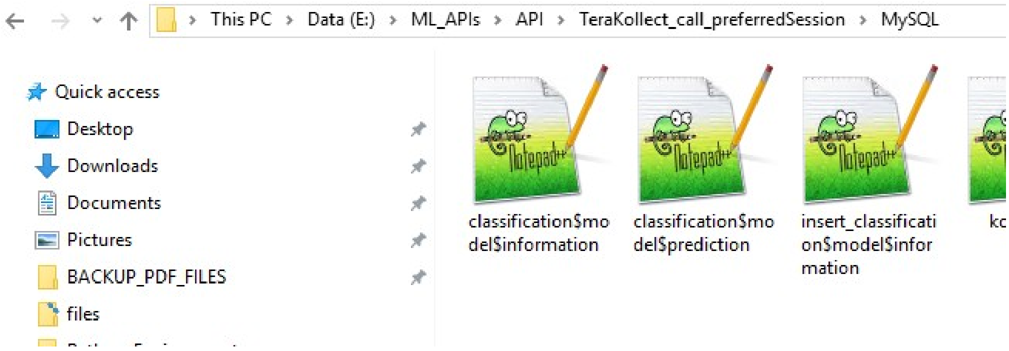
STEP 5: DATABASE PREREQUISITES

* make sure the below tables exist in the database

nostro statement
statement$detail$history
tbl_recon_nostro$unmatched$entry
tbl_recon_nostro$matched$entry
recon$aml$api$status

* In further need two table's to store the model information and input/output details
1) **tbl_recon_nostro$execution$history**
2) **tbl_recon_nostro$virtual$possible$match**

you may find the DDL script in project file under MYSQL folder and do execute the script.


This PC › Data (E:) › ML_APIs › API › TeraKollect_call_preferredSession › MySQL
Quick access
Desktop
Downloads
Documents
Pictures
BACKUP_PDF_FILES
files
classification$model$information
classification$model$prediction
insert_classification$model$information
kc

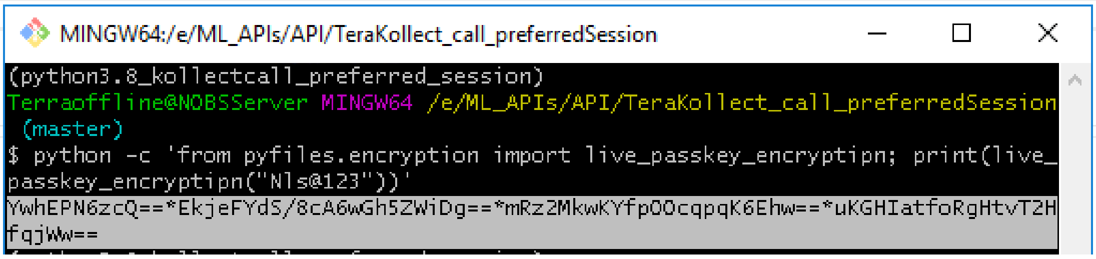
STEP 6: APPLICATION PREREQUISITES

* we are almost done, on last final step to setup is to set up database credentials in config file. To do that in source file go to the config folder and open **config.sh** using notepad. In that change the values as per the requirement

To encrypt the MYSQL password do the below
* Activate the environment as per above commands
* Nagavigate to project directory using above guidance
and do the follow

~$ **source config/config.sh**

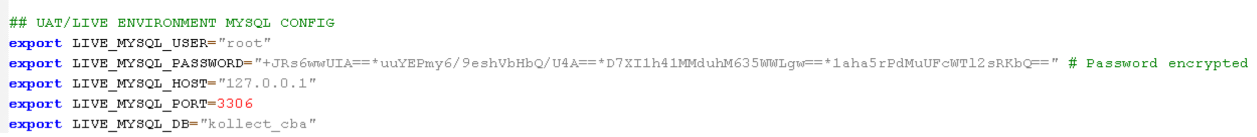
~$ **python -c 'from pyfiles.encryption import live_passkey_encryption; print(live_passkey_encryption("PASSWORD_STRING"))'**



```
(python3.8_kollectcall_preferred_session)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/API/TeraKollect_call_preferredSession
 (master)
$ python -c 'from pyfiles.encryption import live_passkey_encryptipn; print(live_
passkey_encryptipn("Nls@123"))'
YwhEPN6zcQ==*EkjeFYdS/8cA6wGh5ZWiDg==*mRzZMkwKYfpOOcqpqK6Ehw==*uKGHIatfoRgHtvT2H
fqjWw==
```

Replace password string with the respective password and enter you will get the encrypted string . Replace the encrypted string with LIVE_MYSQL_PASSWORD string

export LIVE_MYSQL_USER="root"
export LIVE_MYSQL_PASSWORD=”Rs6wIA==*uuYEPmy6/9eshVbHbQ/U4A" # Password encrypted
export LIVE_MYSQL_HOST="127.0.0.1"
export LIVE_MYSQL_PORT=3306
export LIVE_MYSQL_DB="recon_sbm"

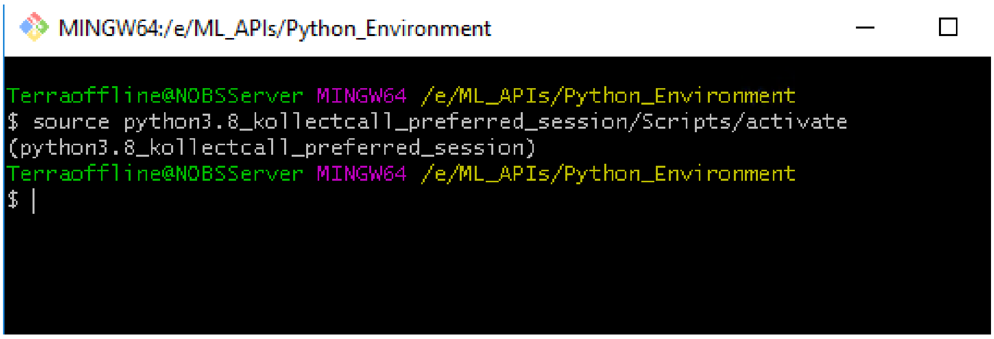


```
## UAT/LIVE ENVIRONMENT MYSQL CONFIG
export LIVE_MYSQL_USER="root"
export LIVE_MYSQL_PASSWORD="+JRs6wwUIA==*uuYEPmy6/9eshVbHbQ/U4A==*D7XI1h41MMduhM635WWLgw==*1aha5rPdMuUFcWTl2sRKbQ==" # Password encrypted
export LIVE_MYSQL_HOST="127.0.0.1"
export LIVE_MYSQL_PORT=3306
export LIVE_MYSQL_DB="kollect_cba"
```

STEP 7 : RUN OUR APPLICATION

* To run our application first to active the python environment we've created initially. To active the environment navigate the respective directory and do activate

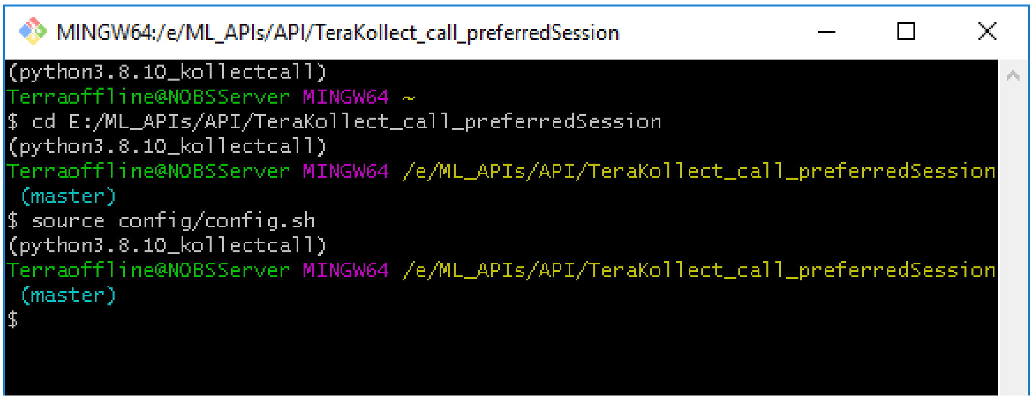
~$ **cd E:/ML_APIs/Python_Environment**
~$ source python3.8.10_recon_virtualmatch_sbm/Scripts/activate



```
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/Python_Environment
$ source python3.8_kollectcall_preferred_session/Scripts/activate
(python3.8_kollectcall_preferred_session)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/Python_Environment
$ |
```

* Next, to active the configuration files which has the DB related information. To active the config file navigate to project directory and execute below commands

~ $ **cd E:/ML_APIs/API/ Recon_VirtualMatch_SBM**
~$ **source config/config.sh**



```
(python3.8.10_kollectcall)
Terraoffline@NOBSServer MINGW64 ~
$ cd E:/ML_APIs/API/TeraKollect_call_preferredSession
(python3.8.10_kollectcall)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/API/TeraKollect_call_preferredSession
 (master)
$ source config/config.sh
(python3.8.10_kollectcall)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/API/TeraKollect_call_preferredSession
 (master)
$
```

* To exceute the application as background process

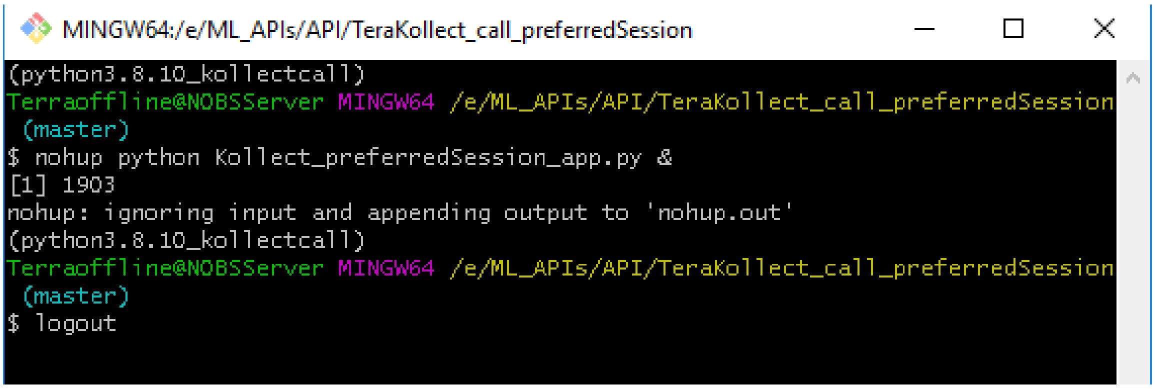
~$ **nohup python Recon_virtualMatch_app.py &**

and type

~$ **logout**

and close terminal and execute the process in background

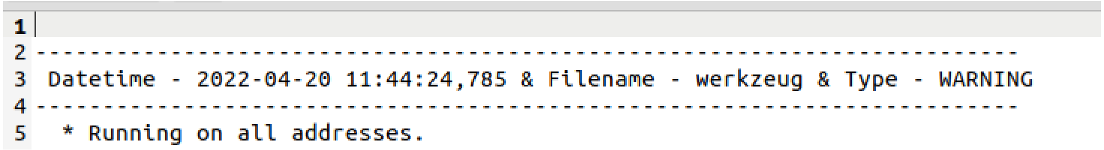
RECON VIRTUAL MATCH ML PACK DEPLOYMENT INSTRUCTIONS – WINDOWS



```
(python3.8.10_kollectcall)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/API/TeraKollect_call_preferredSession
 (master)
$ nohup python Kollect_preferredSession_app.py &
[1] 1903
nohup: ignoring input and appending output to 'nohup.out'
(python3.8.10_kollectcall)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/API/TeraKollect_call_preferredSession
 (master)
$ logout
```

STEP 8: VALIDATE APPLICATION RUNNING OR NOT

* once application is up, the application creates the log files in source file directory under folder log named **errorlog.log.** You may open using notepad and see the latest time you've started the application.



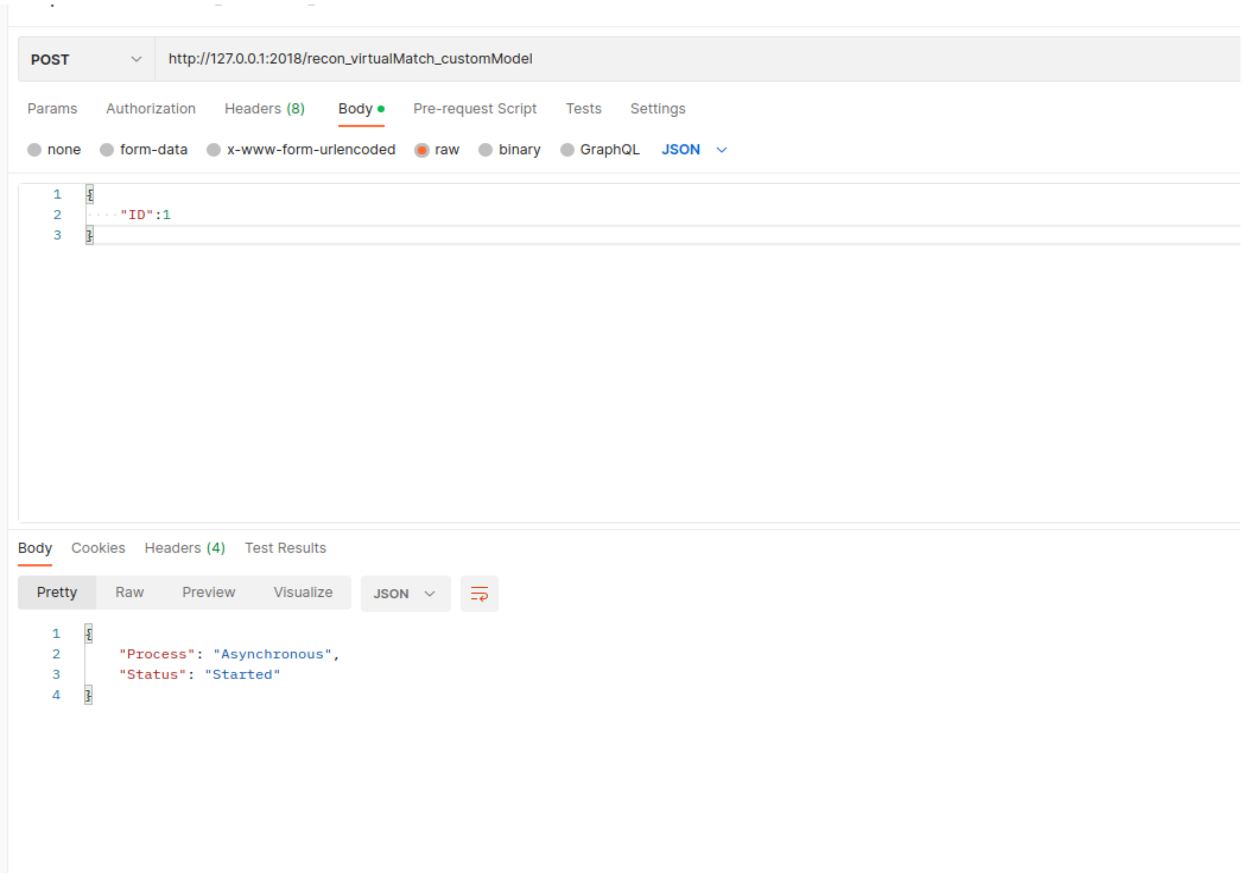
```

-----------------------------------------------------------------
 Datetime - 2022-04-20 11:44:24,785 & Filename - werkzeug & Type - WARNING
-----------------------------------------------------------------
  * Running on all addresses.
```

* In another way we may pass the respective url and input details in postman to get our respective output

METHOD TYPE : post
URL: http://127.0.0.1:2018/recon_virtualMatch_customModel
INPUT: {

```
INPUT: {
            "ID":1
      }
```

make sure the ID exist in the **recon$aml$api$status** table



POST http://127.0.0.1:2018/recon_virtualMatch_customModel

```
{
    "ID":1
}
```

```
{
    "Process": "Asynchronous",
    "Status": "Started"
}
```

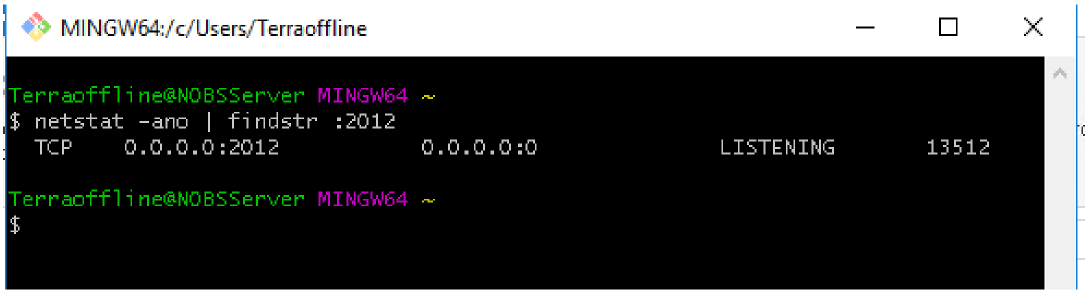
* FURTHER VERSION’S DEPLOYMENT

In the above we’ve seen how to deploy the fresh version.here quickly brief how to deploy the next and further releases

* Extract the latest file to the destination folder
* Activate the respective python environment using above commands
* navigate to the repective project directory in terminal

* First step to terminate the process we’ve executed already in past. We’re running our application in port no **2018** and going to kill our process using port number. To do that in cmd

~$ **netstat -ano | findstr :2018**

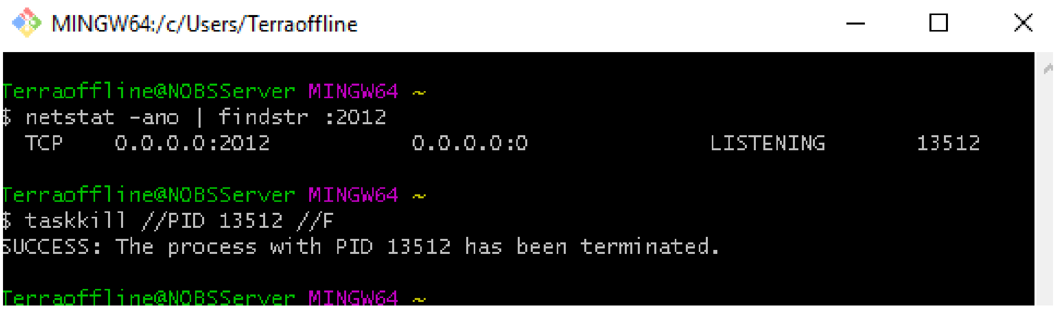


```
Terraoffline@NOBSServer MINGW64 ~
$ netstat -ano | findstr :2012
  TCP    0.0.0.0:2012           0.0.0.0:0              LISTENING       13512

Terraoffline@NOBSServer MINGW64 ~
$
```

and using the above PID (**13512**) we have to kill the process. (Some times it may show multiple PID we have to kill all). To double check execute the cmd again and again till it is empty

To kill the PID

~$ **taskkill //PID 13512 //F**



```
Terraoffline@NOBSServer MINGW64 ~
$ netstat -ano | findstr :2012
  TCP    0.0.0.0:2012           0.0.0.0:0              LISTENING       13512

Terraoffline@NOBSServer MINGW64 ~
$ taskkill //PID 13512 //F
SUCCESS: The process with PID 13512 has been terminated.

Terraoffline@NOBSServer MINGW64 ~
```

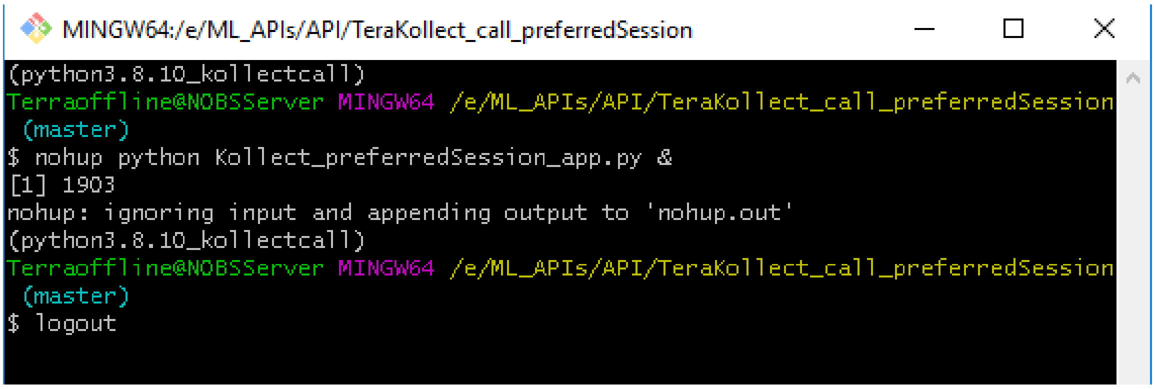
To Run our application again
Do navigate to environment and activate it & navigate to project directory

~$ **nohup python Recon_virtualMatch_app.py &**

and type

~$ **logout**

and close terminal and execute the process in background



```
(python3.8.10_kollectcall)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/API/TeraKollect_call_preferredSession
 (master)
$ nohup python Kollect_preferredSession_app.py &
[1] 1903
nohup: ignoring input and appending output to 'nohup.out'
(python3.8.10_kollectcall)
Terraoffline@NOBSServer MINGW64 /e/ML_APIs/API/TeraKollect_call_preferredSession
 (master)
$ logout
```

and this need's to be validated further, whether the application running or not using the above methods mentioned