FINALCODE

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| DATE | 15.11.2022 |
| TEAM ID | PNT2022TMID44153 |
| PROJECTNAME | SmartsolutionsforRailways |

CODE:

# Import common librariesimport numpy as npimportpandasaspd

importmatplotlib.pyplotasplt

#Importthe PyGeohydrolibaraytoolsimportpygeohydroasgh

frompygeohydroimportSSFR,plot

#Usethesmartsolutionforrailways(SSFR)ssfr =SSFR()

#Specify date rangeofinterest

dates=("2020-01-01","2020-12-31")

#Filterstationsto haveonlythosewith properdates

stations=info\_box[(info\_box.begin\_date<=dates[0])&(info\_box.end\_date>=dates[1])].site\_no.tolist()

#Removeduplicatesbyconvertingtoasetstations= set(stations)

#Specifycharacteristicsofinterest

select\_attributes = journey time ,train announcement , waitingarrangement,securityinthestation,seatcondition

#Initializeastoragematrix

nldi\_data=np.zeros((len(flow\_data.columns),len(select\_attributes)))

#Loop throughallgages,and requestNLDIdata neareach gagefori,stinenumerate(flow\_data.columns):

#Navigateupallflowlinesfromgage

flowlines=NLDI().navigate\_byid(fsource='nwissite',

fid = f'{st}',navigation="upstreamTributaries",source='flowlines',

distance=10)

#Getthenearestcomid

station\_comid=flowlines.nhdplus\_comid.to\_list()[0]

#SourceNLDIlocaldata

nldi\_data[i,:]=NLDI().getcharacteristic\_byid(station\_comid,"local",char\_ids=select\_attributes)