

SPRINT-3

Date	15 November 2022
Team ID	PNT2022TMID29712
Project Name	SMART SOLUTION FOR RAILWAYS

PYTHON CODE:

```
#modules import
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random
from datetime import datetime

#Provide your IBM Watson Device Credentials
organization = "2ayt7j"
deviceType = "IoT"
deviceId = "95509404"
authMethod = "token"
authToken = "77087672"

#cheran exp 12673
def Cheran_express():
    if T in range(1290,1320):
        result="CURRENT RUNNING STATUS : About to Start from MGR Chennai Central " ;
    elif T==1320:
        result="CURRENT RUNNING STATUS : Started from MGR Chennai Central";
    elif T in range(1321,1380):
        result="CURRENT RUNNING STATUS : About to Reach Arakkonam Junction";
    elif T==1380:
        result="CURRENT RUNNING STATUS : Train reached Arakkonam Junction";
```

```
elif T in range(1381,1439) or T in range(0,65):

    result="CURRENT RUNNING STATUS : Train crossed Arakkonam Junction and about to reach
Jolarpettai Junction";

elif T==65:

    result="CURRENT RUNNING STATUS : Train reached Jolarpettai Junction";

elif T in range(66,170):

    result="CURRENT RUNNING STATUS : Train crossed Jolarpettai Junction and about to reach
Salem Junction";

elif T==170:

    result="CURRENT RUNNING STATUS : Train reached Salem Junction";

elif T in range(171,230):

    result="CURRENT RUNNING STATUS : Train crossed Salem Junction and about to reach Erode
Junction";

elif T==230:

    result="CURRENT RUNNING STATUS : Train reached Erode Junction ";

elif T in range(231,275):

    result="CURRENT RUNNING STATUS : Train crossed Erode Junction and about to reach
Tiruppur ";

elif T==275:

    result="CURRENT RUNNING STATUS : Train reached Tiruppur Junction ";

elif T in range(276,330):

    result="CURRENT RUNNING STATUS : Train crossed Tiruppur Junction and about to reach
Coimbatore North";

elif T==330:

    result="CURRENT RUNNING STATUS : Train reached Coimbatore North ";

elif T in range(331,360):

    result="CURRENT RUNNING STATUS : Train crossed Coimbatore North and about to reach
Coimbatore Junction";

elif T==360:

    result="CURRENT RUNNING STATUS : Train reached Coimbatore Junction";

else :

    result="CURRENT RUNNING STATUS : Train reached Coimbatore Junction at 06:00 and Yet to
start from MGR Chennai Central at 22:00 ";
```

```

return result

#Nilagiri express 12671
def Nilagiri_express():
    if T in range(1235,1265):
        result="CURRENT RUNNING STATUS : About to Start from MGR Chennai Central by 21:05 " ;
    elif T==1265:
        result="CURRENT RUNNING STATUS : Starts from MGR Chennai Central";
    elif T in range(1266,1325):
        result="CURRENT RUNNING STATUS : Started from MGR Chennai Central and About to Reach Arakkonam Junction";
    elif T==1325:
        result="CURRENT RUNNING STATUS : Train reached Arakkonam Junction";
    elif T in range(1326,1375):
        result="CURRENT RUNNING STATUS : Train crossed Arakkonam Junction and about to reach Katpadi Junction";
    elif T==1375:
        result="CURRENT RUNNING STATUS : Train reached Katpadi Junction";
    elif T in range(1376,1440) or T in range(0,110) :
        result="CURRENT RUNNING STATUS : Train crossed Katpadi Junction and about to reach Salem Junction";
    elif T==110:
        result="CURRENT RUNNING STATUS : Train reached Salem Junction";
    elif T in range(111,180):
        result="CURRENT RUNNING STATUS : Train crossed Salem Junction and about to reach Erode Junction";
    elif T==180:
        result="CURRENT RUNNING STATUS : Train reached Erode Junction ";
    elif T in range(181,225):
        result="CURRENT RUNNING STATUS : Train crossed Erode Junction and about to reach Tiruppur ";
    elif T==225:

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    result="CURRENT RUNNING STATUS : Train reached Tiruppur Junction ";
elif T in range(226,270):
    result="CURRENT RUNNING STATUS : Train crossed Tiruppur Junction and about to reach
Coimbatore North";
elif T==270:
    result="CURRENT RUNNING STATUS : Train reached Coimbatore North ";
elif T in range(271,320):
    result="CURRENT RUNNING STATUS : Train crossed Coimbatore North and about to reach
Coimbatore Junction";
elif T==320:
    result="CURRENT RUNNING STATUS : Train reached Coimbatore Junction";
elif T in range(321,375):
    result="CURRENT RUNNING STATUS : Train crossed Coimbatore Junction and about to reach
Mettupalayam ";
elif T==375:
    result="CURRENT RUNNING STATUS : Train reached Mettupalayam";
elif T in range(376,406):
    result="CURRENT RUNNING STATUS : Train reached Mettupalayam at 06:15";
else :
    result="CURRENT RUNNING STATUS : Train reached Mettupalayam at 06:15 and Yet to start
from MGR Chennai Central at 21:05 ";
    return result
#Kovai express1 12675
def Kovai_express():
    if T in range(340,370):
        result="CURRENT RUNNING STATUS : About to Start from MGR Chennai Central by 06:10 ";
    elif T==370:
        result="CURRENT RUNNING STATUS : Starts from MGR Chennai Central";
    elif T in range(371,430):
        result="CURRENT RUNNING STATUS : Started from MGR Chennai Central and About to Reach
Arakkonam Junction";
    elif T==430:

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```
result="CURRENT RUNNING STATUS : Train reached Arakkonam Junction";  
elif T in range(431,460):  
    result="CURRENT RUNNING STATUS : Train crossed Arakkonam Junction and about to reach  
Walaja Road Junction";  
elif T==460:  
    result="CURRENT RUNNING STATUS : Train reached Walaja Road Junction";  
elif T in range(461,485):  
    result="CURRENT RUNNING STATUS : Train crossed Walaja Road Junction and about to reach  
Katpadi Junction";  
elif T==485:  
    result="CURRENT RUNNING STATUS : Train reached Katpadi Junction";  
elif T in range(486,525):  
    result="CURRENT RUNNING STATUS : Train crossed Katpadi Junction and about to reach  
Ambur";  
elif T==525:  
    result="CURRENT RUNNING STATUS : Train reached Ambur ";  
elif T in range(526,560):  
    result="CURRENT RUNNING STATUS : Train crossed Ambur and about to reach Jolarpettai  
Junction ";  
elif T==560:  
    result="CURRENT RUNNING STATUS : Train reached Jolarpettai Junction ";  
elif T in range(561,610):  
    result="CURRENT RUNNING STATUS : Train crossed Jolarpettai Junction and about to reach  
Morappur";  
elif T==610:  
    result="CURRENT RUNNING STATUS : Train reached Morappur ";  
elif T in range(611,670):  
    result="CURRENT RUNNING STATUS : Train crossed Morappur and about to reach Salem  
Junction";  
elif T==670:  
    result="CURRENT RUNNING STATUS : Train reached Salem Junction";  
elif T in range(671,730):
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    result="CURRENT RUNNING STATUS : Train crossed Salem Junction and about to reach Erode
Junction ";
    elif T==730:
        result="CURRENT RUNNING STATUS : Train reached Erode Junction";
    elif T in range(731,775):
        result="CURRENT RUNNING STATUS :Train crossed Erode Junction and about to reach
Tiruppur";
    elif T==775:
        result="CURRENT RUNNING STATUS : Train reached Tiruppur";
    elif T in range(776,845):
        result="CURRENT RUNNING STATUS :Train crossed Tiruppur and about to reach Coimbatore
Juntion";
    elif T==845:
        result="CURRENT RUNNING STATUS : Train reached Coimbatore Junction";
    elif T in range(846,876):
        result="CURRENT RUNNING STATUS : Train reached Coimbator Junction at 14:05";
    else :
        result="CURRENT RUNNING STATUS : Train Coimbatore Junction at 14:05 and Yet to start from
MGR Chennai Central at 06:10 ";
    return result

```

#Nagercoil Jn sf express 12689

```
def Nagercoil_JN_SF_Express():
```

```

    if T in range(1110,1140):
        result="CURRENT RUNNING STATUS : About to Start from MGR Chennai Central by 19:00 " ;
    elif T==1140:
        result="CURRENT RUNNING STATUS : Starts from MGR Chennai Central";
    elif T in range(1141,1200):
        result="CURRENT RUNNING STATUS : Started from MGR Chennai Central and About to Reach
Arakkonam Junction";
    elif T==1200:
        result="CURRENT RUNNING STATUS : Train reached Arakkonam Junction";

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```
elif T in range(1200,1250):

    result="CURRENT RUNNING STATUS : Train crossed Arakkonam Junction and about to reach
Katpadi Junction";

elif T==1250:

    result="CURRENT RUNNING STATUS : Train reached Katpadi Junction";

elif T in range(1251,1330):

    result="CURRENT RUNNING STATUS : Train crossed Katpadi Junction and about to reach
Jolarpettai Junction";

elif T==1330:

    result="CURRENT RUNNING STATUS : Train reached Jolarpettai Junction";

elif T in range(1331,1340):

    result="CURRENT RUNNING STATUS : Train crossed Jolarpettai Junction and about to reach
Tirupattur";

elif T==1340:

    result="CURRENT RUNNING STATUS : Train reached Tirupattur ";

elif T in range(1341,1375):

    result="CURRENT RUNNING STATUS : Train crossed Tirupattur and about to reach Morappur";

elif T==1375:

    result="CURRENT RUNNING STATUS : Train reached Morappur ";

elif T in range(1376,1435):

    result="CURRENT RUNNING STATUS : Train crossed Morappur and about to reach Salem
Junction";

elif T==1435:

    result="CURRENT RUNNING STATUS : Train reached Salem Junction";

elif T in range(1436,1440) or T in range(0,50):

    result="CURRENT RUNNING STATUS : Train crossed Salem Junction and about to reach
Namakkal";

elif T==50:

    result="CURRENT RUNNING STATUS : Train reached Namakkal";

elif T in range(51,95):

    result="CURRENT RUNNING STATUS : Train crossed Namakkal and about to reach Karur
Junction ";
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```
elif T==95:

    result="CURRENT RUNNING STATUS : Train reached Karur Junction";

elif T in range(96,190):

    result="CURRENT RUNNING STATUS :Train crossed Karur Junction and about to reach
Tiruchchirappalli Junction";

elif T==190:

    result="CURRENT RUNNING STATUS : Train reached Tiruchchirappalli Junction";

elif T in range(191,255):

    result="CURRENT RUNNING STATUS :Train crossed Tiruchchirappalli Junction and about to
reach Dindigul Junction";

elif T==255:

    result="CURRENT RUNNING STATUS : Train reached Dindigul Junction";

elif T in range(256,275):

    result="CURRENT RUNNING STATUS : Train crossed Dindigul Junction and about to reach
Kodaikanal Road";

elif T==275:

    result="CURRENT RUNNING STATUS : Train reached Kodaikanal Road";

elif T in range(276,340):

    result="CURRENT RUNNING STATUS : Train crossed Kodaikanal Road and about to reach
Madurai Junction";

elif T==340:

    result="CURRENT RUNNING STATUS : Train reached Madurai Junction";

elif T in range(341,375):

    result="CURRENT RUNNING STATUS : Train crossed Madurai Junction and about to reach
Virudunagar Junction";

elif T==375:

    result="CURRENT RUNNING STATUS : Train reached Virudunagar Junction";

elif T in range(376,400):

    result="CURRENT RUNNING STATUS : Train crossed Virudunagar Junction and about to reach
Satur";

elif T==400:

    result="CURRENT RUNNING STATUS : Train reached Satur";
```



```

elif T in range(401,425):
    result="CURRENT RUNNING STATUS : Train crossed Satur and about to reach Kovilpatti";
elif T==425:
    result="CURRENT RUNNING STATUS : Train reached Kovilpatti";
elif T in range(426,540):
    result="CURRENT RUNNING STATUS : Train crossed Kovilpatti and about to reach Tirunelveli Junction";
elif T==540:
    result="CURRENT RUNNING STATUS : Train reached Tirunelveli Junction";
elif T in range(541,650):
    result="CURRENT RUNNING STATUS : Train crossed Tirunelveli Junction and about to reach Nagercoil Junction";
elif T==650:
    result="CURRENT RUNNING STATUS : Train reached Nagercoil Junction ";
elif T in range(651,681):
    result="CURRENT RUNNING STATUS : Train reached Nagercoil Junction at 10:50";
else :
    result="CURRENT RUNNING STATUS : Train reached Nagercoil Junction at 10:50 and Yet to start from MGR Chennai Central at 19:00 ";
return result

#Madurai SF Express 20601
def Madurai_SF_Express():
    if T in range(1320,1350):
        result="CURRENT RUNNING STATUS : About to Start from MGR Chennai Central by 22:30 " ;
    elif T==1350:
        result="CURRENT RUNNING STATUS : Starts from MGR Chennai Central";
    elif T in range(1350,1400) or T in range(0,15):
        result="CURRENT RUNNING STATUS : Started from MGR Chennai Central and About to Reach Katpadi Junction";

```

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elif T==15:
    result="CURRENT RUNNING STATUS : Train reached Katpadi Junction";
elif T in range(16,185):
    result="CURRENT RUNNING STATUS : Train crossed Katpadi Junction and about to reach
Salem Junction";
elif T==185:
    result="CURRENT RUNNING STATUS : Train reached Salem Junction";
elif T in range(186,280):
    result="CURRENT RUNNING STATUS : Train crossed Salem Junction and about to reach Karur
Junction";
elif T==280:
    result="CURRENT RUNNING STATUS : Train reached Karur Junction";
elif T in range(281,360):
    result="CURRENT RUNNING STATUS : Train crossed Karur Junction and about to reach
Dindigul Junction";
elif T==360:
    result="CURRENT RUNNING STATUS : Train reached Dindigul Junction";
elif T in range(361,440):
    result="CURRENT RUNNING STATUS : Train crossed Dindigul Junction and about to reach
Madurai Junction";
elif T==440:
    result="CURRENT RUNNING STATUS : Train reached Madurai Junction";
elif T in range(441,471):
    result="CURRENT RUNNING STATUS : Train reached Madurai Junction at 07:20";
else :
    result="CURRENT RUNNING STATUS : Train reached Madurai Junction at 07:20 and Yet to start
from MGR Chennai Central at 22:30 ";
    return result

```

#MYSURU VANDE BHARAT EXPRESS 20607

```
def MYSURU_Vande_Bharat_Express():
```

```
    if T in range(320,350):
```

```

        result="CURRENT RUNNING STATUS : About to Start from MGR Chennai Central by 05:50 " ;
    elif T==350:
        result="CURRENT RUNNING STATUS : Starts from MGR Chennai Central";
    elif T in range(351,445):
        result="CURRENT RUNNING STATUS : Started from MGR Chennai Central and About to Reach
Katpadi Junction";
    elif T==445:
        result="CURRENT RUNNING STATUS : Train reached Katpadi Junction";
    elif T in range(446,625):
        result="CURRENT RUNNING STATUS : Train crossed Katpadi Junction and about to reach KSR
Bengaluru City Junction";
    elif T==625:
        result="CURRENT RUNNING STATUS : Train reached KSR Bengaluru City Junction";
    elif T in range(626,740):
        result="CURRENT RUNNING STATUS : Train crossed KSR Bengaluru City Junction and about to
reach Mysuru Junction";
    elif T==740:
        result="CURRENT RUNNING STATUS : Train reached Mysuru Junction";
    elif T in range(741,771):
        result="CURRENT RUNNING STATUS : Train reached Mysuru Junction at 12:20";
    else :
        result="CURRENT RUNNING STATUS : Train reached Mysuru Junction at 12:20 and Yet to start
from MGR Chennai Central at 05:50 ";
    return result

```

#Mysuru shatabdi express 12007

```
def MYSURU_Shatabdi_Express():
```

```

    if T in range(330,360):
        result="CURRENT RUNNING STATUS : About to Start from MGR Chennai Central by 06:00" ;
    elif T==360:
        result="CURRENT RUNNING STATUS : Starts from MGR Chennai Central";
    elif T in range(361,460):

```

```

        result="CURRENT RUNNING STATUS : Started from MGR Chennai Central and About to Reach
Katpadi Junction";

    elif T==460:

        result="CURRENT RUNNING STATUS : Train reached Katpadi Junction";

    elif T in range(466,650):

        result="CURRENT RUNNING STATUS : Train crossed Katpadi Junction and about to reach KSR
Bengaluru City Junction";

    elif T==650:

        result="CURRENT RUNNING STATUS : Train reached KSR Bengaluru City Junction";

    elif T in range(651,780):

        result="CURRENT RUNNING STATUS : Train crossed KSR Bengaluru City Junction and about to
reach Mysuru Junction";

    elif T==780:

        result="CURRENT RUNNING STATUS : Train reached Mysuru Junction";

    elif T in range(781,811):

        result="CURRENT RUNNING STATUS : Train reached Mysuru Junction at 01:00";

    else :

        result="CURRENT RUNNING STATUS : Train reached Mysuru Junction at 01:00 and Yet to start
from MGR Chennai Central at 06:00 ";

    return result

```

```

# Initialize GPIO

```

```

# TO get information from cloud to python code

```

```

def myCommandCallback(cmd):

    print("Train no.: %s" % cmd.data['command'])

    status=cmd.data['command']

    if status=="12673":

        tr_name='CHERAN EXPRESS'

        result = Cheran_express()

```

```

data = {'TRAIN_NO': status,'TRAIN_NAME': tr_name,'LOCATION' : result}

def myOnPublishCallback():
    print ("Published location = %s " % result,"to IBM Watson")
    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)

    if not success:
        print("Not connected to IoTF")
elif status=="12671":
    tr_name='NILAGIRI EXPRESS'
    result = Nilagiri_express()
    data = {'TRAIN_NO': status,'TRAIN_NAME': tr_name,'LOCATION' : result}

def myOnPublishCallback():
    print ("Published location = %s " % result,"to IBM Watson")
    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)

    if not success:
        print("Not connected to IoTF")
elif status=="12675":
    tr_name='KOVAI EXPRESS'
    result = Kovai_express()
    data = {'TRAIN_NO': status,'TRAIN_NAME': tr_name,'LOCATION' : result}

def myOnPublishCallback():
    print ("Published location = %s " % result,"to IBM Watson")
    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)

    if not success:

```

```

        print("Not connected to IoT")
elif status=="11679":
    tr_name='CBE INTERCITY'
    result = Cbe_intercity()
    data = {'TRAIN_NO': status,'Train_Name': tr_name,'LOCATION' : result}

    def myOnPublishCallback():
        print ("Published location = %s " % result,"to IBM Watson")
        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)
        if not success:
            print("Not connected to IoT")
elif status=="12689":
    tr_name='NAGERCOIL JN SF EXPRESS'
    result = Nagercoil_JN_SF_Express()
    data = {'TRAIN_NO': status,'TRAIN_NAME': tr_name,'LOCATION' : result}

    def myOnPublishCallback():
        print ("Published location = %s " % result,"to IBM Watson")
        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)

        if not success:
            print("Not connected to IoT")
elif status=="20601":
    tr_name='MADURAI_SF_EXPRESS'
    result = Madurai_SF_Express()
    data = {'TRAIN_NO': status,'TRAIN_NAME': tr_name,'LOCATION' : result}

    def myOnPublishCallback():
        print ("Published location = %s " % result,"to IBM Watson")

```

```
    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,  
on_publish=myOnPublishCallback)
```

```
    if not success:
```

```
        print("Not connected to IoTF")
```

```
elif status=="20607":
```

```
    tr_name='MYSURU VANDHE BHARAT EXPRESS'
```

```
    result = Madurai_SF_Express()
```

```
    data = {'TRAIN_NO': status,'TRAIN_NAME': tr_name,'LOCATION' : result}
```

```
def myOnPublishCallback():
```

```
    print ("Published location = %s " % result,"to IBM Watson")
```

```
    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,  
on_publish=myOnPublishCallback)
```

```
    if not success:
```

```
        print("Not connected to IoTF")
```

```
elif status=="12007":
```

```
    tr_name='MYSURU SHATABDI EXPRESS'
```

```
    result = MYSURU_Shatabdi_Express()
```

```
    data = {'TRAIN_NO': status,'TRAIN_NAME': tr_name,'LOCATION' : result}
```

```
def myOnPublishCallback():
```

```
    print ("Published location = %s " % result,"to IBM Watson")
```

```
    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,  
on_publish=myOnPublishCallback)
```

```
    if not success:
```

```
        print("Not connected to IoTF")
```

```
else :
```

```

        print ("please send proper command")

#pinging device

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method":
authMethod, "auth-token": authToken}

    deviceCli = ibmiotf.device.Client(deviceOptions)

    #.....

except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()

#to connect
deviceCli.connect()

#this code runs everytime
while True:
    cur=datetime.now()
    H=cur.hour
    M=cur.minute
    T=(60*H)+M;
    deviceCli.commandCallback = myCommandCallback
    time.sleep(2)
deviceCli.disconnect()

```