Project Development – Delivery of Sprint-4

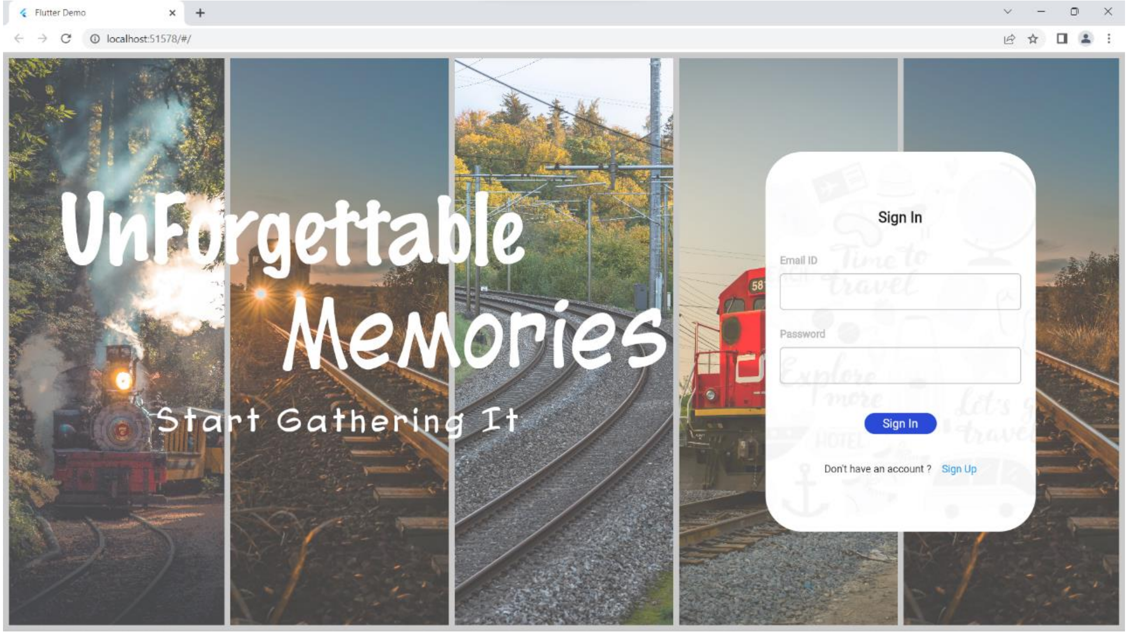
Team ID	PNT2022TMID47580
Project Name	Smart Solutions for Railways

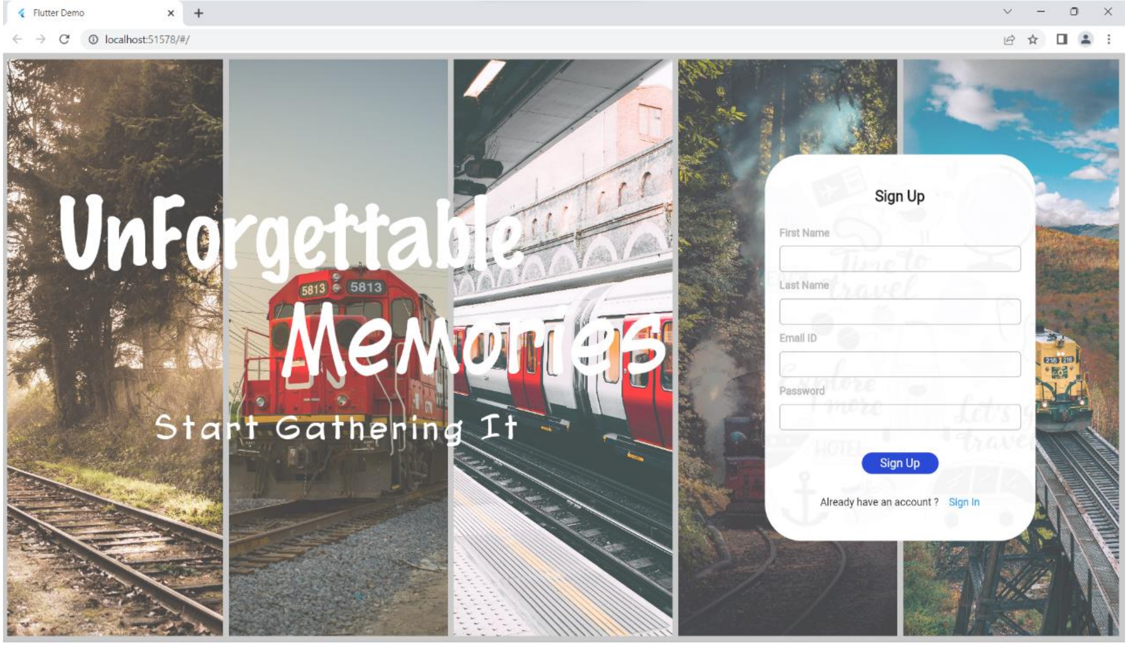
Sprint-4 :

- In sprint 4 Our team developed a web application using Flutter Framework which Uses Dart as Programming Language.
- The UI and Working conditions were created for the booking and tracking of the train.

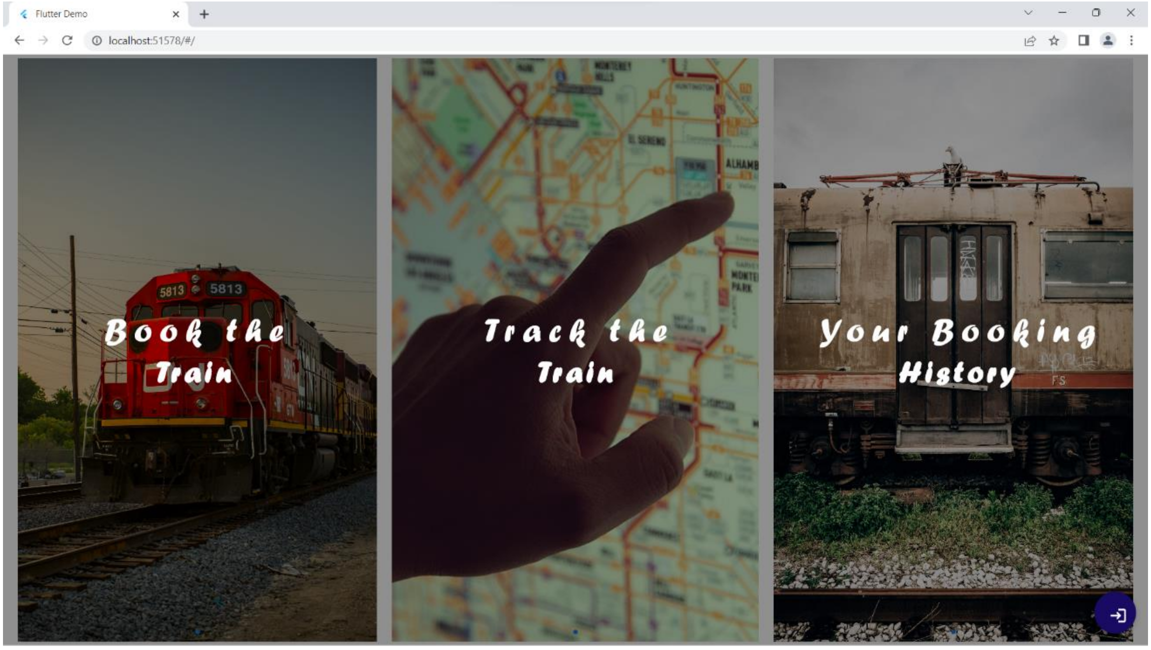
Web Application:

- **Login and Registration Page:**

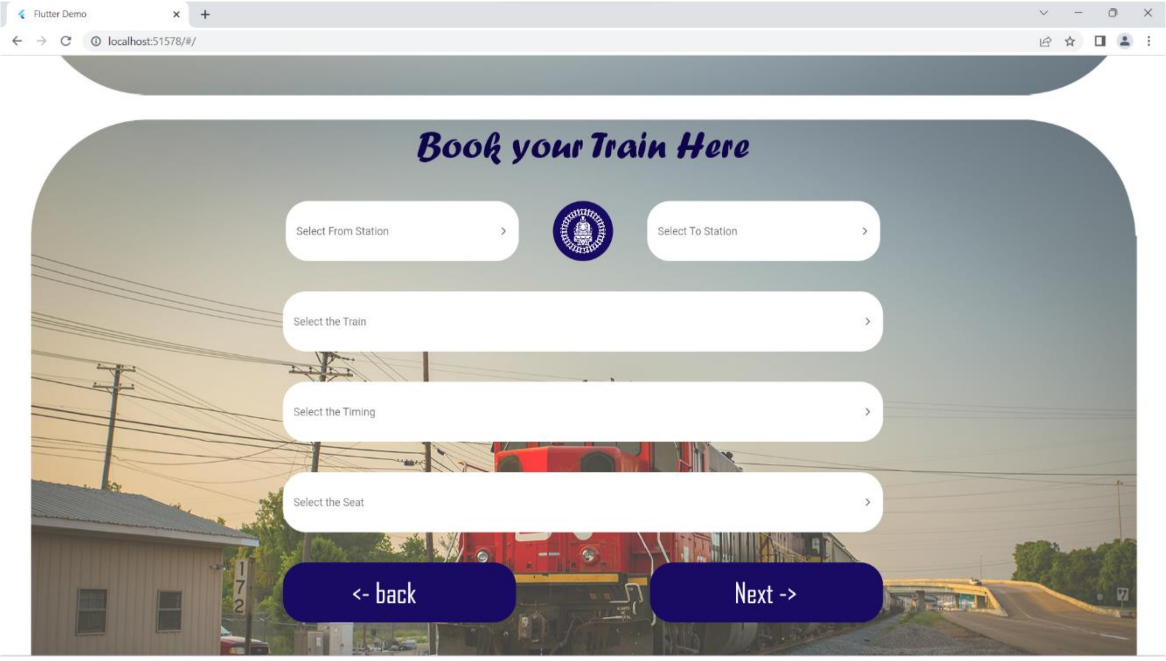


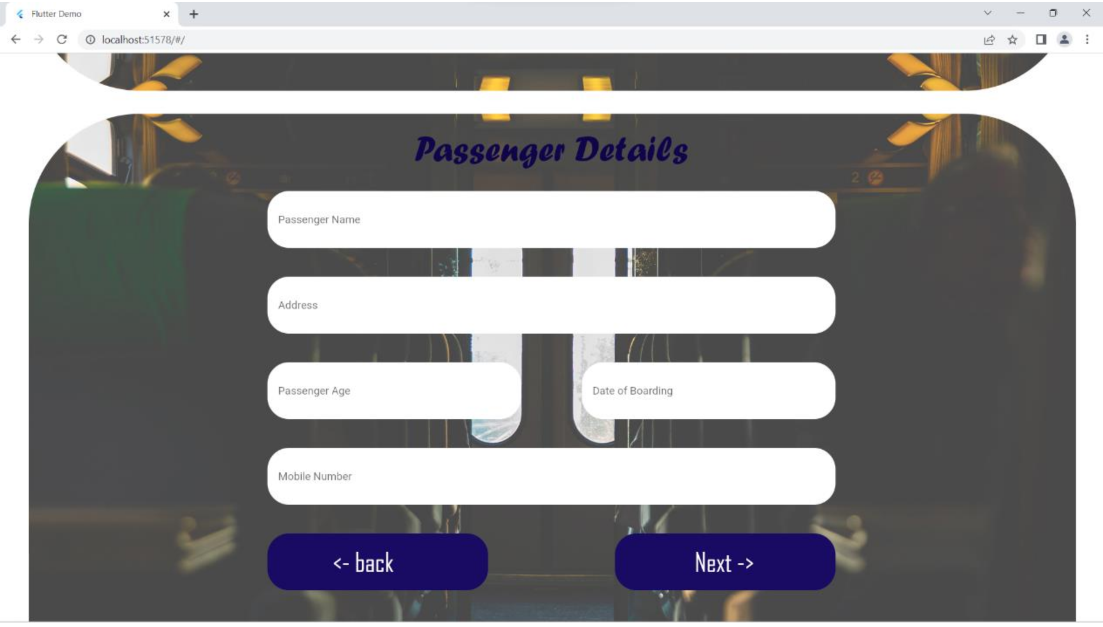


- **Dashboard:**
  - From dashboard user can be navigated into 3 different pages.
  - One is for book the train in which user can book the ticket for travelling.
  - Second is for tracking the train in which they can see the current location of the train.
  - Finally the third is for looking the history of booking from which the user can retrieve the previous booking data.



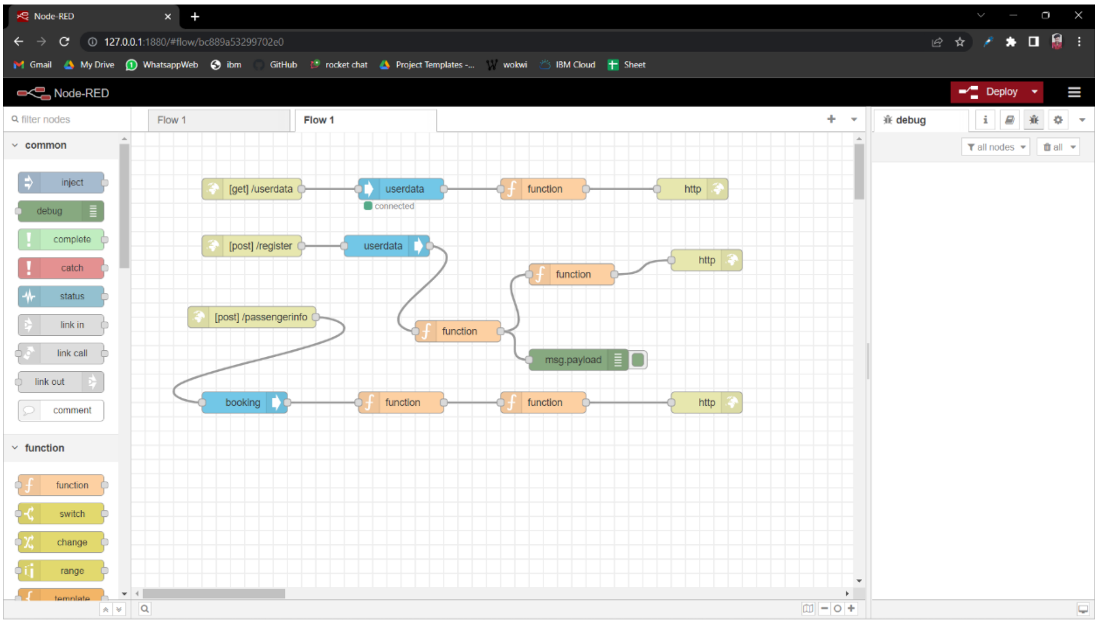
- **Book the Train**
  - In this page user can book the train by providing the required information.
  - Finally the user can able to download the ticket in the form of qrcode.



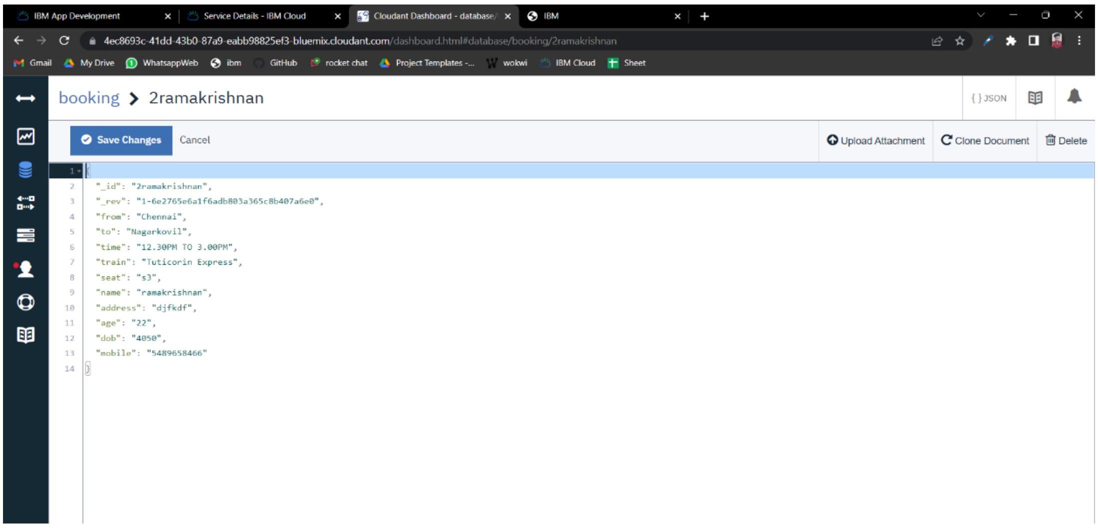


- After clicking the next button in above page, the user information is send to node red from which the user data will gets stored in the Cloudant database.

- **Node red flow:**

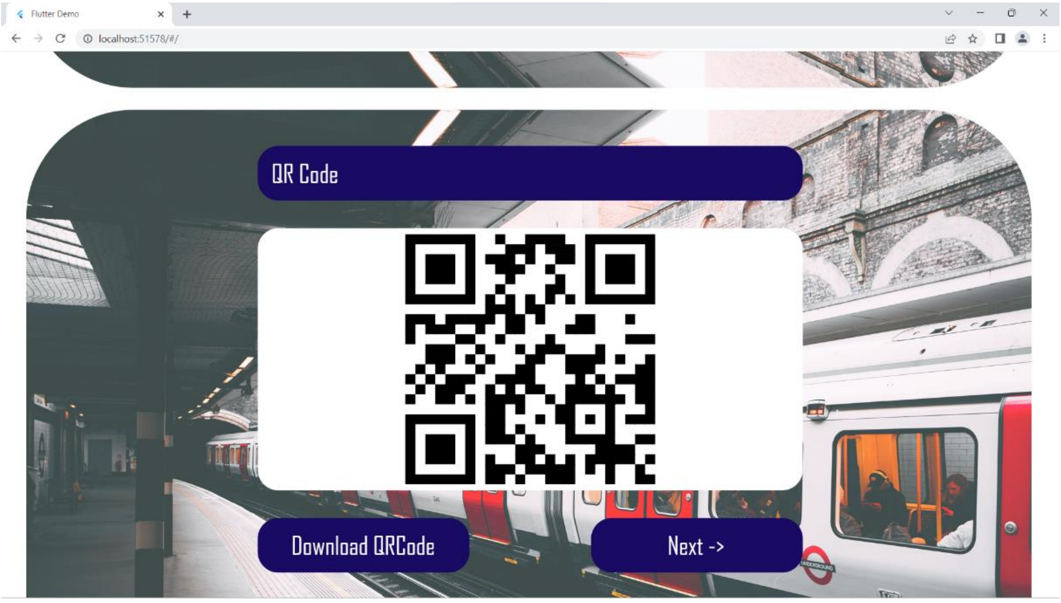


- **Cloudant Database:**

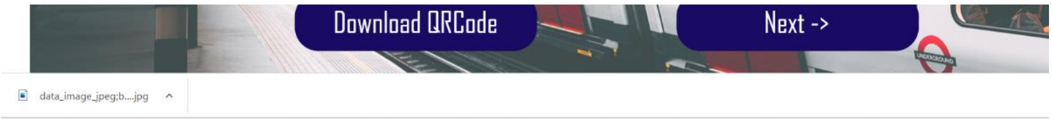

IBM App Development
Service Details - IBM Cloud
Cloudant Dashboard - database
IBM
4ec8693c-41dd-43b0-87a9-eabb98825ef3-bluemix.cloudant.com/dashboard.html#database/booking/2ramakrishnan
booking
2ramakrishnan
{ } JSON
Save Changes
Cancel
Upload Attachment
Clone Document
Delete

```
{
  "_id": "2ramakrishnan",
  "_rev": "1-6e2765e6a1f6adb803a365c8b407a6e0",
  "from": "Chennai",
  "to": "Nagarkovil",
  "time": "12.30PM TO 3.00PM",
  "train": "Tuticorin Express",
  "seat": "s3",
  "name": "ramakrishnan",
  "address": "djfkdf",
  "age": "22",
  "dob": "4050",
  "mobile": "5489658466"
}
```

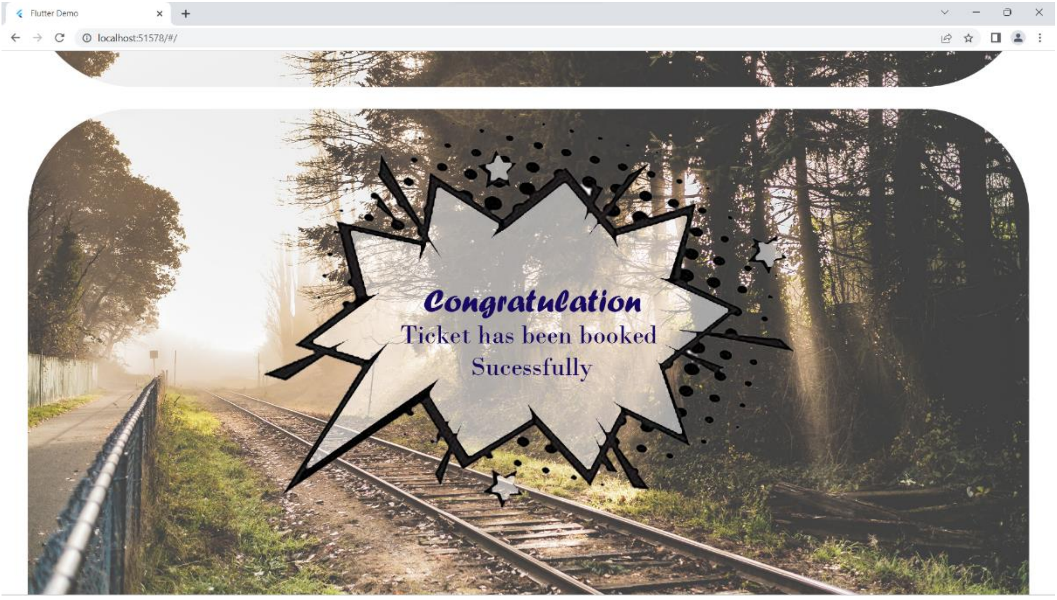
- After storing the user data in Cloudant database then the page is move to generate the qrcode.
- From where the user can download the qrcode generated which is used for retrieving the passenger information by the ttr.



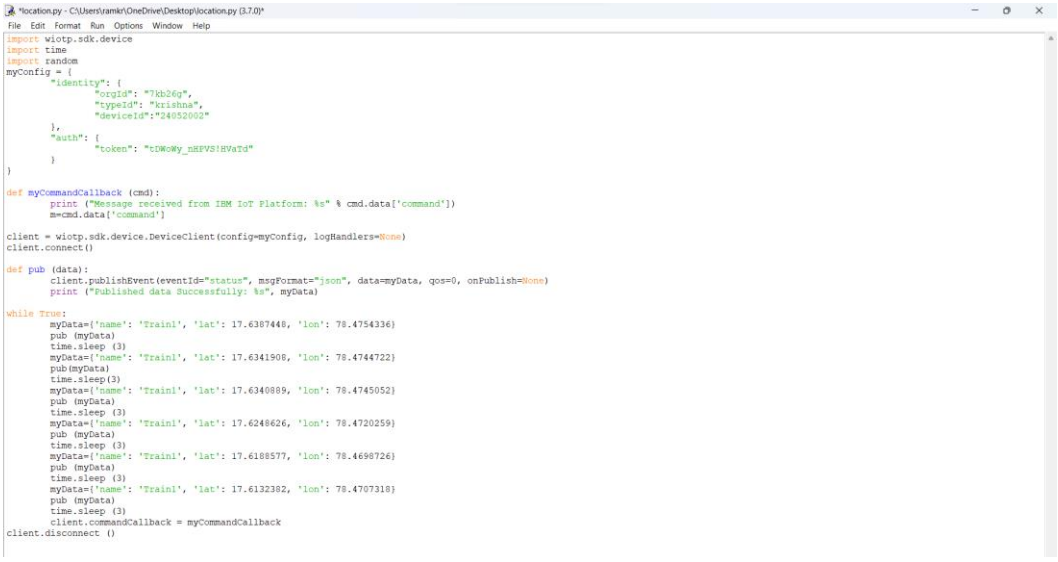
- If the user click the download QRCode button the QR code generated will gets started to download in their local machine.



- Finally the greeting page will be visible for the user in which the confirmation is displayed.



- **Track the Train:**
  - In this page user can view the current location of the train.
  - The location of the train was generated by the python script and sent the data to the IBM Watson IoT Platform.
    - **Python Script:**



location.py - C:\Users\ramkr\OneDrive\Desktop\location.py (3.7.0)
File Edit Format Run Options Window Help

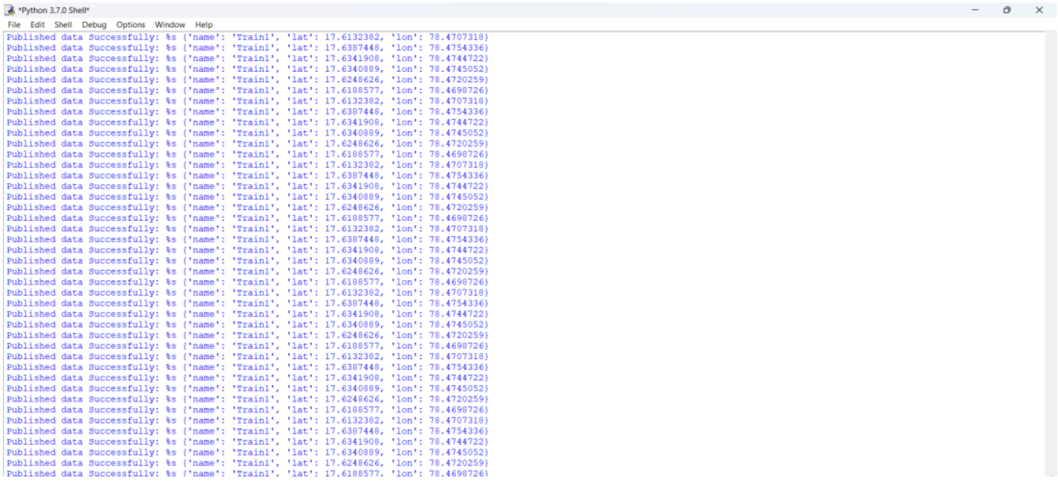
```python
import wiotp.sdk.device
import time
import random
myConfig = {
        "identity": {
                "orgId": "7kb26g",
                "typeId": "krishna",
                "deviceId":"24052002"
        },
        "auth": {
                "token": "tDWoWy_nHPVS!HVaTd"
        }
}

def myCommandCallback (cmd):
        print ("Message received from IBM IoT Platform: %s" % cmd.data['command'])
        m=cmd.data['command']

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

def pub (data):
        client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
        print ("Published data Successfully: %s", myData)

while True:
        myData={'name': 'Train1', 'lat': 17.6387448, 'lon': 78.4754336}
        pub (myData)
        time.sleep (3)
        myData={'name': 'Train1', 'lat': 17.6341908, 'lon': 78.4744722}
        pub(myData)
        time.sleep(3)
        myData={'name': 'Train1', 'lat': 17.6340889, 'lon': 78.4745052}
        pub (myData)
        time.sleep (3)
        myData={'name': 'Train1', 'lat': 17.6248626, 'lon': 78.4720259}
        pub (myData)
        time.sleep (3)
        myData={'name': 'Train1', 'lat': 17.6188577, 'lon': 78.4698726}
        pub (myData)
        time.sleep (3)
        myData={'name': 'Train1', 'lat': 17.6132382, 'lon': 78.4707318}
        pub (myData)
        time.sleep (3)
        client.commandCallback = myCommandCallback
client.disconnect ()
```



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Published data Successfully: %s {'name': 'Train1', 'lat': 17.6132382, 'lon': 78.4707318}
Published data Successfully: %s {'name': 'Train1', 'lat': 17.6387448, 'lon': 78.4754336}
Published data Successfully: %s {'name': 'Train1', 'lat': 17.6341908, 'lon': 78.4744722}
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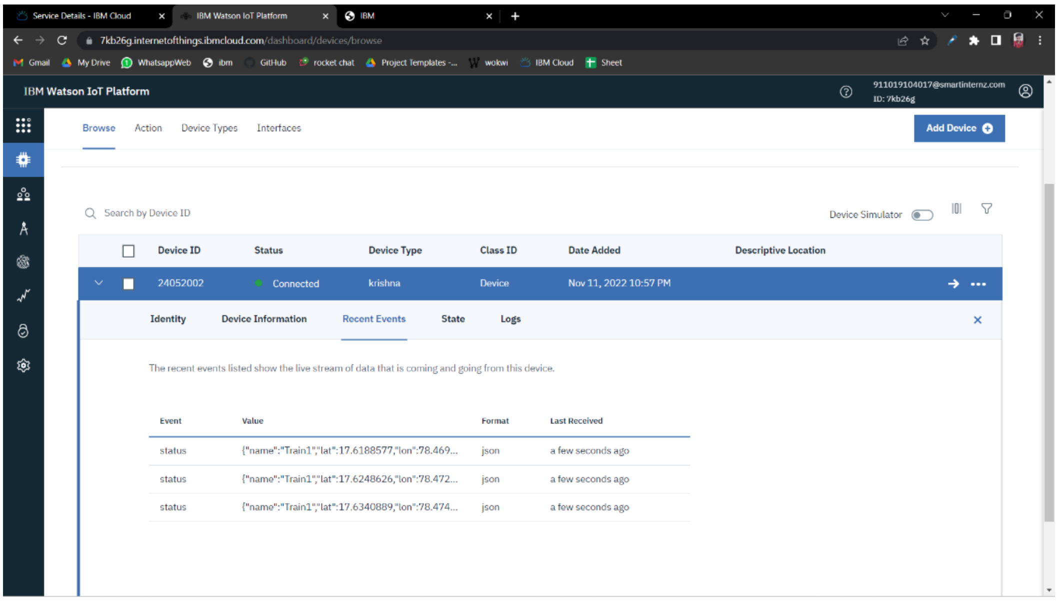
```

- **IBM Watson IoT Platform:**

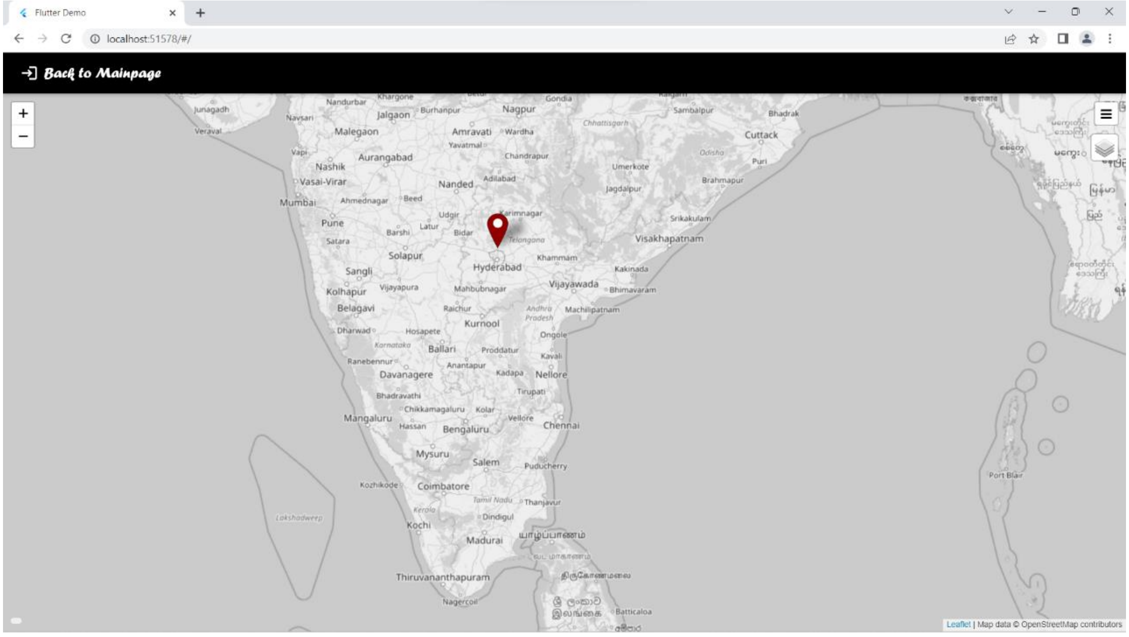


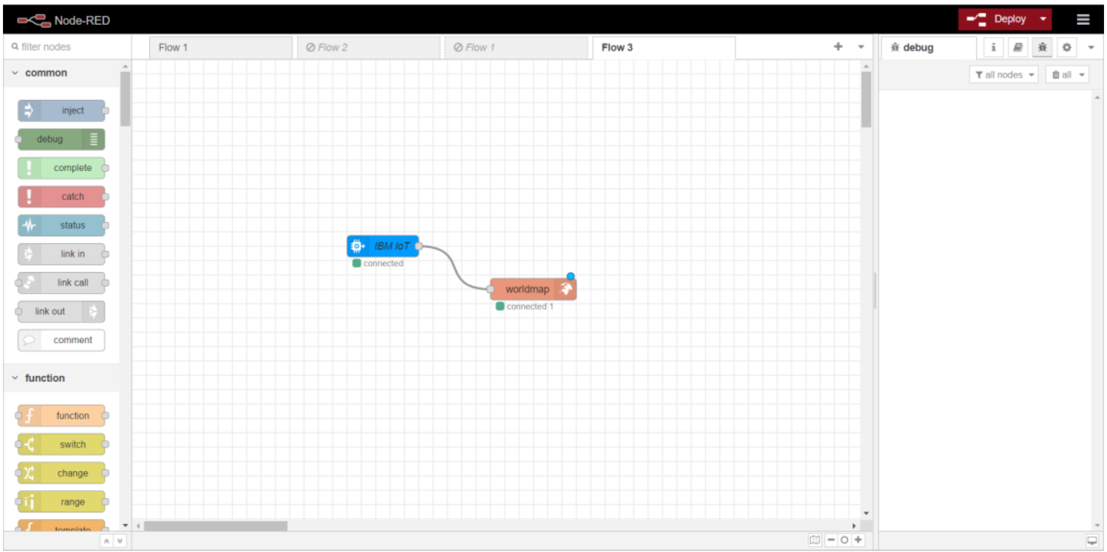
□	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
□	24052002	● Connected	krishna	Device	Nov 11, 2022 10:57 PM	

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
status	{"name":"Train1","lat":17.6188577,"lon":78.469...	json	a few seconds ago
status	{"name":"Train1","lat":17.6248626,"lon":78.472...	json	a few seconds ago
status	{"name":"Train1","lat":17.6340889,"lon":78.474...	json	a few seconds ago

- **Node-red Flow:**
  - The Map Web view was created by the worldmap node.
  - The train location data from IBM Watson IoT Platform was retrieved using IBM Watson out node.
  - Then the data was fed into the worldmap node from which the location of the train was shown in the output.


Flutter Demo
localhost:51578/#/
Back to Mainpage
+
−
Junagadh
Veraval
Navsari
Nandurbar
Jalgaon
Burhanpur
Nagpur
Gondia
Malegaon
Amravati
Wardha
Sambalpur
Cuttack
Aurangabad
Chandrapur
Nashik
Vasai-Virar
Mumbai
Nanded
Adilabad
Ahmednagar
Beed
Pune
Barshi
Latur
Udgir
Bidar
Karimnagar
Satara
Solapur
Hyderabad
Khammam
Visakhapatnam
Srikakulam
Sangli
Kolhapur
Vijayapura
Mahbubnagar
Vijayawada
Kakinada
Belagavi
Raichur
Machilipatnam
Kurnool
Dharwad
Hosapete
Ongole
Ballari
Proddatur
Ranebennur
Anantapur
Kadapa
Nellore
Davanagere
Tirupati
Bhadravathi
Chikkamagaluru
Kolar
Mangaluru
Hassan
Vellore
Chennai
Bengaluru
Mysuru
Salem
Puducherry
Kozhikode
Coimbatore
Thanjavur
Dindigul
Kochi
Madurai
Thiruvananthapuram
Nagercoil
Batticaloa
Port Blair
Puri
Brahmapur
Leaflet | Map data © OpenStreetMap contributors


Node-RED
Deploy
filter nodes
Flow 1
Flow 2
Flow 1
Flow 3
debug
all nodes
all
common
inject
debug
complete
catch
status
link in
link call
link out
comment
function
function
switch
change
range
template
IBM IoT
connected
worldmap
connected 1