

SMART SOLUTIONS FOR RAILWAYS

A PROJECT REPORT

Submitted by

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TABLE OF CONTENTS:

S.NO	TITLE
1	INTRODUCTION
1.1	Overview
1.2	Purpose
2	LITERATURE SURVEY
2.1	Existing problem
2.2	References
2.3	Problem Statement Definition
3	IDEATION &PROPOSED SOLUTION
3.1	Empathy Map Canvas
3.2	Ideation & Brainstorming
3.3	Proposed Solution
3.4	Problem Solution Fit

4	REQUIREMENT ANALYSIS
4.1	Functional requirements
4.2	Non-Functional requirements
5	PROJECT DESIGN
5.1	Data Flow Diagrams
5.2	Solution & Technical Architecture
5.3	User Stories
6	PROJECT PLANNING & SCHEDULING
6.1	Sprint Planning & Estimation
6.2	Sprint Delivery Schedule
6.3	Reports from JIRA
7	CODING & SOLUTIONING
7.1	Feature 1
7.2	Feature 2

7.3	Database Schema
8	TESTING
8.1	Test Cases

8.2	User Acceptance Testing
9	RESULTS
9.1	Performance Metrics
10	ADVANTAGES &DISADVANTAGES
11	CONCLUSION
12	FUTURE SCOPE
13	APPENDIX

1.INTRODUCTION

a.Project Overview

- i. A Web page is designedfor the publicwhere they can booktickets by seeing the available seats.
- ii. After booking the train,the person will get a QR code which has to be shown to the Ticket Collectorwhile boarding the train.
- iii. The ticketcollectors can scan the QR code to identify the personal details.
- iv. A GPS module is present in the trainto track it. The live status of the journeyis updated in the Web app continuously
- v. All the booking details of the customers will be stored in the database with a unique ID and they can be retrieved back when the Ticket Collectorscans the QR Code.

b.Purpose

The Purposeof our Project is

- To reduce the work load of the user and also the use of paper.
- To enableonline Ticket Booking
- To track the live location of train

- To enable Automatic Ticket Verification system
- To reduce the work load of Travelling Ticket Examiner (TTE)

2.LITERATURE SURVEY

2.1. Existing Problem:

- Passengers who need to book train tickets have to follow a tedious procedure to get a ticket reserved.
- They have to wait in the Ticket booking counter to do the reservation.
- Also the TTE has a heavy workload in processing all the paper documents in verifying a user's ticket.
- Public users wish to track their train journey to have a sophisticated travel.

2.2.References :

☆ <https://www.ibm.com/blogs/internet-of-things/connected-trains-rail-travel/>

☆ https://indianrailways.gov.in/railwayboard/uploads/directorate/secretary_branches/IR_Reforms/Innovation%20in%20Indian%20Railways%20.pdf

☆ Indian Railways Vision 2020 (Para 6.1 Reinventing Passenger Services with Change for a better tomorrow as the motto, Page 8-9)

☆ Travel, Transportation & Hospitality page on www.tcs.com

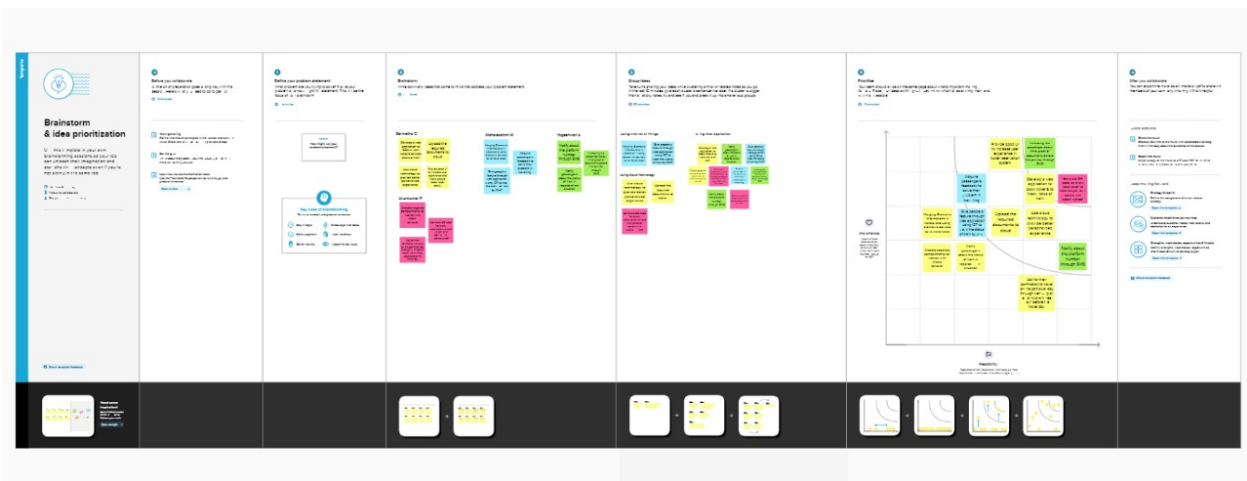
☆ <https://international-railway-safety-council.com/about-us>

☆ <http://sts.hitachirail.com/en/products-services/glossary>

2.3 Problem Statement definition :

- Railway Passengers need a way to book their tickets easily without delay and tedious process so that the passengers get benefits by saving their time and energy in travelling.
- Ticket checkers are in need of a Digital verification system of passenger's ticket to avoid huge use of pen and paper.
- Passengers need a platform to track the current location and status of trains in order to avoid anxiety of fear of missing the train.

3. IDEATION & PROPOSED SOLUTION



3.1 EMPATHY MAP CANVAS

Smart Solutions for Railways



3.3 Ideation & Brainstorming



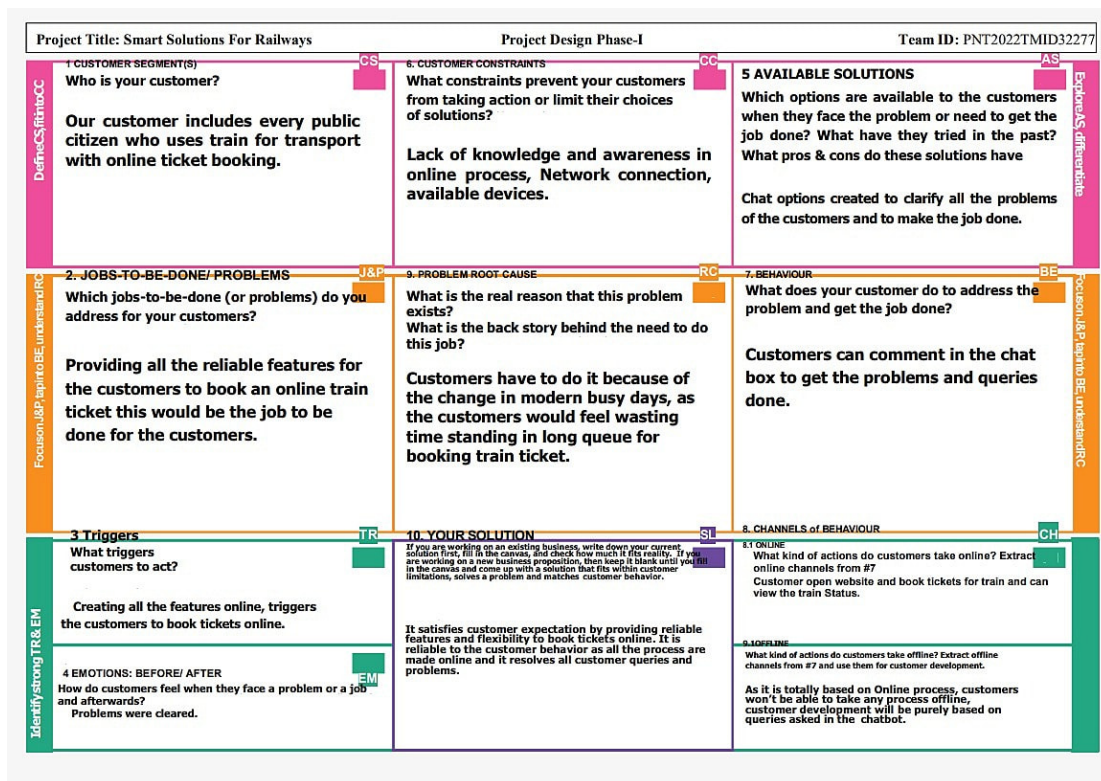
3.3 Proposed System

S.No .	Parameter	Description
<u>1</u>	Problem Statement (Problem to be solved)	<p>How might we reduce the workload of the user and the use of paper while booking tickets?</p> <p>How to ease the work of verifying the Tickets which is usually done by TTE thereby reducing the paperwork?</p>
<u>2</u>	Idea / Solution description	A Web UI is designed to enable online ticket booking and a QR code is generated for the user who has booked the ticket to verify it with Travelling Ticket Examiner (TTE) which is done using Cloud Service.
<u>3</u>	Novelty / Uniqueness	<ol style="list-style-type: none"> 1. User friendly interface (Web Page) to book the ticket. 2. Unique QR code for each user to verify their tickets. 3. GPS Module to track the location of Train and live status is updated in the Web app.
<u>4</u>	Social Impact / Customer Satisfaction	<ol style="list-style-type: none"> 1. This model reduces the time consuming ticket booking by automating the process. 2. TTE can easily verify the details of the passenger using the QR code generated while booking the ticket which may reduce the use of paper work. 3. The location of the train is updated periodically in the web app so customers can easily track the status of the train which may help the customer to arrive on time.
<u>5</u>	Business Model (Revenue Model)	<ol style="list-style-type: none"> 1. This solution gives a feasibility to reduce the conventional ticket booking mechanism at counters which is tedious and time consuming, also the verification of the tickets is simplified. Since it also gives an additional train tracking method it will be more welcomed by the users. 2. This model helps businessmen and travellers to book the ticket easily and it provides flexibility so customers will prefer this model which may increase the revenue of this model. 3. Selling a Product which enables online booking platform and automatic verification system would fetch more revenues to the Organisation, also the Online Platform has to be maintained continuously and so, the business will sustain and can be improved if required.

6	Scalability of the Solution	★ We propose a solution which works on the SaaS (Software as a Service) cloud model wherein all
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		<p>necessities are deployed in the web browser which gives an easy access and also the cost is minimal which gives a scaled solution approach.</p> <p>★ The cloud is deployed as a public cloud model which gives a feasible access to upload passenger details and to retrieve data .</p> <p>★ Further a QR code is generated to hold the unique data of user in cloud, and a GPS module is attached to IoT platform in order to monitor the train location which gives an additional tracking mechanism to ensure reliability</p>
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3.3 Problem Solutionfit



4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form
FR-2	User Confirmation	Confirmation via Email Confirmation via O i P
FR-3	User QR code generation	QR code is generated
FR-4	GPS tracker	Location is tracked

4.2 Non-Functional requirement

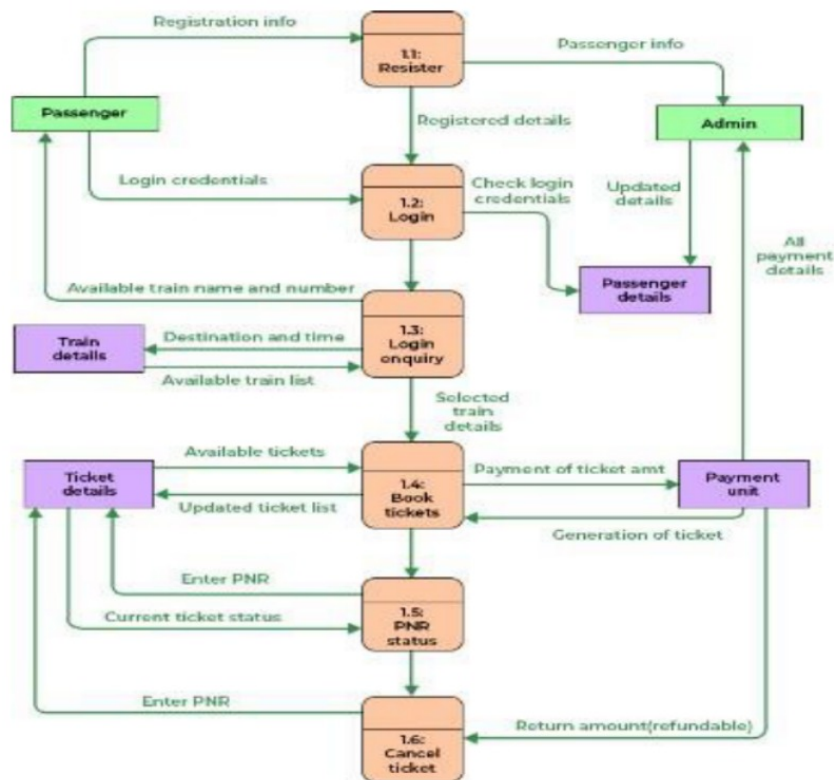
Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

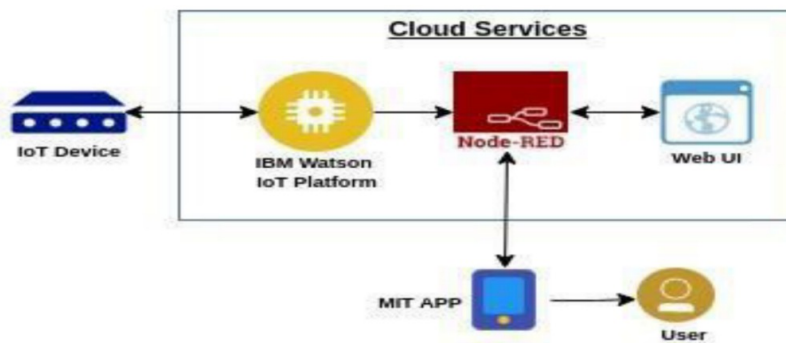
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Users can navigate easily
NFR-2	Security	The details are secured in the database
NFR-3	Reliability	Reliable to the users without any failure as it is not fixed to limited number of users
NFR-4	Performance	User-friendly
NFR-5	Availability	Available any time at the time of ease
NFR-6	Scalability	Support the users with their needs in reserving ticket and tracking the location.

5.PROJECT DESIGN

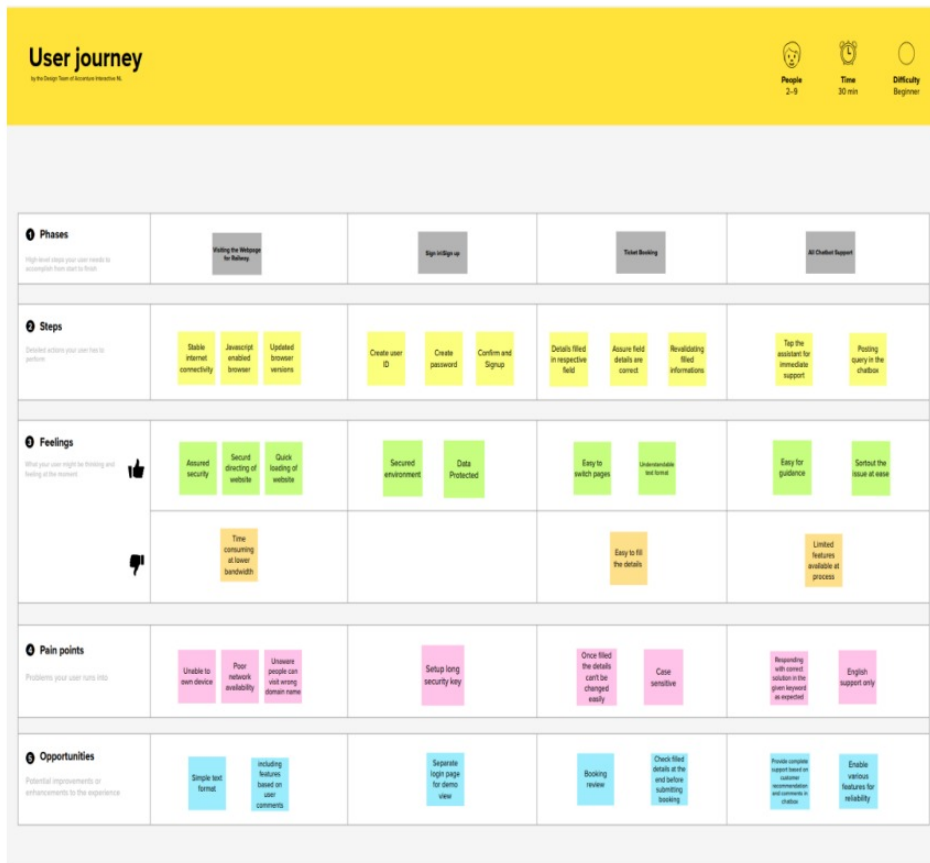
5.1 Data flow diagram



5.2 Solution and Technical Architecture



5.3 User Stories



6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

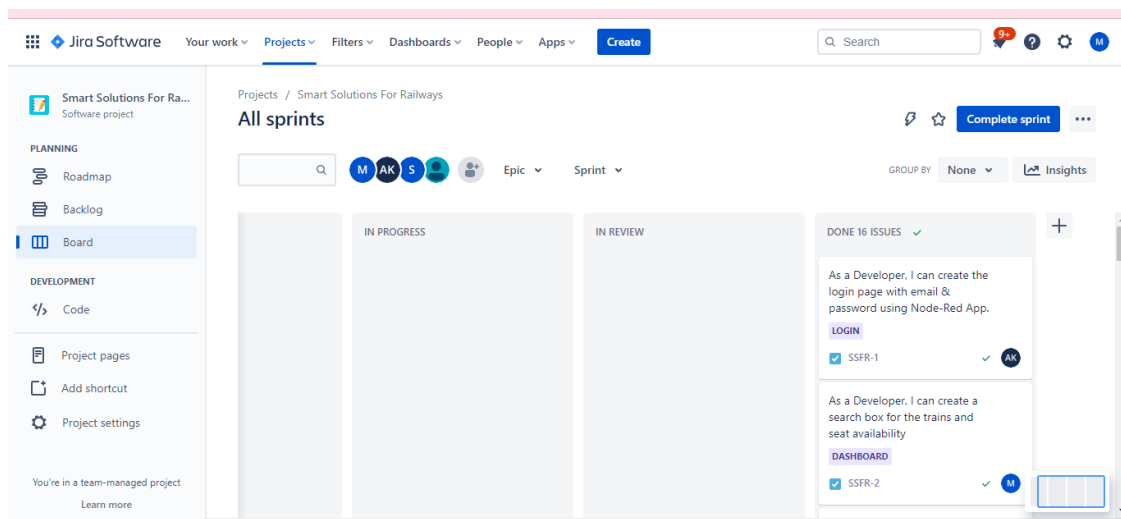
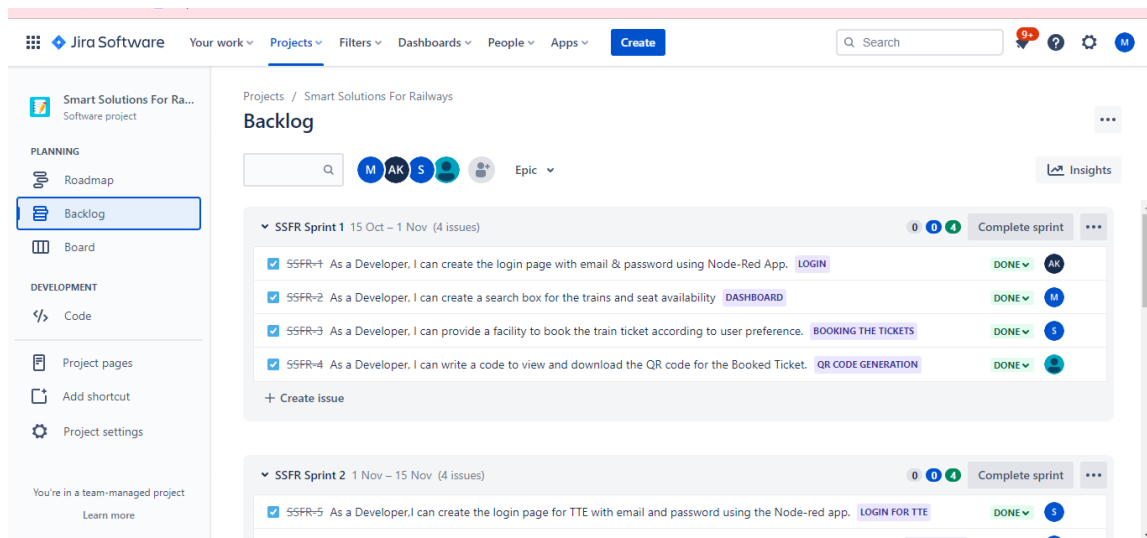
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Login	USN-1	As a Developer, I can create the login page with email & password using Node-Red App	2	Medium	Arunkumar
Sprint-1	Dashboard	USN-2	As a Developer, I can create a search box for the trains and seat availability.	6	High	Mahalakshmi
Sprint-1	Booking the Tickets	USN-3	As a Developer, I can provide a facility to book the train ticket according to user preference.	6	High	Sarmatha
Sprint-1	QR code Generation	USN-4	As a Developer, I can write a code to view and download the QR code for the Booked Ticket.	6	High	Yogeshwari
Sprint-2	Login for TTE	USN-5	As a Developer, I can create the login page for TTE with email and password using the Node-redapp.	6	High	Sarmatha
Sprint-2	Dashboard	USN-6	As a Developer, I can create a drop down box for the number of passengers on boarded and remaining number of passengers yet to be boarded	6	High	Mahalakshmi
Sprint-2	Passenger Details	USN-7	As a developer, I can provide a feature to view the passenger details which are stored in the Cloud and are retrieved and displayed in the webpage.	2	Medium	Arunkumar

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-2	Ticket verification	USN-8	As a developer,I can provide a verification mechanism to check the integrity of QR code andthe passenger details.	6	High	Yogeshwari
Sprint-3	Collaboration	USN-9	As a developer, I will provide a smooth way tobook the ticket through a website and also to refund if the passenger cancels the ticket.	6	High	Mahalakshmi
Sprint-3	Verifying the passenger details	USN-10	As a developer, I will check whether the passengeris taking his/her journey with a proper confirmed ticket.	6	High	Sarmatha
Sprint-3	Identification of the passenger	USN-11	As a developer, I will make sure that the on-boarded passenger is not involved in any travelfraudulently.	2	Medium	Arunkumar
Sprint-3	Verifying the tickets	USN-12	As a developer, I will scan the QR code generated by python code to extract and verify the passengerdetails.	6	High	Yogeshwari
Sprint-4	Tracking webpage	USN-13	As a developer , I can create web page to viewtrain status using Node RED	6	High	Mahalakshmi
Sprint-4	Live location details	USN-14	As a developer I can extract details from IoT device using python code and IBM watson.	6	High	Yogeshwari
Sprint-4	Retrieving from cloud	USN-15	As a developer, I can upload the details to cloud and display it to user by connecting it with NodeRED application.	6	High	Sarmatha
Sprint-4	Sending updates	USN-16	As a passenger,I would like to receive updates over my train status during my journey via fastSMS or App notification.	2	Medium	Arunkumar

6.2 Sprint Delivery Schedule:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	07 Oct 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	10 Oct 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	15 Oct 2022

6.3 Reports from JIRA



7.CODING & SOLUTIONING

7.1 Feature 1

Train Ticket booking QR code generation

Description:

In feature 1 we have designed a webpage using node red to book the train ticket. The user can login into the webpage using username and password. After successful login, the user will be redirected to the Ticket booking form. In this form, users are asked to fill the personal details and the journey details. After entering the appropriate details the confirmation message is shown and QR code is generated.

HOME PAGE :

≡ Home

LOGIN PAGE

NEW USER? SIGN UP

ABOUT

Login

username *

password *

LOGIN

Sign up page

≡ Home

LOGIN PAGE

NEW USER? SIGN UP

ABOUT

Sign Up

Choose a username *

Choose a password *

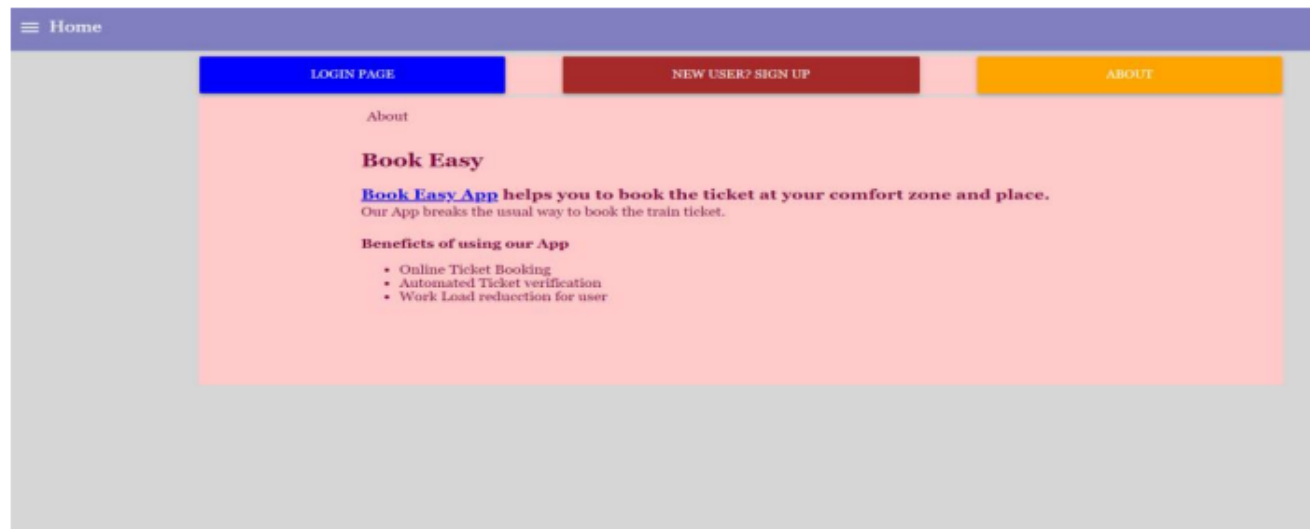
Enter your email address *

Enter your Phone Number *

SUBMIT

CANCEL

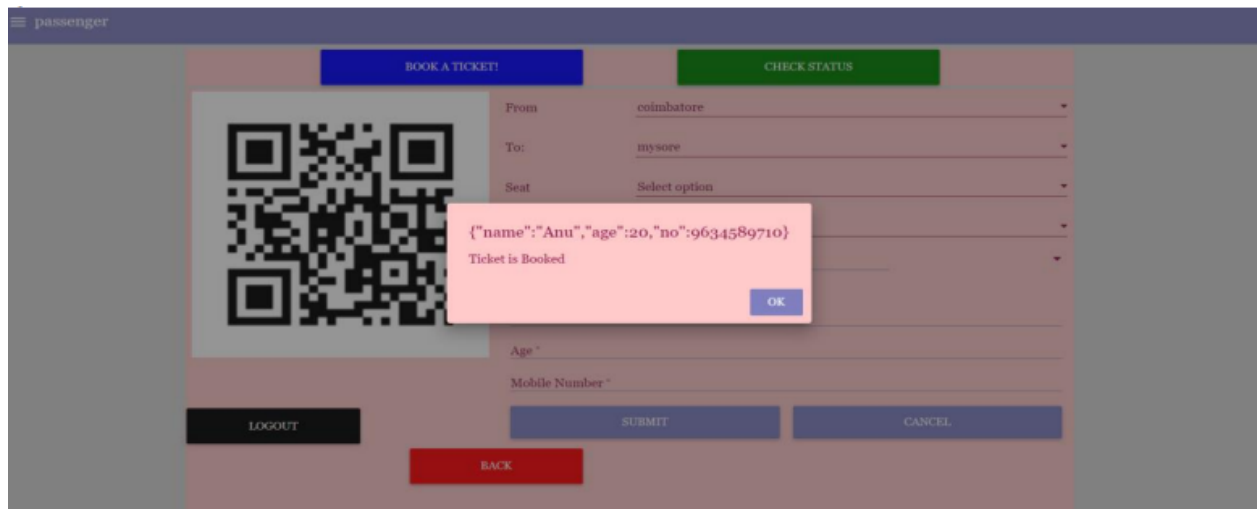
About



Ticket booking Form:

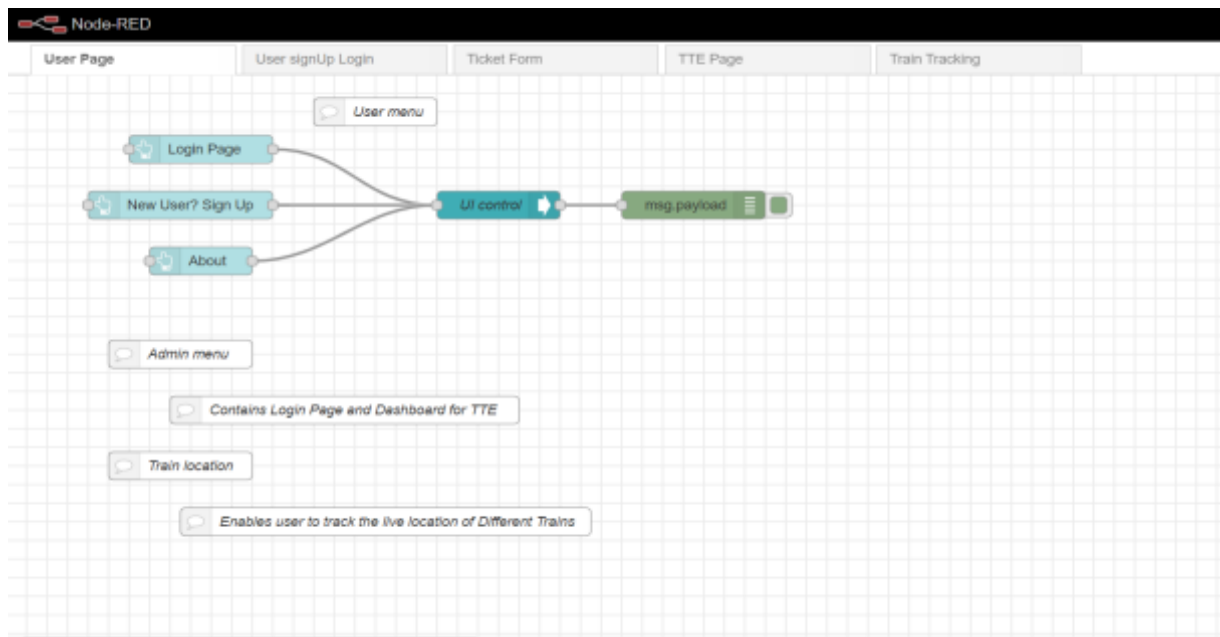
The screenshot shows the 'passenger' ticket booking form. At the top, there is a purple header with a hamburger menu icon and the text 'passenger'. Below the header, there are two buttons: 'BOOK A TICKET!' (blue) and 'CHECK STATUS' (green). The form itself has a light pink background. It contains several input fields with labels: 'From' (with 'salem' selected), 'To' (with 'goa' selected), 'Seat' (with 'Select option' selected), 'Seat preference' (with 'Aisle' selected), and 'Date of Journey' (with '10/11/2022' selected). Below these are three text input fields labeled 'Name *', 'Age *', and 'Mobile Number *'. At the bottom, there are four buttons: 'LOGOUT' (black), 'SUBMIT' (blue), 'CANCEL' (blue), and 'BACK' (red).

QR code Generation

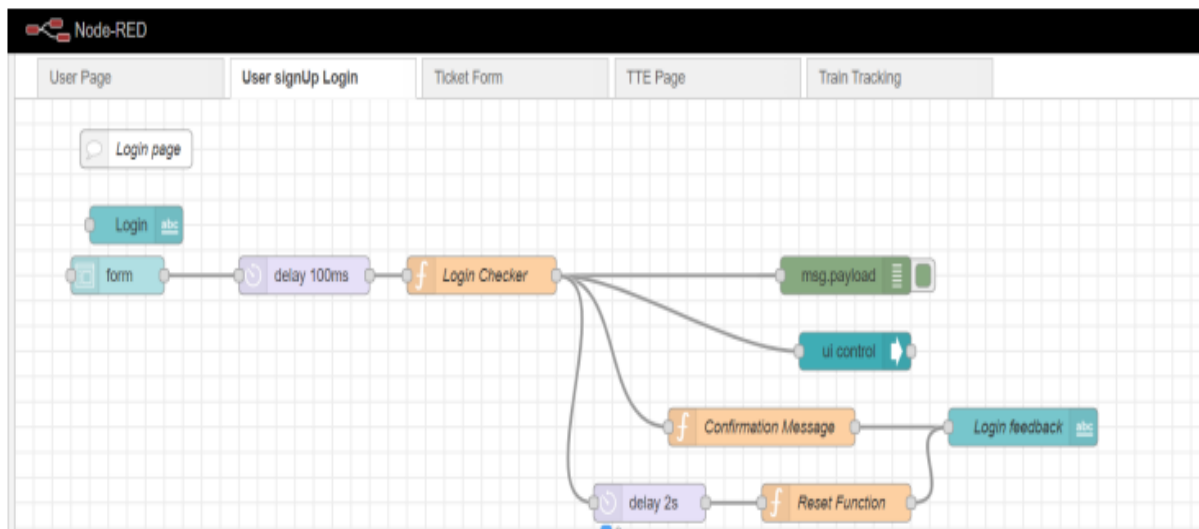


NODE RED FLOWS :

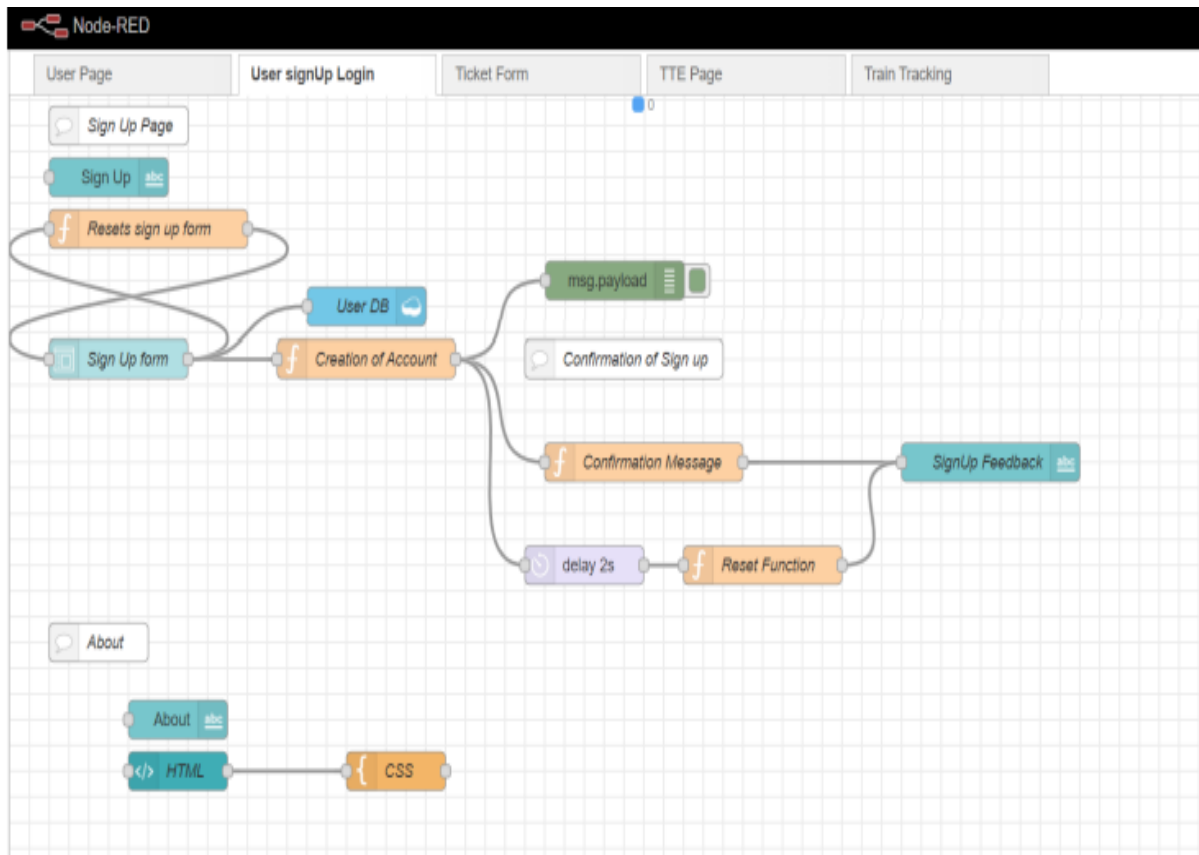
Home page



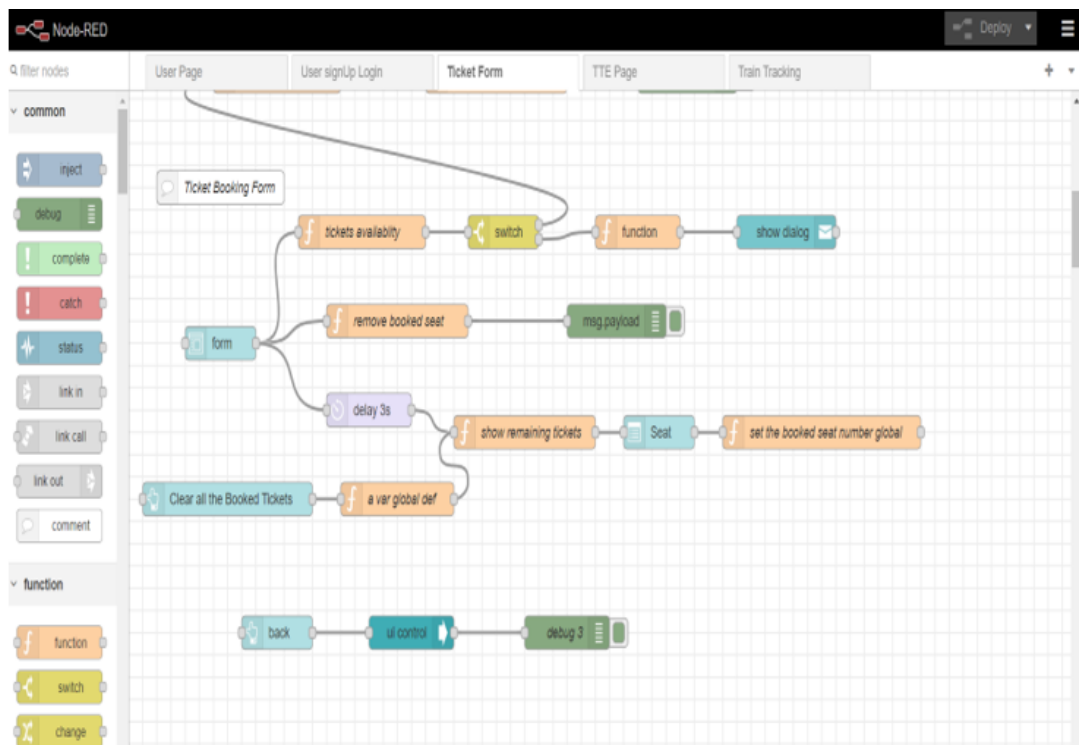
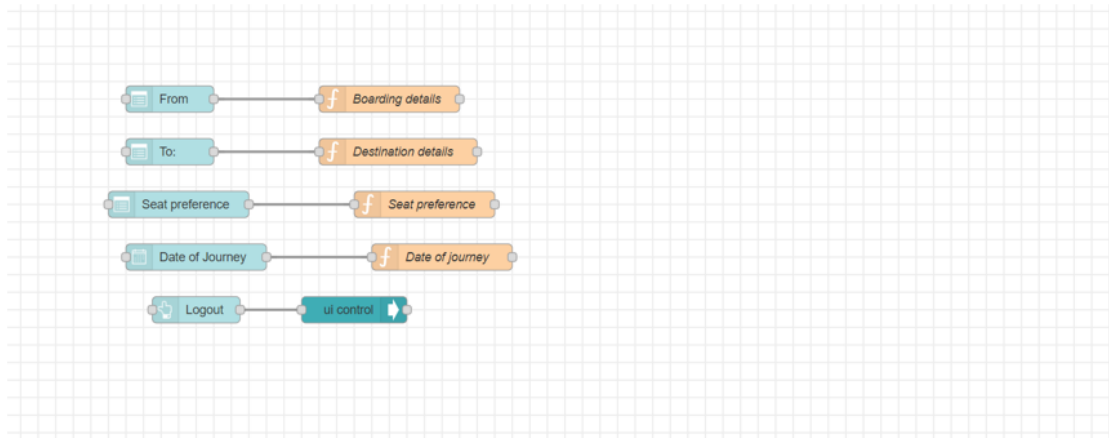
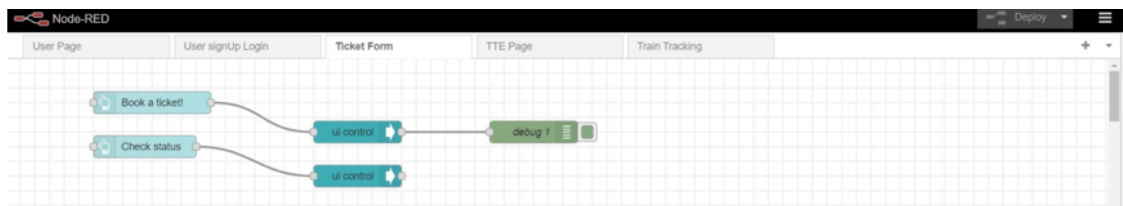
Login page



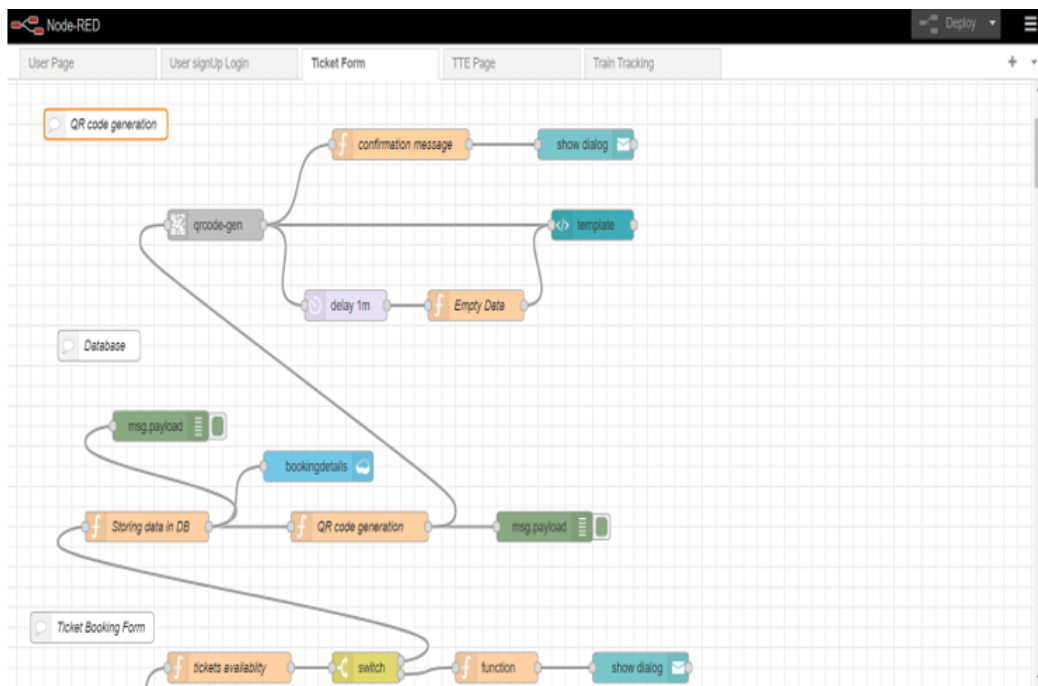
Sign up page



Ticket Booking Form



QR GENERATION



7.2 Feature 2

TICKET VERIFICATION AND TRAIN TRACKING

DESCRIPTION:

In this we have included a feature to verify the ticket by using the QR code scanner at TTE side and retrieve the passenger details from the Cloudant database to check the details of the passenger. If it is a valid QR code then the ticket is verified. For an invalid QR code the pop up message is displayed "INVALID TICKET". For Train tracking the current location status of the train is displayed in the webpage. The users can easily know about the arrival and departure of the train.

TICKET VERIFICATION :

BOOK A TICKET!

CHECK STATUS



From

To:

Seat

Seat preference

Date of Journey

Name *

Age *

Mobile Number *

LOGOUT

SUBMIT

CANCEL

BACK

Python 3.7.0 Shell

File Edit Shell Debug Options Window Help

Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
RESTART: C:\Users\anigrace\Desktop\IBM PROJECT\1_SUBMITTED WORK\project dev\QR_Code_Verification.py
2022-11-12 09:26:01,085 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:ryc4pr:QR_Reads:876543
{'_id': '7d4468aa6af0320aad446b48437155c4', '_rev': '1-ca84927463bfd9b1b546d78c42c2ccaf', 'payload': {'unique': '2022-11-12,09:25:01', 'Name': 'Rajkamali', 'Age': 40, 'Mobile': 7898125674, 'Boarding': 'chennai', 'Destination': 'delhi', 'Seat': 2, 'Seat preference': 'Middle', 'Date of Journey': 1669680000000}, 'topic': {'name': 'Rajkamali', 'age': 40, 'no': 7898125674}, 'socketid': '1Kg23JbMH4IloKWeAAI3'})

Published data Successfully: %s ({'_id': '7d4468aa6af0320aad446b48437155c4', '_rev': '1-ca84927463bfd9b1b546d78c42c2ccaf', 'payload': {'unique': '2022-11-12,09:25:01', 'Name': 'Rajkamali', 'Age': 40, 'Mobile': 7898125674, 'Boarding': 'chennai', 'Destination': 'delhi', 'Seat': 2, 'Seat preference': 'Middle', 'Date of Journey': 1669680000000}, 'topic': {'name': 'Rajkamali', 'age': 40, 'no': 7898125674}, 'socketid': '1Kg23JbMH4IloKWeAAI3'})

TTE_dashboard

Welcome! The Details of scanned QR code is shown below:

{ "_id": "7d4468aa6af0320aad446b48437155c4", "_rev": "1-ca84927463bfd9b1b546d78c42c2ccaf", "payload": { "unique": "2022-11-12,09:25:01", "Name": "Rajkamali", "Age": 40, "Mobile": 7898125674, "Boarding": "chennai", "Destination": "delhi", "Seat preference": "Middle", "Date of Journey": 1669680000000, "topic": { "name": "Rajkamali", "age": 40, "no": 7898125674 }, "socketid": "1Kg23JbMH4IloKWeAAI3" } }

LOGOUT

CLEAR ALL THE BOOKED TICKETS

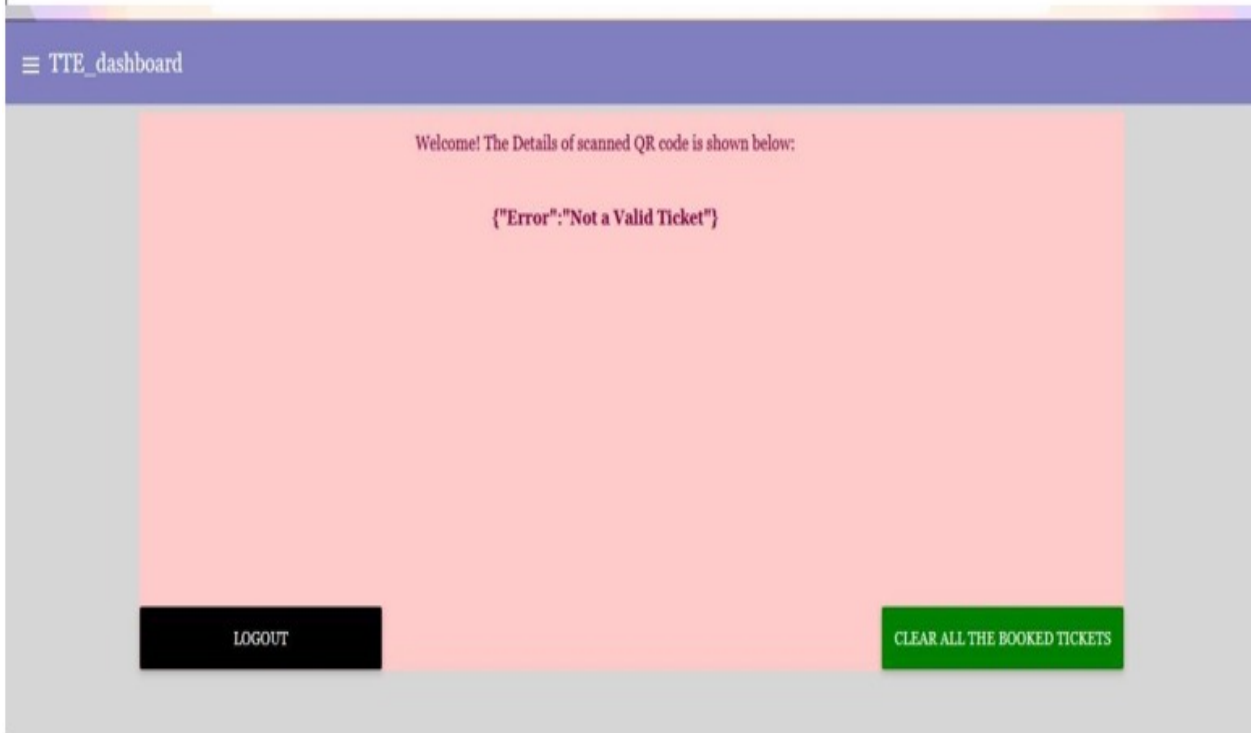
INVALID TICKET :

demo

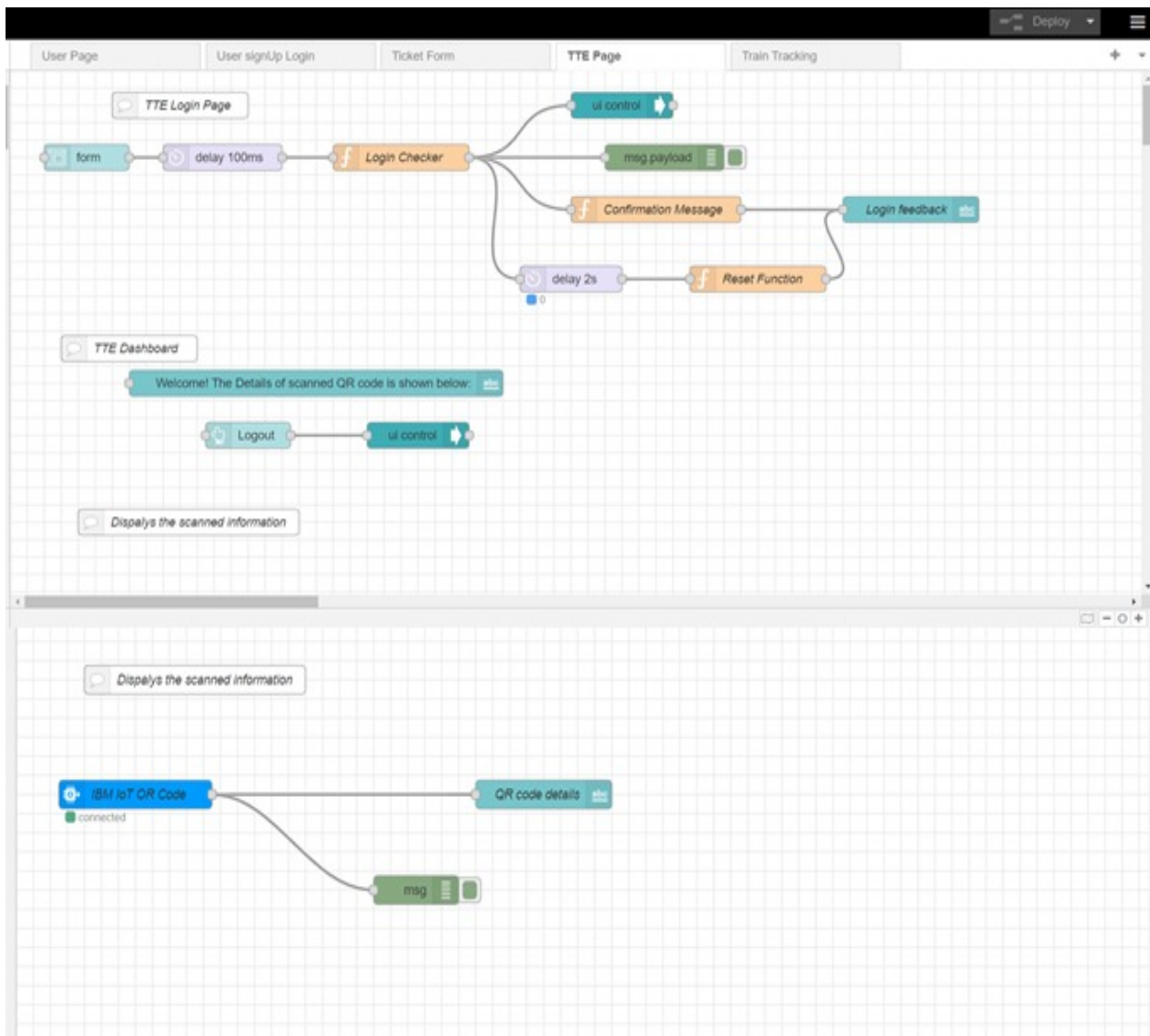


Published data Successfully: %s {'Error': 'Not a Valid Ticket'}

Not a Valid Ticket



NODE RED FLOWS :



PYTHON CODE FOR TICKET VERIFICATION:

```
import cv2
import numpy as np
import time
import pyzbar.pyzbar as pyzbar
from ibmcloudant.cloudant_v1 import CloudantV1
```

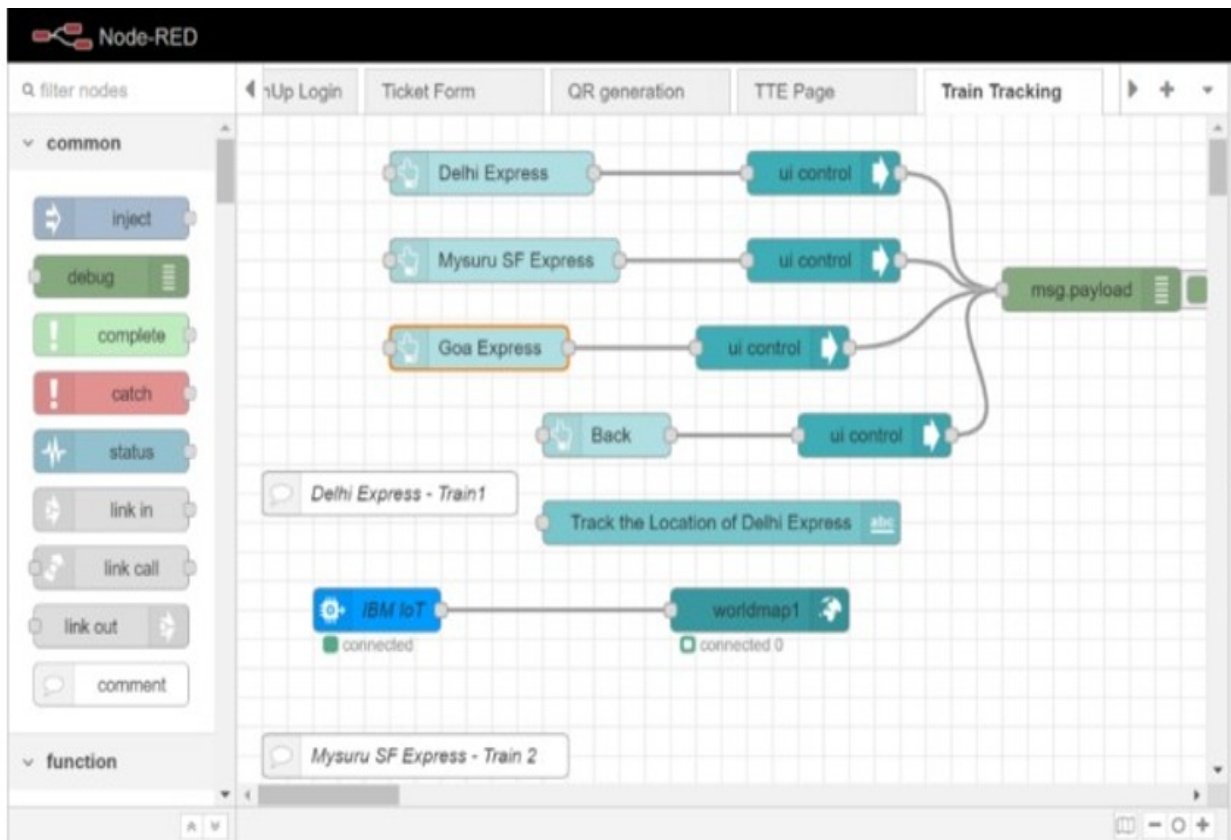
```

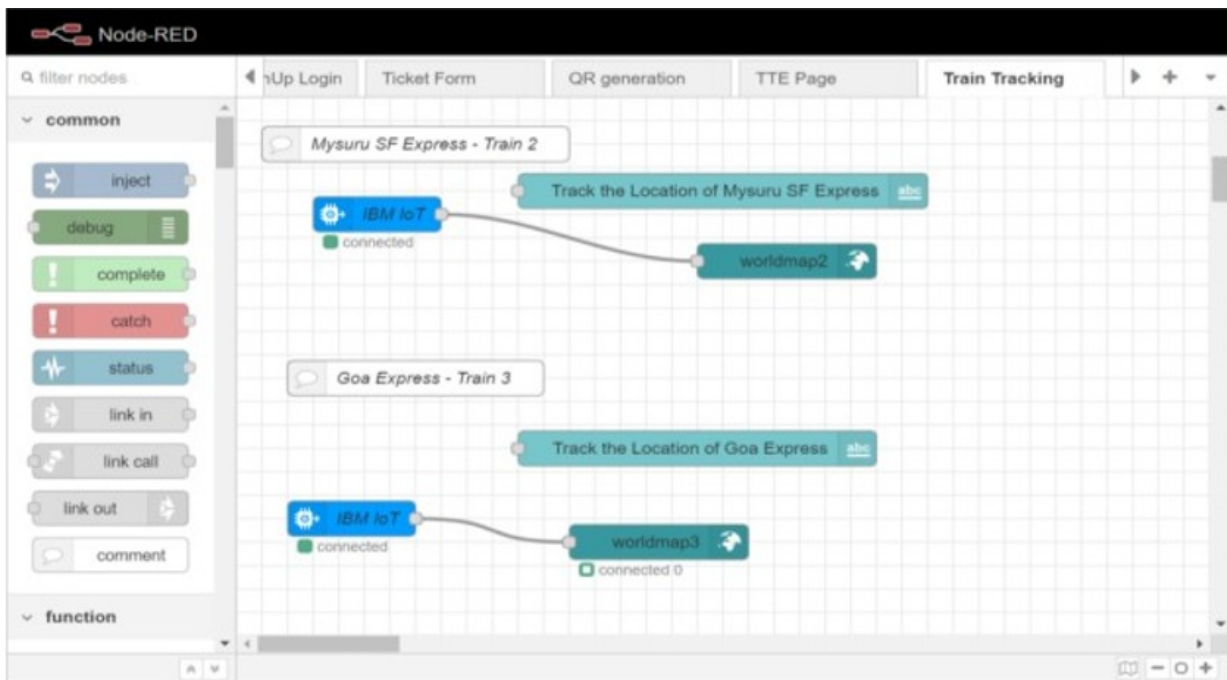
from ibmcloudant import CouchDbSessionAuthenticator
from ibm_cloud_sdk_core.authenticators import BasicAuthenticator
import wiotp.sdk.device
authenticator=BasicAuthenticator('apikey-v2-
1w8tqt2prt3j7qz9d1rgrxhar3w9v43i2359u79ut5jb','86181a38eca19ae487f512b10aca0c80')
service=CloudantV1(authenticator=authenticator)
service.set_service_url('https://apikey-v2-
1w8tqt2prt3j7qz9d1rgrxhar3w9v43i2359u79ut5jb:86181a38eca19ae487f512b10aca0c80@
9163f25a10b8-4374-a8de-cb92e4357567-bluemix.cloudantnosqldb.appdomain.cloud')
cap = cv.VideoCapture(0)
font = cv.FONT_HERSHEY_PLAIN
if not cap.isOpened():
    print("Cannot open camera")
    exit()
myConfig = {
    "identity" :{
        "orgId":"ryc4pr",
        "typeId":"QR_Reads",
        "deviceId":"876543"
    },
    "auth":{
        "token":"GGHvsi!XL-i7x0mC6B"
    }
}
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=response, qos=0,
    onPublish=None)
    print("Published data Successfully: %s",response)
    print("\n")
    while True:
        ret, frame=cap.read()
        decodedObjects = pyzbar.decode(frame)
        if not ret:
            print("Can't receive frame (stream end?). Exiting ...")
            break
        for obj in decodedObjects:
            a=obj.data.decode('UTF-8')
            cv.putText(frame, "Ticket", (50,50),font,2,

```


Node red flowfor train tracking:





IBM WatsonIoT device

The image displays two screenshots of the IBM Watson IoT Platform interface.

Top Screenshot: Device Drilldown - SARMATHA

The left sidebar shows the navigation menu with 'Device Credentials' selected. The main content area displays the following device credentials:

Property	Value
Organization ID	acdbab
Device Type	sm
Device ID	SARMATHA
Authentication Method	use-token-auth
Authentication Token	1LrY@7j_TUCDXKwvYY

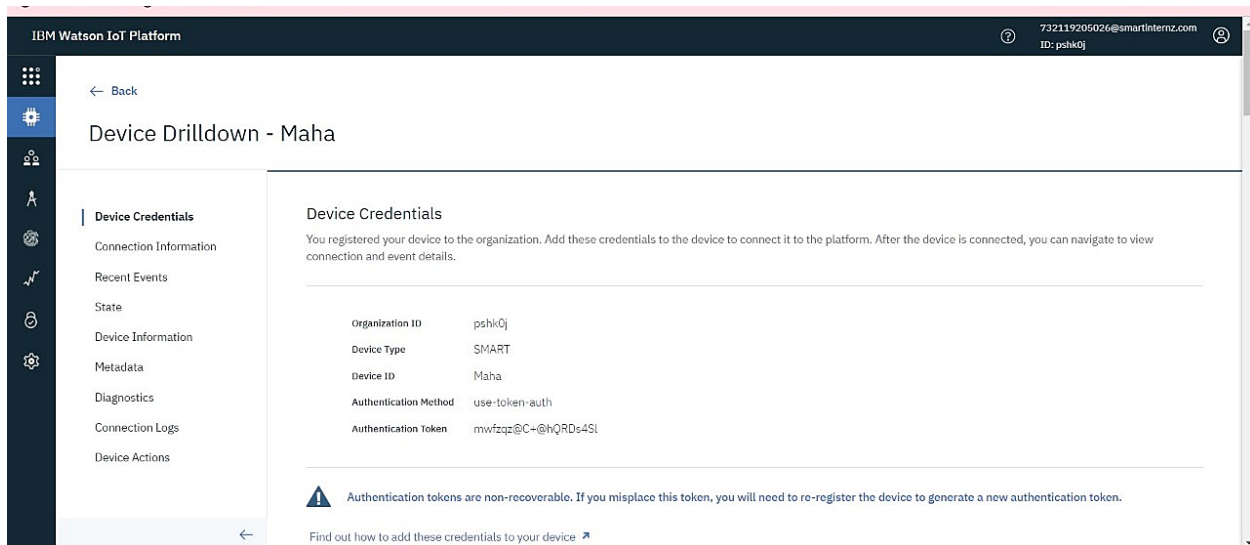
A warning message states: "Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device to generate a new authentication token." A link to "Find out how to add these credentials to your device" is provided.

Bottom Screenshot: Device Drilldown - Yogeshwari

The left sidebar shows the navigation menu with 'Connection Information' selected. The main content area displays the following connection information:

Property	Value
Device ID	Yogeshwari
Device Type	RAILWAYS
Date Added	Nov 18, 2022 10:50 AM
Added By	732119205055@smartinternz.com
Connection Status	Disconnected

The 'Recent Events' section shows a table with the following columns: Event, Value, Format, and Last Received. The table is currently empty.



Python codes for train tracking

```
import wiotp.sdk.device
import time
import random

myConfig = {
    "identity": {"orgId": "ytluse",
    "typeId": "2702", "deviceId": "12345"
    },
    "auth": {
    "token": "O+n)Eh+INX0y3?rG!8"
    }
}

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': 'Delhi Express', 'lat': 13.344279, 'lon': 80.214367}
    pub(myData)
    time.sleep(3)
    myData = {'name': 'Delhi Express', 'lat': 13.515254, 'lon': 80.093518}
    pub(myData)
    time.sleep(3)
    myData = {'name': 'Delhi Express', 'lat': 13.728799, 'lon': 80.005627}
    pub(myData)
    time.sleep(3)
    myData = {'name': 'Delhi Express', 'lat': 13.910160, 'lon': 79.906750}
    pub(myData)
    time.sleep(3)
    myData = {'name': 'Delhi Express', 'lat': 14.102035, 'lon': 79.851819}
    pub(myData)
```

```

time.sleep(3)
myData = {'name':'Delhi Express','lat':14.261807,'lon':79.862805}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':14.623537,'lon':79.950695}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.111987,'lon':79.994641}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.313413,'lon':80.005627}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.567568,'lon':80.104504}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.747405,'lon':80.269299
}
pub(myData)time.sleep(3)
myData = {'name':'Delhi Express','lat':15.821409,'lon':80.302258}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':15.927082,'lon':80.445080}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':16.022141,'lon':80.554943}
pub(myData)time.sleep(3)
myData = {'name':'Delhi Express','lat':17.033801,'lon':80.295512}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':18.383088,'lon':18.383088}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':19.074762,'lon':79.487698}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':20.179065,'lon':79.001439}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':21.306421,'lon':78.789356}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':22.518024,'lon':77.829404}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':23.264139,'lon':77.429333}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':24.509723,'lon':78.330212}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':25.668840,'lon':78.451062}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':26.177704,'lon':78.170910}pub(myData)
time.sleep(3)
myData = {'name':'Delhi Express','lat':27.505914,'lon':77.676526}
pub(myData)time.sleep(3)
myData = {'name':'Delhi Express','lat':28.302041,'lon':77.308484}pub(myData)
time.sleep(3)
client.commandCallback= myCommandCallbackclient.disconnect()

```


Train 2:

```
import wiotp.sdk.deviceimporttime
import randommyConfig = {
    "identity": {"orgId": "ytluse",
    "typeId": "train2", "deviceId": "mysore"
    },
    "auth": {
    "token": "-BCOX+hMk?*@xc@AV9"
    }
}
def myCommandCallback(cmd):
    print("Message received fromIBMIoT 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':'Mysuru SF Express','lat':11.024938,'lon':76.982315}pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':11.220325,'lon':77.570083}pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':11.564960,'lon':77.993057}pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':11.780142,'lon':78.037002}pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.134824,'lon':78.130386}pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.226105,'lon':78.091934}pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.344187,'lon':78.037002}pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.489034,'lon':78.009536}pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.655239,'lon':77.866714}pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.735622,'lon':77.756851}pub(myData)
    time.sleep(3)

    myData = {'name':'Mysuru SF Express','lat':12.907020,'lon':77.696426}pub(myData)
    time.sleep(3)
    myData = {'name':'Mysuru SF Express','lat':12.987323,'lon':77.646988}pub(myData)
```

```

time.sleep(3)
myData = {'name':'Mysuru SF Express','lat':12.955205,'lon':77.509659}pub(myData)
time.sleep(3)
myData = {'name':'Mysuru SF Express','lat':12.665958,'lon':77.136123
}
pub(myData)time.sleep(3)
myData = {'name':'Mysuru SF Express','lat':12.548022,'lon':76.921890}pub(myData)
time.sleep(3)
myData = {'name':'Mysuru SF Express','lat':12.336809,'lon':76.644485}pub(myData)
time.sleep(3)
client.commandCallback = myCommandCallback
client.disconnect()

```

Train 3:

```

import wiotp.sdk.deviceimporttime
import randommyConfig = {
"identity": {"orgId": "ytluse",
"typeld": "2702", "deviceId": "678910"
},
"auth": {
"token": "4skuC*xkhDH&la(CUR"
}
}
def myCommandCallback(cmd):
print("Message received fromIBMIoT 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':'Goa Express','lat':11.688572, 'lon':78.098877}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':11.711433, 'lon':78.076905}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':11.978226, 'lon':78.116730}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':12.085676, 'lon': 78.119477}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':12.402400, 'lon':78.023347}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':12.884795, 'lon':77.707490}

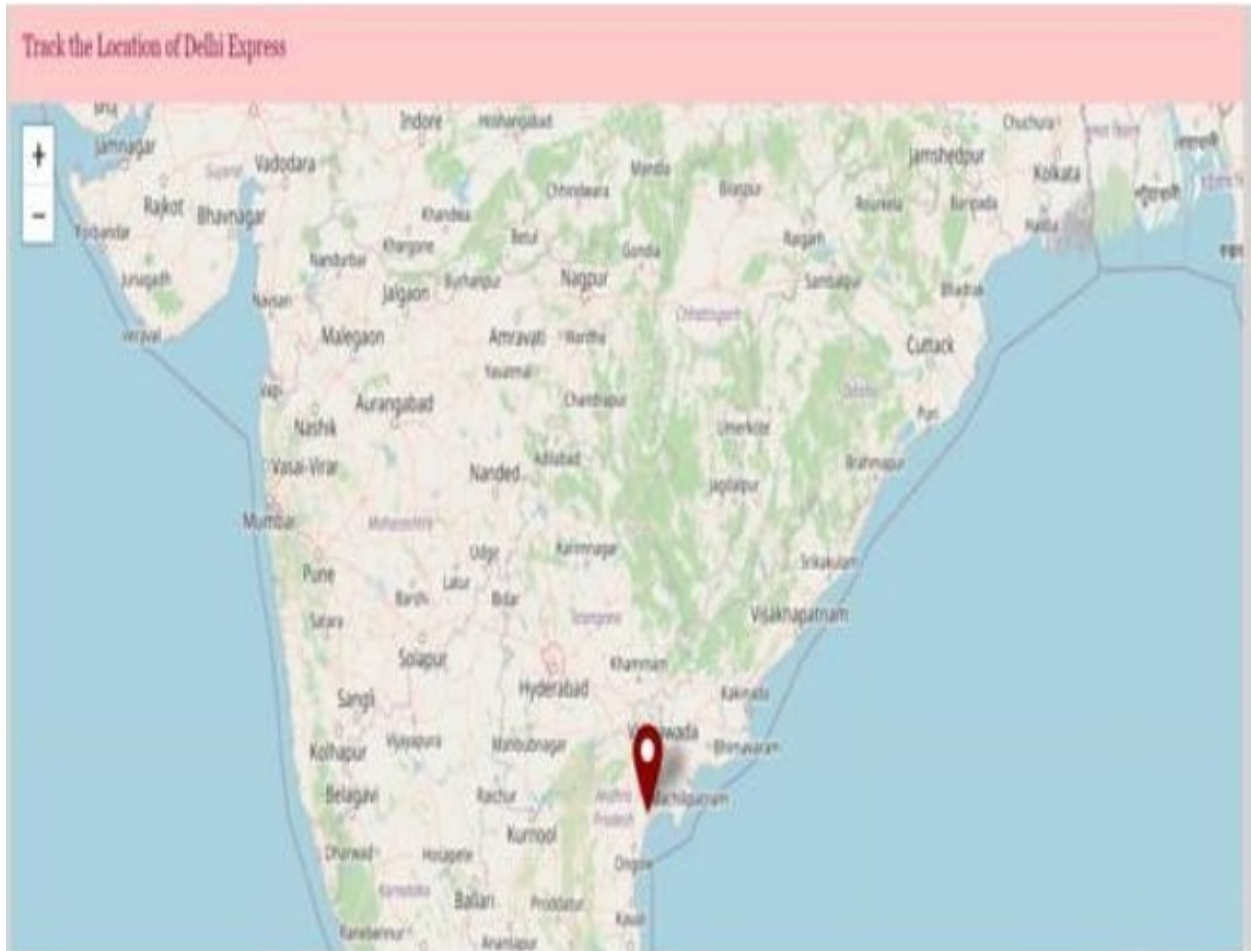
```

```
pub(myData)time.sleep(3)
myData = {'name':'Goa Express','lat':13.018630,'lon':77.614106}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.334194, 'lon':77.086762}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.299448, 'lon':76.858796}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.344884,'lon': 76.205109}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.619985, 'lon':75.966157}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':13.974739, 'lon':76.119965}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':14.423398, 'lon':75.949677}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':14.922914, 'lon':75.389374}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.119216, 'lon':75.389374}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.449980, 'lon':74.406230}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.352006,'lon':74.307353}
```

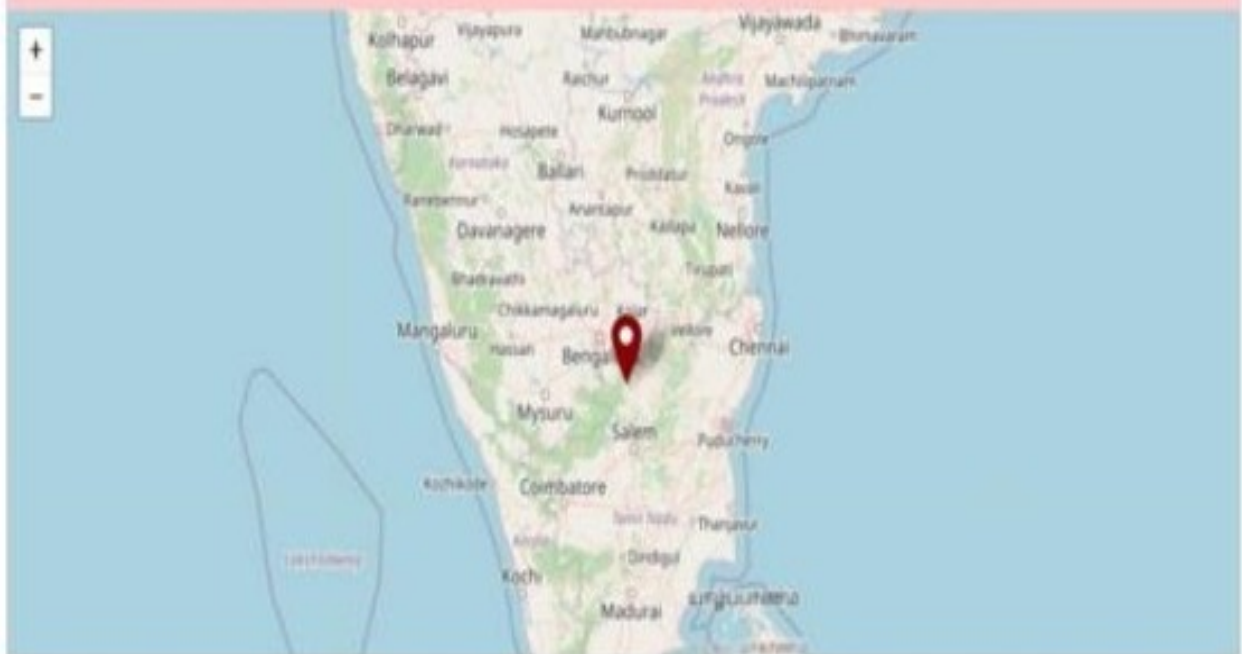
```
pub(myData)time.sleep(3)
myData = {'name':'Goa Express','lat':15.314922, 'lon':74.218089}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.283131, 'lon':74.146678}pub(myData)
time.sleep(3)
myData = {'name':'Goa Express','lat':15.276839, 'lon':74.129855}pub(myData)
time.sleep(3)time.sleep(3)
myData = {'name':'Goa Express','lat':15.282800, 'lon':74.125392}pub(myData)
time.sleep(3)time.sleep(3)
myData = {'name':'Goa Express','lat':15.296378,'lon':74.135692}pub(myData)
time.sleep(3)
client.commandCallback= myCommandCallbackclient.disconnect()
```

TRAIN TRACKING PAGE

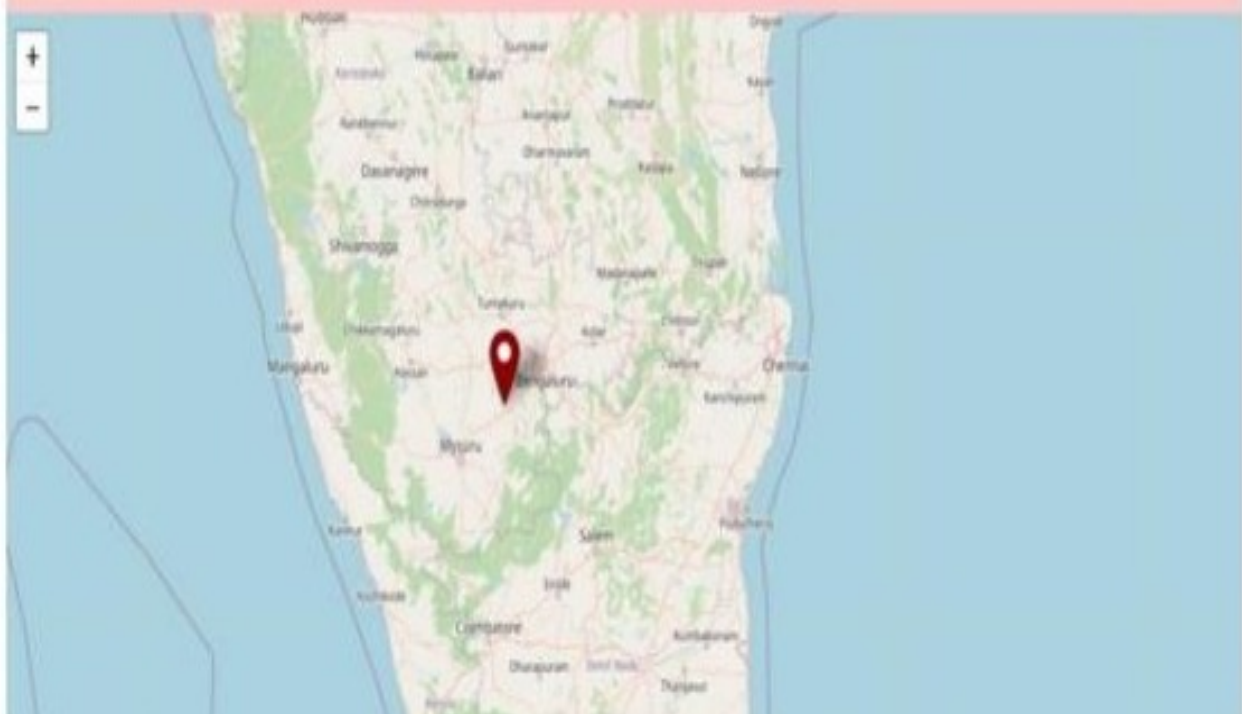
⊠



Track the Location of Goa Express



Track the Location of Mysuru SF Express



7.3.DATABASE SCHEMA

Databases					Database name	Create Database	{ } JSON		
Your Databases									
Name	Size	# of Docs	Partitioned	Actions					
bookingdetails	5.6 KB	31	No	  					

bookingdetails > 04af376033d78b40f55b3ffc3cbb5d0

Save Changes Cancel Upload Attachment Clone Document Delete

```
1 {
2   "_id": "04af376033d78b40f55b3ffc3cbb5d0",
3   "_rev": "1-a03eac451bf2ce234704c6979ea3933",
4   "unique": "2022-11-11,18:04:38",
5   "name": "demo123",
6   "Age": 33,
7   "Mobile": 43267,
8   "Boarding": "salem",
9   "Destination": "goa",
10  "Seat": 5,
11  "Seat preference": "Middle",
12  "Date of Journey": 1669075200000
13 }
```

Log Out

8. Testing

8.1 Testcase

Test case ID	Feature Type	Component	Test Scenario	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By	
HomePage_TC_001	Functional	Home Page	Verify user is able to see the Login/Signup popup when user clicked on My account button	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/Signup popup displayed or not	www.bookonlineindia.net	Login/Signup popup should display	Working as expected	Pass		N		Sumathi C	
HomePage_TC_002	UI	Home Page	Verify the UI elements in Login/Signup popup	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/Signup popup with below UI elements: a.email text box b.password text box c.Login button d.New customer? Create account link e.Last password? Recovery	www.bookonlineindia.net	Application should show below UI elements: a.email text box b.password text box c.Login button with orange colour d.New customer? Create account link e.Last password? Recovery password link	Working as expected	Fail	Steps are not clear to follow	Y	BUG-234	Aradhana P	
HomePage_TC_003	Functional	Home page	Verify user is able to log into application with Valid credentials	1.Enter URL(https://shopasr.com/) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: chahm@gmail.com password: Testing123	User should navigate to user account homepage	Working as expected	Pass		N		Mahakshi M	
LoginPage_TC_004	Functional	Login page	Verify user is able to log into application with Invalid credentials	1.Enter URL(https://shopasr.com/) and click go 2.Click on My Account dropdown button 3.Enter Invalid username/email in Email text box 4.Enter valid password in	Username: chahm@gmail.com password: Testing123	Application should show "Incorrect email or password" validation message.	Working as expected	Pass		N		Yogeshwari S	
5	Test case ID	Feature Type	Component	Test Scenario	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By
10	LoginPage_TC_005	Functional	Login page	Verify user is able to log into application with Invalid credentials	1.Enter URL(https://shopasr.com/) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter Invalid password in password text box 5.Click on login button	Username: chahm@gmail.com password: Testing123678666786786786	Application should show "Incorrect email or password" validation message.	Working as expected	Pass		N		Sumathi C
11	LoginPage_TC_006	Functional	Login page	Verify user is able to log into application with Invalid credentials	1.Enter URL(https://shopasr.com/) and click go 2.Click on My Account dropdown button 3.Enter Invalid username/email in Email text box 4.Enter Invalid password in password text box 5.Click on login button	Username: chahm password: Testing123678666786786786786	Application should show "Incorrect email or password" validation message.	Working as expected	Pass		N		Mahakshi M
12	Booking_TC_007	Functional	Verify on filling train details like From station, To station, Departure date, list of available trains are displayed	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Click the button	1. From: Mysore 2. To: Goa	Application should show the boarding and destination details.	Working as expected	Pass		N		Yogeshwari S	
13	Booking_TC_008	Functional	Verify that users can search for trains by name, from-to station for checking their status and timings	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station	1. From: Mysore 2. To: Goa 3. Train: Mysore Express	User filled the details about the boarding and destination details and with the train name	Working as expected	Pass		N		Aradhana P	
14	Booking_TC_009	UI	Verify that users can search for trains by name, from-to station for checking their status and timings	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Click the button	1. From: Mysore 2. To: Goa 3. Train: Chennai Express	Application should show the following details: User filled the details about the boarding and destination details and with the train name	Working as expected	Fail	of the Train is	Y	BUG-345	Mahakshi M	
15	Booking_TC_010	Functional	Verify that search results have train details, timings and availability.	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Select the seats	1. From: Mysore 2. To: Goa 3. Train: Chennai Express 4. Time: 12:00 AM 5. Available Seats: 5	Application should show below UI elements: a.From text box b.Destination text box c.Train name: Mysore Express d.Time: 12:00 AM e. Seats: 5	Working as expected	Pass		N		Sumathi C	
16	Booking_TC_011	Functional	Verify user is able to see available seats in a train.	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Select the seats 6. Click the button	1. From: Mysore 2. To: Goa 3. Train: Chennai Express 4. Time: 12:00 AM 5. Available Seats: 5	Application should show below UI elements: a.From text box b.Destination text box c.Train name: Mysore Express d.Time: 12:00 AM e. Seats: 5	Working as expected	Pass		N		Yogeshwari S	
17	Booking_TC_012	Functional	Verify that the user should see real-time train status of availability of seats.	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Select the seats 6. Click the button	1. From: Mysore 2. To: Goa 3. Train: Chennai Express 4. Time: 12:00 AM 5. Available Seats: 5	Application should show below UI elements: a.From text box b.Destination text box c.Train name: Mysore Express d.Time: 12:00 AM	Working as expected	pass		N		Mahakshi M	
18				1. Enter URL and click go 2. Click on my Account		Application should show below UI elements:							

9	Test case ID	Feature Type	Component	Test Scenario	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By
10	Booking_TC_013	UI	Booking	Verify that the user should see real time status of availability of seats.	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Select the seats 6. Click the button	1. From: Mysore 2. To: Goa 3. Train: Chennai Express 4. Time: 12:00 AM 5. Available Seats: 5	Application should show below UI elements: a. From text box b. Destination text box c. Train name: Mysore Express d. Time: 12:00 AM e. Seat: 7	Working as expected	Fail	Seats were chosen which exceeds the availability	Y		Aradhana P
11	Booking_TC_014	UI	Booking	Verify if the seat is booked then user should not be able to purchase the ticket for that seat	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Select the seats	1. From: Mysore 2. To: Goa 3. Train: Chennai Express 4. Time: 12:00 AM 5. Available Seats: 5	Application should show below UI elements: a. From text box b. Destination text box c. Train name: Mysore Express d. Time: 12:00 AM Ticket not Booked	Working as expected	Fail	customer chooses seat number 2 but seat number 2 is already booked	Y		Yogeshwari S
12	PassengerDetails_TC_015	Functional	Passenger Details	Verify when user select seat, enters passenger details	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter Name 4. Enter age 5. Mobile Number 6. Seats	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Name: XXX 4. Age: 30 5. Mobile: 9876543210	Application should show below UI elements: a. Enter the Name b. Enter the Age c. Enter the mobile number	Working as expected	Pass		N		Sumathi C
13	PassengerDetails_TC_016	UI	Passenger Details	Verify when user select seat, enters passenger details	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter Name 4. Enter age 5. Mobile Number 6. Seats	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Name: 345 4. Age: 30 5. Mobile: 9876543210	Application should show below UI elements: a. Enter the Name b. Enter the Age c. Enter the mobile number	Working as expected	Fail	some should be filled with alphabets not numbers	Y	BUG-45	Aradhana P
14				Verify status of the seat gets change to booked after the user has booked the ticket.	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter Name 4. Enter age 5. Mobile Number 6. Seats	1. From: Mysore 2. To: Goa 3. Train: Chennai Express 4. Time: 12:00 AM 5. Available Seats: 5	Application should show below UI elements: a. From text box b. Destination text box c. Train name: Mysore Express d. Time: 12:00 AM e. Remaining Seats: 2	Working as expected	Pass	Remaining seats is 2, because 3 seats are already booked	N		Mahakshi Jini M
15	PassengerDetails_TC_017	Functional	Passenger Details	Verify user should receive SMS or mail after successfully booking of ticket.	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Select the seats	1. From: Mysore 2. To: Goa 3. Train: Chennai Express 4. Time: 12:00 AM 5. Available Seats: 5	Application should show below UI elements: a. From text box b. Destination text box c. Train name: Mysore Express d. Time: 12:00 AM e. Remaining Seats: 2	Working as expected	Pass		N		Yogeshwari S
16	PassengerDetails_TC_018	Functional	Passenger Details	Verify when user cancels the ticket then his amount should get refunded	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter Name 4. Enter age 5. Mobile Number 6. Seats	1. From: Mysore 2. To: Goa 3. Train: Chennai Express 4. Time: 12:00 AM 5. Available Seats: 5	Application should show below UI elements: a. Enter the Name b. Enter the Age c. Enter the mobile number	Working as expected	Pass	the user cancels the ticket and he gets refunded	N		Aradhana P
17	Payment_TC_020	Functional	Payment	Verify by trying payment from different types of payment mode.	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Select the seats	1. Enter URL and click go 2. Payment: Online 3. Name: XXX 4. Age: 30 5. Mobile: 9876543210	Application should show below UI elements: a. Name text box b. Age text box c. Mobile d. Seat text box e. Online payment	Working as expected	Pass		N		Sumathi C
18	PassengerDetails_TC_021	Functional	Passenger Details	Verify error message is displayed when user enters special character in from and to field.	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter invalid username/email text box 4. Enter invalid password in	1. Name: \$\$\$\$ 2. Age: 20 3. Mobile: 986543210	Application should show "Incorrect name or password" validation message.	Working as expected	Fail	Name is written with special characters	Y	BUG-82	Yogeshwari S
19	TTE_TC_022	Functional	TTE	Verify TTE is able to see the Login/signup popup when user clicked on My account button	1. Enter URL and click go 2. Click on Account dropdown button 3. Verify login/signup	Id: Steve password: Telegin	Login/signup popup should display	Working as expected	Pass		N		Mahakshi Jini M
20	TTE_TC_023	UI	TTE	Verify TTE is able to see the Login/signup popup when user clicked on My account button	1. Enter URL and click go 2. Click on Account dropdown button 3. Verify login/signup popup displayed or not	Id: Useridff password: Telegin	Application should show "Incorrect name or password" validation message.	Working as expected	Fail	Only the TTE should login in TTE login spec. No User should	Y	BUG-756	Sumathi C
21	Booking_TC_024	UI	Booking	Verify on filling train details like From station, To station, Departure date, list of available trains are displayed	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Select the seats	1. From: Mysore 2. To: Goa 3. Train: Chennai Express 4. Time: 12:00 AM 5. Available Seats: 5	Application should show "Incorrect name or password" validation message.	Working as expected	Fail	the user tries to book this ticket without choosing the boarding station	Y	BUG-642	Aradhana P
22	Payment_TC_025	UI	Payment	Verify payment should get rejected when user enter wrong credentials during payment process.	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Select the seats	1. Enter URL and click go 2. Payment: Online 3. Name: XXX 4. Age: 30 5. Mobile: 9876543210	Application should show "Incorrect name or password" validation message.	Working as expected	Fail		Y	BUG-124	Mahakshi Jini M
23	TTE_TC_026	Functional	TTE	Verify TTE can view the details of bookings when scanning the QR code	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Enter the boarding Station 4. Enter the destination Station 5. Select the seats	1. Enter URL and click go 2. Payment: Online 3. Name: XXX 4. Age: 30 5. Mobile: 9876543210	TTE can view the booking details	Working as expected	Pass		N		Sumathi C
24	Booking_TC_027	Functional	Booking Details	Verify user should not be able to purchase ticket if he is not login	1. Enter URL and click go 2. Click on my Account Dropdown button 3. Verify login/signup	Username: dslan@gmail.com password: Telegin	Application should show "Incorrect email or password" validation message.	Working as expected	Fail		Y	BUG-397	Yogeshwari S

5	Test case ID	Feature Type	Component	Test Scenario	Steps To Execute	Test Data	Expected Result	Actual Result	States	Comments	TC for Automation(Y/N)	BUG ID	Executed By
32	Booking Details_TC_027	Functional	Booking Details	Verify user should not be able to purchase ticket if he is not login to application.	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/signup popup with below UI elements: a. username text box b.password text box	Username: chalam@gmail.com password:Testing123	Application should show "Incorrect email or password" validation message.	Working as expected	Fail		Y	BUG- 961	Yogeshwar S
33	LoginPage_TC_028	Functional	Train Tracking	Verify whether the user can track the live location the train	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/signup popup with below UI elements: the user can able to view the live location	Live Location of the train: Hyderabad	User can able to view the live location of the train	Working as expected	pass		N		Sumathi C
34	TrainTracking_TC_029	Functional	Train Tracking	Verify whether the user can track the live location the train with the update periodically	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/signup popup with below UI elements: the user can able to view the live location	Current Location of the train : Vijaywada	user can track the live location the train with the update periodically	Working as expected	pass		N		Mahalakshmi M
35	TrainTracking_TC_030	UI	Train Tracking	Verify whether the user can track the live location the train	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/signup popup with below UI elements: the user can able to view the live location	Live Location of the train: Pune	User can able to view correct live location of the train	Working as expected	fail	the shown live location of the train is wrong	Y	BUG- 812	Anusha R P
36													
37													

8.2 User Acceptance Testing

1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the [Smart Solutions for Railways] project at the time of the release to User Acceptance Testing (UAT).

2. Defect Analysis

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	5	2	3	1	11
Duplicate	1	1	0	0	2
External	2	1	0	0	3
Fixed	9	4	5	2	20
Not Reproduced	0	0	1	0	1
Skipped	0	1	0	2	3
Won't Fix	1	0	1	0	2
Totals	18	9	10	5	42

The defect analysis was resolved by,

1. Reviewing the code and establishing checkpoints.
2. Debugging window.
3. By working in pairs and conducting team window.
4. By developing action plans to cope with specific issues.
5. Defect resolution process.
6. Prioritize and resolving defect.
7. Validating the corrective action presented.

3. Test Case Analysis

This report shows the number of test cases that have passed, failed, and untested

Section	Total Cases	Not Tested	Fail	Pass
Home page	3	0	0	3
Login page	4	0	0	4
Booking	10	0	0	10
Passenger Details	6	0	0	6
TTE	3	0	0	3
Train Tracking	2	0	0	2
Payment	2	0	0	2

RESULTS

Performance Metrics

Software quality is a measurement of something intangible, “how good” a software product really is. Some of the aspects of software quality taken are

- a. Scalability
- b. Speed
- c. Stability
- d. Reliability
- e. Security
- f. Maintainability and code quality

LOAD TEST

Scenario Name	Load Test – Smart Solutions for Railways Project
Scenario Type	Load Test– Duration 1 hour
Scenario Objective	To Simulate the peak load and to monitor the performance of the Website
Steps	The online load will be maintained at steady state
Entry Criteria	All the monitors are in ready state
Exit Criteria	Response met the criteria and test completion report is agreed

STRESS TEST

Scenario Name	Stress Test- Smart Solutions for Railways Project
Scenario Type	Stress Test
Scenario Objective	Objective is to verify that the application can handle the projected growth and to discover the breaking point
Steps	Ramp up to 150% of peak volume and continuously increase load until breaking point
Entry Criteria	All the monitors are in place Test Data is set up Peak load test completed successfully
Exit Criteria	Test completion report is agreed upon as per expectation

ENDURANCE / SOAK TEST:

Scenario Name	Soak Test – Smart Solutions for Railways Project
Scenario Type	Endurance – Duration 8 hours
Scenario Objective	To discover memory issues and bottlenecks that might occur under daily usage of the application
Steps	Steady state is maintained for 8 hours with half of the peak load

Entry Criteria	All the monitors are in place Test Data is setup Peak load test completed successfully
Exit Criteria	Test completion report is agreed upon as per expectation

10.ADVANTAGES :

- ☆ Work load of the user is greatly reduced.
- ☆ Passenger's can book tickets from their convenient place and time
- ☆ TTE can easily verify tickets without the need to carry several documents pertaining to passenger details.
- ☆ Since cloudant database retrieval is possible only for the TTE (Admin) secure data handling is made possible.
- ☆ Passenger's can track the location of the train which gives them more flexibility in planning their schedules.
- ☆ Cost of implementation is less.

DISADVANTAGES:

- ☆ Since the solution is built on a Web UI which requires internet facility, this may serve to be an issue.
- ☆ Network errors can cause serious issues while ticket booking and verification.
- ☆ System compatibility to adapt the user interface may limit booking facility.
- ☆ Tracking of trains may be an issue at unlocalized terrains.

11.Conclusion

- Smart Solutions for railways is designed to reduce the work load of the user and also the use of paper.
- A Web page is designed for the public where they can book tickets by seeing the available seats.
- After booking the train, the person will get a QR code which has to be shown to the Ticket Collector while boarding the train.

- The ticket collectors can scan the QR code to identify the personal details.
- A GPS module is present in the train to track it. The live status of the journey is updated in the Web app continuously
- All the booking details of the customers will be stored in the database with a unique ID and they can be retrieved back when the Ticket Collector scans the QR Code.

12.Future Scope

- One of the most significant benefits of an online reservation system is that they are always open for business and can accept bookings 24/7, so the customers don't have to wait until the next day to make a reservation or worse.
- By having an online reservation system, we're one step ahead of the game, tipping the scales in the favor when prospects research and compare the capabilities against the competitors.
- We will be able to create mobile smartphone applications in the future. The framework already serves desktop computers and we will be able to make web browsers compliant in the future.
- India is projected to account for 40% of the total global share of rail activity by 2050. This allows great potential for the online ticket booking platform industry.

13.APPENDIX

Source Code

Python code: Refer section 7 - Coding and Solutioning

Node - Red Flows (jsonformat) :

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\\\"\\\" };\\n\\nreturn [msg1, msg2, msg3, msg4,
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8701c9de"]]],{"id":"4a31728a8 701c9de","type":"ui_form","z":"f52cc72524bafd3a","name":"Sign
Up
form","label":"","group":"37a267ed1a458278","order":5,"width":14,"height":1,"options":[{"label":"
Choose a
username","value":"username","type":"text","required":true,"rows":null},{label:"Choose a
password","value":"password","type":"password","required":true,"rows":null},{label:"Enter your
email address","value":"mail","type":"email","required":true,"rows":null},{label:"Enter your
Phone
Number","value":"phoneNumber","type":"text","required":true,"rows":null}],formValue":{"usernam
e":"","password":"","mail":"","p
honeNumber":""},"payload":"","submit":"submit","cancel":"cancel","topic":"payload","topicType":"
msg","splitLayout":"","className
e":"","x":110,"y":540,"wires":[["20c620543e5f16f6","d11cf7d42c5f1ee1","4bf26f3350375ca5"]]],{"i
d":"d11cf7d42c5f1ee1","type":"function","z":"f52cc72524bafd3a","name":"Creation of
Account","func":"var signup = context.get('signup') || [];\\nsignup.push(msg);\\nif (signup.length > 20)
{\\n
                                signup.shift();\\n
signup.length = 20;\\n}\\ncontext.set('signup', signup);\\nmsg =

```

```

{};\\nmsg.payload = signup;\\nreturn
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[,"x":360,"y":540,"wires":[["7574e8aa
c64ecb26","44f5a8f98a8f4c44","
707b2b2572d7d441"]]],{"id":"46fc2bf4889ccdf0","type":"comment","z":"f52cc72524bafd3a","nam
e":"Confirmation of Sign
up","info":"","x":620,"y":540,"wires":[[]],{"id":"7d458d15a4155be9","type":"ui_text","z":"f52cc7252
4bafd3a","group":"37a267ed1a4
58278","order":8,"width":14,"height":1,"name":"SignUp
Feedback","label":"","format":"{{ msg.payload }}","layout":"row-
spread","className":"","x":990,"y":620,"wires":[[]],{"id":"7574e8aac64ecb26","type":"function","z":
"f52cc72524bafd3a","name":"C onfirmation Message","func":"msg.payload = \\\"Your Account is
successfully created\\\";\\nreturn
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[,"x":640,"y":620,"wires":[["7d458d15
a4155be9"]]],{"id":"d1370f5ee2 f35dad","type":"comment","z":"f52cc72524bafd3a","name":"Login
page","info":"","x":130,"y":40,"wires":[[]],{"id":"cefa9967356fb848","type":"comment","z":"f52cc72
524bafd3a","name":"About","in

```

```
fo":"","x":90,"y":760,"wires":[],{"id":"8465dcef34557fe1","type":"ui_form","z":"f52cc72524baafd3a","name":"","label":"","group":"b944bd655d2bb705","order":5,"width":12,"height":1,"options":[{"label":"username","value":"username","type":"text","required":true,"rows":null}, {"label":"password","value":"password","type":"text","required":true,"rows":null}], "formValue":{"username":"","password":""}, {"payload":"","submit":"Login","cancel":"","topic":"payload","topicType":"msg","splitLayout":"","className":"","x":110,"y":140,"wires":["f8d861a74351f205"]}, {"id":"f8d861a74351f205","type":"delay","z":"f52cc72524baafd3a","name":"","pauseType":"delay","timeout":"100","timeoutUnits":"milliseconds","rate":"1","nbRateUnits":"1","rateUnits":"second","randomFirst":"1","randomLast":"5","randomUnits":"seconds","drop":false,"allowrate":false,"outputs":1,"x":310,"y":140,"wires":["33dc8e14ded24e18"]}, {"id":"33dc8e14ded24e18","type":"function","z":"f52cc72524baafd3a","name":"Login Checker","func":"var userName = [\"user1\\\", \"user2\\\", \"user3\\\", \"user4\\\"];\nvar userCode = [\"123\\\", \"456\\\", \"789\\\", \"012\\\"];\nvar name;\nvar pass;\nvar msg1,msg2;\n\nname=msg.payload.username;\npass = msg.payload.password;\nnmsg1=userName.includes(name);\nmmsg2=userCode.includes(pass);\nnif(msg1==true && mmsg2==true)\n{\n    msg = {payload:2};\n}\nelse\n{\n    msg = {payload:0};\n}\nreturn msg;\n","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":500,"y":140,"wires":["ad9a0f7ca9f8cd3e","3fb941c5011005c9"],"72fd7a4d5406998a","52450b1804804a6d"]}, {"id":"3b6652d124ebc609","type":"ui_text","z":"f52cc72524baafd3a","group":"b944bd655d2bb705","order":8,"width":12,"height":1,"name":"Login feedback","label":"","format":"{{msg.payload}}","layout":"row-spread","className":"","x":1080,"y":260,"wires":[]}, {"id":"8645d955a9d6c18e","type":"template","z":"f52cc72524baafd3a","name":"","CSS","field":"payload","fieldType":"msg","format":"css","syntax":"mustache","template":"body {\nbackground-color: #141414;\n background-image:url('data:image/svg+xml;base64,PHN2ZyB4bWxucz0naHR0cDovL3d3dy53My5vcmcvMjAwMC9zdmcnIHdpZHRoPScxMDAlJyBoZWlnaHQ9JzEyMCC+CGk8ZGVmcz4KCQk8cGF0dGVybiBwYXR0ZXJuVW5pdHM9J3VzZXJTcGFjZU9uVXNLJyBpZD0nYycgd2lkdGg9JzYwJyBoZWlnaHQ9JzEyMCCgeD0nMCCgeT0nMCCgdmllld0JveD0nMCAwIDUgMTAnPgoJCQk8cGF0aCBmaWxsLW9wYWNPdHk9JzAnIHN0cm9rZT0nIzlzMjkyOScg3Ryb2tldXdpZHRoPScwLjA5JyBkPSdNLTIIsMUw3LDEwTS0yLDZMNywxNU0tMiwtNEw3LDUnLz4KCQk8L3BhdHRlcm4+CGkJPHBhdHRlcm4gcGF0dGVyblVuaXRzPSd1c2VyU3BhY2VPblVzZScg"}]
```

aWQ9J2MyJyB3aWR0aD0nNjAnIGhlaWdodD0nMTIwJyB4PScxMDAlJyB5PScwJyB2aWV3Qm94PScwIDAgNSAxMCc+CgkJC

TxwYXRoIGZpbGwtb3BhY2l0eT0nMCCgc3Ryb2tIPScjMjkyOTI5JyBzdHJva2Utd2lkdGg9JzAuMDknIGQ9J003LDFMLTIsMTBNNyw2TC0yLDE1TTcsLTRMLTIsNScvPgoJCTwvcGF0dGVybj4KC

TwvZGVmcz4KCTxyZWNoIHdpZHRoPSc1MCUnIGhlaWdod

D0nMTAwJScgZmlsbD0ndXJsKCNjKScvPgoJPHJlY3QgeD0nNTAlJyB3aWR0aD0nNTAlJyBoZWlnaHQ9JzEwMCUnIGZpbGw9J3VybCgjYzIpJy8+Cjwvc3ZnPg==');\n \n margin:0; padding:0;\n overflow-x:hidden;\n height:100%;\n font-family: 'Lato', Helvetica, arial, sans-serif;\n font-weight: 300;\n font-size: 20px;\n line-height: 1.45;\n color: #eee;\n color: rgba(255,255,255,.85);\n}\n#container { \n padding-top: 50px;\n}\n#content {\n max-width: 43em;\n padding:10px;\n margin:0 auto;\n}\nh1 {\n font-size: 4.8em;\n font-weight: 100;\n text-transform: uppercase;\n margin: 0;\n}\nh3 {\n font-size: 2.4em;\n font-weight: 300;\n line-height: 1.5;\n}\nnp, li {\n font-size: 1.7em;\n}\na {\n font-weight: 700;\n text-decoration: none;\n color: #fff;\n}\na:hover {\n text-decoration: underline;\n}\nnp#pleft {\n max-width:20em;\n float:left;\n}\nnp#pright {\n max-width:20em;\n float:right;\n}\n\n{\n clear:both;\n}\n\n\nhtml { font-size: 62.5%; }\nbody { font-size: 1em;}\n\n/* PYRAMIDCODE */\n.stage {\n -webkit-transform:scale(1.85);\n transform:scale(0.85);\n float:right;\n margin-right:120px;\n margin-top:30px;\n width:0px;\n height:0px;\n position:relative;\n -webkit-perspective:1200px;\n -webkit-perspective-origin:50% 50%; \n perspective:1200px;\n perspective-origin:50% 50%;\n}\n.pyramid3d {\n position:relative;\n width:150px;\n height:150px;\n -webkit-transform-style: preserve-3d;\n transform-style: preserve-3d;\n -webkit-transform: rotateX(75deg) rotate(65deg);\n transform: rotateX(75deg) rotate(65deg);\n -webkit-animation: turnPyramid 10s linear infinite;\n animation: turnPyramid 10s linear infinite;\n}\n.triangle {\n -webkit-transform-style:preserve-3d;\n transform-style:preserve-3d;\n width:0;height:0;\n background:none;\n}\n.triangle:before{\n content:'';\n position:absolute;\n height: 0; width: 0;\n border-style: solid;\nborder-width: 176px 75px 0 75px;\n}\n.side1 { -webkit-transform: translateX(0) rotateY(115.2deg) rotateZ(90deg); transform: translateX(0) rotateY(115.2deg) rotateZ(90deg); }\n.side2 { -webkit-transform: translateX(150px) rotateZ(90deg) rotateX(64.8deg); transform: translateX(150px) rotateZ(90deg) rotateX(64.8deg); }\n.side3 { -webkit-transform: translateZ(0) rotateX(64.8deg); transform: translateZ(0) rotateX(64.8deg); }\n.side4 { -webkit-transform: translateY(150px) rotateX(115.2deg); transform: translateY(150px) rotateX(115.2deg); }\n.side1:before{ border-color: rgba(115, 115, 0, 0.3) transparent transparent transparent;\n}\n.side2:before{ border-color: rgba(20, 90, 225, 0.3) transparent transparent transparent;\n}\n.side3:before{ border-color: rgba(255,0, 0, 0.3) transparent transparent transparent;\n}\n.side4:before{ border-color: rgba(0, 255, 255, 0.3) transparent transparent transparent;\n}\n\n\n@-webkit-keyframes turnPyramid { 100% { -webkit-transform: rotateX(75deg) rotate(425deg); }\n}\n@keyframes


```
wires":[]},{ "id":"3fb941c50110
05c9","type":"function","z":"f52cc72524bafd3a","name":"Confirmation
Message","func":"if(msg.payload == 2)\n{\n
msg.payload
= \"successfully logged in \";\n}\nelse\n{\n  msg.payload = \"Invalid Username or Password
\";\n}\nreturn
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":800,"y":260,"wires":[["3b6652d1
24ebc609"]]}, {"id":"72fd7a4d54
06998a","type":"ui_ui_control","z":"f52cc72524bafd3a","name":"","events":"all","x":860,"y":200,"
wires":[[]]},{ "id":"df28d7342dcf1cdf","type":"function","z":"f52cc72524bafd3a","name":"Reset
Function","func":"\nmsg = { payload: \"\" };\n\nreturn
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":880,"y":320,"wires":[["3b6652d1
24ebc609"]]}, {"id":"44e5b303c1 4176b3","type":"function","z":"f52cc72524bafd3a","name":"Reset
Function","func":"\nmsg = { payload: \"\" };\n\nreturn
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":760,"y":700,"wires":[["7d458d1
5a4155be9"]]}, {"id":"52450b180
4804a6d","type":"delay","z":"f52cc72524bafd3a","name":"","pauseType":"delay","timeout":"2","tim
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"nbRateUnits":"1","rateUnits":"second","randomFirst":"1","randomLast":"5","randomUnits":"second
s","drop":false,"allowrate":false,"outputs":1,"x":680,"y":320,"wires":[["df28d7342dcf1cdf"]]}, {"id":"
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me":"","pauseType":"delay","timeout":"2","timeoutUnits":"seconds","rate":"1","nbRateUnits":"1","r
ateUnits":"second","randomFirst
":"1","randomLast":"5","randomUnits":"seconds","drop":false,"allowrate":false,"outputs":1,"x":580,
"y":700,"wires":[["44e5b303c141
76b3"]]}, {"id":"b0b76f0290afd29b","type":"ui_text","z":"f52cc72524bafd3a","group":"b944bd655d
2bb705","order":2,"width":12,"he
ight":1,"name":"","label":"Login","format":"{{ msg.payload }}","layout":"row-
spread","className":"","x":130,"y":100,"wires":[[]]},{ "id":"286873e276b4374c","type":"ui_text","z":"
f52cc72524bafd3a","group":"37
a267ed1a458278","order":2,"width":14,"height":1,"name":"","label":"Sign
Up","format":"{{ msg.payload }}","layout":"row-
spread","className":"","x":100,"y":400,"wires":[[]]},{ "id":"e09be1bc4c560319","type":"ui_text","z":
"f52cc72524bafd3a","group":"2b
05317674db32db","order":2,"width":16,"height":1,"name":"","label":"About
","format":"{{ msg.payload }}","layout":"row-
spread","className":"","x":170,"y":820,"wires":[[]]},{ "id":"4bf26f3350375ca5","type":"cloudant
out","z":"f52cc72524bafd3a","name":"User
DB","cloudant":"677fd414506f8cdc","database":"userlist","service":"_ext_","payonly":false,"operati
```



```
on": "insert", "x": 360, "y": 500, "wires": [], { "id": "93cffb8088dc2e3", "type": "ui_button", "z": "f71bd8f6e16cc47c", "name": "", "group": "ac7d73420ebc6459", "order": 2, "width": 6, "height": 1, "passthru": false, "label": "Book a ticket!", "tooltip": "", "color": "", "bgcolor": "Blue", "className": "", "icon": "", "payload": "{ \"group\": { \"hide\": [ \"passenger_tracking\" ], \"show\": [ \"passenger_first\", \"passenger_ticket_form\" ] } }", "payloadType": "json", "topic": "topic", "topicType": "msg", "x": 200, "y": 60, "wires": [ [ "1836e3ef92e87d1b" ] ], { "id": "1836e3ef92e87d1b", "type": "ui_ui_control", "z": "f71bd8f6e16cc47c", "name": "", "events": "all", "x": 480, "y": 100, "wires": [ [ "b05cfec67a702079" ] ], { "id": "b05cfec67a702079", "type": "debug", "z": "f71bd8f6e16cc47c", "name": "debug", "active": true, "tosidebar": true, "console": false, "tostatus": false, "complete": "false", "statusVal": "", "statusType": "auto", "x": 720, "y": 100, "wires": [], { "id": "b354f0691ad8b90c", "type": "ui_button", "z": "f71bd8f6e16cc47c", "name": "", "group": "ac7d73420ebc6459", "order": 4, "width": 6, "height": 1, "passthru": false, "label": "Check status", "tooltip": "", "color": "", "bgcolor": "green", "className": "", "icon": "", "payload": "3", "payloadType": "num", "topic": "", "topicType": "str", "x": 190, "y": 120, "wires": [ [ "efe4dab3f0db96a4" ] ], { "id": "a727b6da239992fc", "type": "ui_button", "z": "f71bd8f6e16cc47c", "name": "", "group": "b7c6ddcc5be17ee3", "order": 10, "width": 4, "height": 1, "passthru": false, "label": "back", "tooltip": "", "color": "", "bgcolor": "red", "className": "", "icon": "", "payload": "{ \"group\": { \"hide\": [ \"passenger_tracking\", \"passenger_ticket_form\" ], \"show\": [ \"passenger_first\" ] } }", "payloadType": "json", "topic": "topic", "topicType": "msg", "x": 210, "y": 1140, "wires": [ [ "9c9951bcc5b6202b" ] ], { "id": "9c9951bcc5b6202b", "type": "ui_ui_control", "z": "f71bd8f6e16cc47c", "name": "", "events": "all", "x": 400, "y": 1140, "wires": [ [ "d343423931a62c88" ] ], { "id": "d343423931a62c88", "type": "debug", "z": "f71bd8f6e16cc47c", "name": "debug", "active": true, "tosidebar": true, "console": false, "tostatus": false, "complete": "payload", "targetType": "msg", "statusVal": "", "statusType": "auto", "x": 620, "y": 1140, "wires": [], { "id": "10f498aed4553517", "type": "ui_form", "z": "f71bd8f6e16cc47c", "name": "", "label": "", "group": "b7c6ddcc5be17ee3", "order": 7, "width": 13, "height": 1, "options": [ { "label": "Name", "value": "name", "type": "text", "required": true, "rows": null }, { "label": "Age", "value": "age", "type": "number", "required": true, "rows": null }, { "label": "Mobile Number", "value": "no", "type": "number", "required": true, "rows": null } ], "formValue": { "name": "", "age": "", "no": "" }, "payload": "", "submit": "submit", "cancel": "cancel", "topic": "payload", "topicType": "msg", "splitLayout": "", "className": "", "x": 130, "y": 880, "wires": [ [ "3e6e6a588f486567", "6ba6b7b21a4beed0", "5ea7628d9f80e6a3" ] ], { "id": "3e6e6a588f486567", "type": "funct
```

```
ion","z":"f71bd8f6e16cc47c","name":"tickets availability","func":"global.set('m', msg.payload)\nvar  
a= global.get('s')\nif(a==1|| a==2 || a==3 || a==4 || a==5)\n{\nmsg.payload =  
0\n}\nelse{\nmsg.payload = 1\n}\nreturn  
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":330,"y":780,"wires":[["5f62828e  
1a9c1e8b"]]},{"id":"6ba6b7b21a  
4beed0","type":"function","z":"f71bd8f6e16cc47c","name":"remove booked seat","func":"var s =  
global.get('s')\nvar a = global.get('a') \n/**\n* @param {any} x\n*/\nfunction rem(x){\nfor (let i=0;  
i<a.length; i++){  
\nif(a[i]==x){  
a.splice(i,1)\n}\n}\n}\nif(s ==  
1){\nglobal.set('s',s)\nrem(s)\n}\nelse if(s ==
```

```
2){\nglobal.set('s1',s)\nrem(s)\n}\nelse if(s==3){\nglobal.set('s3',s)\nrem(s)\n}\nelse  
if(s==4){\nglobal.set('s4',s)\nrem(s)\n}\nelse if(s  
== 5){\nglobal.set('s5',s)\nrem(s)\n}\n return  
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":380,"y":860,"wires":[["28fa0b5dc  
2682300"]]},{"id":"28fa0b5dc2  
682300","type":"debug","z":"f71bd8f6e16cc47c","name":"","active":true,"tosidebar":true,"console":  
false,"tostatus":false,"complete":":  
false","statusVal":"","statusType":"auto","x":690,"y":860,"wires":[],"id":"5ea7628d9f80e6a3","typ  
e":"delay","z":"f71bd8f6e16cc4  
7c","name":"","pauseType":"delay","timeout":"3","timeoutUnits":"seconds","rate":"1","nbRateUnits  
":"1","rateUnits":"second","rando  
mFirst":"1","randomLast":"5","randomUnits":"seconds","drop":false,"allowrate":false,"outputs":1,"x"  
:340,"y":940,"wires":[["bd1f5e2  
e829398ae"]]},{"id":"bd1f5e2e829398ae","type":"function","z":"f71bd8f6e16cc47c","name":"show  
remainingtickets","func":"var a  
= global.get('a')\nvar s = []\nfor(let i=0; i<=a.length; i++){  
s.push(a[i])\n}\nif(s.length == 1){\nmsg.options=[{"No seats  
Available":0}]\n}\nelse{\nmsg.options= s\n}\nmsg.payload =  
s\nreturnmsg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":560,"y":960,"wires":[["0  
ac7b19190d56dee"]]},{"id":"d97269d73f  
19ce48","type":"function","z":"f71bd8f6e16cc47c","name":"a var global  
def","func":"global.set('s1',0)\nglobal.set('s2',0)\nglobal.set('s3',0)\nglobal.set('s4',0)\nvar  
a1=[1,2,3,4,5]\nglobal.set('a',a1)\nmsg.payload = global.get('a')\nreturn  
msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":380,"y":1020,"wires":[["bd1f5e2  
e829398ae"]]},{"id":"5f62828e1  
a9c1e8b","type":"switch","z":"f71bd8f6e16cc47c","name":"","property":"payload","propertyType":":  
msg","rules":[{"t":"eq","v":"0",":  
vt":"str"}],{"t":"eq","v":"1","vt":"str"}],checkall:"true","repair":false,"outputs":2,"x":530,"y":780,"w  
ires":[["dce0f651e6036656"],["  
0dd9c90375a6af41"]]},{"id":"0dd9c90375a6af41","type":"function","z":"f71bd8f6e16cc47c","name  
":"","func":"msg.payload =
```

```
\nTicket booked\n\nreturn
msg;,"outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[,"x":720,"y":780,"wires":[["94eb1b5c5
a374812"]]],{"id":"94eb1b5c5a
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"","sendall":true,"outputs":1,"ok
":"OK","cancel":"","raw":false,"className":"","topic":"","name":"","x":930,"y":780,"wires":[[]]},{
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option","group":"b7c6ddcc5be17ee3","order":4,"width":13,"height":1,"passthru":true,"multiple":fals
e,"options":[],"payload":"","topic
":"payload","topicType":"msg","className":"","x":750,"y":960,"wires":[["899c825008663e51"]]],{
"id":"899c825008663e51","type"
:"function","z":"f71bd8f6e16cc47c","name":"set the booked seat number
global","func":"global.set(\`s\`,msg.payload)\n\nreturn
msg;,"outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[,"x":980,"y":960,"wires":[[]]},{
id":"2bc8909a7bc0400a","type":"ui_b
utton","z":"f71bd8f6e16cc47c","name":"","group":"c5d2c2754eeda1d3","order":14,"width":5,"height":1,"passthru":false,"label":"Clear all the Booked
Tickets","tooltip":"","color":"","bgcolor":"Green","className":"","icon":"","payload":{"group":{"hide":{"passenger_tracking","passenger_ticket_form"},"show":{"passenger_first"}}},"payload
Type":"json","topic":"topic","topicType":"msg","x":140,"y":1020
,"wires":[["d97269d73f19ce48"]]],{"id":"0393bbf264e07b1f","type":"ui_dropdown","z":"f71bd8f6e1
6cc47c","name":"","label":"From","tooltip":"","place":"Select
```

```
option","group":"b7c6ddcc5be17ee3","order":2,"width":13,"height":1,"passthru":true,"multiple":false,"options":[{"label":"chennai","value":"chennai","type":"str"},{"label":"coimbatore","value":"coimbatore","type":"str"},{"label":"salem","value":"salem","type":"str"}],"payload":"","topic":"topic","topicType":"msg","className":"","x":190,"y":1280,"wires":[["7c50809669a5ec14"]]],{"id":"ddfd
c55543e579e3","type":"ui_dropdown","z":"f71bd8f6e16cc47c","name":"","label":"To","tooltip":"","place":"Select
option","group":"b7c6ddcc5be17ee3","order":3,"width":13,"height":1,"passthru":true,"multiple":false,"options":[{"label":"delhi","value":"delhi","type":"str"},{"label":"mysore","value":"mysore","type":"str"},{"label":"goa","value":"goa","type":"str"}],"payload":"","topic":"topic","topicType":"msg","className":"","x":190,"y":1340,"wires":[["a4448ac26db30ca9"]]],{"id":"591c4ff55c47ce01","type":"ui_date_picker","z":"f71bd8f6e16cc47c","name":"","label":"Date of
Journey","group":"b7c6ddcc5be17ee3","order":6,"width":13,"height":1,"passthru":true,"topic":"topic","topicType":"msg","className
":"","x":220,"y":1460,"wires":[["e9926ad59ac8e756"]]],{"id":"75b095e228e54527","type":"ui_drop
```

```
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WEBSITE LINK:

<http://159.122.187.79:31365/ui/#!/0?socketid=0VlSTLRQGwYqJZlDAAKL>

GITHUB LINK :

<https://github.com/IBM-EPBL/IBM-Project-16168-1659608764>

PROJECT DEMO LINK:

<https://drive.google.com/file/d/1fPmLUKgtTJIUDusT0xmLMlWuk9KXz4KU/view?usp=sharing>