**SMART SOLUTION FOR RAILWAYS**

**Based on Internet of Things**

**PROJECT REPORT**

*submitted by*

Santhosh Kumar V (Team Leader) -732119106032

Sudhakar S (Team Member) -732119106037

Tamilarasan P S (Team Member) -732119106039

Manju V (Team Member) -732119106021

**TEAM ID - PTN2022TMID32228**

**Nandha College of Technology**

perundurai, Erode - 638 052

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**Abstract**

Smart Solutions for railways is designed to reduced 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

**1.INTRODUCTION**

**1.1.Project Overview**

* A Web page is designed for the public where they can book tickets by seeing the available seats on the train, they will book the train.
* After booking the train, the person will get a QR code, The code will be shown in ticket collector.
* The ticket collectors can scan the QR code to identify the personal details, there are ID verification it is not needed the original proof because already store in cloud db.
* A GPS module is present in the train to track it. The live status of the journey is updated in the Web app continuously it will be major advantage of this application. It will help the safer journey of the passengers. Ticket collector there are not needed the pen and papers because booking details have a unique ID.
* 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 automatically shown the booking details and id verification. Ticket collector work are reduced for the digital conservation.

**1.2.Purpose**

Railway operators around the globe are implementing IoT-enabled solutions to create intelligent, connected railways today. From advanced analytics applications to digital signage and predictive maintenance, IoT technologies are being used in innovative ways in both existing and newly constructed railways. During July 2014, it was envisaged that the Indian Railways will opt for an enterprise resource planning (ERP) solution, which will integrate freight, passenger, human resources and administrative operations across the country. Features like real time monitoring of trains, mobile-based wake up calls for passengers and destination arrival alerts, and a station navigation information system would be taken forward. Thus, the potential for the IT industry to leverage existing strengths in cloud, mobility and IoT (Internet of Things) for the Railways. To reduce the workload of travel ticket examiners.

**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.
* In existing system they do not generate QR code for passengers
* We here to provide QR code to the passengers and it is verified by the Ticket Examiner by the QR code scanner
* The passenger forgot to bring KYC documents for individual person verification
* Public users wish to track their train journey to have a sophisticated travel.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.NO | TITLE | PROPOSED  WORK | TOOLS /ALGORITHM | TECHNOLOGY | ADVANTAGES/  DISADVANTAGES |
| 1. | Automatic fault detection of railway track system based on PLC  (ADOR TAST) | The sensor is used to detect the defect in the train and the ultraviolet sensor is used to detect the obstruction in front of the train | International journal of recent research aspects. | 1.PLC  2.ADAR TAST | Easily predict the train track. |
| 2. | Railway track fault detection system using IR sensors and Bluetooth technology | In the event of any defect on the track it will detect using IR sensor and then send message to the Android | Asian journal of applied sciences and technology | IR sensor,  Bluetooth technology | Prevention of railway accident |
| 3. | Automatic railway track detection for Indian railways | The automatic railway route automatic Detects the fare of the Indian IEEE rail automatically and detects very quickly without human intervention | International journal of current engineering and scientific research  And IEEE | IOT | Quickly detect without human intervention |
| 4. | Train track fault detection system | Rail crushes have been identified as a major cause of accident in the past. So, the solutions to the system are reboot to detect crack in the train track and when the reboot to detect error | International journal of current engineering and scientific research  IJCESR | IOT | Crashes have been identified and identify the major cause in rail accidents |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 5. | Automated railway Track fault detection system using robot | An IR assembly that the exact location of a fault track was quickly repaired so that many lives could be saved. | International conference on new frontiers of Engineering | Ultrasonic sensor | The function is to detect the fault and calculate the distance. |  |
| 6. | Self-power for railway track monitoring using IOT | Rapid increase in surveillance of system, buildings, vehicles and machines using sensors | IOSR | IOT  Sensors | Any crack detects it immediately and sends the cloud crunch to the user's mobile phone. | |
| 7. | Smart fault detection system for Indian railways | The device built will be attached to a train engine and contains a sensor that can detect | Scientific and technology research | Ultrasonic sensor  Raspberry pi | Detects the few meter cracks and the signal will receive to the train driver. | |
| 8. | Rationalization of center City railway network | Facilities suitable for through as well as local traffic rail clearance line capacity. | Commuter rails |  | Rail clearance  Access to rail / truck inter model terminals. | |
| 9. | Condition - Based and predictive maintenance. | Sensor and scanning technologies  Signal processing and data acquisition. | German Railway DB algorithm | IR sensor | Decision support and operatimation  Analysis and prognosis. | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 10. | Automation of train driving | Obstacle detection system and ATO functional system. | Rio tinto autoHaul system. | Active sensor and passive visual cameras | ATO driver-less, unattended. |
| 11. | Technologies for efficient and secure border crossing. | Electronic dynamic weighing scales. Multifunctional intelligent gate system. | ESCAP SCBTM  OCR | RFID, laser scanning, imaging and detection. | Multifunctional intelligent gate system.  Options and adapted ESCAP SCBTM for railways. |

**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-saftey-council.com/about-us
* http://sts.hitachirsil.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 of so that the passengers get benefits by saving their time and energy for travelling.
* Ticket checkers are notDelayed for checking their details in passengers. And also, not needed for pen and paper.
* Digital Verification is easy for Ticket Examiner and Ticket counter.
* Another one is passengers need a platform to track the current location and status of the train speed
* And so on. Passengers gave notification at a particular stop. There is no fear about travelling because
* Notifications are updated on their phone
* By generating the QR code to the passenger through e-mail registered with the contact number
* Passengers forgot to bring the KYC documents , by uploading the KYC verification by the application
* The documents are saved in the IBM cloud and verify the documents by the authorities and the Ticket Examiner
* The passenger boarding details also stored in the IBM cloud Data Base for enquiry purpose

**2.4 Problem Solution Fit**

* 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 tickets 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.

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|  |  |

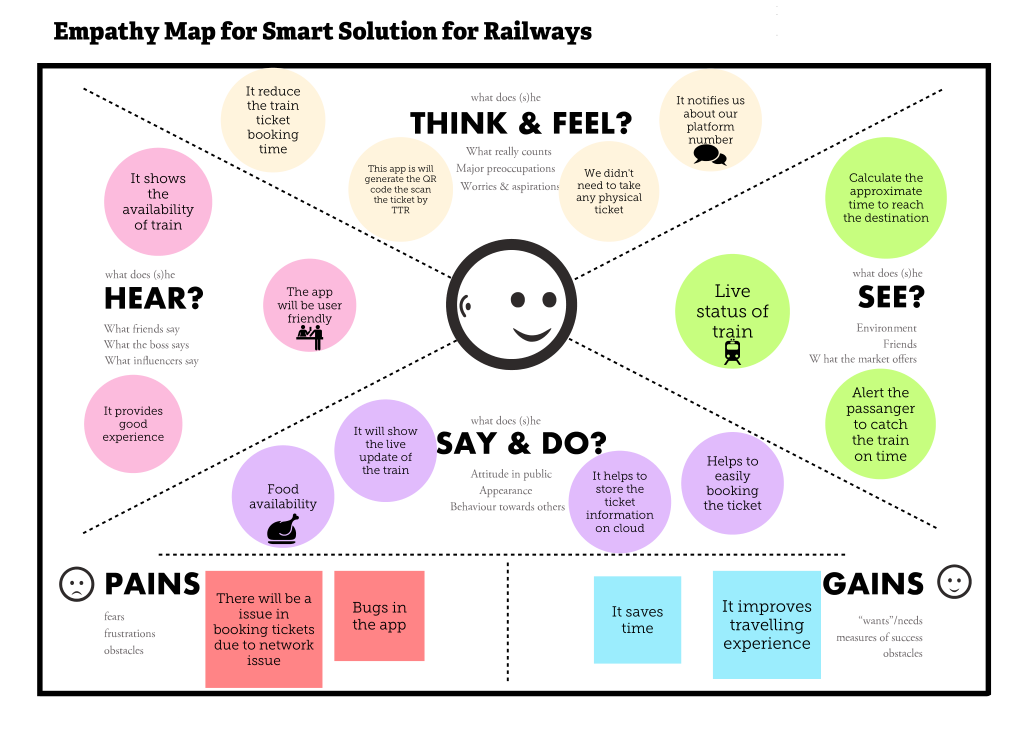
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **CUSTOMER SEGMENT:**    Travelling passengers in train | **CUSTOMER CONSTRAINT:**    It has been just working in a web page by generating the QR code and storing the information in a cloud | **AVAILABLE SOLUTION:**    When the faces the problem like booking a ticket in a ticket counter we can go for online booking and in other than when need to show or any verification is required in an office side of railways there is QR code to have an information of ID proof |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **JOBS TO BE DONE/PROBLEM:**    There is a problem of holding the physical ticket /Id proof for the authentication process | **PROBLEM ROOT CAUSE:**    The indication is occurred when the traffic is on the railroad of crossing train. Then it can be indicated by the application itself it may save the accidents | **BEHAVIOUR:**  There is a feedback procedure in that application improve/ clear the bugs and mistakes in the application the customer feedback support |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **TRIGGERS:**    By using this app with the efficient and reliable UI to understand by all the people efficiently | **YOUR SOLUTION:**  The application/website is used give the better result in the railways with the efficient work of booking tickets, tracking the train, get the notification in a mobile, with the QR code generation of including the cloud storing of id proofs and tickets through online | **CHANNELS OF BEHAVIOUR:**    The feedback support is used improve the application as user- friendly by using it in website also by using some browsers |  |
|  | **EMOTION BEFORE/AFTER:**  When the passengers feel rush to book tickets from the counters but by using the mobile to book a ticket with the user-friendly application |

**3.IDEATION AND PROPOSED SOLUTION:**

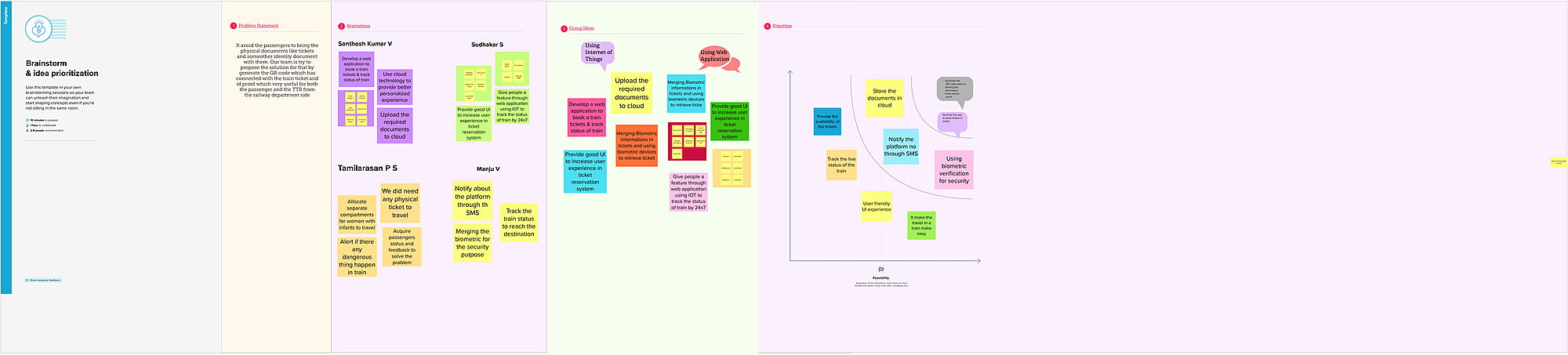
**3.1.Empathy map canvas:**



**Link:**

https://app.mural.co/invitation/mural/sk65065/1663481823198?sender=u509796c86d93f2733e6a5805&key=42c9eb2c-c721-4b8c-8852-94adc56ad049

**3.2.Ideation & Brainstorming:**

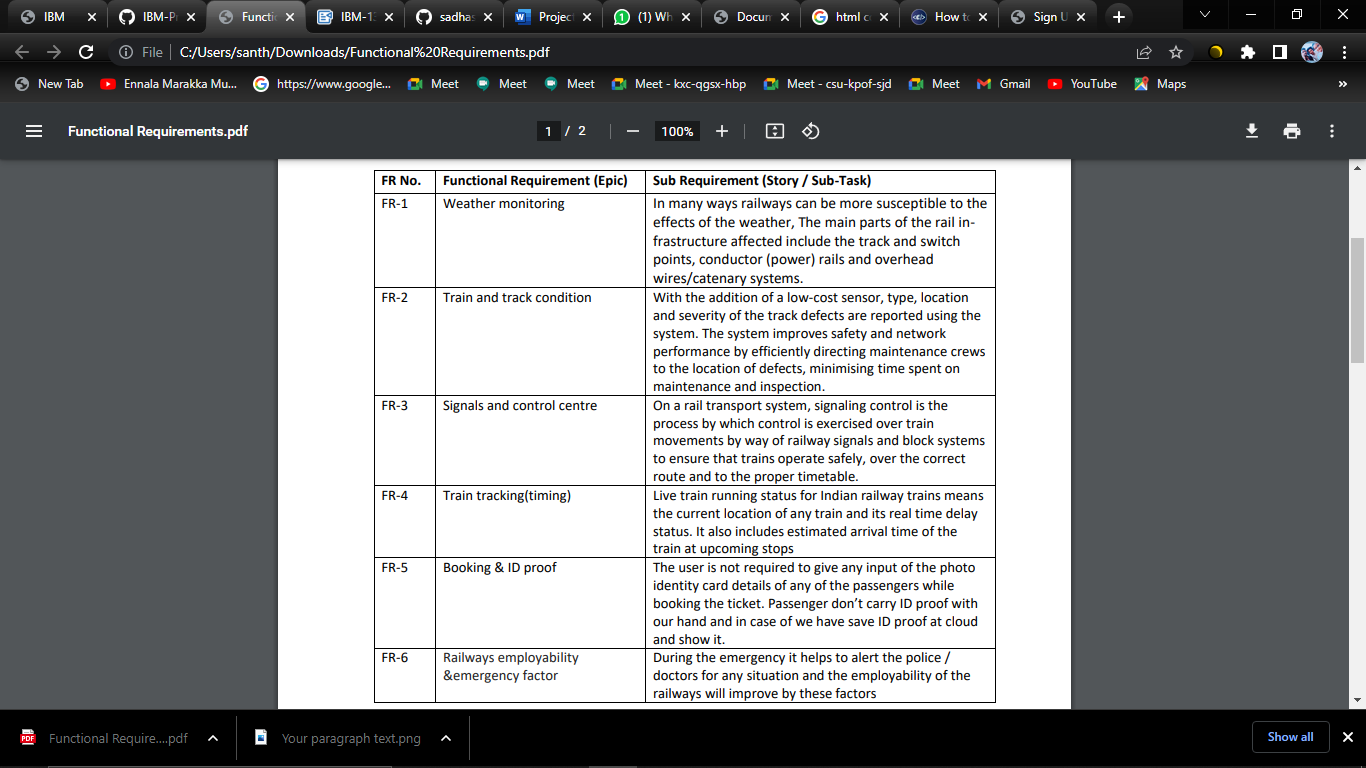


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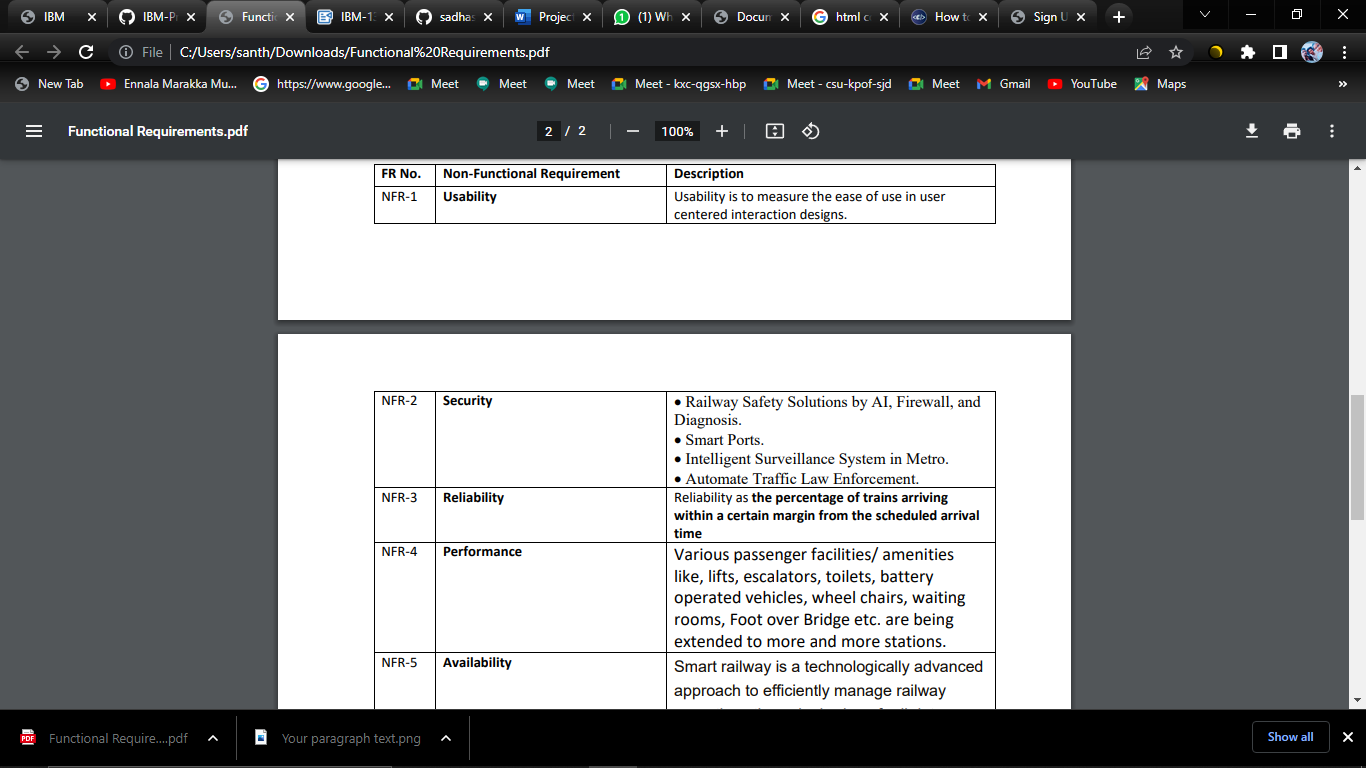
https://app.mural.co/invitation/mural/sk65065/1663494820586?sender=u509796c86d93f2733e6a5805&key=7e990c75-3eed-4b64-a56e-4d0be3a65f64

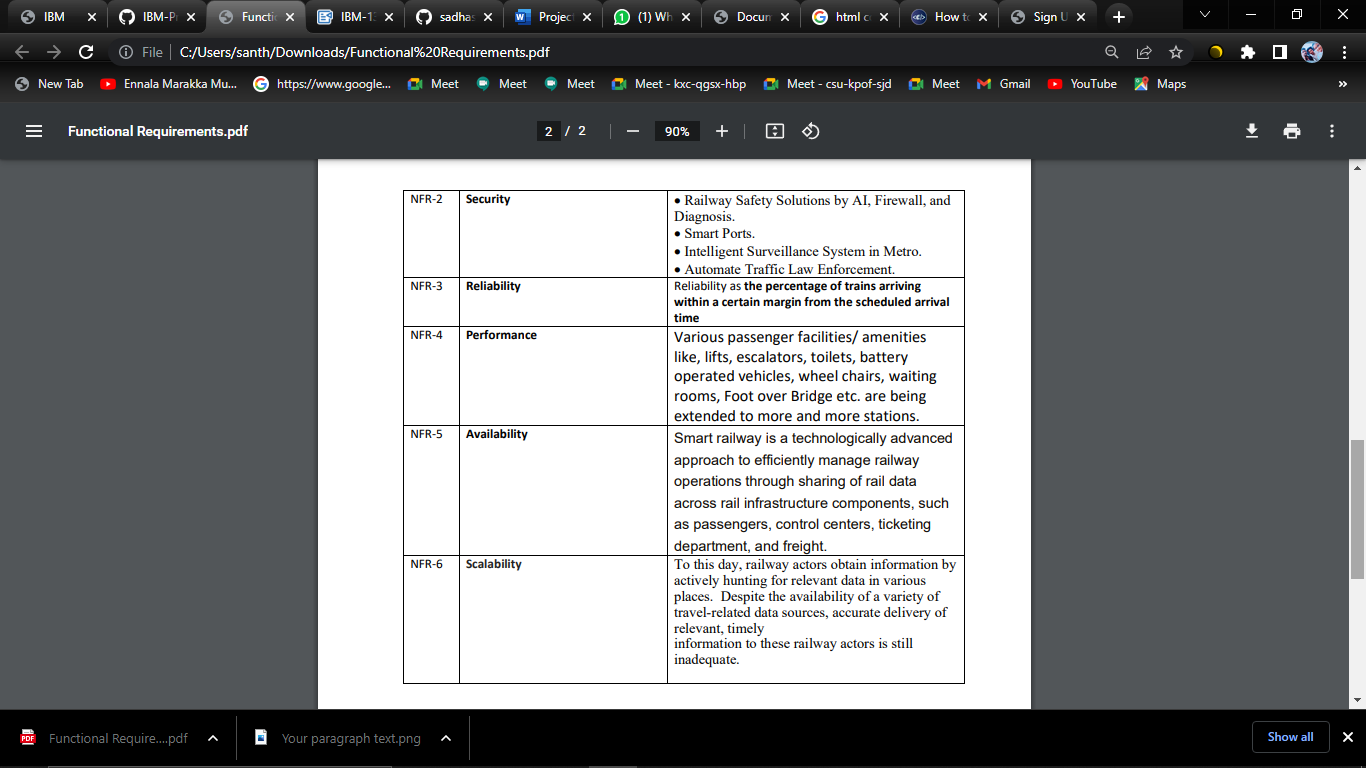
**4.REQUIREMENT ANALYSIS**

**4.1.Functional requirement:**



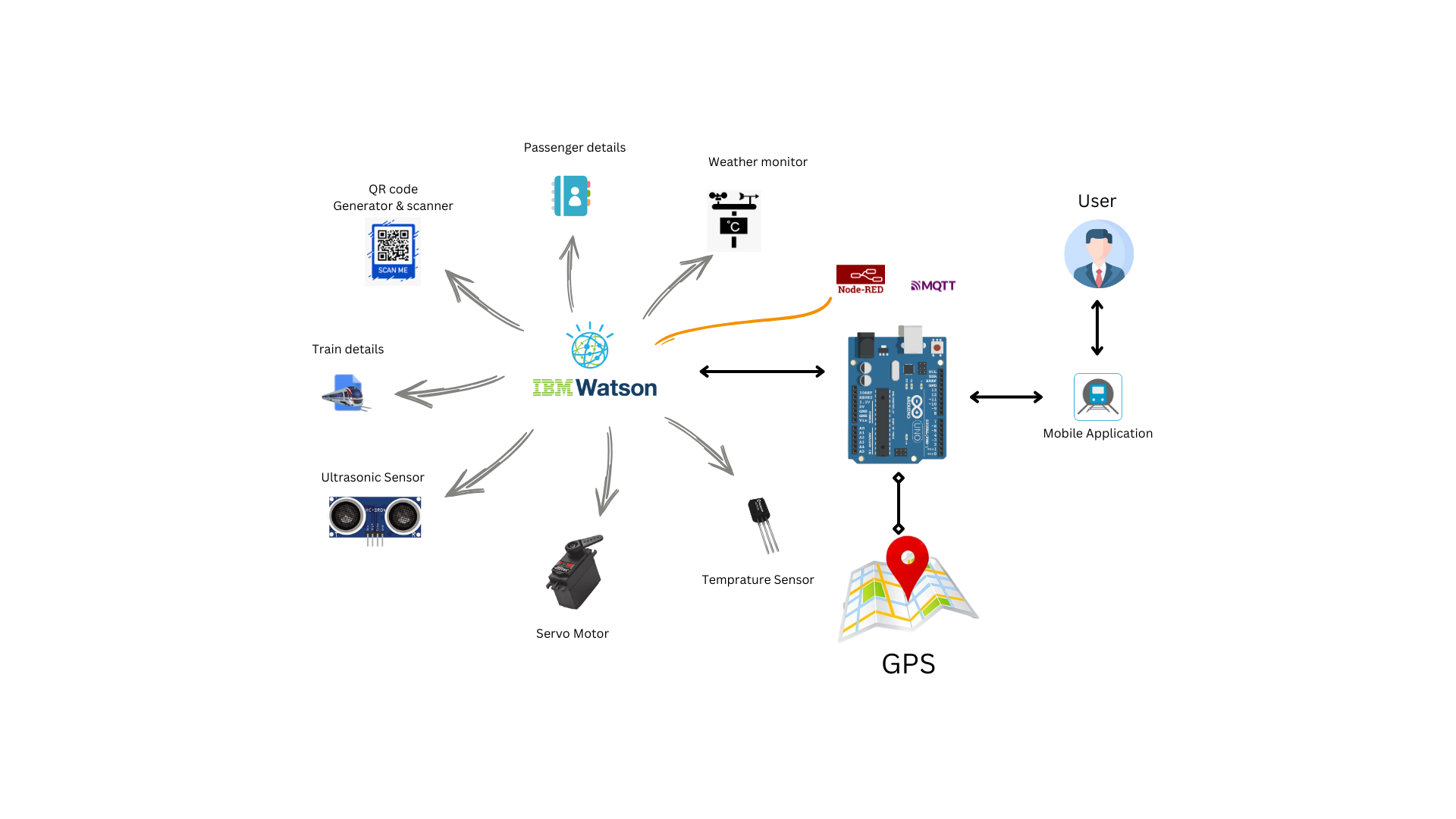
**4.2.Non Functional Requirement:**



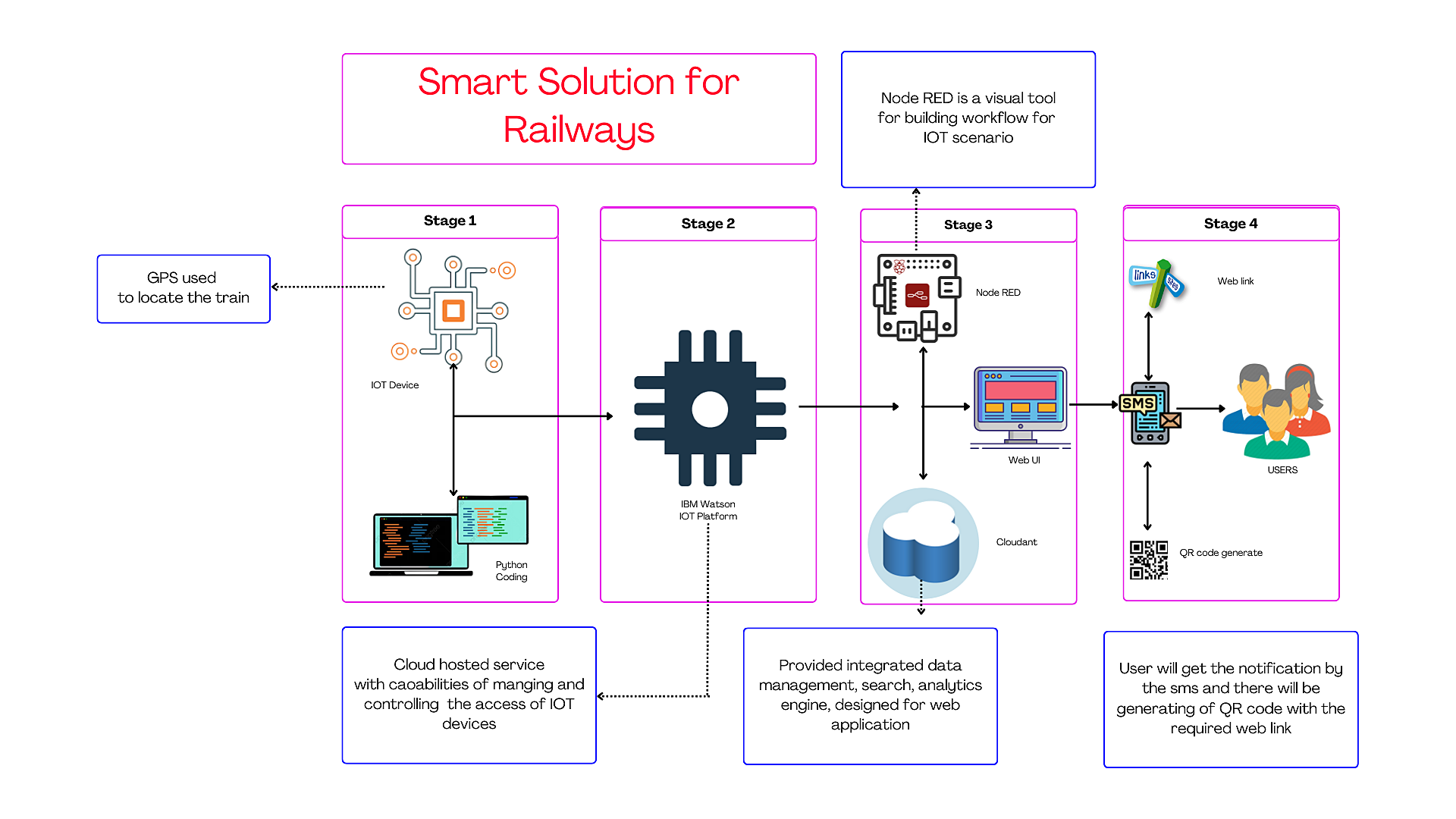


**5.PROJECT DESIGN:**

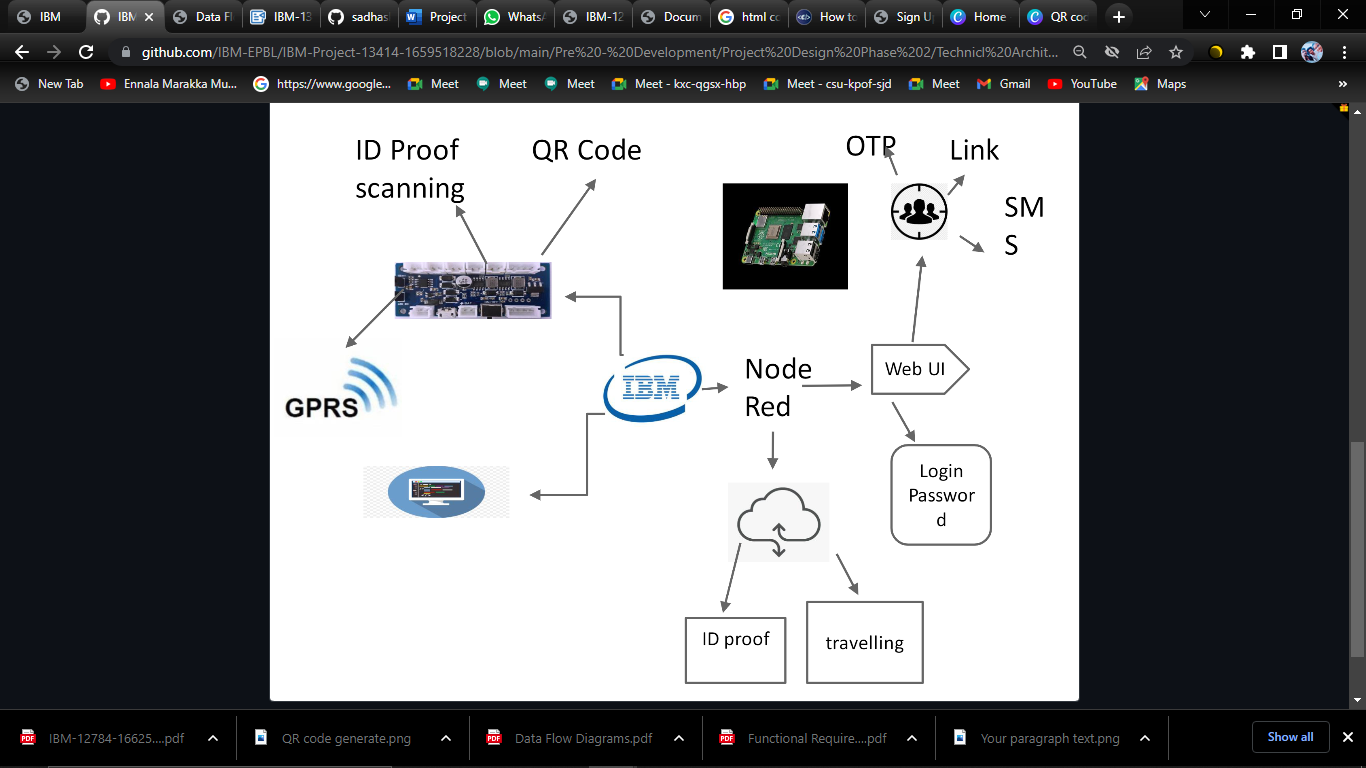
**5.1.Data Flow Diagrams:**



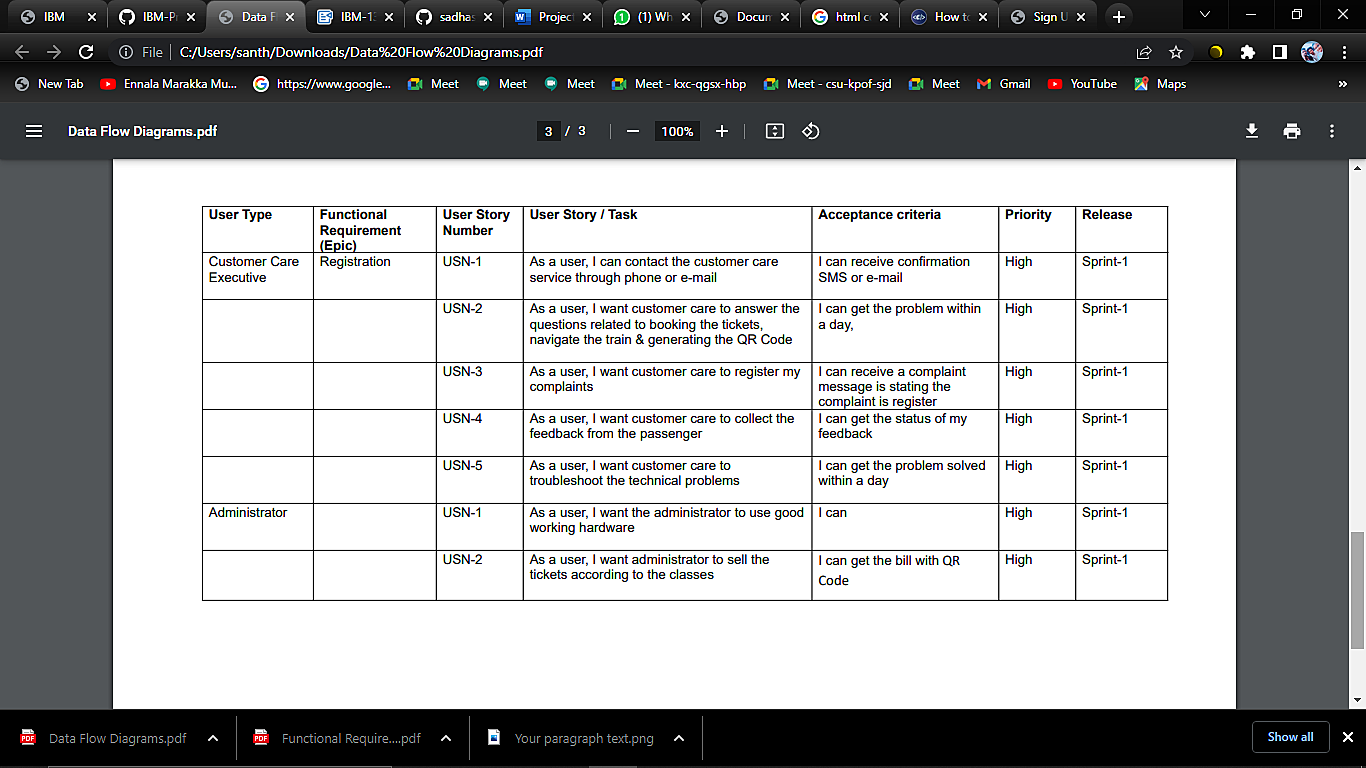
**4.2.2Solution & Technical Architecture:**



**5.2.2Technical Architecture:**



**5.3.User Stories:**



**6.PROJECT PLANNING & SCHEDULING:**

**6.1.Sprint Planning & Estimation:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Sprint** | **Functional**  **Requirement (Epic)** | **User Story**  **Number** | **User Story / Task** | **Story Points** | **Priority** | | **Team**  **Members** |
| **Sprint-1** | Registration | USN-1 | Register by creating new id in the application | 15 | High | | Santhosh Kumar V |
| **Sprint-1** | User verification | USN-2 | User can verify with the OTP send to the registered mobile number. | 5 | Medium | | Tamilarasan P S |
| **Sprint-1** | login | USN-3 | Login with the registered id. | 10 | High | | Sudhakar S |
| **Sprint-2** | Availability of train | USN-4 | Checking the availability of train and book the seats | 15 | High | | Manju V |
| **Sprint-2** | Document verification | USN-5 | Verify the document using IBM Watson | 15 | High | | Sudhakar S |
| **Sprint-2** | Booking Status | USN-6 | To check my ticket once it is conformed. Connecting the Arduino with IBM Watson | 10 | High | | Tamilarasan P S |
| **Sprint-3** | Payment | USN-7 | Pay the fee through online using net banking and UPI | 15 | High | | Santhosh Kumar V |
| **Sprint-3** | Train Information | USN-8 | check the trains details like when will train reach stations and update Train information. | 10 | Medium | | Manju V |
| **Sprint-3** | Locate the train | USN-9 | Tracking the train and share live location of the train. Connecting the sensors | 15 | High | | Santhosh Kumar V |
| **Sprint-4** | Ticket verification | USN-10 | As a TC, to check the users whether passenger have tickets or not with scanning the QR code | 15 | High | | Sudhakar S |
| **Sprint-4** | Feedback | USN-11 | To know the good and fault to give update application as user friendly | 10 | Medium | | Manju V |
| **Sprint-4** | Queries and complaints | USN-12 | if something is wrong, passenger can able to raise complaints on the application | 10 | Medium | | Tamilarasan P S |

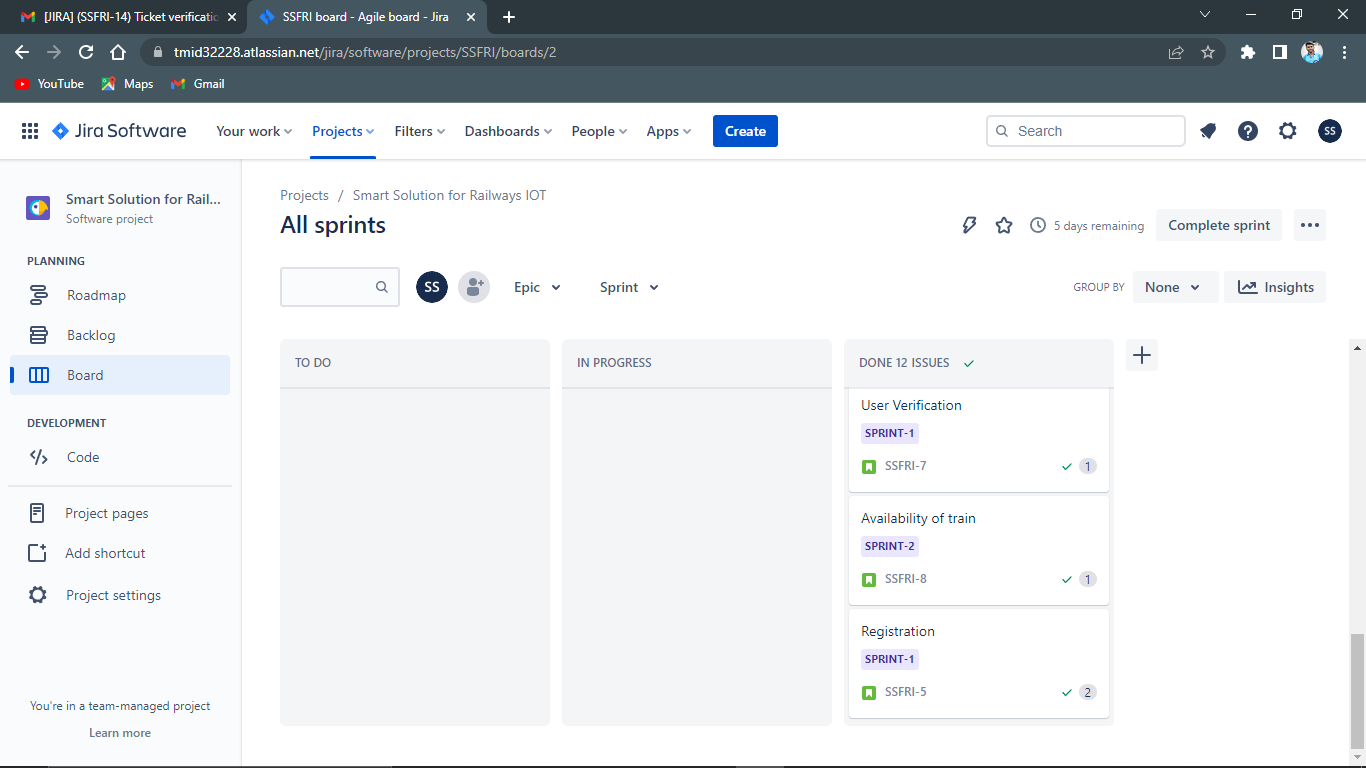
**6.2.Sprint Delivery Schedule:**

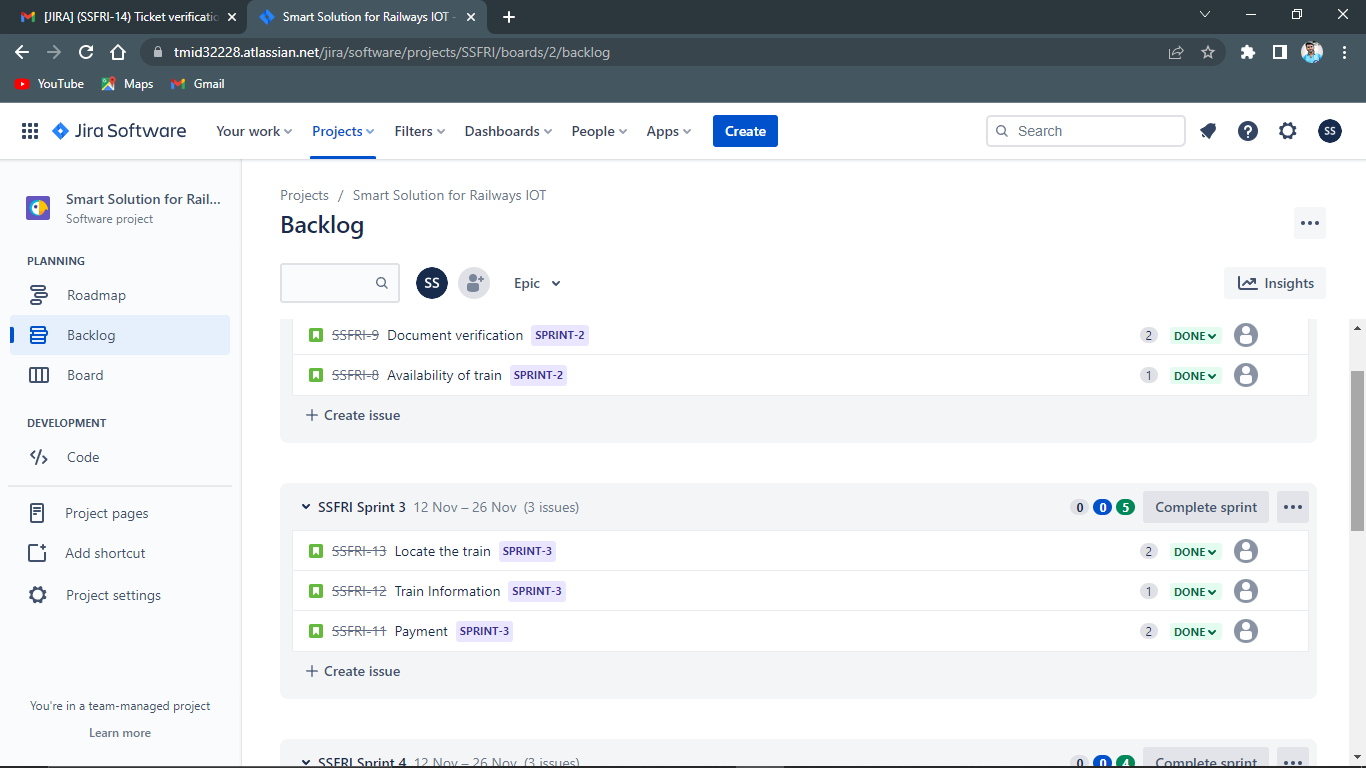
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sprint** | **Total Story Points** | **Duration** | **Sprint Start Date** | **Sprint End Date (Planned)** | **Story Points**  **Completed (as on Planned End Date)** | **Sprint Release Date (Actual)** |
| **Sprint-1** | 20 | 6 Days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

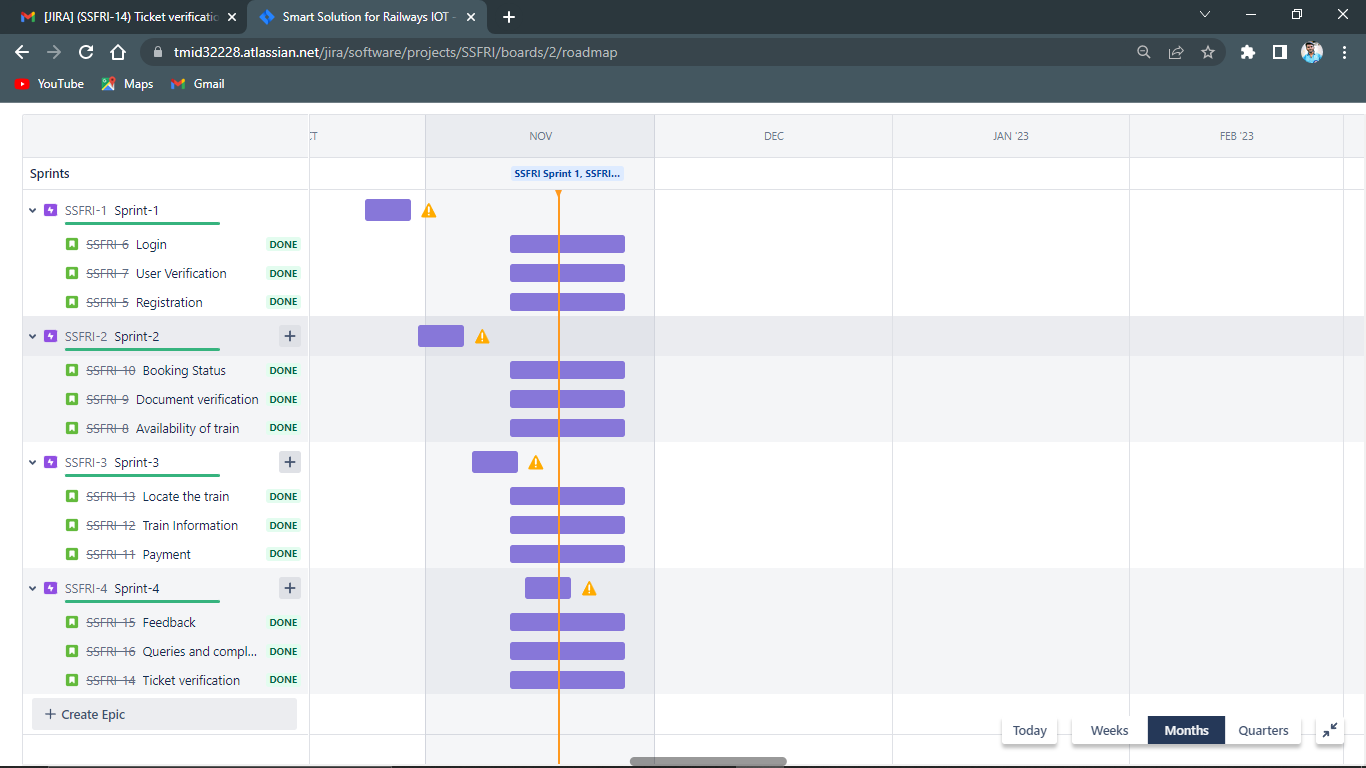
**Velocity:**



**6.3.Reports from JIRA:**



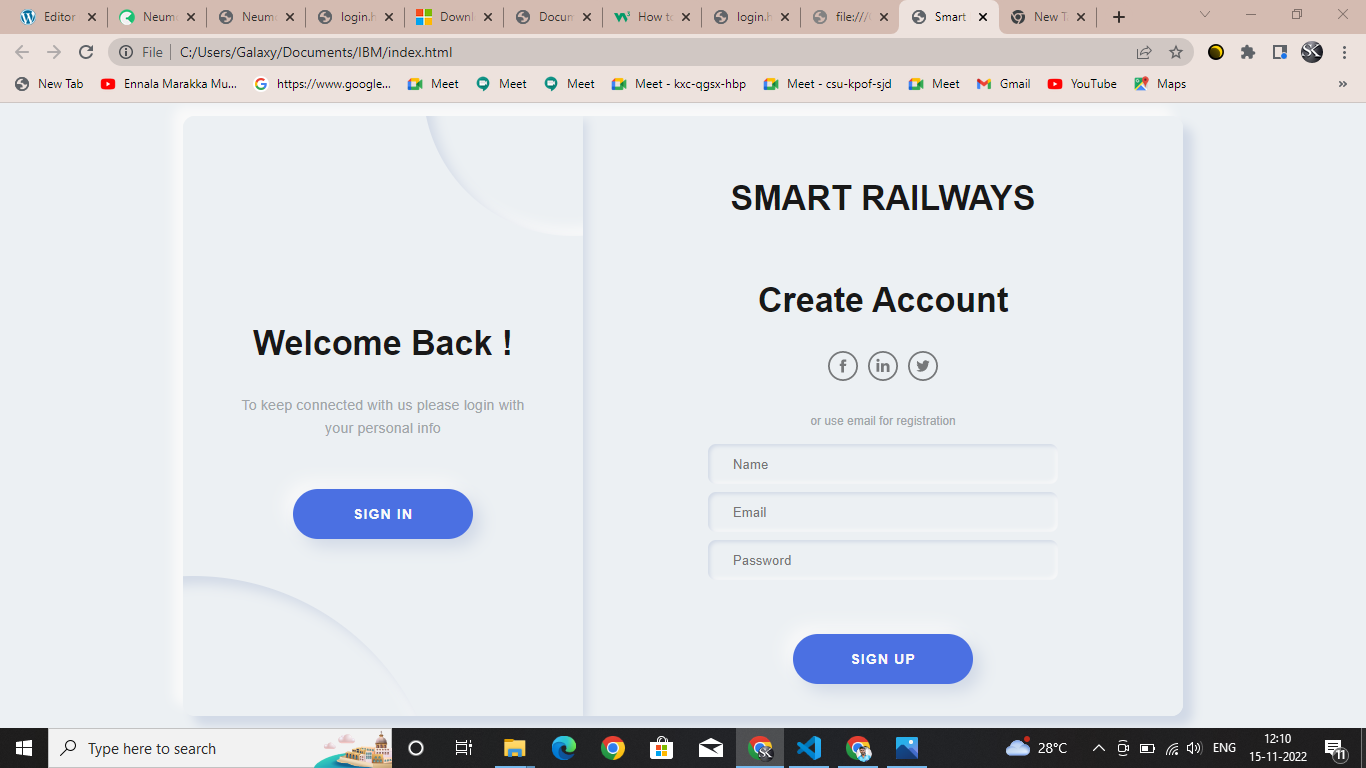




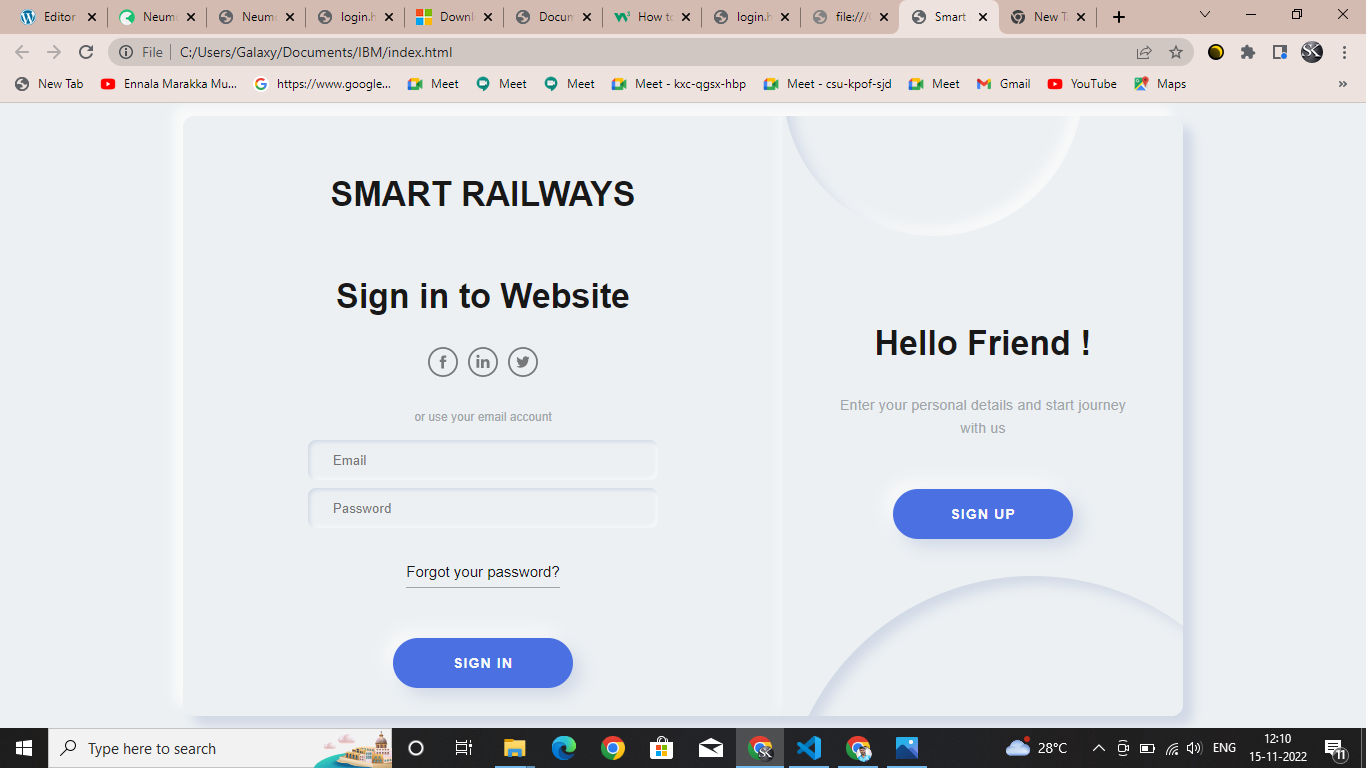
**7.CODING & SOLUTIONING**

**7.1.Feature 1:**

**Sign Up Page:**

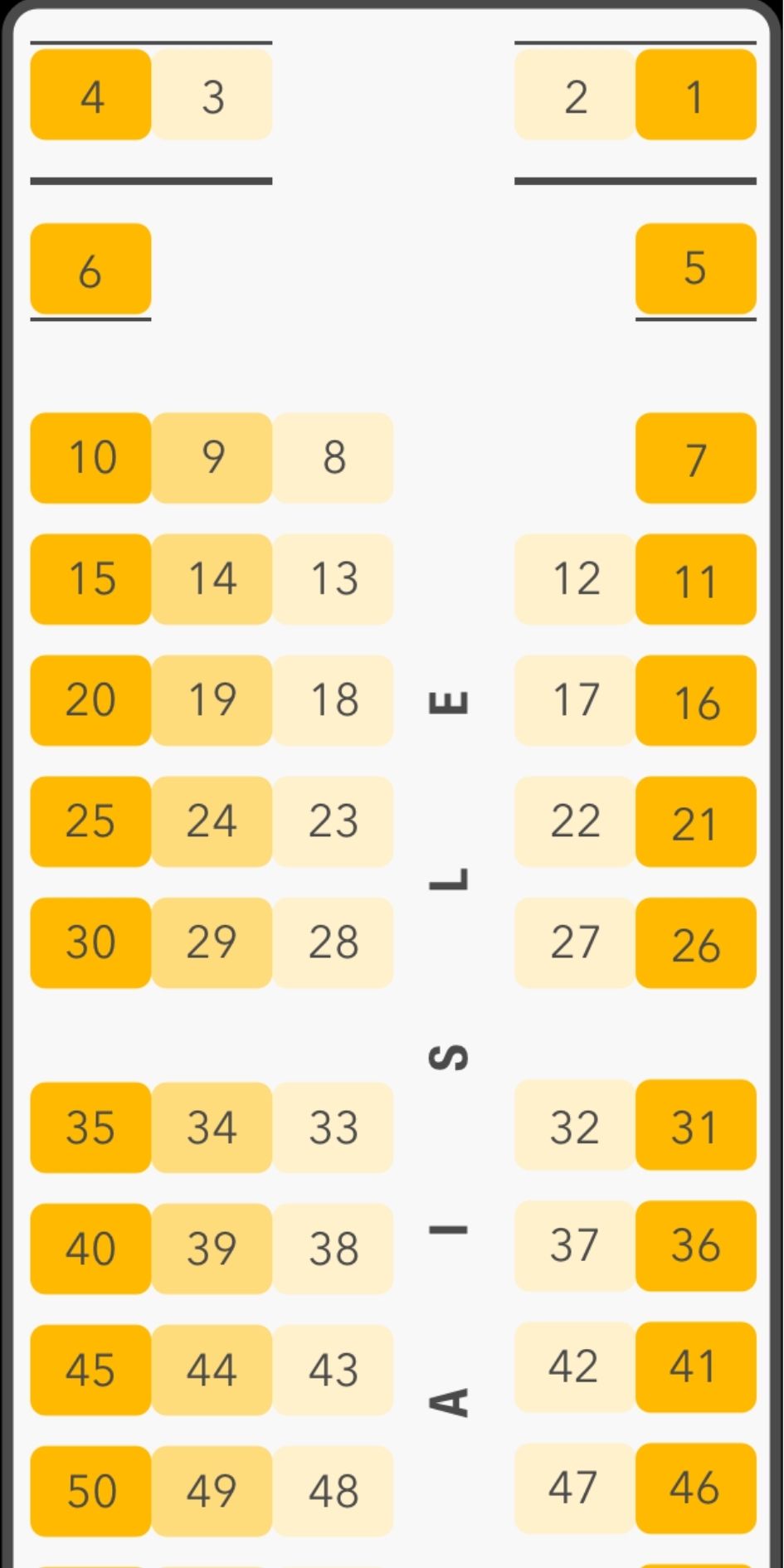


**Login Page:**

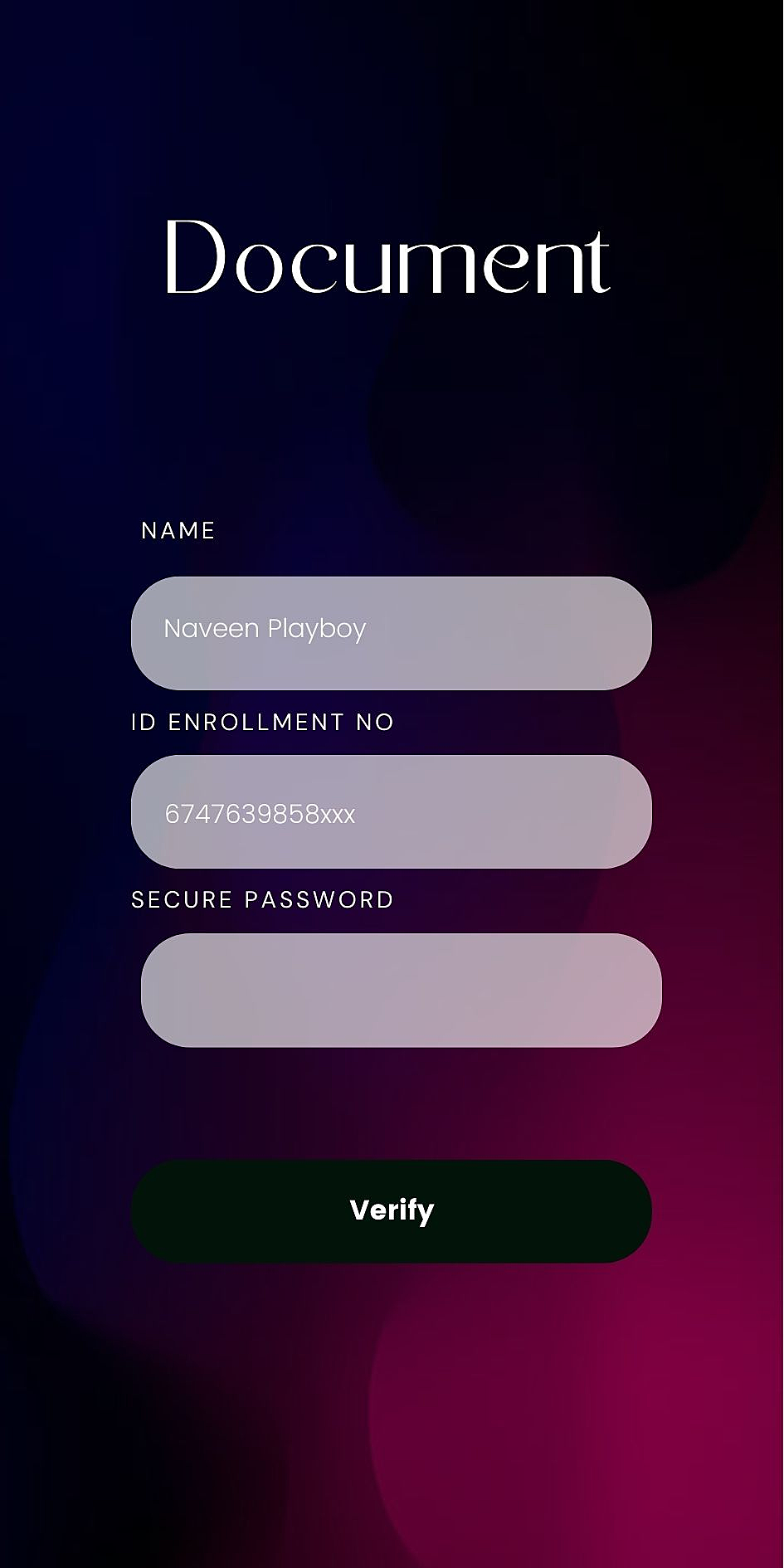


**7.2.Feature 2:**

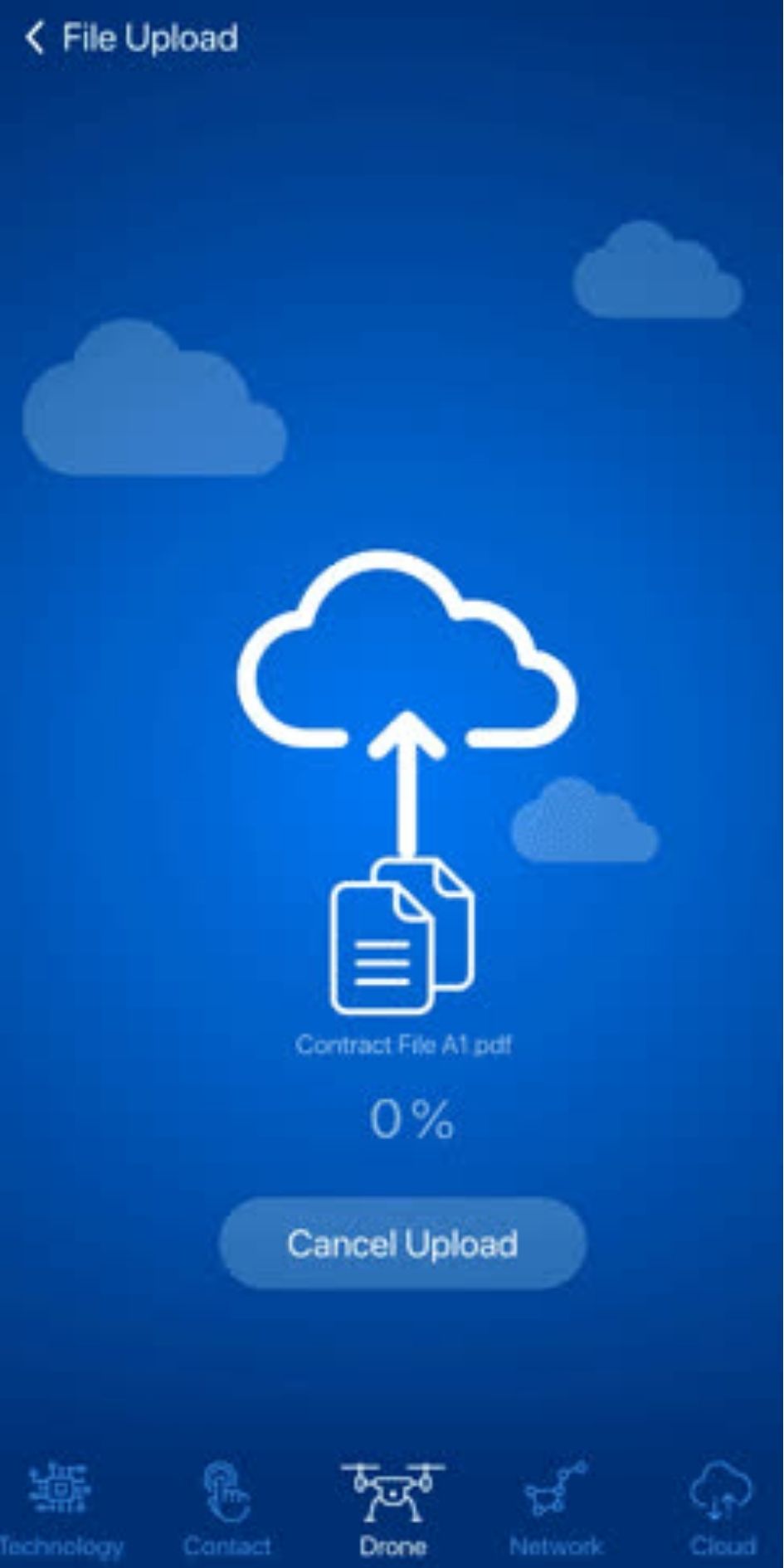
In this we have included a feature to verify the ticket by using the QR code scanner at TTE side and retrieve the passenger details from the Cloudant database to check the details of the passenger . If it is a valid QR code then the ticket is verified. For an invalid QR code the pop up message is displayed " 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 .



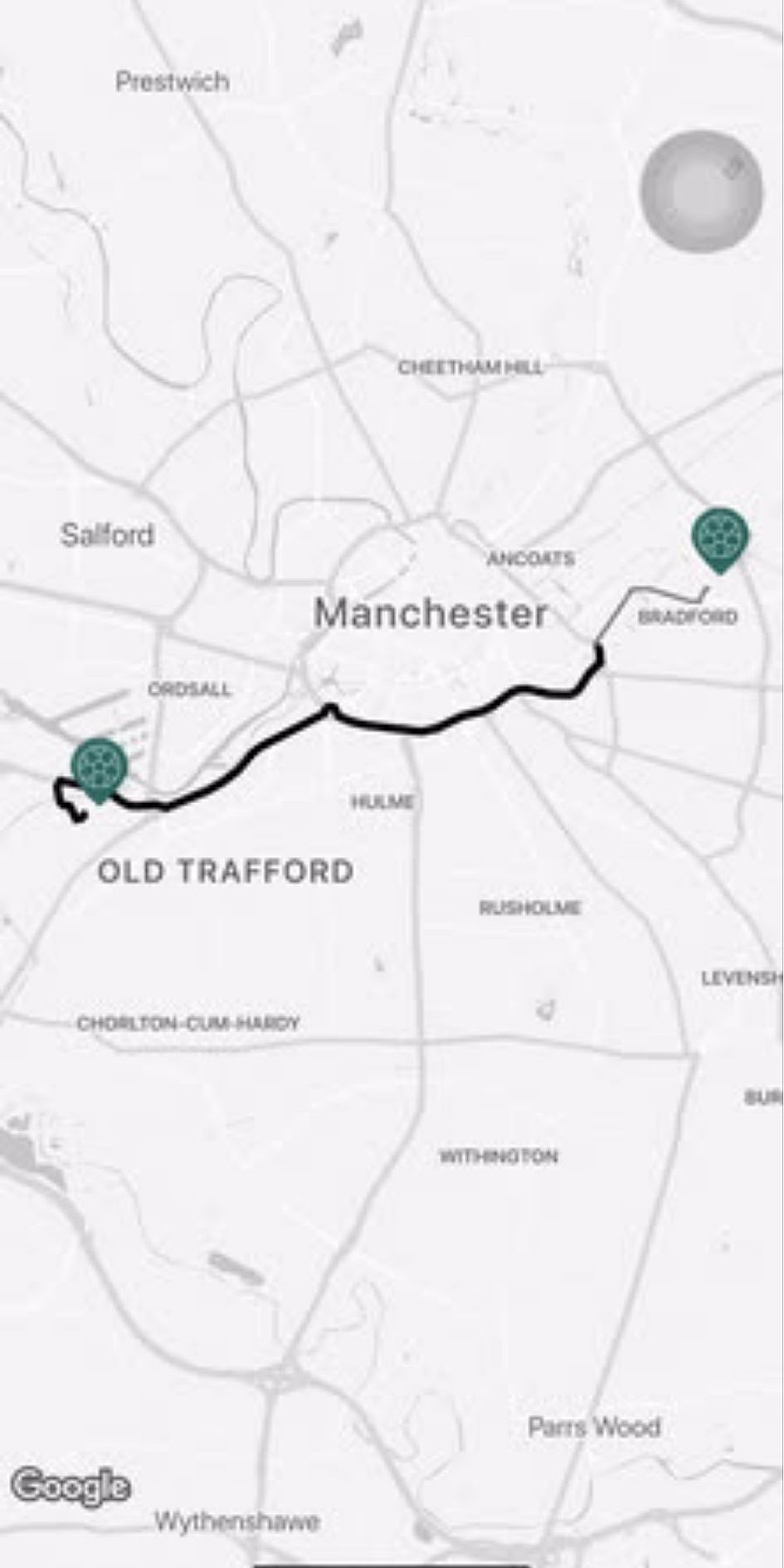
Seats Booking by selecting the seats



Document verification & uploading



Document uploading



Locate the train by GPS



Generate the QR code to verify theTicket

**Node Flow**

**PROCEDURE:**

**⦁** Create node red application on IBM Cloud

⦁ Develop the node red application

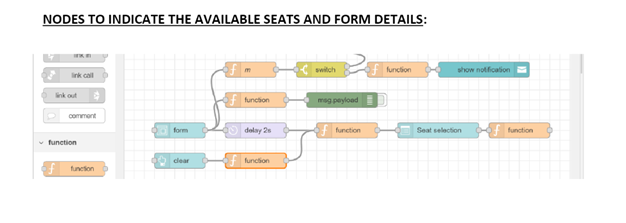
⦁ Install the required nodes from manage palette option

⦁ Create the flow on node red application using the palette

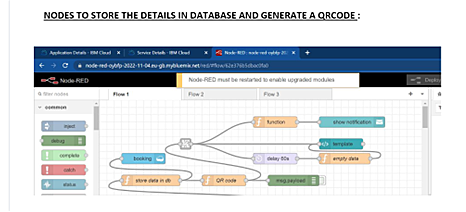
⦁ Merge the flow and debug the flow

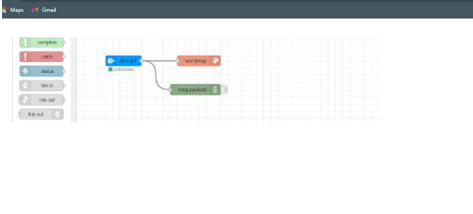
⦁ Deploy the flow

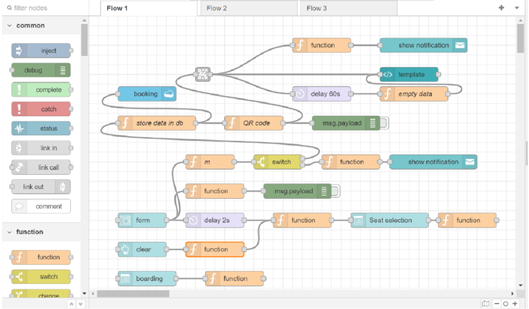
Developing the node red application





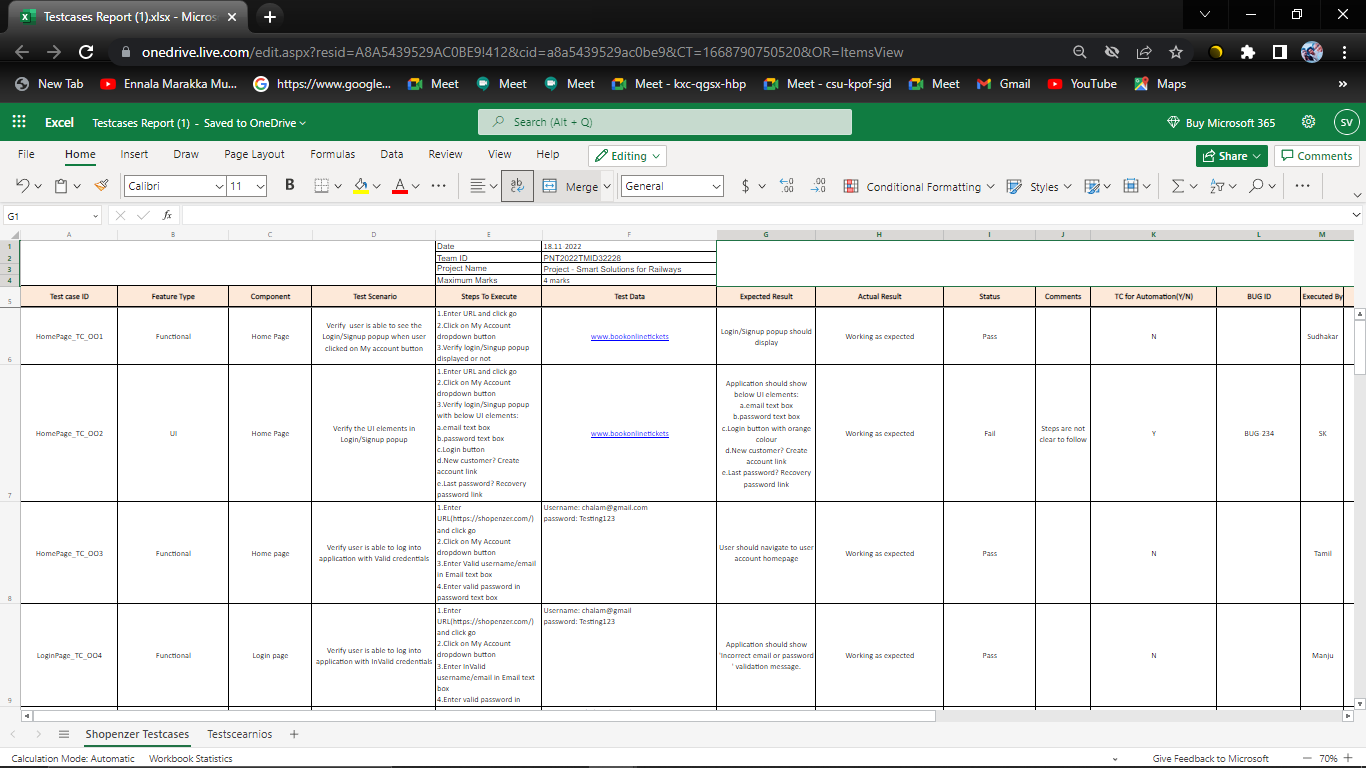


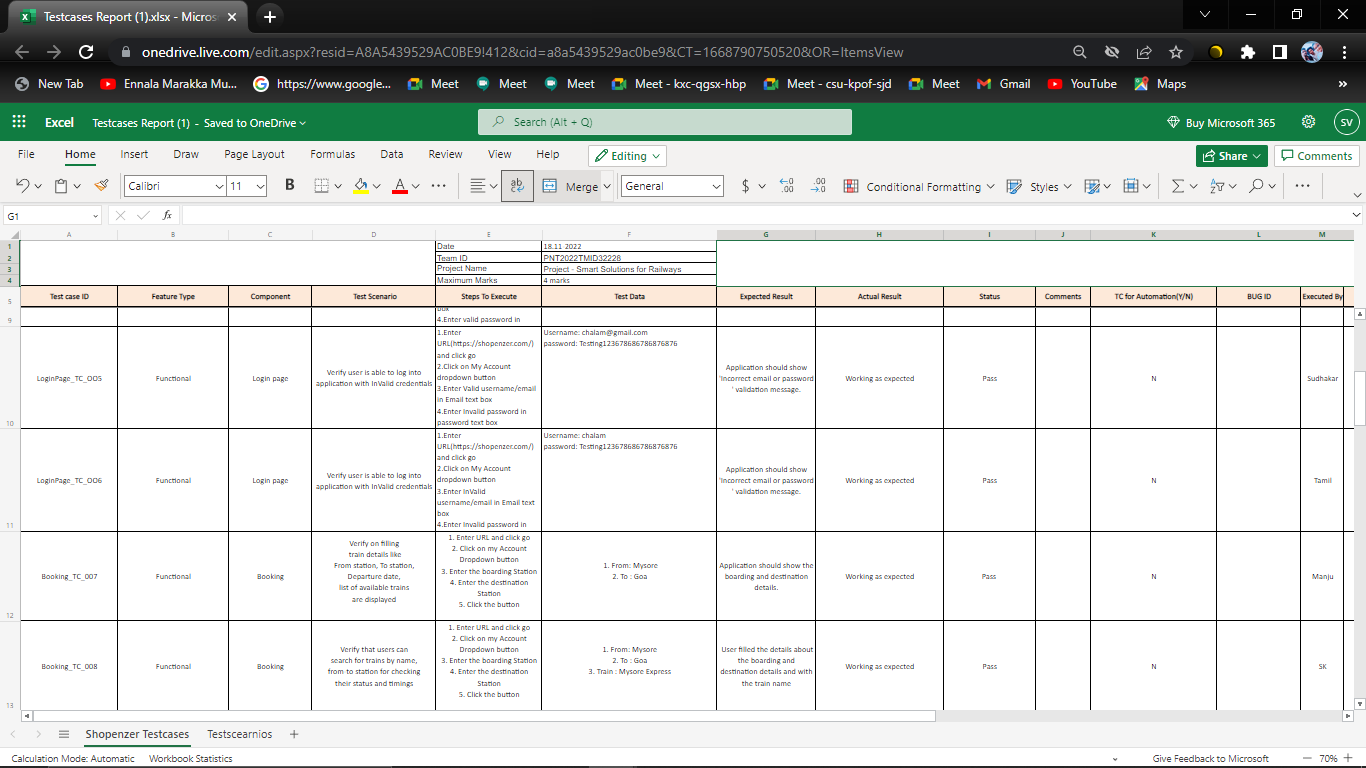


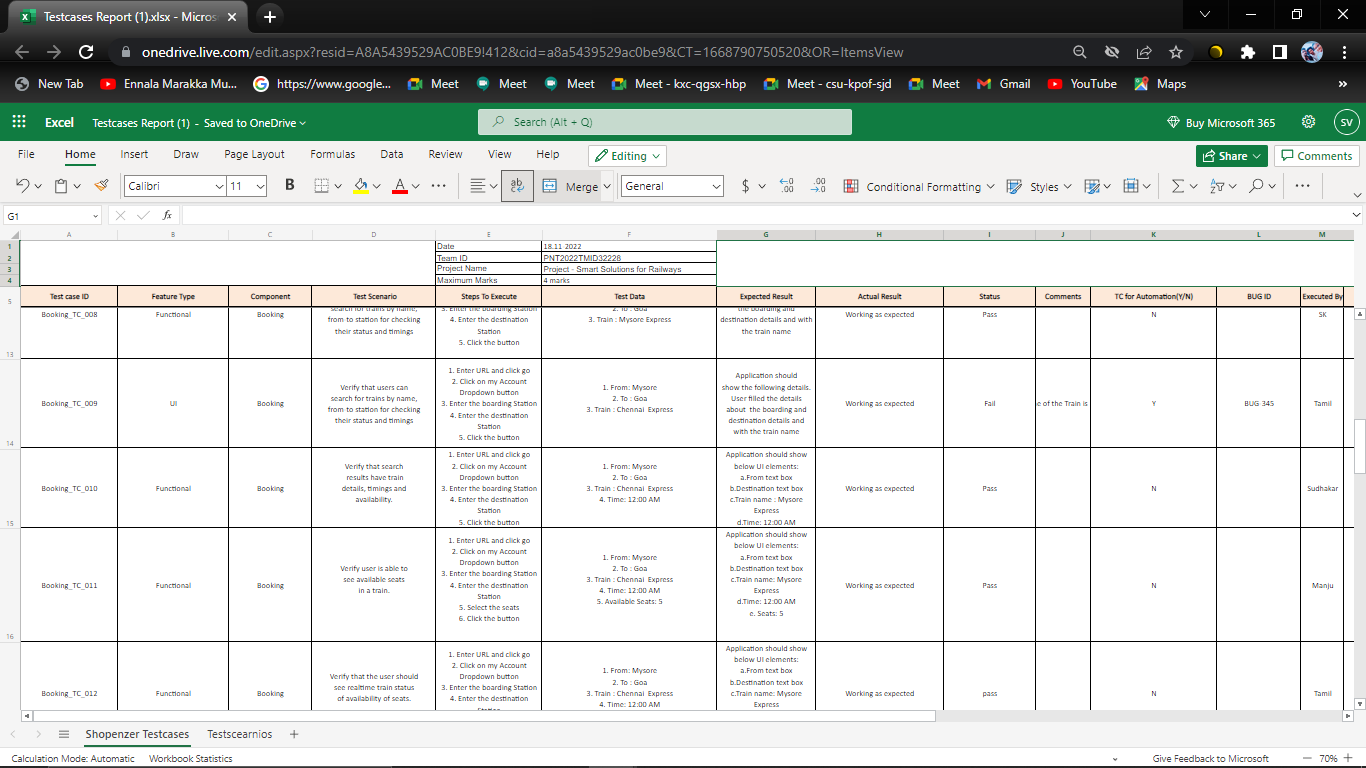


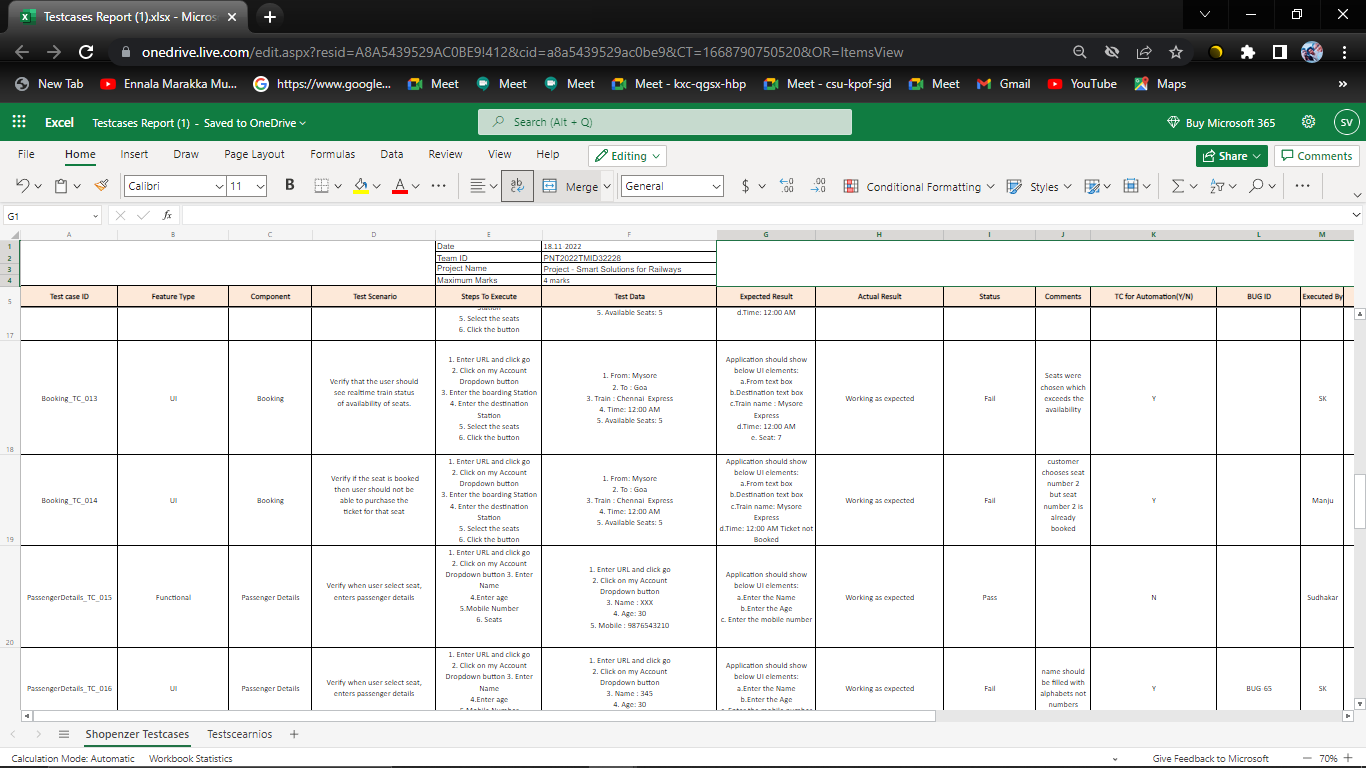
**8.TESTING:**

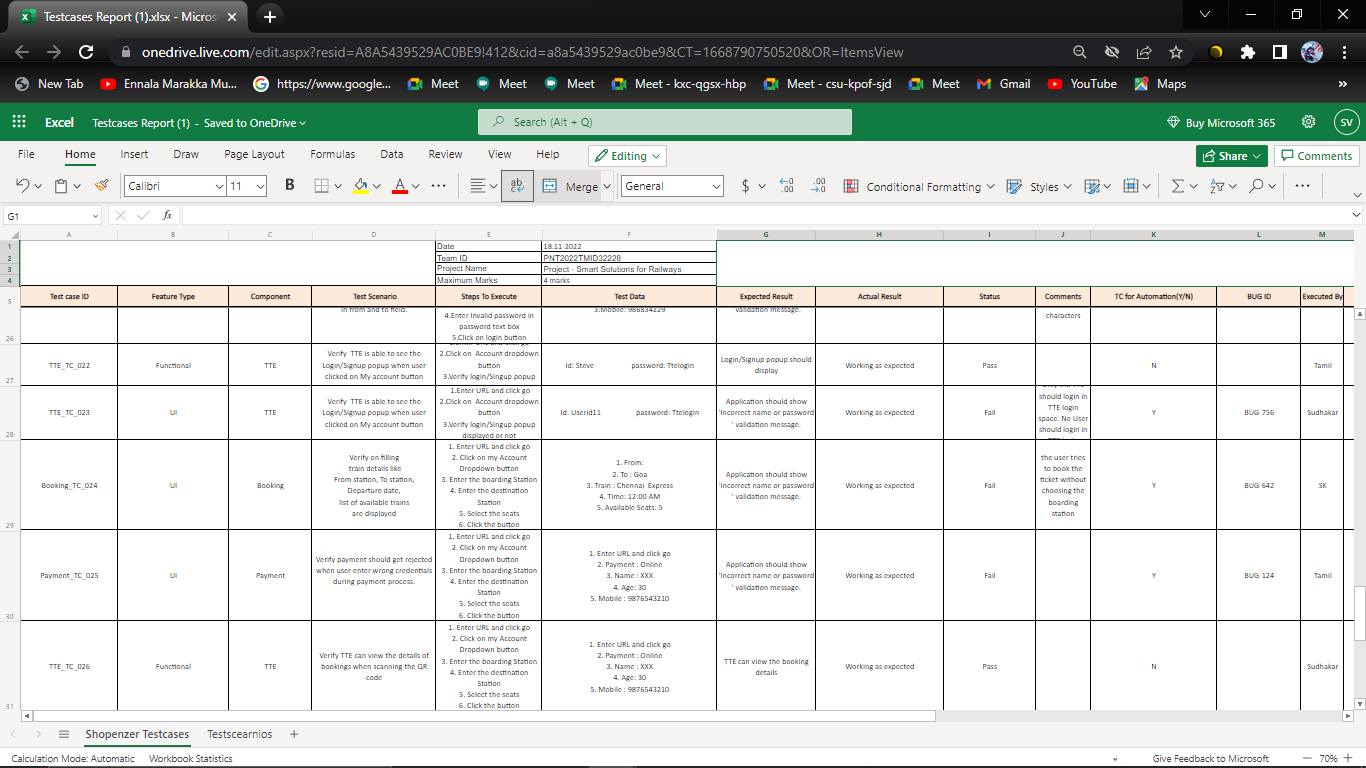
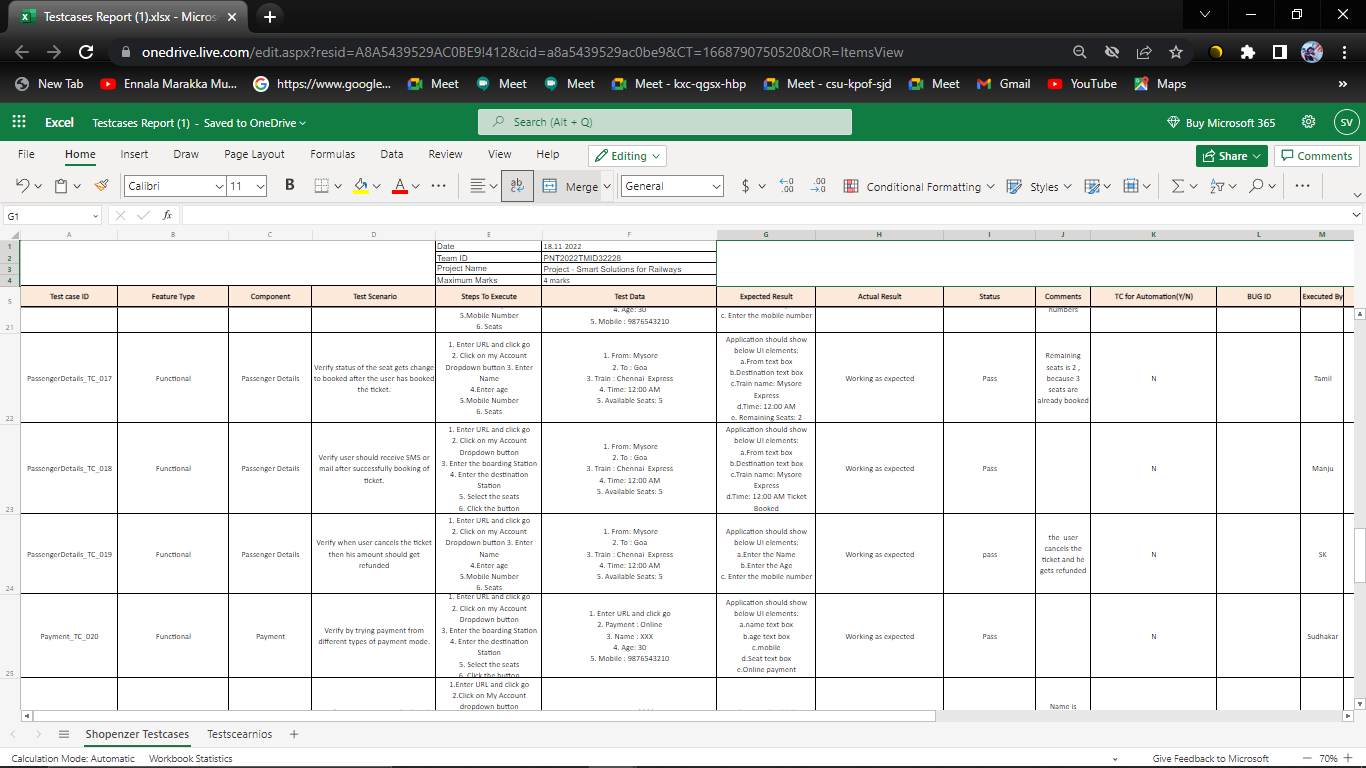
**8.1.TEST CASE:**

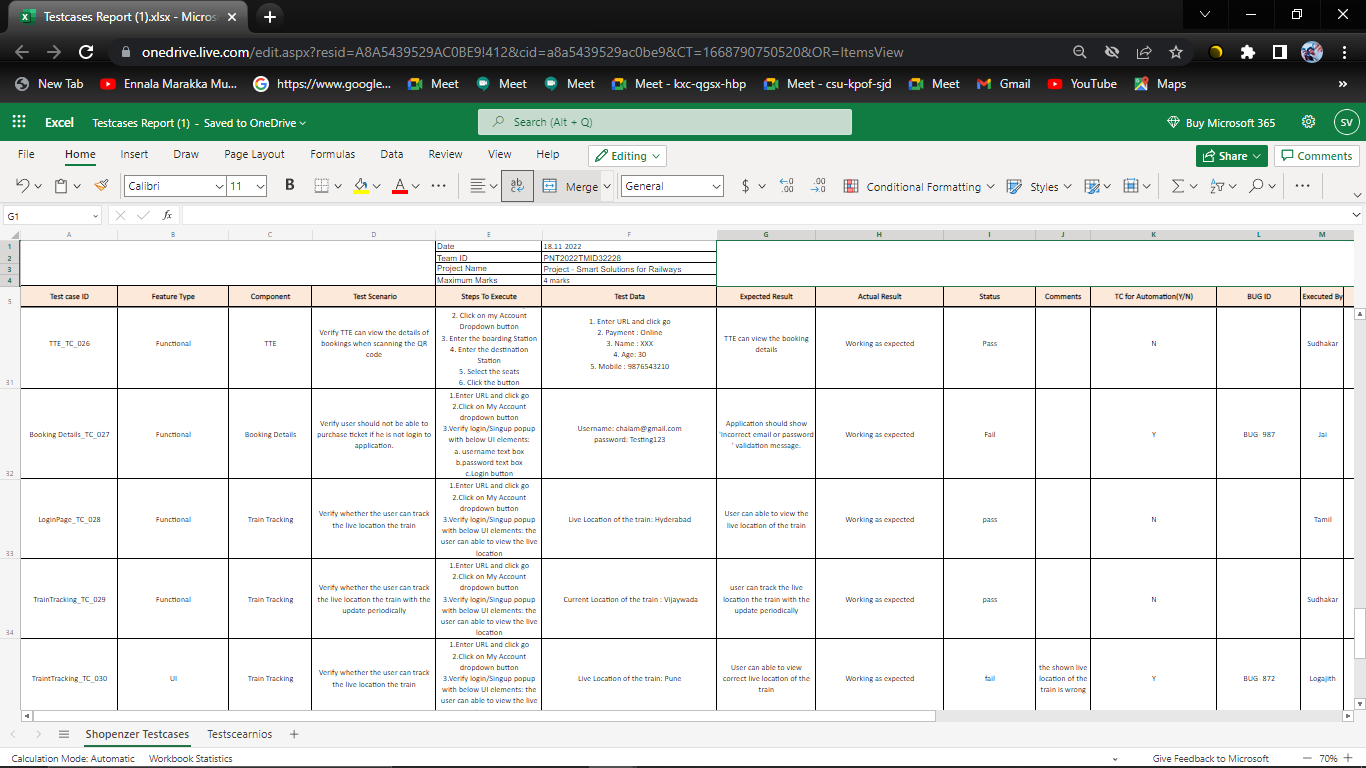


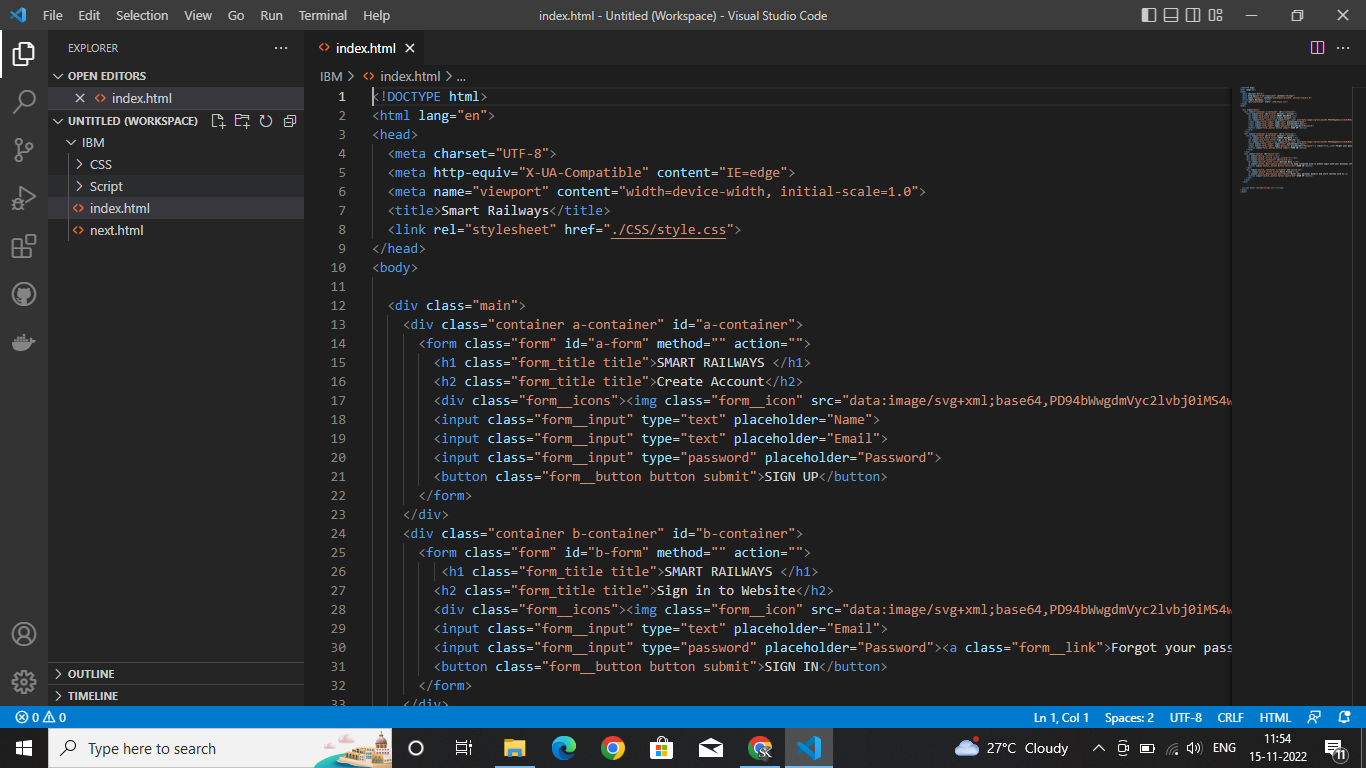


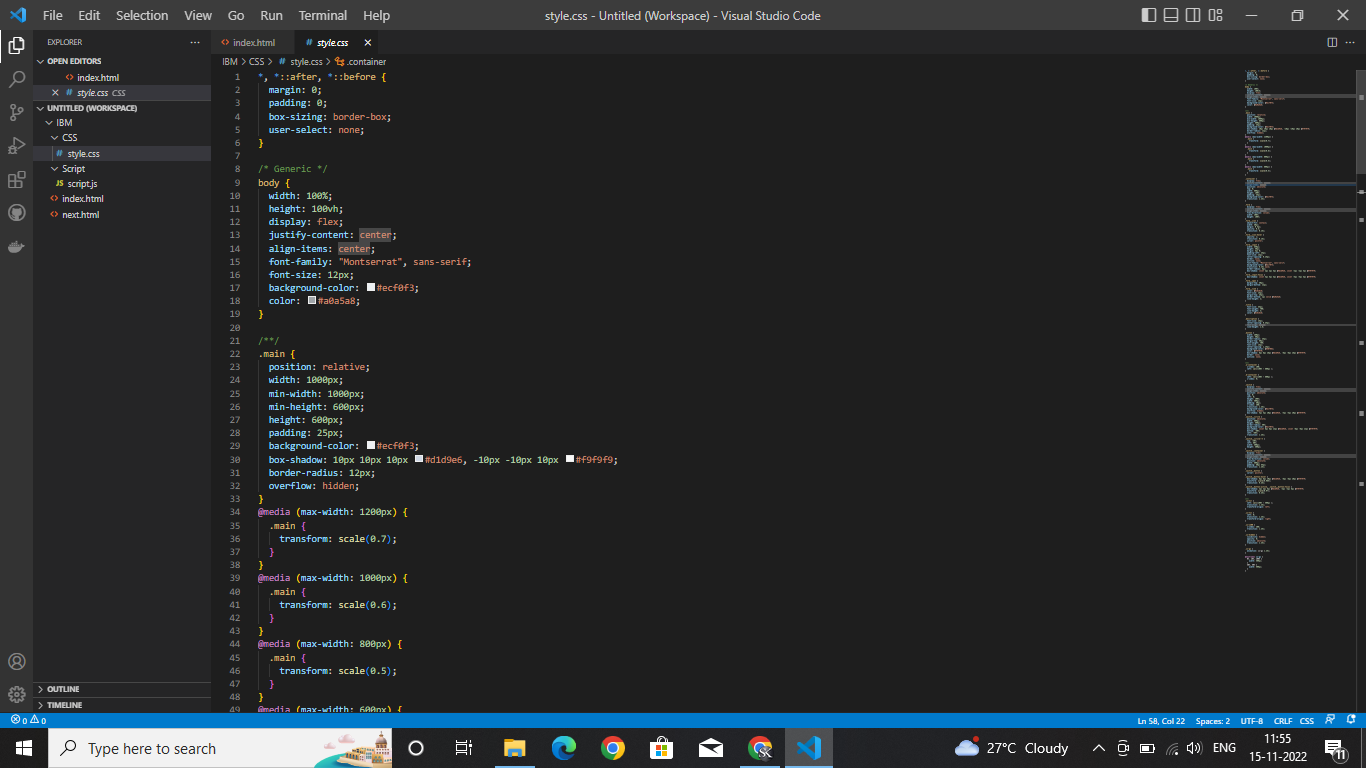


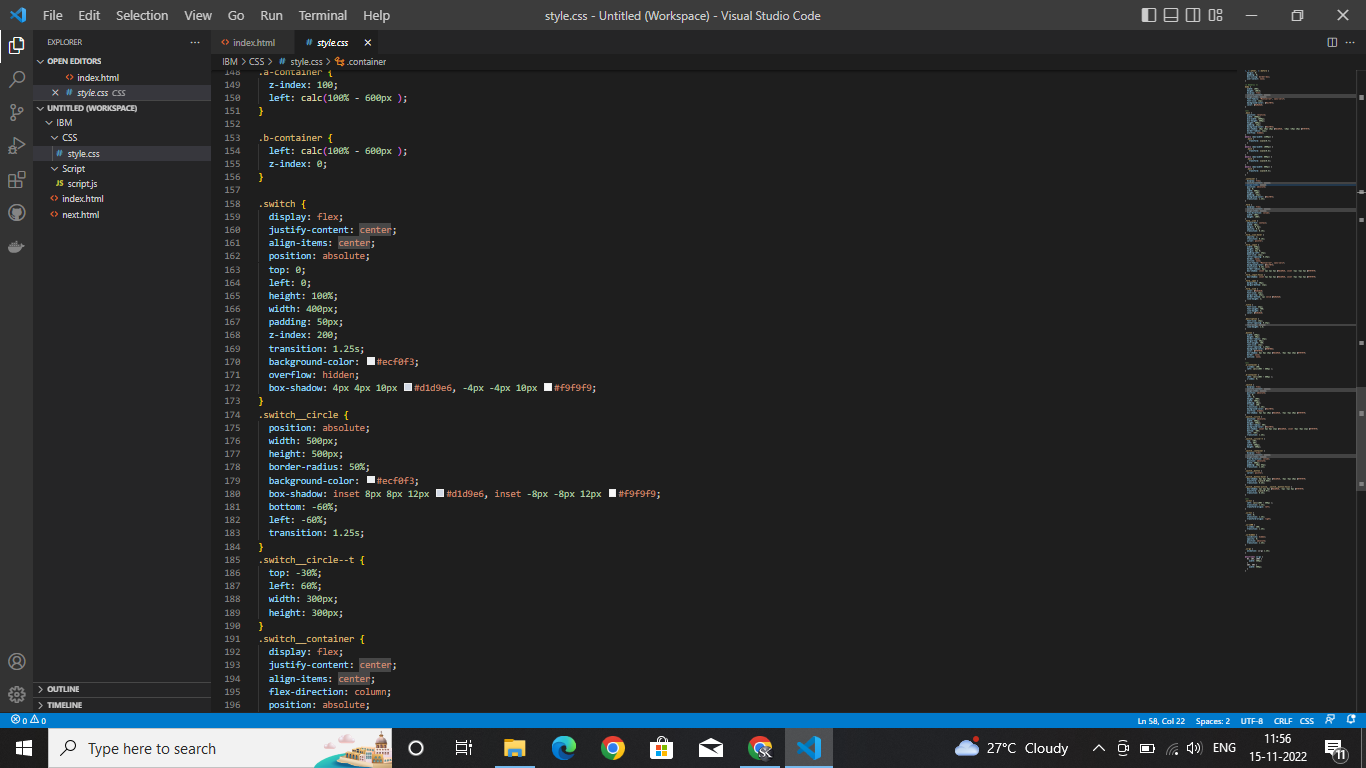


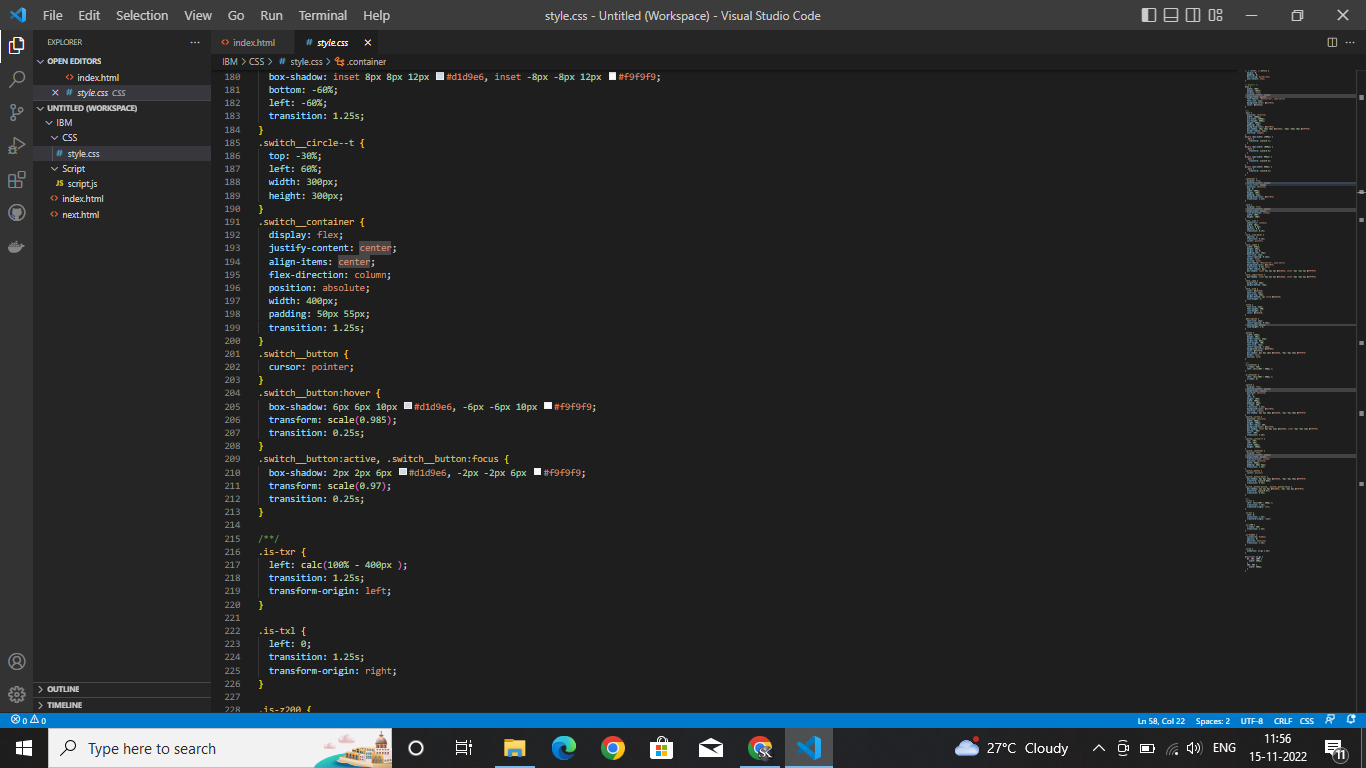


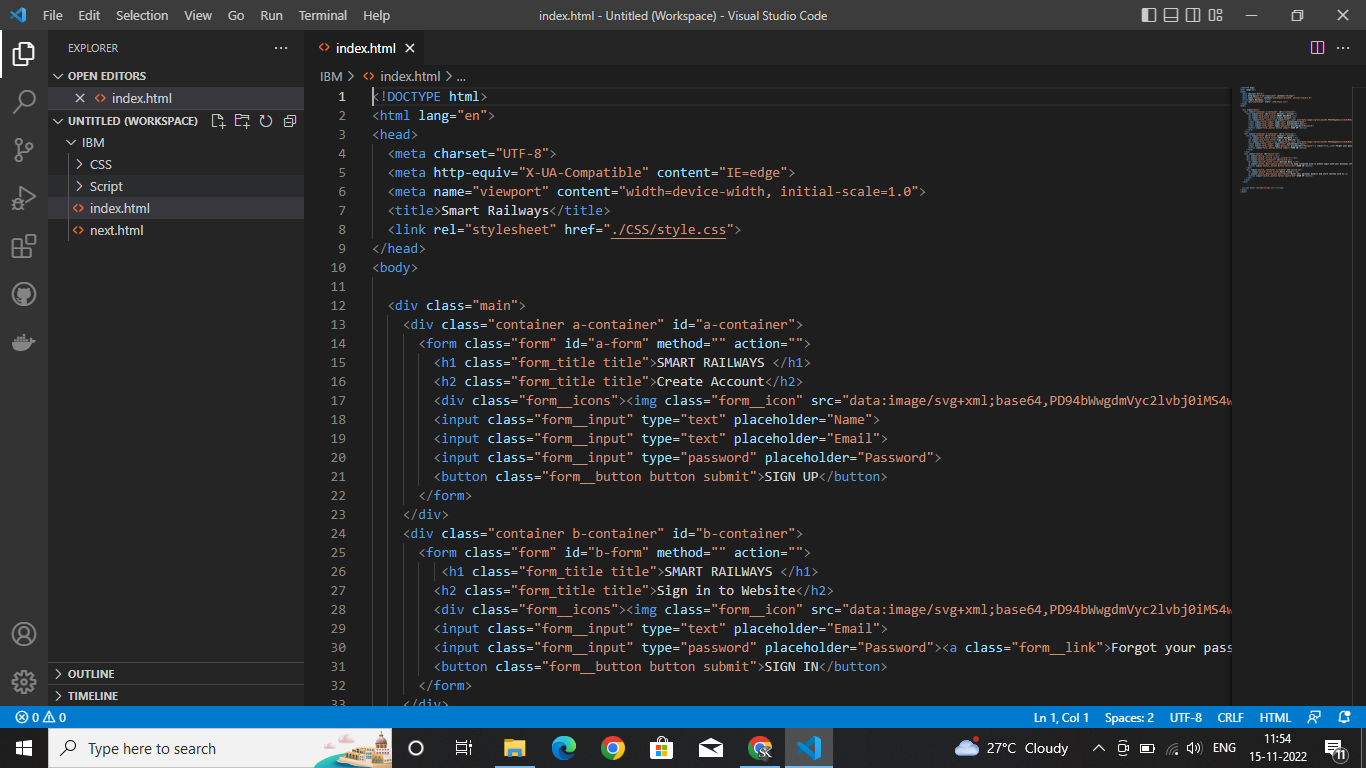












import cv2 as cv

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 fromIBM 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, (255 ,0, 0),3)

try: response=service.get\_document( db='bookingdetails', doc\_id = a ) .get\_result() print(response) print("\n\n") pub(response) time.sleep(5)

except Exception as e: response={'Error':'Not a Valid Ticket'}

pub(response)

print("Not a Valid Ticket")

print("\n\n") time.sleep(5) cv.imshow("Frame" ,frame)

if cv.waitKey(1) & 0xFF == ord('q'):

break client.commandCallback = myCommandCallback cap.release()

cv.destroyAllWindows()

client.disconnect()

**TIME SIGNAL**

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.authenticaters import BasicAuthenticator

authenticator=BasixAuthenticator('apikey-v2-16u3crmdpkghhxefdikvpssoh5fwezrmuup5fv5g3ubz','b0ab119f45d3e6255eabb978')

service=CloudantV1(authenticator=authenticator)

service.set\_service\_url('http://apikey-v2-16u3crmdpkghhxefdikvpssoh5fwezrmuup5fv5g3ubz','b0ab119f45d3e6255eabb978')

cap=cv2.VideoCapture(0)

font=cv2.FONT\_HERSHEY\_PLAIN

while True:

\_,frame=cap.read()

decodedObjects=pyzbar.decode(frame)

for obj in decodedObjects:

#print("Data",obj.data)

a=obj.data.decode('UTF-8')

cv2.puText(frame,"Ticket",(50,50),font,2,(255,0,0),3)

#print(a)

try:

response=service.get\_document(

db='booking',

doc\_id=a

).get\_result()

print(response)

time.sleep(5)

except Exception as e:

print("Not a Valid Ticket")

time.sleep(5)

cv2.imshow("Frame",frame)

if cv2.waitkey(1)&0xFF==ord('q'):

cap.release()

cv2.destroyAllWindows()

client.disconnect()

**NODE WORKING**

#include <LiquidCrystal.h>

LiquidCrystal 1cd(5,6,8,9,10,11);

int red1ed = 2;

int green1ed = 3;

int buzzer = 4;

int sensor = A0;

int sensorThresh = 400;

void setup()

{

pinMode(red1ed, OUTPUT);

pinMode(green1ed,OUTPUT);

pinMode(buzzer,OUTPUT);

pinMode(sensor,INPUT);

serial.begin(9600);

1cd.begin(16,2);

}

Void loop()

{

int analogValue = analogRead(sensor);

Serial.print(analogvalue);

if(analogValue>sensorThresh)

{

digitalWrite(red1ed,HIGH);

digit1Weite(green1ed,LOW);

tone(buzzer,1000,10000);

1cd.clear();

1cd.setCursor(0,1);

1cd.print(“RAILWAYS”);

delay(1000);

1cd.clear();

1cd.setCursor(0,1);

1cd.print(“SMART SOLUTION”);

delay(1000);

}

else

{

digitalWrite(greenlad,HIGH);

digitalWrite(red1ed,LOW);

noTone(buzzer);

1cd.clear();

1cd.setCursor(0,0);

1cd.print(“SAFE”);

delay(1000);

1cd.clear();

1cd.setCursor(0,1);

1cd.print(“ALL CLEAR”);

delay(1000);

}

}

**HTML**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Smart Railways</title>

<link rel="stylesheet" href="./CSS/style.css">

</head>

<body>

<div class="main">

<div class="container a-container" id="a-container">

<form class="form" id="a-form" method="" action="">

<h1 class="form\_title title">SMART RAILWAYS </h1>

<h2 class="form\_title title">Create Account</h2>

<input class="form\_\_input" type="text" placeholder="Name">

<input class="form\_\_input" type="text" placeholder="Email">

<input class="form\_\_input" type="password" placeholder="Password">

<button class="form\_\_button button submit">SIGN UP</button>

</form>

</div>

<div class="container b-container" id="b-container">

<form class="form" id="b-form" method="" action="">

<h1 class="form\_title title">SMART RAILWAYS </h1>

<h2 class="form\_title title">Sign in to Website</h2>

<input class="form\_\_input" type="text" placeholder="Email">

<input class="form\_\_input" type="password" placeholder="Password"><a class="form\_\_link">Forgot your password?</a>

<button class="form\_\_button button submit">SIGN IN</button>

</form>

</div>

<div class="switch" id="switch-cnt">

<div class="switch\_\_circle"></div>

<div class="switch\_\_circle switch\_\_circle--t"></div>

<div class="switch\_\_container" id="switch-c1">

<h2 class="switch\_\_title title">Welcome Back !</h2>

<p class="switch\_\_description description">To keep connected with us please login with your personal info</p>

<button class="switch\_\_button button switch-btn">SIGN IN</button>

</div>

<div class="switch\_\_container is-hidden" id="switch-c2">

<h2 class="switch\_\_title title">Hello Friend !</h2>

<p class="switch\_\_description description">Enter your personal details and start journey with us</p>

<button class="switch\_\_button button switch-btn">SIGN UP</button>

</div>

</div>

</div>

<script src="./Script/script.js"></script>

</body>

</html>

**8.2.User Acceptance Testing:**

**Acceptance Testing**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Resolution** | **Severity 1** | **Severity 2** | **Severity 3** | **Severity 4** | **Subtotal** |
| **By Design** | **4** | **3** | **2** | **1** | **10** |
| **Duplicate** | **1** | **1** | **0** | **0** | **2** |
| **External** | **1** | **2** | **1** | **0** | **4** |
| **Fixed** | **7** | **5** | **5** | **2** | **19** |
| **Not Reproduced** | **0** | **2** | **2** | **2** | **6** |
| **Skipped** | **1** | **1** | **2** | **1** | **5** |
| **Won’t fix** | **2** | **0** | **1** | **1** | **4** |
| **total** | **16** | **14** | **13** | **7** | **50** |

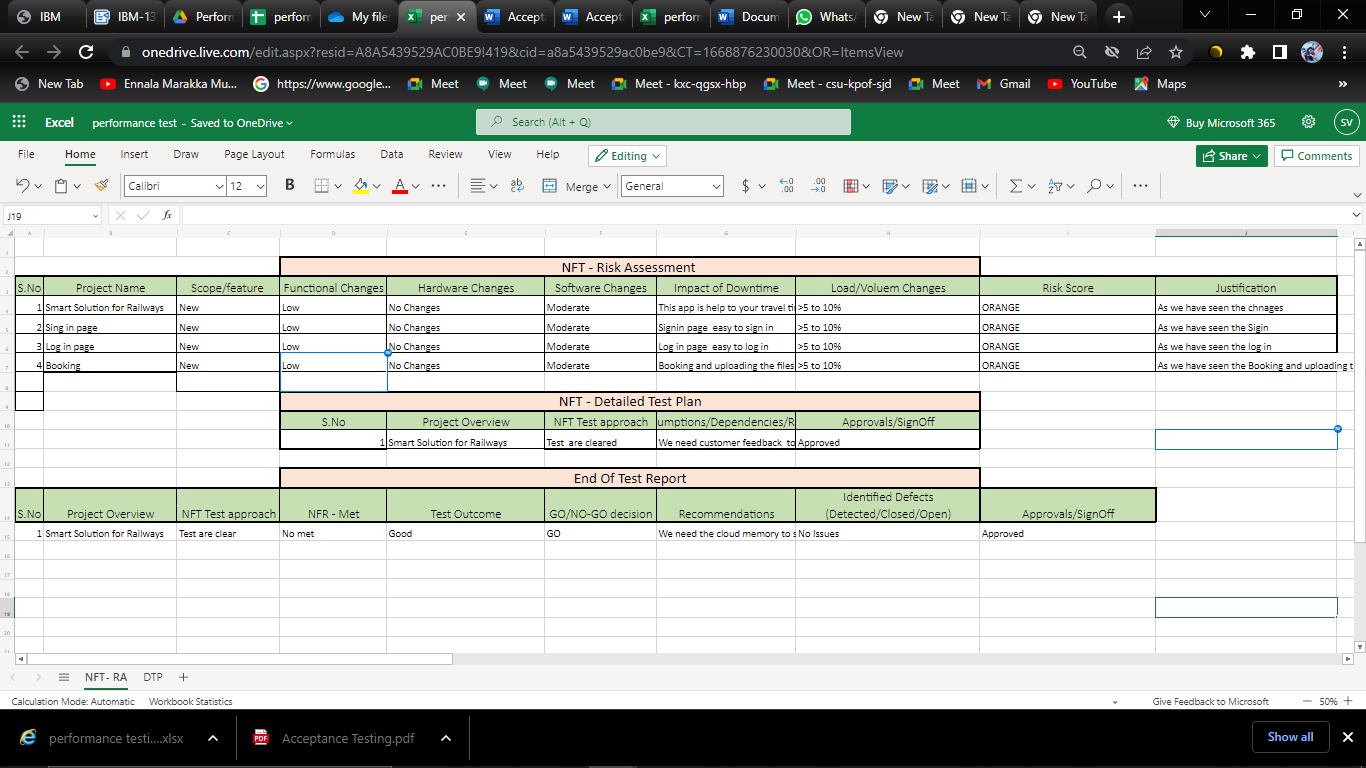
**The defect analysis was resolved by,**

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

1. **Test case Analysis.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Section** | **Test cases** | **Not Tested** | **Fail** | **Pass** |
| **Home Page** | **2** | **1** | **0** | **2** |
| **Login Page** | **2** | **0** | **0** | **2** |
| **Booking** | **5** | **0** | **0** | **5** |
| **Passenger Details** | **6** | **0** | **0** | **6** |
| **TTE** | **2** | **0** | **0** | **2** |
| **Train Tracking** | **2** | **1** | **0** | **2** |
| **Payment** | **2** | **0** | **0** | **2** |

**9.RESULT:**



**10.ADVANTAGES AND DISADVANTAGES:**

**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**

[{"id":"106623df9819f374","type":"tab","label":"User Page","disabled":false,"info":"","env":[]},{"id":"f52cc72524bafd3a","type":"tab","label":"User signUp Login","disabled":false,"info":"","env":[]},{"id":"f71bd8f6e16cc47c","type":"tab","label":"Ticket Form","disabled":false,"info":"","env":[]},{"id":"99ac19833e40aec1","type":"tab","label":"TTE Page","disabled":false,"info":"","env":[]},{"id":"88ddf047c2fd0805","type":"tab","label":"Train Tracking","disabled":false,"info":"","env":[]},{"id":"5b3f26cba8e93049","type":"users\_config","appPath":"/users","jwtCookieName": "nr.nodeUsers.jwt","jwtHttpsOnly":false},{"id":"0dfef9b459d61191","type":"ui\_tab","name":"Home","icon":"dashboard","order":1," disabled":false,"hidden":false},{"id":"d85a525c8867cf2b","type":"ui\_base","theme":{"name":"themecustom","lightTheme":{"default":"#0094CE","baseColor":"#0094CE","baseFont":"Palatino Linotype,Palatino,Book Antiqua,serif","edited":true,"reset":false},"darkTheme":{"default":"#097479","baseColor":"#097479","baseFont":"-applesystem,BlinkMacSystemFont,Segoe UI,Roboto,Oxygen-Sans,Ubuntu,Cantarell,Helvetica Neue,sansserif","edited":true,"reset":false},"customTheme":{"name":"Untitled Theme 1","default":"#4B7930","baseColor":"#8080c0","baseFont":"Georgia,Georgia,serif","reset":false},"themeState":{"basecolor":{"default":"#80ffff","value":"#8080c0","edited":true},"page-titlebarbackgroundColor":{"value":"#8080c0","edited":true},"page-backgroundColor":{"value":"#d6d6d6","edited":true},"page-sidebarbackgroundColor":{"value":"#ffcaca","edited":true},"group-textColor":{"value":"#6060b0","edited":true},"groupborderColor":{"value":"#ffcaca","edited":true},"group-backgroundColor":{"value":"#ffcaca","edited":true},"widgettextColor":{"value":"#800040","edited":true},"widget-backgroundColor":{"value":"#8080c0","edited":false},"widgetborderColor":{"value":"#ffcaca","edited":true},"basefont":{"value":"Georgia,Georgia,serif"}},"angularTheme":{"primary":"indigo","accents":"blue","warn":"red","background":"grey","p alette":"light"}},"site":{"name":"Node-RED Dashboard","hideToolbar":"false","allowSwipe":"mouse","lockMenu":"false","allowTempTheme":"true","dateFormat":"DD/MM/YY 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4","keepalive":"60","cleansession":true,"birthTopic":"","birthQos":"0","birthPayload":"","birthMsg":{},"closeTopic":"","closeQos":" 0","closePayload":"","closeMsg":{},"willTopic":"","willQos":"0","willPayload":"","willMsg":{},"userProps":"","sessionExpiry":""}, {"id":"2b05317674db32db","type":"ui\_group","name":"About","tab":"0dfef9b459d61191","order":5,"disp":false,"width":"21","collap se":false,"className":""},{"id":"b944bd655d2bb705","type":"ui\_group","name":"Log in","tab":"0dfef9b459d61191","order":3,"disp":false,"width":"21","collapse":false,"className":""},{"id":"e539a1caeb151c3c","type" :"ui\_tab","name":"Admin - TTE","icon":"dashboard","order":2,"disabled":false,"hidden":false},{"id":"fbcf6d0e950f0337","type":"ui\_tab","name":"passenger","i con":"dashboard","order":3,"disabled":false,"hidden":true},{"id":"6fb2565163e214d9","type":"ui\_group","name":"Login ","tab":"e539a1caeb151c3c","order":1,"disp":true,"width":8,"collapse":false,"className":""},{"id":"ac7d73420ebc6459","type":"ui\_g roup","name":"first","tab":"fbcf6d0e950f0337","order":1,"disp":false,"width":"20","collapse":false,"className":""},{"id":"b7c6ddcc 5be17ee3","type":"ui\_group","name":"ticket\_form","tab":"fbcf6d0e950f0337","order":2,"disp":false,"width":"20","collapse":false,"cl assName":""},{"id":"46f765adf5acf298","type":"ui\_spacer","z":"f71bd8f6e16cc47c","name":"spacer","group":"1e7acda3dbadea74"," order":2,"width":15,"height":1},{"id":"8b17d83192adb977","type":"ui\_tab","name":"Track\_Train\_status","icon":"dashboard","order" :4,"disabled":false,"hidden":false},{"id":"cbdee607deecfaad","type":"ui\_group","name":"Train1","tab":"8b17d83192adb977","order": 2,"disp":false,"width":"22","collapse":false,"className":""},{"id":"b8abd299d2d34998","type":"ui\_group","name":"Train2","tab":"8 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Page","info":"","x":110,"y":360,"wires":[]},{"id":"20c620543e5f16f6","type":"function","z":"f52cc72524bafd3a","name":"Resets sign up form","func":"var msg1 = { payload: false };\nvar msg2 = { payload: false };\nvar msg3 = { payload: false };\nvar msg4 = { payload: false };\nmsg = { payload: \"\" };\n\nreturn [msg1, msg2, msg3, msg4, msg];","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":140,"y":440,"wires":[["4a31728a8701c9de"]]},{"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":{"username":"","password":"","mail":"","p honeNumber":""},"payload":"","submit":"submit","cancel":"cancel","topic":"payload","topicType":"msg","splitLayout":"","classNam e":"","x":110,"y":540,"wires":[["20c620543e5f16f6","d11cf7d42c5f1ee1","4bf26f3350375ca5"]]},{"id":"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":[["7574e8aac64ecb26","44f5a8f98a8f4c44"," 707b2b2572d7d441"]]},{"id":"46fc2bf4889ccdf0","type":"comment","z":"f52cc72524bafd3a","name":"Confirmation of Sign up","info":"","x":620,"y":540,"wires":[]},{"id":"7d458d15a4155be9","type":"ui\_text","z":"f52cc72524bafd3a","group":"37a267ed1a4 58278","order":8,"width":14,"height":1,"name":"SignUp Feedback","label":"","format":"{{msg.payload}}","layout":"rowspread","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":[["7d458d15a4155be9"]]},{"id":"d1370f5ee2 f35dad","type":"comment","z":"f52cc72524bafd3a","name":"Login page","info":"","x":130,"y":40,"wires":[]},{"id":"cefa9967356fb848","type":"comment","z":"f52cc72524bafd3a","name":"About","in fo":"","x":90,"y":760,"wires":[]},{"id":"8465dcef34557fe1","type":"ui\_form","z":"f52cc72524bafd3a","name":"","label":"","group":" 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pass;\nvar msg1,msg2;\n\nname=msg.payload.username;\npass = msg.payload.password;\n\nmsg1=userName.includes(name);\nmsg2=userCode.includes(pass);\n\nif(msg1==true && msg2==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":"f52cc72524bafd3a","group":"b944b d655d2bb705","order":8,"width":12,"height":1,"name":"Login feedback","label":"","format":"{{msg.payload}}","layout":"rowspread","className":"","x":1080,"y":260,"wires":[]},{"id":"8645d955a9d6c18e","type":"template","z":"f52cc72524bafd3a","name":" CSS","field":"payload","fieldType":"msg","format":"css","syntax":"mustache","template":"body {\n background-color: #141414;\n backgroundimage:url('data:image/svg+xml;base64,PHN2ZyB4bWxucz0naHR0cDovL3d3dy53My5vcmcvMjAwMC9zdmcnIHdpZHRoPScxMD AlJyBoZWlnaHQ9JzEyMCc+Cgk8ZGVmcz4KCQk8cGF0dGVybiBwYXR0ZXJuVW5pdHM9J3VzZXJTcGFjZU9uVXNlJyBpZD0 nYycgd2lkdGg9JzYwJyBoZWlnaHQ9JzEyMCcgeD0nMCcgeT0nMCcgdmlld0JveD0nMCAwIDUgMTAnPgoJCQk8cGF0aCBmaW xsLW9wYWNpdHk9JzAnIHN0cm9rZT0nIzI5MjkyOScgc3Ryb2tlLXdpZHRoPScwLjA5JyBkPSdNLTIsMUw3LDEwTS0yLDZMN ywxNU0tMiwtNEw3LDUnLz4KCQk8L3BhdHRlcm4+CgkJPHBhdHRlcm4gcGF0dGVyblVuaXRzPSd1c2VyU3BhY2VPblVzZScg aWQ9J2MyJyB3aWR0aD0nNjAnIGhlaWdodD0nMTIwJyB4PScxMDAlJyB5PScwJyB2aWV3Qm94PScwIDAgNSAxMCc+CgkJC TxwYXRoIGZpbGwtb3BhY2l0eT0nMCcgc3Ryb2tlPScjMjkyOTI5JyBzdHJva2Utd2lkdGg9JzAuMDknIGQ9J003LDFMLTIsMTBN Nyw2TC0yLDE1TTcsLTRMLTIsNScvPgoJCTwvcGF0dGVybj4KCTwvZGVmcz4KCTxyZWN0IHdpZHRoPSc1MCUnIGhlaWdod D0nMTAwJScgZmlsbD0ndXJsKCNjKScvPgoJPHJlY3QgeD0nNTAlJyB3aWR0aD0nNTAlJyBoZWlnaHQ9JzEwMCUnIGZpbGw9 J3VybCgjYzIpJy8+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}\np, 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}\np#pleft {\n max-width:20em;\n float:left;\n}\np#pright {\n max-width:20em;\n float:left;\n}\nul {\n clear:both;\n}\n\n\nhtml { font-size: 62.5%; }\nbody { font-size: 1em;}\n\n/\* PYRAMID CODE \*/\n.stage {\n -webkit-transform:scale(1.85);\n transform:scale(0.85);\n float:right;\n margin-right:120px;\n margintop:30px;\n width:0px; height:0px;\n \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 \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;\n border-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.side2:before{ border-color: rgba(20, 90, 225, 0.3) transparent transparent transparent; }\n.side3:before{ border-color: rgba(255, 0, 0, 0.3) transparent transparent transparent; } \n.side4:before{ border-color: rgba(0, 255, 255, 0.3) transparent transparent transparent; }\n\n\n@-webkit-keyframes turnPyramid { 100% { -webkit-transform: rotateX(75deg) rotate(425deg); } }\n@keyframes turnPyramid { 100% { transform: rotateX(75deg) rotate(425deg); } }\n\n@media (max-width: 300px) {\n html { font-size: 70%; }\n .stage { -webkit-transform:scale(0.05); transform:scale(0.05); }\n}\n@media (max-width: 440px) {\n h1 { line-height:55px; } \n}\n@media (max-width: 460px) { \n .stage { position:absolute; top:25px; left:50%; margin-left:-45px; } \n h1 { margin-top:50px; text-align:center; }\n}\n@media (max-width:600px) { .stage { -webkit-transform:scale(0.55); transform:scale(0.55); marginright:60px; } }\n@media (min-width: 600px) {\n html { font-size: 80%; }\n .stage { -webkit-transform:scale(0.68); transform:scale(0.68); margin-right:80px; }\n}\n@media (min-width: 880px) {\n html { font-size: 120%; }\n p, li { font-size: 1em; }\n p#pright { margin-left:3em; }\n .stage { -webkit-transform:scale(0.85); transform:scale(0.85); margin-right:120px; }\n}","output":"str","x":390,"y":860,"wires":[[]]},{"id":"34a75e3599535943","type":"ui\_template","z":"f52cc72524bafd3a","group":" 2b05317674db32db","name":"HTML","order":5,"width":16,"height":6,"format":"

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\n Our App breaks the usual way to book the train ticket.\n

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**Beneficts of using our App**

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* Online Ticket Booking

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* Automated Ticket verification

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* Work Load reducction for user

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e":"","group":"b7c6ddcc5be17ee3","order":10,"width":4,"height":1,"passthru":false,"label":"back","tooltip":"","color":"","bgcolor":"r ed","className":"","icon":"","payload":"{\"group\":{\"hide\":[\"passenger\_tracking\",\"passenger\_ticket\_form\"],\"show\":[\"passeng er\_first\"]}}","payloadType":"json","topic":"topic","topicType":"msg","x":210,"y":1140,"wires":[["9c9951bcc5b6202b"]]},{"id":"9c9 951bcc5b6202b","type":"ui\_ui\_control","z":"f71bd8f6e16cc47c","name":"","events":"all","x":400,"y":1140,"wires":[["d343423931a6 2c88"]]},{"id":"d343423931a62c88","type":"debug","z":"f71bd8f6e16cc47c","name":"debug 3","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":"","grou 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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","storeOutMessages":true,"fwdInMessages":true,"resendOnRefresh":true,"templateScope":"local","className":"","x":860,"y":340, "wires":[[]]},{"id":"7a3160653571d92b","type":"ui\_toast","z":"f71bd8f6e16cc47c","position":"dialog","displayTime":"3","highlight" :"","sendall":true,"outputs":1,"ok":"OK","cancel":"","raw":false,"className":"","topic":"","name":"","x":850,"y":260,"wires":[[]]},{" id":"9aca2a7218697126","type":"delay","z":"f71bd8f6e16cc47c","name":"","pauseType":"delay","timeout":"1","timeoutUnits":"minu tes","rate":"1","nbRateUnits":"1","rateUnits":"second","randomFirst":"1","randomLast":"5","randomUnits":"seconds","drop":false,"al lowrate":false,"outputs":1,"x":500,"y":420,"wires":[["d73d1bc82e114706"]]},{"id":"d73d1bc82e114706","type":"function","z":"f71b d8f6e16cc47c","name":"Empty Data","func":"msg.payload=\"\"\nreturn msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":690,"y":420,"wires":[["424882e7cce512ac"]]},{"id":"59971d5211 240aad","type":"function","z":"f71bd8f6e16cc47c","name":"confirmation message","func":"msg.payload=\"Ticket is Booked\"\nreturn msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":580,"y":260,"wires":[["7a3160653571d92b"]]},{"id":"7c5080966 9a5ec14","type":"function","z":"f71bd8f6e16cc47c","name":"Boarding details","func":"global.set('b',msg.payload)\nreturn msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":440,"y":1280,"wires":[[]]},{"id":"a4448ac26db30ca9","type":"fun ction","z":"f71bd8f6e16cc47c","name":"Destination details","func":"global.set('d',msg.payload)\nreturn msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":450,"y":1340,"wires":[[]]},{"id":"e7d895c0165d60b4","type":"fun ction","z":"f71bd8f6e16cc47c","name":"Seat preference","func":"global.set('sp',msg.payload)\nreturn msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":480,"y":1400,"wires":[[]]},{"id":"e9926ad59ac8e756","type":"fun ction","z":"f71bd8f6e16cc47c","name":"Date of journey","func":"global.set('doj',msg.payload)\nreturn msg;","outputs":1,"noerr":0,"initialize":"","finalize":"","libs":[],"x":500,"y":1460,"wires":[[]]},{"id":"ed5d3919b5276f7e","type":"co mment","z":"f71bd8f6e16cc47c","name":"Ticket Booking Form","info":"","x":130,"y":740,"wires":[]},{"id":"98e4264fa13ec344","type":"comment","z":"f71bd8f6e16cc47c","name":"QR code generation","info":"","x":150,"y":240,"wires":[]},{"id":"d2132b9efa435f37","type":"comment","z":"f71bd8f6e16cc47c","name":"Dat abase","info":"","x":140,"y":460,"wires":[]},{"id":"179b1f39a48bdae3","type":"debug","z":"f71bd8f6e16cc47c","name":"","active":tr ue,"tosidebar":true,"console":false,"tostatus":false,"complete":"false","statusVal":"","statusType":"auto","x":430,"y":540,"wires":[]},{ 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The Details of scanned QR code is shown below:","format":"{{msg.payload}}","layout":"colcenter","className":"","x":360,"y":360,"wires":[]},{"id":"02aeea0e97a0ac67","type":"ui\_ui\_control","z":"99ac19833e40aec1","nam e":"","events":"all","x":720,"y":40,"wires":[[]]},{"id":"0555254f83058140","type":"ui\_button","z":"99ac19833e40aec1","name":"","g roup":"c5d2c2754eeda1d3","order":12,"width":5,"height":1,"passthru":false,"label":"Logout","tooltip":"","color":"","bgcolor":"black" ,"className":"","icon":"","payload":"1","payloadType":"num","topic":"topic","topicType":"msg","x":280,"y":420,"wires":[["69fa025 5d42cea03"]]},{"id":"69fa0255d42cea03","type":"ui\_ui\_control","z":"99ac19833e40aec1","name":"","events":"all","x":480,"y":420," wires":[[]]},{"id":"3221ce22d1787743","type":"ibmiot in","z":"99ac19833e40aec1","authentication":"apiKey","apiKey":"db4157730f8a536b","inputType":"evt","logicalInterface":"","ruleId ":"","deviceId":"876543","applicationId":"","deviceType":"QR\_Reads","eventType":"+","commandType":"","format":"json","name": "IBM IoT OR Code","service":"registered","allDevices":"","allApplications":"","allDeviceTypes":"","allLogicalInterfaces":"","allEvents":true,"allC ommands":"","allFormats":"","qos":0,"x":140,"y":640,"wires":[["ed5dd32d7dd0f213","169b8c59c85abf89"]]},{"id":"ed5dd32d7dd0f 213","type":"ui\_text","z":"99ac19833e40aec1","group":"c5d2c2754eeda1d3","order":5,"width":15,"height":1,"name":"QR code details","label":"","format":"{{msg.payload}}","layout":"colcenter","className":"","x":620,"y":640,"wires":[]},{"id":"169b8c59c85abf89","type":"debug","z":"99ac19833e40aec1","name":"","a ctive":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"true","targetType":"full","statusVal":"","statusType":"auto","x ":470,"y":740,"wires":[]},{"id":"420cdc88c74795d3","type":"comment","z":"99ac19833e40aec1","name":"Dispalys the scanned information","info":"","x":210,"y":520,"wires":[]},{"id":"db978ad919cb1b5b","type":"ui\_text","z":"88ddf047c2fd0805","group":"cbd ee607deecfaad","order":1,"width":0,"height":0,"name":"","label":"Track the Location of Delhi Express","format":"{{msg.payload}}","layout":"rowspread","className":"","x":380,"y":280,"wires":[]},{"id":"64b68ff52a8782e2","type":"ui\_button","z":"88ddf047c2fd0805","name":" ","group":"4a564af7723db036","order":1,"width":6,"height":1,"passthru":false,"label":"Delhi Express","tooltip":"","color":"","bgcolor":"Red","className":"","icon":"","payload":"{\"group\":{\"hide\":[\"Track\_Train\_status\_Trai n2\",\"Track\_Train\_status\_Train3\"],\"show\":[\"Track\_Train\_status\_Train1\",\"Track\_Train\_status\_Choose\_the\_Train\",\"Track\_Trai n\_status\_Back\"]}}","payloadType":"json","topic":"payload","topicType":"msg","x":200,"y":40,"wires":[["a922096c836b369d"]]},{" id":"8cb91f1b26a56c56","type":"ui\_button","z":"88ddf047c2fd0805","name":"","group":"4a564af7723db036","order":5,"width":6,"h eight":1,"passthru":false,"label":"Mysuru SF Express","tooltip":"","color":"","bgcolor":"Green","className":"","icon":"","payload":"{\"group\":{\"hide\":[\"Track\_Train\_status\_T rain1\",\"Track\_Train\_status\_Train3\"],\"show\":[\"Track\_Train\_status\_Train2\",\"Track\_Train\_status\_Choose\_the\_Train\",\"Track\_T rain\_status\_Back\"]}}","payloadType":"json","topic":"payload","topicType":"msg","x":210,"y":100,"wires":[["eb85b48d552b2896"]] },{"id":"27c68eee34fc943b","type":"ui\_button","z":"88ddf047c2fd0805","name":"","group":"4a564af7723db036","order":3,"width":6 ,"height":1,"passthru":false,"label":"Goa Express","tooltip":"","color":"","bgcolor":"Orange","className":"","icon":"","payload":"{\"group\":{\"hide\":[\"Track\_Train\_status\_ Train1\",\"Track\_Train\_status\_Train2\"],\"show\":[\"Track\_Train\_status\_Train3\",\"Track\_Train\_status\_Choose\_the\_Train\",\"Track\_ Train\_status\_Back\"]}}","payloadType":"json","topic":"payload","topicType":"msg","x":190,"y":160,"wires":[["92f07b069b3c90a3"] ]},{"id":"eb85b48d552b2896","type":"ui\_ui\_control","z":"88ddf047c2fd0805","name":"","events":"change","x":460,"y":100,"wires": [["becc127ee91d2b21"]]},{"id":"8feaa0ca21210d1a","type":"ui\_text","z":"88ddf047c2fd0805","group":"b8abd299d2d34998","order" :1,"width":0,"height":0,"name":"","label":"Track the Location of Mysuru SF Express","format":"{{msg.payload}}","layout":"row- spread","className":"","x":340,"y":500,"wires":[]},{"id":"a845f237c6220289","type":"ui\_text","z":"88ddf047c2fd0805","group":"f7 659eba2a245636","order":1,"width":0,"height":0,"name":"","label":"Track the Location of Goa Express","format":"{{msg.payload}}","layout":"rowspread","className":"","x":360,"y":700,"wires":[]},{"id":"e149e0138225f9e2","type":"comment","z":"88ddf047c2fd0805","name":" Delhi Express - 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**GITHUP LINK:**

https://github.com/IBM-EPBL/IBM-Project-13414-1659518228

**PROJECT DEMO LINK:**

https://drive.google.com/file/d/1Q099-Ritso9JjCC3Wn3AM3pW8ylCsnTH/view?usp=share\_link