Project Report

1.INTRODUCTION

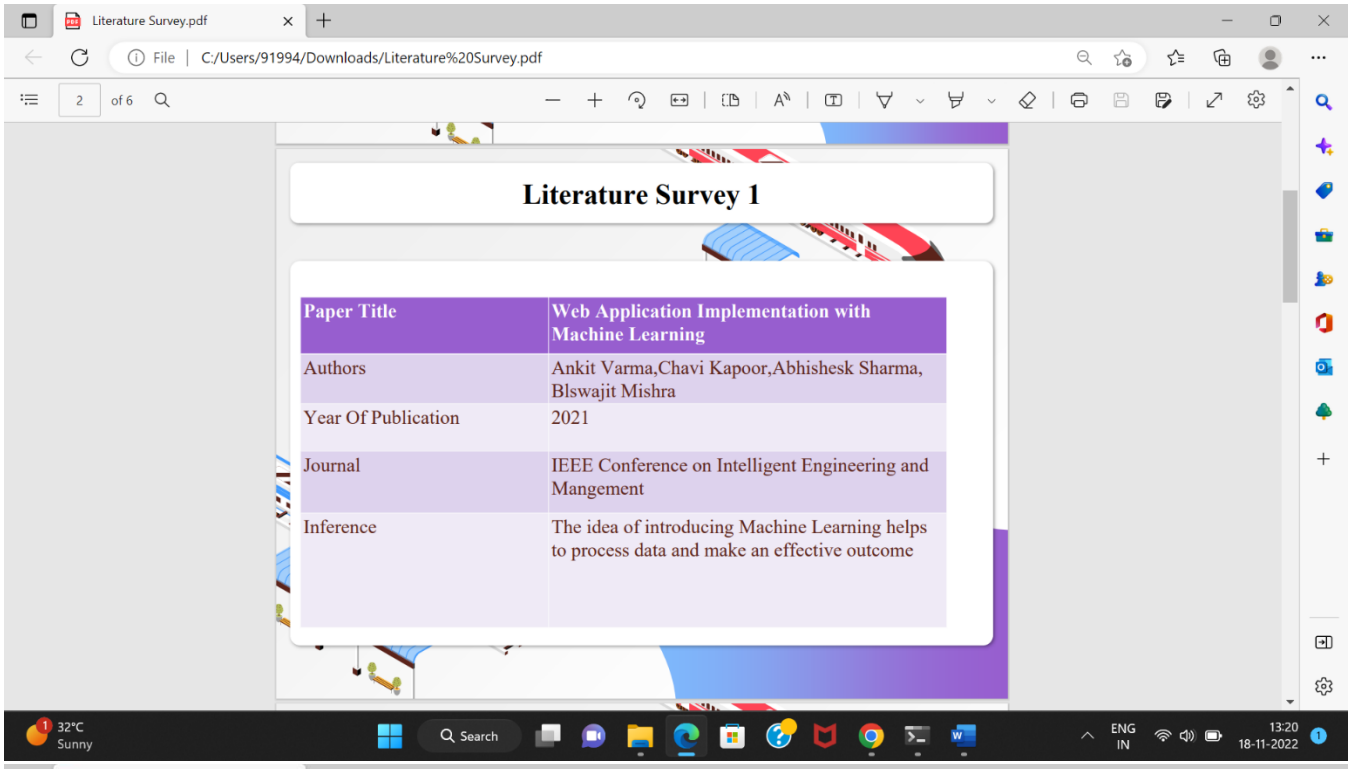
1.1 PROJECT OVERVIEW

Using the Web application, a user books a ticket based on the availability of the seats by giving the general required information. Once a user clicks on the submit button, a QR code is generated with a Unique ID and the data is stored in the Cloudant DB with that Unique ID. Users can save the QR code for further process. In python code, a Ticket collector can scan the QR code and extract the information from the QR Code i.e., Unique ID. With that Unique ID, data is fetched from the Cloudant DB, if it is not found, then it displays Not a Valid Ticket. Also, the live location of the train will be published to IBM IoT platform using python code. The train location can be tracked from a Web Application.

1.2 PURPOSE

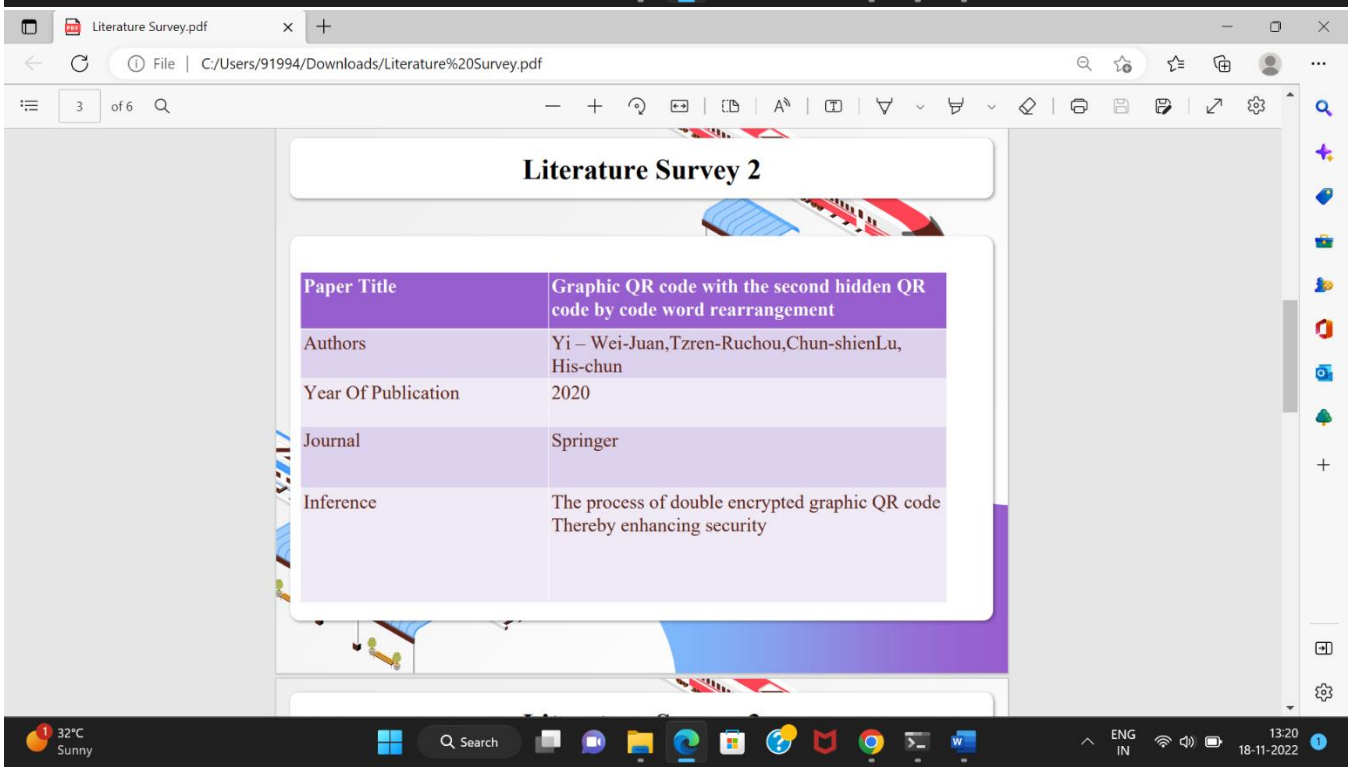
The explosively growing demand of Internet of Things (IoT) has rendered broadscale advancements in the fields across sensors, radio access, network, and hardware/software platforms for mass market applications. In spite of the recent advancements, limited coverage and battery for persistent connections of IoT devices still remains a critical impediment to practical service applications. In this paper, we introduce a cost-effective IoT solution consisting of device platform, gateway, IoT network, and platform server for smart railway infrastructure. Then, we evaluate and demonstrate the applicability through an in-depth case study related to IoT-based maintenance by implementing a proof of concept and performing experimental works. The IoT solution applied for the smart railway application makes it easy to grasp the condition information distributed over a wide railway area. To deduce the potential and feasibility, we propose the network architecture of IoT solution and evaluate the performance of the candidate radio access technologies for delivering IoT data in the aspects of power consumption and coverage by performing an intensive field test with system level implementations. Based on the observation of use cases in interdisciplinary approaches, we figure out the benefits that the IoT can bring.

2. LITERATURE SURVEY



Literature Survey 1

Paper Title	Web Application Implementation with Machine Learning
Authors	Ankit Varma,Chavi Kapoor,Abhishesk Sharma, Blswajit Mishra
Year Of Publication	2021
Journal	IEEE Conference on Intelligent Engineering and Mangement
Inference	The idea of introducing Machine Learning helps to process data and make an effective outcome



Literature Survey 2

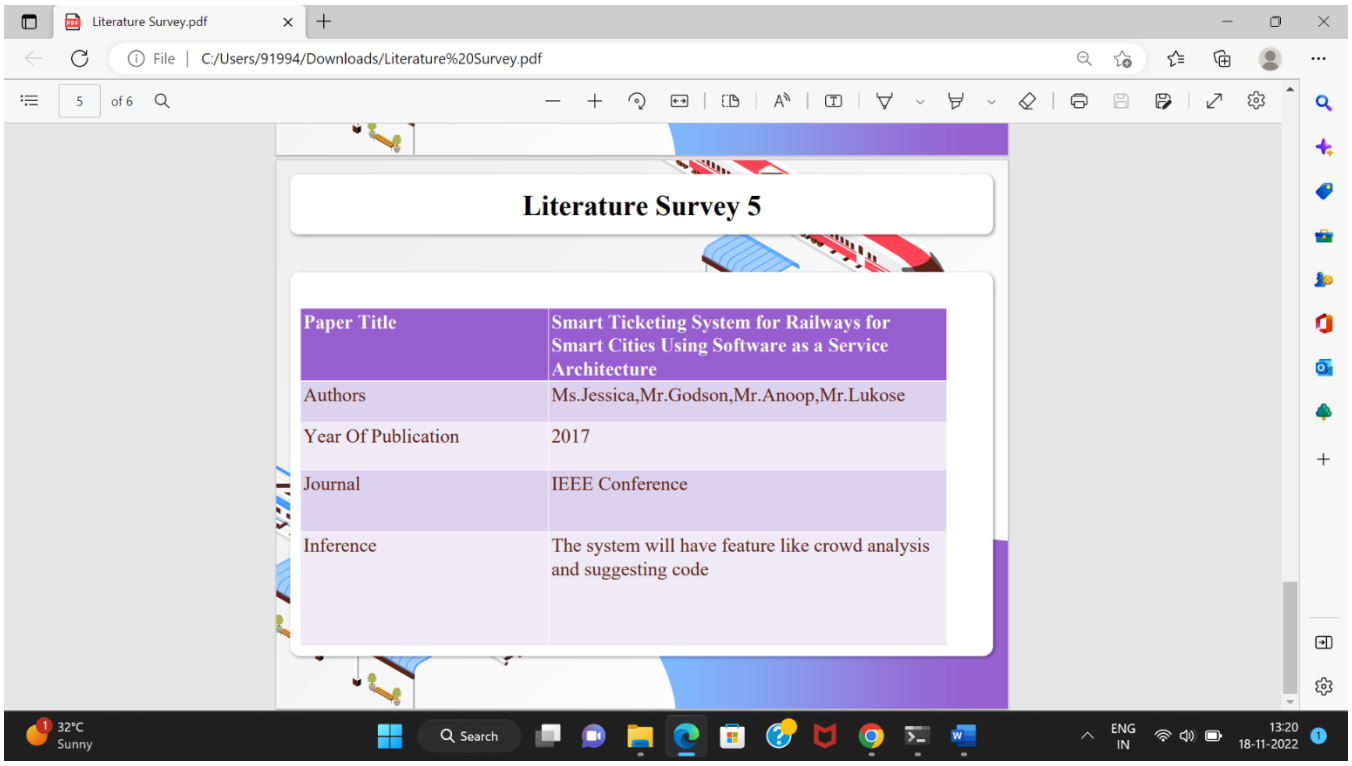
Paper Title	Graphic QR code with the second hidden QR code by code word rearrangement
Authors	Yi – Wei-Juan,Tzren-Ruchou,Chun-shienLu, His-chun
Year Of Publication	2020
Journal	Springer
Inference	The process of double encrypted graphic QR code Thereby enhancing security

Literature Survey 3

Paper Title	IoT Based Automatic Seat Vacancy Detection in Travel Bus Using Cloud Database
Authors	M.Venkatesh, R.Rashia Suba Shree
Year Of Publication	2021
Journal	IJITEE
Inference	The idea to verify whether all booked seats are occupied or not using sensors and making particular seat to enable for rebooking

Literature Survey 4

Paper Title	Design of a Core Software development platform for railway vehicles
Authors	Wei Fan
Year Of Publication	2021
Journal	IEEE Conference
Inference	To develop a new general software platform to design method applied to rail transmit industry



Literature Survey 5

Paper Title	Smart Ticketing System for Railways for Smart Cities Using Software as a Service Architecture
Authors	Ms.Jessica,Mr.Godson,Mr.Anoop,Mr.Lukose
Year Of Publication	2017
Journal	IEEE Conference
Inference	The system will have feature like crowd analysis and suggesting code

2.2 REFERENCES

1. D. Hesse, "Rail Inspection Using Ultrasonic Surface Waves" Thesis, Imperial College of London, 2007.
2. Md. Reya Shad Azim1 , Khizir Mahmud2 and C. K. Das. Automatic railway track switching system, International Journal of Advanced Technology, Volume 54, 2014.
3. S. Somalraju, V. Murali, G. saha and V. Vaidehi, "Title-robust railway crack detection scheme using LED (Light Emitting Diode) - LDR (Light Dependent Resistor) assembly IEEE 2012.
4. S. Srivastava, R. P. Chourasia, P. Sharma, S. I. Abbas, N. K. Singh, "Railway Track Crack detection vehicle", IARJSET, Vol. 4, pp. 145-148, Issued in 2, Feb 2017.

5. U. Mishra, V. Gupta, S. M. Ahzam and S. M. Tripathi, "Google Map Based Railway Track Fault Detection Over the Internet", International Journal of Applied Engineering Research, Vol. 14, pp. 20-23, Number 2, 2019.

6. R. A. Raza, K. P. Rauf, A. Shafeeq, "Crack detection in Railway track using Image processing", IJARIIT, Vol. 3, pp. 489-496, Issue 4, 2017.

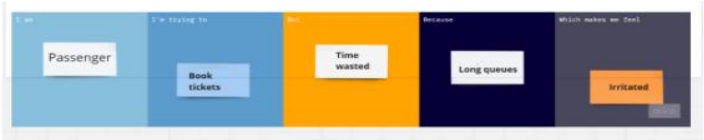
7. N. Bhargav, A. Gupta, M. Khirwar, S. Yadav, and V. Sahu, "Automatic Fault Detection of Railway Track System Based on PLC (ADOR TAST)", International Journal of Recent Research Aspects, Vol. 3, pp. 91-94, 2016

2.3 PROBLEM STATEMENT DEFINITION

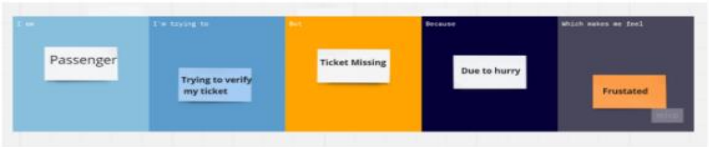
Among the various modes of transport, railways is one of the biggest modes of transport in the world. Though there are competitive threats from airlines, luxury buses, public transports, and personalized transports the problem statement is to answer the question "What are the problems faced by the passengers while travelling by train at station and on board"

PS-1

PS-2



PS-3

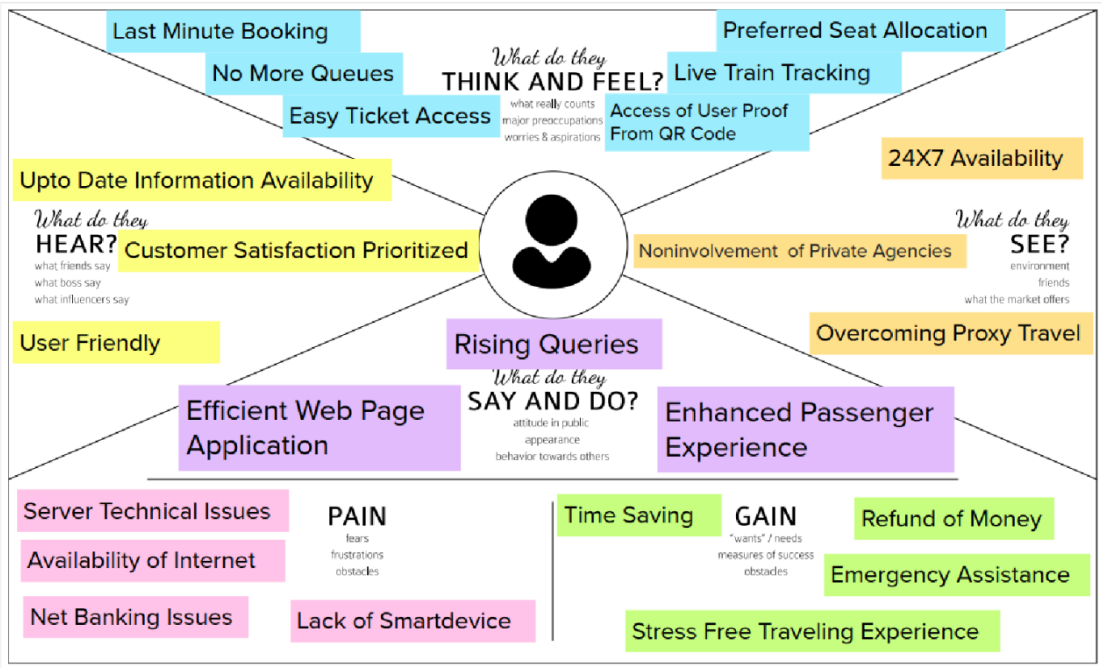


PS-4

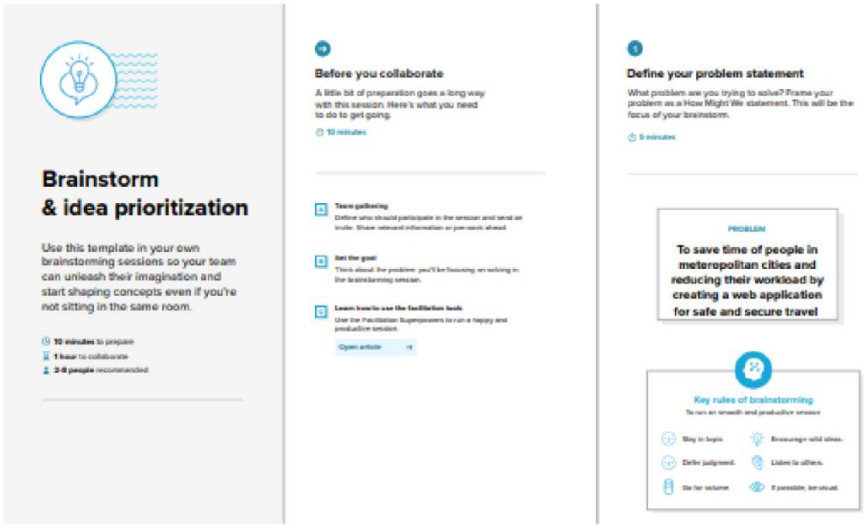
Problem Statement	I am	I'm trying to	But	Because	Which makes me feel
PS-1	Government	Maintain resources	Not Manageable	More Utilization	Confused
PS-2	Passenger	Book Tickets	Time Wasted	Long Queues	Irritated
PS-3	Passenger	Trying to Verify My Ticket	Ticket Missing	Due to Hurry	Frustrated
PS-4	Guardian	Track	Can't Reach	No GPS Facility	Worried

3. IDEATION AND PROPOSEDSOLUTON

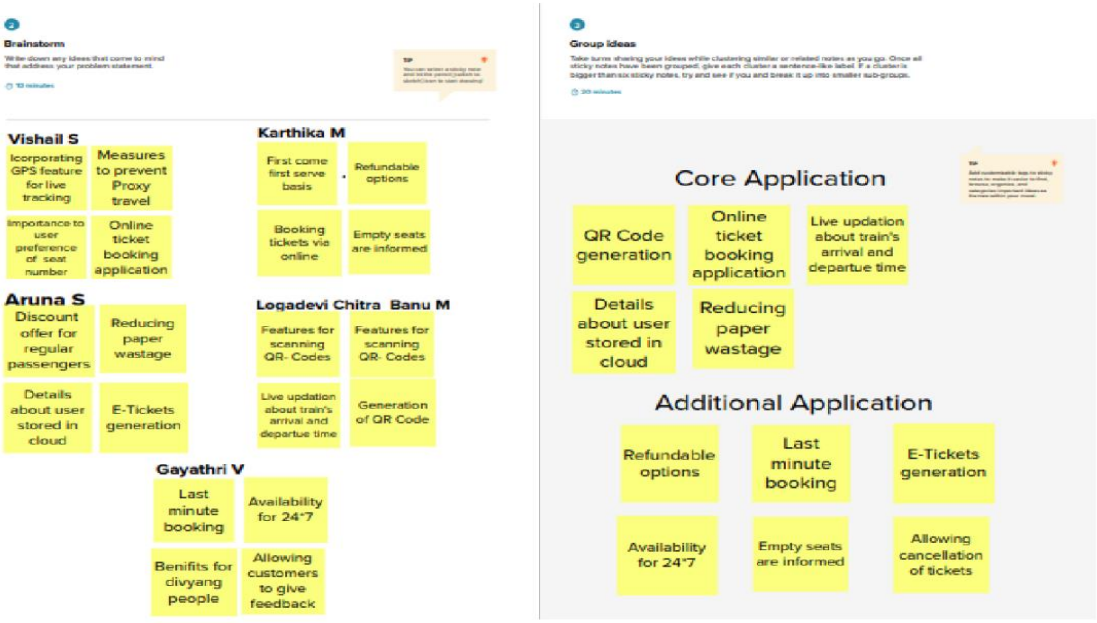
3.1 EMPATHY MAP CANVAS

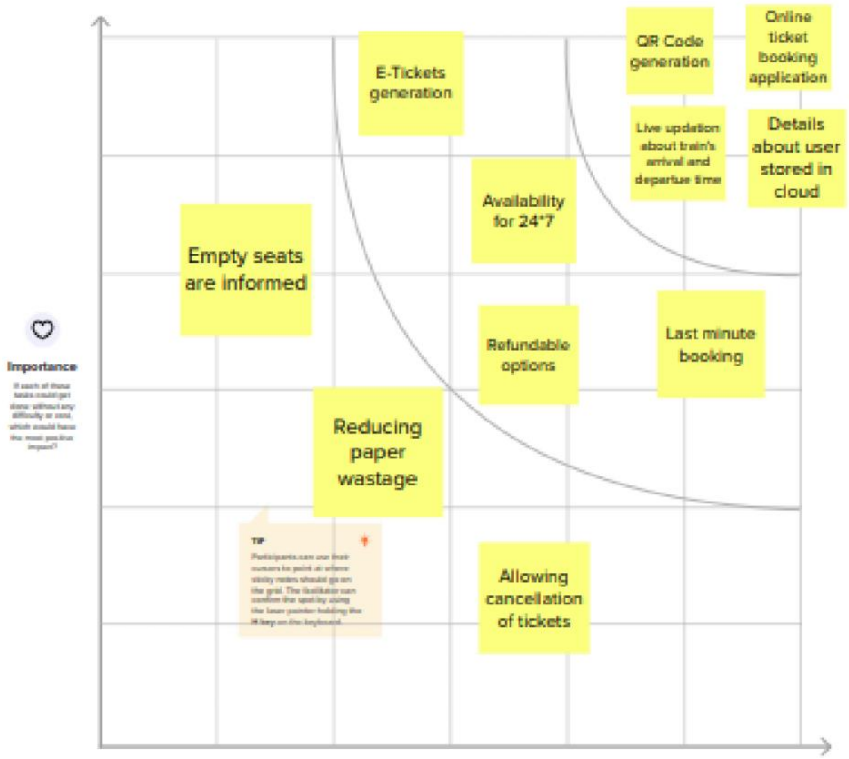


3.2 IDEATION & BRAINSTORMING



Step-2: Brainstorm, Idea Listing and Grouping





3.3 PROPOSED SOLUTION

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	1.More workload for people in offline booking 2.Wastage of Paper 3.No live tracking facility 4.Security has to be enhanced
2.	Idea / Solution description	1.Creating Online booking Platform 2.Ticket in form of QR code 3.Introducing GPS Feature
3.	Novelty / Uniqueness	1.Double encrypted graphic QR code to improve security 2.Intimating security alert messages to parents, police in case of emergency
4.	Social Impact / Customer Satisfaction	1.Less Time Consumption 2.Immediate Refundable options 3.Feel Safe and Secure
5.	Business Model (Revenue Model)	1.Cost efficient since it is completely online 2.Paper work is reduced

		3.Man resource is reduced
6.	**Scalability of the Solution**	**1.It can handle any number of users due to cloud storage**

3.4 PROBLEM SOLUTION FIT

4. REQUIREMENT ANALYSIS

4.1. FUNCTIONAL REQUIREMENTS

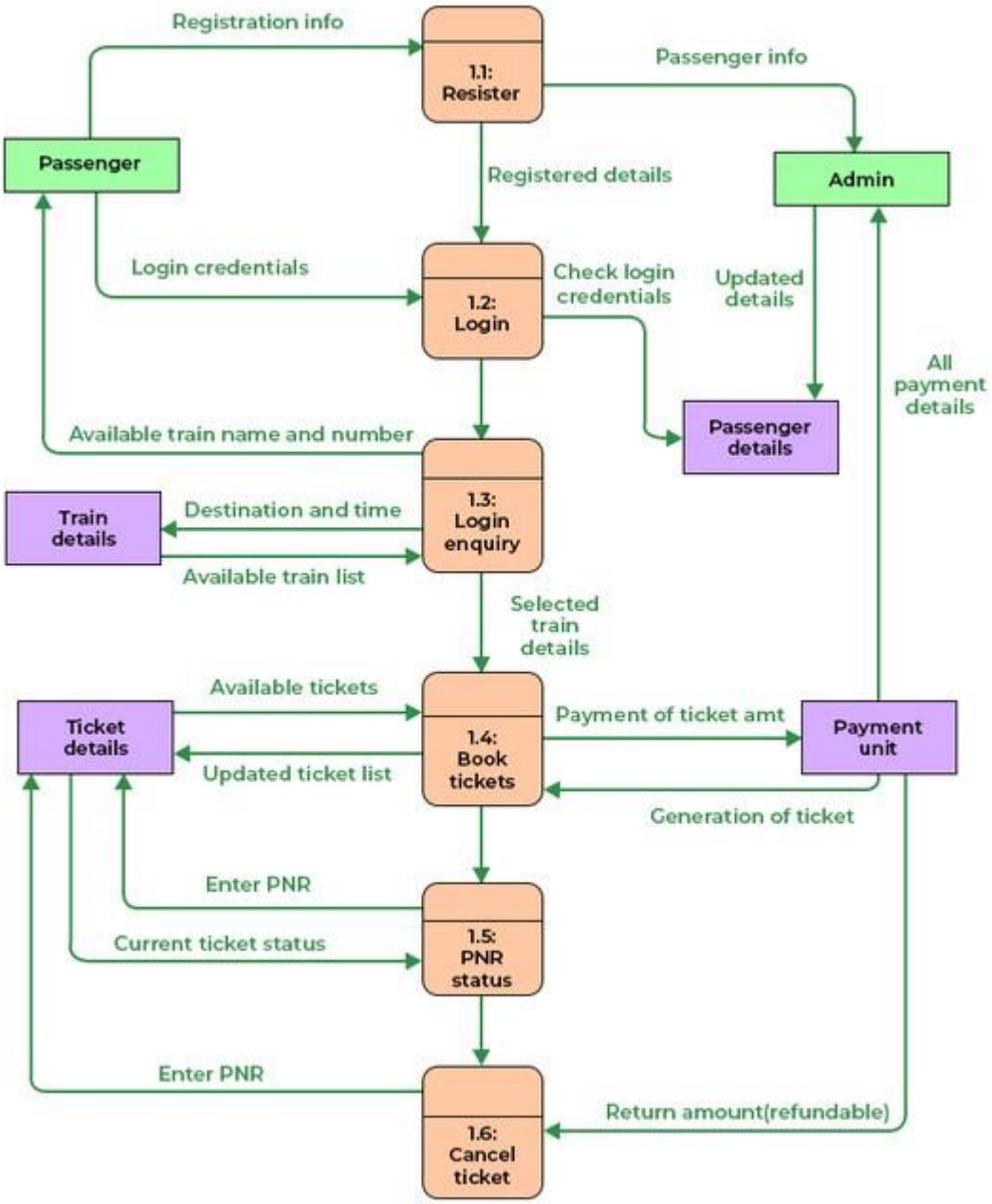
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Registration	Registration through Form Registration through Website
FR-2	Confirmation	Confirmation via Email Confirmation via OTP
FR-3	QR Code	Unique QR code is generated and send via email
FR-4	Scanning QR Code	The QR code is scanned by the ticket collector and once he scanned, the details of the user will be displayed to ticket collector
FR-5	User Travel in Train	Using a GPS, the train location is tracked and it is updated live in the website.

4.2. NON-FUNCTIONAL REQUIREMENTS

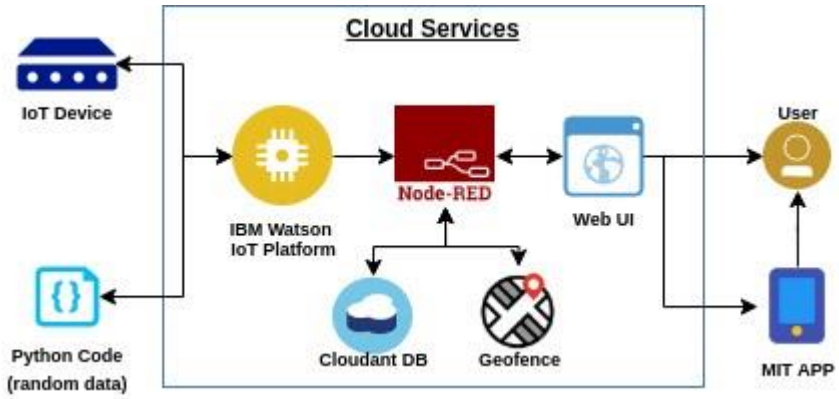
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	QR Code generated tickets are user-friendly
NFR-2	Security	Since, the data is stored in cloud. The data is secured and can easily retrieved.
NFR-3	Reliability	The live location of user travel is updated in the website and highly reliable
NFR-4	Performance	User-friendly
NFR-5	Availability	Website is available for all time and users can ask queries any time

5. PROJECT DESIGN

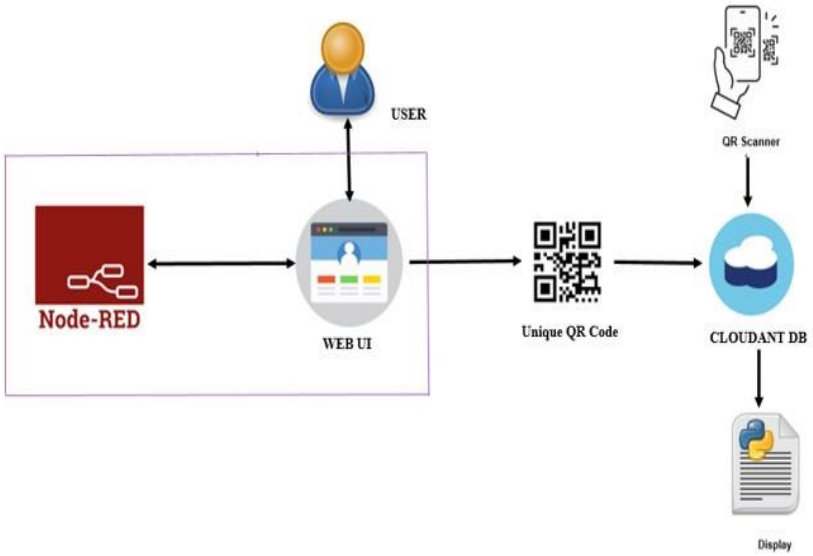
5.1 DATA FLOW DIAGRAMS



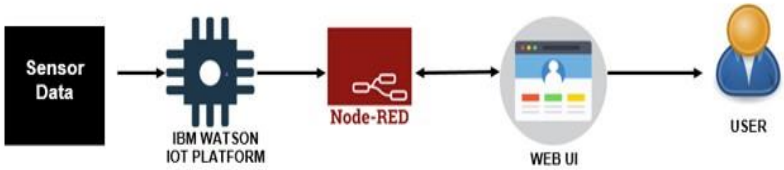
5.2 SOLUTION & TECHNICAL ARCHITECTURE

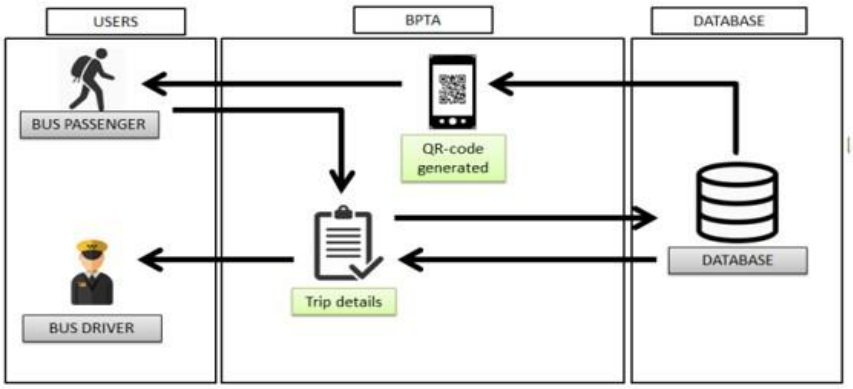


Ticket Generation and Verification:



Live Location Tracking:




USERS
BPTA
DATABASE
BUS PASSENGER
QR-code generated
DATABASE
Trip details
BUS DRIVER

5.3 USER STORIES

User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Reserving ticket	USN-1	As a user, I can register for the application by entering my email, password..	I can access my account / dashboard	High	Sprint-1
Customer (Mobile user)	Conformation ticket	USN-2	As a user, I will receive confirmation email and final confirmation is verified	I can receive confirmation email	High	Sprint-1
Customer (Mobile user)	Final conformation	USN-3	As a user, I will get the QR code ticket to travel	I can receive QR code ticket viva mail	Low	Sprint-2
Customer (Mobile user)	Dashboard	USN-4	The details will be stored safely	I can access it using database	Medium	Sprint-1
Customer (Mobile user)	Last minute vacancy availability	USN-5	As a user, I can get ticket according to unfilled seats	I can access it using seat availability web server	High	Sprint-2
Customer (Web user)	Ticket Verification	USN-6	As a user, The ticket can be verified by TTR to check the details of passenger	QR code ticket scanned and verified	High	Sprint-1
Customer (Web user)	Live location tracker	USN-7	As a user, The live location can be tracked consistently	Location is tracked	High	Sprint-3
Customer (Web user)	Ticket Cancelation	USN-8	As a user, I can cancel my ticket and get the refund back with assurance.	I can access it through dashboard.	High	Sprint-2
Customer Care Executive	Connecting the service provider	Customer-1	Connects with the service and helpline are available.	Can get connected with the server	Medium	Sprint-3
Customer Care Executive	Medical Facility	Customer-2	In emergency, medical care given 24*7hrs and free service is provided	Toll free number provided so connected to service provider	Medium	Sprint-3
Administrator	Provides the services	Admin-1	The data is collected and stored in cloud for future customer registration.	Can add or update the data provided by the user	High	Sprint-1

6. PROJECT PLANNING AND SCHEDULING

6.1. SPRINT PLANNING& ESTIMATION

Use the below template to create product backlog and sprint schedule

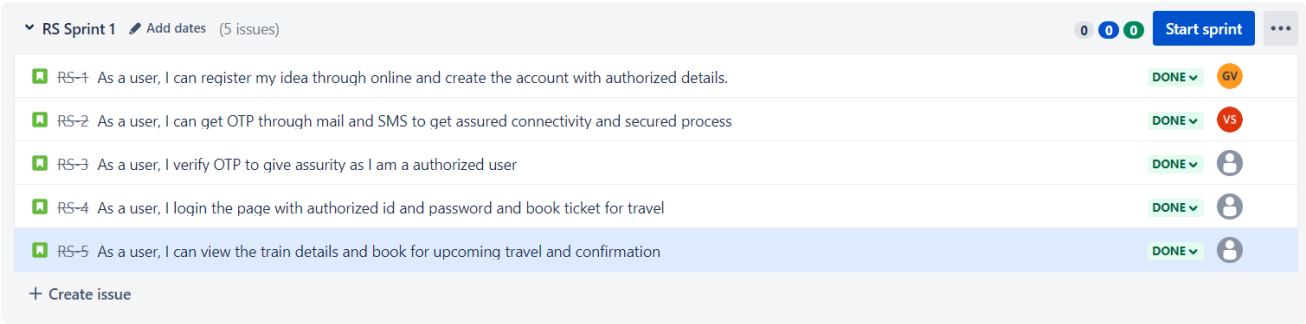
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register through the form by Filling in my details	2	High	Gayathri.V
Sprint-1		USN-2	As a user, I can register through phone numbers, Gmail, Facebook or other social sites	1	High	Vishali.S
Sprint-1	Conformation	USN-3	As a user, I will receive confirmation through email or OTP once registration is successful	2	Low	Logadevi Chitra Banu.M
Sprint-1	login	USN-4	As a user, I can login via login id and password or through OTP received on register phone number	2	Medium	Aruna.S
Sprint-1	Display Train details	USN-5	As a user, I can enter the start and destination to get the list of trains available connecting the above	1	High	Karthika.M
Sprint-2	Booking	USN-6	As a use, I can provide the basic details such as a name, age, gender etc...	2	High	Vishali.S
Sprint-2		USN-7	As a user, I can choose the class, seat/berth. If a preferred seat/berth isn't available I can be allocated based on the availability	1	Low	Aruna.S

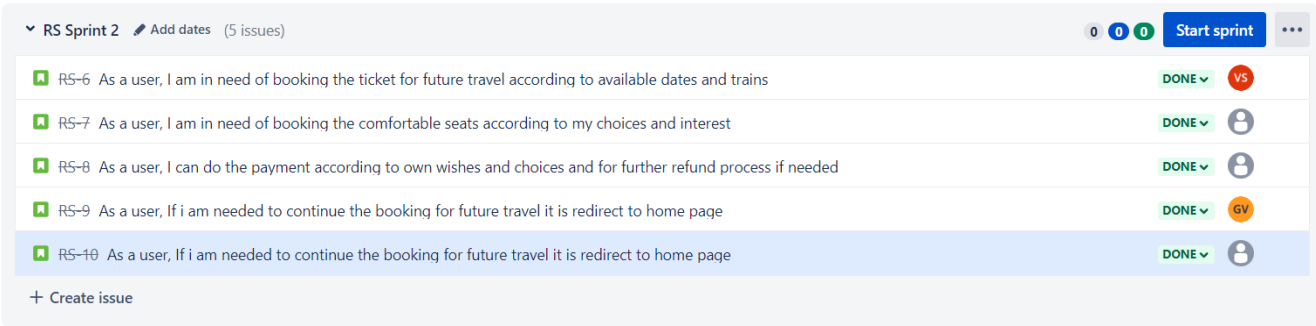
Sprint-2	Payment	USN-8	As a user, I can choose to pay through credit Card/debit card/UPI.	1	High	Logadevi Chitra Banu.M
Sprint	**Functional Requirement (Epic)**	**User Story Number**	**User Story / Task**	**Story Points**	**Priority**	**Team Members**
Sprint-2		USN-9	As a user, I will be redirected to the selected	2	High	Gayathri.V & Karthika.M
Sprint-3	Ticket generation	USN-10	As a user, I can download the generated eticket for my journey along with the QR code which is used for authentication during my journey.	1	High	Aruna.S
Sprint-3	Ticket status	USN-11	As a user, I can see the status of my ticket Whether it's confirmed/waiting/RAC.	2	High	Karthika.M
Sprint-3	Remainders notification	USN-12	As a user, I get remainders about my journey A day before my actual journey.	1	High	Gayathri.V
Sprint-3	Ticket cancellation	USN-13	As a user, I can track the train using GPS and can get information such as ETA, Current stop and delay	2	High	Logadevi Chitra Banu.M & Vishali.S
Sprint-4		USN-14	As a user, I can cancel my tickets if there's any Change of plan	1	High	Karthika.M
Sprint-4	Raise queries	USN-15	As a user, I can raise queries through the query box or via mail.	2	Medium	Logadevi Chitra Banu.M
Sprint-4	Answer the queries	USN-16	As a user, I will answer the questions/doubts Raised by the customers.	2	High	Aruna.S & Gayathri.V
Sprint-4	Feed details	USN-17	As a user, I will feed information about the trains delays and add extra seats if a new compartment is added.	1	High	Vishali.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	5 Nov 2022
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-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 Nov2022

6.3. REPORTS FROM JIRA





RS Sprint 3 Add dates (5 issues) 0 0 0 Start sprint

RS-11	As a user, I want E ticket for travel so, ticket is generated in form of QR code	DONE
RS-12	As a user, It is necessary to check the status of ticket until confirmation is made and look for further update	DONE
RS-13	As a user, I get reminder about the travel time and train details on and before day of travel	DONE GV
RS-14	As a user, I can track the live location and know about arrival delay time	DONE
RS-15	As a user, I can track the live location and know about arrival delay time	DONE VS

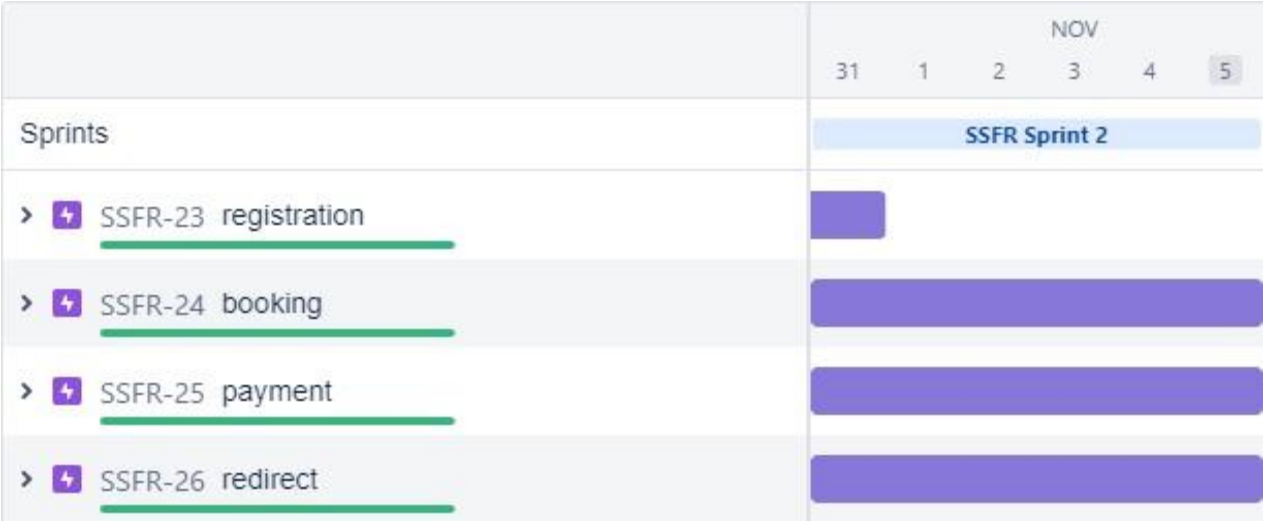
+ Create issue

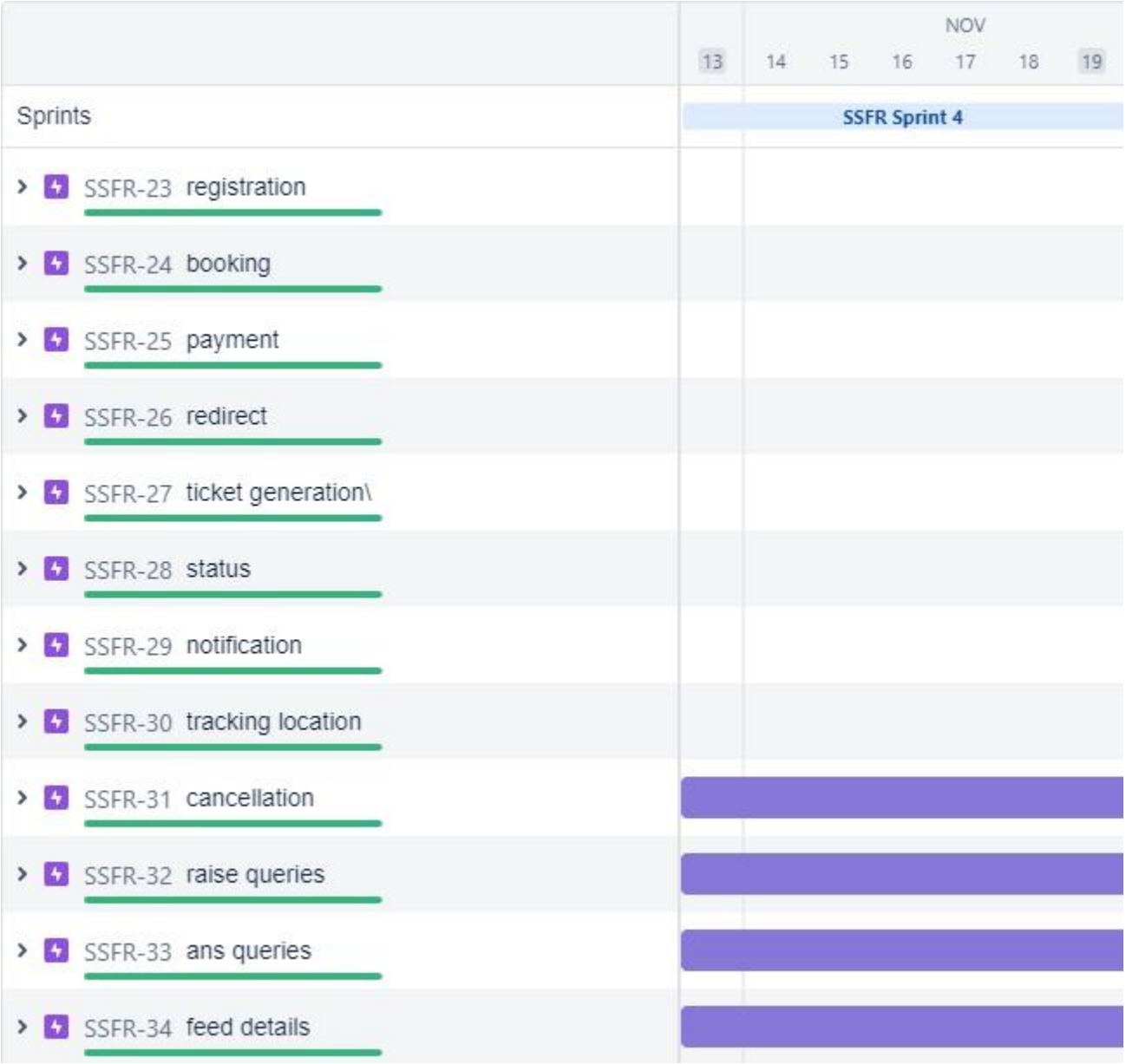
GV VS Epic Insights

RS Sprint 4 Add dates (5 issues) 0 0 0 Start sprint

RS-16	As a user, I can cancel the my tickets due to sudden plan or schedule and proceed for refund	DONE
RS-17	As a user, I can raise queries during travel 24*7 through mail	DONE
RS-18	As a user, I get response for raised queries from helpline member	DONE GV
RS-19	As a user, I get response for raised queries from helpline member	DONE
RS-20	As a user, I can feed or modify the information from the login page and use for future travel	DONE VS

+ Create issue

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Sprints
SSFR Sprint 4
SSFR-23 registration
SSFR-24 booking
SSFR-25 payment
SSFR-26 redirect
SSFR-27 ticket generation\
SSFR-28 status
SSFR-29 notification
SSFR-30 tracking location
SSFR-31 cancellation
SSFR-32 raise queries
SSFR-33 ans queries
SSFR-34 feed details

7. CODING AND SOLUTIONING

7.1. FEATURE 1

- IOT device
- IBM Watson platform
- Node red
- Cloudant DB
- Web UI
- Geofence MIT App
- Python code

7.2. FEATURE 2

- Registration
- Login
- Verification
- Ticket Booking
- Payment
- Ticket Cancellation
- Adding Queries

```
labl_0 = Label(base, text="Registration
form",width=20,font=("bold",
20))
labl_0.place(x=90,y=53)


lb1= Label(base, text="Enter Name", width=10,
font=("arial",12))   lb1.place(x=20, y=120)   en1=
Entry(base)
en1.place(x=200, y=120)

lb3= Label(base, text="Enter Email", width=10,
font=("arial",12))   lb3.place(x=19, y=160)   en3=
Entry(base)
en3.place(x=200, y=160)

lb4= Label(base, text="Contact Number",
width=13,font=("arial",12))   lb4.place(x=19, y=200)   en4=
Entry(base)
en4.place(x=200, y=200)

lb5= Label(base, text="Select Gender", width=15,
font=("arial",12))   lb5.place(x=5, y=240)
var = IntVar()

Radiobutton(base, text="Male", padx=5,variable=var,
value=1).place(x=180, y=240)
```

```
Radiobutton(base, text="Female", padx =10,variable=var,
value=2).place(x=240,y=240)

Radiobutton(base, text="others", padx=15, variable=var,
value=3).place(x=310,y=240)

list_of_cntry = ("United States", "India", "Nepal",
"Germany")   cv = StringVar()   drplist= OptionMenu(base,
cv, *list_of_cntry)   drplist.config(width=15)   cv.set("United
States")   lb2= Label(base, text="Select Country",
width=13,font=("arial",12))   lb2.place(x=14,y=280)
drplist.place(x=200, y=275)

lb6= Label(base, text="Enter Password",
width=13,font=("arial",12))   lb6.place(x=19, y=320)   en6=
Entry(base, show='*')
en6.place(x=200, y=320)

lb7= Label(base, text="Re-Enter Password",
width=15,font=(
"arial",12))
lb7.place(x=21,
y=360)      en7
=Entry(base,
show='*')
en7.place(x=200, y=360)

Button(base, text="Register", width=10).place(x=200,y=400)
base.mainloop()
```

```
def generateOTP() :

   # Declare a digits
variable      # which
stores all digits
digits =
"0123456789"
   OTP = ""

  # length of password can
be changed    # by
changing value in range
for i in range(4) :
       OTP += digits[math.floor(random.random() * 10)]

   return OTP

# Driver code if
__name__ ==
"__main__" :

   print("OTP of 4 digits:", generateOTP())

digits="012345678
9" OTP=""
for i in range(6):

OTP+=digits[math.floor(random.random
```

```
()*10)] otp = OTP + " is your OTP"
msg= otp s =
smtplib.SMTP('smtp.gmail.com', 587)
s.starttls()
s.login("Your Gmail Account", "You app password")
emailid = input("Enter your email: ")
s.sendmail('&&&&&&&&&&',email
id,msg) a = input("Enter Your OTP
>>: ") if a == OTP:

print("Verifie
d") else:
   print("Please Check your OTP
again") roo
```

8. TESTING

8.1.TEST CASES

			Date	03-Nov-22								
			Team ID	PNT2022TMID18159								
			Project Name	smart solutions for railways								
			Maximum Marks	4 marks								
Test case ID	Feature Type	Component	Test Scenario	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N)	BUG ID	Executed By
1	Functional	Registration	Registration through the form by Filling in my details	1.Click on register 2.Fill the registration form 3.click Register		Registration form to be filled is to be displayed	Working as expected	Pass				Gayathri.V
2	UI	Generating OTP	Generating the otp for further process	1.Generating of OTP number		user can register through phone numbers, Gmail, Facebook or other social sites and to get oto number	Working as expected	pass				Vishali.S
3	Functional	OTP verification	Verify user otp using mail	1.Enter gmail id and enter password 2.click submit	Username: abc@gmail.com password: Testing123	OTP verified is to be displayed	Working as expected	pass				Logadevi Chitra Banu.M
4	Functional	Login page	Verify user is able to log into application with InValid credentials	1.Enter into log in page 2.Click on My Account dropdown button 3.Enter inValid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: abc@gmail password: Testing123	Application should show "Incorrect email or password" validation message.	Working as expected	pass				Aruna.S
5	Functional	Display Train details	The user can view about the available train details	1.As a user, I can enter the start and destination to get the list of trains available connecting the above	Username: abc@gmail.com password: Testing123678686786876876	A user can view about the available trains to enter start and destination details	Working as expected	Fail				Karthika.M

				Date	03-Nov-22					
				Team ID	PNT2022TMID18159					
				Project Name	Smart solutions for railways					
				Maximum Marks	4 marks					
Test case ID	Feature Type	Component	Test Scenario	Steps To Execute	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N)	Executed By
1	Functional	Booking	User enter all basic details and register for futher process.	1.Enter reservation type 2.Enter necessary details of registering member 3.Enter ticket count 4.Enter the details of all passenger	Display of booked tickets	Working	Pass			Vishali
2	User	Seat Booking	User can choose the class, seat/berth. If a preferred seat/berth isn't available I can be allocated based on the availability	1.Current availability of seats	Display of available seats	Working	Pass			Aruna S
3	Functional	Payment	user, I can choose to pay through credit Card/debit card/UPI.	1.Choice of payment method 2.Payment done	Payment according to user choice done	Working	Pass			Loga Devi Chitra Banu
4	Functional	Redirection	user can be redirected to the selected	1.Redirected to the home page after successful payment	Redirected to the home page after successful payment	Working	Pass			Gayathri.V & Karthika.M

				Date	11-Nov-22					
				Team ID	PNT2022TMID18159					
				Project Name	smart solutions for railways					
				Maximum Marks	4 marks					
Test case ID	**Feature Type**	**Component**	**Test Scenario**	**Steps To Execute**	**Expected Result**	**Actual Result**	**Status**	**Commnets**	**TC for Automation(Y/N)**	**Executed By**
1	Functional	Generating Ticket	E Ticket is generated and QR code ticket is send through mail for verification process.	1.Enter details 2.Enter ticket count 3.Enter details of all passenger 4.Enter source & destination 5.Ticket generated	E Ticket is received through mail	Working	Pass			Aruna.S
2	User	Ticket Status	Ticket status can be reviewed whether confirmed or not	1.Status of booked ticket is viewed	Status of booked ticket is displayed	Working	Pass			Karthika.M
3	Functional	Remainder	Passenger get reminder message & mail to respective mail id & number about the train number and time on and before the travel day	1.Reminder notification for user about travel time	Reminder is sent through mail & SMS	Working	Pass			Gayathri.V
4	Functional	Location Tracking	Location of train can be tracked consistently.Delay can also be monitored	1.Tracking location for getting current location and time to reach destination	Location is tracked	Working	Pass			Logadevi Chitra Banu.M & Vishali.S

				Date	11-Nov-22					
				Team ID	PNT2022TMID18159					
				Project Name	smart solutions for railways					
				Maximum Marks	4 marks					
Test case ID	**Feature Type**	**Component**	**Test Scenario**	**Steps To Execute**	**Expected Result**	**Actual Result**	**Status**	**Commnets**	**TC for Automation(Y/N)**	**Executed By**
1	Functional	Ticket Cancellation	Ticket cancellation is done according to user chioce of plan and refund is assured	1.Tickets to be cancelled 2.Refund process	1.Booked tickets to be cancelled 2.Refund assured	Working	Pass			Karthika.M
2	User	Forwarding Queries	If any query is begin rasied then it can be forwarded to helpline through mail	1.Raising queries 2.Forwarding to helpline member	Rasied queries	Working	Pass			Logadevi Chitra Banu.M
3	Functional	Queries Response	Passenger's queries are clarified by helpline members as soon as possible and responded	1.Responding to queries	Queries response	Working	Pass			Aruna.S & Gayathri.V
4	Functional	Feed Info	User can add extra infromationa and information for future travel and extension in travel	1.Information to be feeded	1.Display feeded info	Working	Pass			Vishali.S

RESULTS

9. RESULTS

9.1. PERFORMANCE METRICS

10.ADVANTAGES &DISADVANTAGES

10.1. ADVANTAGES

- Time Saving
- User-Friendly
- Scalability
- Easy Management

10.2. DISADVANTAGES

- Lack of Smart device
- Availability of Internet
- Net Banking Issues

11.CONCLUSION

Online ordinary railway ticket booking system allows remote bookings and instantaneous payments. It avoids unnecessary wasting of time by standing at the ticket issuing windows. If we able to get ordinary railway ticket online for all the stations than we can preserve efficient timing of the traveller. In addition, reducing requirement of printing of paper tickets which in turn save paper. In this paper, we have created a webpage using Node-Red and the user details are stored in cloud.

12.FUTURE SCOPE

In future CCTV systems with IP based camera can be used for monitoring the visual videos captured from the track. It will also increase security for both passengers and railways. GPS can also be used to detect exact location of track fault area, IP cameras can also be used to show fault with the help of video. Locations on Google maps with the help of sensors can be used to detect in which area track is broken

13.APPENDIX

13.1.SOURCE PROGRAM

```
import math, random

import os
import smtplib
import sqlite3
import
requests
from bs4 import BeautifulSoup
from django.contrib.auth.base_user import
AbstractBaseUser from django.db import models
import
logging
import pandas as pd
import pyttsx3
from plyer import notification
import time
import numpy as np
import matplotlib.pyplot as plt
from PIL import Image, ImageDraw
from pickle import load,dump
import smtplib, ssl
from email.mime.text import MIMEText
from email.mime.multipart import MIMEMultipart
import email

from email import encoders
from email.mime.base import MIMEBase
```

```
import attr
from flask import Blueprint, flash, redirect,
request, url_for                    from flask.views import
MethodView                    from flask_babelplus import gettext
as _
from flask_login import current_user, login_required
from pluggy import HookimplMarker

from tkinter import*
  base = Tk()
  base.geometry("500x500")
  base.title("registration form")

  labl_0 = Label(base, text="Registration
  form",width=20,font=("bold",
  20))
  labl_0.place(x=90,y=53)

  lb1= Label(base, text="Enter Name", width=10,
  font=("arial",12))   lb1.place(x=20, y=120)   en1=
  Entry(base)
  en1.place(x=200, y=120)

  lb3= Label(base, text="Enter Email", width=10,
  font=("arial",12))   lb3.place(x=19, y=160)   en3=
  Entry(base)
  en3.place(x=200, y=160)
```

```
lb4= Label(base, text="Contact Number",
width=13,font=("arial",12))   lb4.place(x=19, y=200)   en4=
Entry(base)
en4.place(x=200, y=200)

lb5= Label(base, text="Select Gender", width=15,
font=("arial",12))   lb5.place(x=5, y=240)   var = IntVar()
Radiobutton(base, text="Male", padx=5,variable=var,
value=1).place(x=180, y=240)
Radiobutton(base, text="Female", padx =10,variable=var,
value=2).place(x=240,y=240)
Radiobutton(base, text="others", padx=15, variable=var,
value=3).place(x=310,y=240)

list_of_cntry = ("United States", "India", "Nepal",
"Germany")   cv = StringVar()   drplist= OptionMenu(base,
cv, *list_of_cntry)   drplist.config(width=15)
cv.set("United States")   lb2= Label(base, text="Select
Country", width=13,font=("arial",12))
lb2.place(x=14,y=280)
drplist.place(x=200, y=275)

lb6= Label(base, text="Enter Password",
width=13,font=("arial",12))   lb6.place(x=19, y=320)   en6=
Entry(base, show='*')
en6.place(x=200, y=320)

lb7= Label(base, text="Re-Enter Password",
```

```
width=15,font=(
"arial",12))
lb7.place(x=21,
y=360)        en7
=Entry(base,
show='*')
en7.place(x=200, y=360)

Button(base, text="Register", width=10).place(x=200,y=400)
base.mainloop()

def generateOTP() :

   # Declare a digits
variable      # which
stores all digits
digits =
"0123456789"
   OTP = ""

  # length of password can
be changed    # by
changing value in range
for i in range(4) :
       OTP += digits[math.floor(random.random() * 10)]

   return OTP
```

```
# Driver code if
__name__ ==
"__main__" :

   print("OTP of 4 digits:", generateOTP())

digits="012345678
9" OTP=""
for i in range(6):

OTP+=digits[math.floor(random.rando
m()*10)] otp = OTP + " is your OTP"
msg= otp s =
smtplib.SMTP('smtp.gmail.com', 587)
s.starttls()
s.login("Your Gmail Account", "You app password")
emailid = input("Enter your email: ")
s.sendmail('&&&&&&&&&&&',emaili
d,msg) a = input("Enter Your OTP >>:
")
if a == OTP:

print("Verifi
ed") else:
   print("Please Check your OTP
again") root = Tk()
root.title("Python: Simple Login
Application") width = 400 height =
280 screen_width =
root.winfo_screenwidth()
```

```
screen_height =
root.winfo_screenheight() x =
(screen_width/2) - (width/2)
y = (screen_height/2) - (height/2)
root.geometry("%dx%d+%d+%d" % (width, height, x, y))
root.resizable(0, 0)
USERNAME = StringVar()
PASSWORD = StringVar()
Top = Frame(root, bd=2,  relief=RIDGE)
Top.pack(side=TOP, fill=X)
Form = Frame(root, height=200)
Form.pack(side=TOP, pady=20)
lbl_title = Label(Top, text = "Python: Simple Login
Application", font=('arial', 15)) lbl_title.pack(fill=X)
lbl_username = Label(Form, text = "Username:",
font=('arial', 14), bd=15)
lbl_username.grid(row=0, sticky="e") lbl_password =
Label(Form, text = "Password:", font=('arial', 14), bd=15)
lbl_password.grid(row=1, sticky="e") lbl_text =
Label(Form)
lbl_text.grid(row=2, columnspan=2) username =
Entry(Form, textvariable=USERNAME, font=(14))
username.grid(row=0, column=1) password =
Entry(Form, textvariable=PASSWORD, show="*",
font=(14)) password.grid(row=1, column=1) def
Database():
   global conn, cursor     conn =
sqlite3.connect("pythontut.db")     cursor =
conn.cursor()     cursor.execute("CREATE TABLE IF NOT
```

```
EXISTS `member` (mem_id INTEGER NOT NULL
PRIMARY KEY
AUTOINCREMENT, username TEXT, password TEXT)")
cursor.execute("SELECT * FROM `member` WHERE `username`
=
'admin' AND `password` =
'admin'")     if
cursor.fetchone() is None:
      cursor.execute("INSERT INTO `member` (username,
password)
VALUES('admin', 'admin')")        conn.commit()
def Login(event=None):     Database()     if
USERNAME.get() == "" or PASSWORD.get() ==
"":
      lbl_text.config(text="Please complete the required field!",
fg="red")     else:
      cursor.execute("SELECT * FROM `member` WHERE
`username`
= ? AND `password` = ?", (USERNAME.get(),
PASSWORD.get()))        if cursor.fetchone() is not None:
          HomeWindow()
          USERNAME.set("")
PASSWORD.set("")
lbl_text.config(text="")        else:
          lbl_text.config(text="Invalid username or password",
fg="red")
          USERNAME.set("")
PASSWORD.set("")
   cursor.close()
conn.close()
```

```
btn_login = Button(Form, text="Login", width=45,
command=Login) btn_login.grid(pady=25, row=3,
columnspan=2) btn_login.bind('<Return>', Login)



def
HomeWindow(
):    global
Home
root.withdraw(
)
   Home = Toplevel()
   Home.title("Python: Simple Login
Application")    width = 600    height =
500    screen_width =
root.winfo_screenwidth()
screen_height =
root.winfo_screenheight()    x =
(screen_width/2) - (width/2)    y =
(screen_height/2) - (height/2)
   root.resizable(0, 0)
   Home.geometry("%dx%d+%d+%d" % (width, height, x, y))
lbl_home = Label(Home, text="Successfully Login!",
font=('times new roman', 20)).pack()    btn_back =
Button(Home, text='Back', command=Back).pack(pady=20,
fill=X)

def Back():

Home.des
```

```
troy()
root.deico
nify() def
getdata(u
rl):     r =
requests.
get(url)
return
r.text



# input by geek
from_Station_code = "GAYA"
from_Station_name = "GAYA"

To_station_code = "PNBE"
To_station_name = "PATNA"
# url
url = "https://www.railyatri.in/booking/trains-between-
stations?from_code="+from_Station_code+"&from_name="+fr
om_Stat
ion_name+"+JN+&journey_date=+Wed&src=tbs&to_code=" + \
   To_station_code+"&to_name="+To_station_name + \
   "+JN+&user_id=-
1603228437&user_token=355740&utm_source=dwebsearch_t
bs_search_ trains"

# pass the url
```

```
# into getdata function htmldata =
getdata(url) soup =
BeautifulSoup(htmldata,
'html.parser')

# find the Html tag
# with find()
# and convert into string
data_str = "" for item in soup.find_all("div", class_="col-xs-12
TrainSearchSection"):
   data_str = data_str +
item.get_text() result =
data_str.split("\n")

print("Train between "+from_Station_name+" and
"+To_station_name) print("")

#
Display
the
result
for
item in
result:
if item
!= "":
print(it
em)
print("\n\nTicket Booking System\n")
restart = ('Y')
```

```
 while restart !=
('N','NO','n','no'):
        print("1.Check PNR status")         print("2.Ticket
Reservation")
                                 option = int(input("\nEnter your option : "))

                                if option == 1:
                                    print("Your PNR status is t3")
                                 exit(0)

        elif option == 2:           people = int(input("\nEnter no. of
Ticket you want :
"))
         name_l = []
age_l = []    sex_l = []
for p in range(people):
                name =
str(input("\nName : "))

        name_l.append(na
me)
                age  = int(input("\nAge  : "))
        age_l.append(age)
                                        sex  = str(input("\nMale or Female : "))
                                        sex_l.append(sex)

                    restart = str(input("\nDid you forgot someone? y/n:
"))     if restart in ('y','YES','yes','Yes'):
```

```
                restart = ('Y')
else :                  x = 0
                print("\nTotal Ticket : ",people)
        for p in range(1,people+1):
        print("Ticket : ",p)                    print("Name :
", name_l[x])                    print("Age  : ", age_l[x])
                        print("Sex : ",sex_l[x])
                x += 1
```

7.2. FEATURE 2

```
class User(AbstractBaseUser):
    """
    User model.
    """

    USERNAME_FIELD = "email"
```

```
    REQUIRED_FIELDS = ["first_name", "last_name"]

    email = models.EmailField(
verbose_name="E-mail",
        unique=True
    )

    first_name = models.CharField(
verbose_name="First name",
        max_length=30
    )

    last_name = models.CharField(
verbose_name="Last name",
        max_length=40
    )

    city = models.CharField(
verbose_name="City",
max_length=40
    )

    stripe_id = models.CharField(
verbose_name="Stripe ID",
        unique=True,
max_length=50,
blank=True,
        null=True
    )
```

```
    objects = UserManager()

    @property
def
get_full_nam
e(self):
        return f"{self.first_name} {self.last_name}"

    class Meta:
        verbose_name = "User"
        verbose_name_plural = "Users"



class Profile(models.Model):
    """
    User's profile.
    """

    phone_number = models.CharField(
verbose_name="Phone number",
        max_length=15
    )

    date_of_birth = models.DateField(
        verbose_name="Date of birth"
    )
```

```
    postal_code = models.CharField(
verbose_name="Postal code",
        max_length=10,
        blank=True
    )

    address = models.CharField(
verbose_name="Address",
        max_length=255,
        blank=True
    )

    class Meta:
        abstract = True


class UserProfile(Profile):
    """
    User's profile model.
    """

    user = models.OneToOneField(        to=User,
on_delete=models.CASCADE, related_name="profile",
    )

    group = models.CharField(
verbose_name="Group type",
choices=GroupTypeChoices.choices(),
max_length=20,
```

```
default=GroupTypeChoices.EMPLOYEE.na
me,
    )

    def __str__(self):
        return self.user.email

    class Meta:

# user 1 - employer
user1, _ = User.objects.get_or_create(
email="foo@bar.com",
first_name="Employer",
last_name="Testowy",
    city="Białystok",
)

user1.set_unusable_password()

group_name = "employer"

_profile1, _ =
UserProfile.objects.get_or_create(
user=user1,     date_of_birth=datetime.now()
- timedelta(days=6600),
group=GroupTypeChoices(group_name).nam
e,
```

```
   address="Myśliwska 14",
postal_code="15-569",
phone_number="+48100200300",
)

# user2 - employee
user2, _ = User.objects.get_or_create()
email="bar@foo.com",
first_name="Employee",
last_name="Testowy",
   city="Białystok",
)

user2.set_unusable_password()

group_name = "employee"

_profile2, _ =
UserProfile.objects.get_or_create()
user=user2,     date_of_birth=datetime.now()
- timedelta(days=7600),
group=GroupTypeChoices(group_name).nam
e,
   address="Myśliwska 14",
postal_code="15-569",
   phone_number="+48200300400",
)

response_customer = stripe.Customer.create()
```

```
   email=user.email,
description=f"EMPLOYER -
{user.get_full_name}",
name=user.get_full_name,
   phone=user.profile.phone_number,
)

user1.stripe_id = response_customer.stripe_id
user1.save()

mcc_code, url = "1520", "https://www.softserveinc.com/"

response_ca = stripe.Account.create()
type="custom",    country="PL",    email=user2.email,
default_currency="pln",    business_type="individual",
settings={"payouts": {"schedule": {"interval":
"manual", }}},
requested_capabilities=["card_payments", "transfers",
],    business_profile={"mcc": mcc_code, "url": url},
individual={
      "first_name": user2.first_name,
      "last_name": user2.last_name,
      "email": user2.email,
      "dob": {
         "day": user2.profile.date_of_birth.day,
         "month": user2.profile.date_of_birth.month,
         "year": user2.profile.date_of_birth.year,
      },
      "phone": user2.profile.phone_number,
```

```
        "address": {
            "city": user2.city,
            "postal_code": user2.profile.postal_code,
            "country": "PL",
            "line1": user2.profile.address,
        },
    },
)

user2.stripe_id = response_ca.stripe_id
user2.save()

tos_acceptance = {"date": int(time.time()), "ip": user_ip},

stripe.Account.modify(user2.stripe_id,
tos_acceptance=tos_acceptance)

passport_front =
stripe.File.create(
purpose="identity_document",
file=_file, # ContentFile object
    stripe_account=user2.stripe_id,
)

individual = {
    "verification": {
        "document": {"front": passport_front.get("id"),},
```

```
        "additional_document": {"front":
passport_front.get("id"),},
    }
}


stripe.Account.modify(user2.stripe_id, individual=individual)

new_card_source =
stripe.Customer.create_source(user1.stripe_id, source=token)

stripe.SetupIntent.create(
payment_method_types=["card"],
customer=user1.stripe_id,
description="some description",
    payment_method=new_card_source.id,
)

payment_method =
stripe.Customer.retrieve(user1.stripe_id).default_source

payment_intent = stripe.PaymentIntent.create(
amount=amount,     currency="pln",
payment_method_types=["card"],
capture_method="manual",     customer=user1.stripe_id,
# customer     payment_method=payment_method,
application_fee_amount=application_fee_amount,
transfer_data={"destination": user2.stripe_id}, # connect
account     description=description,
```

```
   metadata=metadata,
)

payment_intent_confirm = stripe.PaymentIntent.confirm(
payment_intent.stripe_id,
payment_method=payment_method
)

stripe.PaymentIntent.capture(
payment_intent.id,
amount_to_capture=amount
)
stripe.Balance.retrieve(stripe_account=user2.stripe_id)

stripe.Charge.create(
amount=amount,
currency="pln",
source=user2.stripe_id,
   description=description
)

stripe.PaymentIntent.cancel(payment_intent.id)


      unique_together = ("user", "group")
@attr.s(frozen=True, cmp=False, hash=False,
repr=True) class UserSettings(MethodView):
```

```
    form = attr.ib(factory=settings_form_factory)
settings_update_handler =
attr.ib(factory=settings_update_handler)

    decorators = [login_required]

    def get(self):
        return self.render()

    def post(self):        if
self.form.validate_on_sub
mit():            try:
                self.settings_update_handler.apply_changeset(
                    current_user, self.form.as_change()
                )
            except StopValidation as e:
self.form.populate_errors(e.reasons)
                return
self.render()
except PersistenceError:
                logger.exception("Error while updating user settings")
flash(_("Error while updating user settings"), "danger")
return self.redirect()

            flash(_("Settings updated."), "success")
            return self.redirect()
        return self.render()
```

```
    def render(self):        return
render_template("user/general_settings.html",
form=self.form)

    def redirect(self):
        return redirect(url_for("user.settings"))



@attr.s(frozen=True, hash=False, cmp=False,
repr=True) class ChangePassword(MethodView):
    form = attr.ib(factory=change_password_form_factory)
password_update_handler =
attr.ib(factory=password_update_handler)
    decorators = [login_required]

    def get(self):
        return self.render()

    def post(self):
         if self.form.validate_on_submit():
            try:
                self.password_update_handler.apply_changeset(
                    current_user, self.form.as_change()
                )
           except StopValidation as e:
                self.form.populate_errors(e.reasons)
                return
self.render()
except PersistenceError:
```

```
            logger.exception("Error while changing password")
            flash(_("Error while changing password"), "danger")
return self.redirect()

        flash(_("Password updated."), "success")
        return self.redirect()
    return self.render()

  def render(self):
    return render_template("user/change_password.html",
form=self.form)

  def redirect(self):
    return redirect(url_for("user.change_password"))


@attr.s(frozen=True, cmp=False, hash=False,
repr=True) class ChangeEmail(MethodView):
  form = attr.ib(factory=change_email_form_factory)
update_email_handler = attr.ib(factory=email_update_handler)
decorators = [login_required]

  def get(self):
    return self.render()

  def post(self):        if
self.form.validate_on_sub
mit():          try:
```

```
            self.update_email_handler.apply_changeset(
current_user, self.form.as_change()
            )
          except StopValidation as e:
            self.form.populate_errors(e.reasons)
            return
self.render()
except PersistenceError:
            logger.exception("Error while updating email")
flash(_("Error while updating email"), "danger")
return self.redirect()

          flash(_("Email address updated."),
"success")            return self.redirect()
      return self.render()

   def render(self):
      return render_template("user/change_email.html",
form=self.form)

   def redirect(self):
      return
redirect(url_for("user.change_email")) def
berth_type(s):

   if s>0 and s<73:
       if s % 8 == 1 or s % 8 == 4:
          print (s), "is lower berth"
```

```
        elif s % 8 == 2 or s %
8 == 5:            print (s), "is
middle berth"        elif s
% 8 == 3 or s % 8 == 6:
print (s), "is upper berth"
elif s % 8 == 7:
            print (s), "is side
lower berth"        else:
print (s), "is side upper
berth"     else:
        print (s), "invalid seat number"

# Driver code s = 10
berth_type(s)      # fxn call for
berth type

s = 7 berth_type(s)     # fxn
call for berth type

s = 0 berth_type(s)      # fxn call for berth type
class Ticket:     counter=0      def
__init__(self,passenger_name,source,destina
tion):
        self.__passenger_name=passenger_name
        self.__source=source
self.__destination=destination
self.Counter=Ticket.counter
        Ticket.counter+=1
    def validate_source_destination(self):
```

```
        if (self.__source=="Delhi" and
(self.__destination=="Pune" or
self.__destination=="Mumbai" or
self.__destination=="Chennai" or
self.__destination=="Kolkata")):            return True
else:
            return False


    def
generate_ticket(s
elf ):        if True:

__ticket_id=self.__source[0]+self.__destination[0]+"0"+str(self
.Counter)            print( "Ticket id will be:",__ticket_id)
else:
            return False
def get_ticket_id(self):
return self.ticket_id
def
get_passenger_name(s
elf):        return
self.__passenger_nam
e     def
get_source(self):
        if self.__source=="Delhi":
            return
self.__source
else:
            print("you have written invalid
soure option")            return None     def
```

```
get_destination(self):        if
self.__destination=="Pune":
          return
self.__destination        elif
self.__destination=="Mumba
i":
          return self.__destination
        elif
           self.__destination=="Chenna
           i": return self.__destination
       elif self.__destination=="Kolkata":
          return self.__destination



e
l
s
e
:
          return None
      #        user
define
function        #
Scrape       the
data          def
getdata(url):
                              r = requests.get(url)
                              return r.text
```

```
# input by geek
train_name = "03391-rajgir-new-delhi-clone-special-rgd-to-
ndls"

# url
url = "https://www.railyatri.in/live-train-status/"+train_name

# pass the url # into getdata
function htmldata = getdata(url)
soup = BeautifulSoup(htmldata,
'html.parser')

# traverse the live status from
# this Html code data = [] for item in
soup.find_all('script', type="application/ld+json"):
                                data.append(item.get_text())

# convert into dataframe
df = pd.read_json(data[2])

# display this
column of #
dataframe
print(df["mainEntity"][0]['name'])
print(df["mainEntity"][0]['acceptedAnswe
r']['text']) Speak method def Speak(self,
audio):

                                # Calling the initial constructor
```

```
# of pyttsx3
engine = pyttsx3.init('sapi5')

# Calling the getter method
voices = engine.getProperty('voices')

# Calling the setter method
engine.setProperty('voice', voices[1].id)

engine.say(audio)
engine.runAndWait()

def
Take_brea
k():

Speak("Do you want to start sir?")
question = input()

if "yes" in question:

Speak("Starting Sir")

if "no" in question:
Speak("We will automatically start after 5 Mins
Sir.")
time.sleep(5*60)
Speak("Starting Sir")
```

```
# A notification we will held that
# Let's Start sir and with a message of
# will tell you to take a break after 45
# mins for 10 seconds
while(True):
 notification.notify(title="Let's Start sir",
 message="will tell you to take a break after 45
mins",
 timeout=10)

 # For 45 min the will be no notification but
 # after 45 min a notification will pop up.
 time.sleep(0.5*60)

 Speak("Please Take a break Sir")

 notification.notify(title="Break Notification",
 message="Please do use your device after sometime
as you have"
 "been continuously using it for 45 mins and it will
affect your eyes",
  timeout=10)

    # Driver's
Code        if
__name__ ==
'__main__':
 Take_break()
```

```
data_path = 'data.csv' data = pd.read_csv(data_path,
names=['LATITUDE', 'LONGITUDE'], sep=',') gps_data =
tuple(zip(data['LATITUDE'].values,
data['LONGITUDE'].values))

image = Image.open('map.png', 'r')  # Load map image.
img_p
oints
= []
for d
in
gps_d
ata:
   x1, y1 = scale_to_img(d, (image.size[0], image.size[1]))  #
Convert GPS coordinates to image coordinates.
img_points.append((x1, y1)) draw = ImageDraw.Draw(image)
draw.line(img_points, fill=(255, 0, 0), width=2)  # Draw
converted records to the map image.

image.save('resultMap.png') x_ticks = map(lambda x: round(x,
4), np.linspace(lon1, lon2, num=7)) y_ticks = map(lambda x:
round(x, 4), np.linspace(lat1, lat2, num=8)) y_ticks =
sorted(y_ticks, reverse=True)  # y ticks must be reversed due to
conversion to image coordinates.

fig, axis1 = plt.subplots(figsize=(10, 10))
axis1.imshow(plt.imread('resultMap.png'))  # Load the image to
matplotlib plot.
axis1.set_xlabel('Longitude')
```

```
axis1.set_ylabel('
Latitude')
axis1.set_xtickla
bels(x_ticks)
axis1.set_ytickla
bels(y_ticks)
axis1.grid()
plt.show() class
tickets:     def
__init__(self):
self.no_ofac1stcl
ass=0
self.totaf=0
self.no_ofac2ndc
lass=0
self.no_ofac3rdc
lass=0
self.no_ofsleepe
r=0
self.no_oftickets
=0
self.name=''
self.age=''
self.resno=0
self.status=''
def ret(self):

return(self.re
sno)     def
retname(self)
:
```

```
return(self.na
me)     def
display(self):
        f=0

fin1=open("tickets.dat","
rb")        if not fin1:
            print
"ERROR"
else:
print
            n=int(raw_input("ENTER PNR NUMBER : "))
print "\n\n"
            print ("FETCHING DATA . . .".center(80))
time.sleep(1)
            print
            print('PLEASE
WAIT...!!'.center(80))
time.sleep(1)
os.system('cls')            try:
while True:
                    tick=load(fin1)
if(n==tick.ret()):                    f=1
print "="*80                    print("PNR
STATUS".center(80))
                        print"="*80
                        print
                        print "PASSENGER'S NAME :",tick.name
print
```

```
                    print "PASSENGER'S AGE :",tick.age
print
                    print "PNR NO
:",tick.resno                    print
                    print "STATUS
:",tick.status                    print
                    print "NO OF SEATS BOOKED :
",tick.no_oftickets                    print          except:
pass          fin1.close()          if(f==0):
              print
            print "WRONG PNR NUMBER..!!"
            print
def
pending(self):
       self.status="WAITING LIST"
       print "PNR NUMBER
:",self.resno        print
time.sleep(1.2)        print
"STATUS = ",self.status
       print
       print "NO OF SEATS BOOKED :
",self.no_oftickets        print     def confirmation
(self):
      self.status="CONFIRMED"
      print "PNR NUMBER :
",self.resno        print
time.sleep(1.5)        print
"STATUS = ",self.status
      print
def
```

```
cancellatio
n(self):
        z=0
        f=0
        fin=open("tickets.dat","rb")
fout=open("temp.dat","ab")
        print
        r= int(raw_input("ENTER PNR
NUMBER : "))        try:            while(True):
tick=load(fin)                z=tick.ret() if(z!=r):
                dump(tick,fout)
elif(z==r):

f=1
exc
ept:
pass
fin.c
lose
()
        fout.close()
        os.remove("tickets.dat")
os.rename("temp.dat","ticket
s.dat")        if (f==0):
print
            print "NO SUCH RESERVATION NUMBER
FOUND"            print            time.sleep(2)
os.system('cls')            else:            print
            print "TICKET
CANCELLED"
```

```
print"RS.600 REFUNDED...."
def reservation(self):
        trainno=int(raw_input("ENTER THE TRAIN NO:"))
z=0
        f=0
        fin2=open("tr1details.dat")

fin2.seek(0)
if not fin2:
print
"ERROR"
else:
            try:
                while True:

tr=load(fin2)
z=tr.gettrainno()
n=tr.gettrainname()
if (trainno==z):
                    print
                    print "TRAIN NAME IS : ",n
f=1                     print
print "-"*80
no_ofac1st=tr.getno_ofac1stclass()
no_ofac2nd=tr.getno_ofac2ndclass()
no_ofac3rd=tr.getno_ofac3rdclass()
no_ofsleeper=tr.getno_ofsleeper()
if(f==1):
```

```
fout1=open("tickets.dat","ab")
print
                self.name=raw_input("ENTER THE PASSENGER'S
NAME ")
                print
                self.age=int(raw_input("PASSENGER'S AGE : "))
print
                print"\t\t SELECT A CLASS YOU WOULD LIKE TO
TRAVEL IN :- "
                print "1.AC FIRST CLASS"
print
                print "2.AC SECOND CLASS"
print
                print "3.AC THIRD CLASS"
print
                print "4.SLEEPER CLASS"
                print
                c=int(raw_input("\t\t\tENTER YOUR CHOICE
= "))                os.system('cls')                amt1=0
if(c==1):
                  self.no_oftickets=int(raw_input("ENTER NO_OF
FIRST CLASS AC SEATS TO BE BOOKED :
"))                 i=1
while(i<=self.no_oftickets):
                    self.totaf=self.totaf+1
amt1=1000*self.no_oftickets
i=i+1
                  print
                  print "PROCESSING. .",
```

```
time.sleep(0.5)
print ".",
time.sleep(0.3)
print'.'
time.sleep(2)
os.system('cls')
                    print "TOTAL AMOUNT TO BE PAID = ",amt1
self.resno=int(random.randint(1000,2546))
                    x=no_ofac1st-self.totaf

print
if(x>0):
                      self.confirmation()
dump(self,fout1)

break
else:
                      self.pending()
                      dump(tick,fout1)
                      break
elif(c==2):
                    self.no_oftickets=int(raw_input("ENTER NO_OF
SECOND CLASS AC SEATS TO BE BOOKED :  "))
i=1



def menu():
```

```
tr=train()
tick=tick
ets()
print
   print "WELCOME TO PRAHIT AGENCY".center(80)
while True:
        print          print
"="*80              print "
\t\t\t\t  RAILWAY"

print
print
"="*80
        print
        print "\t\t\t1. **UPDATE TRAIN DETAILS."
print
        print "\t\t\t2. TRAIN DETAILS.
"          print
        print "\t\t\t3. RESERVATION OF TICKETS."
print
        print "\t\t\t4. CANCELLATION OF TICKETS. "
print
        print "\t\t\t5. DISPLAY PNR STATUS."
        print
        print "\t\t\t6. QUIT."
        print"** - office use....."
        ch=int(raw_input("\t\t\tENTER YOUR
CHOICE : "))          os.system('cls')          print
```

```
"\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\t
\t\t\t\t\t\tLOADI
NG. .",

time.sleep(
1)
print (".),
time.sleep(
0.5)
print (".")
time.sleep(
2)
os.system('
cls')
if ch==1:
            j="*****"
r=raw_input("\n\n\n\n\n\n\n\n\n\n\n\n\t\t\t\tENTER THE
PASSWORD: ")

os.system('cls')
if (j==r):
x='y'                    while
(x.lower()=='y'):

fout=open("tr1details.dat","ab")
tr.getinput()
dump(tr,fout)
fout.close()
                    print"\n\n\n\n\n\n\n\n\n\n\n\n\t\t\tUPDATING
TRAIN LIST PLEASE WAIT . .",
```

```
time.sleep(1)
print (".”),
time.sleep(0.5)
print (".”),
time.sleep(2)
os.system('cls')
                    print "\n\n\n\n\n\n\n\n\n\n\n\n"
                    x=raw_input("\t\tDO YOU WANT TO ADD ANY
MORE TRAINS DETAILS ? ")

os.system('cls')
continue
elif(j<>r):
                print"\n\n\n\n\n\n"
                print "WRONG
PASSWORD".center(80)            elif ch==2:

fin=open("tr1details.dat",'rb')
if not fin:
                print
"ERROR"
else:
try:
while True:
                        print"*"*80
print"\t\t\t\tTRAIN DETAILS"

print"*"*80
print
```

```
tr=load(fin)
tr.output()



                    raw_input("PRESS ENTER TO VIEW NEXT TRAIN
DETAILS")

os.system('cls')
except EOFError:

pass
elif ch==3:
print'='*80
            print "\t\t\t\tRESERVATION OF
TICKETS"            print'='*80            print
tick.reservation()                    elif ch==4:
            print"="*80
            print"\t\t\t\tCANCELLATION OF
TICKETS"            print            print"="*80
print            tick.cancellation()            elif
ch==5:
            print "="*80
print("PNR STATUS".center(80))

print"="*80
printclass
tickets:    def
__init__(self):
self.no_ofac1st
```

```
class=0
self.totaf=0
self.no_ofac2n
dclass=0
self.no_ofac3rd
class=0
self.no_ofsleep
er=0
self.no_ofticket
s=0
self.name=''
self.age=''

self.resno=
0
self.status
=''        def
ret(self):

return(self.re
sno)     def
retname(self)
:
return(self.na
me)     def
display(self):
       f=0

fin1=open("tickets.dat","
rb")        if not fin1:
```

```
        print
"ERROR"
else:
print
        n=int(raw_input("ENTER PNR
NUMBER : "))          print "\n\n"          print
("FETCHING DATA . . .".center(80))
time.sleep(1)          print
        print('PLEASE WAIT...!!'.center(80))

time.slee
p(1)
os.system
('cls')
try:
while
True:
                tick=load(fin1)
if(n==tick.ret()):                    f=1
print "="*80                    print("PNR
STATUS".center(80))

print"="*80
print
                print "PASSENGER'S NAME :",tick.name
print
                print "PASSENGER'S AGE :",tick.age
print
                print "PNR NO
:",tick.resno                    print
```

```
                    print "STATUS
:",tick.status                    print
                    print "NO OF SEATS BOOKED :
",tick.no_oftickets                    print          except:
pass          fin1.close()          if(f==0):              print
            print "WRONG PNR
NUMBER..!!"              print
def pending(self):
       self.status="WAITING LIST"
       print "PNR NUMBER
:",self.resno        print
time.sleep(1.2)        print
"STATUS = ",self.status
print
       print "NO OF SEATS BOOKED :
",self.no_oftickets        print     def confirmation
(self):
      self.status="CONFIRMED"
      print "PNR NUMBER :
",self.resno        print
      time.sleep(1.5)
print "STATUS =
",self.status
      print
def
cancellatio
n(self):
      z=0
      f=0
```

```
        fin=open("tickets.dat","rb")
fout=open("temp.dat","ab")
        print
        r= int(raw_input("ENTER PNR
NUMBER : "))        try:            while(True):
tick=load(fin)                z=tick.ret()
if(z!=r):
                dump(tick,fout)
elif(z==r):

f=1
exc
ept:
pass
fin.c
lose
()
        fout.close()
        os.remove("tickets.dat")
os.rename("temp.dat","ticket
s.dat")        if (f==0):
print
            print "NO SUCH RESERVATION NUMBER
FOUND"            print            time.sleep(2)
os.system('cls')

el
se
:
pr
```

```
in
t
        print "TICKET
CANCELLED"
print"RS.600 REFUNDED...."
def reservation(self):
    trainno=int(raw_input("ENTER THE TRAIN NO:"))
z=0
    f=0
    fin2=open("tr1details.dat")

fin2.seek(0)
if not fin2:
print
"ERROR"
else:
try:
while True:

tr=load(fin2)
z=tr.gettrainno()
n=tr.gettrainname()
if (trainno==z):
                print
                print "TRAIN NAME IS : ",n
f=1                 print
print "-"*80
no_ofac1st=tr.getno_ofac1stclass()
no_ofac2nd=tr.getno_ofac2ndclass()
no_ofac3rd=tr.getno_ofac3rdclass()
```

```
no_ofsleeper=tr.getno_ofsleeper()
if(f==1):
                fout1=open("tickets.dat","ab")
                print
                self.name=raw_input("ENTER THE PASSENGER'S
NAME ")
                print
                self.age=int(raw_input("PASSENGER'S AGE : "))
print
                print"\t\t SELECT A CLASS YOU WOULD LIKE TO
TRAVEL IN :- "
                print "1.AC FIRST CLASS"
print
                print "2.AC SECOND CLASS"
print
                print "3.AC THIRD CLASS"
print
                print "4.SLEEPER CLASS"
print
                c=int(raw_input("\t\t\tENTER YOUR CHOICE
= "))                os.system('cls')                amt1=0
if(c==1):
                    self.no_oftickets=int(raw_input("ENTER NO_OF
FIRST CLASS AC SEATS TO BE BOOKED :
"))                    i=1
while(i<=self.no_oftickets):
                        self.totaf=self.totaf+1
amt1=1000*self.no_oftickets
i=i+1
                    print
```

```
                    print "PROCESSING. .",
                    time.sleep(0.5)
                    print ".",
time.sleep(0.3)
print'.'
time.sleep(2)
os.system('cls')
                    print "TOTAL AMOUNT TO BE PAID = ",amt1
self.resno=int(random.randint(1000,2546))
                    x=no_ofac1st-self.totaf

print
if(x>0):
                      self.confirmation()
dump(self,fout1)

break
else:
                      self.pending()
dump(tick,fout1)
                      break
elif(c==2):
                    self.no_oftickets=int(raw_input("ENTER NO_OF
SECOND CLASS AC SEATS TO BE BOOKED :  "))
i=1



def menu():
```

```
tr=train()
tick=tick
ets()
print
   print "WELCOME TO PRAHIT AGENCY".center(80)
while True:
        print          print
"="*80              print "
\t\t\t\t  RAILWAY"

print
print
"="*80
        print
        print "\t\t\t1. **UPDATE TRAIN DETAILS."
print
        print "\t\t\t2. TRAIN DETAILS.
"          print
        print "\t\t\t3. RESERVATION OF TICKETS."
print
        print "\t\t\t4. CANCELLATION OF TICKETS. "
print
        print "\t\t\t5. DISPLAY PNR
STATUS."          print
        print "\t\t\t6. QUIT."
        print"** - office use....."
        ch=int(raw_input("\t\t\tENTER YOUR
CHOICE : "))          os.system('cls')          print
```

```
"\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\t
\t\t\t\t\t\tLOADI
NG. .",

time.sleep(
1)
print (".),
time.sleep(
0.5)
print (".")
time.sleep(
2)
os.system('
cls')
if ch==1:
j="*****"
r=raw_inpu
t("\n\n\n\n
\n\n\n\n\n
\n\n\t\t\t\t
ENTER THE
PASSWORD: ")

os.system('cls')
if (j==r):
x='y'                    while
(x.lower()=='y'):

fout=open("tr1details.dat","ab")
tr.getinput()
```

```
dump(tr,fout)
fout.close()
                    print"\n\n\n\n\n\n\n\n\n\n\n\n\t\t\tUPDATING
TRAIN LIST PLEASE WAIT . .",

time.sleep(1)
print (".")
time.sleep(0.5)
print (".")
time.sleep(2)
os.system('cls')
                    print "\n\n\n\n\n\n\n\n\n\n\n\n"
                    x=raw_input("\t\tDO YOU WANT TO ADD ANY
MORE TRAINS DETAILS ? ")

os.system('cls')
continue
elif(j<>r):
                print"\n\n\n\n\n"
                print "WRONG
PASSWORD".center(80)          elif ch==2:

fin=open("tr1details.dat",'rb')
if not fin:
                print
"ERROR"
tick.display()
elif ch==6:
            quit()
```

```
        raw_input("PRESS ENTER TO GO TO BACK
MENU".center(80))
        os.system('cls')

menu() sender_email = "my@gmail.com"
receiver_email = "your@gmail.com" password =
input("Type your password and press enter:")

message = MIMEMultipart("alternative")
message["Subject"] = "multipart test"
message["From"] = sender_email
message["To"] = receiver_email

# Create the plain-text and HTML version of your
message text = """\
Hi,
How are you?
Real Python has many great tutorials:
www.realpython.com"""
html =
"""\
<html>
  <body>
    <p>Hi,<br>
      How are you?<br>
      <a href="http://www.realpython.com">Real
Python</a>        has many great tutorials.
    </p>
  </body>
```

```
</html>
"""

# Turn these into plain/html MIMEText
objects part1 = MIMEText(text, "plain")
part2 = MIMEText(html, "html")

# Add HTML/plain-text parts to MIMEMultipart message
# The email client will try to render the last part first
message.attach(part1)
message.attach(part2)

# Create secure connection with server and send email
context = ssl.create_default_context() with
smtplib.SMTP_SSL("smtp.gmail.com", 465,
context=context) as server:
   server.login(sender_email, password)
server.sendmail(        sender_email,
receiver_email, message.as_string()
   )
subject = "An email with attachment from Python"
body = "This is an email with attachment sent
from Python"
sender_email = "my@gmail.com"
receiver_email = "your@gmail.com" password =
input("Type your password and press enter:") #
Create a multipart message and set headers
message = MIMEMultipart() message["From"] =
sender_email message["To"] = receiver_email
```

```
message["Subject"] = subject message["Bcc"] =
receiver_email  # Recommended for mass emails

# Add body to email
message.attach(MIMEText(body, "plain"))

filename = "document.pdf"  # In same directory as script

# Open PDF file in binary
mode with open(filename,
"rb") as attachment:
   # Add file as application/octet-stream
   # Email client can usually download this automatically as
attachment     part = MIMEBase("application", "octet-stream")
part.set_payload(attachment.read())

# Encode file in ASCII characters to send by email
encoders.encode_base64(part)

# Add header as key/value pair to
attachment part part.add_header(
"Content-Disposition",
   f"attachment; filename= {filename}",
)

# Add attachment to message and convert message to string
message.attach(part)
text = message.as_string()
```

```
# Log in to server using secure context and send email
context = ssl.create_default_context() with
smtplib.SMTP_SSL("smtp.gmail.com", 465,
context=context) as server:
    server.login(sender_email, password)
server.sendmail(sender_email, receiver_email, text)
api_key = "Your_API_key"

# base_url variable to store url
base_url = "https://api.railwayapi.com/v2/pnr-status/pnr/"

# Enter valid pnr_number
pnr_number = "6515483790"

# Stores complete url address
complete_url = base_url + pnr_number + "/apikey/" + api_key +
"/"

# get method of
requests module #
return response
object
response_ob = requests.get(complete_url)

# json method of response
object convert # json format
data into python format data
result = response_ob.json()
```

```
# now result contains
list # of nested
dictionaries if
result["response_code
"] == 200: # train name
is extracting # from
the result variable
data train_name =
result["train"]["name"]

        # train number is extracting from
        # the result variable data
                train_number = result["train"]["number"]

        # from station name is extracting
        # from the result variable data
                from_station = result["from_station"]["name"]

        # to_station name is extracting from    #
the result variable data
                to_station = result["to_station"]["name"]

        # boarding point station name is          # extracting from
the result variable data       boarding_point =
result["boarding_point"]["name"]

        # reservation upto station name is        #
extracting from the result variable data
                reservation_upto =
result["reservation_upto"]["name"]
```

```
# store the value or data of "pnr"
# key in pnr_num
variable pnr_num =
result["pnr"] # store the
value or data of "doj"
key # in variable
date_of_journey
variable
date_of_journey =
result["doj"]

# store the value or data of
# "total_passengers" key in variable
total_passengers = result["total_passengers"]

# store the value or data of "passengers"      #
key in variable passengers_list
passengers_list = result["passengers"]

# store the value or data of          #
"chart_prepared" key in variable
chart_prepared = result["chart_prepared"]

# print following values
print(" train name : " + str(train_name)          +
"\n train number : " + str(train_number)
+ "\n from station : " + str(from_station)
+ "\n to station : " + str(to_station)
```

```
+ "\n boarding point : " + str(boarding_point)
+ "\n reservation upto : " + str(reservation_upto)
+ "\n pnr number : " + str(pnr_num)
+ "\n date of journey : " + str(date_of_journey)
+ "\n total no. of passengers: " + str(total_passengers)
+ "\n chart prepared : " + str(chart_prepared))

# looping through passenger list
for passenger in passengers_list:

# store the value or data
# of "no" key in variable
passenger_num =
passenger["no"]

# store the value or data of #
"current_status" key in variable current_status =
passenger["current_status"]

# store the value or data of #
"booking_status" key in variable booking_status =
passenger["booking_status"]

# print following values
print(" passenger number : " + str(passenger_num)
+ "\n current status : " + str(current_status)
+ "\n booking_status : " +
str(booking_status))
E
```

```
else
        print ("Record Not Found")
```

13.2.GIT HUB LINK

https://github.com/IBM-EPBL/IBM-Project-1543-1658396660