Nammellara Metro - by Mappers

Problem Statement: Optimization of Namma Metro Web application
The current Namma Metro WebApplication presents us with an opportunity to integrate many new features which are of prime importance example the ability to book tickets online , to book various passes , to find the shortest path etc

Our Solution : Nammellara Metro (In Kannada, it means "ALL OUR" METRO)
Which comes loaded with various features making it a very user friendly web application where the end user can easily book tickets for them with just a few clicks, he/she can add tokens/ credits to his wallet and avail the services.

Requirement Analysis: This project requires us to have a database of the metro network, data based on the real-time location of the metro train and a full-fledged online payment system as it is meant to make the average user's life easier by providing the above mentioned services available on their smartphones.

- **Functional:** We do have a partial database of the metro network, which we had to create manually as there weren't any databases around on the internet. This partial database was used for our prototype project and hence it could be further improved with a much more accurate database. Our web-app can allow the user to book tickets, view their profile and know the history of their transactions.

- **Non-Functional:** Unfortunately, we couldn't obtain any real-time metro data and couldn't set up a payment system yet. We also have a non-functional pass feature and some other parts like the footer (doesn't have any valid information), Find a station (relatively Non-functional because it is just the image of the whole metro map), etc.

Financial Information:

K Lines Of Code = KLOC = 1500

Effort = a(KLOC)^b { a = 2.4, b = 1.05 for Organic model }
Effort = 5189.27

Time = c(Effort)^d { c = 2.5, d = 0.38 for Organic model }
Time = 36.5559 hrs (estimation)

Productivity : KLOC / Effort
Productivity: 0.28 LOC/PM
P = 280 LOC/PM

We would be needing a domain name and a site to host the web page 24/7 and scale according to the number of users approx : 9000 - 100000 permonth depending on the user we can use many cloud providers like AWS,Google loud , MIcrosoft Azure.

Code-Description: For this project we have used,

- HTML and pure CSS for front-end and Flask-Python for back-end.
- Netlify for hosting our project.
- Djikstra's algorithm for path-finding.
- SQLite3 for database.

- CS50 IDE for coding.
- Our page is divided into 7 sections namely, Home, Profile, About Us, Tickets, Wallet, History, Find a store, Login and Register.
    - **Home**: This page contains 3 images of which 2 were captured by us and 1 of them was taken from Google. This is the homepage where every user lands on after registration or login.
    - **Profile**: This page gives details about the current user, like name, age, gender, credits they have, last ride they took, fare/ amount for the last ride and a non-functional pass type field that was intended to provide a system to buy daily, weekly and monthly.
    - **About Us**: This page contains pictures of our team and what roles we played in the completion of this project.
    - **Tickets** : Allows users to login and buy tickets. It shows previous all the metro stations for source and destination of which the user can choose one of each for either boarding or deboarding.
    - **Wallet**: It allows the user to view their current amount/ cash and also shows a list of previous transactions with date and amount of the transaction.
    - **History**: It is similar to the Wallet page but here more emphasis is on the travel rather than the amount and hence it also includes the source and destination stations of the travel.
    - **Find a station:** is a relatively non-functional feature that displays a map of existing and planned metro stations for future, which enlarges a bit when hovered upon. Here we have also used a location pin icon from Font Awesome.
    - **Login**: Allows an already registered user to enter username and password and login. Unregistered or first-time users have an option to click a link to be redirected to the registration page.
    - **Register**: Allows new users to register themselves on the web-app.
    - **Logout**: Allows logged-in users to log out of the website.

      We have used some images of the metro, directly from Google in 3-4 pages.

- All the above options are available as hyperlinks on top of the webpage in the navigation bar and clicking on the metro logo will redirect users to the homepage.

Limitations:

- There are no available API's for Metro path-finding and hence it was very difficult to get the dataset for this project. The dataset we used was manually typed.
- We didn't have any way to draw over the image, highlighting the shortest path over the image or the real-time location of the metro train (as mentioned by one of the guests) as we chose a framework/ API not suitable for such a task. It was also mentioned by the same guest that we could have done it using Java but we were using a Python framework.

Scope:

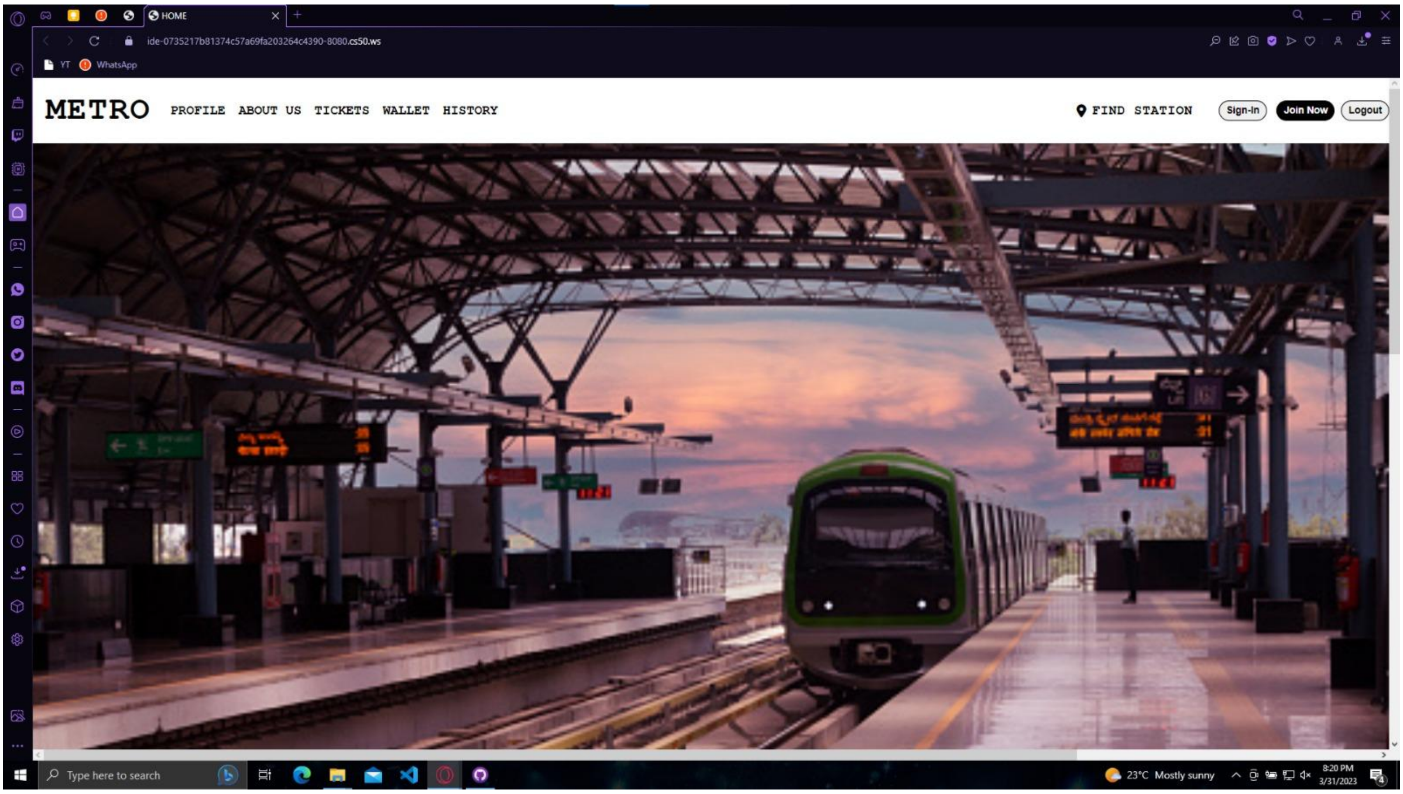
- This project can be further improved with the help of a better database and with a good knowledge of java, a real-time train traversal of metro train image on the map or highlighting of the shortest path to the user when they book a ticket.
- By adding accessibility features for uniquely abled people , by using AI and Machine learning tools like object detection etc

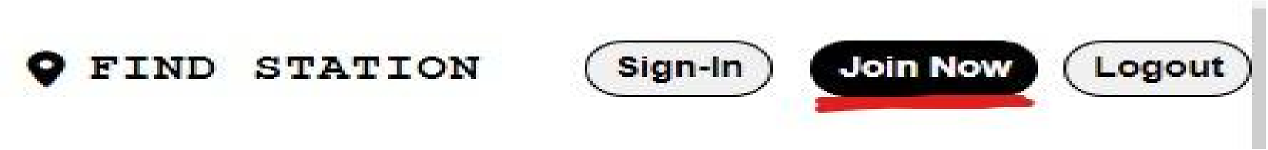
Deploying the site:

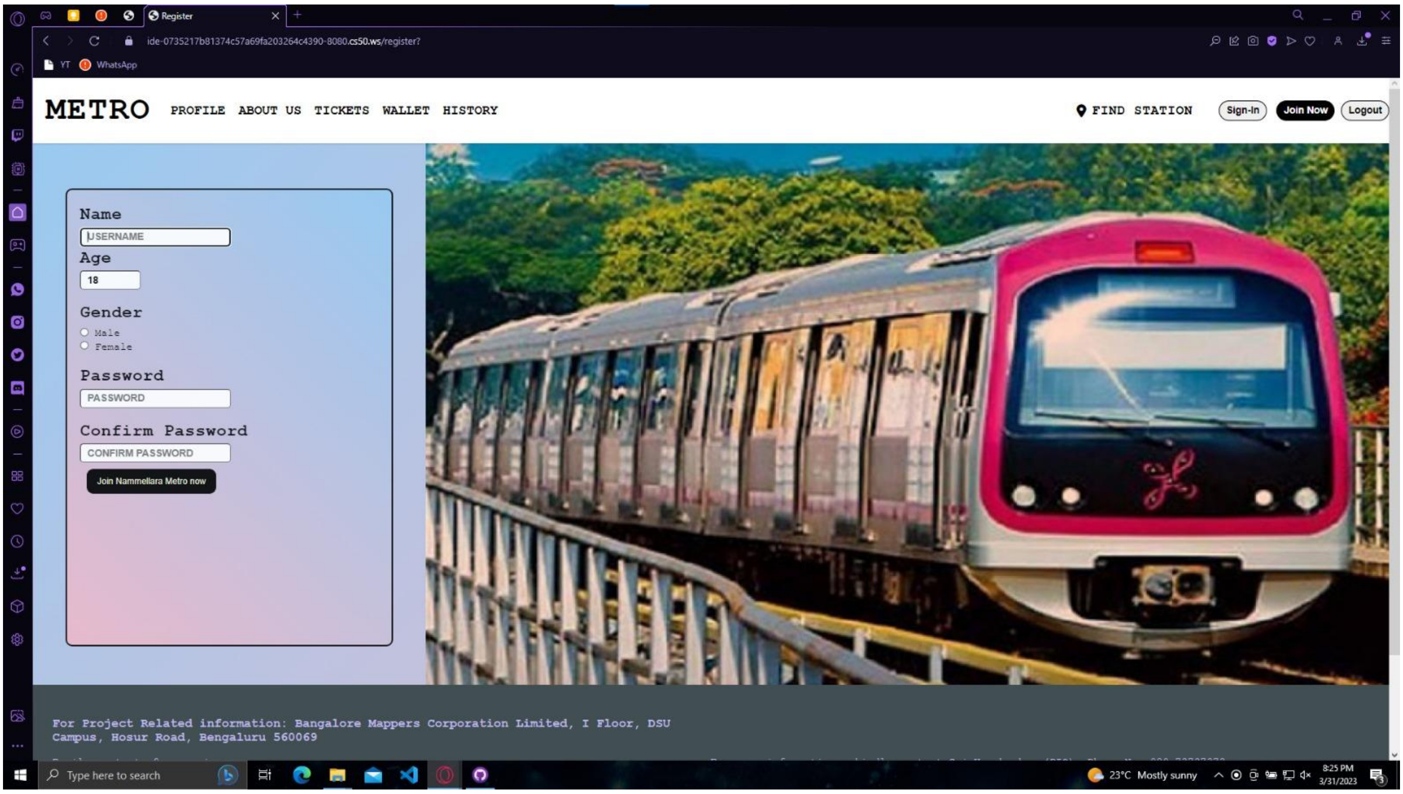
The application being a Dynamic flask application, it cannot hosted on services like Netlify that host static web pages .instead we could go for cloud providers like AWS, Azure,Google Cloud etc

End user Details:

The target audience are people who would usually travel via Metro and people who are also new to metro can comfortable view and book tickets







Name
USERNAME

Age
18

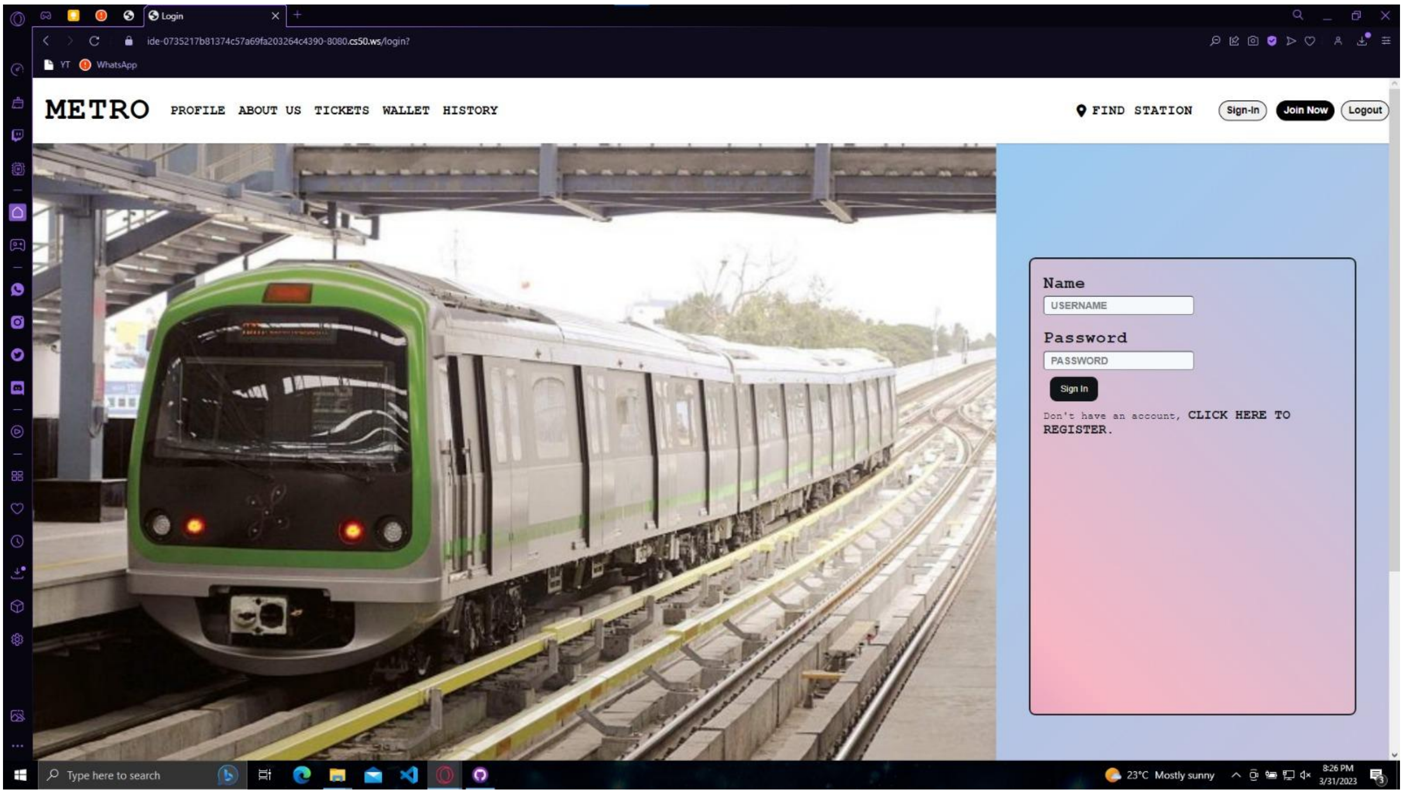
Gender
○ Male
○ Female

Password
PASSWORD

Confirm Password
CONFIRM PASSWORD

Join Nammellara Metro now

For Project Related information: Bangalore Mappers Corporation Limited, I Floor, DSU Campus, Hosur Road, Bengaluru 560069



Name

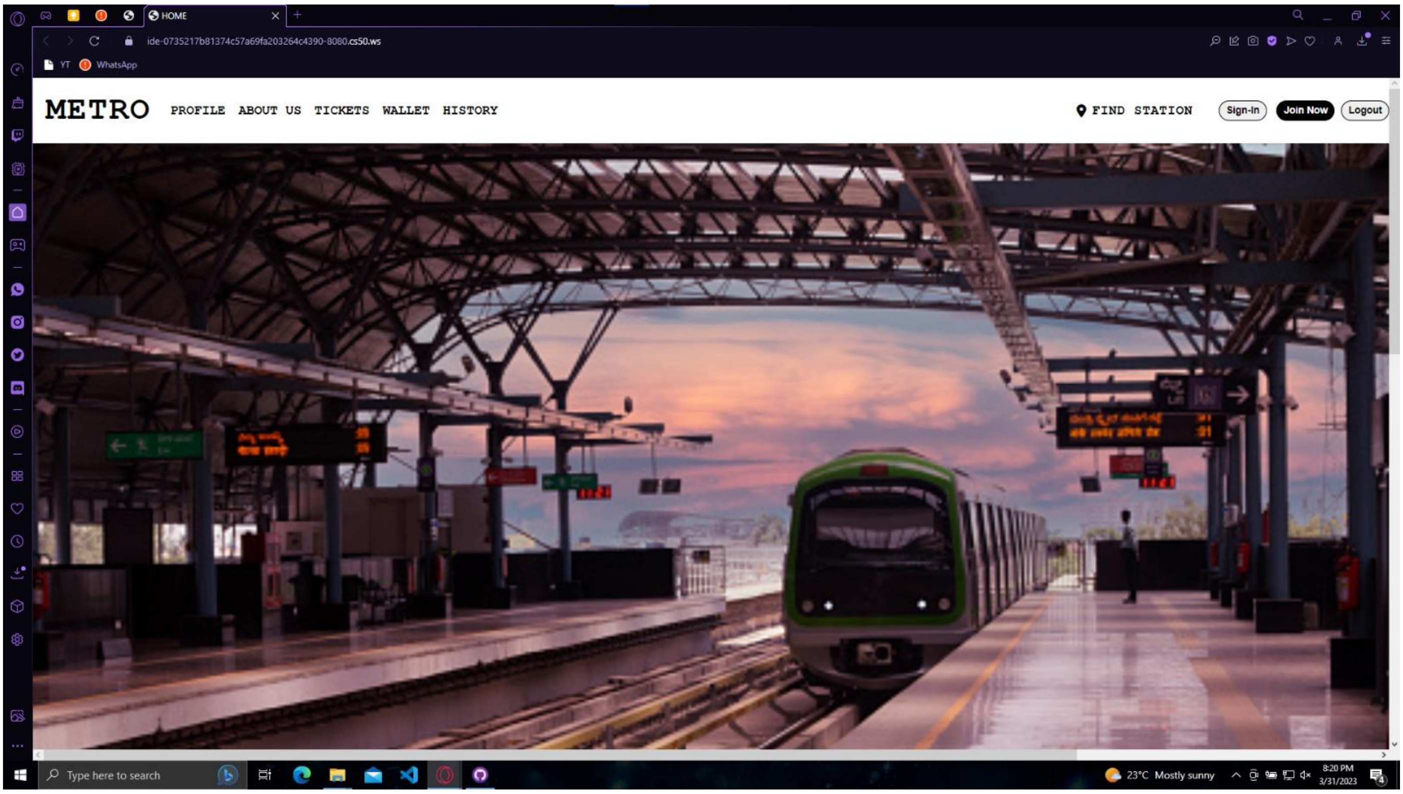
USERNAME

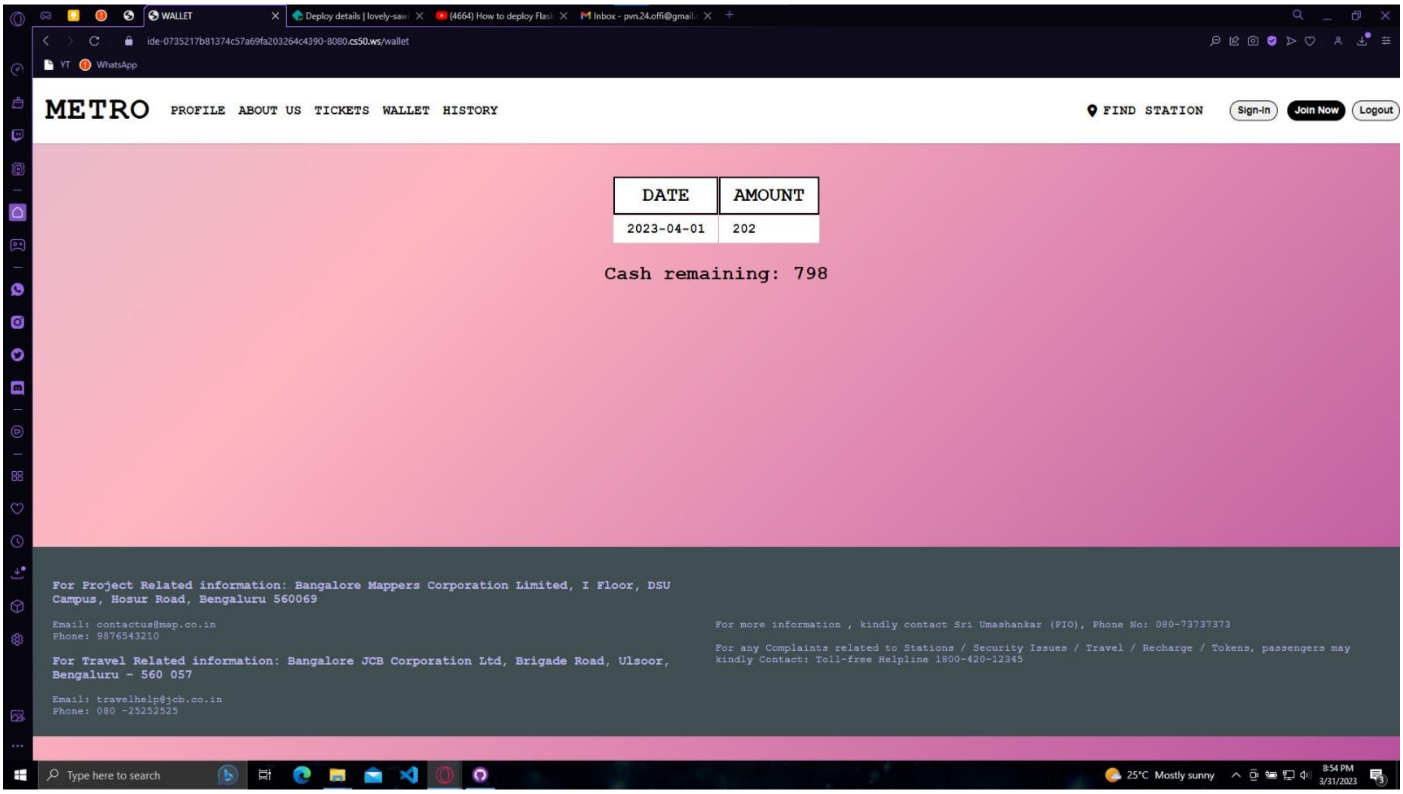
Password

PASSWORD

Sign In

Don't have an account, CLICK HERE TO REGISTER.





DATE	AMOUNT
2023-04-01	202

Cash remaining: 798

For Project Related information: Bangalore Mappers Corporation Limited, I Floor, DSU Campus, Hosur Road, Bengaluru 560069

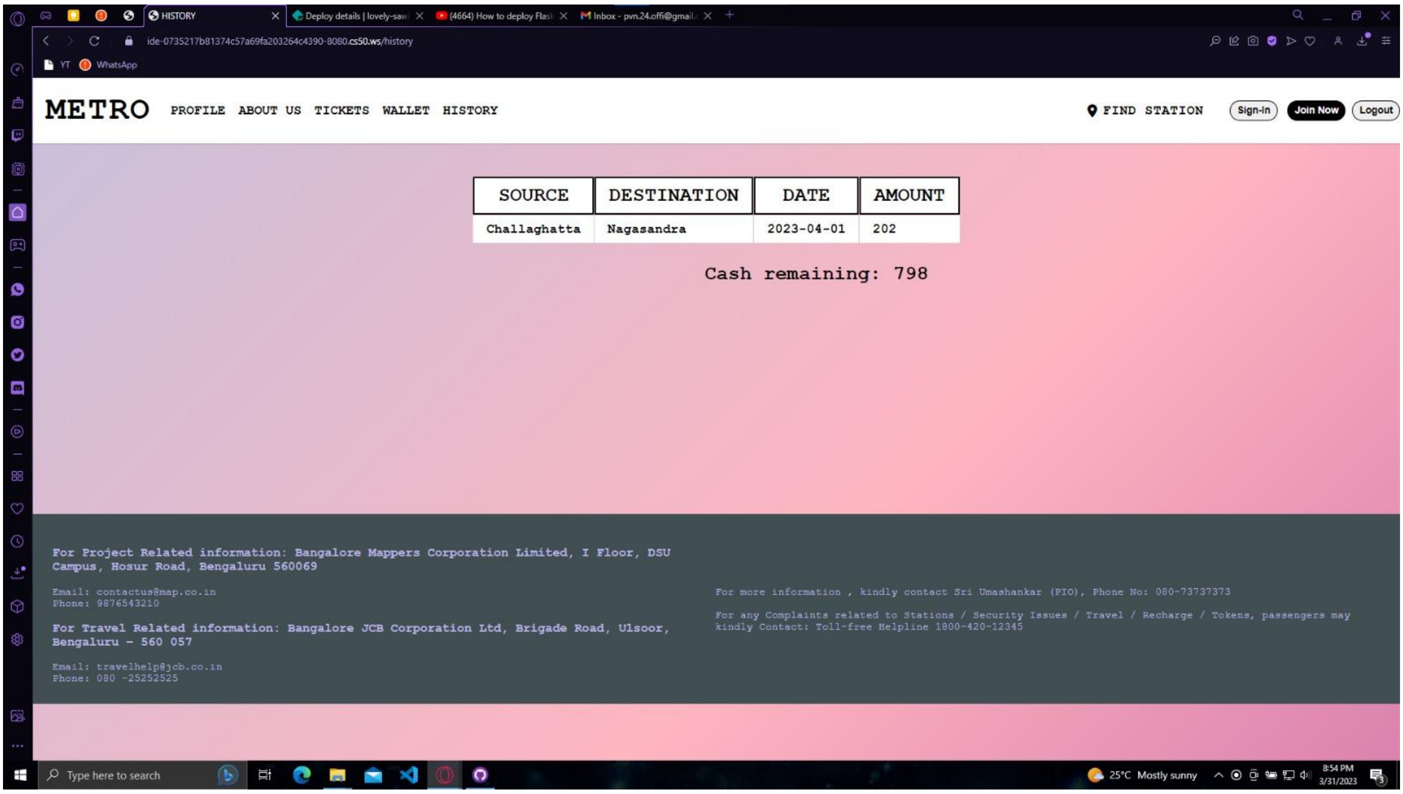
Email: contactus@map.co.in
Phone: 9876543210

For Travel Related information: Bangalore JCB Corporation Ltd, Brigade Road, Ulsoor, Bengaluru - 560 057

Email: travelhelp@jcb.co.in
Phone: 080 -25252525

For more information , kindly contact Sri Umashankar (PIO), Phone No: 080-73737373

For any Complaints related to Stations / Security Issues / Travel / Recharge / Tokens, passengers may kindly Contact: Toll-free Helpline 1800-420-12345



SOURCE	DESTINATION	DATE	AMOUNT
Challaghatta	Nagasandra	2023-04-01	202

Cash remaining: 798

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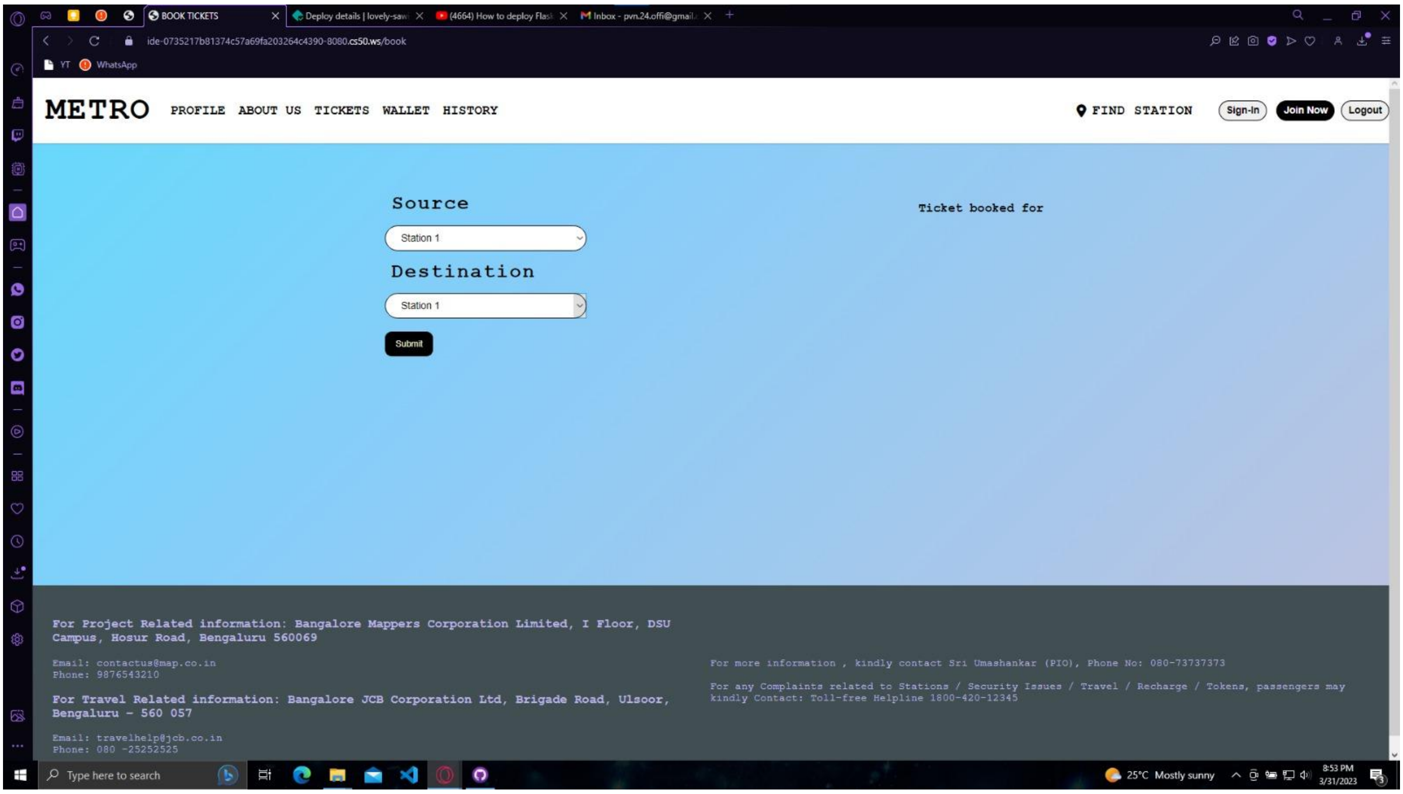

Ticket booked for

For Project Related information: Bangalore Mappers Corporation Limited, I Floor, DSU Campus, Hosur Road, Bengaluru 560069

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Phone: 9876543210

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Non-functional requirements being used: We have made use of hash function for the password, that compares and checks the password hashes to ensure security. The hashing function is also executed when a new user registers on site and thet hash is stored in the database.

Source Code:

app.py:

```
from flask import Flask
from flask import Flask, flash, redirect, render_template, request, session
from cs50 import SQL
from datetime import date
from flask_session import Session
from werkzeug.exceptions import default_exceptions, HTTPException, InternalServerError
from werkzeug.security import check_password_hash, generate_password_hash
from tempfile import mkdtemp
from helpers import apology, login_required
from flask_qrcode import QRcode
from newalgo import algo
```

```
app = Flask(__name__)
db = SQL("sqlite:///database.db")

# Configure session to use filesystem (instead of signed cookies)
app.config["SESSION_FILE_DIR"] = mkdtemp()
app.config["SESSION_PERMANENT"] = False
app.config["SESSION_TYPE"] = "filesystem"
Session(app)

@app.route("/")
def index():
    return render_template("home.html")

@app.route("/profile")
@login_required
def profile():
    user_id = session["user_id"]

    person = db.execute("SELECT * FROM users where user_id = ?", user_id)

    name = person[0]["name"]
    age = person[0]["age"]
    gender = person[0]["gender"]
    credits = person[0]["credits"]


    travel_details = db.execute("SELECT * FROM travels WHERE id = ?", user_id)
    try:
        src = travel_details[0]["source"]
        dest = travel_details[0]["dest"]
        amount = travel_details[0]["amount"]
        date = travel_details[0]["date"]
    except:
         return redirect('/book')



    last_ride = (src + " - " + dest)



    return render_template("profile.html", name=name, age=age, gender=gender, credits=credits,
last_ride=last_ride, amount=amount, date=date)

@app.route("/register", methods=["GET", "POST"])
def register():

    session.clear()

    if request.method == "POST":

        # ensure username was submitted
        if not request.form.get("username"):
            return apology("must provide username", 403)

        # ensure password was submitted
        elif not request.form.get("password"):
            return apology("must provide password", 403)

        # ensure passwords match
        elif request.form.get("password") != request.form.get("confirmation"):
            return apology("passwords do not match", 403)

        # save username and password hash in variables
        username = request.form.get("username")
        hash = generate_password_hash(request.form.get("password"))

        # Query database to ensure username isn't already taken
        rows = db.execute("SELECT * FROM users WHERE name = ?", username)
        if len(rows) != 0:
            return apology("username is already taken", 403)

        age = request.form.get("age")
        gender = request.form.get("gender")

        # insert username and hash into database
        db.execute("INSERT INTO users (name, hash, age, gender) VALUES (? ,?, ?, ?)", \
                username, hash, age, gender)

        # redirect to login page
        return redirect("/")

    # User reached route via GET (as by clicking a link or via redirect)
    else:
        return render_template("register.html")

@app.route("/login", methods=["GET", "POST"])
def login():
    """Log user in"""

    # User reached route via POST (as by submitting a form via POST)
    if request.method == "POST":

        # Ensure username was submitted
        if not request.form.get("username"):
            return apology("must provide username", 403)

        # Ensure password was submitted
        elif not request.form.get("password"):
            return apology("must provide password", 403)

        # Query database for username
        rows = db.execute("SELECT * FROM users WHERE name = ?",
request.form.get("username"))
```

```
        # Ensure username exists and password is correct
        if len(rows) != 1 or not check_password_hash(rows[0]["hash"], request.form.get("password")):
            return apology("invalid username and/or password", 403)

        # Remember which user has logged in
        session["user_id"] = rows[0]["user_id"]

        # Redirect user to home page
        return redirect("/")

    # User reached route via GET (as by clicking a link or via redirect)
    else:
        return render_template("login.html")


@app.route("/logout", methods=["GET", "POST"])
@login_required
def logout():

    session.clear()
    return redirect("/")

@app.route("/book", methods=["GET", "POST"])
@login_required
def buy():
    q=['Challaghatta', 'Kengeri Bus Terminal','Mailasandra','Pattanagere', 'Jnanabharathi',
'Rajarajeshwari Nagar', 'Nayandahalli','Mysuru Road',
    'Deepanjali Nagar','Deepanjali Nagar', 'Attiguppe','Vijayanagar', 'BGS Hosahalli','Magadi
Road','KSR City Railway Station', 'Nadaprabhu Kempe Gowda Majestic',
    'Sir M Visveswaraya Central College','Dr. B R Ambedkar Vidhana Soudha', 'Cubbon
Park','Mahatma Gandhi Road','Trinity', 'Halasuru','Indiranagar', 'Swami Vivekananda Road',
    'Baiyyappanahalli','Benniganahalli','Mahadevpura', 'Garudacharpalya','Hoodi Junction','Sitarama
Palya','Kundalahalli','Nallurahalli', 'Sadaramangala','Pattanduru Agrahara'
    ,'Kadugodi Industrial Area', 'Channasandra', 'Whitefield','Madavara', 'Chikkabidirakallu',
'Manjunath Nagar', 'Nagasandra', 'Dasarahalli', 'Jalahalli', 'Peenya Industry',
    'Peenya', 'Goraguntepalya', 'Yeshwantpur', 'Sandal Soap Factory', 'MAhalaxmi', 'Rajajinagar',
'Kuvempu Road', 'Srirampura', 'Mantri Square Sampige Road', 'Chickpete',
    'Krishna Rajendra Market', 'National College', 'Lalbagh', 'South End Circle', 'Jayanagar',
'Rashtriya Vidhyalaya Road', 'Banashankari', 'Jayaprakash NAgar',
    'Yelachenahalli', 'Konanakunte Cross', 'Doddakallasandra','Vajrahalli','Thalaghattapura',
'Anjanapura']
    if request.method == "POST":
        # Ensure username was submitted
        source =  request.form.get("source")
        print(source)
        if not source:
            return apology("must provide source station", 403)

        # Ensure password was submitted
        destination = request.form.get("destination")
        print(destination)
        if not destination:
            return apology("must provide destination station", 403)

        price = int(algo(source,destination))

        user_id = session["user_id"]

        cash = db.execute("SELECT credits FROM users where user_id = ?", user_id)[0]['credits']

        today = date.today()
        remainder = cash - price
        if remainder < 0:
            return apology("insufficient funds", 403)

        db.execute("INSERT INTO travels (id,source,dest,amount,date)
VALUES(?,?,?,?,?)",user_id,source,destination,price,today)

        db.execute("UPDATE users SET credits = ? WHERE user_id = ?",remainder,user_id)

        return render_template("tickets.html",price=price)

    # User reached route via GET (as by clicking a link or via redirect)
    else:
        return render_template("tickets.html",q=q)

@app.route("/history")
@login_required
def history():

    user_id = session["user_id"]

    person = db.execute("SELECT * FROM travels WHERE id = ?", user_id)
    cash = db.execute("SELECT credits FROM users WHERE user_id = ?", user_id)[0]["credits"];
    return render_template("history.html", person=person, cash=cash)

@app.route("/about")
def about():
    return render_template("about.html")

@app.route("/wallet", methods=["GET", "POST"])
@login_required
def wallet():

    user_id = session["user_id"]

    travels = db.execute("SELECT * FROM travels WHERE id = ?", user_id)
    cash = db.execute("SELECT credits FROM users WHERE user_id = ?", user_id)[0]["credits"];

    return render_template("wallet.html", travels=travels, cash=cash)


@app.route("/map")
```

```
def map():
    return render_template("map.html")
```

helpers.py:

```
from flask import redirect, render_template, request, session
from functools import wraps

def apology(message, code=400):
    """Render message as an apology to user."""
    def escape(s):
        """
        Escape special characters.
        https://github.com/jacebrowning/memegen#special-characters
        """
        for old, new in [("-", "--"), (" ", "-"), ("_", "__"), ("?", "~q"),
                         ("%", "~p"), ("#", "~h"), ("/", "~s"), ("\"", "''")]:
            s = s.replace(old, new)
        return s
    return render_template("apology.html", top=code, bottom=escape(message)), code

def login_required(f):
    """
    Decorate routes to require login.
    http://flask.pocoo.org/docs/1.0/patterns/viewdecorators/
    """
    @wraps(f)
    def decorated_function(*args, **kwargs):
        if session.get("user_id") is None:
            return redirect("/login")
        return f(*args, **kwargs)
    return decorated_function
```

newalgo.py:

```
import sys
from heapq import heapify, heappush

def algo(source,dest):

    colours = {'Blue': ['KIA Terminals', 'Airport City', 'Doddaljala', 'Bettahalasur', 'Bagalur Cross',
'Yelahanka', 'Jakkur Cross', 'Kodigehalli', 'Hebbal', 'Kempapura','Veeranna Palya', 'HBR Layout',
'Kalyan Nagar', 'HRBR Layout', 'Horamavu', 'Kasturi Nagar','Krishnaraja Puram', 'Saraswathi Nagar',
'DRDO Sports Complex', 'Doddanekkundi', 'ISRO', 'Marathahalli', 'Kaadubeesanahalli',
'Devarabeesanahalli', 'Bellandur', 'Ibblur', 'Agara Lake', 'Venkatapura'],
            'Purple': ['Kadugondanahalli ', 'Venkateshpura', 'Tannery Road', 'Pottery Town',
'Cantonment', 'Shivajinagar', 'Rashtriya Millitary School', 'Langford Town', 'Lakkasandra', 'Dairy
Circle', 'Taverekere', 'Jayadeva', 'JP NAgar 4th phase', 'IIMB', 'Hulimavu', 'Kalena Agrahara'],
            'Yellow': ['Bommasandra', 'Hebbagodi', 'Huskur Road', 'Infosys Foundation Konappana
Agrahara', 'Electronic City', 'Beratena Agrahara', 'Hosa Road', 'Singasandra', 'Kudlu Gate',
'Hongasandra', 'Bommanahalli','Central Silk Board', 'BTM Layout', 'Ragigudda'],
        'Green': ['Madavara', 'Chikkabidirakallu', 'Manjunath Nagar', 'Nagasandra', 'Dasarahalli',
'Jalahalli', 'Peenya Industry', 'Peenya', 'Goraguntepalya', 'Yeshwantpur', 'Sandal Soap Factory',
'MAhalaxmi', 'Rajajinagar', 'Kuvempu Road', 'Srirampura', 'Mantri Square Sampige Road',
'Chickpete', 'Krishna Rajendra Market', 'National College', 'Lalbagh', 'South End Circle', 'Jayanagar',
'Rashtriya Vidhyalaya Road', 'Banashankari', 'Jayaprakash NAgar', 'Yelachenahalli', 'Konanakunte
Cross', 'Doddakallasandra','Vajrahalli','Thalaghattapura', 'Anjanapura'],
        'Voilet': ['Challaghatta', 'Kengeri Bus Terminal','Mailasandra','Pattanagere', 'Jnanabharathi',
'Rajarajeshwari Nagar', 'Nayandahalli','Mysuru Road','Deepanjali Nagar','Deepanjali Nagar',
'Attiguppe','Vijayanagar', 'BGS Hosahalli','Magadi Road','KSR City Railway Station', 'Nadaprabhu
Kempe Gowda Majestic','Sir M Visveswaraya Central College','Dr. B R Ambedkar Vidhana Soudha',
'Cubbon Park','Mahatma Gandhi Road','Trinity', 'Halasuru','Indiranagar', 'Swami Vivekananda
Road','Baiyyappanahalli','Benniganahalli','Mahadevpura', 'Garudacharpalya','Hoodi
Junction','Sitarama Palya','Kundalahalli','Nallurahalli', 'Sadaramangala','Pattanduru
Agrahara','Kadugodi Industrial Area', 'Channasandra', 'Whitefield']}
  high = 8
  low = 0
  if source in colours['Green'] and dest in colours['Green']:
    graph = {
      'Anjanapura': {'Thalaghattapura' : 8},
      'Thalaghattapura':{ 'Anjanapura' : 8, 'Vajrahalli': 8},
      'Vajrahalli':{'Thalaghattapura':8, 'Doddakallasandra' : 8},
      'Doddakallasandra': {'Vajrahalli' : 8, 'Konankunte Cross': 8},
      'Konankunte Cross': {'Doddakallasandra': 8, 'Yelachenhalli' : 8},
      'Yelachenhalli': {'Konankunte Cross': 8, 'Jayaprakash Nagar': 8},
      'Jayaprakash Nagar': {'Yelachenhalli': 8, 'Banashankari': 8},
      'Banashankari': {'Jayaprakash Nagar': 8,'Rashtriya Vidhyalaya road': 8},
      'Rashtriya Vidhyalaya road': {'Banashankari': 8, 'Jayanagar': 8},
      'Jayanagar': {'Rashtriya Vidhyalaya road': 8, 'South End Circle': 8},
      'South End Circle': {'Jayanagar': 8, 'Lalbagh':8},
      'Lalbagh': {'South End Circle': 8, 'National College': 8},
      'National College': {'Lalbagh': 8, 'Krishna Rajendra Market': 8},
      'Krishna Rajendra Market': {'National College': 8, 'Chickpete': 8},
      'Chickpete': {'Krishna Rajendra Market': 8, 'Nadaprabhu Kempe Gowda Majestic': 8},
      'Nadaprabhu Kempe Gowda Majestic':{'Mantri Square Sampige Road': high, 'Chickpete':
high},
      'Mantri Square Sampige Road': {"Nadaprabhu Kempe Gowda Majestic": 8, "Srirampura": 8},
      'Srirampura': {'Mantri Square Sampige Road': 8, 'Kuvempu Road': 8},
      'Kuvempu Road': {"Srirampura": 8, 'Rajajinagar': 8},
      'Rajajinagar': {'Kuvempu Road': 8, 'Mahalaxmi': 8},
      'Mahalaxmi': {'Rajajinagar': 8, 'Sandal Soap Factory': 8},
      'Sandal Soap Factory': {'Mahalaxmi': 8, 'Yeshwantpur': 8},
      'Yeshwantpur': {'Sandal Soap Factory': 8, 'Goraguntepalya': 8},
      'Goraguntepalya': {'Yeshwantpur': 8,'Peenya': 8},
      'Peenya': {'Goraguntepalya': 8, 'Peenya Industry': 8},
      'Peenya Industry':{'Peenya': 8, 'Jalahalli': 8},
      'Jalahalli': {'Peenya Industry': 8, 'Dasarahalli': 8},
      'Dasarahalli': {'Jalahalli': 8, 'Nagasandra': 1},
      'Nagasandra' :{'Dasarahalli': 10}
    }
  if source in colours['Voilet'] and dest in colours['Voilet']:
    graph = {
    'Challaghatta':{'Kengeri Bus Terminal':1},
        'Kengeri Bus Terminal':{'Challaghatta':10, 'Mailasandra':8},
        'Mailasandra':{'Pattanagere':8, 'Kengeri Bus Terminal':8},
        'Pattanagere':{'Mailasandra':8,'Jnanabharathi':8},
        'Jnanabharathi':{'Pattanagere':8,'Rajarajeshwari Nagar':8},
        'Rajarajeshwari Nagar':{'Jnanabharathi':8,'Nayandahalli':8},
        'Nayandahalli':{'Rajarajeshwari Nagar':8,'Mysuru Road':8},
        'Mysuru Road':{'Nayandahalli':8,'Deepanjali Nagar':8},
        'Deepanjali Nagar':{'Mysuru Road':8,'Attiguppe':8},
        'Attiguppe':{'Deepanjali Nagar':8,'Vijayanagar':8},
        'Vijayanagar':{'Attiguppe':8,'BGS Hosahalli':8},
        'BGS Hosahalli':{'Vijayanagar':8,'Magadi Road':8},
        'Magadi Road':{'BGS Hosahalli':8,'KSR City Railway Station':8},
        'KSR City Railway Station':{'Magadi Road':8,'Nadaprabhu Kempe Gowda Majestic':8},
        'Nadaprabhu Kempe Gowda Majestic':{'Sir M Visveswaraya Central College':high,'KSR City Railway Station':high},
        'Sir M Visveswaraya Central College':{'Nadaprabhu Kempe Gowda Majestic':8,'Dr. B R Ambedkar Vidhana Soudha':8},
        'Dr. B R Ambedkar Vidhana Soudha':{'Sir M Visveswaraya Central College':8,'Cubbon Park':8},
        'Cubbon Park':{'Dr. B R Ambedkar Vidhana Soudha':8,'Mahatma Gandhi Road':8},
        'Mahatma Gandhi Road':{'Cubbon Park':high, 'Trinity': high},
        'Trinity':{'Mahatma Gandhi Road':8,'Halasuru':8},
        'Halasuru':{'Trinity':8,'Indiranagar':8},
        'Indiranagar':{'Halasuru':8,'Swami Vivekananda Road':8},
        'Swami Vivekananda Road':{'Indiranagar':8,'Baiyyappanahalli':8},
        'Baiyyappanahalli':{'Swami Vivekananda Road':8,'Benniganahalli':8},
        'Benniganahalli':{'Baiyyappanahalli':8,'Krishnaraja Puram':8},
        'Krishnaraja Puram':{'Benniganahalli':8,'Mahadevapura':8},
        'Mahadevapura':{'Krishnaraja Puram':8,'Garudacharpalya':8},
        'Garudacharpalya':{'Mahadevapura':8,'Hoodi Junction':8},
        'Hoodi Junction':{'Garudacharpalya':8,'Sitarama Palya':8},
        'Sitarama Palya':{'Hoodi Junction':8,'Kundalahalli':8},
        'Kundalahalli':{'Sitarama Palya':8,'Nallurahalli':8},
        'Nallurahalli':{'Kundalahalli':8,'Sadaramangala':8},
        'Sadaramangala':{'Nallurahalli':8,'Pattanduru Agrahara':8},
        'Pattanduru Agrahara':{'Sadaramangala':8,'Kadugodi Industrial Area':8},
        'Kadugodi Industrial Area':{'Pattanduru Agrahara':8,'Channasandra':8},
        'Channasandra':{'Kadugodi Industrial Area':8,'Whitefield':8},
        'Whitefield':{'Channasandra':8}
        }
    if source in colours['Voilet'] and dest in colours['Green']:
        if dest in ['Nagasandra', 'Dasarahalli', 'Jalahalli', 'Peenya Industry', 'Peenya', 'Goraguntepalya', 'Yeshwantpur', 'Sandal Soap Factory', 'MAhalaxmi', 'Rajajinagar', 'Kuvempu Road', 'Srirampura', 'Mantri Square Sampige Road'] :
            graph = {
                'Challaghatta':{'Kengeri Bus Terminal':1},
                'Kengeri Bus Terminal':{'Challaghatta':10, 'Mailasandra':8},
                'Mailasandra':{'Pattanagere':8, 'Kengeri Bus Terminal':8},
                'Pattanagere':{'Mailasandra':8,'Jnanabharathi':8},
                'Jnanabharathi':{'Pattanagere':8,'Rajarajeshwari Nagar':8},
                'Rajarajeshwari Nagar':{'Jnanabharathi':8,'Nayandahalli':8},
                'Nayandahalli':{'Rajarajeshwari Nagar':8,'Mysuru Road':8},
                'Mysuru Road':{'Nayandahalli':8,'Deepanjali Nagar':8},
                'Deepanjali Nagar':{'Mysuru Road':8,'Attiguppe':8},
                'Attiguppe':{'Deepanjali Nagar':8,'Vijayanagar':8},
                'Vijayanagar':{'Attiguppe':8,'BGS Hosahalli':8},
                'BGS Hosahalli':{'Vijayanagar':8,'Magadi Road':8},
                'Magadi Road':{'BGS Hosahalli':8,'KSR City Railway Station':8},
                'KSR City Railway Station':{'Magadi Road':8,'Nadaprabhu Kempe Gowda Majestic':8},
                'Sir M Visveswaraya Central College':{'Nadaprabhu Kempe Gowda Majestic':8,'Dr. B R
        Ambedkar Vidhana Soudha':8},
                'Dr. B R Ambedkar Vidhana Soudha':{'Sir M Visveswaraya Central College':8,'Cubbon
        Park':8},
                'Cubbon Park':{'Dr. B R Ambedkar Vidhana Soudha':8,'Mahatma Gandhi Road':8},
                'Mahatma Gandhi Road':{'Cubbon Park':high, 'Trinity': high},
                'Trinity':{'Mahatma Gandhi Road':8,'Halasuru':8},
                'Halasuru':{'Trinity':8,'Indiranagar':8},
                'Indiranagar':{'Halasuru':8,'Swami Vivekananda Road':8},
                'Swami Vivekananda Road':{'Indiranagar':8,'Baiyyappanahalli':8},
                'Baiyyappanahalli':{'Swami Vivekananda Road':8,'Benniganahalli':8},
                'Benniganahalli':{'Baiyyappanahalli':8,'Krishnaraja Puram':8},
                'Krishnaraja Puram':{'Benniganahalli':8,'Mahadevapura':8},
                'Mahadevapura':{'Krishnaraja Puram':8,'Garudacharpalya':8},
                'Garudacharpalya':{'Mahadevapura':8,'Hoodi Junction':8},
                'Hoodi Junction':{'Garudacharpalya':8,'Sitarama Palya':8},
                'Sitarama Palya':{'Hoodi Junction':8,'Kundalahalli':8},
                'Kundalahalli':{'Sitarama Palya':8,'Nallurahalli':8},
                'Nallurahalli':{'Kundalahalli':8,'Sadaramangala':8},
                'Sadaramangala':{'Nallurahalli':8,'Pattanduru Agrahara':8},
                'Pattanduru Agrahara':{'Sadaramangala':8,'Kadugodi Industrial Area':8},
                'Kadugodi Industrial Area':{'Pattanduru Agrahara':8,'Channasandra':8},
                'Channasandra':{'Kadugodi Industrial Area':8,'Whitefield':8},
                'Whitefield':{'Channasandra':8},
                'Nadaprabhu Kempe Gowda Majestic':{'Mantri Square Sampige Road': high},
                'Mantri Square Sampige Road':{"Nadaprabhu Kempe Gowda Majestic": 8, "Srirampura":
        8},
                'Srirampura': {'Mantri Square Sampige Road': 8, 'Kuvempu Road': 8},
                'Kuvempu Road': {"Srirampura": 8, 'Rajajinagar': 8},
                'Rajajinagar': {'Kuvempu Road': 8, 'Mahalaxmi': 8},
                'Mahalaxmi': {'Rajajinagar': 8, 'Sandal Soap Factory': 8},
                'Sandal Soap Factory': {'Mahalaxmi': 8, 'Yeshwantpur': 8},
                'Yeshwantpur': {'Sandal Soap Factory': 8, 'Goraguntepalya': 8},
                'Goraguntepalya': {'Yeshwantpur': 8,'Peenya': 8},
                'Peenya': {'Goraguntepalya': 8, 'Peenya Industry': 8},
                'Peenya Industry':{'Peenya': 8, 'Jalahalli': 8},
                'Jalahalli': {'Peenya Industry': 8, 'Dasarahalli': 8},
                'Dasarahalli': {'Jalahalli': 8, 'Nagasandra': 1},
                'Nagasandra' :{'Dasarahalli': 10},
                 }
        else:
            graph = {
                'Challaghatta':{'Kengeri Bus Terminal':1},
                'Kengeri Bus Terminal':{'Challaghatta':10, 'Mailasandra':8},
                'Mailasandra':{'Pattanagere':8, 'Kengeri Bus Terminal':8},
                'Pattanagere':{'Mailasandra':8,'Jnanabharathi':8},
            'Jnanabharathi':{'Pattanagere':8,'Rajarajeshwari Nagar':8},
            'Rajarajeshwari Nagar':{'Jnanabharathi':8,'Nayandahalli':8},
            'Nayandahalli':{'Rajarajeshwari Nagar':8,'Mysuru Road':8},
            'Mysuru Road':{'Nayandahalli':8,'Deepanjali Nagar':8},
            'Deepanjali Nagar':{'Mysuru Road':8,'Attiguppe':8},
            'Attiguppe':{'Deepanjali Nagar':8,'Vijayanagar':8},
            'Vijayanagar':{'Attiguppe':8,'BGS Hosahalli':8},
            'BGS Hosahalli':{'Vijayanagar':8,'Magadi Road':8},
            'Magadi Road':{'BGS Hosahalli':8,'KSR City Railway Station':8},
            'KSR City Railway Station':{'Magadi Road':8,'Nadaprabhu Kempe Gowda Majestic':8},
            'Sir M Visveswaraya Central College':{'Nadaprabhu Kempe Gowda Majestic':8,'Dr. B R
Ambedkar Vidhana Soudha':8},
            'Dr. B R Ambedkar Vidhana Soudha':{'Sir M Visveswaraya Central College':8,'Cubbon
Park':8},
            'Cubbon Park':{'Dr. B R Ambedkar Vidhana Soudha':8,'Mahatma Gandhi Road':8},
            'Mahatma Gandhi Road':{'Cubbon Park':high, 'Trinity': high},
            'Trinity':{'Mahatma Gandhi Road':8,'Halasuru':8},
            'Halasuru':{'Trinity':8,'Indiranagar':8},
            'Indiranagar':{'Halasuru':8,'Swami Vivekananda Road':8},
            'Swami Vivekananda Road':{'Indiranagar':8,'Baiyyappanahalli':8},
            'Baiyyappanahalli':{'Swami Vivekananda Road':8,'Benniganahalli':8},
            'Benniganahalli':{'Baiyyappanahalli':8,'Krishnaraja Puram':8},
            'Krishnaraja Puram':{'Benniganahalli':8,'Mahadevapura':8},
            'Mahadevapura':{'Krishnaraja Puram':8,'Garudacharpalya':8},
            'Garudacharpalya':{'Mahadevapura':8,'Hoodi Junction':8},
            'Hoodi Junction':{'Garudacharpalya':8,'Sitarama Palya':8},
            'Sitarama Palya':{'Hoodi Junction':8,'Kundalahalli':8},
            'Kundalahalli':{'Sitarama Palya':8,'Nallurahalli':8},
            'Nallurahalli':{'Kundalahalli':8,'Sadaramangala':8},
            'Sadaramangala':{'Nallurahalli':8,'Pattanduru Agrahara':8},
            'Pattanduru Agrahara':{'Sadaramangala':8,'Kadugodi Industrial Area':8},
            'Kadugodi Industrial Area':{'Pattanduru Agrahara':8,'Channasandra':8},
            'Channasandra':{'Kadugodi Industrial Area':8,'Whitefield':8},
            'Whitefield':{'Channasandra':8},
            'Nadaprabhu Kempe Gowda Majestic':{'Chickpete': high},
            'Chickpete': {'Krishna Rajendra Market': 8, 'Nadaprabhu Kempe Gowda Majestic': 8},
            'Krishna Rajendra Market': {'National College': 8, 'Chickpete': 8},
            'National College': {'Lalbagh': 8, 'Krishna Rajendra Market': 8},
            'Lalbagh': {'South End Circle': 8, 'National College': 8},
            'South End Circle': {'Jayanagar': 8, 'Lalbagh':8},
            'Jayanagar': {'Rashtriya Vidhyalaya road': 8, 'South End Circle': 8},
            'Rashtriya Vidhyalaya road': {'Banashankari': 8, 'Jayanagar': 8},
            'Banashankari': {'Jayaprakash Nagar': 8,'Rashtriya Vidhyalaya road': 8},
            'Jayaprakash Nagar': {'Yelachenhalli': 8, 'Banashankari': 8},
            'Yelachenhalli': {'Konankunte Cross': 8, 'Jayaprakash Nagar': 8},
            'Konankunte Cross': {'Doddakallasandra': 8, 'Yelachenhalli' : 8},
            'Doddakallasandra': {'Vajrahalli' : 8, 'Konankunte Cross': 8},
            'Vajrahalli':{'Thalaghattapura':8, 'Doddakallasandra' : 8},
            'Thalaghattapura':{ 'Anjanapura' : 8, 'Vajrahalli': 8},
            'Anjanapura': {'Thalaghattapura' : 8}
            }
    if source in colours['Green'] and dest in colours['Voilet']:
```

```
    if dest in ['Challaghatta', 'Kengeri Bus Terminal','Mailasandra','Pattanagere', 'Jnanabharathi',
'Rajarajeshwari Nagar', 'Nayandahalli','Mysuru Road','Deepanjali Nagar','Deepanjali Nagar',
'Attiguppe','Vijayanagar', 'BGS Hosahalli','Magadi Road','KSR City Railway Station']:
      graph = {
        'Anjanapura': {'Thalaghattapura' : 8},
        'Thalaghattapura':{ 'Anjanapura' : 8, 'Vajrahalli': 8},
        'Vajrahalli':{'Thalaghattapura':8, 'Doddakallasandra' : 8},
        'Doddakallasandra': {'Vajrahalli' : 8, 'Konankunte Cross': 8},
        'Konankunte Cross': {'Doddakallasandra': 8, 'Yelachenhalli' : 8},
        'Yelachenhalli': {'Konankunte Cross': 8, 'Jayaprakash Nagar': 8},
        'Jayaprakash Nagar': {'Yelachenhalli': 8, 'Banashankari': 8},
        'Banashankari': {'Jayaprakash Nagar': 8,'Rashtriya Vidhyalaya road': 8},
        'Rashtriya Vidhyalaya road': {'Banashankari': 8, 'Jayanagar': 8},
        'Jayanagar': {'Rashtriya Vidhyalaya road': 8, 'South End Circle': 8},
        'South End Circle': {'Jayanagar': 8, 'Lalbagh':8},
        'Lalbagh': {'South End Circle': 8, 'National College': 8},
        'National College': {'Lalbagh': 8, 'Krishna Rajendra Market': 8},
        'Krishna Rajendra Market': {'National College': 8, 'Chickpete': 8},
        'Chickpete': {'Krishna Rajendra Market': 8, 'Nadaprabhu Kempe Gowda Majestic': 8},
        'Mantri Square Sampige Road': {"Nadaprabhu Kempe Gowda Majestic": 8, "Srirampura":
8},
        'Srirampura': {'Mantri Square Sampige Road': 8, 'Kuvempu Road': 8},
        'Kuvempu Road': {"Srirampura": 8, 'Rajajinagar': 8},
        'Rajajinagar': {'Kuvempu Road': 8, 'Mahalaxmi': 8},
        'Mahalaxmi': {'Rajajinagar': 8, 'Sandal Soap Factory': 8},
        'Sandal Soap Factory': {'Mahalaxmi': 8, 'Yeshwantpur': 8},
        'Yeshwantpur': {'Sandal Soap Factory': 8, 'Goraguntepalya': 8},
        'Goraguntepalya': {'Yeshwantpur': 8,'Peenya': 8},
        'Peenya': {'Goraguntepalya': 8, 'Peenya Industry': 8},
        'Peenya Industry':{'Peenya': 8, 'Jalahalli': 8},
        'Jalahalli': {'Peenya Industry': 8, 'Dasarahalli': 8},
        'Dasarahalli': {'Jalahalli': 8, 'Nagasandra': 1},
        'Nagasandra' :{'Dasarahalli': 10},
        'Nadaprabhu Kempe Gowda Majestic':{'KSR City Railway Station': high},
        'Challaghatta':{'Kengeri Bus Terminal':1},
        'Kengeri Bus Terminal':{'Challaghatta':10, 'Mailasandra':8},
        'Mailasandra':{'Pattanagere':8, 'Kengeri Bus Terminal':8},
        'Pattanagere':{'Mailasandra':8,'Jnanabharathi':8},
        'Jnanabharathi':{'Pattanagere':8,'Rajarajeshwari Nagar':8},
        'Rajarajeshwari Nagar':{'Jnanabharathi':8,'Nayandahalli':8},
        'Nayandahalli':{'Rajarajeshwari Nagar':8,'Mysuru Road':8},
        'Mysuru Road':{'Nayandahalli':8,'Deepanjali Nagar':8},
        'Deepanjali Nagar':{'Mysuru Road':8,'Attiguppe':8},
        'Attiguppe':{'Deepanjali Nagar':8,'Vijayanagar':8},
        'Vijayanagar':{'Attiguppe':8,'BGS Hosahalli':8},
        'BGS Hosahalli':{'Vijayanagar':8,'Magadi Road':8},
        'Magadi Road':{'BGS Hosahalli':8,'KSR City Railway Station':8},
        'KSR City Railway Station':{'Magadi Road':8,'Nadaprabhu Kempe Gowda Majestic':8},
      }
    else:
      graph = {
        'Anjanapura': {'Thalaghattapura' : 8},
        'Thalaghattapura':{ 'Anjanapura' : 8, 'Vajrahalli': 8},
        'Vajrahalli':{'Thalaghattapura':8, 'Doddakallasandra' : 8},
        'Doddakallasandra': {'Vajrahalli' : 8, 'Konankunte Cross': 8},
        'Konankunte Cross': {'Doddakallasandra': 8, 'Yelachenhalli' : 8},
        'Yelachenhalli': {'Konankunte Cross': 8, 'Jayaprakash Nagar': 8},
        'Jayaprakash Nagar': {'Yelachenhalli': 8, 'Banashankari': 8},
        'Banashankari': {'Jayaprakash Nagar': 8,'Rashtriya Vidhyalaya road': 8},
        'Rashtriya Vidhyalaya road': {'Banashankari': 8, 'Jayanagar': 8},
        'Jayanagar': {'Rashtriya Vidhyalaya road': 8, 'South End Circle': 8},
        'South End Circle': {'Jayanagar': 8, 'Lalbagh':8},
        'Lalbagh': {'South End Circle': 8, 'National College': 8},
        'National College': {'Lalbagh': 8, 'Krishna Rajendra Market': 8},
        'Krishna Rajendra Market': {'National College': 8, 'Chickpete': 8},
        'Chickpete': {'Krishna Rajendra Market': 8, 'Nadaprabhu Kempe Gowda Majestic': 8},
        'Mantri Square Sampige Road': {"Nadaprabhu Kempe Gowda Majestic": 8, "Srirampura":
8},
        'Srirampura': {'Mantri Square Sampige Road': 8, 'Kuvempu Road': 8},
        'Kuvempu Road': {"Srirampura": 8, 'Rajajinagar': 8},
        'Rajajinagar': {'Kuvempu Road': 8, 'Mahalaxmi': 8},
        'Mahalaxmi': {'Rajajinagar': 8, 'Sandal Soap Factory': 8},
        'Sandal Soap Factory': {'Mahalaxmi': 8, 'Yeshwantpur': 8},
        'Yeshwantpur': {'Sandal Soap Factory': 8, 'Goraguntepalya': 8},
        'Goraguntepalya': {'Yeshwantpur': 8,'Peenya': 8},
        'Peenya': {'Goraguntepalya': 8, 'Peenya Industry': 8},
        'Peenya Industry':{'Peenya': 8, 'Jalahalli': 8},
        'Jalahalli': {'Peenya Industry': 8, 'Dasarahalli': 8},
        'Dasarahalli': {'Jalahalli': 8, 'Nagasandra': 1},
        'Nagasandra' :{'Dasarahalli': 10},
        'Nadaprabhu Kempe Gowda Majestic':{'Sir M Visveswaraya Central College': high},
        'Sir M Visveswaraya Central College':{'Nadaprabhu Kempe Gowda Majestic':8,'Dr. B R
Ambedkar Vidhana Soudha':8},
        'Dr. B R Ambedkar Vidhana Soudha':{'Sir M Visveswaraya Central College':8,'Cubbon
Park':8},
        'Cubbon Park':{'Dr. B R Ambedkar Vidhana Soudha':8,'Mahatma Gandhi Road':8},
        'Mahatma Gandhi Road':{'Cubbon Park':high, 'Trinity': high},
        'Trinity':{'Mahatma Gandhi Road':8,'Halasuru':8},
        'Halasuru':{'Trinity':8,'Indiranagar':8},
        'Indiranagar':{'Halasuru':8,'Swami Vivekananda Road':8},
        'Swami Vivekananda Road':{'Indiranagar':8,'Baiyyappanahalli':8},
        'Baiyyappanahalli':{'Swami Vivekananda Road':8,'Benniganahalli':8},
        'Benniganahalli':{'Baiyyappanahalli':8,'Krishnaraja Puram':8},
        'Krishnaraja Puram':{'Benniganahalli':8,'Mahadevapura':8},
        'Mahadevapura':{'Krishnaraja Puram':8,'Garudacharpalya':8},
        'Garudacharpalya':{'Mahadevapura':8,'Hoodi Junction':8},
        'Hoodi Junction':{'Garudacharpalya':8,'Sitarama Palya':8},
        'Sitarama Palya':{'Hoodi Junction':8,'Kundalahalli':8},
        'Kundalahalli':{'Sitarama Palya':8,'Nallurahalli':8},
        'Nallurahalli':{'Kundalahalli':8,'Sadaramangala':8},
        'Sadaramangala':{'Nallurahalli':8,'Pattanduru Agrahara':8},
        'Pattanduru Agrahara':{'Sadaramangala':8,'Kadugodi Industrial Area':8},
        'Kadugodi Industrial Area':{'Pattanduru Agrahara':8,'Channasandra':8},
        'Channasandra':{'Kadugodi Industrial Area':8,'Whitefield':8},
        'Whitefield':{'Channasandra':8}
      }


inf = sys.maxsize
node_data = {'Anjanapura': {'cost': inf, 'pred' : []},
'Thalaghattapura': {'cost': inf, 'pred' : []},
'Vajrahalli': {'cost': inf, 'pred' : []},
'Doddakallasandra': {'cost': inf, 'pred' : []},
'Konankunte Cross': {'cost': inf, 'pred' : []},
'Yelachenhalli': {'cost': inf, 'pred' : []},
'Jayaprakash Nagar': {'cost': inf, 'pred' : []},
'Banashankari': {'cost': inf, 'pred' : []},
'Rashtriya Vidhyalaya road': {'cost': inf, 'pred' : []},
'Jayanagar': {'cost': inf, 'pred' : []},
'Lalbagh': {'cost': inf, 'pred' : []},
'South End Circle': {'cost': inf, 'pred' : []},
'National College': {'cost': inf, 'pred' : []},
'Krishna Rajendra Market': {'cost': inf, 'pred' : []},
'Chickpete': {'cost': inf, 'pred' : []},
'Nadaprabhu Kempe Gowda Majestic': {'cost': inf, 'pred' : []},
'Mantri Square Sampige Road': {'cost': inf, 'pred' : []},
'Srirampura': {'cost': inf, 'pred' : []},
'Kuvempu Road': {'cost': inf, 'pred' : []},
'Rajajinagar': {'cost': inf, 'pred' : []},
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'Yeshwantpur': {'cost': inf, 'pred': []},
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'Manjunath NAgar': {'cost': inf, 'pred': []},
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'Kengeri Bus Terminal': {'cost': inf, 'pred': []},
'Mailasandra': {'cost': inf, 'pred': []},
'Pattanagere': {'cost': inf, 'pred': []},
'Jnanabharathi': {'cost': inf, 'pred': []},
'Rajarajeshwari Nagar': {'cost': inf, 'pred': []},
'Nayandahalli': {'cost': inf, 'pred': []},
'Mysuru Road': {'cost': inf, 'pred': []},
'Deepanjali Nagar': {'cost': inf, 'pred': []},
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'Magadi Road': {'cost': inf, 'pred': []},
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'Nadaprabhu Kempe Gowda Majestic': {'cost': inf, 'pred': []},
'Sir M Visveswaraya Central College': {'cost': inf, 'pred': []},
'Dr. B R Ambedkar Vidhana Soudha': {'cost': inf, 'pred': []},
'Cubbon Park': {'cost': inf, 'pred': []},
'Trinity': {'cost': inf, 'pred': []},
'Halasuru': {'cost': inf, 'pred': []},
'Indiranagar': {'cost': inf, 'pred': []},
'Swami Vivekananda Road': {'cost': inf, 'pred': []},
'Baiyyappanahalli': {'cost': inf, 'pred': []},
'Benniganahalli': {'cost': inf, 'pred': []},
'Mahadevapura': {'cost': inf, 'pred': []},
'Garudacharpalya': {'cost': inf, 'pred': []},
'Hoodi Junction': {'cost': inf, 'pred': []},
'Sitarama Palya': {'cost': inf, 'pred': []},
'Kundalahalli': {'cost': inf, 'pred': []},
'Nallurahalli': {'cost': inf, 'pred': []},
'Sadaramangala': {'cost': inf, 'pred': []},
'Pattanduru Agrahara': {'cost': inf, 'pred': []},
'Kadugodi Industrial Area': {'cost': inf, 'pred': []},
'Channasandra': {'cost': inf, 'pred': []},
'Whitefield': {'cost': inf, 'pred': []},
'Mahatma Gandhi Road': {'cost': inf, 'pred': []},
'Krishnaraja Puram': {'cost': inf, 'pred': []}}
node_data[source]['cost'] = 0
visited = []
temp = source
while temp != dest:
    if temp not in visited:
        visited.append(temp)
        min_heap = []
        for j in graph[temp]:
            if j not in visited:
                cost = node_data[temp]['cost'] + graph[temp][j]
                if cost < node_data[j]['cost']:
                    node_data[j]['cost'] = cost
                    node_data[j]['pred'] = node_data[temp]['pred'] + list(temp)
                    print(temp, end=' -> ')
                heappush(min_heap, (node_data[j]['cost'],j))
    heapify(min_heap)
    temp = min_heap[0][1]

str_price =  str(node_data[dest]['cost'])
return str_price
```

Templates:

About.html:

```
{% extends "layout.html" %}

{% block title %}
    Login
{% endblock %}
{% block main %}
    <div class="about">
        <div class="full-team">
            <img class="team" src="/static/team.jpeg">
        </div>
        <div class="singles">
            <div class="card">
                <img src="/static/pavan.jpeg" />
                <div class="container">
                    <h3><b>Pavan</b></h3>
                    <p>Designed the UI</p>
                 </div>
            </div>
            <div class="card">
                <img src="/static/amith.jpeg" />
                <div class="container">
                    <h3><b>Amith</b></h3>
                    <p>Worked on the pathfinding algorithm</p>
                 </div>
            </div>
            <div class="card">
                <img src="/static/nuthan.jpeg" />
                <div class="container">
                    <h3><b>Nuthan</b></h3>
                    <p>Designed the UI and also worked on the documentation, presentation.</p>
                 </div>
            </div>
        </div>
    </div>
{% endblock %}
```

Apology.html:

```
{% extends "layout.html" %}

{% block title %}
    Apology
{% endblock %}

{% block main %}
    <img alt="{{ top }}" class="border" src="/static/mr-bean-funny.gif" title="{{ top }}">
{% endblock %}
```

History.html:

```
{% extends "layout.html" %}

{% block title %}
    HISTORY
{% endblock %}

{% block main %}
```

```
    <div class="history-container">
        <table class="history">
            <thead>
                <tr>
                    <th scope="col">Source</th>
                    <th scope="col">Destination</th>
                    <th scope="col">Date</th>
                    <th scope="col">Amount</th>
                </tr>
            </thead>
            <tbody>
                {% for row in person %}
                    <tr>
                        <td>{{row['source']}}</td>
                        <td>{{row['dest']}}</td>
                        <td>{{row['date']}}</td>
                        <td>{{row['amount']}}</td>
                    </tr>
                {% endfor %}
            </tbody>
        </table>
        <h3>Cash remaining: {{ cash }}</h3>
    </div>
{% endblock %}
```

Home.html:

```
{% extends "layout.html" %}

{% block title %}
    HOME
{% endblock %}

{% block main %}
    <div class="main-container">
        <div class="image-gallery">
            <ul class="images">
                <li><img src="static\home-img1.jpg" /></li>
            </ul>
            <h3>GALLERY</h3>
            <div class="flex-container">
                <img src="static\home-img2.jpeg" />
                <img src="static\home-img3.jpeg" />
                <img src="static\home-img4.jpg" />
                <img src="static\home-img5.jpg" />
            </div>
        </div>
    </div>
{% endblock %}
```

Layout.html:

```
<!DOCTYPE html>
<html>
    <head>
        <title>{% block title %}{% endblock %} </title>
        <meta charset="utf-8">
        <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
        <link rel="stylesheet" href="static\main.css">
        <link rel="stylesheet" href="static\style.css">
        <script src="https://code.jquery.com/jquery-3.2.1.slim.min.js" integrity="sha384-KJ3o2DKtIkvYIK3UENzmM7KCkRr/rE9/Qpg6aAZGJwFDMVNA/GpGFF93hXpG5KkN" crossorigin="anonymous"></script>
        <script src="https://cdn.jsdelivr.net/npm/popper.js@1.12.9/dist/umd/popper.min.js" integrity="sha384-ApNbgh9B+Y1QKtv3Rn7W3mgPxhU9K/ScQsAP7hUibX39j7fakFPskvXusvfa0b4Q" crossorigin="anonymous"></script>
        <script src="https://cdn.jsdelivr.net/npm/bootstrap@4.0.0/dist/js/bootstrap.min.js" integrity="sha384-JZR6Spejh4U02d8jOt6vLEHfe/JQGiRRSQQxSfFWpi1MquVdAyjUar5+76PVCmYl" crossorigin="anonymous"></script>
        <script src="https://kit.fontawesome.com/b69103f5d0.js" crossorigin="anonymous"></script>
    </head>
    <body>

        <header>
            <div class="left-nav">
                <nav class="navbar">
                    <a class="navbar-brand" href="/">METRO</a>
                    <ul class="navbar-nav">
                        <li class="nav-item">
                            <a class="nav-link" href="/profile">Profile</a>
                        </li>
                        <li class="nav-item">
                            <a class="nav-link" href="/about">About Us</a>
                        </li>
                        <li class="nav-item">
                            <a class="nav-link" href="/book">Tickets</a>
                        </li>
                        <li class="nav-item">
                            <a class="nav-link" href="/wallet">Wallet</a>
                        </li>
                        <li class="nav-item">
                            <a class="nav-link" href="/history">History</a>
                        </li>
                    </ul>
                </nav>
            </div>

            <div class="right-nav">
                <nav class="navbar">
                    <div class="find-station">
                        <i class="fa-sharp fa-solid fa-location-dot"></i>
                        <a class="nav-link" href="/map">Find station</a>
                      </div>
                      <div class="login">
            <form action="/login"method="get">
            <button class="sign-in" type="submit">Sign-In</button>
            </form>
           </div>
           <div class="register">
             <form action="/register"method="get">
              <button class="join-now" type="submit">Join Now</button>
            </form>
           </div>
           <div class="logout">
             <form action="/logout"method="get">
              <button class="log-out" type="submit">Logout</button>
            </form>
           </div>
          </div>
        </nav>
      </div>
    </header>
    <main class="body-container">
      {% block main %}{% endblock %}
    </main>

    <footer>
      <div class="work-info">
        <div class="project-info">
          <h3>
            For Project Related information:
            Bangalore Mappers Corporation Limited, I Floor, DSU Campus, Hosur Road, Bengaluru 560069
          </h3>
          Email: contactus@map.co.in<br>
          Phone: 9876543210
        </div>
        <div class="travel-info">
          <h3>
            For Travel Related information:
            Bangalore JCB Corporation Ltd, Brigade Road, Ulsoor, Bengaluru – 560 057
          </h3>
          Email: travelhelp@jcb.co.in<br>
          Phone: 080 -25252525
        </div>
      </div>
      <div class="more-info">
        For more information , kindly contact Sri Umashankar (PIO), Phone No: 080-73737373
        <br><br>
        For any Complaints related to Stations / Security Issues / Travel / Recharge / Tokens, passengers may kindly Contact: Toll-free Helpline 1800-420-12345
      </div>
    </footer>
  </body>
</html>
```

Login.html:

```
{% extends "layout.html" %}

{% block title %}
    Login
{% endblock %}

{% block main %}
    <div class="login">
        <img class="login-img" src="/static/metro-img2.jpg">
        <div class="box">
            <form action="/login" method="post">
                <div class="text-field">
                    <label for="username">Name</label><br>
                    <input required autocomplete="off" autofocus name="username"
placeholder="Username" type="text">
                </div>
                <br>
                <div class="text-field">
                    <label for="password">Password</label><br>
                    <input required name="password" placeholder="Password" type="password">
                </div>
                <button class="submit-button" type="submit">Sign In</button>
            </form>
            Don't have an account, <a href="/register">Click here to register.</a>
        </div>
    </div>
{% endblock %}
```

Map.html:

```
{% extends "layout.html" %}

{% block title %}
    MAP
{% endblock %}

{% block main %}
    <div class="map-container">
        <img class="map" src="static\map.jpeg"/>
    </div>
{% endblock %}
```

Profile.html:

```
{% extends "layout.html" %}

{% block title %}
    HOME
```

```
{% endblock %}

{% block main %}
    <div class="profile-container">
        <div class="profile">
            <div class="profile-pic">
                <img src="static\profile-img.png">
            </div>
            <div class="details">
                <h1>Name: {{ name }}</h1>
                <h3>Age: {{ age }}</h3>
                <h3>Gender: {{ gender }}</h3>
                <h2>Credits/ Cash: {{ credits }}</h2>
                <h3>Last ride: {{ last_ride }}</h3>
                <h3>Last ride fare: {{ amount }}</h3>
                <h3>Last ride on: {{ date }}</h3>
                <h3>Pass type: None</h3>
            </div>
        </div>
    </div>
{% endblock %}
```

Register.html:

```
{% extends "layout.html" %}

{% block title %}
    Register
{% endblock %}

{% block main %}
    <div class="register">
        <div class="box">
            <form action="/register" method="post">
                <div class="text-field">
                    <label for="username">Name</label><br>
                    <input required autocomplete="off" autofocus name="username"
placeholder="Username" type="text">
                </div>
                <label>Age</label>
                <div class="selector">
                    <input required type="number" id="age" name="age" min="0" max="100" step="1"
value="18">
                </div>
                <br>
                <div class="radio-button">
                    <label for="gender">Gender</label><br>
                    <input required type="radio" id="gender" name="gender" value="male"/> Male
                    <br>
                    <input required type="radio" id="gender" name="gender" value="female"/> Female
<br/>
                </div>
                <br>
                <div class="text-field">
                    <label for="password">Password</label><br>
                    <input required name="password" placeholder="Password" type="password">
                </div>
                <br>
                 <div class="text-field">
                     <label for="confirmation">Confirm Password</label><br>
                    <input required name="confirmation" placeholder="Confirm Password"
type="password">
                </div>
                <button class="submit-button" type="submit">Join Nammellara Metro now</button>
            </form>
        </div>

        <img src="/static/metro-img.jpg">
    </div>


{% endblock %}
```

Tickets.html:

```
{% extends "layout.html" %}

{% block title %}
    BOOK TICKETS
{% endblock %}

{% block main %}
    <div class="ticket-container">
        <form action="/book" method="post">
            <div class="ticket">
                <label for="username">Source</label><br>
                <Select name="source">
                    <option selected disabled value="source">Station 1</option>
                    {% for s in q %}
                        <option>{{ s }}</option>
                    {% endfor %}
                </Select>
                <br>
                <label for="username">Destination</label><br>
                <Select name="destination">
                    <option selected disabled value="source">Station 1</option>
                    {% for s in q %}
                        <option>{{ s }}</option>
                    {% endfor %}
                </Select>
            </div>
            <button class="submit-button" type="submit">Submit</button>
        </form>
        <h3>Ticket booked for {{ price }}</h3>
    </div>
{% endblock %}
```

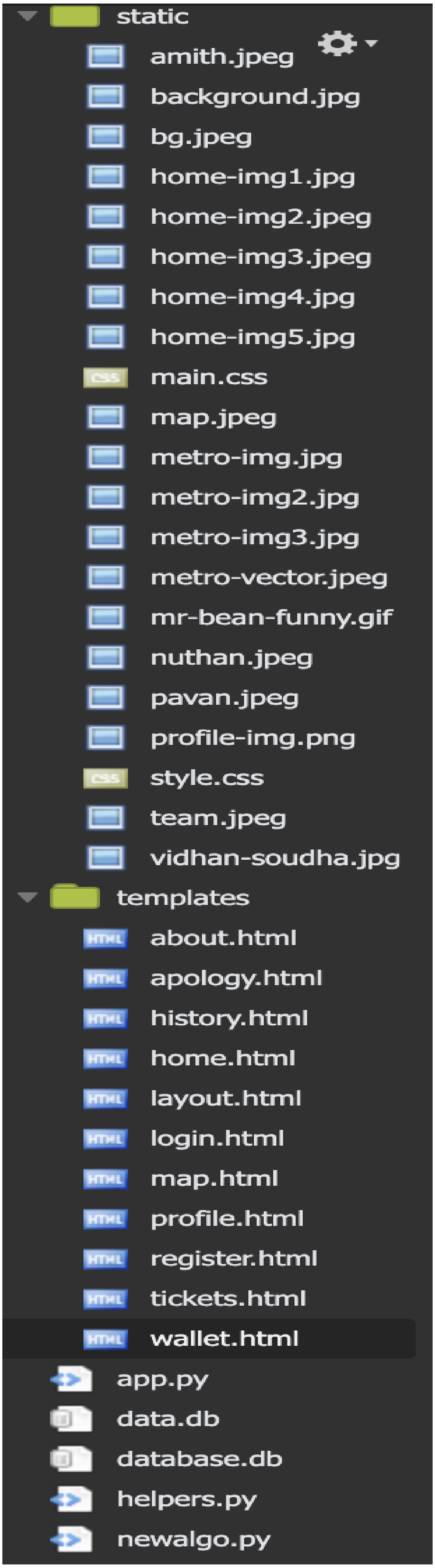
Wallet.html:

```
{% extends "layout.html" %}

{% block title %}
    WALLET
{% endblock %}

{% block main %}
    <div class="wallet-container">
        <table class="wallet">
            <thead>
                <tr>
                    <th scope="col">Date</th>
                    <th scope="col">Amount</th>
                </tr>
            </thead>
            <tbody>
                {% for travel in travels %}
                    <tr>
                        <td>{{ travel["date"] }}</td>
                        <td>{{ travel["amount"] }}</td>
                    </tr>
                {% endfor %}
            </tbody>
        </table>
        <h3>Cash remaining: {{ cash }}</h3>
    </div>
{% endblock %}
```

File Structure:



```
static
    amith.jpeg
    background.jpg
    bg.jpeg
    home-img1.jpg
    home-img2.jpeg
    home-img3.jpeg
    home-img4.jpg
    home-img5.jpg
    main.css
    map.jpeg
    metro-img.jpg
    metro-img2.jpg
    metro-img3.jpg
    metro-vector.jpeg
    mr-bean-funny.gif
    nuthan.jpeg
    pavan.jpeg
    profile-img.png
    style.css
    team.jpeg
    vidhan-soudha.jpg
templates
    about.html
    apology.html
    history.html
    home.html
    layout.html
    login.html
    map.html
    profile.html
    register.html
    tickets.html
    wallet.html
app.py
data.db
database.db
helpers.py
newalgo.py
```

REFERENCES:

- CS50x final project
- Pictures from Google Search
- Location Pin icon from Font Awesome
- Namma Metro Official website