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import random

class BSTNode:
    def __init__(self, passn_no, name):
        self.passn_no = passn_no
        self.name = name
        self.left = None
        self.right = None

class BusTicketManagementSystem:
    def __init__(self):
        self.root = None
        self.bus_seat = [[0]*33 for _ in range(10)]

    def green_color(self):
        print("\033[1;32m", end="")

    def reset_color(self):
        print("\033[0m", end="")

    def insert(self, root, cust_id, name):
        if root is None:
            return BSTNode(cust_id, name)
        elif cust_id < root.passn_no:
            root.left = self.insert(root.left, cust_id, name)
        else:
            root.right = self.insert(root.right, cust_id, name)
        return root

    def reservation_info(self, root, s):
        if root is None:
            return None

        if root.passn_no == s:
            self.green_color()
            print("\n-----")
            print(f"|| NAME: {root.name:10} ||")

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        print(f"||                CUSTOMER ID: {root.passn_no:
<10}                ||")
        print(f"||                BUS NUMBER: {root.passn_no //
1000: <10}          ||")
        print(f"||                SEAT NUMBER: {root.passn_no % 100:
<10}                ||")
        print(f"||                TICKET COST: Tk.{self.cost(root):
<10}                ||")
        print("-----")
        print("-----")
        self.reset_color()
        input("Press any key to continue...")
        return root
    elif root.passn_no > s:
        return self.reservation_info(root.left, s)
    else:
        return self.reservation_info(root.right, s)

def display_seat(self, bus):
    for i in range(1, 33):
        self.green_color()
        print(f"{i:02d}. ", end="")
        self.reset_color()
        if bus[i] == 0:
            print("EMPTY", end=" ")
        else:
            print("BOOKED", end=" ")
        print(" ", end="")
        if i % 4 == 0:
            print()
    print()

def login(self):
    username = "user"
    password = "Avisheikh001"

    print("\n\n=====
=====")

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        print("\n\t\t\t\tWELCOME TO OUR BUS
TERMINAL\n\n\t\t\t\t 'Have a safe Journey'")
        print("\n\n=====
=====\\n\\n")

    while True:
        match_user = input("\n\nUserName: ")
        match_pass = input("\nPassWord: ")

        if match_user == username and match_pass == password:
            print("\nLOGGED IN SUCCESSFULLY...\n")
            break
        else:
            self.green_color()
            print("\nINVALID DETAILS TRY AGAIN...\n")
            self.reset_color()

    def cost(self, node):
        bus_cost = node.passn_no // 1000
        if bus_cost % 3 == 1:
            return 2000
        elif bus_cost % 3 == 2:
            return 1000
        elif bus_cost % 3 == 0:
            return 1500
        return 0

    def status(self):
        self.bus_lists()
        while True:
            try:
                bus_num = int(input("\n\nENTER YOUR BUS NUMBER : "))
                if bus_num <= 0 or bus_num >= 10:
                    self.green_color()
                    print("\n PLEASE ENTER CORRECT BUS NUMBER !!\n")
                    self.reset_color()
            except ValueError:
                break

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        self.green_color()
        print("\n PLEASE ENTER A VALID NUMBER !!\n")
        self.reset_color()

    print()
    self.display_seat(self.bus_seat[bus_num])
    input("Press any key to continue...")

def bus_lists(self):
    self.green_color()
    print("-----")
    print("Bus.No\tName\t\t\tDestinations \t\tCharges \t\tTime")
    print("-----")
    self.reset_color()
    print("1\tSaintmartin Paribahan \tDhaka to Cox's")
    Bazar \tTk.2000 \t\t10:00 PM")
    print("2\tAK_Travels \tDhaka To")
    Sylhet \tTk.1000 \t\t01:30 PM")
    print("3\tEna Paribahan \tDhaka To")
    Kuakata \tTk.1500 \t\t03:50 PM")
    print("4\tSuper Deluxe \tDhaka To")
    Dinajpur \tTk.2000 \t\t07:00 AM")
    print("5\tSkyLine \tDhaka To")
    Khulna \tTk.1000 \t\t12:05 AM")
    print("6\tRoyal Express \tDhaka to")
    Chuadanga \tTk.1500 \t\t09:30 AM")
    print("7\tShohag Paribahan \tDhaka To")
    Benapole \tTk.2000 \t\t11:00 PM")
    print("8\tHanif Paribahan \tDhaka To")
    Bogura \tTk.1000 \t\t08:15 AM")
    print("9\tSoudia Paribahan \tDhaka To")
    Chattogram \tTk.1000 \t\t07:00 PM")
    print()
    input("PRESS 'ENTER' KEY TO CONTINUE ")

def cancel(self, random_num):

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        while True:
            try:
                reservation_no = int(input("\nENTER YOUR RESERVATION
NUMBER : "))
                if reservation_no == random_num:
                    confirmation = input(f"\nRESERVATION NUMBER IS IT
CORRECT? {reservation_no} \nENTER (Y/N) : ").lower()
                    if confirmation == 'y':
                        bus_num = int(input("ENTER THE BUS NUMBER: "))
                        seat_cancel = int(input("HOW MANY SEATS DO YOU
WANT TO CANCEL: "))
                        for _ in range(seat_cancel):
                            seat_number = int(input("ENTER THE SEAT
NUMBER: "))
                            self.bus_seat[bus_num][seat_number] = 0
                            print("\nYOUR RESERVATION HAS BEEN
CANCELLED!!")
                            self.display_seat(self.bus_seat[bus_num])
                            input("Press any key to continue...")
                            break
                        else:
                            print("\nYOUR RESERVATION CANCELLATION HAS
BEEN DENIED")
                            break
                    else:
                        print("\nNOT FOUND!! ENTER THE CORRECT RESERVATION
NUMBER")
            except ValueError:
                print("\nPLEASE ENTER A VALID NUMBER")

    def main(self):
        random_num = random.randint(10000, 99999)
        self.login()
        while True:
            print("\n\n=====
=====")
            print("\t\t\tBUS RESERVATION")
            print("\n=====
=====")

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        print("\n===== MAIN
MENU =====\n")
        print("    [1] VIEW BUS LIST")
        print("    [2] BOOK TICKETS")
        print("    [3] CANCEL BOOKING")
        print("    [4] BUSES SEATS INFO")
        print("    [5] RESERVATION INFO")
        print("    [6] EXIT\n")
        try:
            choice = int(input("ENTER YOUR CHOICE: "))
            if choice == 1:
                self.bus_lists()
            elif choice == 2:
                self.bus_lists()
            while True:
                try:
                    bus_choice = int(input("\nCHOOSE YOUR BUS:
"))

                    if bus_choice <= 0 or bus_choice >= 10:
                        self.green_color()
                        print("\nENTER VALID BUS NUMBER!!")
                        self.reset_color()
                    else:
                        break
                except ValueError:
                    self.green_color()
                    print("\nENTER A VALID NUMBER!!")
                    self.reset_color()

                self.display_seat(self.bus_seat[bus_choice])

                for i in range(seats):
                    while True:
                        try:
                            seat_number = int(input("ENTER THE
SEAT NUMBER: "))

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        if seat_number <= 0 or seat_number >
32:
            self.green_color()
            print("\nENTER VALID SEAT
NUMBER!!")

            self.reset_color()
        else:
            break
    except ValueError:
        self.green_color()
        print("\nENTER A VALID NUMBER!!")
        self.reset_color()

    cust_id = bus_choice * 1000 + seat_number
    self.bus_seat[bus_choice][seat_number] = 1
    name = input("\nENTER THE PERSON NAME: ")
    self.root = self.insert(self.root, cust_id,
name)

    self.green_color()
    print(f"\nYOUR CUSTOMER ID IS: {cust_id}")
    print("\n=====
=====")

    self.reset_color()
    self.green_color()
    print(f"\nYOUR RESERVATION NUMBER IS:
{random_num}")

    print("\nPLEASE NOTE DOWN YOUR RESERVATION NUMBER
FOR CANCELLING BOOKING TICKETS!")
    self.reset_color()
    input("Press any key to continue...")

    elif choice == 3:
        self.cancel(random_num)

    elif choice == 4:
        print("\n\n")
        self.status()

    elif choice == 5:

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        while True:
            try:
                cust_id = int(input("\nENTER YOUR CUSTOMER
ID: "))

                self.reservation_info(self.root, cust_id)
                break
            except ValueError:
                print("\nPLEASE ENTER A VALID NUMBER!!")

        elif choice == 6:
            self.green_color()
            print("\n\n=====
=====")
            print("THANK YOU FOR USING THIS BUS RESERVATION
SYSTEM")

            print("\nPRESS ANY KEY TO EXIT THE END PROGRAM !!
")

            print("\n\n")
            self.reset_color()
            break

        else:
            print("\n\n  INVALID INPUT! CHOOSE CORRECT
OPTION!\n")
            except ValueError:
                print("\n\n  INVALID INPUT! PLEASE ENTER A
NUMBER!\n")

if __name__ == "__main__":
    bus_system = BusTicketManagementSystem()
    bus_system.main()

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