EDS Practical 2

Members:-

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Code:-

```
import csv

# function to print passenger names with RAC ticket status
def passengers_with_wl():
   wlPassengers = []
   for i in range(len(status)):
      if(status[i] == 'WL'):
         wlPassengers.append(passengerName[i])

   if len(wlPassengers) == 0:
      print("\nNo passengers with Waiting List ticket status", end="\n\n")
   else:
      print("\nPassengers with Waiting List : ", wlPassengers, end="\n\n")

# function to enter name of passenger to print his/her journey duration
def journey_duration():
   name = input("Enter passengers name : ")
   name = name.upper()
   flag = 0
   for i in range(len(passengerName)):
      if(name == passengerName[i]):
         flag = 1
         break

   if flag == 0:
      print("\nPassenger not present in the list", end="\n\n")
   else:
      depTime = departureTime[i]
      depTime_hrs = int(depTime[0:2])
      depTime_min = int(depTime[3:])
      arrTime = arrivalTime[i]
      arrTime_hrs = int(arrTime[0:2])
      arrTime_min = int(arrTime[3:])

      # convert both times to minutes
      depTime_total_min = (depTime_hrs * 60) + depTime_min
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        arrTime_total_min = (arrTime_hrs * 60) + arrTime_min

        # find the difference between the two times in minutes
        timeDifference_min = abs(depTime_total_min - arrTime_total_min)

        # convert the difference back to hours and minutes
        difference_hours = timeDifference_min // 60
        difference_minutes = timeDifference_min % 60

        print("\nPassenger name : ", passengerName[i])
        print("Departure time : ", departureTime[i])
        print("Arrival time : ", arrivalTime[i])
        print("Journey duration : ", difference_hours, " hours ", difference_minutes, " minutes")

# function to print passenger names paying ticket fare above Rs. 1000 and printing discounted price
def fare_above_1000():
    # ticketFare = list(ticketFare)
    peopleAbove1000 = []
    fareAbove1000 = []
    discount = []
    for i in range(len(ticketFare)):
        if(fare[i] > 1000):
            peopleAbove1000.append(passengerName[i])
            fareAbove1000.append(fare[i])
            dp = fare[i] - 0.20 * fare[i]
            discount.append(dp)
    print("Passengers paying fare above 1000:")
    for i in range(len(peopleAbove1000)):
        print(peopleAbove1000[i], "\t\t", fareAbove1000[i], "\t\t", discount[i])
    print(end="\n\n")

# funtction to print passengers of age 18years
def count_18(age):
    print("Passengers of 18years : ", age.count(18))

# function to find the trains arriving at howrah
def arrive_at_howrah():
    trainsTillHowrah = []
    for i in range(len(startStation)):
        if(endStation[i] == "HOWRAH"):
            trainsTillHowrah.append(trainName[i])

    if len(trainsTillHowrah) == 0:
        print("No train arriving at Howrah", end="\n\n")
    else:
        print("Trains till Howrah : ", trainsTillHowrah, end="\n\n")
```

```
# function to print passenger name with longest journey
def longest_journey():
    time = []
    for i in range(len(arrivalTime)):
        depTime = departureTime[i]
        depTime_hrs = int(depTime[0:2])
        depTime_min = int(depTime[3:])
        arrTime = arrivalTime[i]
        arrTime_hrs = int(arrTime[0:2])
        arrTime_min = int(arrTime[3:])

        # convert both times to minutes
        depTime_total_min = (depTime_hrs * 60) + depTime_min
        arrTime_total_min = (arrTime_hrs * 60) + arrTime_min

        # find the difference between the two times in minutes
        timeDifference_min = abs(depTime_total_min - arrTime_total_min)
        time.append(timeDifference_min)

    print("Passenger with longest journey: ", pName[time.index(max(time))])

# function to count number of passengers travelling in month of may
def count_may_journey():
    monthList = []
    for i in range(len(dateOfJourney)):
        d = date[i]
        monthList.append(int(d[3:5]))
    monthList = tuple(monthList)
    print("No. of passengers travelling in month of may : ", monthList.count(5))

# function to print all female passengers
def female_passengers():
    print("\nAll female passengers: ")
    for i in range(len(gender)):
        if gender[i] == 'F':
            print(pName[i])

# function to print personal details of entered passenger name
def print_passenger_details():
    name = input("Enter passenger name : ")
    name = name.upper()
    details = []
    for names in passengerDetails.keys():
        if names == name:
            details = passengerDetails[names]
            break
    if len(details) == 0:
        print("Passenger not found")
    else:
        print("Contact no.: ", details[2])

# function to take pnr as input and print ticket details
def get_ticket_details():
    p = int(input("Enter PNR number: "))
    pas = []
    berNo = []
    stat = []
    t_list = []
    for key, value in ticketDict.items():
        pnr = value[0]
        if pnr == p:
            t_list = value
            pas.append(key)
            berNo.append(t_list[6])
            stat.append(t_list[7])

    print("\nTicket details:")
    print("PNR No.: ", p)
    print("Train Name: ", t_list[1])
    print("Train No.: ", t_list[2])
    print("Date: ", t_list[11])
    for i in range(len(pas)):
        print("P", i+1, " : ", pas[i], "\t", berNo[i], "\t", stat[i])
    print(t_list[3], " to ", t_list[4])
    print("Coach : ", t_list[5])
    print("Berth : ", t_list[6])
    print("Dep: ", t_list[9], "\t", " Arr: ", t_list[10])
    print("Price: ", t_list[12])

def special_service():
    specialServiceSet = set()
    n = int(input("Enter number of passengers who obtained special service: "))
    for i in range(n):
        a = int(input())
        specialServiceSet.add(a)

    commonSet = aadhar.intersection(specialServiceSet)
    commonSet = list(commonSet)
    aadhar = list(aadhar)
    print("\nPassengers got special services: ")
    for i in range(len(commonSet)):
        print(passengerName[aadhar.index(commonSet[i])])

# opening the files in read mode
passengerfile = open("passengerDetails.csv", "r")
stationfile = open("stationDetails.csv", "r")
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```
ticketfile = open("ticketDetails.csv", "r")
trainFile = open("trainDetails.csv", "r")

# retreiving the data from the csv files and stroing it in form of list using csv reader
passengerData = list(csv.reader(passengerfile))
stationData = list(csv.reader(stationfile))
ticketData = list(csv.reader(ticketfile))
trainData = list(csv.reader(trainFile))

# creating empty list, tuple, dictionary, set for given data
passengerName = ()
pName = []
age = ()
a = []
contactNo = ()
cn = []
gender = ()
g = []
aadhar = set()
startStation = []
endStation = []
berth = []
berthNo = []
status = []
ticketFare = ()
fare = []
pnrNo = ()
pnr = []
trainName = []
arrivalTime = []
departureTime = []
trainNo = ()
tNo = []
coach = []
dateOfJourney = ()
date = []

for i in range(1, len(passengerData)):
    pName.append(passengerData[i][0])
    a.append(int(passengerData[i][1]))
    cn.append(int(passengerData[i][2]))
    g.append(passengerData[i][3])
    aadhar.add(int(passengerData[i][4]))
    startStation.append(stationData[i][1])
    endStation.append(stationData[i][2])
    berth.append(ticketData[i][1])
    berthNo.append(int(ticketData[i][2]))
    status.append(ticketData[i][3])
    fare.append(float(ticketData[i][4]))
    pnr.append(int(ticketData[i][5]))
    trainName.append(trainData[i][1])
    tNo.append(int(trainData[i][2]))
    coach.append(trainData[i][3])
    departureTime.append(trainData[i][4])
    arrivalTime.append(trainData[i][5])
    date.append(trainData[i][6])

passengerName = tuple(pName)
trainNo = tuple(tNo)
age = tuple(a)
ticketFare = tuple(fare)
gender = tuple(g)
dateOfJourney = tuple(date)
contactNo = tuple(cn)
pnrNo = tuple(pnr)

passengerDetails = {}
ticketDict = {}
tempList = []

# creating dictionary for passenger details
for i in range(len(passengerName)):
    tempList = []
    tempList.append(a[i])
    tempList.append(g[i])
    tempList.append(contactNo[i])
    passengerDetails.update({passengerName[i] : tempList})

# creating dictionary for ticket details
for i in range(len(pnr)):
    tempList = []
    tempList.append(pnrNo[i])
    tempList.append(trainName[i])
    tempList.append(trainNo[i])
    tempList.append(startStation[i])
    tempList.append(endStation[i])
    tempList.append(coach[i])
    tempList.append(berth[i])
    tempList.append(berthNo[i])
    tempList.append(status[i])
    tempList.append(departureTime[i])
    tempList.append(arrivalTime[i])
    tempList.append(date[i])
    tempList.append(ticketFare[i])
    ticketDict.update({passengerName[i] : tempList})
```

```
print("\nAnalysis Menu:-")
print("1. Print passenger names with waiting list ticket status")
print("2. Enter a passenger's name and print his/her travel time duration")
print("3. Print passenger names and 20% discounted price, who are paying above Rs.
1000")
print("4. Count number of passengers who are below 18years")
print("5. Print the trains arriving at Howrah")
print("6. Print passenger name who is travelling the longest journey")
print("7. Count how many passengers are travelling in the month opf May")
print("8. Print the names of all female passengers")
print("9. Enter passenger name and print his/her contact number")
print("10. Enter PNR number to get ticket details")
print("11. Set of passengers who obtained special services is given, print their names from
dataset")

ch = 'Y'
while(ch == 'Y' or ch == 'y'):
    choice = int(input("\nEnter option which you want to perform : "))
    print(end="\n")

    match choice:
        case 1:
            passengers_with_wl()
        case 2:
            journey_duration()
        case 3:
            fare_above_1000()
        case 4:
            count_18(age)
        case 5:
            arrive_at_howrah()
        case 6:
            longest_journey()
        case 7:
            count_may_journey()
        case 8:
            female_passengers()
        case 9:
            print_passenger_details()
        case 10:
            get_ticket_details()
        case 11:
            special_service()
        case _:
            print("Invalid option")

    ch = input("Want to perform any more task? (Y/N): ")
```

```
print("____________________________________________________________________
____________________________________________________________________")

# Merging all files into single file
railwayFile = open("railwayDetails.csv", "w")
railwayData = csv.writer(railwayFile)

for i in range(len(passengerData)):
    rowData = passengerData[i] + stationData[i] + ticketData[i] + trainData[i]
    railwayData.writerow(rowData)

# closing all the files
passengerfile.close()
stationfile.close()
ticketfile.close()
trainFile.close()
railwayFile.close()
```

Output:-

```
Analysis Menu:-
1. Print passenger names with waiting list ticket status
2. Enter a passenger's name and print his/her travel time duration
3. Print passenger names and 20% discounted price, who are paying above Rs. 1000
4. Count number of passengers who are below 18years
5. Print the trains arriving at Howrah
6. Print passenger name who is travelling the longest journey
7. Count how many passengers are travelling in the month opf May
8. Print the names of all female passengers
9. Enter passenger name and print his/her contact number
10. Enter PNR number to get ticket details
11. Set of passengers who obtained special services is given, print their names from dataset

Enter option which you want to perform : 1


Passengers with Waiting List :  ['MAHESH SAXENA', 'SANIKA KAPOOR', 'VARUN
SHETTY', 'KIRAN MALHOTRA', 'ESHITA SEN', 'SAMEER SEN']
```

```
Want to perform any more task? (Y/N): y
______________________________________________________________________________________
________________________________________________________________________

Enter option which you want to perform : 2

Enter passengers name : ESHITA SEN

Passenger name :  ESHITA SEN
Departure time :  18:45
Arrival time :  05:25
Journey duration :  13  hours  20  minutes
Want to perform any more task? (Y/N): y
______________________________________________________________________________________
________________________________________________________________________

Enter option which you want to perform : 3

Passengers paying fare above 1000:
MEENAL SINGH           1870.0              1496.0
SANIKA KAPOOR           2300.0              1840.0
KIRAN MALHOTRA          1275.0              1020.0
SAVITRI BOLAJ          4800.0              3840.0
SAMARTH BOLAJ           4800.0              3840.0
AMAN BOLAJ             4800.0              3840.0
ESHITA SEN            1250.0              1000.0
SAMEER SEN             1250.0              1000.0


Want to perform any more task? (Y/N): y
______________________________________________________________________________________
________________________________________________________________________

Enter option which you want to perform : 4

Passengers of 18years :  0
Want to perform any more task? (Y/N): y
______________________________________________________________________________________
________________________________________________________________________

Enter option which you want to perform : 5

Trains till Howrah :  ['RAJDHANI EXP', 'RAJDHANI EXP', 'RAJDHANI EXP']

Want to perform any more task? (Y/N): y
______________________________________________________________________________________
________________________________________________________________________
```

```
Enter option which you want to perform : 6

Passenger with longest journey:  DEV PANDEY
Want to perform any more task? (Y/N): y
```

```
Enter option which you want to perform : 7

No. of passengers travelling in month of may :  2
Want to perform any more task? (Y/N): y
```

```
Enter option which you want to perform : 8


All female passengers:
MEENAL SINGH
APARNA MANDAL
ANAMIKA DESHMUKH
SANIKA KAPOOR
KIRAN MALHOTRA
SAVITRI BOLAJ
ESHITA SEN
Want to perform any more task? (Y/N): y
```

```
Enter option which you want to perform : 9

Enter passenger name : KIRAN MALHOTRA
Contact no.:  8730023890
Want to perform any more task? (Y/N): Y
```

```
Enter option which you want to perform : 10

Enter PNR number: 4428324463

Ticket details:
PNR No.:  4428324463
Train Name:  RAJDHANI EXP
Train No.:  122456
Date:  12-07-2023
P 1  :  SAVITRI BOLAJ    MIDDLE        67
```

```
P 2  :  SAMARTH BOLAJ    UPPER   68
P 3  :  AMAN BOLAJ       LOWER   69
PUNE  to  HOWRAH
Coach :  B7
Berth :  LOWER
Dep:  07:25       Arr:  12:10
Price:  4800.0
Want to perform any more task? (Y/N): Y


Enter option which you want to perform : 11

Enter number of passengers who obtained special service: 2
765498231100
123456743422
```