

EDS ASSIGNMENT 2

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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
        arrTime_total_min = (arrTime_hrs * 60) + arrTime_min
```

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# 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 = []

```

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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")
ticketfile = open("ticketDetails.csv", "r")
trainFile = open("trainDetails.csv", "r")

# retrieving the data from the csv files and storing 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 of 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 of 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