ADVANCE PROGRAMMING

1234Question list

Railway reservation system

Railway booking system 2.0

Call taxi booking system

Lift operating system

Employee Database

Toll payment processing system

Food delivery booking system

Text editor

Gift card system

Railway booking system chart and summary

Railway reservation system

Write an application for booking railway ticket reservation system. The application should have four functionalities.

1. Book
2. Cancel
3. Print booked tickets (details with summary)
4. Print available tickets (details with summary)

Conditions for booking:
There are a total of 63 berths for 63 confirmed tickets, 9 berths for 18 RAC tickets and 10 tickets in waiting-list. If the waiting-list ticket count goes above 10, print as 'No tickets available'. The following passenger details should be obtained from the user.

1. Name
2. Age
3. Gender
4. Berth Preference

The tickets should not be allocated for children below age 5.But, their details should be stored. Lower berth should be allocated for persons whose age is above 60 and ladies with children if available. Side-lower berths should be allocated for RAC passengers.

Conditions for cancelling:
Whenever a ticket is cancelled, a ticket from RAC should be confirmed and a waiting-list ticket should move to RAC.

Conditions for printing booked tickets:
Print all the tickets that are filled along with the passenger details and at the end, print the total number of tickets that are filled.

Conditions for printing available tickets:
Print all the tickets that are unoccupied and at the end, print the total number of tickets that are unoccupied.

Railway ticket booking -- 2

Design a train ticket booking system. Assumptions and requirements of this system are listed below

Assumptions.

1. There is 1 train running everyday from Chennai to Coimbatore. 2. There are 5 stations-Chennai, Katpadi, Salem, Erode and Coimbatore.

3. Train has 1 premium coach with AC and I normal coach without AC.

4. There are 5 seats in premium coach and 10 seats in normal coach. 5 . Premium ticket base price is Rs 20 per station, Premium tickets have a fixed surge pricing of Re 5 for every ticket booked. Cancellations do not affect surge increases. For eg, 1st premium ticket surge is 0 Rs, 2nd premium ticket surge is 5. If 2nd premium ticket is cancelled, the 3rd premium ticket surge would be Rs 10.

6. Normal ticket cost is Re 10 per station.

Requirements.

1. Book a normal/premium coach ticket for a given date between any source and destination if seats are available. 2. A successful ticket booking should be allotted a booking id and a seat number. Price of ticket and journey details should be included in the booking.

3. Cancel a ticket via the booking id and get appropriate refund. For premium tickets, only the base price will be refunded, for normal tickets full price is refunded. Canceled seats should be allotted for future bookings.

4. For a given train and a given date, list details of all tickets issued.

5. For a given train, display the total revenue (after reducing refunds) grouped by date.

Note.

1. All the details given above should be easily changeable, For eg, the train can be extended to add more stations, the number of trains can be increased, the number of seats per train can change, price can change. Code should be designed to accommodate these changes.

2. No need to implement a command line menu for bookings/cancellation/revenue etc as it is time-consuming. The sequence of bookings/cancellations and other scenarios can be hard-coded in your code.

CALL TAXI BOOKING

Design a Call taxi booking application
-There are n number of taxi's. For simplicity, assume 4. But it should work for any number of taxi's.
-The are 6 points(A,B,C,D,E,F)
-All the points are in a straight line, and each point is 15kms away from the adjacent points.
-It takes 60 mins to travel from one point to another
-Each taxi charges Rs.100 minimum for the first 5 kilometers and Rs.10 for the subsequent kilometers.
-For simplicity, time can be entered as absolute time. Eg: 9hrs, 15hrs etc.
-All taxi's are initially stationed at A.
-When a customer books a Taxi, a free taxi at that point is allocated
-If no free taxi is available at that point, a free taxi at the nearest point is allocated.
-If two taxi's are free at the same point, one with lower earning is allocated
-Note that the taxi only charges the customer from the pickup point to the drop point. Not the distance it travels from an adjacent point to pickup the customer.
-If no taxi is free at that time, booking is rejected

Design modules for

```
1)    Call taxi booking

Input 1:

Customer ID: 1

Pickup Point: A

Drop Point: B

Pickup Time: 9


Output 1:

Taxi can be allotted.

Taxi-1 is allotted
```

Input 2:

Customer ID: 2

Pickup Point: B

Drop Point: D

Pickup Time: 9

Output 1:

Taxi can be allotted.

Taxi-2 is allotted

(Note: Since Taxi-1 would have completed its journey when second booking is done, so Taxi-2 from nearest point A which is free is allocated)

Input 3:

Customer ID: 3

Pickup Point: B

Drop Point: C

Pickup Time: 12

Output 1:

Taxi can be allotted.

Taxi-1 is allotted

2) Display the Taxi details

Taxi No: Total Earnings:

BookingID CustomerID From To PickupTime DropTime Amount

Output:

Taxi-1 Total Earnings: Rs. 400

1 1 A B 9 10 200

3 3 B C 12 13 200

Taxi-2 Total Earnings: Rs. 350

2 2 B D 9 11 350

Lift system

There were 8 modules

1. Display the position of Lift

```
Lift   : L1 L2 L3 L4 L5
Floor: 0   0   0   0   0
```

2. Assign Lift to the users

```
Input : 2  5
Output : L1 is assigned
Lift   : L1 L2 L3 L4 L5
Floor: 5   0   0   0   0
```

3. Assign nearest lift by comparing their current positions

Assume,

```
Lift   : L1 L2 L3 L4 L5
Floor: 5   2   7   9   0
Input : 4 10
Output :
L1 is assigned
Lift   : L1 L2 L3 L4 L5
Floor: 10   2   7   9   0
```

Explanation : L1 is near to 4 floor

4. If two lifts are nearest to the user's source floor, the assign the lift with same direction of user's requirement.

Example: if user request to move from 4 to 2 ,and if L3 is in 5th floor & L5 is in 3rd floor, then we should assign L3 because user requested for downward motion so L3 ill move down from 5th floor

5. Restrict L1 & L2 for 0-5th floor , L3 & L4 for 6-10th floor , L5 for 0-10th Initially all lifts are at 0th floor.

6. Assign lift with least number of stops

Example:

If L3 is in 9th floor
And L5 is at 8nd floor
If user wants to move from 8 to 0
We should assign L3 because L3 ill stop at 8,7,6 and then 0 NumberOfStops = 3, but L5 ill stop at 8,7,6,5,4,3,2,1,0 and NumberOfStops = 8 so we should assign L3

7. Assign capacity (Number of people capable to travel) to all lift and assign according to the capacity

8. If any lift is under maintenance then their current position should be marked as "-1" and that lift should not be assigned at any cost.

Employee Database

Given an employee date base.

Name, Age, Designation, Department Of ten people.

and Five tasks were given such as

1. Print all employee details.
2. Searching employee details
3. Employees under the given manger name of the department
4. reporting to tree of the given employee name

TOLL PAYMENT PROCESSING .

Application description:

There are 'n' number of points in a highway out of which some points collect toll.

Each toll has its own charging scheme according to the vehicles and whether or not they
are a VIP user.

If they are VIP user, 20% discount apply.

If the vehicle passes 3 toll gates, it has to pay in all the 3 toll gates according to the
scheme of respective tolls.

There were 4 modules.

1. Given the details of vehicle type, start and destination.....display the total toll paid during
the journey and print the amount after applying the discount.

2. Display the details of all the tolls.....like what are all the vehicles(vehicle number) passed
that respective toll and the amount each vehicle paid.....and the total amount charged in
that toll.

3. Display the details of all the vehicles .....like what are all the journeys did it take....the
start and destination of the same.....tolls it passed during that
journey....amount paid in
that journey.....and the total amount paid by that vehicle.

4. Assume the highway as a circular path.....we have to find the short route and identify
the tolls between that route and calculate the amount.

Food Delivery Booking

A food delivery company has 'n' number of delivery executives. For simplicity take the count as 5 but thwor k for any number of delivery executives (Let their names be identified as DE1, DE2....DE-n)
There are only 5 restaurants in the city for pickup and 5 drop locations (Each location can have multiple custo mers) After delivering a food package , the delivery executive waits there for devlivery allotment.
Each customer is identified uniquely by a Customer-ID Write a program that does the following : Constraints :

1.Delivery charge for every single order is Rs 50 for the delivery executive.
2. If multiple orders (say n) are from the same delivery location within 15 mins period, combine orders to a m aximum 5 per delivery executive.
In such case, the delivery charge will be base rate Rs.50 + Rs.5 for every other order (50+5 * (n-1)).
3. An allowance of Rs.10 will be given for every trip made. Combined orders will be counted as a single trip.
4. Assign the subsequent bookings giving preference to the executive who has earned the least delivery char ge among the other available delivery executives excluding trip allowance.
5. Every trip will take 30 mins to reach the destination.

Questions :

1. Write a function to handle booking.

2. Write a function to assign delivery executive
3. Write a function that can display delivery executive's activity thus far.
This should contain commision earned , allowance earned(calculated based on criteria 2 and 3). Input 1

Customer ID: 1

Restaurant: A

Destionation Point : D

Time : 9.00 AM

Output Booking ID : 1

Available Executives : Executive

Delivery Charge Earned

DE1 0

DE2 0

DE3 0

DE4 0

DE5 0

Allotted Delivery Executive: DE1

---------- Input 2

Customer ID: 2

Restaurant : B

Destination Point : A

Time : 10.00 AM

Output Booking ID : 2

Available Executives : Executive

Delivery Charge Earned

DE1	50
DE2	0
DE3	0
DE4	0
DE5	0

Allotted Delivery Executive: DE2

---------- Input 3

Customer ID: 3

Restaurant : B

Destionation Point : A

Time : 10.10 AM

Output Booking ID : 3

Available Executives : Executive

Delivery Charge Earned

DE1	50
DE2	50
DE3	0
DE4	0
DE5	0

Allotted Delivery Executive: DE2 (because same location within 15mins)

---------- Input 4

Customer ID: 3

Restaurant : D

Destionation Point : C

Time : 10.35 AM

Output Booking ID : 3

Available Executives : Executive

Delivery Charge Earned

DE1	50
DE2	55
DE3	0
DE4	0
DE5	0

Allotted Delivery Executive: DE3

---------- Delivery History

Output

TRIP EXECUTIVE RESTAURANT DESTINATION POINT ORDERS PICK-UP_TIME DELIVERY_TIME DELIVERY CHARGE

1 DE1 A D 1 9:15 9:45 50

2 DE2 B A 2 10:15 10:45 55

3 DE3 D C 1 10:50 11:20 50

Total earned

Executive Allowance Deliver Charges Total

DE1 10 50 60

DE2 10 55 65

DE3 10 50 60

Text Editor

[10:23 AM] Yuvaraj Narasimhan

1. Write an application that simulates a Text Editor

The text editor has a width of 40 characters per line. It can have an unlimited number of lines. If the number of characters in a line goes beyond 40, it is pushed to the next line. Similarly if some characters are deleted in a line, the characters in the next line can move up one line.

Populate the following text as data in the data structure by default.

Independence Day, observed annually on 15 August, is a national holiday in India commemorating the nation's independence from British rule on 15 August 1947.

In the text given above, note that the text is word wrapped i.e. if a line cannot hold the last word without exceeding the limit of 40 characters, the entire word is pushed to the next line.

The following operations should be possible in the text editor 1. Insert character(s) at a given position

Example: Line NO - 2 Column -20, Insert characters - "hello"

2. Delete characters(s) from the start to end positions.

Example: tine - 3 , Start position - 5, End position - 10

3. Delete a whole line

Example: Delete Line - 4

4. Print all the text in the editor

5 Search for a given word and print the location(s) in which it is present Example search word hello Output Line 2. Column 5 Line 3, Column 20

6. Find and Replace the given word in the whole text

7. Find number of words in the text

The operations that are done on the text can be implemented using a menu-driven system like the one given below

1. Insert
2. Delete Characters
3. Delete Line
4. Search
5. Find and Replace
6. Print Text

7. Number words in text

8. Exit

Additional

2. Copy & Paste (Easy)

1. Text align options (Justification, Left, Center, Right)

Gift Card System

Task: 1

Initialization

We are going to write a software to perform a simple gift card system for your existing banking system. The back bone for every bank is its customers. The initial customer details for our banking system will be hard coded as below.

CustId	Account No	Name	Balance	Encrypted Password
11	110110	Kumar	10000	ApipNbjm
22	220220	Madhu	20000	Cboljoh
33	330330	Robin	30000	kbwb22

Provide initial options as below.

```
1. Account Login
2. Purchase
```

Task: 2

Account Login

Login in to your account using your customer Id and password. The password you type should be encrypted and compared to the existing password. The encryption policy would be as mentioned below:

a -> b, b->c, ..., z->a
A->B, B->C, ..., Z->A
1->2, 2->3,....
Upon a successful login, show the summary of your account details and give following options.

```
1. Create a new Gift Card
2. Top-up the existing Card
3. Show Gift Card transaction history
4. Block the existing Card
5. Logout
```

Task: 3

Create a new Gift Card

Generate a 5 digit card number and 4 digit pin number for your new gift card and map it with the current logged in account. You can credit any amount to the gift card from your current balance and gift it to any person who can purchase anything using it later.

Task: 4

Purchase

Logout from your current account login and go to the initial options, do purchase as gift card holder. Assume that you are in payment page after products checkout. Debit the given amount from your gift card on successful validation of Card Number and PIN. Do multiple purchases.

Input:

```
Your bill amount: 1000
Enter your Card Number: 54323
Enter PIN: 1234
```

Output:

```
Available Balance: 18121
```

Task: 5

Transaction History

Login again into your account and list the transactions of the selected gift card.

Task: 6

Top-up

Top-up the selected gift card with any amount from your current account balance and track this in transaction history.

Task: 7

Block the existing card

Block the existing gift card and return the current balance in the card to its account.