Q6 Call Taxi Booking

A call taxi operator has a fleet of "n" cars. For simplicity take the count as 5 but the program should work for any number of Taxis. (Let their names be identified as Taxi-1, Taxi-2 .... Taxi-n)

1. There are only 5 points in the city for pick-up / drop. Let the points be named A, B, C, D and E
2. All the points are in a straight line & the distance between the points are same say 15kms
3. Time taken for travel will be 15 minutes between each point.
4. Charges for each travel will be calculated as Rs 50 for the first 5 kms and
5. then Rs 10 for subsequent km of travel.
6. During Booking, the following information is given : The Starting point, Destination point and Start time. After dropping customer, the taxi waits there for next customer allotment. Each customer is identified uniquely by a Cust-ID
7. Write a program that does the following : During Booking, discover the taxi which will be free at the specified time and which will be nearest to his location and allot it.
   Assume all Taxis are at Point A initially.
   Wait for the next set of Inputs once a taxi is allotted

Allotment Criteria :

1. Taxis available on the same location given preference first
2. If more than one taxi present at the same location, preference given to the taxi which earned least during the day
3. Share booking
    a. Max of 3 users can share a taxi and with 40% of existing charges for each booking.
    b. Book the taxi by selecting booking Type as Share.
    c. Share booking is allowed only when the total distance is 45kms or more
    d. Allot the taxi for Share booking with below conditions
        i. The taxi which is already booked with share type booking and going through the current booking destination
        ii. Else book with existing condition (nearest, least earn and minimum distance of 45 kms).
    e. Don't ask for booking type option when it doesn't meet the minimum distance condition (>=45Kms)

Questions :

1. Write a function to handle booking.

2. Write a function that can display the travel history of any given call taxi. Travel history should display details like Customer ID, From , To , PickupTime, DropTime, Booking Type, Amount Charged etc.

Question 1 - Sample data

Input 1

Customer ID: 1
Starting Point : A
Destination Point : D
Time : 9.00 AM
Charges For Normal(1) - 450 Share(2) - 180
BookingType : 1

Output

Booking ID : 1
Allotted Taxi : Taxi1 ----------

Input 2

Customer ID: 2
Starting Point : D
Destination Point : E
Time : 10.00 AM
Charges For Normal(1) - 150
*Don't show share option because it doesn't met minimum distance condition (>=45Kms)

Output

Booking ID : 2
Allotted Taxi : Taxi1

Input 3

Customer ID: 3
Starting Point : B
Destination Point : A
Time : 10.00 AM
Charges For Normal(1) - 150

Output

Booking ID : 3
Allotted Taxi : Taxi3

Input 4
Customer ID: 4
Starting Point : A
Destination Point : D
Time : 11.00 AM
Charges For Normal(1) - 450 Share(2) - 180
Booking Type : 2
Output
Booking ID : 4
Allotted Taxi : Taxi2

Input 5
Customer ID: 5
Starting Point : B
Destination Point : D
Time : 11.15 AM
Charges For Normal(1) - 300 Share(2) - 120
Booking Type : 2
Output
Booking ID : 4
Allotted Taxi : Taxi2

Question 2 - Sample Output :
Travel History of Taxi-1:

Booking Id	StartPoint	EndPoint	Start Time	End Time	Booking Type	Charges
T1_1	A	D	9.00	9.45	1	450
T1_2	D	E	9.45	10.00	1	150

Travel History of Taxi-2

T2_1	A	D	11.00	11.45	2	300
T2_1	D	E	11.15	11.30	2	120