

Ans 3]

Passenger B<sub>4</sub> is added in list with Bronze status (As it is first so No Branching for B<sub>4</sub>)

B<sub>4</sub>

Passenger C<sub>4</sub> is added in list with Bronze status (C<sub>4</sub> has same priority so it will be added to left child of (4))

B<sub>4</sub>  
/   
C<sub>4</sub>

Passenger A<sub>1</sub> is added in list with Gold status (A<sub>1</sub> has top priority so it will become root & B<sub>4</sub> will become left child & C<sub>4</sub> will become right child)

A<sub>1</sub>  
/ \   
B<sub>4</sub> C<sub>4</sub>

Passenger A<sub>3</sub> is added in list with Silver status with Discounted fare. (A<sub>3</sub> has more priority than B<sub>4</sub> & C<sub>4</sub> so it will swap with parent)

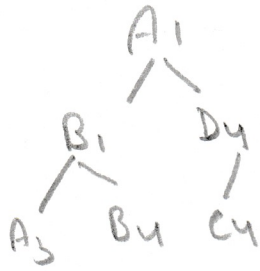
A<sub>1</sub>  
/ \   
A<sub>3</sub> B<sub>4</sub>  
/   
C<sub>4</sub>

Passenger D<sub>4</sub> is added in list with silver status & full fare

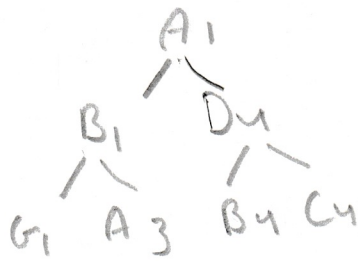
(D<sub>4</sub> has more priority than A<sub>3</sub>, B<sub>4</sub> & C<sub>4</sub> so swap is necessary)

A<sub>1</sub>  
/ \   
D<sub>4</sub> A<sub>3</sub>  
/ \   
B<sub>4</sub> C<sub>4</sub>

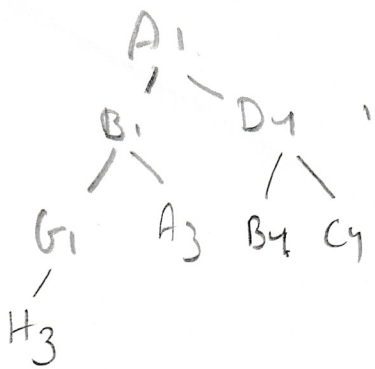
Passenger B<sub>1</sub> is added with gold status & Buddy fare  
 (B<sub>1</sub> has more priority than D<sub>4</sub>, A<sub>3</sub>, B<sub>4</sub> & C<sub>4</sub>  
 But less than A<sub>1</sub>, so swap is necessary)



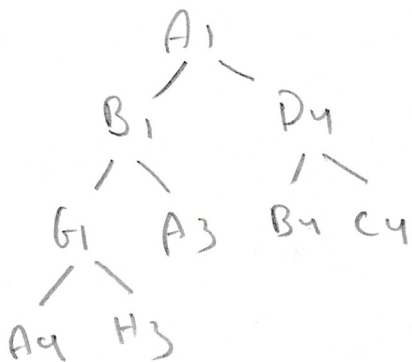
Passenger G<sub>1</sub> is added with silver status & Full fare  
 (G<sub>1</sub> has more priority so swap is necessary)



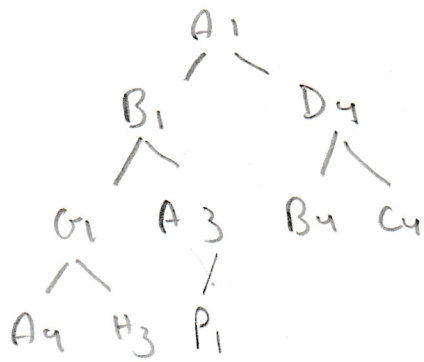
Passenger H<sub>3</sub> is added with Full fare & No status  
 (No swap is necessary as H<sub>3</sub> don't have any priority)



Passenger A<sub>9</sub> is added with Bronze status & Disc Fare  
 (A<sub>9</sub> has little priority over H<sub>3</sub> so swap is necessary)

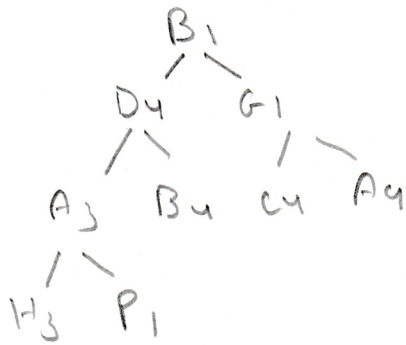


Passenger  $P_1$  is added with Buddy Fare A No status  
 ( $P_1$  has no priority, so no swap necessary).

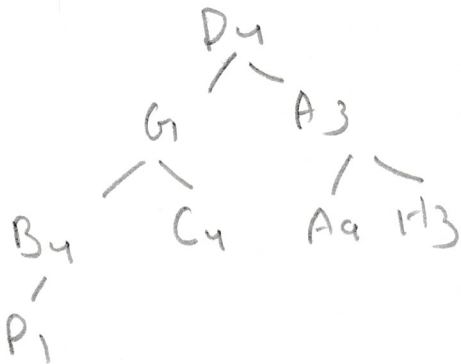


Now removing passengers as they are seated

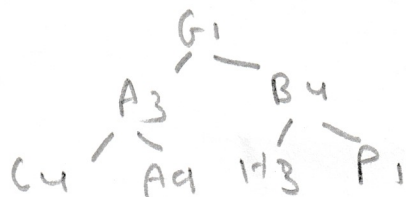
Pax 1 seated:  $\therefore A_1$  gets removed (In removing we will swap the last element of heap by the root. Then will heapify down by swapping the root with the smallest child until heap property is restored.)



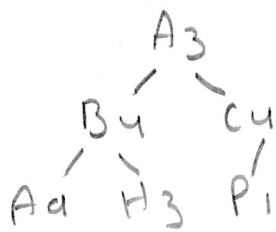
Pax 2 seated:  $\therefore B_1$  gets removed



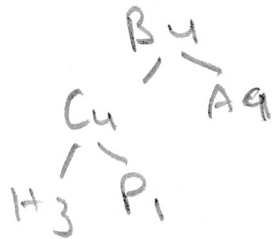
Pax 3 seated:  $\therefore D_4$  gets removed



Pax 4 seated : G1 gets removed.



Pax 5 seated : A3 gets removed.



Now adding 5 more Pax

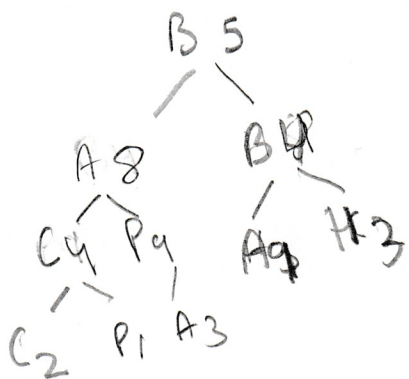
Pax A8 with Silver status Full pers.

Pax A3 with No status & Disc pers

Pax B5 with Gold status & full pers.

Pax C2 with No status & full pers.

Pax P9 with Bronze status & full pers.



Now removing all one by one will give empty list.